

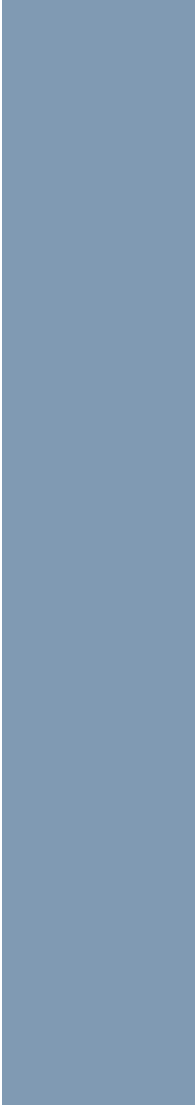
UNIVERGE SV9500

FP95-112 V2

DT820 Information Compendium



INTRODUCTION



Overview of This Document

This document is compiled with the DT820 related information from the following SV9500 manuals.

The table below shows the manuals contained in this document and information about DT820 explained in each manual.

Manual			Information Described in the Manual	Page
Manual Name	Chapter	Section/Command		
System Description	Chapter 2	Terms in Manuals	Terminal lineup of DT820	1
Data Programming Manual - Business	Chapter 2	ASSIGNMENT OF BASIC OFFICE DATA	Description of LCD indication and service conditions for DT820	9
	Chapter 3	Call History [C-195]	Description of service conditions for DT820	27
		DESI-Less Terminal [D-169]	Description of DT820 8-button type (DE-SI-LESS)	33
		Phonebook [P-83]	Description of service conditions for DT820	36
Command Manual	Chapter 2	ADKS	Description of DT820 for Key Number Appearance	48
		AKYD/AKYD_T	Key data information for DT820	50
Peripheral Equipment Description (Multi-Line Telephone)	Chapter 3	IP STATION	Description of IP terminal (DT820)	58
	APPENDIX B	Power Consumption for DT800/DT700 Series Terminals	Power consumption for DT820	APP-1



System Description



CHAPTER 2

VARIOUS INFORMATION FOR SV9500

1.1. Terminal Name

In this manual, the following terminals are mentioned as each common term unless these types need to be identified.

GENERIC TERMS USED IN THIS MANUAL				TERMINAL NAMES	
Desktop terminal	Digital terminal			Dterm	Dterm Series <i>i</i>
				DT300 Series	DT310
					DT330
				DT400 Series	DT410
					DT430
	IP station	IP terminal	IP Enabled Dterm		Dterm Series <i>i</i> with IP adapter Note 1
			DtermIP INASET Note 1		
			DtermIP	DtermIP (Proprietary Protocol)	
		Softphone	Softphone (Proprietary Protocol)	DtermSP30	DtermSP30 (Proprietary Protocol)
					DtermSP30 (SIP)
			Soft Client SP350		
			SIP Multiple Line terminal	DtermIP	DtermIP (SIP)
				DT700 Series	DT710
					DT730
					DT730G
					DT750
					DT770G
DT800 Series	DT830				
	DT830G				
	DT820				
Standard SIP terminal Note 2			Third-party SIP terminal		
Wireless terminal			WLAN Handset (MH Series)		MH250
			PS	PHS	
				PCS	

Note 1: This terminal provides users with all features currently available on DtermIP (Proprietary Protocol).

Note 2: SIP Handler can also control Standard SIP Video terminals and Standard SIP Voice terminals which are controlled by SP. Standard SIP terminals require connection tests of NEC. When service conditions of Standard SIP terminals vary depending on controlling device, Standard SIP terminals are mentioned as shown below.

GENERIC TERMS USED IN THIS MANUAL	CONTROLLING DEVICE	TERMINAL NAMES	
Standard SIP terminal	SP	SP Controlled SIP terminal	SP Controlled SIP Voice terminal
			SP Controlled SIP Video terminal
	SIP Handler	SIP Handler Controlled SIP terminal	SIP Handler Controlled SIP Voice terminal
			SIP Handler Controlled SIP Video terminal

2. New/Migration List for Peripheral Equipment

2.1. SV9500 Appliance Model

The list below shows whether each peripheral equipment or circuit card can be used newly on SV9500 Appliance Model, and whether they can be migrated to SV9500 from an existing system.

[2.1.1. Peripheral Equipment](#)

[3.1.2. Circuit Card](#)

Note: This section is exclusively for SV9500 Appliance Model.

Note: [Consideration on peripheral equipment and circuit cards that can be migrated to SV9500 Appliance Model]
The following list contains circuit cards and peripheral equipment from the Circuit Card Description or the Peripheral Equipment Description manuals only if they can be used on this system. The devices that are described in the manuals for former system types are not listed in this table.
Some of the circuit cards or peripheral equipment listed in the following tables might already be discontinued due to product changeover. Therefore, you might have to update the firmware to the newest version when migrating any devices in the tables below. Refer to product sales information for availability on migration and product preparation.

2.1.1. Peripheral Equipment

X: Available, N: Not Available, -:Not Applicable

Product Name	New	Migration	Note
Cell Station (CS) [BS41]	N	X	
Zone Transceiver (ZT)	N	X	
Analog 2MC (Analog Media Converter)	X	X	
8LC Card [SCA-8LCA/SCA-8LCA-EMEA/SCA-8LCC/SCA-8LCC-EMEA]	N	X	Note 1
MCMG [SCA-4LC2COTA/MG-4LC2COTA]	N	X	Note 1
MG-COT Card [SCA-6COTA/SCA-6COTC]	N	X	Note 1
MG-COT Card [SCA-6COTB]	N	X	Note 1
MG(BRI) [SCA-2BRIA/MG-2BRIA]	N	X	Note 1
MG(BRI) [SCA-2BRIA-B]	X	-	
MG(PRI) (1.5M) [SCA-24PRIA/MG-24PRIA]	N	X	Note 1
MG(PRI) (2M) [SCA-30PRIA/MG-30PRIA]	N	X	Note 1
MG-T1(SIP) [SCA-24DTIA]	N	X	Note 1
MG-T1(SIP) [SCA-24DTIA-B]	X	-	

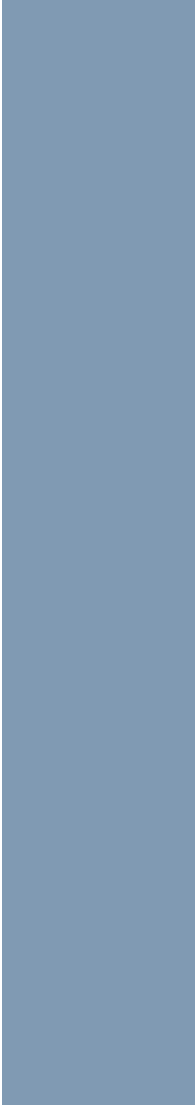
Product Name	New	Migration	Note
Software-based MG-SIP	X	-	Software-based MG-SIP installed in SV9500 Prepackage Server Model can be registered to SV9500 Appliance Model Server.
MG-SIP128 [MG-128SIPMGG]	N	X	
MG-SIP128 [MG-128SIPMGJ]	N	X	
MG-SIP128 [MG-128SIPMGG-B]	X	-	
MG-SIP128 [MG-128SIPMGJ-B]	X	-	
MG-SIP96	N	X	
MG-SIP16	N	X	
MG-SIP16 [SCA-16SIPMGA/MG-16SIPMGA]	N	X	Note 1
MG-SIP16 [SCA-16SIPMG(US)]	N	X	Note 1
MG-SIP16 [SCA-16SIPMG(US)-B]	X	-	
VS-32(Dual) [SCA-VS32VA/MG-VS32VA]	N	X	Note 1
VS-32(Dual) [SCA-VS32VA-B]	X	-	
1U-MPC [SN8104 MGCEJ-A]	N	X	
1U-MPC [SN8104 MGCEJ-B]	X	-	
SR-MGC(E) [SN8178 MGCEV-A]	N	X	
SR-MGC(E) [SN8178 MGCEV-B]	X	-	
Dterm Series i	N	X	
Dterm Series i with IP adapter	N	X	
DtermIP INASET	N	X	
DtermIP (Proprietary Protocol)	N	X	
DtermIP (SIP)	N	X	
DtermIP with 6 LD LC Add-on Module (16LD ADM)	N	X	
DtermSP30 (Proprietary Protocol)	N	X	
DtermSP30 (SIP)	N	X	
Soft Client SP350	X	X	
DT310	X	X	
DT330	X	X	
DT710	X	X	
DT730	X	X	
DT730G	X	X	
DT750	X	X	
DT770G	X	X	
MH250	N	X	
DT410	X	-	
DT430	X	-	
DT830	X	-	

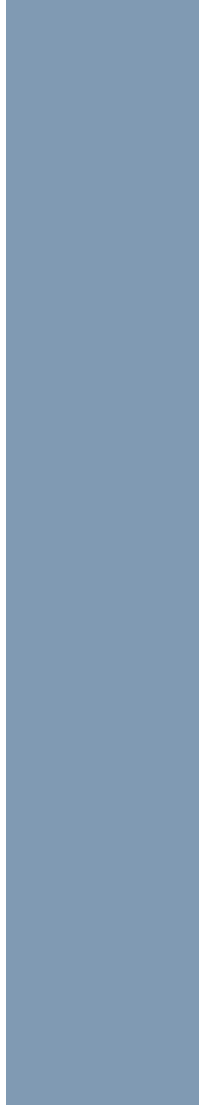
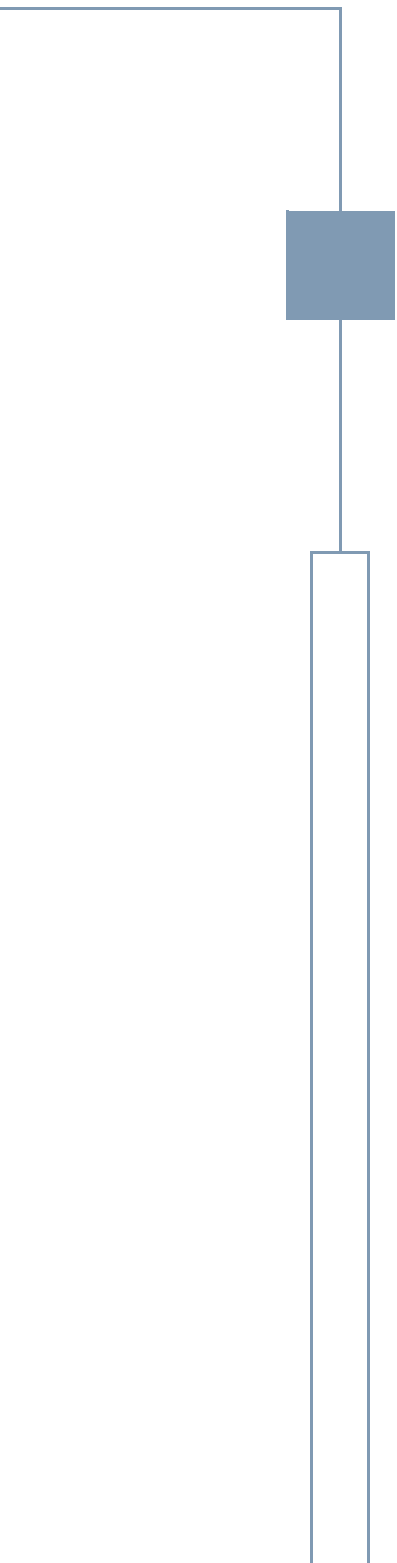
Product Name	New	Migration	Note
DT830G	X	-	
DT820	X	-	
PHS	N	X	
PCS	N	X	
Standard SIP terminal	X	X	Standard SIP terminals require connection tests of NEC.
Standard SIP Video Terminal	X	X	Standard SIP Video terminals require connection tests of NEC.
Analog Station	X	X	
Desk Console	X	X	
Headset (Wideband SupraPlus NC Polaris)	X	X	
Headset (SUPRA F53U-U03F)	N	X	
Handset (left side of a Desk Console)	X	X	
Handset (right side of a Desk Console)	X	X	
Add-On Console (right side of a Desk Console)	X	X	
Add-On Console (left side of a Desk Console)	X	X	
AC-DC Adapter To An Add-on Console	X	X	
DSS Console	X	X	
Trunk Answer from Any Station (TAS) Indicator	N	X	
Announcement Machine	X	X	
Paging Equipment	X	X	
Alarm Indicating Panel and External Music-On-Hold	X	X	
Alarm Display Panel (SV8500 DSPP)	N	X	
Alarm Display Panel (SV9500 DSPP)	X	X	
External Switch (External Key Box)	X	X	
IPG Digital	N	X	
IPG Analog	N	X	
SN1757 BBUB	X	X	
UG50 (DLC)	X	X	
UG50 (LC) [Proprietary Protocol/SIP]	X	X	
UG50 (PRT 1.5M) [Proprietary Protocol/SIP]	X	X	
UG50 (PRT 2M) [Proprietary Protocol/SIP]	X	X	
UG50 (COT-TYPE1)	X	X	
UG50 (COT-TYPE2) [Proprietary Protocol/SIP]	X	X	
UG50-IPG (Digital)	X	X	
UG50-IPG (Analog)	X	X	
UG50-8LC	X	X	
UG50-2MC	X	X	
UG50-24PRIA [Proprietary Protocol/SIP]	X	X	

Product Name	New	Migration	Note
UG50-30PRIA [Proprietary Protocol/SIP]	X	X	
UG50-4LC2COTA	X	X	
UG50-6COT [Proprietary Protocol/SIP]	X	X	



Data Programming Manual - Business





CHAPTER 2

ASSIGNMENT OF BASIC OFFICE DATA

1. Desktop Terminal Data

This section explains the following data related to the Desktop terminal stations:

- Multiple Line
- Assignment of Desktop terminal station data
- Display (LCD) Indications
- Line Pickup Preference
- Restriction of Call Termination on My Line
- Soft Key assignment
- Expanded Ringer Patterns for Dterm Series *i*

Note: For DT830/DT700 Series, only the call termination on My line enables illumination and displaying phonebook for incoming call. Information, such as number and internal/external call, is managed by each terminal according to notifications from the system.

1.1 Multiple Lines

A Desktop terminal is capable of registering two or more lines (My Line, Sub Lines) on the programmable Line/Feature Keys. These lines (details are shown below) are generically called “Multiple Lines”.

a.) My Line

Refers to the actual line that is directly associated with the extension number of a specific Station (Desktop terminal). This line is connected to the Station’s physically accommodated port of ELC (at the system side), and the Station can make/answer a call only via this line, even though such events are available by using other Sub Lines.

b.) Prime Line

Refers to the line that is seized automatically only by lifting the handset or pressing the Speaker Key. Normally, the same number as My Line is assigned for Prime Line. (See Prime Line Pickup -D [P-13D] of Chapter 3 for more information.)

c.) Sub Line

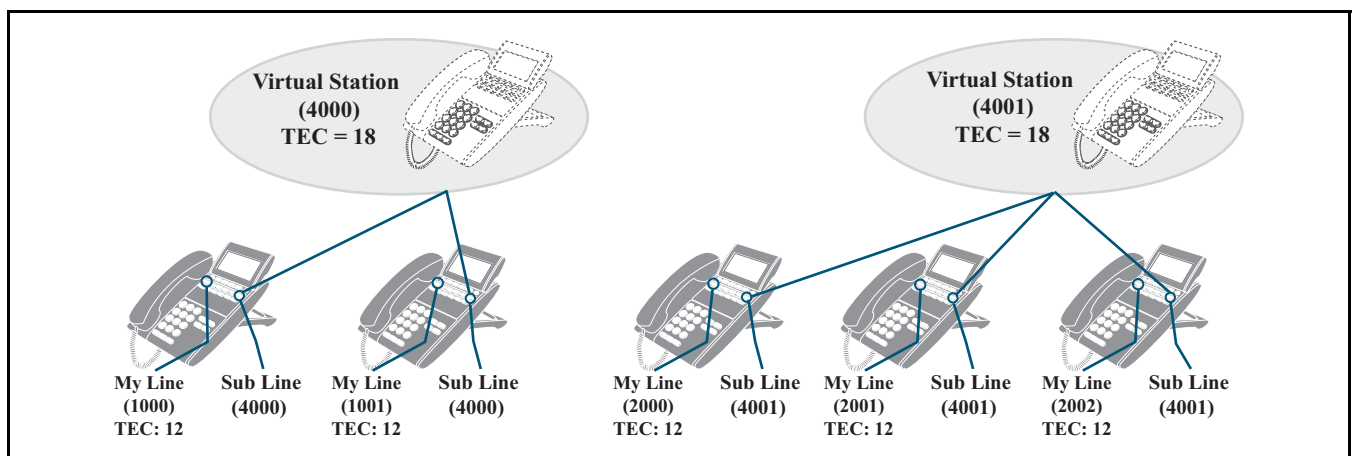
Refers generically to the lines, other than My Line, that are accommodated on programmable Line/Feature Keys. The “Sub Line” can consist of other Desktop terminal’s My Line, the Station Number of Single Line Telephone, and also Software (Virtual) Line that may be assigned on a physically non-existent port of Group No. 24 - 31. **Note 1**

Usually, every Sub Line uses Software Line, and the line can be assigned on a group of Desktop terminals as a common Sub Line, as shown in the following figure.

d.) Software Line

Refers to the line that is logically registered on the memory, by using the physically non-existent Group No. 24 - 31. While the Group Numbers 00 - 23 are assigned physically to the universal Slots of a PIR, the Group Numbers 24 - 31 for the Software Line are programmed/managed on the memory. **Note 1** Thus, the theoretically assigned number for a Software Line can be used as a virtual Station Number (having no actual telephone set to its end), and a call to that number can be answered by any Desktop terminal that is registering the line. For more information, refer to Software Line Appearance [S-33] of Chapter 3.

Note 1: Group Number is one of the elements specifying the accommodated location of a line - generally referred to as Line Equipment Numbers (LENS). A LENS is configured by a six-digit number (two-digit Module Group Number, one-digit Unit number, two-digit Group Number and one-digit Level Number). For more information, refer to the Operations and Maintenance Manual.



1.2 Assignment of Desktop Terminal Station Data

To use the Desktop terminal stations, the following must be assigned, in addition to the data explained in [4. Station Data](#).

Programming

< Necessary (minimum) data for Desktop terminals, in addition to the basic station data ([4. Station Data](#)) >

STEP 1: **ASYD** -System Data 1, Index 78

Assign the following data for LCD display.

Bit 0: Assign “1” (fixed)...Calling and Intermediate Station Numbers are indicated.

Bit 1: Assign “1” (fixed)...Kind of Service Class is indicated.

System Data 1, Index 321

Assign the Multiple Line Operation data.

Bit 0: Assign “1” to enable the Inter-Module/Inter-IMG Multiple Line Operation

Note: For details on Multiple Line Operation, refer to the Multiple Line Operation-D [M-20D] and Expanded Multiple Line Operation-D [E-26] of CHAPTER 3.

System Data 1, Index 390

Assign the following data for Caller ID display.

Bit 2: Assign “1” to enable the Caller ID display on the bottom line of Desktop terminal LCD

System Data 2, Index 12

Assign Automatic Recall Ringer data for Non-Exclusive/Exclusive Hold

Bit 0: 0/1 = Automatic Recall Ringer is required/not required for Non-Exclusive Hold

(Non-Exclusive Hold: When a call is held, the held call can be retrieved by other Stations)

Bit 1: 0/1 = Automatic Recall Ringer is required/not required for Exclusive Hold

(Exclusive Hold: When a call is held, the held call cannot be retrieved by other Stations)

STEP 2: **ASYDL**- System Data 1, Index 672, Bit 1

Flag this bit when using Desktop terminal. If not, assign “0”.

STEP 3: **ASDT** - Assign Telephone Equipment Class (TEC) for Desktop terminal designation.

TEC: 12=Desktop terminal (voice)/13=Connection to Data Terminal via Desktop terminal (using adapter)

TEC: 18=Software (Virtual) Line (for configuring Multiple Lines)

STEP 4: **AKYD** - Assign My Line, other Multiple Line or desired function to each Line/Feature Key. When no modification is necessary in regard to the following default data, the related key assignment is not required.

Default Data for Line/Feature Keys

KEY NO.	DEFAULT DATA	KEY NO.	DEFAULT DATA
1	CALL PICKUP	9	PRIME LINE
2	CALL FORWARDING - BUSY LINE	10	SPEED CALLING ONE - TOUCH
3	CALL FORWARDING - ALL CALLS	11	SPEED CALLING ONE - TOUCH
4	EXECUTIVE RIGHT OF WAY	12	SPEED CALLING ONE - TOUCH
5	VOICE CALL	13	SPEED CALLING ONE - TOUCH
6	MESSAGE REMINDER	14	SPEED CALLING ONE - TOUCH

KEY NO.	DEFAULT DATA	KEY NO.	DEFAULT DATA
7	SAVE AND REPEAT	15	SPEED CALLING ONE - TOUCH
8	LAST NUMBER CALL	16	SPEED CALLING - SYSTEM

Note: KYN 13-16 do not exist for DT800 Series: DT830 (12-button type)/DT830G (12-button type (12DG/12CG)/DT700 Series: DT730 (12-button type)/DT730G (12-button type (12DG/12CG)/DT400 Series: DT430 (12-button type) and DT300 Series: DT330 (12-button type).

Note: Assignment of key data is required for Desktop terminal with 8 keys or less.

When the Desktop terminal is used for a Data Terminal, the following must be assigned.

- FKY = 29 (DATA)
- FKY = 30 (Manual/Auto changeover)
- FKY = 31 (Data transfer)

When using Speed Calling - One Touch with SPD setting key, the following data assignment is required.

KYN: Key number
 KYI=1 (function key)
 FKY=199 (SPD setting)

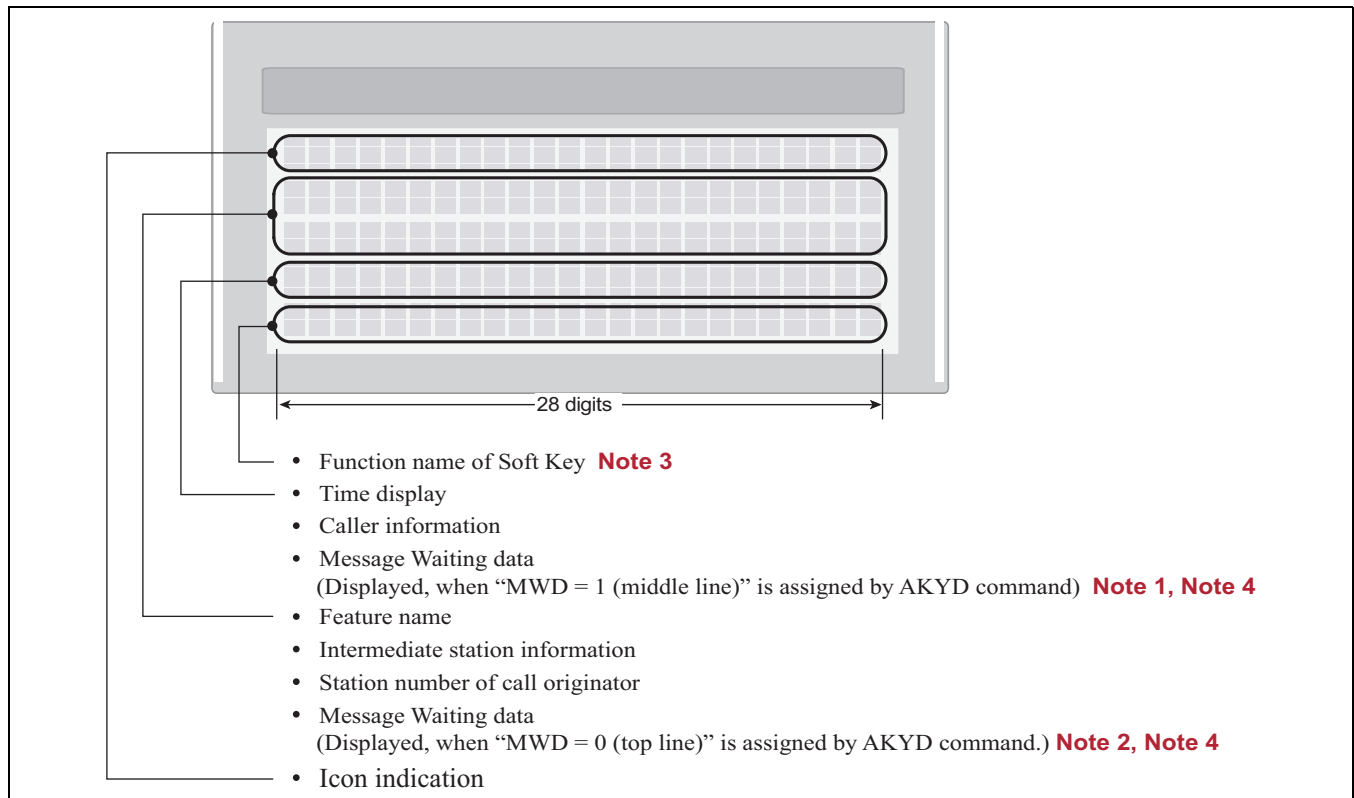
STEP 5: **ADSL** - Assign the following data to a Soft Key when using a Soft Key as a Speed Calling - One Touch with SPD setting key.

SN=0 (idle)
 FKY=199 (SPD setting)

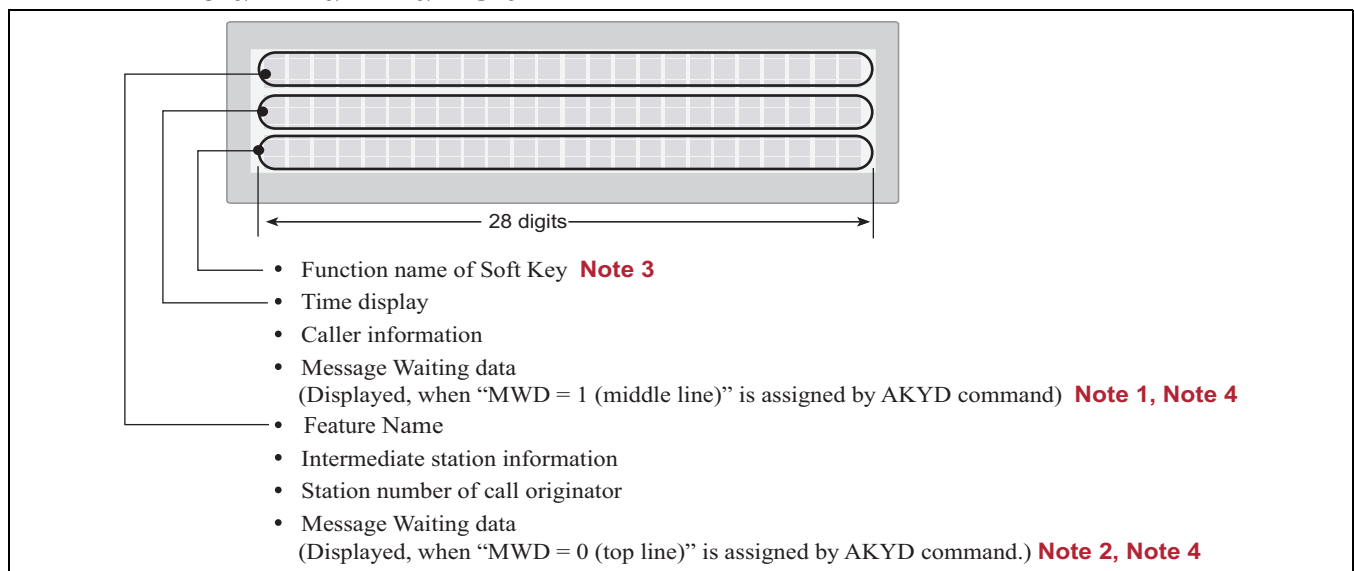
1.3 Display (LCD) Indications

The following shows the patterns of the Liquid Crystal Display (LCD) Indications on DT800 Series/DT700 Series/DT400 Series/DT300 Series, and DtermIP and Dterm Series *i*.

- DT830/DT730DT430/DT330

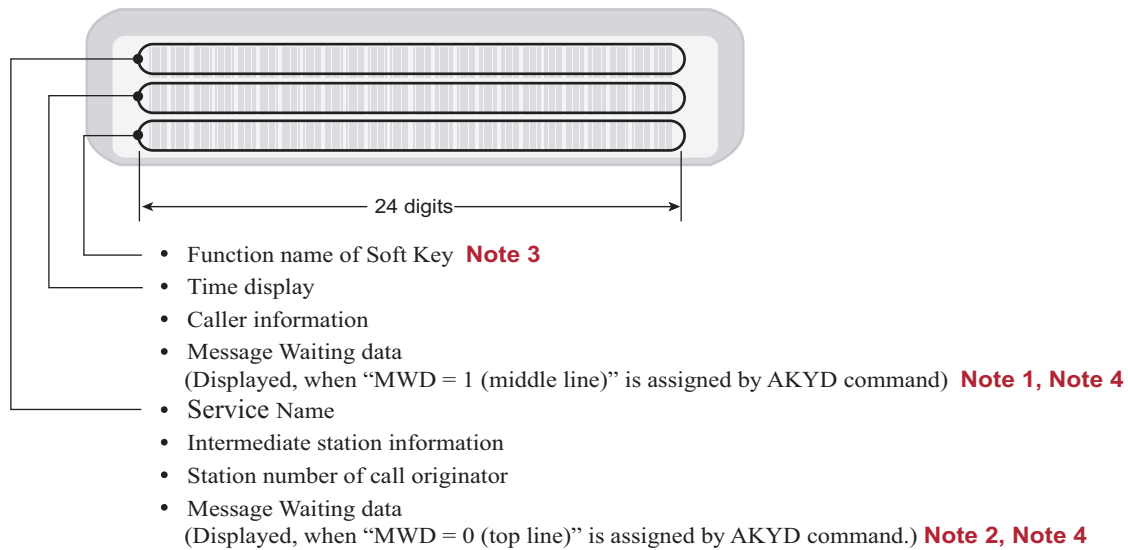


- DT820/DT710/DT410/DT310



Note: For DT800 Series/DT700 Series/DT400 Series/DT300 Series, time display pattern can be changed by system data assignment. For details, see “Time Display [T-18D]”.

• DtermIP/Dterm Series *i*



Note 1: When Message Waiting is OFF, date and time are displayed. When Message Waiting is ON, the related Message Waiting information is displayed. When OAI service is set, the OAI feature information is displayed in stead of Message Waiting information. (Message Waiting information and OAI information cannot be displayed at the same time.)

Note 2: When display of Message Waiting data and service name coincides, service name data is displayed. Then, after service data disappears, Message Waiting data is displayed.

Note 3: For details on programming of Software Key data, refer to [1.6 Soft Key Assignment](#).

Note 4: Whether to display the Message Waiting data on top line or bottom line can be specified by the “MWD” parameter of AKYD.

Programming

STEP 1: AKYD - Select the line to display MW data
MWD:Message Waiting Data Display Selection [0/1]

- 0 = MW data display on the top line
- 1 = MW data display on the bottom line

STEP 2: ASYD -When you assign the service function to Desktop terminal, the assigned function name of Soft Key is displayed at the beginning of Soft Key display area. If you do not want to display the function name, assign the following System Data.

System Data 1, Index 390, Bit 3-4

Assign the display of Soft Key when the station is in an Idle status or is in Dial Tone connection.

b4 b3

- 0 0 : Blink
- 0 1 : Steady-lights
- 1 0 : Displays the assigned code on first column **Note 5**
- 1 1 : No indication

Note 5: Displays the code assigned by System Data 1, Index 391.

1.4 Line Pickup Preference

Assign line pickup preference for the Speaker, Answer and Originate Keys, by using the AKYD command.

Programming

AKYD - For each Desktop terminal, specify the line pickup preference when the Speaker, Answer, or Originate Key is pressed:
LN PRE: 0 = The following standard values are used:

BUTTON	LINE PREFERENCE
SPEAKER Button	Prime Line Preference
ANSWER Button	Incoming Line Preference (Button Location Ascending Order)
ORIGINATING Button	Idle Line Preference (Button Location Ascending Order)

1 = Line pickup preference is to be customized. Proceed with the SPK, ANS and ORG parameters below.

Note: After changing data for LN PRE parameter, ELC card initialization is required.

SPK: Assign the line pickup preference when the Speaker Key is pressed. **Note 1**

- 0 = Prime Line preference
- 1 = Idle Line preference
- 2 = Incoming Line preference
- 3 = Ringing Line preference

ANS: Assign the line pickup preference when the Answer Key is pressed. **Note 1**

- 0 = Prime Line preference
- 1 = Incoming Line preference
- 2 = Ringing Line preference

ORG: Assign the line pickup preference when the Originate Key is pressed. **Note 1**

- 0 = Prime Line preference
- 1 = Idle Line preference
- 2 = Prime Line, Idle Line (ascending order)

FKY: 27 (Originate [ORG])

28 (Answer [ANS])

52 (Speaker [SPKR])

Note 1: These parameters appear when “LN PRE” is set as “1”. Each preference stands for:

- **Prime Line preference:** Prime Line is picked up when the corresponding key is pressed.
- **Idle Line preference:** Idle line is picked up when the corresponding key is pressed.
- **Incoming line preference:** Regardless of the ringing sound, the currently Incoming Call is picked up, when the corresponding key is pressed.
- **Ringing Line preference:** The line with the ringing sound is picked up when the corresponding key is pressed. (The line with no ringing sound is not picked up.)

1.5 Restriction of Call Termination on My Line

A Desktop terminal can deny any Incoming Call to its My Line, when a call is made/received via one of its Sub Lines.

<Conditions>

1. Restricts a call to My Line only. (A call to Sub Line is not restricted.)
2. Available when the caller is a Station, TIE Line, Central Office Line or Attendant Console.
3. Available for a call as the destination of Call Forwarding - All Calls.
4. When the Original Call on the Sub Line is placed on hold:
 - a.) If the terminal is off-hook after placing the call to Sub Line on hold, a call to My Line is restricted.
 - b.) If the terminal goes on-hook while the call to Sub Line is still on hold, a call to My Line is not restricted.

Programming

ASYD - System Data 1, Index 321, Bit 2 = 1 to allow this feature.

1.6 Soft Key Assignment

In addition to the programmable Line/Feature Key, DT800 Series, DT700 Series, DtermIP, DT400 Series, DT300 Series, Dterm Series *i* can use four Soft keys. Each key works variably according to the current state of station. For example, a Soft key provides a function of VOICE (Voice Call) when hearing Ringback Tone (after dialing the Called Station Number), etc.

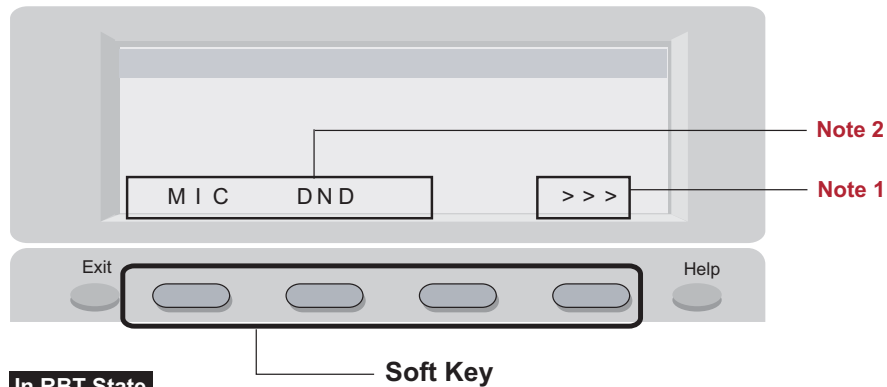
Note: For adding a new node to the system in which the soft key data is already assigned by the ADSLN command (*1), SKP (soft key pattern) and SN (status number) must be re-assigned by the ADSLN command. (To reassign them, press [Get], [Del] and then [Set] buttons in that order.)

(*1) It corresponds to the following situations:

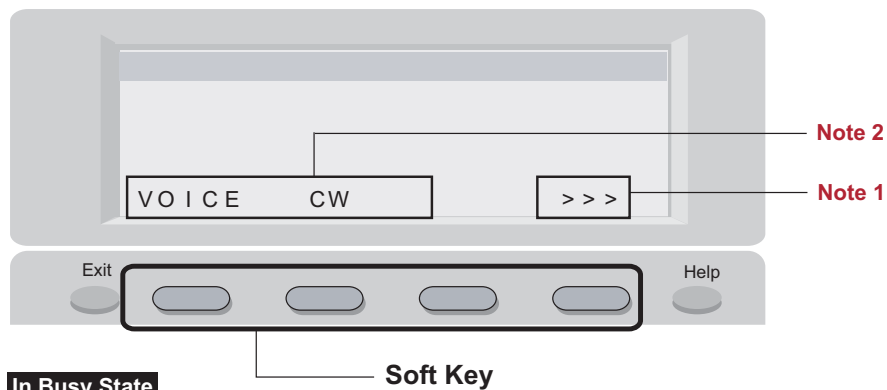
- a new node is added to the existing standalone system and that system is upgraded to FCCS system.
- a new node is added to the existing FCCS system.

An example of using Soft keys is shown below:

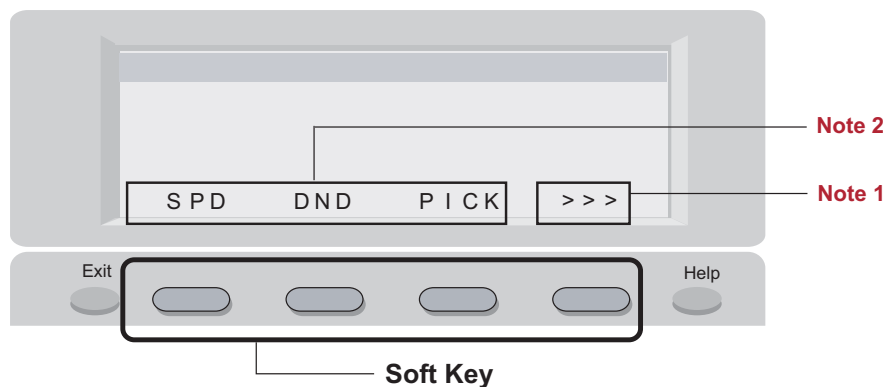
In Idle State



In RBT State



In Busy State



Note 1: ">>>" key is used to go to the next page. (Soft key data can be programmed across four pages to be turned over manually).

Note 2: For DT830G/DT830, eight digits characters with a frame are displayed on LCD in default settings. When you assign the system data (ASYDL/ASYDN, System Data 1, Index 1258, Bit 2=1), six digits characters without a frame will be displayed. For other terminals other than DT830G/DT830, the soft key indication characters are displayed as six digits without a frame. For details, see Command Manual.

Programming

The Soft key data can be assigned by taking the following procedure:

Note: The data assignment of ADSLN must be all deleted before assigning ADSL. If the data of ADSLN is assigned, an "Input error" might be caused.

STEP 1: **ASYDL** - Assign Telephone Number Display Pattern

System Data 1, Index 513 = 01 (LDM)

System Data 1, Index 672, Bit 0

0 = Telephone Number is displayed on the top line of LCD

1 = Telephone Number is displayed on the middle line of LCD

System Data 1, Index 1248, Bit 5 (Setting of Soft key frame display on the LCD of DT830G/DT830)

Note 2, Note 3

0 = Displays a soft key with a frame.

1:38 PM Sun 14 SEP 2014			
MIC			>>>

1 = Displays the soft key indication area with a frame.

1:38 PM Sun 14 SEP 2014			
MIC			>>>

Note 2: Available for FP95-112 V2 or later.

Note 3: The changes made to the system data above will take effect after about 30 seconds.

System Data 1, Index 1258, Bit 2 (Display the Soft key on the LCD as eight characters with a frame)

Note 4, Note 5

0 = Enable

1 = Disable

Note 4: For DT830G/DT830 only. When the data is changed by AFDD command, LCD displays the Soft key as six characters without a frame.

Note 5: For the language settings except for Japanese, NEC English, or Extension Languages, LCD displays the Soft key as six characters without a frame.

STEP 2: **AFDD** - Assign the characters to be displayed on the LCD, corresponding to each Soft Key function. For each function, default data can be used for each display, therefore use this command only when customizing the display characters.

FKY: Specify the service function by using the corresponding Function Key Code (1 - 320). (For details on Function Key Code allocation, refer to the Command Manual)

DISP: Assign the desired characters (a maximum of six letters or numbers) for the service specified by FKY above.

STEP 3: **ADSL** - Assign the Soft Key Pattern tables that determine each case of indication on the LCD bottom line (dedicated Soft Key display area). The function of each Soft Key is variable, according to the state of the Desktop terminal (idle or originating, busy, in speech, etc.). Therefore, taking this into

consideration, create the desired number of tables for Soft Key Pattern. **Note 6**

SKP: Assign the Soft Key Pattern number (a maximum of 16 patterns [0 - 15] are assignable).

Note that SKP 0 is reserved for the Key Pattern to be commonly used on a system basis. For details on SKP 0 allocation, refer to Command Manual.

SN: Assign each Status Number for "SKP".

- 0 = Idle
- 1 = Originating (Dial Tone Connection)
- 2 = Originating (Ringback Tone Connection)
- 3 = Called Station Busy (Busy Tone Connection)
- 4 = Communication in progress
- 5 = Consultation Hold
- 6 = Trunk Busy (Busy Tone Connection)
- 8 = Consultation Hold when Called Station is busy
- 9 = While in Three-party Conference
- 15 = Others

SKN: Enter Soft Key Number (0 - 15 **Note 7**)

FKY: Assign the service function for each SKN by using the Function Key Code. (For details on Function Key Code allocation, refer to the Command Manual)

Note 6: ADSL and ADSLN cannot be assigned at the same time. When both ADSL and ADSLN are assigned, a disagreement might be caused.

Note 7: A set of four Soft Keys can be developed over four pages. Soft Key Number 0/4/8/12 is for the first key, 1/5/9/13 for second key, 2/6/10/14 for third key, and 3/7/11/15 for fourth key.

STEP 4: **DISP** - Display Message on LCD

The soft key indication is displayed when DISP has been assigned by the AFDD command.

Note: The soft key indication characters are displayed as six digits when using AFDD command.

Note: When the soft key indication is assigned by AFDD command, the data assignment of AFDD command has priority.

STEP 5: **ADKS** - Register each SKP (Soft Key Pattern) data to the desired Desktop terminal(s).

TN: Assign the Tenant Number of the Desktop terminal

STN: Assign the Station Number of the Desktop terminal

SKP: Specify the desired Soft Key Pattern, referring to SKP of ADSL.

LKP: Assign the Key Pattern of the Desktop terminal.

- 1 = 16 Line/Feature Buttons + 16 DSS Keys
- 2 = 24 Line/Feature Buttons + 8 DSS Keys
- 3 = 32 Line/Feature Buttons

PG: Specify the page scroll key allocation

- 0 = Page scroll key on the fourth Soft Key
- 1 = Page scroll key on any Line/Feature Key

STEP 6: **AKYD** - Assign "Soft Key Assignment" Key to Line/Feature Key. **Note 8**

KYN: Key Number [1-40]

KYI:1 = Feature Key

FKY:122 = Soft Key Assignment

Note 8: This data assignment enables the Desktop terminal users to change the Soft Key data assignment.

1.7 Expanded Ringer Pattern for Digital Terminal

The variety of ringer pattern for Digital terminals has been expanded from four to ten. The ringer pattern changes and rotates by pressing the Feature + 3 key. The rotation pattern of the ringer pattern is as follows.

TONE NUMBER	TONE KIND	1st/2nd FREQUENCY
Tone 1	16 Hz Modulation	520/660 Hz
Tone 2	8 Hz Modulation	520/660 Hz
Tone 3	16 Hz Modulation	1100/1400 Hz
Tone 4	16 Hz Modulation	660/760 Hz
Tone 5	Musical scale ringing of door bell	here
Tone 6	Musical scale ringing 1	-
Tone 7	Musical scale ringing 2	-
Tone 8	Musical scale ringing 3	-
Tone 9	Musical scale ringing 4	-
Tone 10	Musical scale ringing 5	-

Note: Tones shown in this list can be specified by pressing the Feature + 3.

Note: This feature is available with DT400/DT300 Series.

1.7.1 To change the ringer pattern for SIP Multiple Line terminal

- To change the ringer pattern for DtermIP (SIP), refer to “Ring Settings” in Peripheral Equipment Description (Multi-Line Telephone).
- To change the ringer pattern for DT800/DT700 Series, refer to “Ring Tone” Peripheral Equipment Description (Multi-Line Telephone).

1.8 Headset Data

Headset can be used by pressing the Headset/Handset Key programmed to the Desktop terminal.

To set Headset/Handset Key to the Soft Key, all of the data for Status Number (SN=0-15) need to be assigned by ADSL command.

Programming

STEP 1: **AKYD** - Assign FKY=125 (Headset/Handset Key) to a Feature Key.

STEP 2: **ADSL** - To assign the Headset/Handset Key to a Soft Key, assign the following data.

SN=0-15

FKY=125 (Headset/Handset Key)

1.9 Terminal Operations with Feature and Digit Keys for Digital Terminals

Following shows the functions of digital terminals by the operation with Feature and Digit Keys. For the operations of SIP Multiple Line terminals, refer to “SIP Multiple Line Operation [S-160]” in Chapter 3.

Digit Key	Function
0	Sidetone ON ⇔ OFF
1	Microphone ON ⇔ OFF
2	Handset receiving volume setting
3	Ringing Tone setting
4	Sending/Receiving volume control
5	Hands-Free ON Note 1
6	Hands-Free OFF
7	Call Indicator Lamp ON ⇔ OFF
8	Dynamic Dial Pad/Preset Dial ON ⇔ OFF Note 2, Note 3

Note 1: To operate Hands-Free call, be sure to set the microphone as “ON” pressing Feature Key + Digit Key “1”.

Note 2: Dynamic Dial Pad and Preset Dial ON cannot be activated simultaneously.

Note 3: For using this function, system data assignment is required. For the details, refer to “Selective Dialing [S-162]” in Chapter 3.

1.10 Call History Data Clear

For DT800/DT700 Series, the call history data can be deleted with the following operations.

- Resetting the terminal with the DISD command
- Logging out of the terminal using the LOGOUT key

Note: For DT400 Series/DT300 Series, this feature is not available. To delete the call history data of DT400 Series/DT300 Series, insert and extract the Modular Cable, or clear the call history data from the [History] menu.

- When you delete the call history data by resetting the terminal, the method of terminal reset depends on the PH Fixed Hunting method (ASYDL, SYS 1, Index 824, Bit 0).
 - When PH Fixed Hunting method is invalid (ASYDL, SYS 1, Index 824, Bit 0=0)

Available: × Not available: N

	When Call History Data Clear is enabled (ASYDL/ASYDN, SYS1, INDEX 1248, Bit 6=1)		When Call History Data Clear is disabled (ASYDL/ASYDN, SYS1, INDEX 1248, Bit 6=0)
The method of terminal reset	Terminal reset by DISD command/Terminal reset with LOGOUT key	Other methods of terminal reset	All methods of terminal reset
Terminal Call History (outgoing call history/incoming call history)	×	N Note 1	N Note 1
Call History	×	×	×
Last Number Called	×	×	×
Redial	×	×	×

- When PH Fixed Hunting method is valid (ASYDL, SYS 1, Index 824, Bit 0=1)

Available: × Not available: N

	When Call History Data Clear is enabled (ASYDL/ASYDN, SYS1, INDEX 1248, Bit 6=1)			When Call History Data Clear is disabled (ASYDL/ASYDN, SYS1, INDEX 1248, Bit 6=0)	
The methods of terminal reset	PH information clear and terminal reset by DISD command/ Terminal reset with LOGOUT key	Terminal reset by DISD command	Other methods of terminal reset	PH information clear and terminal reset by DISD command	Other methods of terminal reset
Terminal Call History (outgoing call history/ incoming call history)	×	×	N Note 1	N	N Note 1
Call History	×	N	N	×	N
Last Number Called	×	N	N	×	N
Redial	×	N	N	×	N

Note 1: When you turn off the power of the terminal or make the configuration setting, the terminal call history will be deleted.

- The call history data cannot be deleted by system initialization or terminal reset by AKYD command.
- When this feature is available in the FCCS cluster network, the terminal call history data will be deleted when:
 - the terminal is reset with the CBKS command.
 - the terminal is brought back under the control of Primary node by means of the Visitor key.
- When the terminal is reset, the ringing volume is not saved and returns to the default.

Programming

STEP 1: **ASYDL/ASYDN** - System Data 1, Index 1248, Bit 6 (LDM/NDM)

0 = Do not delete the call history data for DT800/DT700 Series

1 = Delete the call history data for DT800/DT700 Series

Note: When the System Data is changed, restart the terminal.

STEP 2: **AKYD/AKYD_T** - Assign a LOGOUT key to the feature key of terminal

KYN: Key Number

KYI: 1 (Feature Key)

FKY: 142 (LOGOUT Key)

STEP 3: **ADSL/ADSLN** - Assign a LOGOUT key to the Soft key of terminal

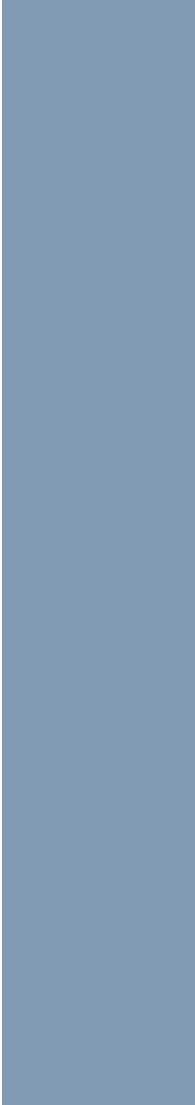
SN: 0 (Line is idle)

FKY: 142 (LOGOUT Key)



CHAPTER 3

BUSINESS FEATURES



Service Conditions

<Conditions for Call History (ASFC SFI 238=1)>

1. In case of using this feature with Digital terminals, the following ELC card is required.
 - CH-16ELCA
2. To use this feature, assign CALL HISTORY to a Line/Feature key or Soft key.

Note: On DT830/DT730/DT830G/DT730G/DT750, incoming call history by this feature can be displayed by selecting [User Menu] - "1. History". However, parameters under "1. History" menu is not available.

3. When ASYDL System Data 1, Index 678, Bit 7=1 is assigned, the record of a call answered through Call Pickup is kept on both stations which the call is originally placed to and which the call is answered on. When ASYDL System Data 1, Index 678, Bit 7=0 is assigned, a call answered through Call Pickup is recorded as an unanswered incoming call and kept on the station to which the call is originally placed.
4. When ASYDL System Data 1, Index 678, Bit 7=1 is assigned, the record of a call answered on the Sub Line of a station is kept on both stations which the call is placed to and which the call is answered on. For example, when My Line of Station B is accommodated on a Sub Line of Station A, if Station A answers a call placed to Station B by pressing the corresponding Sub Line key, the call record is stored on both Station A and Station B.

Note: When ASYDL System Data 1, Index 678, Bit 7=0 is assigned, a call record is stored only when a call arrives on My Line. For example, in the above case, the call record is stored on Station B as an unanswered incoming call.

5. If there is an incoming call to either Prime Line or My Line engaged in Call Redirect [C-173] operation while displaying Call History, the display will return to the main menu of IP terminal (except for Soft Phone) and SIP Multiple Line terminal.
6. Call History will store a maximum of 20 calls.
7. When Call History data exceeds 20 calls, data will be deleted, starting from the oldest data.
8. This feature is available only on terminals where the LCD is capable of displaying 24 digits.
9. This feature is not available on Soft Phone, since it does not have Soft keys.
10. The following shows the status of Line/Feature key and Soft key display when the CALL HISTORY Feature key is assigned.

Status	Feature Key	Soft Key
Terminal has not answered an incoming call	Lights in red.	Flashing Display. Note 1
After Call History is displayed	OFF	Normal Display

Note 1: When an incoming call is unanswered, Soft key maintains the Call History flashing display.

11. When Optional Language Pack Loading [O-42] is used, Call History information for an answered/unanswered incoming call can be arbitrarily defined. A maximum of eight single-byte characters can be set. When this setting is not configured, "!!" is displayed for an unanswered call.
12. When storing Call History with incoming route access number attached, assign Office Data by ACNP and ACND.

13. When Name Display - System [N-28] is in service, you can specify a preference for the type of caller information to be displayed in the Call History.
When you assign ASYDL System Data 1, Index 678, Bit 6=1, Calling Number is preferentially displayed regardless of the setting of ASYD System Data 1, Index 390, Bit 0 (Caller ID display pattern on the LCD (Top line)). If you assign ASYDL System Data 1, Index 678, Bit 6=0, the priority is determined by the value set for ASYD System Data 1, Index 390, Bit 0.
If the priority is set to Calling Name and a matching name is not found in the Call History file, the caller's number is displayed instead.
14. In the Call History screen, a Caller ID exceeding the number of digits the display can handle is truncated to the length supported by the terminal. You can specify whether to display the first or the last digits of the ID by setting System Data (ASYD System Data 1, Index 241, Bit 6).
4-line LCD can display maximum 24 digits for Caller ID information type specified by the System Data (ASYDL System Data 1, Index 678, Bit 6 or ASYD System Data 1, Index 390, Bit 0), and 16 digits for otherwise. On the other hand, 3-line LCD supports maximum 16 digits as in previous versions.
15. When receiving a second call from a number already in Call History, assign System Data to select whether to save data or overwrite the list (System Data 1, Index 677, Bit 4).
16. Do not assign CALL HISTORY to a Flex key.
17. When receiving a call through Call Forwarding-All Calls [C-5], the number of the intermediate party (the first terminal to receive the call) will be saved in Call History.
18. The history of an answered call without Caller ID information is displayed as "-----" at the center of the 3-line LCD, or at the name display area of the 4-line LCD.
19. When the terminal is re-registered, all Call History data will be deleted. To maintain the Call History list, activate Fixed PH Hunting by assigning System Data (ASYDL Index 824, bit 0 = 1).
20. When deleting terminal data through PCPro command, all Call History data will be deleted.
21. When performing System Initialization or SP Initialization, all Call History data will be deleted.
22. This feature is supported by SR-MGC. However, when the terminal is placed under the control of SR-MGC, Call History data will not be carried over.
23. This feature is supported by the Backup Node. However, in Location Diversity [L-55], if the terminal is placed under the control of the Backup Node, Call History data will not be carried over.
24. When Software Multiple My Line Appearance [S-143] is in service, records of calls to the Same Number Sub Line (a Sub Line assigned to the same My Line number) are kept as long as they are answered. (Unanswered calls are not recorded.) If a call arriving on the Same Number Sub Line is answered through Call Pickup, the record is kept only on the answering station and not on the station to which the call is originally placed.
25. Do not assign CALL HISTORY Feature key if SFI = 238 is not acceptable on the terminal. If Call History is assigned to such terminal, Feature key Lamp and Soft key will be controlled but Call History will not be displayed. Key control will be cleared by pressing the CALL HISTORY Feature key.
26. When ASFC/ASFCN SFI 238=1 (Call History is in service) is assigned, outgoing/incoming call history by ASFC/ASFCN SFI 248=1 (Terminal Call History is in service) is not effective.
27. DT800/DT700/DT400/DT300 Series and can originate a call using the incoming call history with prefix added. For the operation procedure, refer to the related manuals of DT800/DT700/DT400/DT300 Series.

Note: On IP/Digital terminals used earlier than DT800/DT700/DT400/DT300 Series, as Call History is not compatible with prefix function, office data programming is required to add access code of incoming route.

- a.) Up to 10 digits of number can be added for prefix.

<Conditions Specific to combination of Call History and Phonebook>

The following shows the conditions when DT800/DT700/DT400/DT300 Series are used.

Available: × Not available: N Not supported: –

Kind of Call History	DT400/DT300 Series			DT800/DT700 Series				
	DT430/ DT330	DT410/DT310		DT750	DT830/ DT730/ DT830G/ DT730G	DT820	DT710	
		6-button type	2-button/ 12-button type Note 2				6-button type	2-button type
Terminal Call History (outgoing call history/incoming call history) Note 3	×	N	N	×	×	N	N	N
Call History	×	×	–	×	×	×	×	–
Local Phonebook (ASFC/N SFI:245)	×	×	–	×	×	×	×	–
System Phonebook (ASFC/N SFI:246)	×	×	–	×	×	×	×	–
Terminal Phonebook (ASFC/N SFI:247)	N	N	N	×	×	N	N	N
Corporate Phonebook	N	N	N	×	×	N	N	N

Note 2: DT310 only.

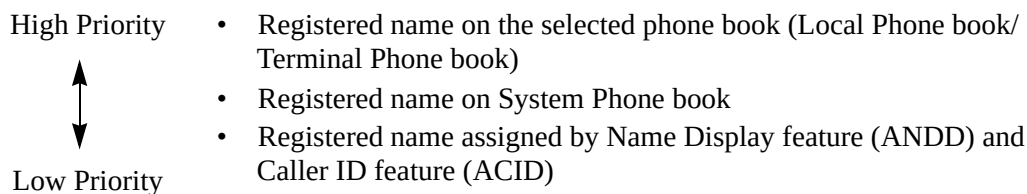
Note 3: When SFI 248 (Terminal Call History) setting is changed;

- DT830/DT700 Series requires to request re-registration. (Make-busy and make-busy cancel operation by MBST command is also available.)
- DT400/DT300 Series requires ELC circuit card to perform initialization. (Make-busy and make-busy cancel operation by MBPM/MBST command is also available.)
- ASYDL, System data 1, Index 673 Bit 4=0/1 (inform only Calling Number to call history/inform Calling Number and Calling Name to call history) needs to be assigned. Data change does not turn effective without re-registration and circuit card initialization.

1. Terminal Call History can be used in combination with Call History through the whole system; however, Terminal Call History cannot be used in combination with Call History in one terminal. When SFI 248=1 (Terminal Call History is allowed) and SFI 238=1 (Call History is allowed) are assigned, SFI 248=1 takes priority and Terminal Call History is effective.
2. Terminal Call History is targeted for DT830/DT730/DT430/DT330 only. When terminals other than DT830/DT730/DT430/DT330 are used, they operate in Dterm Series *i* mode. So SFI 248 (Terminal Call History) settings take no effect.
3. For DT800/DT700 Series, you can add a prefix before the displayed number when originating a call by Terminal Call History. For DT400/DT300 Series, prefix function is not supported.

Note: For using prefix function, register the prefix with user setting on the terminal beforehand. For details, refer to the related manuals of DT800/DT700 Series.

4. The priority order to display the name on incoming call termination and call history is as follows.



Note: In the following cases, contact names are not displayed in the above priority order.

- The combination of Terminal Phone book and Call History is used:
- Contact name of priority order I is not displayed. Contact name of priority order II or priority order III is displayed.
- The combination of Local Phone book and Terminal Call History when ASYDL, System data 1, Index 673 Bit 4=0 is assigned (inform only Calling Number to call history):
- Contact name is not displayed as the call history.
- The combination of Terminal Phone book and Terminal Call History when ASYDL, System data 1, Index 673 Bit 4=0 is assigned (inform only Calling Number to call history):
- Contact name of the priority order II and III are not displayed as the call history.

5. Phone book information can be registered from call history generated by Call History [C-195] to Local Phone book on DT830/DT700 Series. For more information, refer to Phonebook [P-83]. Also Phone book information can be registered from call history generated by Terminal Call History to Terminal Phone book on DT830/DT700 Series. For more information, refer to the related manuals of call DT830/DT700 Series.
6. When either Call History or Terminal Call History is selected by **Call History** → **Incoming** menu displayed by pressing Menu button, the selected call history can be displayed.
7. To activate this feature on DT400/DT300 Series terminal, the following firmware condition is required.

Equipment	Firmware
PA-16ELCN	SP-3956 16ELCN PROG-A

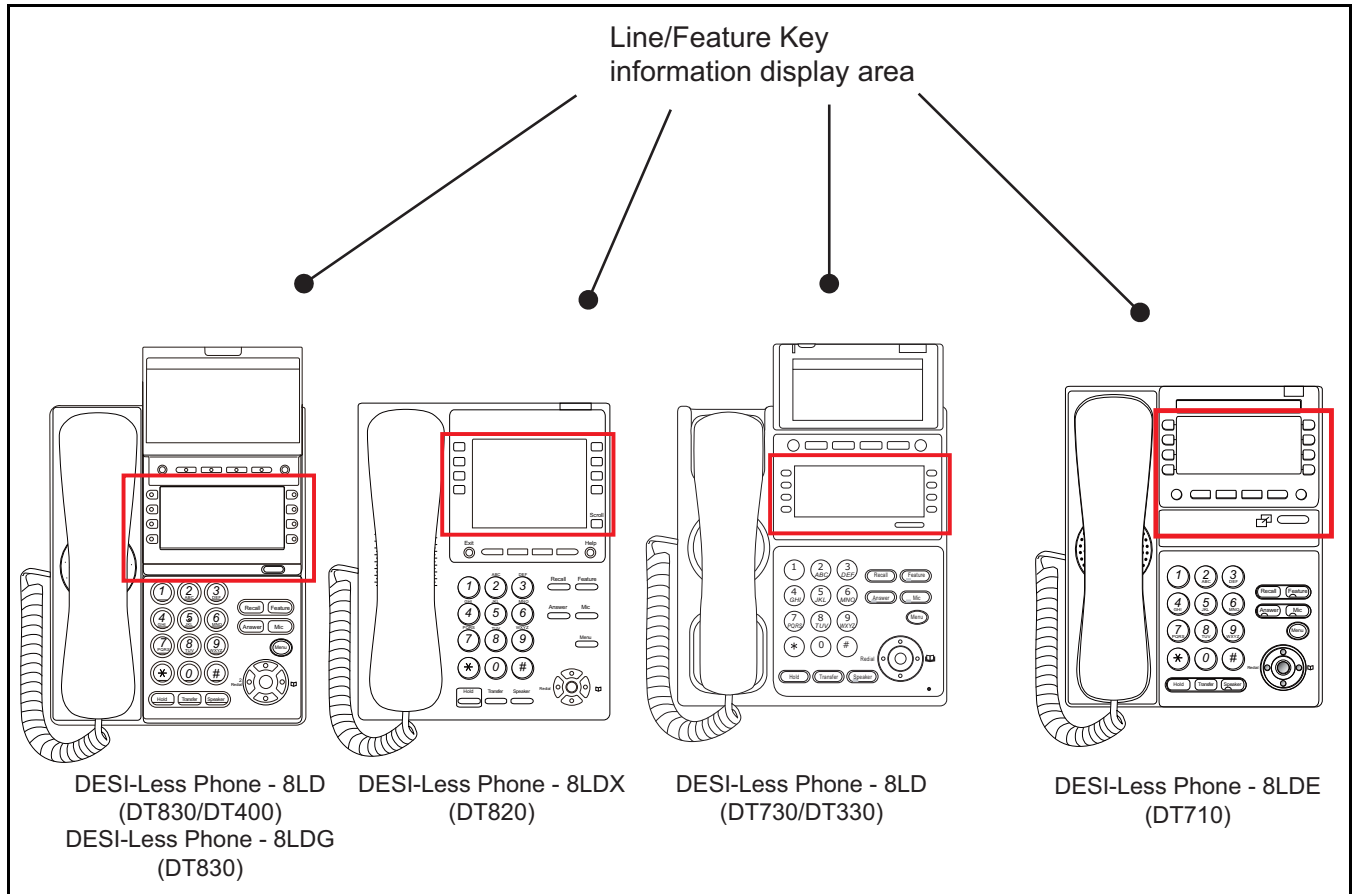
8. When you disable Terminal Call History, the missed call icon must be cleared before changing the office data.

D-169

DESI-Less Terminal

General Description

DESI-Less Phone refers to Desktop terminals with Line/Feature key information display area. The information assigned on each Line/Feature key is displayed on the corresponding LCD.



Operating Procedure

Refer to the User's Guide or Operation Manual of each terminal.

Service Conditions

- When Line/Feature key data is changed by PCPro, periodic refresh for Line/Feature key information display area is required. By assigning ASYDL SYS1 Index 674 Bit 5=0, periodic refresh is executed every 90 seconds.

Note: When periodic refresh is out of service (ASYDL SYS1 Index 674 Bit 5=1), even when the display information is changed by ANDD or ALGSL/ALGSN commands, the displayed information on the LCD is not refreshed automatically. Execute one of the followings to update the display:

- Pull out and push in the modular/LAN cable of the terminal

- Re-login
- Initialize the ELC card on which the terminal is accommodated
- Initialize the system

2. System data ASYD SYS1 Index 78 Bit 4, Index 389 Bit 0-Bit 4, and ASLG command setting can change the language to be displayed on the LCD.

Note: Refer to [M-117] Multilingual Display for the data assignment of ASLG command.

3. The table below shows the number of characters to be displayed on the LCD of each key:

Line/Feature key information	Maximum number of characters to be displayed Note 1
Line key (Information about name and number)	8 characters
SPD key (Information about name and number)	8 characters
Feature key (Feature name of software key)	11 characters

Note 1: For the terminals other than DT800/DT700/DT400/DT300 Series, the maximum number of characters will be 6. Also, when the feature name is changed by Line key, SPD key, or AFDD command, the maximum number of characters will be 6.

4. When the number of characters exceeds the limit, system data (ASYD SYS1 Index 241 Bit 6) can change the display option. **Note 2**
5. When a line is assigned on any Line/Feature key, the displayed information on Line/Feature key information display area can be chosen by the system data (ASYDL SYS1 Index 673 Bit 5) to show name or number. However, when name information is not assigned, Telephone Number (if registered) or Station Number is displayed.
6. When a feature is assigned on any Line/Feature key, the same feature name with software key is displayed. When no feature is assigned, the FKY code is displayed. In both cases, you can modify the feature name by AFDD/AFDDN command. **Note 2**

Note 2: When periodic refresh is in service (ASYDL SYS1 Index 674 Bit 5=0), the display is updated in about a minute after changing the office data.

7. Icons are displayed on the LCD corresponding to each Line/Feature key. They work according to the LED control of Line/Feature key.
8. Only for DESI-Less terminals in DT830/DT730/DT430/DT330, an icon for page scrolling is provided. Page icon moves you forward through pages to cover total 32 features/lines corresponding to 8LD/8LDE/8LDG per page.

Interactions

Speed Calling - One Touch -D on DESI-Less Phone

The followings are the conditions for the Name Display function of [S-26D] Speed Calling - One Touch -D on DESI-Less Phone.

1. When SPD key is assigned on any Line/Feature key, Line/Feature key information display area shows the name information of Speed Calling. When name information is not assigned for Speed Calling, the LCD displays the Speed Calling number or the feature name on a system base (ASYDL SYS1 Index 674 Bit 6). However, when [D-165] Dialed Number Privacy Mode is in-service (ASYDL SYS1 Index 674 Bit 7=1), “*” is displayed instead of Speed Calling number.
2. Name Display for Speed Calling is only available on DESI-Less Phone.
3. Name information can only be assigned, modified, or deleted on the stations using DESI-Less Phone (**Note 3**). Assignment from PCPro is not supported.

Note 3: Refer to the User's Guide or Operation Manual of the terminal for the assignment procedure.

4. Alphanumeric characters and special characters are available to use for name information entry. Euro characters (uppercase, lowercase) are supported on DT800/DT700/DT400/DT300 Series.
5. Up to 4096 stations can assign the name information of Speed Calling per system.
6. Assigned name information can be saved by the maintenance command MEM_HDD. For Digital terminals accommodated on ELC card, use BOSD command to backup Speed Calling number and use MEM_HDD command to backup Speed Calling name information. See the table below.

Terminal Type	Speed Calling number	Speed Calling name information
IP station	MEM_HDD	MEM_HDD
Digital terminal	BOSD	MEM_HDD

7. When station data is deleted, name information of related station is also deleted.
8. Because Speed Calling name information is assigned toward a key, the name data is not cleared/changed by changing the assigned number.
9. Assigned name information is only used for the display on Line/Feature key information display area. The display when the terminal is dialing, hearing RBT, or being connected corresponds to the assigned number.
10. Name information entry is available only when the station is idle or ringing. Even when My Line is not used, name information entry does not work during other key operation.
11. Station user can continue assignment operation when a call terminates during name information entry. However, when digit code or any keys irrelevant to name information entry is pressed, the terminal exits the assignment and then acts as operated.
12. When 30 seconds of no key operation is detected, the station goes back to idle state discarding the name information entry.
13. SPD key data can be changed as many times as desired by pressing the SPD key again, unless any digit code or software key is pressed.
14. A blank space can be entered by pressing INS key or “→” key.
15. Name information will be deleted when SET key is pressed without entering any data.

Dialed Number Privacy Mode

By assigning ASYDL SYS1 Index 674 Bit 7=1, [D-165] Dialed Number Privacy Mode can be activated with

P-83

Phonebook

General Description

This feature offers the phonebook function used on a station basis or a system basis. During the call origination using Phonebook, name and dial number registered in Phonebook which corresponds to the number dialed by users are displayed. During the call termination, name and dial number registered in Phonebook which corresponds to the calling party number are displayed. There are four types of Phonebook: Local Phonebook, System Phonebook, phonebook on telephone terminal (hereinafter called Terminal Phonebook) and Corporate Phonebook.

- **Local Phonebook**

Local Phonebook is used on a station basis. Data is managed per station number and can be modified or registered as a new entry by operation from telephone terminal. Up to 100 registrations are available per station. Up to 32 digits can be registered for each dial number. Up to 24 characters can be registered for each name. For stand alone system, Local Phonebooks of 4000 stations can be used. For FCCS system, Local Phonebooks of 4000 stations can be used per Node.

- **System Phonebook**

System Phonebook is used on a system basis. Data can be modified or registered as a new entry with Maintenance Console (PCPro). Up to 12000 registrations (**Note 1**) are available per FCCS system or per stand alone system.

Note 1: For FP95-112 V2 or later, up to 60000 registrations are available by System Data (ASY-DL/ASYDN, Index 683, Bit 4=1).

Up to 32 digits can be registered for each dial number. Up to 24 characters can be registered for each name. For FP95-112 V2 or later, the data can be registered separately per UGN with System Data (ASYDL/ASYDN, Index 1136, Bit 0).

Note: If you change the system data while using the terminal, delete the phonebook data and register it again after changing the system data.

<For DT820/DT710, the following features are not available.>

- **Terminal Phonebook (indicated as Personal Directory on the terminal LCD)**

Terminal Phonebook is installed with telephone terminal. This phonebook is available in DT830G/DT830/DT700 Series. Up to 12000 registrations are available per FCCS system or per stand alone system. Up to 32 digits can be registered for each dial number. Up to 24 characters can be registered for each name.

- **Corporate Phonebook**

Corporate Phonebook is created with XML application and controlled by the external XML server. This phonebook is shared in the entire system. Please ask the system integrator about details of the Corporate Phonebook application on external XML server.

Operating Procedure

For operating procedure, refer to the related User's Guide.

Service Conditions

<Important Notices>

- The following Phonebook types can be specified by ASFC/ASFCN command.

Kind of Phonebook	ASFC/N SFI Data
Local Phonebook	ASFC/N SFI:245 = 1
System Phonebook	ASFC/N SFI:246 = 1
Terminal Phonebook Note 2	ASFC/N SFI:247 = 1

Note 2: When SFI 247 (Terminal Phonebook) setting is changed; DT830G/DT830/DT700 Series terminals require to request re-registration. (Make-busy and make-busy cancel operation by MBST command is also available.) Data change does not turn effective without re-registration.

- Each terminal can use the following phonebooks in combination;

	Local Phonebook	System Phonebook
Terminal Phonebook	Not supported	Supported

Note: Terminal Phonebook can be used in combination with Local Phonebook through the entire system; however, Terminal Phonebook cannot be used in combination with Local Phonebook in one terminal.

When SFI 247=1 (Terminal Phonebook is allowed) and SFI 245=1 (Local Phonebook is allowed) are assigned, SFI 247=1 takes priority and Terminal Phonebook is effective.

Note: The following shows the priorities to display the name when a called party receives a call.

Terminal Phonebook > Local Phonebook > System Phonebook

- As Terminal Phonebook is not supported in DT820/DT400 Series/DT300 Series and DT710, only the Local and System Phonebook are available for those terminals.

When SFI 247=1 (Terminal Phonebook) is selected on DT820/DT400 Series/DT300 Series and DT710, only the System Phonebook can be used.

Available Phonebook type depends on the SFI 247 (Terminal Phonebook) setting;

SFI 247	DT310 (2-button/12-button type)/ DT710/DT410/ (2-button type)	DT820/ DT410/DT310 (6-button type)/ DT710 (6-button type)	DT830/DT730/DT830G/ DT730G/DT750
0	Not supported	Local Phonebook/System Phonebook	Local Phonebook/System Phonebook
1	Not supported	System Phonebook	Terminal Phonebook/Sys- tem Phonebook

*This table shows the conditions when SFI 245=1 (Local Phonebook is allowed) and SFI 246=1 (System Phonebook is allowed) are assigned.

4. When the same dial numbers or the same names are registered to Phonebook, the following conditions are applied.

	Same Name, Different Dial Number Name: abc, Number: 123 Name: abc, Number: 345	Different Name, Same Dial Number Name: abc, Number: 123 Name: def, Number: 123	Same Name, Same Dial Number Name: abc, Number: 123 Name: abc, Number: 123
Local Phonebook	Supported	Supported Note 4	Supported
System Phonebook	Supported Note 3	Not supported	Not supported

Note 3: Up to 20 different dial numbers can be registered with the same name.

Note 4: For the following situation, there may be difference in the displayed name between “A call is originated using Phonebook” and “the originating station returns to the former line.” It is because the system searches Local Phonebook database for the number again when the originating station returns to the former line.

A call is originated using Phonebook → the line is engaged in the call → the originating station performs operation of Call Forwarding and Call Hold → the originating station returns to the former line

5. When terminals other than DT830G/DT830/DT700 Series/DT400 Series/DT300 Series are used, they work in Dterm Series i mode. So SFI 247 (Terminal Phonebook) setting takes no effect.
6. When the name search is executed by entering a few characters in the beginning of the name on the Desktop terminal LCD, the matched name with entered characters is displayed at first. Then the display shows other names in the Phonebook database by pressing UP and DOWN key.

<Example> Searching the database for the name includes “TOU” when the following four names are in the database.

ABIKO
Shinbashi
→TOUHOKU
chiba

- “TOUHOKU” shown above with the arrow appears on the display as the search results of “TOU”.
- When DOWN key is pressed once while “TOUHOKU” is on the display, “chiba” appears. When DOWN key is pressed twice while “TOUHOKU” is on the display, “ABIKO”, which is at the top of the database, appears.
- When UP key is pressed while “TOUHOKU” is on the display, “Shinbashi” appears. When UP key is pressed three times while “TOUHOKU” is on the display, “chiba”, which is at the last of the database, appears.

Note: The order of names in the database changes depending on whether distinguishing between upper case and lower case characters. The above explains the example when ASYDL System data 1 Index 677 Bit 7=0 (Distinction between upper case and lower case characters is in service) is assigned.

7. Searching database method whether this feature distinguishes between upper case and lower case characters while searching database for a name can be specified by system data (ASYDL System data 1 Index 677 Bit 7). The searching database method depends on the setting of ASYDL System data 1 Index 677 Bit 7 at the time APBKN data assignment is finished. If APBKN data is assigned and the Administrator wants to change the searching method by changing ASYDL System data 1 Index 677 Bit 7, the APBKN entries must first be deleted before changing ASYDL System data 1 Index 677 Bit 7. APBKN entries must then be reentered to follow the new search method.

- ASYDL System data 1 Index 677 Bit 7=0 (Distinction between upper case and lower case characters is in service.)

<Example> ABIKO
 Shinbashi
 →TOUHOKU
 chiba

* Upper case and lower case are distinguished as different character strings. Upper case has priority over lower case.

- ASYDL System data 1 Index 677 Bit 7=1 (Distinction between upper case and lower case characters is out of service.)

<Example> ABIKO
 chiba
 Shinbashi
 TOUHOKU

* Upper case and lower case are not distinguished as different character strings.

8. Hooking or a pause cannot be registered in a dial number.
9. When Abbreviated Call Codes using Speed Calling - Station, Group, or System features are registered in the Phonebook, a call cannot be originated by dialing these codes.
10. When a call rings on a PS line of a DT800/DT700/DT400/DT300 Series where the PS line is accommodated as a Sub Line, the calling party name registered in the Phonebook is not displayed until the call is answered.
11. If you register 60000 phonebook entries, sufficient memory is required. Therefore, execute DDMO command to check the free size area of the data memory in NDM, and change the System Data (ASYDL/ASYDN SYS1 Index 514/Index 957) if required. **Note 5, Note 6**

Note 5: If the NDM is insufficient, registration error occurs.

Note 6: To register 10000 phonebook entries, 0.7MB (713KB) of free disk space is required. When the data memory in NDM is about 2.0 MB (2048KB), you can register up to 28700 (2048 divided by 713 equals 2.87) entries.

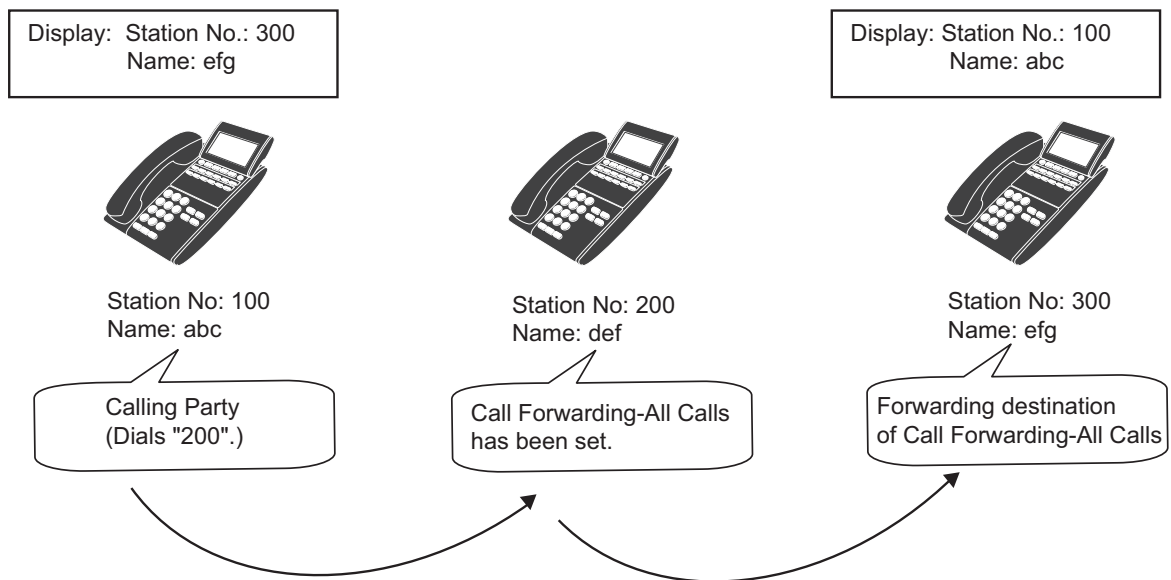
<Interactions with Other Features>

1. Backup of Local Phonebook and System Phonebook data is available by executing maintenance commands and periodical diagnosis.
2. PHONEBOOK [P-83] cannot be used when SOFT PHONE WLAN HANDSET [S-159] or SOFT PHONE WIRED-PHONE HANDSET [S-147] is activated, key operation is not effective.
3. The following shows whether Phonebook is supported by SR-MGC and FCCS Cluster.

	SR-MGC	FCCS Cluster
Local Phonebook	Not supported	Not supported
System Phonebook	Supported	Supported Note 7

Note 7: FCCS Cluster is supported when data is assigned to Backup node in advance.

4. When Call Forwarding feature is set to the originally called station, calling number is searched from Phonebook of forwarding destination.



5. Name display by Phonebook is not supported when the forwarding destination of the following Call Forwarding features is out side of Self Office.
 - Call Forwarding - All Calls [C-5]
 - Call Forwarding - Busy Line [C-2]
 - Call Forwarding - Don't Answer [C-3]
 - Call Forwarding - Logout
 - Call Forwarding - PS Incoming Incomplete [C-155]
6. Searching Phonebook database for the name is not available if called party number is not received from counter office when the call is originated to out side of Self Office by HOTLINE [H-1].
7. When the same dial numbers are registered to both NAME DISPLAY-SYSTEM [N-28] (ANDD command) and Phonebook, the data registered to Phonebook takes priority.

8. It is possible to change the indication location of the name and number information notified from the system on DT700 Series LCD. For the detailed information, refer to NAME DISPLAY-SYSTEM [N-28].
9. Display of Phonebook takes priority over CALLING PARTY NUMBER-NAME ASSIGNMENT AND DISPLAY [C-157].
10. For the information about Phonebook for Hotel System, refer to PHONEBOOK FOR HOTEL [P-85].
11. When the number of digits of the dialed number is less than the maximum necessary digits (values assigned to MND parameter of AMND/AMNDL/AMNDN), the call is originated after a predetermined prepause timer assigned by ASYD, SYS 1, Index 128 Bits 0-3 (default: 12 seconds) expires.
12. This feature does not support OAI or ACD system.

<Hardware/Software>

1. Desktop terminals (except for Softphone) equipped with Soft key function are required.
2. To activate PHONEBOOK [P-83] on DT800 Series/DT700 Series/DT400 Series/DT300 Series equipped with the cursor key or Menu key, Phonebook can be activated by pressing the cursor key, Menu key, Feature key or Soft key.

Note: In the cases of DT710 6-button type and DT410/DT310 6-button type, cursor key, Feature key or Soft key is available to activate the feature. This feature cannot be activated by Menu key on DT710 6-button type and DT410/DT310 6-button type.

3. To use this feature, one of the following cards is required:
 - ELC card mounted in 7U-PIR
 - PA-16ELCN-A in DT300 Series mode
 - PA-16ELCN in DT300 Series mode
4. The key operation for Speed Calling-One Touch takes no effect while the Phonebook is displayed on a LCD of a terminal.

<Interactions with Networks>

1. Display pattern of calling name and calling number for incoming Trunk Calls can be changed by system data (ASYD, System Data 1, Index 390, Bit 0). For incoming Station Calls, the pattern cannot be changed.

- Example when name display takes priority; the beginning of number is displayed:

Name “Suzuki Taro (Japan-Chiba-Abiko)”, Number “0471567890123456789012345678”

0471567* Suzuki Taro (Japan-Chiba*)
--

- Example when number display takes priority; the beginning of number is displayed:

Name “Suzuki Taro (Japan-Chiba-Abiko)”, Number “0471567890123456789012345678”

Suzuki * 04715678901234567890123*

2. The prefix (the access number of terminated route) can be included to the dial number registered in Phonebook data. When the prefix is included, be sure to match the prefix with the number assigned in “to add the access code of incoming route” by ACNP and ACND command. For the data assignment, refer to Programming.
3. Adding prefix operation using “Prfi” key in Phonebook data display is available only once. To retry the operation, cancel the assigned prefix by pressing “Cnl” key then restart adding prefix operation.
4. Up to 10 digits can be added as a prefix.
5. When the prefix is added, up to 32 digits including the prefix can be sent as dial number of Phonebook data.

- Example of display before prefix is added:

Name “Suzuki Taro(Japan-Chiba)”, Number “04715678901234567890123456789012”

Name: Suzuki Taro(Japan-Chiba)] Number: 04715678901234567890123456789012]	24 characters 32 digits
Prefix Number Input Number: 0184]	4 digits

- Example of display after prefix is added:

Name “Suzuki Taro(Japan-Chiba)”, Number “04715678901234567890123456789012”

Name: Suzuki Taro(Japan-Chiba) Number: 018404715678901234567890123456789012
--

Prefix (4 digits)
Deleted (4 digits)

<Conditions Specific to This Feature>

1. Display of character types are small (lower case) and large (upper case).
2. “0-9”, “*” and “#” can be used for numeric input.
3. A blank space is also distinguished while searching database for a name.
4. Even if there is a blank space (0×20) at the end of input name for the name registration, the name is registered without the blank space. For the name registration of System Phonebook assigned by APBKN command, the blank space is not deleted when there is a blank space at the end of input name.

5. When a call is terminated to a line of a terminal being engaged in Phonebook operation, the operation is continued. If the terminal answers the call, Phonebook operation is canceled and the terminal is engaged in the call. When the call is finished, the terminal becomes the state Phonebook operation is canceled.
6. Phonebook operation is available only from the terminal in idle state. Phonebook operation is not effective while the terminal in a call or in the Headset Mode.
7. Phonebook operation will be exited in midstream by pressing “Exit” key and “Pbook” key. When “Cnl” key is pressed, the display returns to previous display.
8. If a calling party number of the terminated call is registered to both of System Phonebook or Local Phonebook, registered data to Local Phonebook takes priority.
9. When the incoming call is terminated to Sub line, if a station set the terminated line as Prime line, the data for name display and number display will be searched from Phonebook of a station which the terminated line is set as My line. However, if the call is answered, the data for name display and number display will be searched from Phonebook of the answering station.
10. If there are two stations (Station A and B) both with the same line appearance when Multiple Line Operation -D [M-20D] is activated, on Station A the terminated line being its Prime Line and on Station B the terminated line being its My Line, the name display on the stations will be as shown below:
* In this case, Station B uses Local Phonebook only.
 - Station A (the incoming call terminates to Prime Line of this station):
While ringing state, the station displays the name as found in the phonebook of Station B.
After the station goes off-hook, the name then is updated to display the name from the phonebook of Station A.
 - Station B (the incoming call terminates to My Line of this station):
The station displays the name searched from the phonebook of Station B.
11. The first entry of Phonebook data is displayed when the call is originated/terminated by dialing the number.
12. When the REDIAL key is pressed while displaying Phonebook data, the dial number assigned to redial key is displayed for 10 seconds or so.
13. When “SP (blank space)” is input during name registration, edit or search by telephone terminal key operation, “_ (underscore)” is displayed though it is recognized as “SP (blank space)” in data programming. Because of that, “_ (underscore)” is not displayed if “SP (blank space)” is input by APBKN command.
14. When digit key is pressed during phonebook operation, the pressed number is not displayed.
15. Pressing the SPEED CALLING ONE-TOUCH key while displaying phonebook data, the key operation for Speed Calling-One Touch takes no effect on DT800/DT700/DT400/DT300 Series.
16. Even though System Phonebook and Terminal Phonebook are set as out of service (ASFC SFI: 246=0/ SFI: 247=0), the parameters under [Directory] menu will be displayed on the terminal’s configuration menu regardless of SFI: 246/SFI: 247 data setting.
17. Phonebook information can be displayed in 4-line with a DT830G/DT830/DT700 Series terminal that has 4-line (except the line for icon display) LCD. By displaying Phonebook information in 4-line, you can see the name and the number in the search result display or the deletion confirmation display, whereas in 3-line, you can only see the name.

If you wish to display Phonebook in 3-line as before, assign the system data (ASYDL, SYS1, Index 681, Bit 1=1).

<Conditions Specific to combination of Call History and Phonebook>

Available: × Not available: N Not supported: –

Kind of Phonebook	DT400/DT300 Series Note 9			DT800/DT700 Series					DtermIP/ DtermSIP with LCD
	DT430 / DT330	DT410/DT310		DT750	DT830/ DT730/ DT830G/ DT730G	DT820	DT710		
		6-button type	2-button/ 12-but- ton type				6-button type	2-but- ton type	
Local Phone- book (ASFC/N SFI:245)	×	×	—	×	×	×	×	—	×
System Phonebook (ASFC/N SFI:246)	×	×	—	×	×	×	×	—	×
Terminal Phonebook (ASFC/N SFI:247) Note 8	N	N	N	×	×	—	N	N	N
Corporate Phonebook	N	N	N	×	×	—	N	N	N
Terminal Call History (out- going call his- tory/incoming call history)	×	N	N	×	×	—	N	N	N
Call History	×	×	—	×	×	×	×	—	N

Note: Phonebook can be used in combination with Call History on DT830G/DT830/DT700 Series/DT400 Series/DT300 Series terminals only.

Note 8: When SFI 247 (Terminal Phonebook) setting is changed; DT830G/DT830/DT700 Series telephone terminals require to request re-registration. (Make-busy and make-busy cancel operation by MBST command is also available.) Data change does not turn effective without re-registration.

Note 9: The condition in this table applies to the terminals working in DT400 Series/DT300 Series Mode. Phonebook does not support the terminals working in Dterm Series i Mode.

1. Terminated numbers can be registered from Call History to Local Phonebook on DT830G/DT830/DT700 Series.

Note: On telephone terminals before DT830G/DT830/DT700 Series/DT400 Series/DT300 Series, Call History and Local Phonebook are not interlocked, so incoming numbers cannot be registered from Call History to Local Phonebook.

Note: For the information of phonebook entry to Terminal Phonebook using Terminal Call History, refer to the related manuals of DT830G/DT830/DT700 Series.

2. When an incoming call terminates on the accommodating line while registering from Call History to Local Phonebook, the station can keep phonebook operation while ringing. When the incoming call is answered, the connection is established and phonebook operation is canceled. After releasing the call, the LCD shows empty display (not back to incoming call history display).
3. Call History can store up to 32 digits of dial number and 16 characters of name. On the other hand, Local Phonebook can store up to 32 digits of dial number and 24 characters of name. Therefore, all the digits of numbers stored in Call History can be saved to Local Phonebook.
4. The entry from Call History to Local Phonebook is every time dealt with a new data addition. So the existing data in Local Phonebook is not edited even when the name is listed in the Call History.
5. As DT400 Series/DT300 Series (DT400/DT310) 2-button/12-button type and DT700 Series (DT710) 2-button type (without LCD) cannot use Call History [C-195], phonebook entry from Call History to Local Phonebook is not available.
6. For DT800/DT700 Series, you can add a prefix before the displayed number when originating a call by Terminal Phonebook. For DT400 Series/DT300 Series, prefix function is not supported.

Note: For using prefix function, register the prefix with user setting on the terminal beforehand. For details, refer to the related manuals of DT800 Series/DT700 Series.

7. The following types of data entry are not supported:
 - From Call History to Terminal Phonebook
 - From Terminal Call History to Local Phonebook



Command Manual

ADKS: Assignment of Dterm Key Status Data

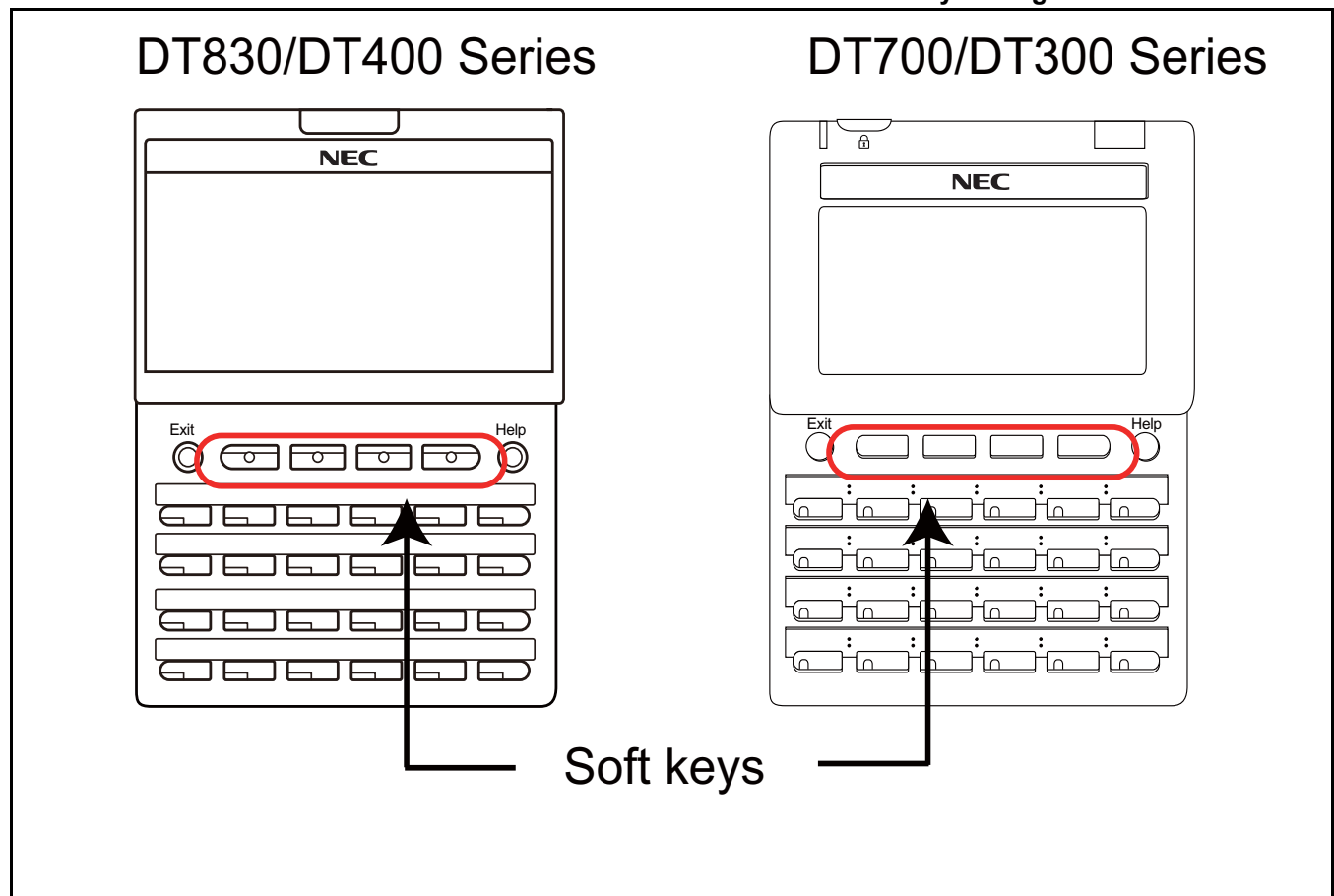
1. General

This command assigns the soft key pattern (that is assigned by the ADSL command) onto a Desktop terminal. Additionally, Line/Feature key and DSS key arrangement on the Desktop terminal can be specified.

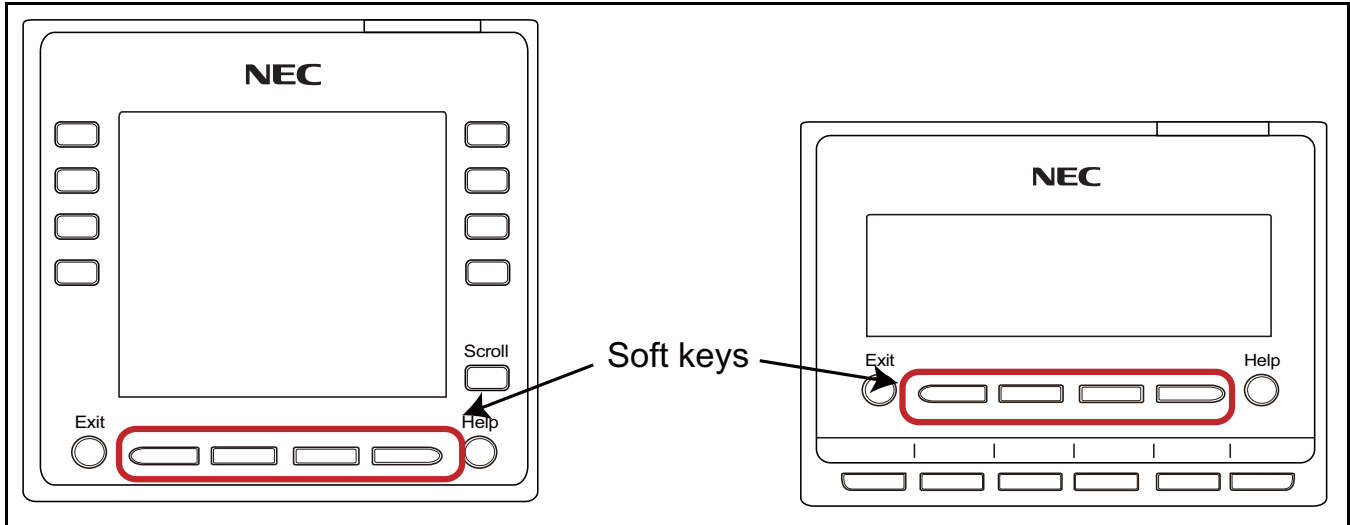
2. Precautions

1. There are four soft keys on DT830/DT700 Series/DT400 Series (excluding DT410: 2-button type)/DT300 Series (excluding DT310: 2/12-button type and DT710: 2-button type) shown on page 48, DT820 Series shown on page 49, DtermIP INASET shown on page 49, Dterm Series *i* shown on page 52, Dterm Series *i* (DTR-8D-1R/DTR-16D-1R/DTR-32D-1R) shown on page 53. The function of the soft key varies, depending on the status and current functions involved that are displayed on the bottom line of LCD.

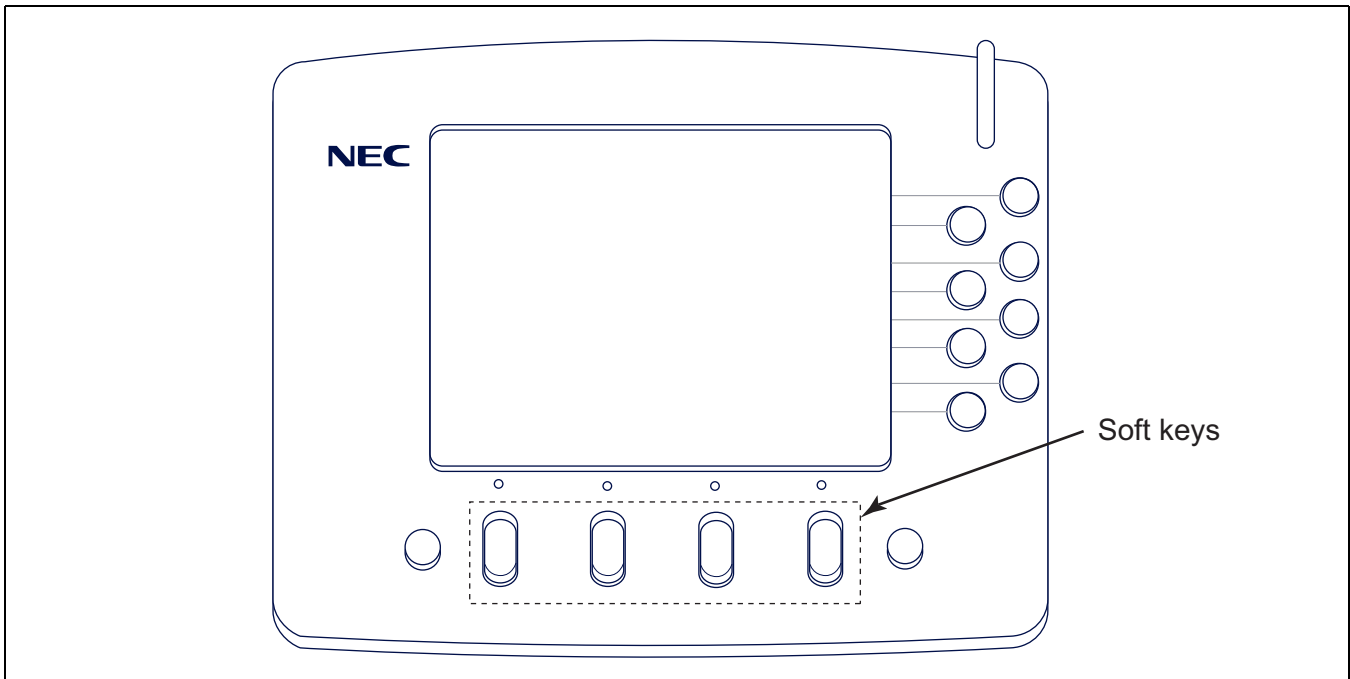
DT830 Series/DT700 Series/DT400 Series/DT300 Series Key Arrangement



DT820 Key Arrangement



DtermIP INASET Key Arrangement



AKYD: Assignment of Key Data for Dterm

1. General

This command assigns the following key data corresponding to each Line/Feature key on a Desktop terminal.

- Line Key Data
- Function Key Data
- Intercom Key Data
- DSS Key Data

2. Precautions

1. Desktop terminals (DT800 Series, DT400 Series, DT700 Series, DT300 Series, Dterm Series i, DtermIP INASET, and IP Enabled Dterm) have default key data. If the default data is to be used, assignment in AKYD is not necessary. For the default key data, refer to Precautions 6. The following shows the specification pertaining to data assignment for the Desktop terminal. **Note 1**

Note 1: Be sure to assign My Line data by this command when using 4-button/8-button type Desktop terminal (including Cradle type).

Key Data Assignment (AKYD)

TYPE OF TERMINAL		LINE/FEATURE KEY	NUMBER OF BUTTONS
DT800 Series: DT830	12-button type	KYN=1-12	12
	24-button type	KYN=1-24	24
	8-button type (DESI-LESS) Note 3	KYN=1-32 (8 x 4=32)	32 (virtual)
DT800 Series: DT830G	12-button type (12DG)	KYN=1-12	12
	12-button type (12CG) (with Color LCD)	KYN=1-12	12
	24-button type (24DG)	KYN=1-24	24
	24-button type (24CG) (with Color LCD)	KYN=1-24	24
DT800 Series:: DT820	8-button type (DESI-LESS) Note 3	KYN=1-8	8
	6-button type	KYN=1-6	6
DT400 Series: DT410	2-button type (without LCD)	KYN=1-2	2
	6-button type	KYN=1-6	6
DT400 Series: DT430	12-button type	KYN=1-12	12
	24-button type	KYN=1-24	24
	8-button type (DESI-LESS) Note 3	KYN=1-32 (8 x 4=32)	32 (virtual)

Key Data Assignment (AKYD)

TYPE OF TERMINAL		LINE/FEATURE KEY	NUMBER OF BUTTONS
DT700 Series: DT710	2-button type (without LCD)	KYN=1-2	2
	6-button type	KYN=1-6	6
	8-button type (DESI-LESS) Note 3 , Note 4	KYN=1-8	8 (virtual)
DT700 Series: DT730	12-button type	KYN=1-12	12
	12-button type (with PSA Unit) Note 2	KYN=1-12	12
	24-button type	KYN=1-24	24
	24-button type (with 8LK Unit)	KYN=1-32 (24+8)	32
	8-button type (DESI-LESS) Note 3	KYN=1-32 (8 x 4=32)	32 (virtual)
DT700 Series: DT730G	12-button type (12DG)	KYN=1-12	12
	12-button type (12CG) (with Color LCD)	KYN=1-12	12
	24-button type (24DG)	KYN=1-24	24
	24-button type (24CG) (with Color LCD)	KYN=1-24	24
DT700 Series: DT750	Color LCD display type	KYN=1-32 (8 x 4=32)	32 (virtual)
DT700 Series: DT770G	Cradle type	KYN=1-2	2
DT300 Series: DT310	2-button type (without LCD)	KYN=1-2	2
	6-button type	KYN=1-6	6
	12-button type (without LCD) Note 5	KYN=1-12	12
DT300 Series: DT330	12-button type	KYN=1-12	12
	12-button type (with PSA Unit) Note 2	KYN=1-12	12
	12-button type Cordless Terminal	KYN=1-12	12
	24-button type	KYN=1-24	24
	24-button type (with 8LK Unit)	KYN=1-32 (24+8)	32
	8-button type (DESI-LESS) Note 3	KYN=1-32 (8 x 4=32)	32 (virtual)
DtermIP INASET Classic	8-button type	KYN=1-8	8
DtermIP INASET 240G	4-button type	KYN=1-16	16 (virtual)

Key Data Assignment (AKYD)

TYPE OF TERMINAL		LINE/FEATURE KEY	NUMBER OF BUTTONS
DtermIP INASET 320G	8-button type	See Figure "DtermIP INASET"	32 (virtual)
DtermIP INASET 320C	8-button type	See Figure "DtermIP INASET"	32 (virtual)
DtermIP INASET 320C (XML version)	8-button type	KYN=1-16	16 (virtual)
Dterm Series i/ IP Enabled Dterm	4-button type	KYN=1-4	4
	8-button type	KYN=1-8	8
	16-button type	KYN=1-16	16
	32-button type	See Page 170	32

Note 2: Analog PSTN Adapter (PSA) Unit enables a Desktop terminal to switch to Public Switched Telephone Network (PSTN) when power failure occurs.

Note 3: DT800 Series: DT830 (8-button type)/DT820 (8-button type)/DT700 Series: DT730 (8-button type)/DT710 (8-button type) DT400 Series: DT430 (8-button type) and DT300 Series: DT330 (8-button type), which are enabled to display programmable Line/Feature key information on its Liquid Crystal Display (LCD), will hereafter be called DESI-LESS.

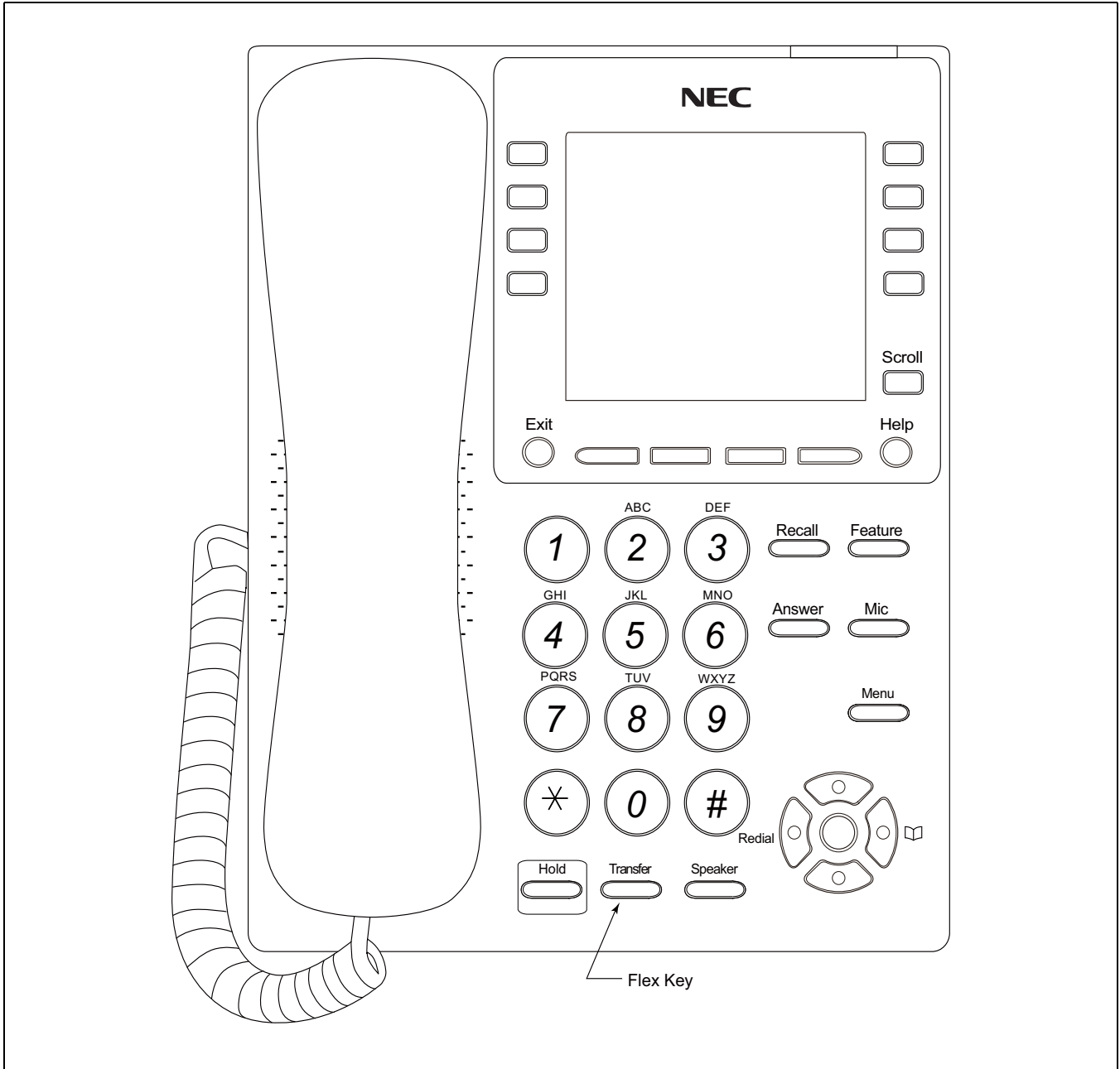
Note 4: Dterm Series i mode is not supported.

Note 5: Available only in North America.

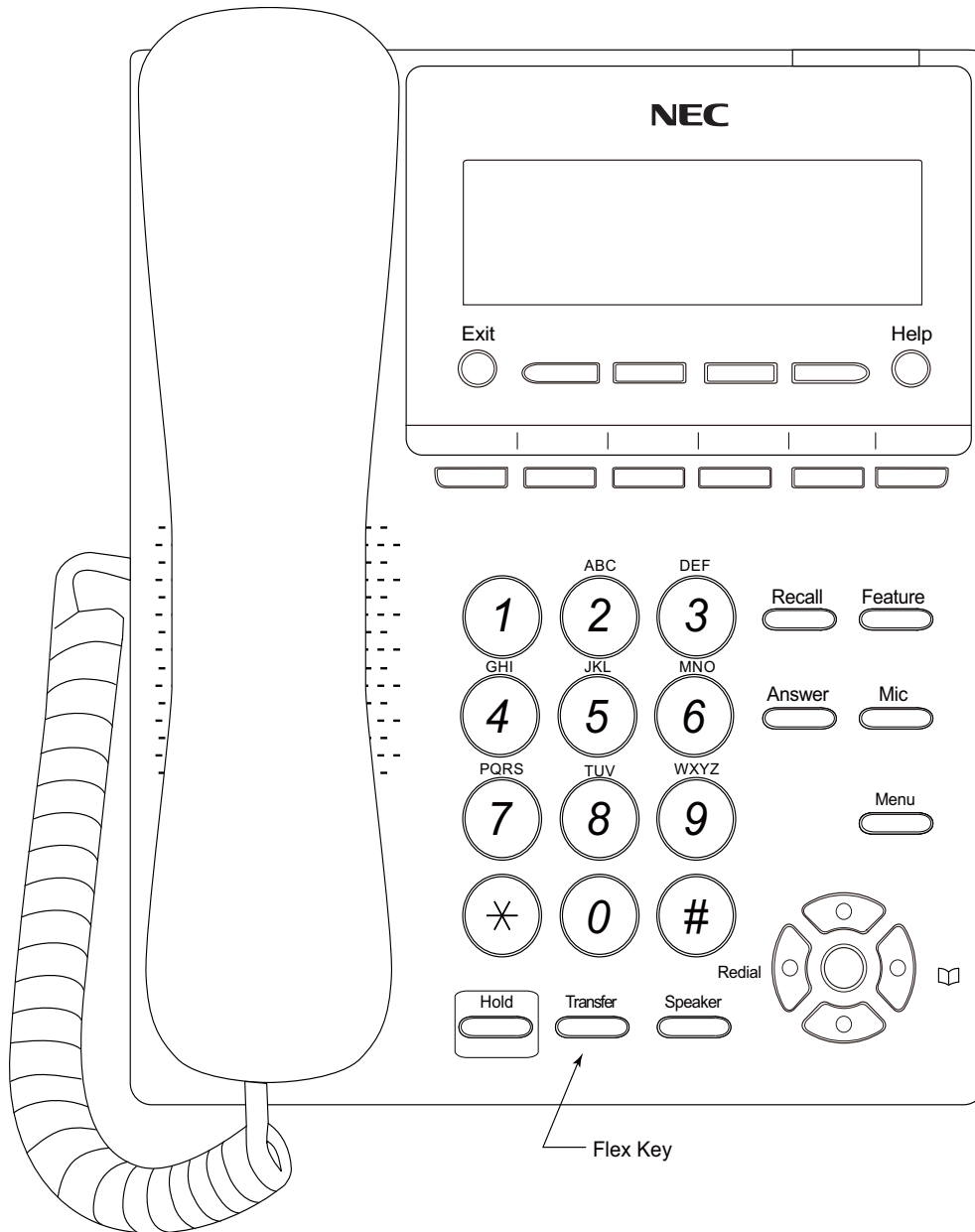
- Before assigning the key data for a Desktop terminal using this command, be sure to assign the station data of the Desktop terminal using the ASDT command (TN, STN, TEC=12 (Desktop terminal)). The station number assigned by the ASDT command is referred to as My Line. **Note 6**

Note 6: This My Line corresponds to the physical port associated with the LENS of an ELC card.

- By assigning another station line to a Line/Feature key using this command, an incoming call terminated to a station line other than My Line can be answered or can be transferred as in the case of the My Line. A station line other than My Line is referred to as a Sub Line. A Sub Line can be assigned not only to a Desktop terminal but to any conventional telephone. In addition, the station data for My Line and Sub Line must be assigned by the ASDT command before the key data is assigned. When Sub Line and My Line belong to different tenants, use the ATNR command to clear the Tenant-to-Tenant Restriction.
- A Multi-Line key (the key for My Line and Sub Line) on the Desktop terminal can be assigned as Prime Line. If a separate Prime Line is not assigned, My Line can serve as the Prime Line. When the user goes off-hook, the Prime Line is automatically selected on the Desktop terminal.
- A Virtual Line can be assigned as a Sub Line of the Desktop terminal. The Virtual Line can be used the same way as the My Line for outgoing calls and other service operations. **Note 7**

DT800 Series: DT820 (8-button Type DESI-LESS)

DT800 Series: DT820 (6-button Type)



AKYD_T: Assignment of Key Data for Dterm – Telephone Number

1. General

This command assigns the Line key, Function key, Intercom key, and DSS key data corresponding to each Line/Feature key on a Desktop terminal. The station data of AKYD command can be assigned by using Telephone Number.

2. Precautions

1. Only the Telephone numbers assigned by the ALGSN command can be used. Telephone numbers by the ALGSL command are not available in this command.
2. When logging into a Local Node (LN), only the Telephone numbers allocated to the stations within the logged-in node can be used in this command. Also, when logging into the NCN, data memory of any node in the network can be written.
3. Prior to this command, Telephone numbers must be allocated by using the ALGSN command. Only the Telephone numbers assigned by the ALGSN command can be used. Telephone numbers by the ALGSL command are not available in this command.
4. Desktop terminals (DT800 Series, DT400 Series, DT700 Series, DT300 Series, Dterm Series *i*, DtermIP INASET, and IP Enabled Dterm) have default key data. If the default data is to be used, assignment in AKYD/AKYD_T is not necessary. For the default data, refer to Precautions 9. **Note 1**

Note 1: Be sure to assign MY LINE data by AKYD/AKYD_T command when using 4-button/8-button type Desktop terminal (including Cradle type).

The following shows the specification pertaining to data assignment for the Desktop terminal.

Key Data Assignment (AKYD_T)

TYPE OF TERMINAL		LINE/FEATURE KEY	NUMBER OF BUTTONS
DT800 Series: DT830	12-button type	KYN=1-12	12
	24-button type	KYN=1-24	24
	8-button type (DESI-LESS) Note 3	KYN=1-32 (8 x 4=32)	32 (virtual)
DT800 Series: DT830G	12-button type (12DG)	KYN=1-12	12
	12-button type (12CG) (with Color LCD)	KYN=1-12	12
	24-button type (24DG)	KYN=1-24	24
	24-button type (24CG) (with Color LCD)	KYN=1-24	24
DT800 Series: DT820	8-button type (DESI-LESS) Note 3	KYN=1-8	8
	6-button type	KYN=1-6	6
DT400 Series: DT410	2-button type (without LCD)	KYN=1-2	2
	6-button type	KYN=1-6	6

TYPE OF TERMINAL		LINE/FEATURE KEY	NUMBER OF BUTTONS
DT400 Series: DT430	12-button type	KYN=1-12	12
	24-button type	KYN=1-24	24
	8-button type (DESI-LESS) Note 3	KYN=1-32 (8 x 4=32)	32 (virtual)
DT700 Series: DT710	2-button type (without LCD)	KYN=1-2	2
	6-button type	KYN=1-6	6
	8-button type (DESI-LESS) Note 3, Note 4	KYN=1-8	8 (virtual)
DT700 Series: DT730	12-button type	KYN=1-12	12
	12-button type (with PSA Unit) Note 2	KYN=1-12	12
	24-button type	KYN=1-24	24
	24-button type (with 8LK Unit)	KYN=1-32 (24+8)	32
	8-button type (DESI-LESS) Note 3	KYN=1-32 (8 x 4=32)	32 (virtual)
DT700 Series: DT730G	12-button type (12DG)	KYN=1-12	12
	12-button type (12CG) (with Color LCD)	KYN=1-12	12
	24-button type (24DG)	KYN=1-24	24
	24-button type (24CG) (with Color LCD)	KYN=1-24	24
DT700 Series: DT750	Color LCD display type	KYN=1-32 (8 x 4=32)	32 (virtual)
DT700 Series: DT770G	Cradle type	KYN=1-2	2
DtermIP INASET	8-button type	KYN=1-8	8
DT300 Series: DT310	2-button type (without LCD)	KYN=1-2	2
	6-button type	KYN=1-6	6
	12-button type (without LCD) Note 5	KYN=1-12	12
DT300 Series: DT330	12-button type	KYN=1-12	12
	12-button type (with PSA Unit) Note 2	KYN=1-12	12
	12-button type Cordless Terminal	KYN=1-12	12
	24-button type	KYN=1-24	24
	24-button type (with 8LK Unit)	KYN=1-32 (24+8)	32
	8-button type (DESI-LESS) Note 3	KYN=1-32 (8 x 4=32)	32 (virtual)

Note 2: Analog PSTN Adapter (PSA) Unit enables a Desktop terminal to switch to Public Switched Telephone Network (PSTN) when power failure occurs.

Note 3: DT800 Series: DT830 (8-button type)/DT820 (8-button type) DT700 Series: DT730 (8-button type)/DT710 (8-button type) DT400 Series: DT430 (8-button type) and DT300 Series: DT330 (8-button type), which are enabled to display programmable Line/Feature key information on its Liquid Crystal Display (LCD), will hereafter be called DESI-LESS.

Note 4: Dterm Series i mode is not supported.

Note 5: Available only in North America.

5. Before assigning the key data for a Desktop terminal using this command, be sure to assign the station data of the Desktop terminal using the ASDT command (TN, STN, TEC=12 (Desktop terminal)). The station number assigned by the ASDT command is referred to as MY LINE. **Note 6**

Note 6: This My Line corresponds to the physical port associated with the LENS of an ELC card.

6. By assigning another station line to a Line/Feature key using this command, an incoming call terminated to a station line other than My Line can be answered or can be transferred as in the case of the My Line. A station line other than My Line is referred to as a Sub Line. A Sub Line can be assigned not only to a Desktop terminal but to any conventional telephone. In addition, the station data for My Line and Sub Line must be assigned by the ASDT command before the key data is assigned. When the Sub Line and the My Line belong to different tenants, use the ATNR command to clear the Tenant-to-Tenant Restriction.
7. A Multi-Line key (the key for My Line and Sub Line) on the Desktop terminal can be assigned as Prime Line. If a separate Prime Line is not assigned, the My Line can serve as the Prime Line. When the user goes off-hook, the Prime Line is automatically selected on the Desktop terminal.
8. A Virtual Line can be assigned as a Sub Line of the Desktop terminal. The Virtual Line can be used the same way as the My Line for outgoing calls and other service operations. **Note 7**

Note 7: Virtual Line—A virtual LENS exists only in memory, but does not exist physically. Data can be assigned but no hardware is required.

Example: LENS=000311. The virtual LENS is assigned by the ASDT command in the same way as an ordinary line. (The telephone class is **TEC=18:** Virtual Line)

9. If the station user accepts the default key data settings, the data assignment of this command is not required. The default data for each Line/Feature key is shown below.

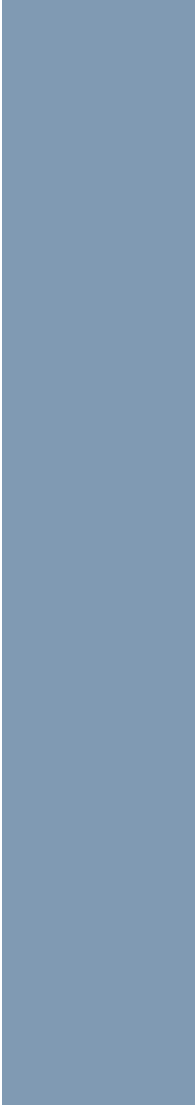


Peripheral Equipment Description (Multi-Line Telephone)



CHAPTER 3

IP STATION



1. General

1.1 Kind of IP Station

1.1.1 DT800 Series



DT800 Series has a lineup of terminals with 6 to 24 Line/Feature keys. Each Line/Feature key can be used as a Line key, DSS key, SPD key or Feature key. Terminal with 4-line LCD displays various information on the LCD.

DT800 Series			Number of Line/Feature Keys
DT800 Series	DT830G	12-button type (12DG)	12
		12-button type with Color Display (12CG)	12
		24-button type (24DG)	24
		24-button type with Color Display (24CG)	24
	DT830	8-button type (DESI-LESS)	32 (8x4) (virtual)
		24-button type	24
		12-button type	12
	DT820	8-button type (DESI-LESS)	8
		6-button type	6

- DESI-LESS Terminal (DT830/DT820)



DT830 DESI-LESS is enabled to display information assigned to a total of 32 Line/Feature keys (virtual) on its LCD. Each Line/Feature key can be used as a Line key, Direct Station Selection (DSS) key, Speed Dialing (SPD) key or Feature key. A 4-line LCD displays various information as well. **Note 1**

On the LCD, the pages are represented as page icons. The icon's various backgrounds display information regarding events happening on that particular page. For details, see the following table.

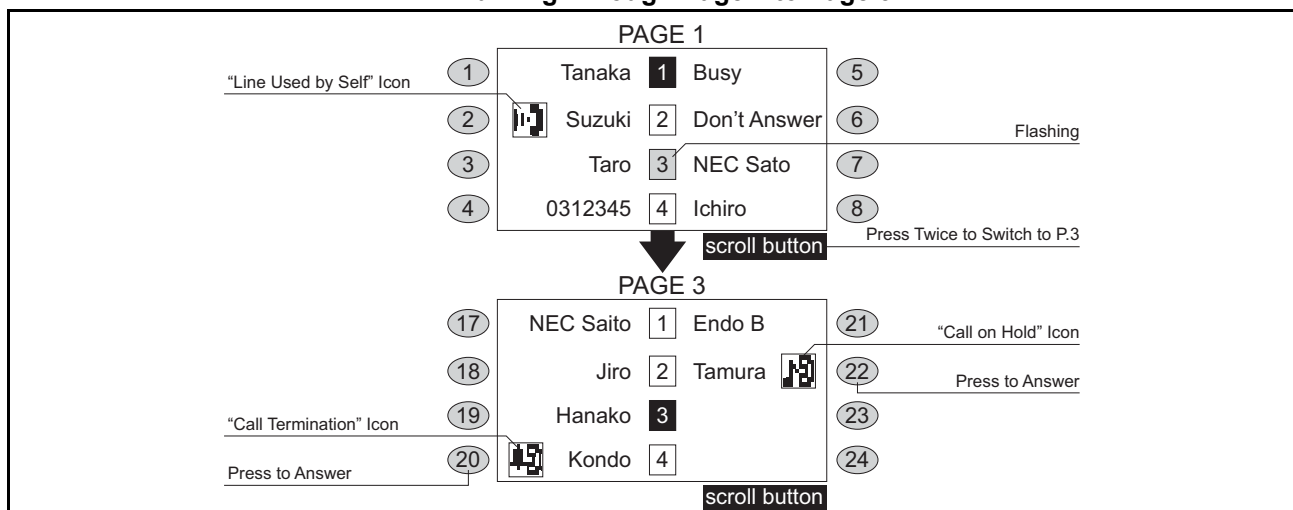
Note 1: For DT820, up to 8 Line Feature keys can be assigned.

Icon	Page	Line/Feature Key Number	Icon Background
	1	1/2/3/4/5/6/7/8	Black background indicates a currently displayed page.
	2	9/10/11/12/13/14/15/16	White background indicates a page without any event happening.
	3	17/18/19/20/21/22/23/24	Flashing indicates a page where an event is happening, such as call termination to a Line key or call back.
	4	25/26/27/28/29/30/31/32	White background indicates a page without any event happening.

A set of eight Line/Feature key information can be developed over four pages. By using the page scroll button, the user can manually turn through pages one to four.

Note: For DT820, the page icons are not displayed on LCD. Also, the scroll button is not available.

Turning Through Page 1 to Page 3



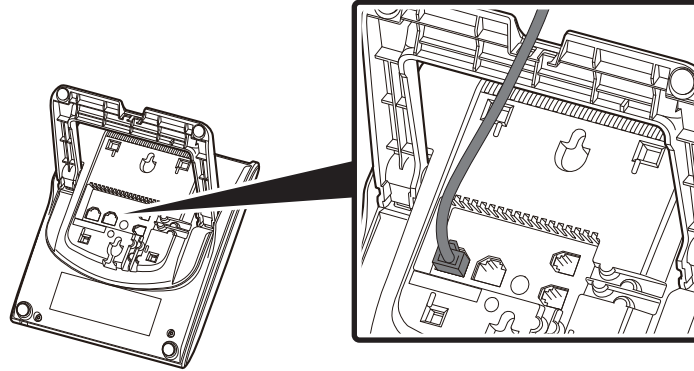
1.2 DT820 Cabling

To connect DT820 to the network device such as HUB, PoE Switch through the LAN cable, use the following procedure. Prepare LAN cables (10BASE-T/100BASE-T/TX straight-through) for connecting the telephone to network device.

STEP 1: Connect the telephone to the network device using a LAN cable.

When you connect the telephone to a PC, connect them through a connector on the back of the telephone using a LAN cable.

STEP 2: Thread the LAN cable on the back of the telephone.



1.3 Wall Mounting of DT820

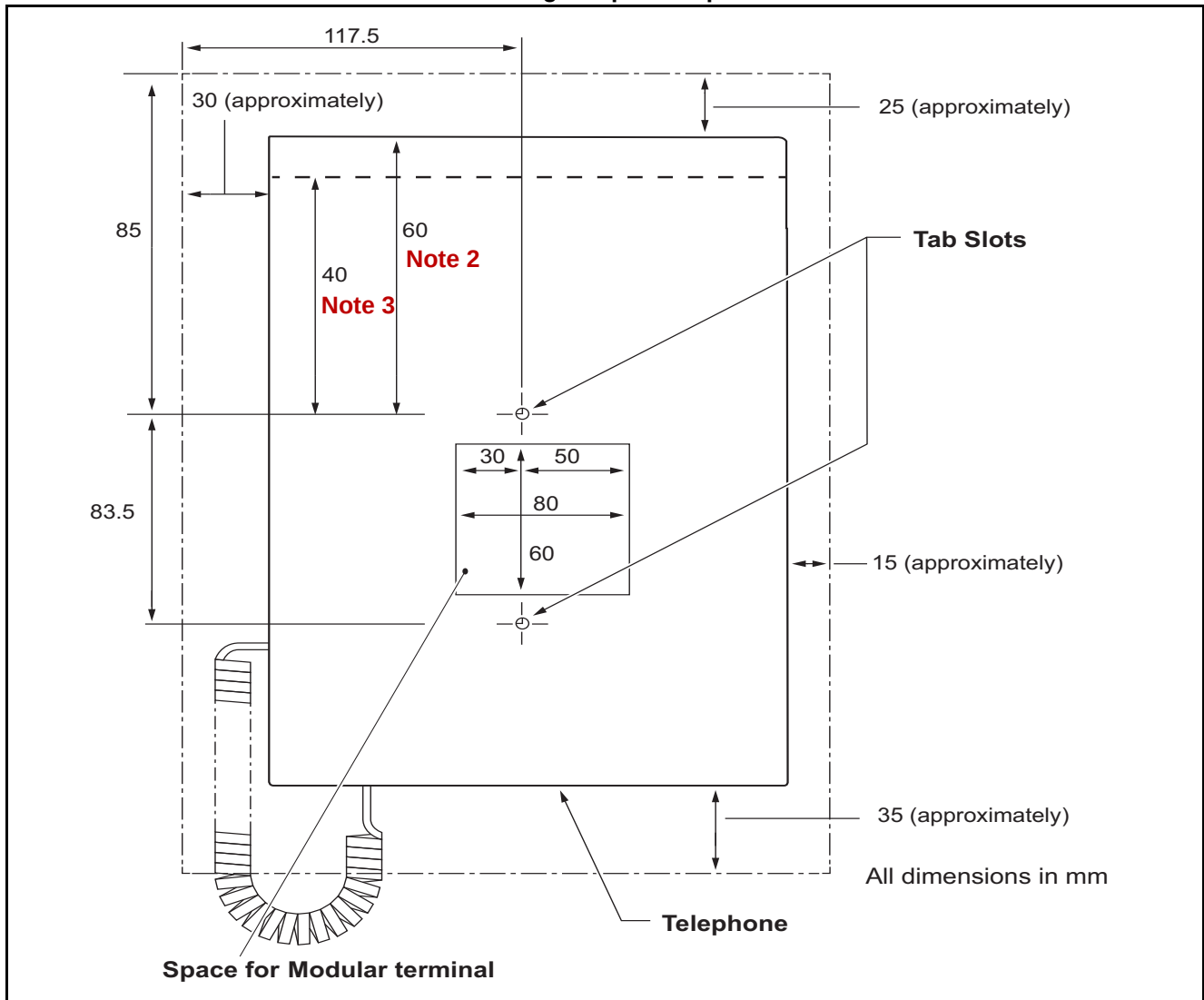
A wall mount unit (IP4WW-WALL MOUNT UNIT) is used to mount DT820 telephones on the wall. This unit connects to the back side of the telephone.

WARNING: Be careful not to drop the telephone set while mounting it on the wall.
Make sure the telephone set is firmly mounted on the wall to prevent the telephone set from falling out. It can cause injury.

To mount the telephone set on the wall, the following space is required.

Do not mount the telephone on the wall made of materials such as gypsum board. The location needs to be considered whether the wall bears the weight of telephone and maintains stability even during operations.

Mounting Telephone Space



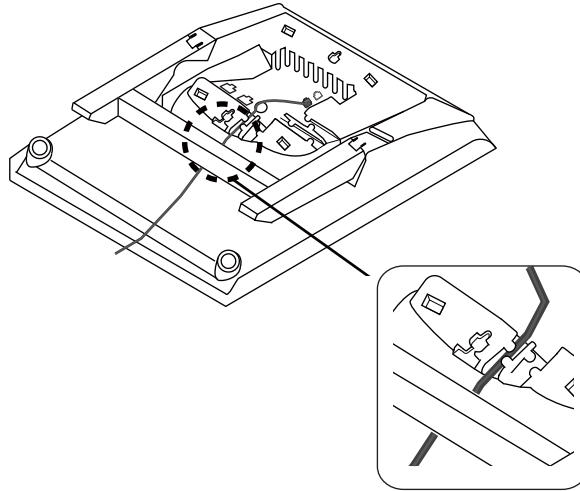
Note 2: The length for 8-button type (DESI-LESS).

Note 3: The length for 6-button type.

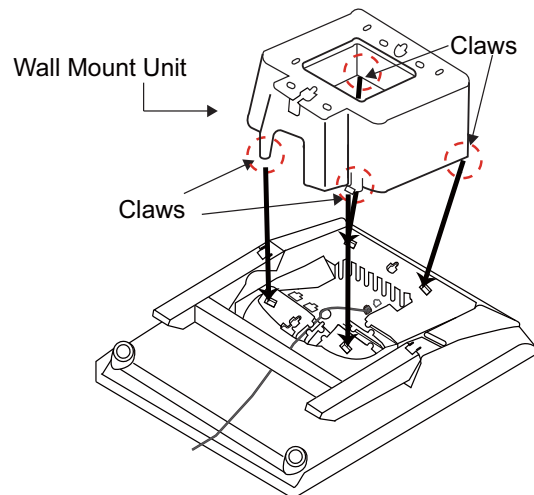
To mount the telephone set on the wall, use the following procedure.

STEP 1: Remove the handset cord from the terminal.

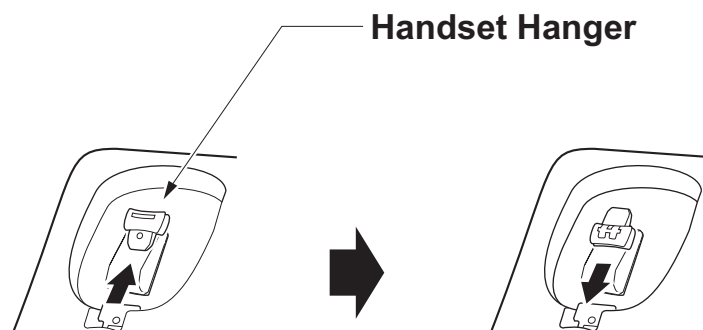
STEP 2: Connect the handset cord and pass it into the terminal and put down the leg as shown below.



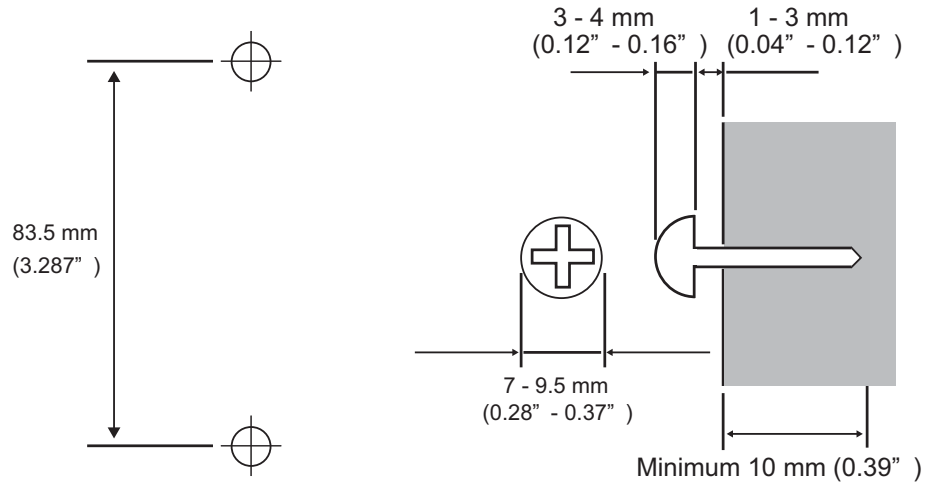
STEP 3: Attach the IP4WW-WALL MOUNT UNIT to the bottom side of the terminal as shown.



STEP 4: Remove the hanger from the handset once. Turn it upside down and then insert the hanger until you hear it clicks.



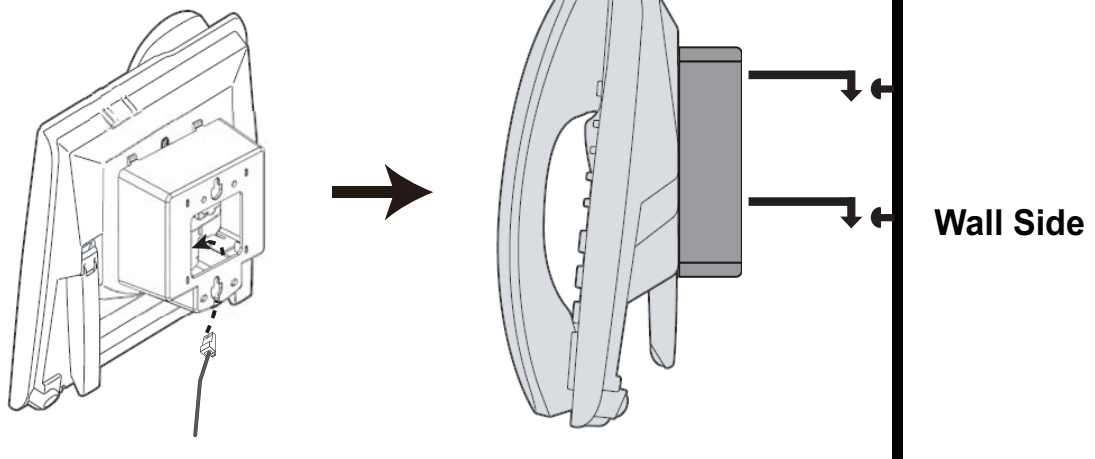
STEP 5: Install two screws into a wall. The screw heads must be remained about 3 mm (0.12).



STEP 6: Follow the procedures below to install the telephone on the wall.

(1) Pass the LAN Cable through the bottom part of wall mount unit and connect to the terminal.

(2) Mount the telephone on the wall.



1.4 DT820

This section explains the configuration setup for DT820. The following types of configuration settings are provided for DT820:

[1] Configuration Setup on Terminal

Configuration data can be assigned by terminal operation. Each terminal can assign various configuration data by key operation. Press the “Menu” button and start up the configuration menu on the LCD. For details, see Section 1.4.2 Configuration Data Setting Procedure.

[2] Configuration Setup by Web Programming

By using Web Programming application, various settings for the terminal is possible from the maintenance console. Web Programming supports both types of terminal; with LCD and without LCD. For details, see Section 1.4.2 Configuration Data Setting Procedure.

** This section describes the configuration settings related to the Telephony Server.*

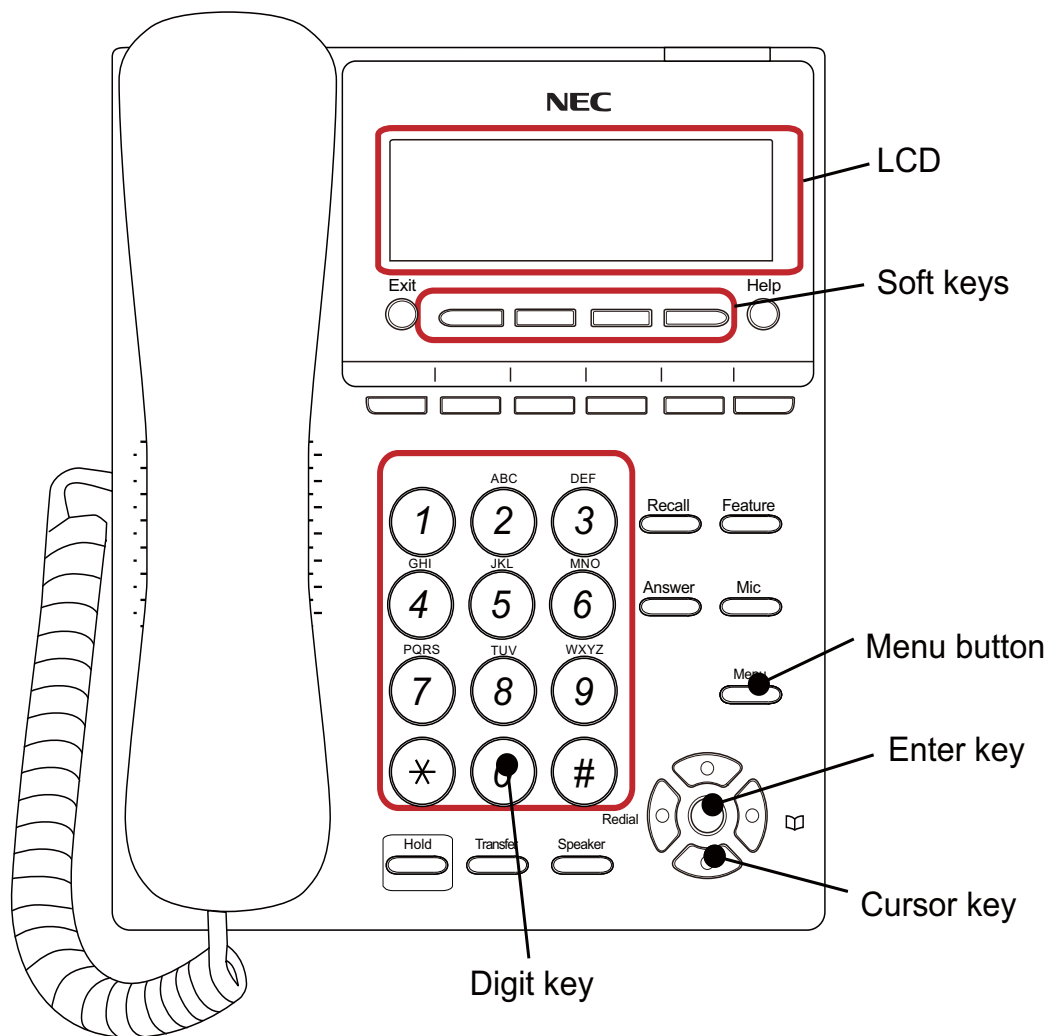
1.4.1 How to Start Configuration Setting

This section explains the operation procedure to start configuration settings on terminal and Web Programming on maintenance console.

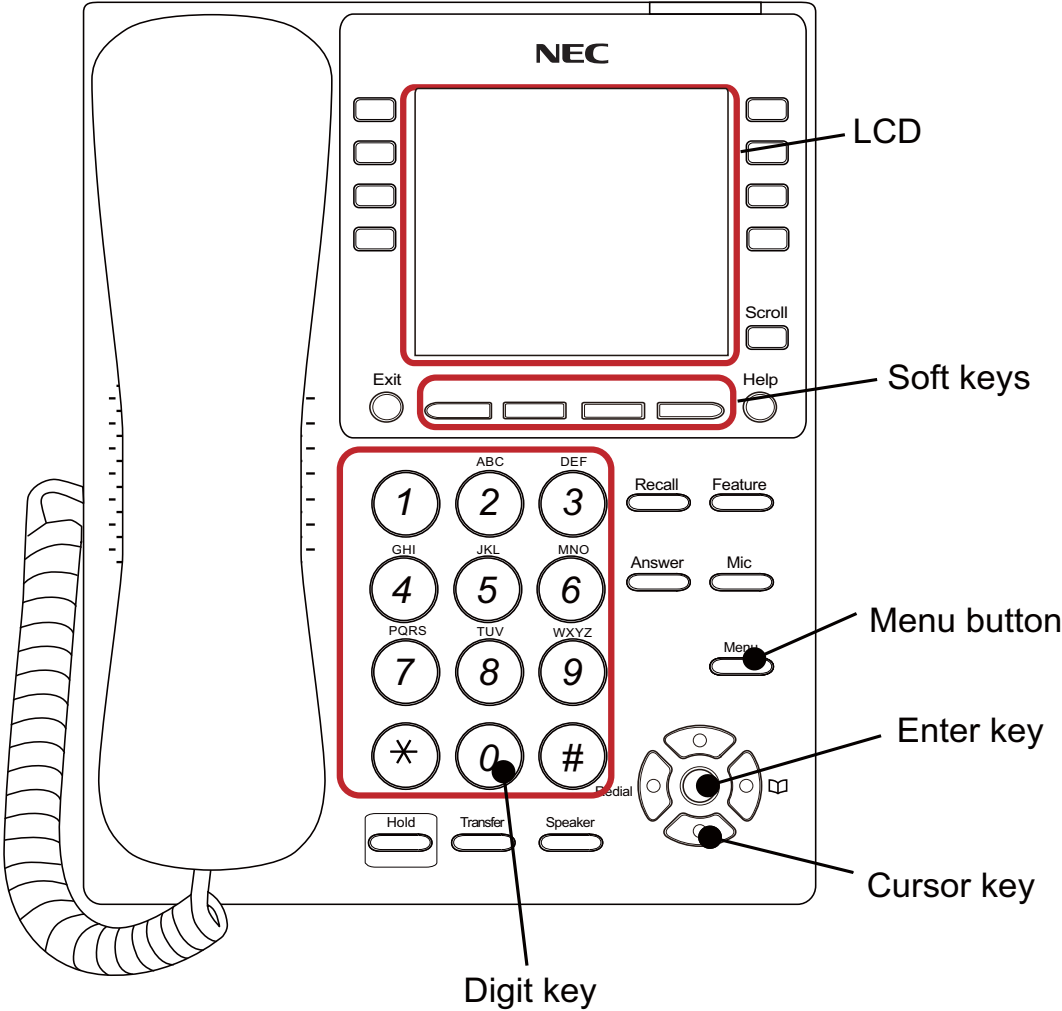
1.4.1.1 Configuration Setup on Terminal

This section explains the operation procedure to start configuration settings on terminal.

DT820 (6-button) Overview



DT820 (8-button type (DESI-LESS)) Overview



<Startup Procedure>

From turning ON the power to getting [Menu] and [Config] menus on the LCD are explained in this section.

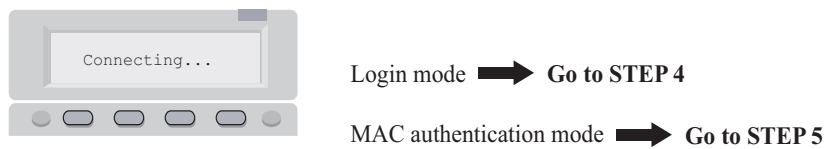
[1] Power On

STEP 1: Power ON, and plug in the LAN cable to the LAN port.

STEP 2: The following will be displayed on the LCD shortly after turning the power on.

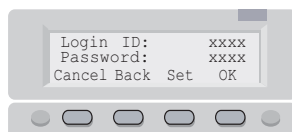


STEP 3: Shortly after the above is displayed, the following will be displayed on the LCD.

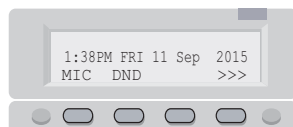


Note: If configuration data is already assigned to the terminal, the display may differ from the above.

STEP 4: For login mode, the LCD displays login screen. Enter Login ID and press Set, and then enter Password. After that, press the software key for "OK."



STEP 5: After a while, LCD displays date and time. **Note 1, Note 2**



Note 1: When you select [Setting]→[Display] → [Time Format] → [Automatic] from the configuration menu, a time display pattern can be changed by the system data (ASYDL System Data 1, Index1249).

Note 2: When the system data is changed, restart the terminal.

END

[2] Administrator Menu: [Config]

The LCD can be switched to [Config] for administrator's menu either before login or after login.

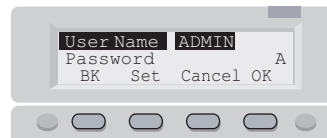
(a) Switch to [Config] menu before login

STEP 1: While the LCD indicating "Connecting..." after turning on the power (STEP 3 on the previous page), press the "Menu" + "0" keys.



Terminals with Menu button: "Menu"+"0"

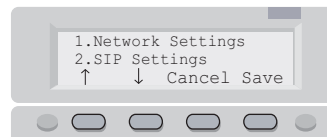
STEP 2: The LCD displays password entry screen. Enter User Name and Password, and then press the software key for "OK."



Note: Default value
User Name: ADMIN
Password: 6633222

*Be sure to change the default password.
See Section 1.4.2.13 Password Change.

STEP 3: After a while, [Config] menu is displayed.



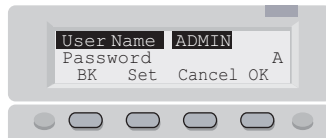
END

Note: Switch to [Config] menu after login

STEP 1: On [Menu] screen, select the following menu for each terminal type.

DT820 : "0" key

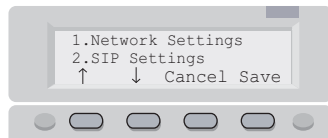
STEP 2: The LCD displays password entry screen for administrator's menu.



1. Enter User Name, and press the software key for "SET."
2. Enter Password, and press the software key for "OK."

Note: Default value
 User Name: ADMIN
 Password: 6633222
 *Be sure to change the default password.
 See Section 1.4.2.13 Password Change.

STEP 3: After a while, [Config] menu is displayed.



END

Note: To exit [Config] menu, press the software key for "Cancel" or "Save." After existing [Config] menu, the terminal restarts and returns to "Initializing..." display (STEP 2 in [1] Power On).

<Operations>

Follow the operations below to select the menu/parameter and to go forward/back the screen.

- Digit key - - - - - Pressing the digit key corresponding to the menu number moves on to the next screen.
- Cursor key - - - - - Press the cursor key to select the target menu/parameter on the list. Then press the ENTER key or the software key for "OK" to move on to the next screen.
- UP ↑ and DOWN ↓ on Software key - - - Press the software key for "↑" and "↓" to select the target menu/parameter on the list. Then press the ENTER key or the software key for "OK" to move on to the next screen.

[How to Enter Characters on Configuration Menu]

By key operation, users can input alphanumeric characters and symbols on the LCD for such as user ID and password entry. See the tables below for available characters and symbols.

Pressing the “*” key switches the character table in the order of Bg (uppercase) → Sm (lowercase) → Num (numbers).

English: Bg (Upper case)

Key	Number of Time(s) to Press the Keys														
	Once	Twice	Three	Four	Five	Six	Seven	Eight	Nine	Ten	Eleven	Twelve	Thir- teen	Four- teen	Fif- teen
1	.	,	\	1	?	!	@	:	;						
2	A	B	C	2											
3	D	E	F	3											
4	G	H	I	4											
5	J	K	L	5											
6	M	N	O	6											
7	P	Q	R	S	7										
8	T	U	V	8											
9	W	X	Y	Z	9										
0	(space)	O													
#	*	#	.	/	:	~	!	@	\$	%	^	&	(	)	'
	Six- teen	Seven- teen	Eigh- teen	Nine- teen	Twenty	Twenty one	Twenty two	Twenty three	Twenty four	Twenty five	Twenty six	Twenty seven	Twenty eight	Twenty nine	Thirty
1										;					
2															
3															
4															
5															
6															
7															
8															
9															
0															
#	?	_	+	-	=	[	]	{	}	<	>	,	;	\	

English: Sm (Lower case)

Key	Number of Time(s) to Press the Keys														
	Once	Twice	Three	Four	Five	Six	Seven	Eight	Nine	Ten	Eleven	Twelve	Thir- teen	Four- teen	Fif- teen
1	.	,	\	1	?	!	@	:	;						
2	a	b	c	2											
3	d	e	f	3											
4	g	h	i	4											
5	j	k	l	5											
6	m	n	o	6											
7	p	q	r	s	7										
8	t	u	v	8											
9	w	x	y	z	9										
0	(space)	O													
#	*	#	.	/	:	~	!	@	\$	%	^	&	(	)	'
	Six teen	Seven teen	Eigh- teen	Nine teen	Twenty	Twenty one	Twenty two	Twenty three	Twenty four	Twenty five	Twenty six	Twenty seven	Twenty eight	Twenty nine	Thirty
1										;					
2															
3															
4															
5															
6															
7															
8															
9															
0															
#	?	_	+	-	=	[	]	{	}	<	>	,	;	\	

[Function menu on Software key]

See the table below for the function menus allocated for the software keys in configuration settings.

SOFTWARE KEY DISPLAY	FEATURE
Common for all the menus	
↑	Scroll the focused line (highlighted line) up
↓	Scroll the focused line (highlighted line) down
OK	Confirm the entered/selected menu and move on to the next hierarchy
Back	Return to one menu hierarchy up without confirming the setting
Exec	Execute the setting with the entered/selected value
BK	Delete the entered character
Set	Move on to the next setting
Call History/Phonebook related	
Detail	Display detailed data
Option	Display optional menu
iCall	Originate a call to the displayed number
Prev	Return to the previous setting
Next	Move on to the next setting
[Config] for administrator's menu	
Save	Save the settings
Exit	Return to one menu hierarchy up
Cancel	Return to one menu hierarchy up without confirming the entered/selected value
IP/URI	Switch FQDN and IP address entry
Online Monitoring related	
Retry	Return to Ping menu

1.4.1.2 Configuration Setup by Web Programming

Web Programming is an application software for assigning the terminal configuration data via maintenance console using Web browser. This section explains how to start and operate Web Programming.

<Startup Procedure>

STEP 1: Open Web browser on the maintenance PC and enter the IP address of the target terminal.

Note: Make sure that “4. Security Settings” → “1. Web Programming” → “2. Enable” is set on the [Config] menu of the terminal.

STEP 2: Login window for Web Programming is displayed. Enter the User ID and the password.
“ADMIN” and “6633222” are set as the default value for User ID and password respectively. Be sure to change the default password. See Section 1.4.2.13 Password Change.

<Operations>

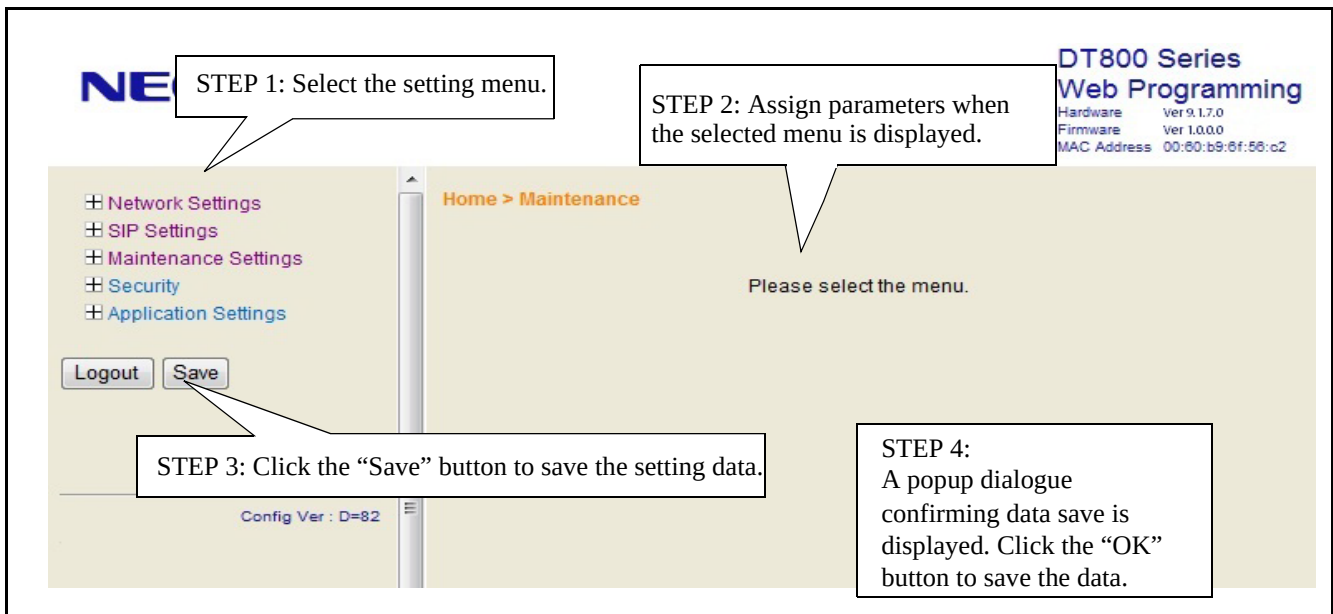
STEP 1: Setting menu is listed on the left field of the window. Select the target setting menu.

STEP 2: Setting parameters are displayed on the right frame of the window. Enter the parameters and then click the “OK” button.

STEP 3: After assigning all the menus, click the “Save” button on the bottom left of the window to save the assigned data.

STEP 4: A popup dialogue confirming data save is displayed. Click the “OK” button to save the data.
The terminal is rebooted when “OK” button is clicked.

Note: A popup dialogue confirming data save or rebooting the terminal is displayed when “Logout” button is clicked during the terminal’s login state.



1.4.2 Configuration Data Setting Procedure

This section explains the setting procedure of each configuration menu. The explanation covers the procedure for [1] Configuration Settings on Terminal and [2] Configuration Settings by Web Programming.

LCD varies depending on the terminal type and the setting condition. The explanation for the configuration setting procedure in the following sections goes with LCD of DT820 and digit key operation.

	DT820
Maximum number of lines displayed on LCD	3 lines
Operation	Digit key
	Cursor key
	Software key for “↑” and “↓”

Note: Refer to the operation manual of each terminal for the setting procedure using cursor key and software key.

1.4.2.1 IP Address of DT820 and SIP server

This menu assigns the IP address of terminal (only for without DHCP configuration) and the IP address (or FQDN) of SIP server. **Note 1**

Assignment procedure depends on the system configuration. Select from the following three methods (**Note 2**) for configuration assignment.

Note 1: “SIP server” used in this section refers to the Telephony Server. The Telephony Server acts as SIP server where DT820 is registered.

Note 2: About IP address of SIP server (Telephony Server), refer to “Registration Destination of IP Devices/Stations” in System Description.

TYPE 1: With DHCP Server (SIP Server’s IP Address is Pre-assigned by DHCP Server)

DHCP server is connected to the network. DT820 terminal starts up and operates by obtaining own IP address and subnet mask, IP address (or FQDN) of SIP server, and router (default gateway) address via the DHCP server.

IP address assignment is not required on the configuration settings of DT820 since SIP server’s IP address (or FQDN) is obtained via the DHCP server.

TYPE 2: With DHCP Server (SIP Server’s IP Address is Not Assigned by DHCP Server)

DHCP server is connected to the network. DT820 terminal starts up and operates by obtaining own IP address, subnet mask, and router (default gateway) address via the DHCP server.

SIP server’s IP address (or FQDN) is the only item necessary to be assigned on the configuration settings of DT820.

TYPE 3: Without DHCP Server

DHCP is in either of the following status; 1) DHCP server is not connected to the network or 2) the system is activated in a way that does not use the DHCP server.

It is necessary to assign the below in the DT820 configuration settings:

- IP address and subnet mask
- SIP server's IP address (or FQDN)
- Router (default gateway) address

[Setting Procedure]**STEP 1: Start up DT820**

Turn on the power via PoE feeding.

STEP 2: Initialize data

1. On [Config], select "3. Maintenance Settings."
2. On [Maintenance] menu, select "3. Data Clear."
3. On [Data Clear] menu, select "1. Factory Value."
4. On [Factory Value] menu, press the software key "OK."

STEP 3: Assign configuration data on [Network Settings] menu

Depending on the system configuration, assign the following network data.

Type 1: With DHCP Server (SIP Server's IP Address is Pre-assigned by DHCP Server)

- Set DHCP to "Enable."
- When necessary, assign IP address for DNS server.

Type 2: With DHCP Server (SIP Server's IP Address is Not Assigned by DHCP Server)

- Set DHCP to "Enable."
- Assign IP address (or FQDN) for the primary SIP server.
- Assign IP address for second, third, fourth SIP server. (Perform this assignment only when backup SIP server is prepared in the network.)
- When necessary, assign IP address for DNS server.

Type 3: Without DHCP Server

- Set DHCP to "Disable."
- Assign IP address (or FQDN) for the primary SIP server.
- Assign IP address for second, third, fourth SIP server. (Perform this assignment only when backup SIP server is prepared in the network.)
- When necessary, assign IP address for DNS server.
- Assign IP address for DT820 terminal.
- Assign the Default Gateway address.
- Assign Subnet Mask.

STEP 4: Save settings

On [Config] screen, press the software key "Save" to save the settings.

STEP 5: Restart DT820 terminal

<Type 1 - System with DHCP Server (SIP Server's IP Address Is Pre-assigned by DHCP Server)>

This section explains the procedure of DT820 data assignment for a system with DHCP server and SIP server's IP address (or FQDN) is preassigned on the DHCP server. The procedure assumes that the DHCP server notifies IP address of DT820, router (default gateway), subnet mask, and SIP server address (or FQDN).

Telephony Server's IP address (or FQDN) must be pre-assigned to DHCP Options in the following ways.

For DT820, select Option according to the following priorities:

1st priority is option 162.

If there is no option 162, 2nd priority is option 120.

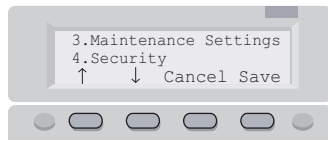
If there is no option 120, 3rd priority is terminal local settings.

Caution: *Observe the following while assigning the configuration data:*

- *Do Not Turn OFF the power of the terminal SIP server, DHCP server.*
- *Do Not Unplug or Plug the LAN cable connecting to the terminal, SIP server, DHCP.*
- *Do Not Turn OFF the power of the HUB connecting to the terminal, SIP server, DHCP.*

[1] Configuration Settings on Terminal

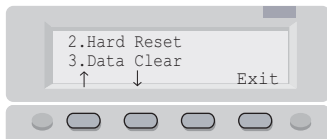
STEP 1: On [Config] main menu, select "3. Maintenance Settings."



Note: For other operations, "↑" and "↓" of software key, cursor key, and touch-sensitive panel operation are also available.

Note: For login mode, LoginID and Password entry is required here.

STEP 2: On [Maintenance] menu, select "3. Data Clear."



STEP 3: On [Data Clear] menu, select "1. Factory Value."



STEP 4: On [Factory Value] screen, press the software key for "OK" to confirm.



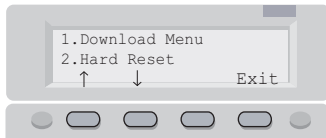
STEP 5: All the parameters return to factory default settings. On [Data Clear] menu, press the software key for "Exit" to display [Maintenance] menu.



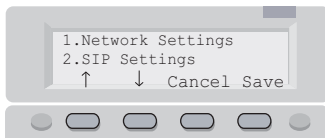
A

A

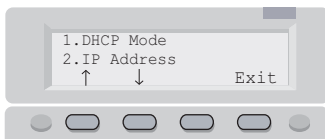
STEP 6: On [Maintenance] menu, press the software key for "Exit" to return to [Config] main menu.



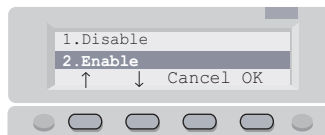
STEP 7: On [Config] menu, select "1. Network Settings."



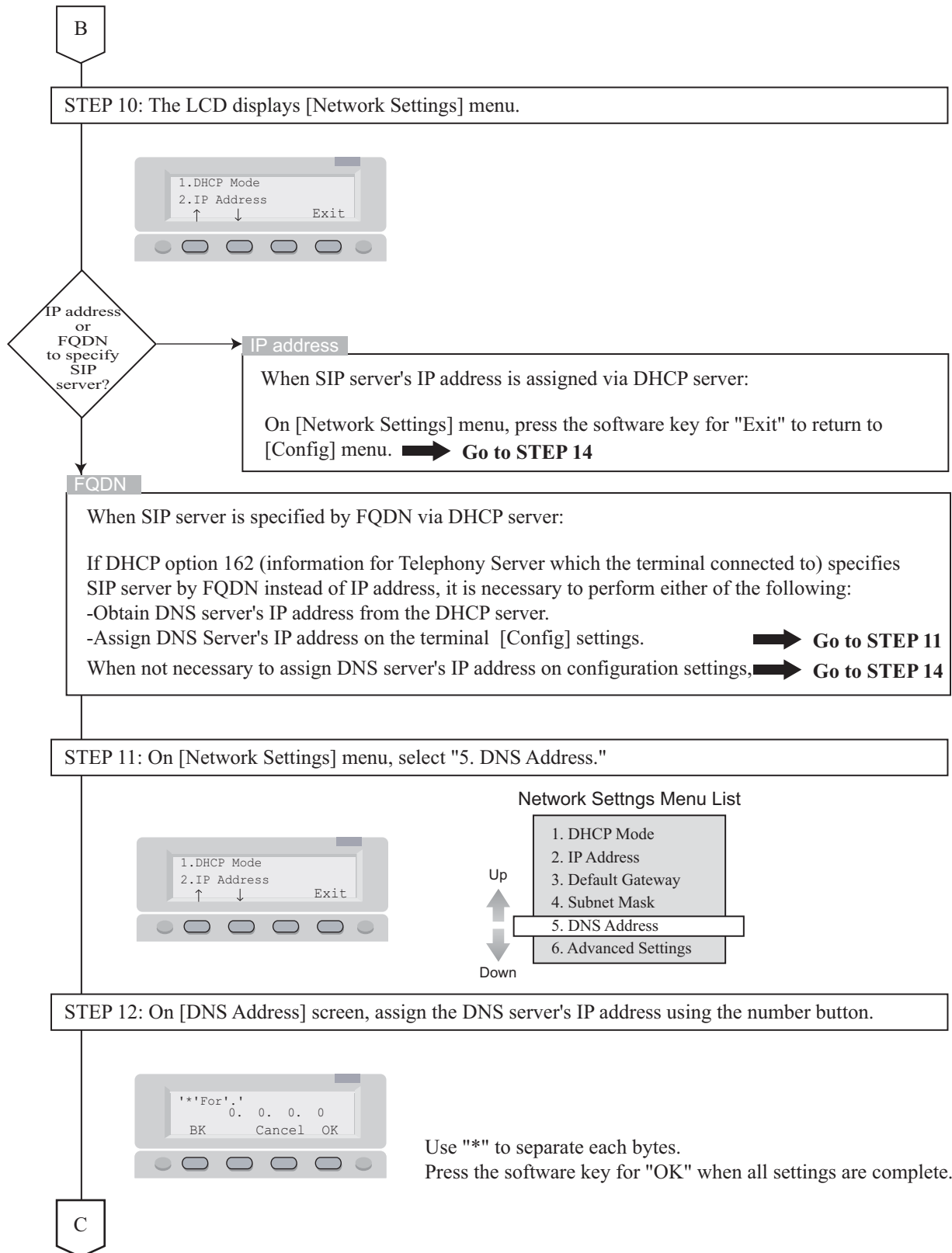
STEP 8: On [Network Settings] menu, select "1. DHCP Mode".



STEP 9: On [DHCP Mode] screen, verify that "2. Enable" is highlighted, and then press the software key for "OK."

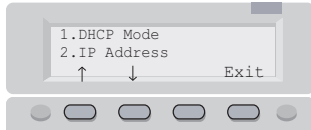


B

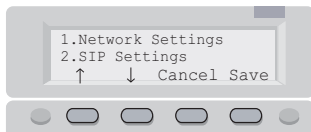


C

STEP 13: The LCD displays [Network Settings] menu. Press the software key for "Exit" to return to [Config] menu.



STEP 14: On [Config] screen, press the software key "Save" to save the settings. SIP server begins setup for the terminal.



Note: In the following instances, the terminal will display an error message.

- SIP server does not exist in the network.
- Connection to SIP server could not be established since the user assigned an incorrect value.
- Connection to DHCP Server could not be established since the user assigned an incorrect value.

If the above occurs, perform one of the following:

- Reassign data settings.
- Connect SIP server to the network.
- Connect DHCP Server to the network.

Refer to "Error Messages" for details on error messages.

END

[2] Configuration Settings by Web Programming

STEP 1: Select [Maintenance] → [Data Clear] → [Factory Value].

STEP 2: Clicking the “OK” button will return all the parameters to factory default settings.

STEP 3: Select [Network Settings] → [DHCP Mode].

STEP 4: Select “2. Enable” radio button (DHCP is enabled). Click the “OK” button.

STEP 5: Depending on the way to specify SIP server, perform either of the following:

- a. When SIP server is specified by IP address via DHCP: → Go to STEP 8.
- b. When SIP server is specified by FQDN via DHCP: → Go to STEP 6.

If DHCP option 162 (information of SIP server which DT820 connected to) specifies SIP server by FQDN instead of IP address, it is necessary to perform either of the following:

- Obtain DNS server’s IP address from the DHCP server.
- Assign DNS server’s IP address on DT820 configuration settings.

When not necessary to assign DNS server’s IP address on configuration settings, STEP 8.

STEP 6: Select [Network Settings] → [DNS Address].

STEP 7: Enter the IP address of DNS server. Click the “OK” button.

STEP 8: Click the “Save” button. After setting is complete, SIP server begins setup for DT820.

Note: In the following instances, the terminal will display an error message.

- SIP server does not exist in the network.
- Connection to SIP server could not be established since the user assigned an incorrect value.
- Connection to DHCP Server could not be established since the user assigned an incorrect value

If the above occurs, perform one of the following:

- Reassign data settings.
- Connect SIP server to the network.
- Connect DHCP Server to the network.

Refer to “Error Messages” for details on error messages.

<Type 2 - System with DHCP Server (SIP Server's IP Address Is Not Assigned by DHCP Server)>

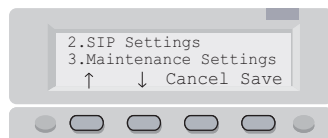
This section explains the procedure of DT820 data assignment for a system with DHCP server and SIP server's IP address (or FQDN) is NOT assigned on the DHCP server yet. SIP server's IP address (or FQDN) is the only item necessary to be assigned on the configuration settings of DT820.

Caution: Observe the following while assigning the configuration data:

- Do Not Turn OFF the power of the terminal, SIP server, DHCP server.
- Do Not Unplug or Plug the LAN cable connecting to the terminal, SIP server, DHCP.
- Do Not Turn OFF the power of the HUB connecting to the terminal, SIP server, DHCP.

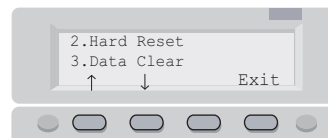
[1] Configuration Settings on Terminal

STEP 1: On [Config] main menu, select "3. Maintenance Settings."



Note: For other operations, "↑" and "↓" of software key, and cursor key are also available.

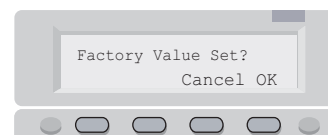
STEP 2: On [Maintenance] menu, select "3. Data Clear."



STEP 3: On [Data Clear] menu, select "1. Factory Value."



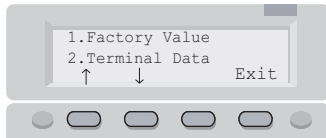
STEP 4: On [Factory Value] screen, press the software key for "OK."



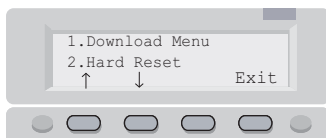
A

A

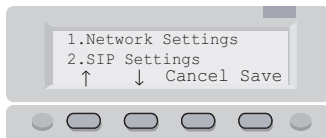
STEP 5: All the parameters return to factory default setting. On [Data Clear] menu, press the software key for "Exit" to display [Maintenance] menu.



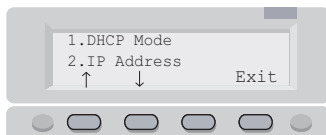
STEP 6: On [Maintenance] menu, press the software key for "Exit" to return to [Config] main menu.



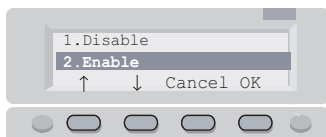
STEP 7: On [Config] menu, select "1. Network Settings."



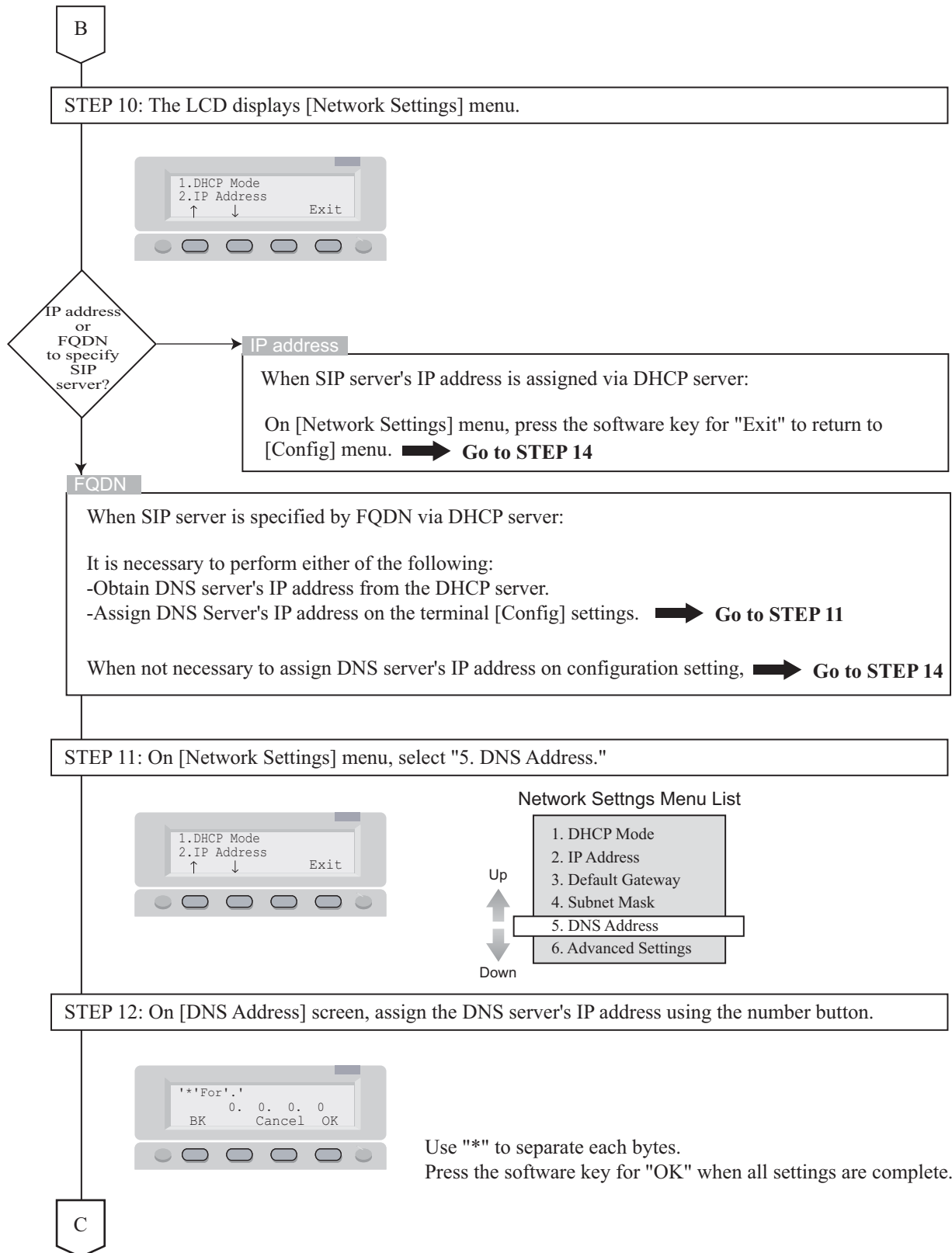
STEP 8: On [Network Settings] menu, select "1. DHCP Mode".



STEP 9: On [DHCP Mode] screen, verify that "2. Enable" is highlighted, and then press the software key for "OK."

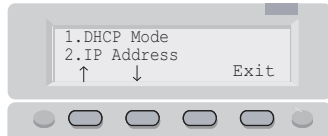


B

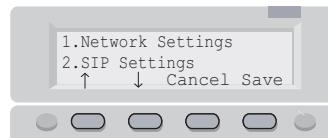


C

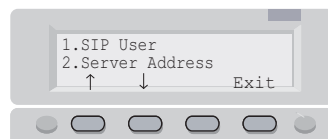
STEP 13: The LCD displays [Network Settings] menu. Press the software key for "Exit" to return to [Config] menu.



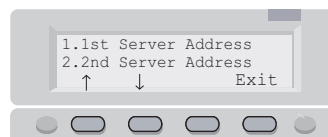
STEP 14: On [Config] menu, select "2. SIP Settings."



STEP 15: On [SIP Settings] menu, select "2. Server Address."



STEP 16: On [Server Address] menu, select "1. 1st Server Address."



D

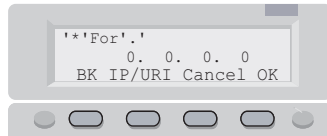
D

STEP 17: The LCD displays the [1st Server Address] setting screen.

Depending on the way to specify SIP server; by IP address or FQDN, perform either of the following:

IP address

When specifying the SIP server by IP address:



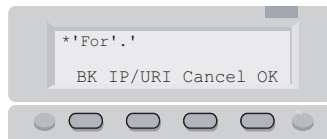
Assign the IP address of SIP server using digit keys.

Use "*" to separate each bytes.

Press the software key for "OK" when all settings are complete.

FQDN

When specifying the SIP server by FQDN:



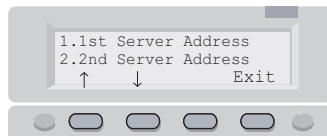
Press the software key for "IP/URI" to switch the mode to URI entry.

Assign fully qualified domain name of SIP server using digit keys. 0-9, A-Z, a-z, *, #, . (period), - (hyphen), and _ (underscore) is available to use for domain name entry (maximum 128 characters).

Press the software key for "OK" when all settings are complete.

Note: DNS server's assignment is necessary when using fully qualified domain name. See "IP Address Setting for DNS Server" for details.

STEP 18: If there are backup SIP servers in the network, continue assigning 2nd, 3rd and 4th SIP server addresses.

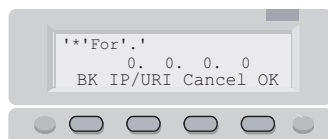


- Select "2" to assign the second SIP server

- Select "3" to assign the third SIP server

- Select "4" to assign the fourth SIP server

STEP 19: The LCD displays each of the [Server Address] setting screen.



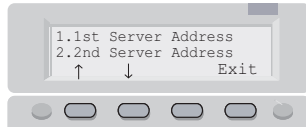
As in STEP 17, specify the SIP server by IP address or FQDN.

Press the software key for "OK" when all settings are complete and return to [Server Address] menu.

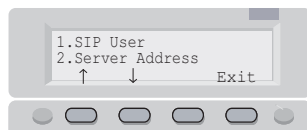
E

E

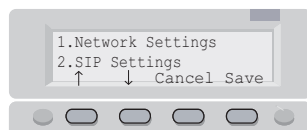
STEP 20: On [Server Address] menu, press the software key for "Exit" to return to [SIP Settings] menu.



STEP 21: On [SIP Settings] menu, press the software key for "Exit" to return to [Config] menu.



STEP 22: On [Config] screen, press the software key "Save" to save the settings. SIP server begins setup for the terminal.



Note: In the following instances, the terminal will display an error message.

- SIP server does not exist in the network.
- Connection to SIP server could not be established since the user assigned an incorrect value.
- Connection to DHCP Server could not be established since the user assigned an incorrect value.

If the above occurs, perform one of the following:

- Reassign data settings.
- Connect SIP server to the network.
- Connect DHCP Server to the network.

Refer to "Error Messages" for details on error messages.

END

[2] Configuration Settings by Web Programming

STEP 1: Select [Maintenance] → [Data Clear] → [Factory Value].

STEP 2: Clicking the “OK” button will return all the parameters to factory default settings.

STEP 3: Select [Network Settings] → [DHCP Mode].

STEP 4: Select “2. Enable” radio button (DHCP is enabled). Click the “OK” button.

STEP 5: Depending on the way to specify SIP server, perform either of the following:

- a. When SIP server is specified by IP address via DHCP: → Go to STEP 8.
- b. When SIP server is specified by FQDN via DHCP: → Go to STEP 6.

If DHCP option 162 (information of SIP server which DT820 connected to) specifies SIP server by FQDN instead of IP address, it is necessary to perform either of the following:

- Obtain DNS server’s IP address from the DHCP server.
- Assign DNS server’s IP address on DT820 configuration settings.

When not necessary to assign DNS server’s IP address on configuration settings, STEP 8.

STEP 6: Select [Network Settings] → [DNS Address].

STEP 7: Enter the IP address of DNS server. Click the “OK” button.

STEP 8: Select [SIP Settings] → [Server Address URI] → [1st Server Address].

- a. To specify SIP server by IP address:

Assign the IP address of SIP server, and then click the “OK” button. **Note 3**

- b. To specify SIP server by FQDN:

Assign fully qualified domain name of SIP server, and then click the “OK” button. 0-9, A-Z, a-z, *, #, . (period), - (hyphen), and _(underscore) is available to use for domain name entry (maximum 128 characters).

Note: DNS server’s assignment is necessary when using fully qualified domain name. See “IP Address Setting for DNS Server” for details.

Note 3: About IP address of SIP server (Telephony Server), refer to “Registration Destination of IP Devices/Stations” in System Description.

STEP 9: If there are backup SIP servers in the network, continue assigning 2nd, 3rd and 4th SIP server.

- Click [2nd Server Address] to assign the second SIP server.
- Click [3rd Server Address] to assign the third SIP server.
- Click [4th Server Address] to assign the fourth SIP server.

STEP 10: As in STEP 8, specify the SIP server by IP address or FQDN. Click the “OK” button after assigning the data.

STEP 11: Click the “Save” button. After all settings are complete, SIP server begins setup for DT820.

Note: In the following instances, the terminal will display an error message.

- SIP server does not exist in the network
- Connection to SIP server could not be established since the user assigned an incorrect value.
- Connection to DHCP Server could not be established since the user assigned an incorrect value

If the above occurs, perform one of the following:

- Reassign data settings
- Connect SIP server to the network.
- Connect DHCP Server to the network.

Refer to “Error Messages” for details on error messages.

<Type 3 - System without DHCP Server>

This section explains the procedure of DT820 data assignment for a system without DHCP server; DHCP server is not connected to the network or the system is activated in a way that does not use DHCP server.

The followings are necessary to assign in the DT820 configuration setting:

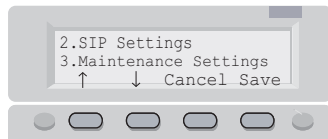
- DT820 terminal's IP address and Subnet mask
- Router (default gateway) address
- SIP server's IP address (or FQDN)

Caution: Observe the following while assigning the configuration data:

- Do Not Turn OFF the power of the terminal, SIP server, DHCP server.
- Do Not Unplug or Plug the LAN cable connecting to the terminal, SIP server, DHCP.
- Do Not Turn OFF the power of the HUB connecting to the terminal, SIP server, DHCP.

[1] Configuration Settings on Terminal

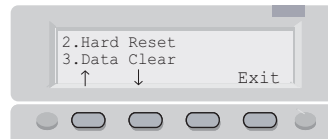
STEP 1: On [Config] main menu, select "3. Maintenance Settings."



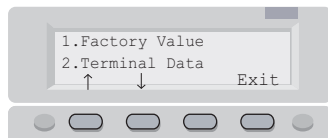
Note: For other operations, "↑" and "↓" of software key, and cursor key are also available.

Note: For login mode, LoginID and Password entry is required here.

STEP 2: On [Maintenance] menu, select "3. Data Clear."



STEP 3: On [Data Clear] menu, select "1. Factory Value."



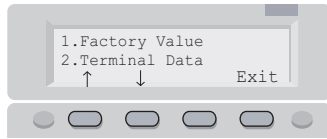
STEP 4: On [Factory Value] screen, press the software key for "OK."



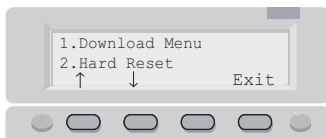
A

A

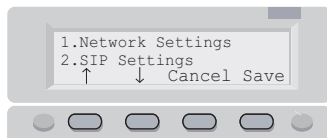
STEP 5: All the parameters return to factory default settings. On [Data Clear] menu, press the software key for "Exit" to display [Maintenance] menu.



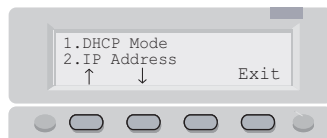
STEP 6: On [Maintenance] menu, press the software key for "Exit" to return to [Config] main menu.



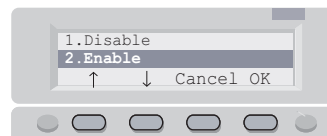
STEP 7: On [Config] menu, select "1. Network Settings."



STEP 8: On [Network Settings] menu, select "1. DHCP Mode".



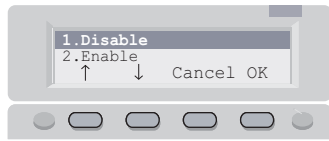
STEP 9: On [DHCP Mode] screen, "2. Enable" is highlighted.



B

B

STEP 10: Select "1." and verify that "1. Disabled" line is highlighted. Then press the software key for "OK."



STEP 11: The LCD displays [Network Settings] menu. Select "2. IP Address" to display [IP Address] menu.



STEP 12: On [IP Address] setting screen, assign the IP address of DT820 using number keys.



Use "*" to separate each bytes.

Press the software key for "OK" when all settings are complete.

STEP 13: The LCD displays [Network Settings] menu. Select "3. Default Gateway" to display [Default Gateway] menu.



STEP 14: On [Default Gateway] setting screen, assign the IP address of DT820 using digit keys.



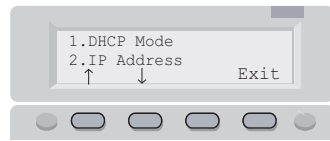
Use "*" to separate each bytes.

Press the software key for "OK" when all settings are complete.

C

C

STEP 15: The LCD displays [Network Settings] menu. Select "4. Subnet Mask."



Network Settings Menu List

1. DHCP Mode
2. IP Address
3. Default Gateway
4. Subnet Mask
5. DNS Address
6. Advanced Settings

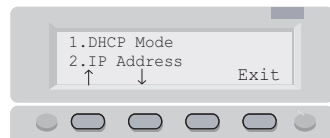
Up
Down

STEP 16: The LCD displays [Subnet Mask] setting screen. Assign subnet mask using digit keys.



Use "*" to separate each bytes.
Press the software key for "OK" when all settings are complete.

STEP 17: The LCD displays [Network Settings] menu.



IP address
or
FQDN
to specify
SIP
server?

IP address

When IP address is used to specify SIP server:

On [Network Settings] menu, press the software key for "Exit" to return to [Config] menu. ➡ **Go to STEP 22**

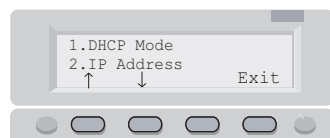
FQDN

When FQDN is used to specify SIP server:

Assign DNS Server's IP address on [Config] settings.

➡ **Go to STEP 18**

STEP 18: On [Network Settings] menu, select "5. DNS Address."



Network Settings Menu List

1. DHCP Mode
2. IP Address
3. Default Gateway
4. Subnet Mask
5. DNS Address
6. Advanced Settings

Up
Down

D

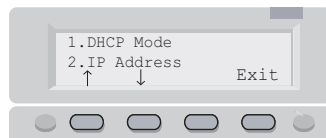
D

STEP 19: On [DNS Address] screen, assign the DNS server's IP address using the number button.

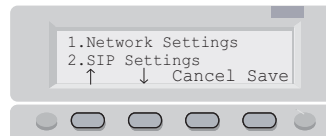


Use "*" to separate each bytes.
Press the software key for "OK" when all settings are complete.

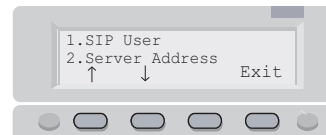
STEP 20: The LCD displays [Network Settings] menu. Press the software key for "Exit" to return to [Config] menu.



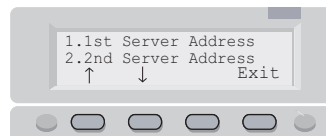
STEP 21: On [Config] menu, select "2. SIP Settings."



STEP 22: On [SIP Settings] menu, select "2. Server Address."



STEP 23: On [Server Address] menu, select "1. 1st Server Address."



E

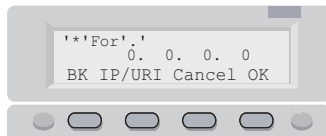
E

STEP 24: The LCD displays the [1st Server Address] setting screen.

Depending on the way to specify SIP server; by IP address or FQDN, perform either of the following:

IP address

When specifying the SIP server by IP address:



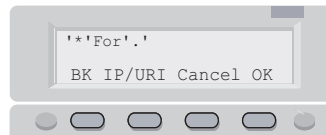
Assign the IP address of SIP server using digit keys.

Use "*" to separate each bytes.

Press the software key for "OK" when all settings are complete.

FQDN

When specifying the SIP server by FQDN:



Press the software key for "IP/URI" to switch the mode to URI entry.

Assign fully qualified domain name of SIP server using digit keys. 0-9, A-Z, a-z, *, #, . (period), - (hyphen), and _ (underscore) is available to use for domain name entry (maximum 128 characters).

Press the software key for "OK" when all settings are complete.

Note: DNS server's assignment is necessary when using fully qualified domain name. See "IP Address Setting for DNS Server" for details.

STEP 25: If there are backup SIP servers in the network, continue assigning 2nd, 3rd and 4th SIP server addresses.



- Select "2" to assign the second SIP server
- Select "3" to assign the third SIP server
- Select "4" to assign the fourth SIP server

STEP 26: The LCD displays each of the [Server Address] setting screen.



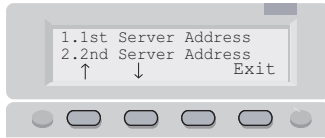
As in STEP 24, specify the SIP server by IP address or FQDN.

Press the software key for "OK" when all settings are complete and return to [Server Address] menu.

F

F

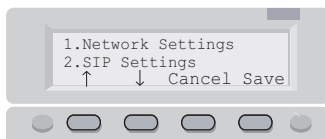
STEP 27: On [Server Address] menu, press the software key for "Exit" to return to [SIP Settings] menu.



STEP 28: On [SIP Settings] menu, press the software key for "Exit" to return to [Config] menu.



STEP 29: On [Config] screen, press the software key "Save" to save the settings. SIP server begins setup for the terminal.



Note: In the following instances, the terminal will display an error message.

- SIP server does not exist in the network.
- Connection to SIP server could not be established since the user assigned an incorrect value.
- Connection to DHCP Server could not be established since the user assigned an incorrect value.

If the above occurs, perform one of the following:

- Reassign data settings.
- Connect SIP server to the network.
- Connect DHCP Server to the network.

Refer to "Error Messages" for details on error messages.

END

[2] Configuration Settings by Web Programming

STEP 1: Select [Maintenance] → [Data Clear] → [Factory Value].

STEP 2: Clicking the “OK” button will return all the parameters to factory default settings.

STEP 3: Select [Network Settings] → [DHCP Mode].

STEP 4: Select “1. Disable” radio button (DHCP is disabled). Click the “OK” button.

STEP 5: Select [Network Settings] → [IP Address].

STEP 6: Enter the IP address of the DT820 terminal. Click the “OK” button.

STEP 7: Select [Network Settings] → [Default Gateway].

STEP 8: Enter the IP address of default gateway (router). Click the “OK” button.

STEP 9: Select [Network Settings] → [Subnet Mask].

STEP 10: Enter subnet mask. Click the “OK” button.

STEP 11: Depending on the way to specify SIP server, perform either of the following:

- a. When SIP server is specified by IP address: → Go to STEP 14.
- b. When SIP server is specified by FQDN: → Go to STEP 12.

Note: Assign DNS server’s IP address on DT820 configuration settings.

STEP 12: Select [Network Settings] → [DNS Address].

STEP 13: Enter the IP address of DNS server. Click the “OK” button.

STEP 14: Select [SIP Settings] → [Server Address & URI] → [1st Server Address].

- a. To specify SIP server by IP address:

Assign the IP address of SIP server, and then click the “OK” button. **Note 4**

- b. To specify SIP server by FQDN:

Assign fully qualified domain name of SIP server, and then click the “OK” button. 0-9, A-Z, a-z, *, #, . (period), - (hyphen), and _(underscore) is available to use for domain name entry (maximum 128 characters).

Note: DNS server’s assignment is necessary when using fully qualified domain name. See “IP Address Setting for DNS Server” for details.

Note 4: About IP address of SIP server (Telephony Server), refer to “Registration Destination of IP Devices/Stations” in System Description.

STEP 15: If there are backup SIP servers in the network, continue assigning 2nd, 3rd and 4th SIP server.

- Click [2nd Server Address] to assign the second SIP server.
- Click [3rd Server Address] to assign the third SIP server.
- Click [4th Server Address] to assign the fourth SIP server.

STEP 16: As in STEP 8, specify the SIP server by IP address or FQDN. Click the “OK” button after assigning the data.

STEP 17: Click the “Save” button. After all settings are complete, SIP server begins setup for DT820.

Note: In the following instances, the terminal will display an error message.

- SIP server does not exist in the network.
- Connection to SIP server could not be established since the user assigned an incorrect value.
- Connection to DHCP Server could not be established since the user assigned an incorrect value

If the above occurs, perform one of the following:

- Reassign data settings.
- Connect SIP server to the network.
- Connect DHCP Server to the network.

Refer to “Error Messages” for details on error messages.

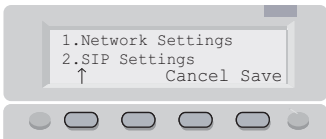
1.4.2.2 PC Port Remote Control

To use PC Port Remote Control feature assigned by PCPro programming, the following setting is also required on DT820 terminal side.

Note: Refer to “PC Port Remote Control” in Operations and Maintenance Manual for the data assignment on the Telephony Server.

[1] Configuration Settings on Terminal

STEP 1: On [Config] menu, select "1. Network Settings."



Note: For other operations, "↑" and "↓" of software key, cursor key are also available.

STEP 2: The LCD displays [Network Settings] menu. Select "6. Advanced Settings."



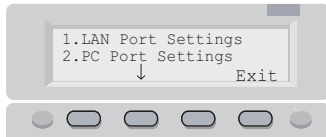
Network Settings Menu List

1. DHCP Mode
2. IP Address
3. Default Gateway
4. Subnet Mask
5. DNS Address
6. Advanced Settings

Up

Down

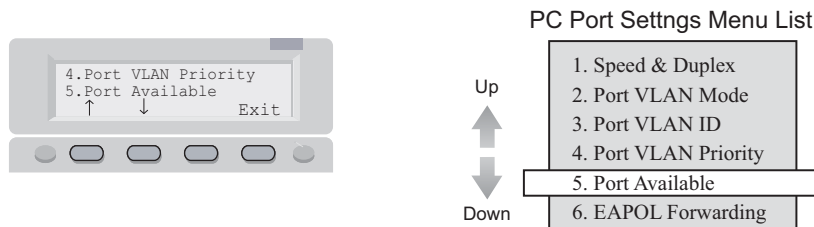
STEP 3: On [Advanced Settings] menu, select "2. PC Port Settings."



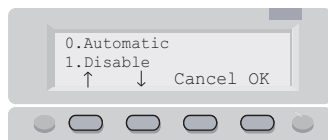
A

A

STEP 4: On [PC Port Settings] menu, select "5. Port Available."



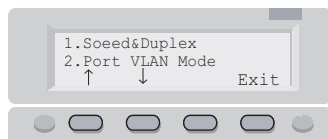
STEP 5: The LCD displays [Port Available] setting screen.



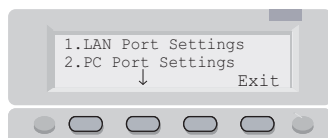
Perform either of the following:

- a.) When automatically setting the terminal's PC port status following the setting on PCPro:
 1. Select "0. Automatic."
 2. "0. Automatic" flashes.
 3. Press the software key for "OK."
- b.) When disabling the terminal's PC port without following the setting on PCPro:
 1. Select "1. Disable."
 2. "1. Disable" flashes.
 3. Press the software key for "OK."

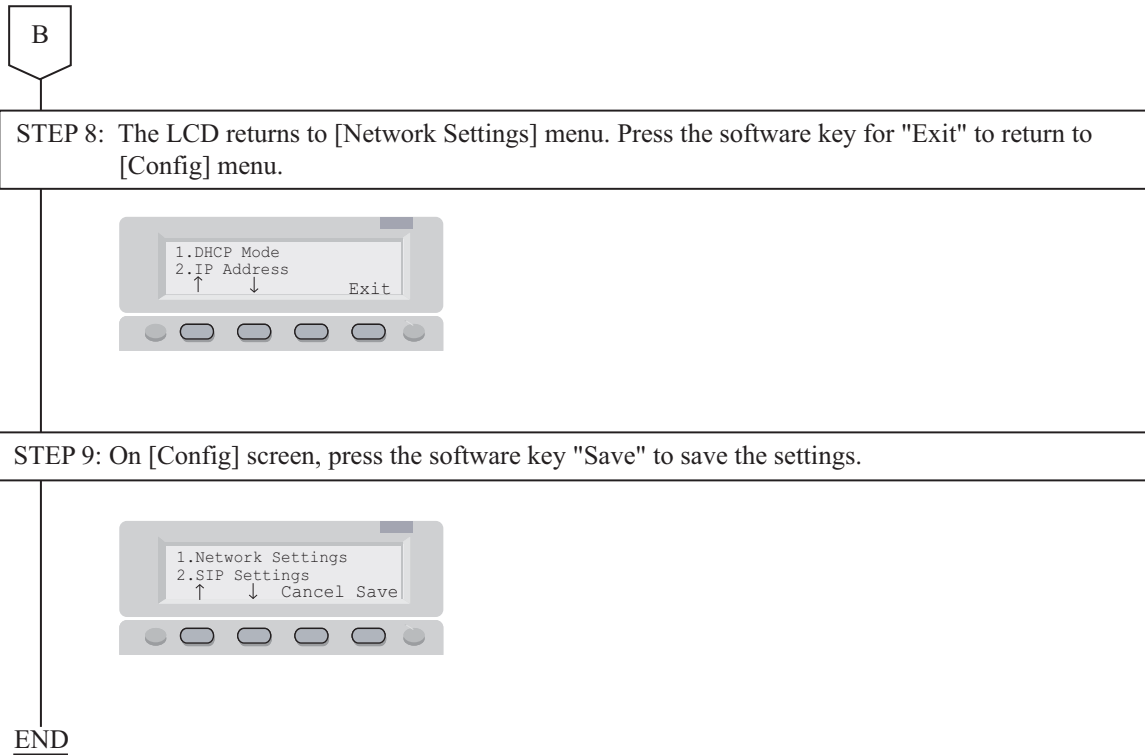
STEP 6: The LCD returns to [PC Port Settings] menu. Press the software key for "Exit."



STEP 7: The LCD returns to [Advanced Settings] menu. Press the software key for "Exit."



B



[2] Configuration Setting by Web Programming

STEP 1: Select [Network Settings] → [Advance Settings] → [PC Port Settings] → [Port Available].

STEP 2: Select the [Port Available] parameter, and click the “OK” button.

1. Automatic:

Automatically sets the DT820 terminal’s PC port status following the setting on PCPro

2. Disable:

Disable the DT820 terminal’s PC port without following the setting on PCPro

STEP 3: Click the “save” button.

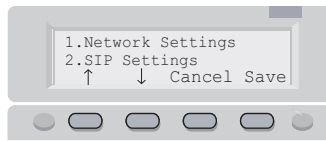
1.4.2.3 Type of Service (ToS)

ToS value can be changed on DT820 terminal.

Note: During operation, ToS value assigned by the Telephony Server is enabled. It is unnecessary to assign ToS value on the DT820 terminal side.

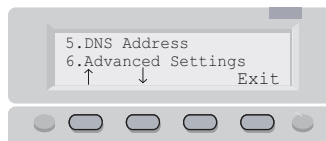
[1] Configuration Setting on Terminal

STEP 1: On [Config] menu, select "1. Network Settings."



Note: For other operations, "↑" and "↓" of software key, and cursor key are also available.

STEP 2: The LCD displays [Network Settings] menu. Select "6. Advanced Settings."

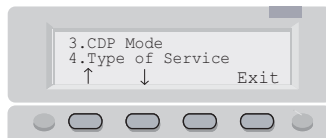


Network Settings Menu List

Up
↓
Down

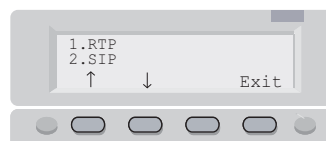
- 1. DHCP Mode
- 2. IP Address
- 3. Default Gateway
- 4. Subnet Mask
- 5. DNS Address
- 6. Advanced Settings

STEP 3: On [Advanced Settings] menu, select "4. Type of Service."



STEP 4: The LCD displays [Type of Service] setting screen.

Select the packet type for setting ToS.



- 1. RTP
- 2. SIP

STEP 5: ToS value setting screen for the selected packet type (RTP in this example) is displayed.



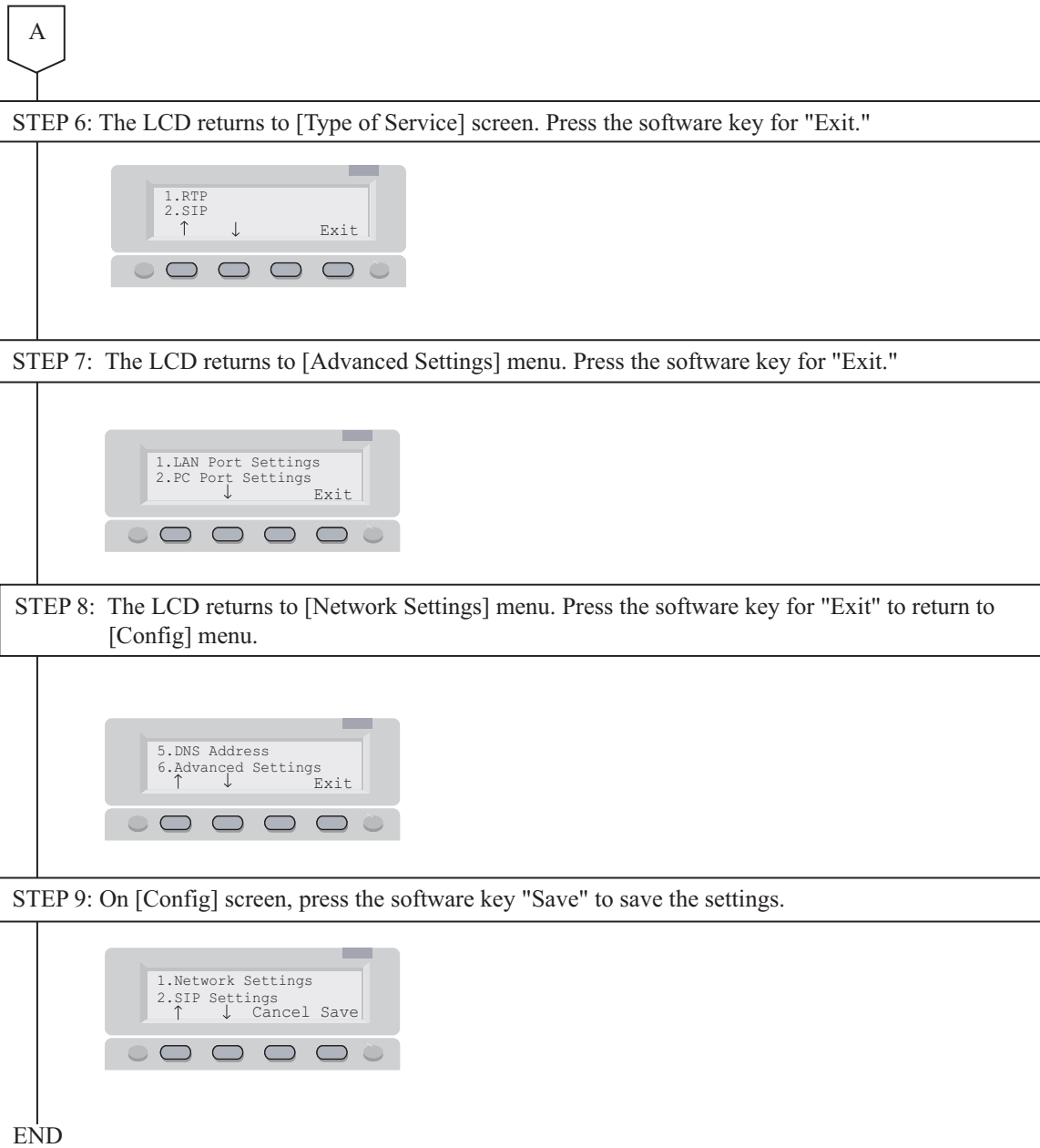
Enter any Hex value using the number key and then press "OK".

Example: When entering "0B (Hex)"

- 1. Press the number button "0" once.
- 2. Press the number button "2" three times
(The value changes "2" > "A" > "B.")

Press the software key for "BK" to delete the entered value.

A



[2] Configuration Settings by Web Programming

STEP 1: Select [Network Settings] → [Advance Settings] → [Type of Service].

STEP 2: Select the packet type for setting the ToS value.

RTP: Click "RTP" to change the ToS value for sending RTP packet.

SIP: Click "SIP" to change the ToS value for SIP packet.

STEP 3: Enter any Hex value to the text box. Click the "OK" button.

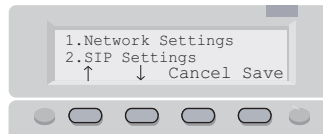
STEP 4: Click the "Save" button.

1.4.2.4 Digest Authentication

This menu assigns User ID and password for Digest Authentication.

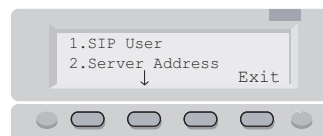
[1] Configuration Setting on Terminal

STEP 1: On [Config] menu, select “2. SIP Settings.”



Note: For other operations, "↑" and "↓" of software key, and cursor key are also available.

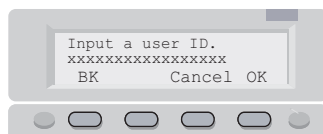
STEP 2: The LCD displays [SIP Settings] menu. Select “1. SIP User.”



STEP 3: On [SIP User] menu, select “1. User ID.”



STEP 4: The LCD displays [User ID] setting screen.



Enter User ID using the digit keys.

-Use digit keys 0-9, * and #.

-Press the software key for “BK” to delete entered value.

Press the software key for “OK” when all settings are complete.

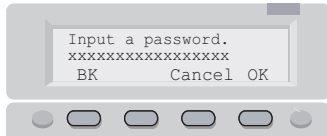
STEP 5: The LCD returns to [SIP User] menu. Select “2. Password.”



A

A

STEP 6: The LCD displays [Password] screen.



Enter Password for the User ID using the digit keys.

-Use digit keys 0-9, * and #.

-Press the software key for “BK” to delete entered value.

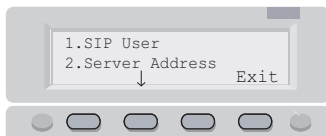
Press the software key for “OK” when all settings are complete.

Note: The terminal will not display the entered value as numbers, but will instead display them as asterisks (*).

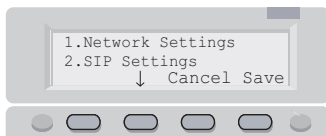
STEP 7: The LCD returns to [SIP User] menu. Press the software key for “Exit.”



STEP 8: The LCD returns to [SIP Settings] menu. Press the software key for “Exit” to return to [Config] menu.



STEP 9: On [Config] screen, press the software key “Save” to save the settings.



END

[2] Configuration Settings by Web Programming

STEP 1: Select [SIP Settings] → [User] → [User ID].

STEP 2: Enter User ID using the digit keys, and then click the “OK” button.
0-9, *, # are available (maximum 32 characters).

STEP 3: Select [SIP Settings] → [User] → [Password].

STEP 4: Enter password for the User ID using the digit keys, and then click the “OK” button.
0-9, *, # are available (maximum 24 characters). **Note 5**

Note 5: The terminal will not display the entered value as numbers. Instead, they will be displayed as asterisks (*).

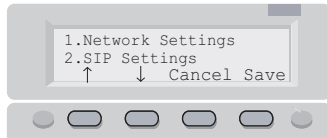
STEP 5: Click the “Save” button.

1.4.2.5 Port Number

This section explains how to change the port number used to send packets from DT820 to SIP server.

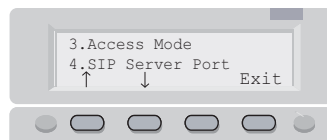
[1] Configuration Setting on Terminal

STEP 1: On [Config] menu, select "2. SIP Settings."

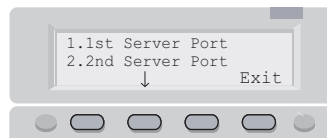


Note: For other operations, "↑" and "↓" of software key, and cursor key are also available.

STEP 2: The LCD displays [SIP Settings] menu. Select "4. SIP Server Port."



STEP 3: The LCD displays [SIP Server Port] menu.



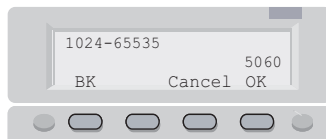
Perform one of the following:

- a.) Press 1. to change the port number of 1st SIP server used to send packets.
- b.) Press 2. to change the port number of 2nd SIP server used to send packets.
- c.) Press 3. to change the port number of 3rd SIP server used to send packets.
- d.) Press 4. to change the port number of 4th SIP server used to send packets.

A

A

STEP 4: The LCD displays the chosen [Server Port] setting screen. (The user chose the 1st Server Port in this example).



Enter User ID using the digit keys.

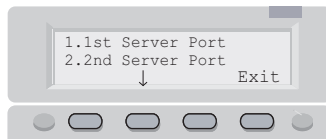
-Use digit keys.

-It is possible to enter values between 1024-65535.

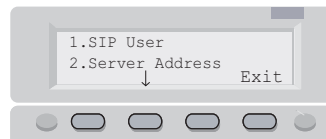
-Default value is 5060.

Press the software key for "OK" when all settings are complete.

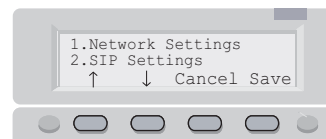
STEP 5: The LCD returns to [SIP Server Port] menu. Press the software key for "Exit."



STEP 6: The LCD returns to [SIP Settings] menu. Press the software key for "Exit" to return to [Config] menu.



STEP 7: On [Config] screen, press the software key "Save" to save the settings. SIP server begins setup for the terminal.



END

[2] Configuration Settings by Web Programming

STEP 1: Select [SIP Settings] → [SIP Server Port].

STEP 2: Choose which SIP server's port number to change.

- Choose 1. to change the port number of 1st SIP server used to send packets.
- Choose 2. to change the port number of 2nd SIP server used to send packets.
- Choose 3. to change the port number of 3rd SIP server used to send packets.
- Choose 4. to change the port number of 4th SIP server used to send packets.

STEP 3: Enter the Port number using digit keys. Then click the “OK” button.

- It is possible to enter values between 1024-65535.
- Initial value is 5060.

STEP 4: Click the “Save” button. After all settings are complete, SIP server begins setup for DT820.

1.4.2.6 Area ID

DT820 terminal can adjust its tone patterns for different areas (countries) that it is used in. The user must assign the Area ID to make this possible. This section explains the areas where DT820 usage is possible and the procedure to change the Area ID.

[1] Configuration Settings on Terminal

[Countries (Areas) Where DT820 Usage is Available] **Note 6**

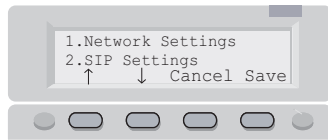
[Area ID/Country]
0. Automatic (Telephony Server side setting is applied when Automatic is selected.)
1. Japan
2. America (Canada and North America)
3. Australia
4. Others
5. Hong Kong
6. Malaysia
7. Singapore
8. Mexico
9. Taiwan
10. New Zealand
11. Korea
12. Brazil
13. China
14. Thailand
15. Thailand (EGAT)
16. Sri Lanka
17. Germany
18. Italy

[Countries (Areas) Where DT820 Usage is Available] **Note 6**

[Area ID/Country]
19. Netherlands
20. Catalonia (Not used)
21. Denmark
22. Sweden
23. Poland
24. Czech
25. Norway
26. France
27. Portugal
28. Spain
29. Austria
30. Belgium
31. UK
32. Greece
33. Switzerland
34. South Africa
35. Brazil (NECU)

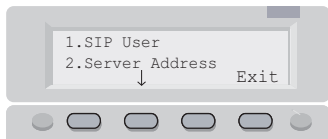
Note 6: Initial factory settings is "0. Automatic." In other settings, the terminal side settings has priority.

STEP 1: On [Config] menu, select "2. SIP Settings."



Note: For other operations, "↑" and "↓" of software key, and cursor key are also available.

STEP 2: The LCD displays [SIP Settings] menu. Select "5. Area ID."

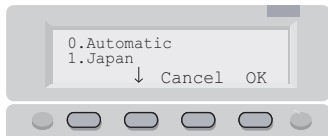


SIP Settings Menu List

1. SIP User
2. Server Address & URI
3. Access Mode
4. SIP Server Port
5. Area ID
6. Extra Function

Up
↓
Down

STEP 3: The LCD displays [Area ID] menu.



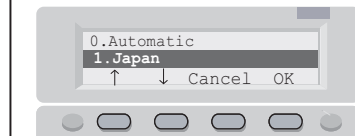
Enter Area ID using the digit keys.

-Use digit keys 0-9.

-LCD will display entering field upper right of the LCD.

-Enter 2-digit values.

Example



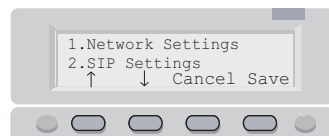
When selecting [1. Japan]:

- 1) Enter "0" and "1."
- 2) Entering Field displays "01."
- 3) "1. Japan" display is highlighted.
- 4) Press software key for "OK."

STEP 4: The LCD returns to [SIP Settings] menu. Press the software key for "Exit" to return to [Config] menu.



STEP 5: On [Config] screen, press the software key "Save" to save the settings.



END

[2] Configuration Settings by Web Programming

STEP 1: Select [SIP Settings] → [Area ID].

STEP 2: Enter the Area ID using digit keys. Then click the “OK” button.

[Countries (Areas) Where DT820 Usage is Available]

[Area ID/Country]
0. Automatic (Telephony Server side setting is applied when Automatic is selected.)
1. Japan
2. America (Canada and North America)
3. Australia
4. Others
5. Hong Kong
6. Malaysia
7. Singapore
8. Mexico
9. Taiwan
10. New Zealand
11. Korea
12. Brazil
13. China
14. Thailand
15. Thailand (EGAT)
16. Sri Lanka
17. Germany
18. Italy
19. Netherlands
20. Catalonia (Not used)
21. Denmark
22. Sweden
23. Poland
24. Czech
25. Norway
26. France
27. Portugal
28. Spain
29. Austria
30. Belgium
31. UK
32. Greece
33. Switzerland

[Countries (Areas) Where DT820 Usage is Available]

[Area ID/Country]
34. South Africa
35. Brazil (NECU)

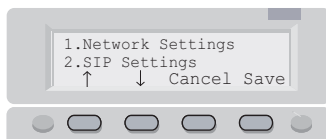
STEP 3: Click the “Save” button.

1.4.2.7 Keeping Call

User can assign data to retain an ongoing call when the network between DT820 and the Telephony Server is disconnected by a failure.

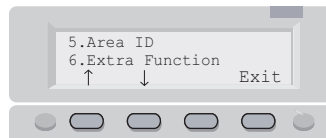
[1] Configuration Setting on Terminal

STEP 1: On [Config] menu, select “2. SIP Settings.”

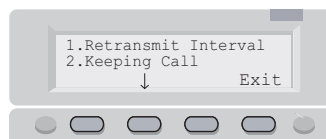


Note: For other operations, "↑" and "↓" of software key, and cursor key are also available.

STEP 2: The LCD displays [SIP Settings] menu. Select “6. Extra Function.”



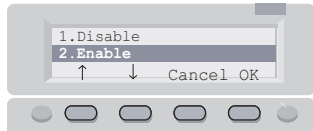
STEP 3: The LCD displays [Extra Function] menu. Select “2. Keeping Call” to display the [Keeping Call] menu.



A

A

STEP 4: Select “2. Enable.” Verify that “2. Enable” line is flashing. Then, press the software key for “OK.”

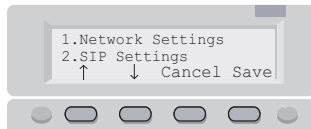


Note: When "2. Disable" is selected, an ongoing call through the handset will be kept until the appropriate terminal goes off-hook. An ongoing call through the headset or hands-free operation will be disconnected when the system detects the failure the system does not response to any information of terminal key operation.

STEP 5: The LCD returns to [Extra Function] menu. Press the software key for “Exit” to return to [Config] menu.



STEP 6: On [Config] screen, press the software key for “Save” to save the settings.



END

[2] Configuration Setting by Web Programming

STEP 1: Select [SIP Settings] → [Extra Function] → [Keeping Call].

STEP 2: Select “2. Enable” radio button (Keeping Call is enabled).

STEP 3: Click the “OK” button.

STEP 4: Click the “Save” button.

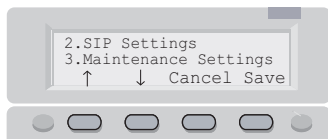
1.4.2.8 Side Tone

User can assign Sidetone Volume on DT820 terminal.

Note: Sidetone volume set by system takes priority over this setting.

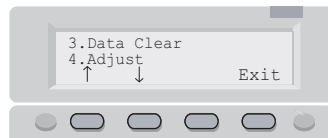
[1] Configuration Settings on Terminal

STEP 1: On [Config] main menu, select "3. Maintenance Settings."

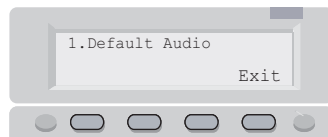


Note: For other operations, "↑" and "↓" of software key, and cursor key are also available.

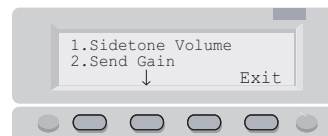
STEP 2: On [Maintenance] menu, select "4. Adjust" to display the [Adjust] menu.



STEP 3: On [Adjust] menu, select "1. Default Audio."



STEP 4: On [Audio] menu, select "1. Sidetone Volume."



A

A

STEP 5: On [Side Tone] menu, use digit keys to assign Sidetone Volume. **Note 1**
Press the software key for “OK” when all settings are complete to return to [Audio] menu.

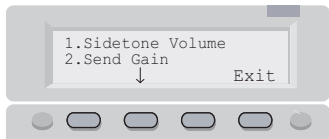


-Use digit keys 0-7.
-Press the software key for “BK”
to delete entered value.

Assigned Value	Sidetone Volume Value (dB)
0	-54 (minimum value)
1	-48
2	-42
3	-36
4	-30 (initial value)
5	-24
6	-18
7	-12 (maximum value)

Note 1: Sidetone volume set by system takes priority over this setting.

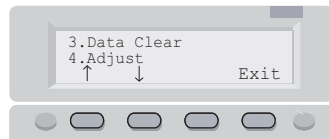
STEP 6: On [Default Audio] menu, press the software key for “Exit” to display [Adjust] menu.



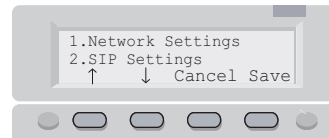
STEP 7: On [Adjust] menu, press the software key for “Exit” to display [Maintenance] menu.



STEP 8: On [Maintenance] menu, press the software key for “Exit” to display [Config] menu.



STEP 9: On [Config] main menu, press the software key for “Save” to save settings.



END

[2] Configuration Setting by Web Programming

STEP 1: Select [Maintenance] → [Adjust] → [Audio] → [Sidetone Volume].

STEP 2: Enter Sidetone Volume using number buttons 0-7. **Note 7**

STEP 3: Click the “OK” button.

STEP 4: Click the “Save” button.

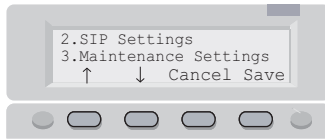
Note 7: For details on Sidetone Volume value, see [1] Configuration Settings on Terminal–STEP 5.

1.4.2.9 Handset Send Gain

User can assign Handset Send Volume on DT820 terminal. When the Telephony Server assigns Handset Send volume, it will have priority over the terminal side settings.

[1] Configuration Settings on Terminal

STEP 1: On [Config] main menu, select “3. Maintenance Settings.”

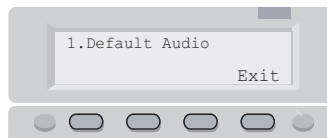


Note: For other operations, "↑" and "↓" of software key, and cursor key are also available.

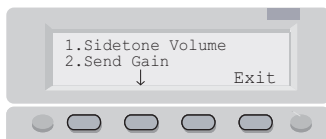
STEP 2: On [Maintenance] menu, select “4. Adjust” to display the [Adjust] menu.



STEP 3: On [Adjust] menu, select “1. Default Audio.”



STEP 4: On [Audio] menu, select “2. Send Gain.”



A

A

STEP 5: On [Send Gain] menu, use digit keys to assign Handset volume. **Note 1**
Press the software key for “OK” when all settings are complete to return to [Audio] menu.

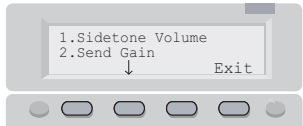


- Use digit keys 0-31.
- Press the software key for “BK” to delete entered value.

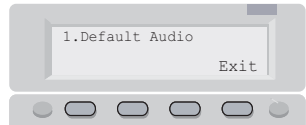
Assigned Value Note 2	Handset Volume
0	(Minimum Volume)
~	~
22	
23	
24	(Initial Value)
25	
26	
27	
28	
29	
30	
31	(Maximum Volume)

Note 1: Sidetone volume set by system takes priority over this setting.
Note 2: Volume becomes 2 dB higher/lower in each change of Assigned Value.

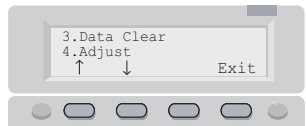
STEP 6: On [Default Audio] menu, press the software key for “Exit” to display [Adjust] menu.



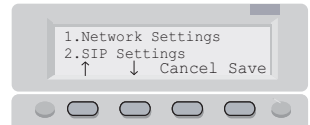
STEP 7: On [Adjust] menu, press the software key for “Exit” to display [Maintenance] menu.



STEP 8: On [Maintenance] menu, press the software key for “Exit” to display [Config] menu.



STEP 9: On [Config] main menu, press the software key for “Save” to save settings.



END

[2] Configuration Settings by Web Programming

STEP 1: Select [Maintenance] → [Adjust] → [Audio] → [Send Gain].

STEP 2: Enter Handset Send Volume using number buttons 0-31. **Note 8**

STEP 3: Click the “OK” button.

STEP 4: Click the “Save” button.

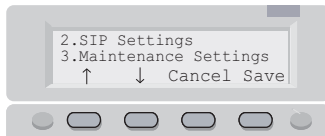
Note 8: For details on Handset Send Gain Value, see [1] Configuration Settings on Terminal–STEP 5.

1.4.2.10 Handset Receive Bias

User can assign Handset Receive Volume on DT820 terminal.

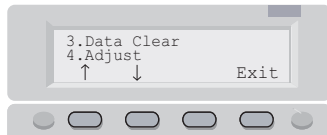
[1] Configuration Settings on Terminal

STEP 1: On [Config] main menu, select “3. Maintenance Settings.”

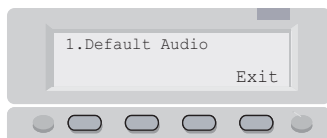


Note: For other operations, "↑" and "↓" of software key, and cursor key are also available.

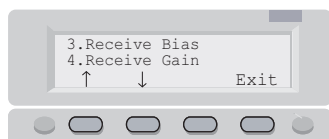
STEP 2: On [Maintenance] menu, select “4. Adjust” to display the [Adjust] menu.



STEP 3: On [Adjust] menu, select “1. Default Audio.”



STEP 4: On [Default Audio] menu, select “3. Receive Bias.”



A

A

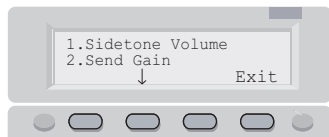
STEP 5: On [Receive Bias] menu, use digit keys to assign Handset Receive Volume.
Press the software key for “OK” when all settings are complete to return to [Default Audio] menu.



-Use digit keys 0-7.
-Press the software key for “BK”
to delete entered value.

Assigned Value	Receive Bias Value (dB)
7	-6 (minimum value)
6	-4
5	-2
4	0
3	6
2	4
1	2
0	0 (initial value)

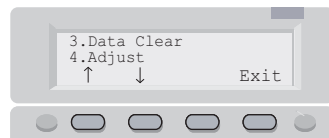
STEP 6: On [Default Audio] menu, press the software key for “Exit” to display [Adjust] menu.



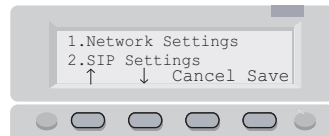
STEP 7: On [Adjust] menu, press the software key for “Exit” to display [Maintenance] menu.



STEP 8: On [Maintenance] menu, press the software key for “Exit” to display [Config] menu.



STEP 9: On [Config] main menu, press the software key for “Save” to save settings.



END

[2] Configuration Settings by Web Programming

STEP 1: Select [Maintenance] → [Adjust] → [Audio] → [Receive Bias].

STEP 2: Enter Handset Receive Volume using number buttons 0-7. **Note 1**

STEP 3: Click the “OK” button.

STEP 4: Click the “Save” button.

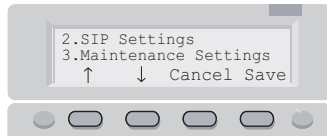
Note 1: For details on Handset Receive Bias Value, see [1] Configuration Settings on Terminal—STEP 5.

1.4.2.11 Handset Receive Gain

User can assign Handset Receive Volume on DT820 terminal. When the Telephony Server assigns Handset Receive volume, it will have priority over the terminal tone settings.

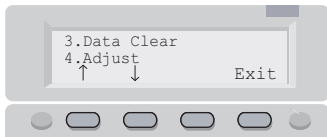
[1] Configuration Settings on Terminal

STEP 1: On [Config] main menu, select “3. Maintenance Settings.”

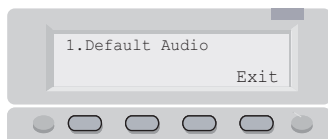


Note: For other operations, "↑" and "↓" of software key, and cursor key are also available.

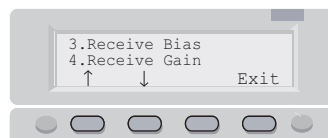
STEP 2: On [Maintenance] menu, select “4. Adjust” to display the [Adjust] menu.



STEP 3: On [Adjust] menu, select “1. Default Audio.”



STEP 4: On [Default Audio] menu, select “4. Receive Gain.”



A

A

STEP 5: On [Receive Gain] menu, use digit keys to assign Handset Receive Gain. **Note 1**
Press the software key for “OK” when all settings are complete to return to [Default Audio] menu.



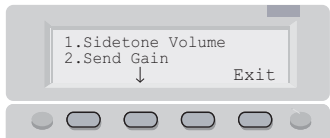
- Use digit keys 0–31.
- Press the software key for “BK” to delete entered value.

Note 1: Sidetone volume set by system takes priority over this setting.

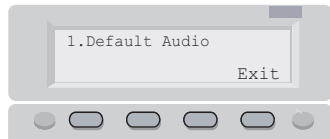
Note 2: Volume becomes 2 dB higher/lower in each change of Assigned Value.

Assigned Value Note 2	Handset Volume
0	(Minimum Volume)
~	~
16	
17	
18	
19	
20	
21	
22	(Initial Value)
23	
24	
~	
31	(Maximum Volume)

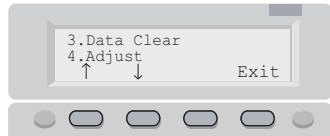
STEP 6: On [Default Audio] menu, press the software key for “Exit” to display [Adjust] menu.



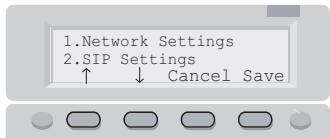
STEP 7: On [Adjust] menu, press the software key for “Exit” to display [Maintenance] menu.



STEP 8: On [Maintenance] menu, press the software key for “Exit” to display [Config] menu.



STEP 9: On [Config] main menu, press the software key for “Save” to save settings.



END

[2] Configuration Settings by Web Programming

STEP 1: Select [Maintenance] → [Adjust] → [Audio] → [Receive Gain].

STEP 2: Enter Handset Receive Gain using number buttons 0-31. **Note 1**

STEP 3: Click the “OK” button.

STEP 4: Click the “Save” button.

Note 1: For details on Handset Receive Gain Value, see [1] Configuration Settings on Terminal—STEP 5.

1.4.2.12 IEEE802.1X Authentication

This section explains how to assign data for IEEE 802.1X authentication for DT820.

DT820 supports the User Name and Password-based IEEE 802.1X (EAP-MD5) authentication method. When a PC with supplicant feature available is connected to the DT820 PC port, EAP packet can be forwarded from that PC via DT820 (EAP Forwarding Feature).

There are four connection patterns.

PATTERN 1:

- Hardware is not connected to DT820 terminal’s PC port.
- User enables DT820 terminal’s 802.1X Supplicant feature.
- DT820 operates by connecting to a switch corresponding to authentication.
- If unauthorized hardware is connected to the PC port after authentication process is completed, unauthorized access to the network will occur. To prevent this from happening, we recommend users to perform either of the following:
 - Perform preventive measures on authentication switch side
 - Disable PC Port in DT820 Configuration menu

PATTERN 2:

- Hardware without Supplicant feature is connected to DT820 terminal’s PC port.
- User enables DT820 terminal’s 802.1X Supplicant feature.
- DT820 operates by connecting to a switch corresponding to authentication.
- Regarding the PC connected to DT820 terminal:
To register the PC’s MAC Address as authorized hardware, the following are required on the authentication switch side:
 - Multi-Host Authentication Feature
 - MAC Address Authentication Feature
- When separating audio and data network by attaching different VLAN ID to the packets from the PC and the packets from the DT820 respectively:
 - Multi-Host Authentication Feature corresponding to Tag VLAN is required on authentication switch side.

PATTERN 3:

- Hardware with Supplicant feature is connected to DT820 terminal's PC port.
- User enables DT820 terminal's 802.1X Supplicant feature.
- DT820 operates by connecting to a switch corresponding to authentication.
- When separating Audio and Data Network by attaching different VLAN ID to the packets from the PC and the packets from the DT820, respectively:
 - Multi-Host Authentication Feature corresponding to Tag VLAN is required on authentication switch side.

PATTERN 4:

- Hardware with Supplicant feature is connected to DT820 terminal's PC port.
- User disables DT820 terminal's 802.1X Supplicant feature.
- DT820 operates by connecting to a switch corresponding to authentication.
- Authentication packet (EAP packet) from the PC is sent, via DT820, to the switch corresponding to authentication.
- Regarding the PC connected to DT820 terminal:
To register the PC's MAC Address as authorized hardware, the following are required on the authentication switch side:
 - Multi-Host Authentication Feature
 - MAC Address Authentication Feature
- When separating Audio and Data Network by attaching different VLAN ID to the packets from the PC and the packets from the DT820, respectively:
 - Multi-Host Authentication Feature corresponding to VLAN Tag is required on authentication switch side.

Note:

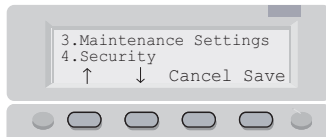
- Hardware with Supplicant feature with the following Operating System (OS) installed is available for connection to DT820 terminal:
 - Microsoft® Windows® Vista
 - Microsoft® Windows® 7
 - Microsoft® Windows® 8.1
- User can choose whether to attach VLAN Tag to the EAPOL packet from DT820. See <Supplicant Feature Data Assignment> for details.
- When using DT820, if PC port link down is detected, the terminal requests to clear an authentication status of terminal which is connected to PC port to authentication switch. By clearing the authentication status, you can protect the terminal against unauthorized accesses. For details of the settings, refer to "<Supplicant Feature Data Assignment>".

<Supplicant Feature Data Assignment>

This section explains the data assignment when using 802.1X authentication for DT820.

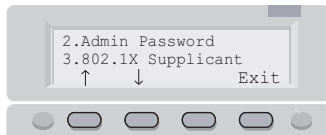
[1] Configuration Setting on Terminal

STEP 1: On [Config] main menu, select “4. Security.”

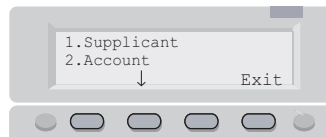


Note: For other operations, "↑" and "↓" of software key, and cursor key are also available.

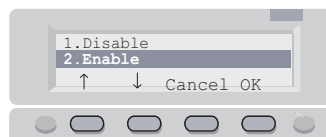
STEP 2: On [Security] menu, select “4. 802.1X Supplicant” to display the [802.1X Supplicant] menu.



STEP 3: On [802.1X Supplicant] menu, select “1. Supplicant” to display the [Supplicant] menu.



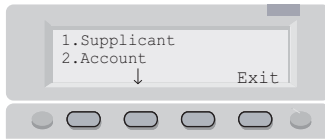
STEP 4: Select “2. Enable.” Verify that “2. Enable” line is flashing. Then, press the software key for “OK.”



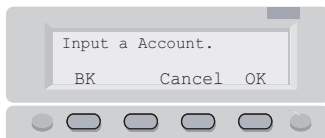
A

A

STEP 5: The LCD returns to [802.1X Supplicant] menu. Select “2. Account” to display the [Account] menu.

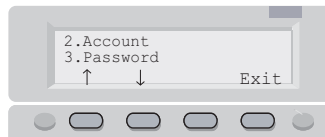


STEP 6: On [Account] menu, use digit keys to assign the User ID for EAP–MD5 authentication.

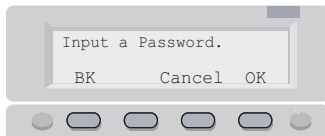


- User may enter the following characters:
0-9, A-Z, a-z, *, #, . (period), - (hyphen) and _ (underbar).
- Press the software key for “BK” to delete entered value.
- Press the software key for “OK” when all settings are complete.

STEP 7: The LCD returns to [802.1X Supplicant] menu. Select “3. Password” to display the [Password] menu.



STEP 8: On [Password] menu, use digit keys to assign the Password for EAP–MD5 authentication.

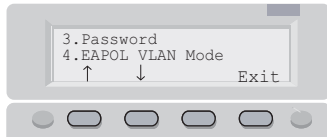


- User may enter the following characters:
0-9, A-Z, a-z, *, #, . (period), - (hyphen) and _ (underbar).
- Press the software key for “BK” to delete entered value.
- Press the software key for “OK” when all settings are complete.

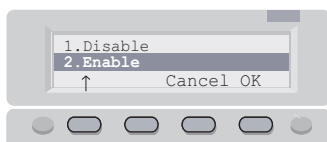
B

B

STEP 9: The LCD returns to [802.1X Supplicant] menu. Select “4” to display the [EAPOL VLAN Mode] menu.



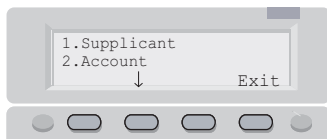
STEP 10: Select “2. Enable.” Verify that “2. Enable” line is highlighted. Then, press the software key for “OK.”



Note: When the user selects “2. Enable” in “EAPOL VLAN Mode,” VLAN tag will be attached according to the following data settings:

- “VLAN Mode”
- “VLAN ID”
- “VLAN Priority”

STEP 11: The LCD returns to [802.1X Supplicant] menu. Press the software key for “Exit.”



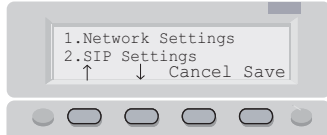
STEP 12: The LCD returns to [Security] menu. Press the software key for “Exit” to return to the [Config] menu.



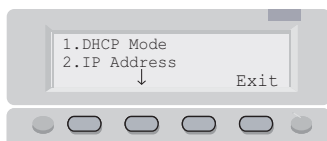
C

C

STEP 13: The LCD returns to [Config] menu. Select “1” to display the [Network Settings] menu.



STEP 14: The LCD displays [Network Settings] menu. Select “6. Advanced Settings.”

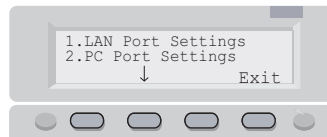


Network Settings Menu List

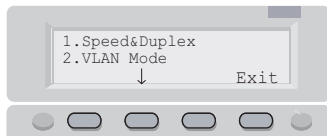
Up
↓
Down

- 1. DHCP Mode
- 2. IP Address
- 3. Default Gateway
- 4. Subnet Mask
- 5. DNS Address
- 6. Advanced Settings

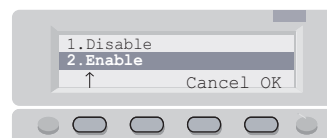
STEP 15: On [Advanced Settings] menu, select “1. LAN Port Settings.”



STEP 16: The LCD displays [LAN Port Settings] screen. Select “2” to display the [VLAN Mode] menu.



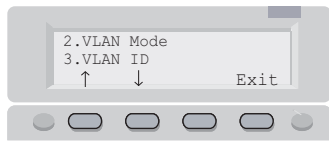
STEP 17: Select “2. Enable.” Verify that “2. Enable” is highlighted. Then, press the software key for “OK.”



D

D

STEP 18: The LCD returns to [LAN Port Settings] screen. Select “3” to display the [VLAN ID] menu.

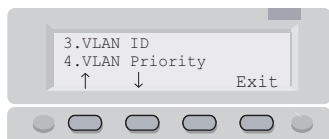


STEP 19: The LCD displays [VLAN ID] menu. Use digit keys to assign VLAN ID.



- VLAN ID value must be between 0–4094.
- Press the software key for “BK” to delete entered value.
- Press the software key for “OK” when all settings are complete.

STEP 20: The LCD displays [LAN Port Settings] screen. Select “4” to display the [VLAN Priority] menu.

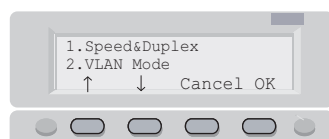


STEP 21: The LCD displays [VLAN Priority] menu. Use digit keys to assign VLAN ID.



- VLAN Priority value must be between 0–7.
- Press the software key for “OK” when all settings are complete.

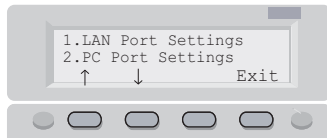
STEP 22: The LCD returns to [LAN Port Settings] screen. Press the software key for “Cancel” to return to [Advanced Settings] menu.



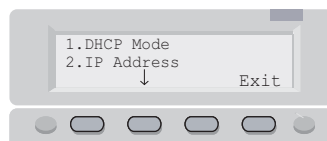
E

E

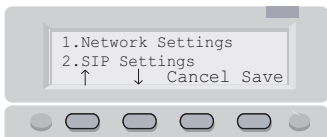
STEP 23: The LCD returns to [Advanced Settings] menu. Press the software key for “Exit.”



STEP 24: The LCD returns to [Network Settings] menu. Press the software key for “Exit.”



STEP 25: The LCD returns to [Config] menu. Press the software key for “Save” to save settings.



END

[2] Configuration Settings by Web Programming

STEP 1: Select [Security] → [802.1X Supplicant] → [Supplicant].

STEP 2: Select “2. Enable.” Click the “OK” button.

STEP 3: Select [Security] → [802.1X Supplicant] → [Account].

STEP 4: Enter User ID for EAP-MD5 authentication. Then click the “OK” button.
For User ID, use 0-9, A-Z, a-z, *, #, . (period), - (hyphen) or _ (underscore)
(maximum 32 characters).

STEP 5: Select [Security] → [802.1X Supplicant] → [Password].

STEP 6: Enter Password for EAP-MD5 authentication. Then click the “OK” button.
For Password, use 0-9, A-Z, a-z, *, #, . (period), - (hyphen), and _ (underscore)
(maximum 32 characters).

STEP 7: Select [Security] → [802.1X Supplicant] → [EAP VLAN Mode].

STEP 8: Select “2. Enable” (VLAN tag is attached to EAP packet). Click the “OK” button. **Note 1**

STEP 9: Select [Network Settings] → [Advance Settings] → [LAN Port Settings] → [VLAN Mode].

STEP 10: Select “2. Enable.” Click the “OK” button.

STEP 11: Select [Network Settings] → [Advance Settings] → [LAN Port Settings] → [VLAN ID].

STEP 12: Enter VLAN ID. The value must be within 0–4094. Click the “OK” button.

STEP 13: Select [Network Settings] → [Advance Settings] → [LAN Port Settings] → [VLAN Priority].

STEP 14: Enter VLAN Priority. The value must be within 0–7. Click the “OK” button.

STEP 15: Click the “Save” button.

Note 1: When the user selects “2. Enable” in “EAP VLAN Mode,” VLAN tag will be attached according to the following data settings:

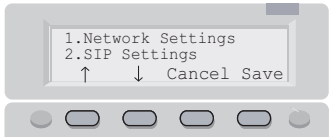
- VLAN Mode
- VLAN ID
- VLAN Priority

<Using Supplicant Mode>

This section explains the procedure to connect a PC with supplicant feature to the PC port of DT820.

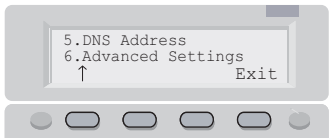
[1] Configuration Setting on Terminal

STEP 1: On [Config] menu, select “1. Network Settings.”



Note: For other operations, "↑" and "↓" of software key, and cursor key are also available.

STEP 2: The LCD displays [Network Settings] menu. Select “6. Advanced Settings.”



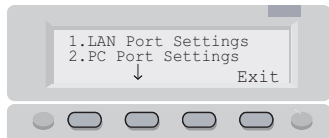
Network Settings Menu List

Up

Down

1. DHCP Mode
2. IP Address
3. Default Gateway
4. Subnet Mask
5. DNS Address
6. Advanced Settings

STEP 3: On [Advanced Settings] menu, select “2. PC Port Settings.”

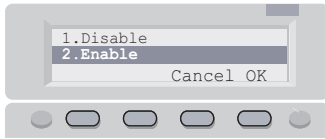


STEP 4: The LCD displays [PC Port Settings] menu. Select “6. EAPOL Forwarding.”

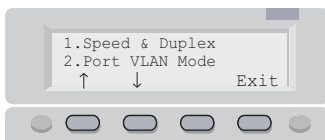


A

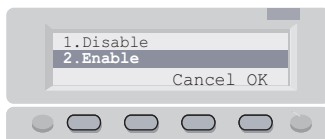
STEP 5: Select “2. Enable.” Verify that “2. Enable” is highlighted. Then, press the software key for “OK.”



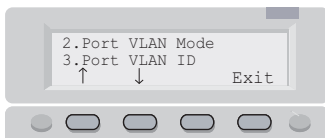
STEP 6: The LCD returns to [PC Port Settings] menu. Select “2. Port VLAN Mode.”



STEP 7: Select “2. Enable.” Verify that “2. Enable” is highlighted. Then, press the software key for “OK.”



STEP 8: The LCD returns to [PC Port Settings] menu. Select “3. Port VLAN ID.”



STEP 9: The LCD displays [VLAN ID] menu. Use digit keys to assign VLAN ID.

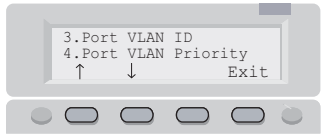


- VLAN ID value must be between 0–4094.
- Press the software key for “BK” to delete entered value.
- Press the software key for “OK” when all settings are complete.

B

B

STEP 10: The LCD returns to [PC Port Settings] menu. Select “4. Port VLAN Priority.”



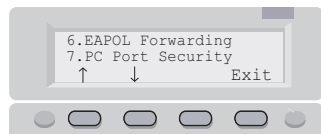
STEP 11: The LCD displays [VLAN Priority] menu. Use digit keys to assign VLAN ID.



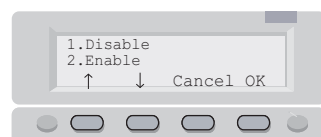
- VLAN Priority value must be between 0–7.

- Press the software key for “OK” when all settings are complete.

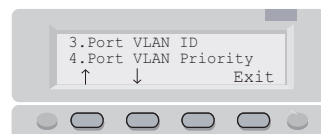
STEP 12: The LCD returns to [PC Port Settings] menu. Select “7. PC Port Security.”



STEP 13: The LCD displays [Port Security] menu. Select “2. Enable” and press the software key for “OK.”



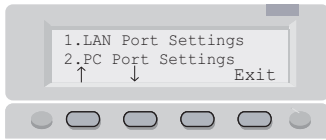
STEP 14: The LCD displays [PC Port Settings] menu. Press the software key for “Exit.”



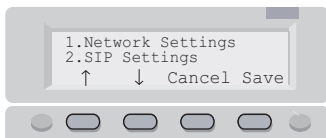
C

C

STEP 15: The LCD returns to [Advanced Settings] menu. Press the software key for “Exit.”



STEP 16: The LCD returns to [Config] menu. Press the software key for “Save” to save settings.



END

[2] Configuration Settings by Web Programming

STEP 1: Select [Network Settings] → [Advance Settings] → [PC Port Settings] → [EAPOL Forward].

STEP 2: Select “2. Enable.” This enables the EAPOL packet forwarding feature. Click the “OK” button.

STEP 3: Select [Network Settings] → [Advance Settings] → [PC Port Settings] → [Port VLAN Mode].

STEP 4: Select “2. Enable.” This enables VLAN. Click the “OK” button.

STEP 5: Select [Network Settings] → [Advance Settings] → [PC Port Settings] → [Port VLAN ID].

STEP 6: Enter VLAN ID. The ID value must be between 0–4094. Then click the “OK” button.

STEP 7: Select [Network Settings] → [Advance Settings] → [PC Port Settings] → [Port VLAN Priority].

STEP 8: Enter VLAN ID. The ID value must be between 0–7. Then click the “OK” button.

STEP 9: Click the “Save” button.

1.4.2.13 Password Change

In this section, the user can change the password for DT820 terminal's local data assignment and Admin Password for Administrator Menu login. **Note 1**, **Note 2**

Note 1: The password for terminal authentication assigned in this section is also used for releasing Security mode.

- Password for terminal authentication
- Admin Password

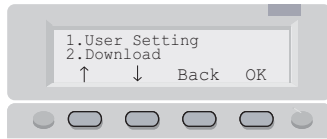
Note 2: Cautions in changing the password are as follows.

- When the terminal user forgets the assigned Admin Password for Administrator Menu login or the password for terminal authentication to assign DT820 terminal's local data and to release Security mode, configure initialization by using IP phone manager. In this case, note that all the data including configuration settings and phonebook data on the terminal are cleared and get back to factory default. For IP phone manager, see the IP phone manager's operation manual.
- When the terminal user forgets the assigned Security password, the restriction can be released by administrator's menu [Config] → 3.Maintenance Settings → 3.Data Clear → 1.Factory Value. Note that all the data including phonebook data on the terminal are cleared and get back to factory default.

[1] Configuration Setting on Terminal

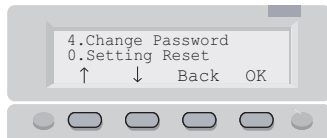
(a) Password for terminal authentication

STEP 1: Go to [Setting] menu. Select “1. User Setting.”

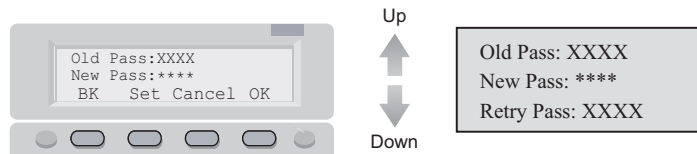


Note: For other operations, "↑" and "↓" of software key, cursor key.

STEP 2: On [User Setting] menu, select “4. Change Password.”



STEP 3: On [Change Password] menu, enter “Old Pass” and “New Pass.” Then, press the software key for OK.



Note: Default value: Password: 0000

*Be sure to change the default password.

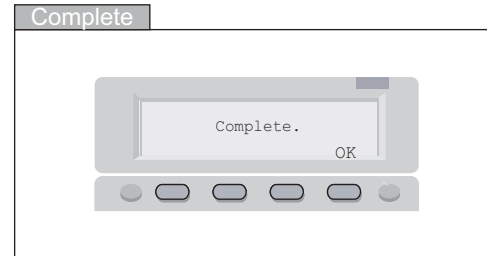
A

A

STEP 4: The LCD will display either of the following:

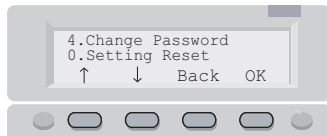


1. Press the software key for OK.
2. Return to Step 3.

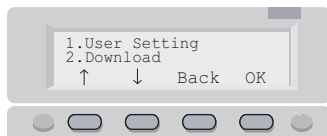


1. Press the software key for OK.
2. Proceed to Step 5.

STEP 5: The LCD returns to [User Setting] menu. Press the software key for "Back."



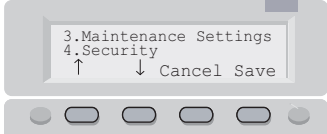
STEP 6: The LCD returns to [Setting] menu. Press the software key for "Back" to save settings.



END

(b) Admin Password

STEP 1: On [Config] menu, select “4. Security.”



3.Maintenance Settings
4.Security
↑ ↓ Cancel Save

Up

Down

Config Menu List

1. Network Settings
2. SIP Settings
3. Maintenance Settings
4. Security
5. Terminal Information
6. Application Settings

Note: For other operations, "↑" and "↓" of software key, cursor key.

STEP 2: The LCD displays [Security] menu. Select “2. Admin Password.”



STEP 3: On [Admin Password] menu, enter “Old Pass” and “New Pass.” Then, press the software key for OK.



Old Pass:XXXX
New Pass:****
BK Set Cancel OK

Up

Down

Old Pass: XXXX
New Pass: ****
Retry Pass: XXXX

Note: Default value: Password: 6633222

*Be sure to change the default password.

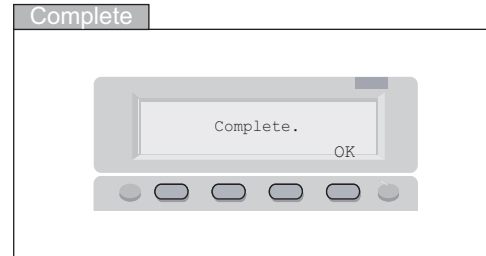
A

A

STEP 4: The LCD will display either of the following:



1. Press the software key for OK.
2. Return to Step 3.

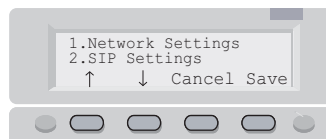


1. Press the software key for OK.
2. Proceed to Step 5.

STEP 5: The LCD returns to [Security] menu. Press the software key for "Exit."

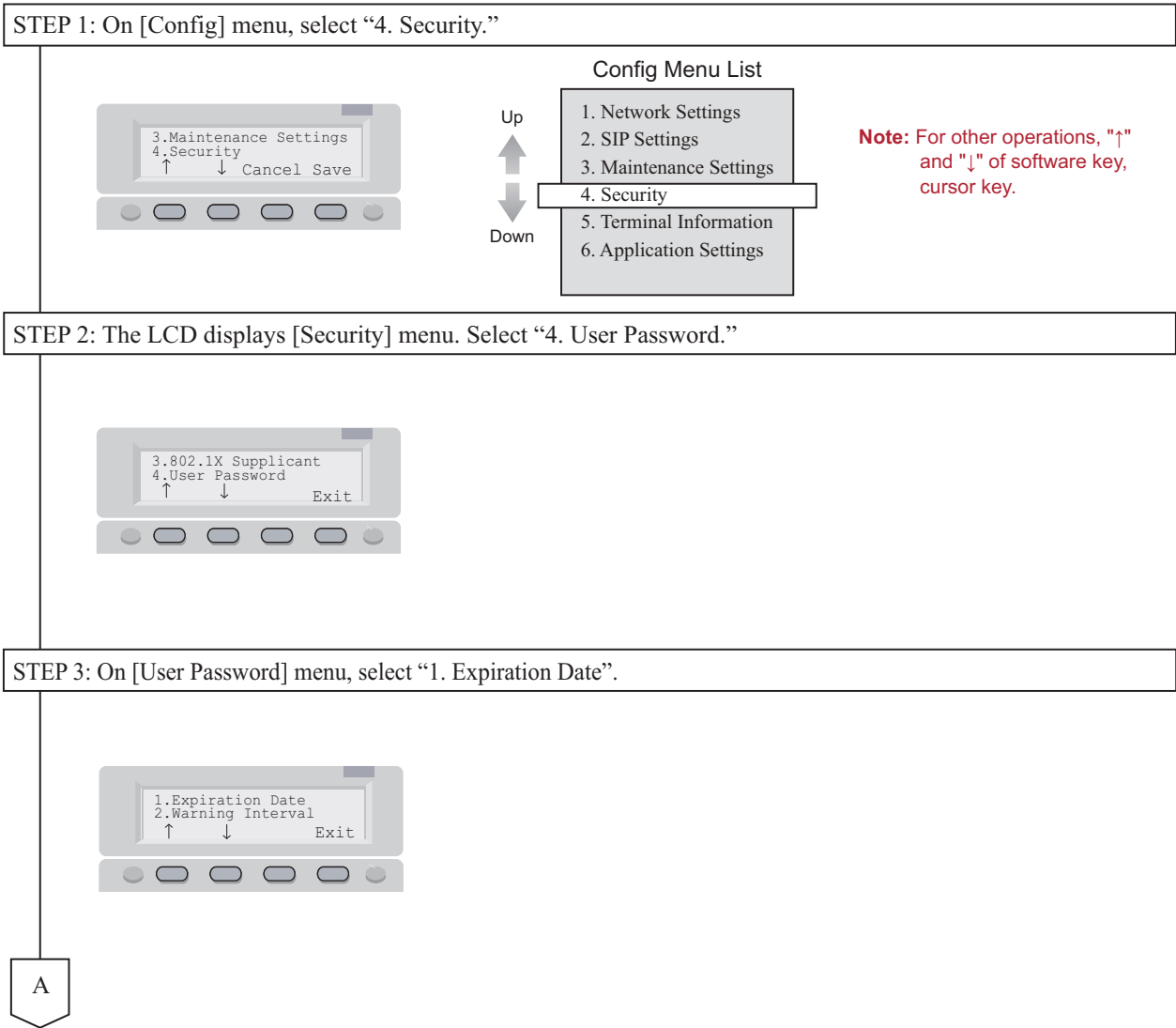


STEP 6: The LCD returns to [Config] menu. Press the software key for "Save" to save settings.



END

(c) Password expiration date



A

STEP 4: On [Expiration Date] menu, enter the expiration. Then, press the software key for OK.



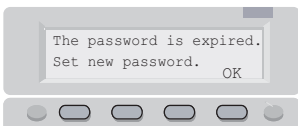
Note: 1 - 90 days are available for the expiration.
The password isn't expired by setting zero.

STEP 5: The LCD displays [User Password]. Select "2. Warning Interval."



Note: When no expiration is set for the user password,
the terminal user need not set warning interval.

STEP 6: On [Warning Interval] menu, enter the warning interval. Then, press the software key for OK.

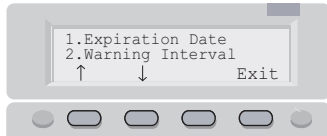


Note: When the password is expired, the warning shown
in the figure is displayed while the terminal is in the
idle state. Pressing the software key for OK deletes
the warning and restores the time screen, but the
warning is displayed repeatedly based on the assigned
warning interval.

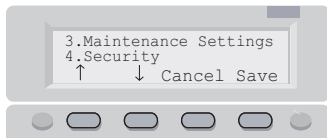
B

B

STEP 7: The LCD returns to [User Password] menu. Press the software key for “Back” to return to [Config] menu.



STEP 8: The LCD returns to [Config] menu. Press the software key for “Save” to save settings.



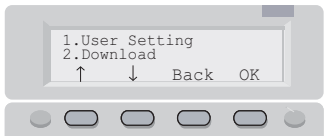
END

1.4.2.14 Ringing Tone

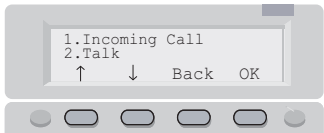
User can change the ringing tone settings on DT820 terminal.

[1] Configuration Settings on Terminal

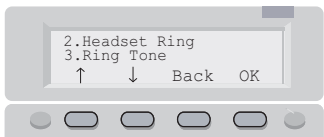
STEP 1: On [Setting] menu, select “1. User Setting.”



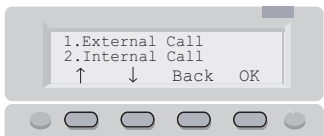
STEP 2: On [User Setting] menu, select “1. Incoming Call.”



STEP 3: On [Incoming Call] menu, select “3. Ring Tone.”



STEP 4: LCD displays the [Ring Tone] menu. Select “2. Internal Call.”



A

See the table below for details on Ring Tone settings.

Ring Tone Settings

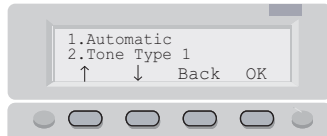
Value	Display Name	1st Frequency [Hz]	2nd Frequency [Hz]	Tone Kind
0	Automatic Note 3	520	660	16 Hz modulation
1	Tone Type 1			16 Hz modulation
2	Tone Type 2			8 Hz modulation
3	Tone Type 3	1400	1100	Door Phone
4	Tone Type 4	1100		No modulation
5	Tone Type 5	540		No modulation
6	Tone Type 6	1100	1400	16 Hz modulation
7	Tone Type 7	660	760	16 Hz modulation
8	Tone Type 8	1100		Envelope
9	Tone Type 9	-		Door Phone Melody
10	Tone Type 10	-		Melody 1
11	Tone Type 11	-		Melody 2
12	Tone Type 12	-		Melody 3
13	Tone Type 13	-		Melody 4
14	Tone Type 14	-		Melody 5
15	Download 1 Note 4	-		
16	Download 2 Note 4	-		
17	Download 3 Note 4	-		

Note 3: Default is Tone Type 1 when directions from the Telephony Server do not exist.

Note 4: This tone is not supported for DT820 (6-button type).

A

STEP 5: LCD displays [Internal Call] menu. The LCD will display the following.



Step 1. Currently selected Ring Tone will ring.

Step 2. Currently selected Ring Tone Value will flash.

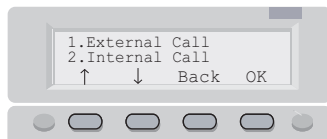
Step 3. Use number buttons to assign a Ring Tone (value is between 1–17).

Step 4. Newly assigned Ring Tone will ring.

Step 5. Press the software key for “OK” when all settings are complete.

Note: Items from “15.Download 1” to “17.Download 3” are not available for DT820 (6-button type).

STEP 6: LCD returns to the [Ring Tone] menu. Pressing the software key for "Back" will return to the upper menu.



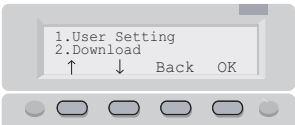
END

1.4.2.15 RTP Alarm

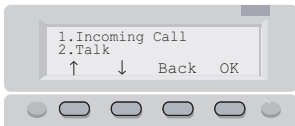
User can Disable or Enable RTP Alarm on DT820 terminal.

[1] Configuration Setting on Terminal

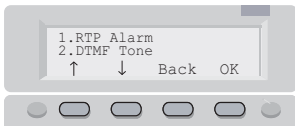
STEP 1: On [Setting] menu, select “1. User Setting.”



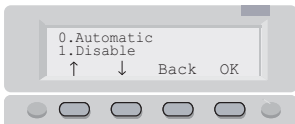
STEP 2: On [User Setting] menu, select “2. Talk.”



STEP 3: On [Talk] menu, select “1. RTP Alarm.”

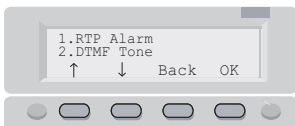


STEP 4: LCD displays the [RTP Alarm] menu. Select either Automatic, Disable or Enable using digit keys. “0. Automatic” will be flashing before any selection is made, since “0” is assigned by default. Press the software key for “OK” when done.



LCD Display	Assignment Conditions
0. Automatic	- Follows the settings assigned to system. - Settings assigned to system has priority. - RTP Alarm is Enabled only when settings assigned by system do not exist.
1. Disable	- Does not follow the setting assigned by system. - Settings assigned to terminal has priority. - RTP Alarm is Disabled.
2. Enable	- Does not follow the settings assigned by system. - Settings assigned to terminal has priority. - RTP Alarm is Enabled.

STEP 5: LCD returns to [Talk] menu. Pressing the software key for "Back" will return to uppper menu.



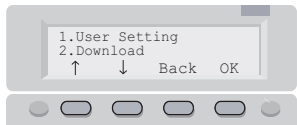
END

1.4.2.16 DTMF Tone

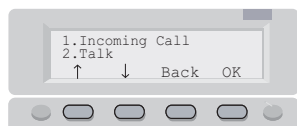
User can Disable or Enable DTMF Tone on DT820 terminal.

[1] Configuration Settings on Terminal

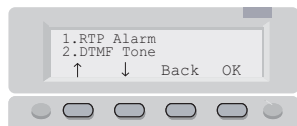
STEP 1: On [Setting] menu, select “1. User Setting.”



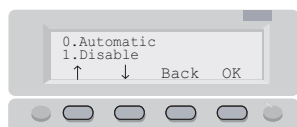
STEP 2: On [User Setting] menu, select “2. Talk.”



STEP 3: On [Talk] menu, select “2. DTMF Tone.”

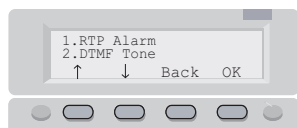


STEP 4: LCD displays the [DTMF Tone] menu. Select either Automatic, Disable or Enable using digit keys. “0. Automatic” will be flashing before any selection is made, since “0” is assigned by default. Press the software key for “OK” when done.



LCD Display	Assignment Conditions
0. Automatic	- Follows the settings assigned to system. - Settings assigned to system has priority. - DTMF Tone is Enabled only when settings assigned by system do not exist.
1. Disable	- Does not follow the setting assigned by system. - Settings assigned to terminal has priority. - DTMF Tone is Disabled.
2. Enable	- Does not follow the settings assigned by system. - Settings assigned to terminal has priority. - DTMF Tone is Enabled.

STEP 5: LCD returns to [Talk] menu. Pressing the software key for "Back" will return to uppper menu.



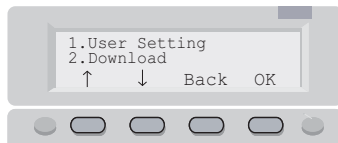
END

1.4.2.17 Hold Music

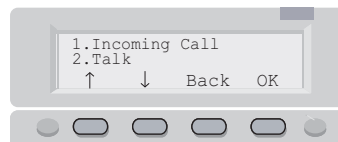
You can select the default hold music (minuet) or downloaded hold music that are heard from the terminal when held by the calling party while talking.

Note: To use a downloaded hold music, it needs to be downloaded in advance. For how to download the hold music, refer to Section 1.4.2.22 File Downloading.

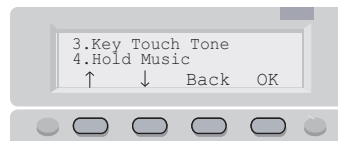
STEP 1: On [Setting] menu, select "1. User Setting."



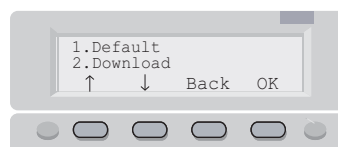
STEP 2: On [User Setting] menu, select "2. Talk."



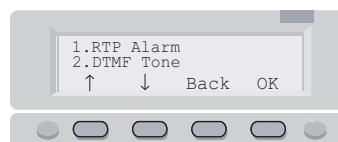
STEP 3: On [Talk] menu, select "4. Hold Music."



STEP 4: On [Hold Music] menu, select either "1. Default (Minuet)" or "2. Download" by digit key, and then press the software key for "OK."



STEP 5: LCD returns to [Talk] menu. Pressing the software key for "Back" will return to upper menu.



END

1.4.2.18 Language

By changing the language on the configuration menu of the terminal, time display and the setting menu on the terminal can be displayed by the language of each country. The following describes the languages supported by the terminal, and the procedure to set them.

Languages supported by the terminal

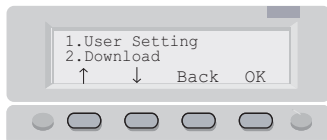
LCD	Description
0. Automatic Note 5	Telephony Server side's language setting is applied.
1. 日本語	Japanese
2. NEC English	NEC English
3. NEC Português	NEC Portuguese
4. NEC Español	NEC Spanish
5. NEC Français	NEC French
6. Deutsch	German
7. ITALIANO	Italian
8. Nederlands	Dutch
9. Norsk	Norwegian
10. Dansk	Danish
11. Svensk	Swedish
12. Ελληνικά	Greek
13. English	English
14. Português	Portuguese
15. Español	Spanish
16. Français	French
17. Русский	Russian
18. Türk	Turkish
19. Român	Romania
20. Polski	Polish
21. Català	Catalan
22. 한국어	Korean

Note: If “Language Pack” files are not downloaded, the parameters of downloaded languages are not displayed.

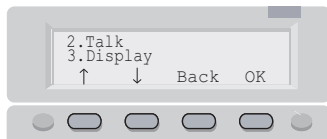
Note: Each parameter is displayed in their native language.

Note 5: When you select [Setting] → [Display] → [Time Format] → [Automatic] from the configuration menu, the language setting of time display will be specified as “0. Automatic”.

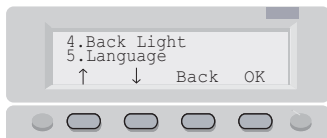
STEP 1: On [Setting] menu, select "1. User Setting."



STEP 2: On [User Setting] menu, select "3. Display."



STEP 3: On [Display] menu, select "5. Language."



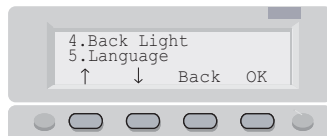
STEP 4: On [Language] menu, select the language by pressing the digit key, and then press the software key for "OK."



For example, to set "2. NEC English",

- 1) Enter "0" and "2."
- 2) Entering field displays "02."
- 3) "2. NEC English" line is focused.
- 4) Press the software key for "OK."

STEP 5: The LCD displays "Display" menu. Pressing the software key for "Back" will return to "User Setting" menu.



END

1.4.2.19 Security Settings

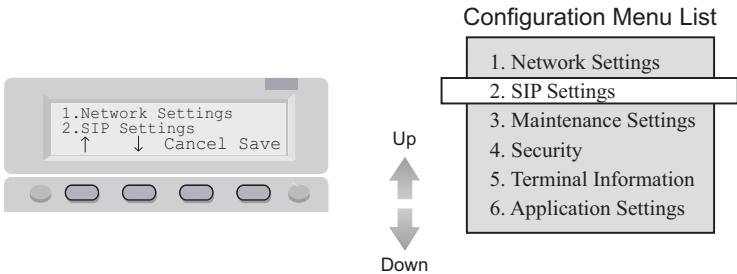
<SIP Terminal Authentication and VoIP Encryption>

While the Security Mode is in service, terminal users can set data for SIP Terminal Authentication and VoIP Encryption.

[1] Configuration Settings on Terminal

Note: Refer to SIP Terminal Authentication [S-152] and VoIP Encryption [V-27] for the Telephony Server side data assignment.

STEP 1: On [Config] menu, select “2. SIP Settings.”



Note: For other operations, “↑” and “↓” of software key, and cursor key are also available. Refer to <Operations> for more details.

STEP 2: The LCD displays [SIP Settings] menu. Select “7. Encryption.”



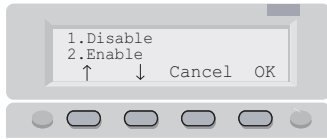
STEP 3: On [Encryption] menu, select “1. Authentication Mode.”



A

A

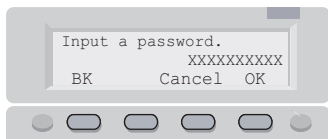
STEP 4: On [Auth Mode] menu, select “2. Enable”, then press the software key for “OK.”



STEP 5: The LCD displays [Encryption] menu.



STEP 6: On [Encryption] menu, select “2. One Time Password.” The LCD displays [One Time Password] screen.



- Enter the password for User ID [up to 10 digits (“0-9”, “*”, “#”)].
- On the screen, the password will be displayed with “*”.
- To delete the entered value, press the software key for “BK.”
- Press the software key for “OK” when password entry is finished.

Note: Enter the same One Time Password as the password assigned to the Telephony Server.

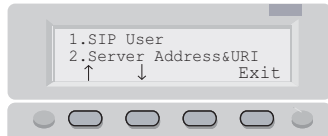
STEP 7: The LCD displays [Encryption] menu.



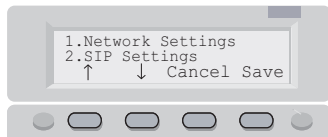
B

B

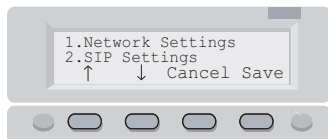
STEP 8: On [Encryption] menu, press the software key for “Exit.” The LCD displays [SIP Settings] menu.



STEP 9: On [SIP Settings] menu, press the software key for “Exit.” The LCD displays [Config] menu.



STEP 10: On [Config] screen, press the software key “Save” to save the settings.



END

[2] Configuration Setting by Web Programming

STEP 1: Select [SIP Settings] → [Encryption] → [Authentication Mode].

STEP 2: Select the [Enable] parameter, and click the “OK” button.

STEP 3: Select [SIP Settings] → [Encryption] → [One Time Password].

STEP 4: Enter the One Time Password [up to 10 digits (“0-9”, “*”, “#”)].

Note: On the screen, the password will be displayed with “*”.

Note: Enter the same One Time Password as the password assigned to the Telephony Server.

STEP 5: Click the “Save” button.

1.4.2.20 LLDP and LLDP-MED

This section explains how to assign data for Link Layer Discovery Protocol (LLDP) and LLDP-Media Endpoint Discovery (LLDP-MED) on DT820 terminals.

DT820 supports LLDP, a standard Neighbor Discovery protocol, and can exchange information about themselves with adjacent network nodes such as IP/SIP terminals and other LLDP-capable devices. It also automatically performs some network settings upon receiving LLDP packets.

With LLDP Mode enabled, DT820 begins to transmit and receive LLDP packets after startup. It transmits LLDP packets from the LAN port at periodic intervals defined by LLDP Packet Transmission Interval (**Note 6**, **Note 7**, **Note 8**), and holds the latest available LLDP packet received on the LAN port (**Note 9**). When the LLDP Auto Setting Mode is enabled, it performs self-configuration based on the information learned from the received LLDP packet.

Note 6: LLDP packets are also transmitted in the following cases that LLDP packet contents to be advertised are changed.

- The Reception Waiting Time (RX Waiting Time) has timed out.
- IP address is allocated via DHCP.
- ToS value is defined by the Telephony Server.

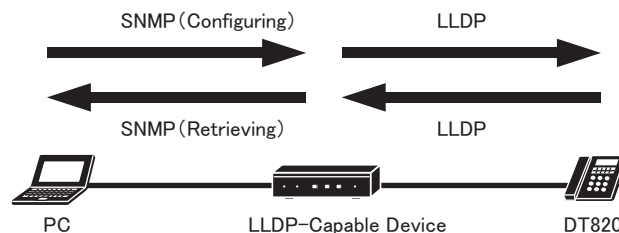
Note 7: When DT820 transmits LLDP packets within LLDP Packet Transmission Interval, it sets LLDP Packet Transmission Interval based on the transmitted LLDP packet in the last time and transmits packets with the interval.

Note 8: LLDP packets are not transmitted from the PC port except when the LLDP Transparent Mode is enabled.

Note 9: LLDP packets will be discarded in the following cases where:

- LLDP packets are received on the PC port except when LLDP Transparent Mode is enabled.
- LLDP packets are received from network devices other than switches (IP/SIP terminal, PC, for example).
- LLDP packets whose LLDP-MED Capabilities TLV/LLDP-MED Device Type are not Connectivity Device Definition (04H).

Layer Discovery Protocol



LLDP Fast Start

DT820 usually transmits LLDP packets at the interval (30 seconds by default) specified by LLDP Packet Transmission Interval (Transmit Interval). However, this may cause slow MED device configuration due to the detection delay. In order to prompt neighbor devices to transmit an LLDP packet and renew the existing network information, DT820 can consecutively transmit one LLDP packet per second for a limited time, reducing the time it takes for automatic LLDP configuration. This feature, called “LLDP Fast Start,” is activated immediately after DT820 starts transmitting an LLDP packet or when the link has been established on the LAN port, and transmits LLDP packets at intervals of one second for the duration of the LLDP Fast Start Count. After completion of the count, the transmission interval for LLDP packets returns to the value set for LLDP Packet Transmission Interval (Transmit Interval).

LLDP Auto Setting Mode

DT820 can automatically set the voice network policies based on the information from received LLDP packets. When the LLDP Auto Setting Mode is enabled, after starting LLDP packet transmission and reception, DT820 automatically sets network policies by using the valid LLDP packet received within the time specified by the Reception Waiting Time (RX Waiting Time).

LLDP Transparent Mode

DT820 can forward LLDP data between its LAN and PC ports. This provides the above-mentioned LLDP Auto Setting for a PC connected to the PC port of a DT820 terminal like those terminals adjacent to an LLDP capable switch.

When this Transparent Mode is enabled, DT820 transmits LLDP packets received on the LAN port to the PC port and vice versa.

Note: When the Transparent Mode is enabled, DT820 exchanges information with the LLDP-capable device connected to the PC port, as well as with the one connected to the LAN port.

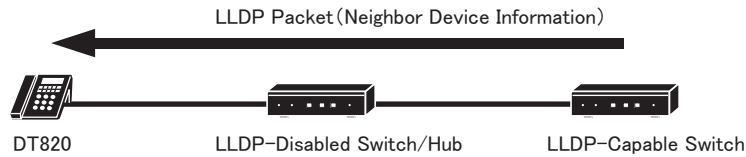
<Service Conditions>

(1) DT820 supports the following protocol and standard:

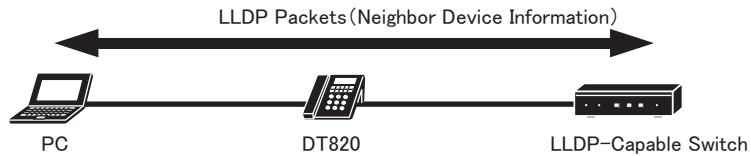
- IEEE802.1AB
- ANSI/TIA-1057 LLDP-MED (LLDP for media endpoint discovery)
LLDP-MED endpoint device class: “Class III (Communication Devices)”

- (2) DT820 supports the following switches:
 - NEC QX-S3200-PW Series Ver. 3.2. 10 or higher
 - Cisco Catalyst 3560 Series IOS Release 12.2 or higher
- (3) Settings for LLDP and LLDP-MED features will be only valid after restarting the DT820 terminal.
- (4) Transmission and reception of LLDP packets is performed after IEEE802.1X authentication.
- (5) Settings for LLDP and LLDP-MED features are reset to default settings by clearing data (initialization, terminal settings data).
- (6) The following settings can be configured by the AutoConfig feature:
 - LLDP Mode
 - Auto Setting Mode
 - RX Waiting Time
 - Transmit Interval
 - Hold Multiplier
 - Fast Start Count
 - Transparent Mode
- (7) Regardless of the settings for the LLDP Mode, LLDP Transparent Mode is performed based on the settings for the LLDP Transparent Mode.
- (8) When the LLDP and the LLDP Auto Setting Modes are enabled, it may take some time to receive LLDP data (15 seconds by default) before DT820 starts up.
- (9) VLAN IDs cannot be assigned automatically to the PC port of DT820 by using the LLDP Auto Setting Mode.
- (10) The LLDP Auto Setting Mode will override the AutoConfig feature. Thus, even if performing the Auto-Config may involve changes in the settings common to both of them, the settings made by the LLDP Auto Setting will not be changed by the AutoConfig.

- (11) Non-LLDP-capable switches and hubs relay LLDP packets. Switches that are LLDP-capable also relay LLDP packets if they are set to relay LLDP packets. When such an LLDP-disabled device is located between LLDP-capable devices and DT820, the DT820 will assume that LLDP information provided by the LLDP-capable device is the information about the one directly connected to itself.



- (12) When the LLDP Transparent Mode is enabled, DT820 forwards LLDP packets between the LAN and PC ports. In this case, the LLDP-capable device (switch) will recognize the DT820 terminal and the PC connected to the terminal as its neighbor.



- (13) The table below shows advertised LLDP Type Length Values:

Advertised LLDP TLV

TLV	TLV Element	Description	Transmitted Data from the LAN Port
Chassis ID TLV	chassis ID subtype	Chassis ID subtype	0x05 (Network address)
	chassis ID	Chassis ID	IP address Before DHCP assignment; "0.0.0.0" After DHCP assignment; the assigned address
Port ID TLV	port ID subtype	Port ID subtype	0x03 (MAC address)
	port ID	Port ID	MAC address
Time To Live TLV	time to live	Length of time the LLDP data will be valid	LLDP packet transmission interval×LLDP time to live
Port Description TLV	port description	Port description	"LAN Port"
System Name TLV	system name	System name	"NEC IP Phone"
System Description TLV	system description	System description	"DT820 Series"
System Capabilities TLV	system capabilities	Supported LAN capabilities (repeater hubs, routers, IP phones, for example)	0x00 0x24 (Telephone, Bridge)
	enabled capabilities	Enabled LAN capabilities (repeater hubs, routers, IP phones, for example)	0x00 0x24 (Telephone, Bridge)
Management Address TLV			Not advertised

Advertised LLDP TLV

TLV	TLV Element	Description	Transmitted Data from the LAN Port
IEEE802.1 Extensions			
Port VLAN ID TLV			Not advertised
Port And Protocol VLAN ID TLV			Not advertised
VLAN Name TLV			Not advertised
Protocol Identity TLV			Not advertised
IEEE802.3 Extensions			
MAC/PHY Configuration/Status TLV	auto-negotiation support/status	Auto-negotiation support/status	0x02 (When Speed&duplex on the LAN port is set to automatic) 0x01 (When Speed&duplex on the LAN port is set to other than automatic)
	PMD auto-negotiation advertised capability	PMD auto-negotiation advertised capability	0x00 0x36 (10BASE-T half duplex mode, 10BASE-T full duplex mode, 100BASE-TX half duplex mode, 100BASE-TX full duplex mode)
		PMD auto-negotiation advertised capability	0xC0 0x36 (10BASE-T half/full duplex mode, 100BASE-TX half/full duplex mode, 1000BASE-T half/full duplex mode)
	operational MAU type	Operational MAU type	Speed&duplex during transmission 0x00 0x02 (10BASE-T half duplex) 0x00 0x04 (10BASE-T full duplex) 0x00 0x10 (100BASE-TX half duplex) 0x00 0x20 (100BASE-TX full duplex)
Power Via MDI TLV	MDI power support		Not advertised
	PSE power pair		
	power class		
Link Aggregation TLV	aggregation status	Link aggregation status	Not advertised
	aggregated port ID	Link aggregated port ID	
Maximum Frame Size TLV	maximum 802.3 frame size	Maximum 802.3 frame size	Not advertised

Advertised LLDP TLV

TLV	TLV Element	Description	Transmitted Data from the LAN Port
LLDP-MED Extensions			
LLDP-MED Capabilities TLV	LLDP-MED Capabilities	LLDP-MED capabilities	0x00 0x33 (Capabilities, network policy, power via MDI (PD), inventory management)
	LLDP-MED Device Type	LLDP-MED device type	0x03 (Endpoint class III)
Network Policy TLV [1]	Application Type	Application type to which the network policy applies	1 (Voice)
	U	Flag to indicate whether the information is known or unknown in the network policy request	In the LLDP Auto Setting Mode; 1 (Unknown) Otherwise; 0 (Defined)
	T	Flag to indicate whether the VLAN is tagged or untagged	LAN port VLAN is disabled; 0 (untagged VLAN) LAN port VLAN is enabled; 1 (tagged VLAN)
	X	(Not used)	0
	VLAN ID	VLAN ID	LAN port VLAN ID (When VLAN is disabled; 0)
	L2 Priority	Layer 2 priority	LAN port VLAN priority (When VLAN is disabled; 0)
	DSCP Value	DSCP value	Set value for RTP ToS
Network Policy TLV [2] Note 10	Application Type	Application type to which the network policy applies	2 (Voice Signaling)
	U	Flag to indicate whether the information is known or unknown in the network policy request	In the LLDP Auto Setting Mode; 1 (Unknown) In case other than the above; 0 (Defined)
	T	Flag to indicate whether the VLAN is tagged or untagged	LAN port VLAN is disabled; 0 (untagged VLAN) LAN port VLAN is enabled; 1 (tagged VLAN)
	X	(Not used)	0
	VLAN ID	VLAN ID	LAN port VLAN ID (When VLAN is disabled; 0)
	L2 Priority	Layer 2 priority	LAN port VLAN priority (When VLAN is disabled; 0)
	DSCP Value	DSCP value	Set value for SIP ToS

Advertised LLDP TLV

TLV	TLV Element	Description	Transmitted Data from the LAN Port
Location Identification TLV	Location Data Format	Location ID format	Not advertised
	Location ID	Location ID	
Extended Power-Via-MDI TLV	Power Type	Power supply or demand side	0x1(PD Device)
	Power Source	Power state Supply side: Main or auxiliary power Demand side: PoE or local power supply	0x0 (Unknown)
	Power Priority	Power supply priority	0x0 (Unknown)
	Power Value	Supply side: Minimum power available to supply Demand side: Maximum consumed power	36 (DT820)
Hardware Revision TLV	Hardware Revision	Hardware version	Hardware version
Firmware Revision TLV	Firmware Revision	Firmware version	Firmware version
Software Revision TLV	Software Revision	Software version	"_"
Serial Number TLV	Serial Number	Serial number	"_"
Manufacturer Name	Manufacturer Name	Manufacturer name	"NEC"
Model Name	Model Name	Model name	"DT820(6D)" "DT820(8LDX)"
Asset ID	Asset ID	Asset ID (Property ID)	Asset ID

Note 10: If DSCP Value (set value for SIP ToS) of Network Policy [2] is equal to that of Network Policy [1] (set value for RTP ToS), the TLV will not be advertised.

(14) The table below shows received LLDP Type Length Values:

Note: Only the LLDP packets received on the LAN port are valid. (LLDP packets received on the PC port are not valid.)

Received LLDP TLV

TLV	Description	Received Data	
		Availability	Online Monitoring
Basic management			
Chassis ID TLV	Chassis ID	Receivable	Viewed (Info only: IP Address, MAC Address)
Port ID TLV	Port ID	Receivable	Viewed (Info only)
Time To Live TLV	Length of time the LLDP data will be valid	Receivable	Not viewed
Port Description TLV	Port description	Receivable	Viewed
System Name TLV	System name	Receivable	Viewed
System Description TLV	System description	Receivable	Viewed
System Capabilities TLV	Supported/enabled LAN capabilities	Receivable	Not viewed
Management Address TLV		Receivable	Not viewed
IEEE802.1 Extensions			
Port VLAN ID TLV		Receivable	Not viewed
Port And Protocol VLAN ID TLV		Receivable	Not viewed
VLAN Name TLV		Receivable	Not viewed
Protocol Identity TLV		Receivable	Not viewed
IEEE802.3 Extensions			
MAC/PHY Configuration/Status TLV	I/F capability/status/type	Receivable	Viewed (auto-negotiation support/status, operational MAU type only)
Power Via MDI TLV		Receivable	Not viewed
Link Aggregation TLV	Link aggregation port ID/status	Receivable	Not viewed
Maximum Frame Size TLV	Maximum frame size	Receivable	Not viewed
LLDP-MED Extension			
LLDP-MED Capabilities TLV	LLDP-MED capabilities/device type	Receivable	Not viewed
Network Policy TLV	Network policy	Receivable	Viewed (Voice, VoiceSignaling, Unknown only)
Location Identification TLV	Location identification	Receivable	Viewed (Civic Address, ECS ELIN only)

Received LLDP TLV

TLV	Description	Received Data	
		Availability	Online Monitoring
Extended Power-Via-MDI TLV	Power information	Receivable	Not viewed
Hardware Revision TLV	Hardware version	Receivable	Not viewed
Firmware Revision TLV	Firmware version	Receivable	Not viewed
Software Revision TLV	Software version	Receivable	Not viewed
Serial Number TLV	Serial number	Receivable	Not viewed
Manufacturer Name	Manufacturer name	Receivable	Viewed
Model Name	Model name	Receivable	Viewed
Asset ID	Asset ID (Property ID)	Receivable	Viewed

[Conditions for LLDP Auto Setting]

- (1) To enable the LLDP Auto Setting Mode, an LLDP packet needs to contain a Network Policy TLV with Unknown Policy Flag (U) set to “0.” If more than one Network Policy TLV is contained in a LLDP packet, all of their Unknown Policy Flag (U) must be “0.”
- (2) Both LLDP and LLDP Auto Setting Modes need to be enabled.
- (3) DT820 will wait until it receives a valid LLDP packet for the LLDP Auto Setting or the Reception Waiting Time (RX Waiting Time) has timed out. In the latter case, the LLDP Auto Setting will not be performed. When receiving an LLDP packet with partially valid data, DT820 will continue waiting until it receives the one having all valid information for the LLDP Auto Setting. If no LLDP packets containing all valid data are received within the Reception Waiting Time (RX Waiting Time), the LLDP Auto Setting will be made by using LLDP packets with partially valid data.

Criteria for the LLDP Auto Setting

Received LLDP Packet	Waiting for Valid LLDP Packet (RX Waiting Time)	Auto Setting
Packet containing all valid data	Ends	Performed
Packet containing partially valid data	Continues	Performed by using only valid data after the Reception Waiting Time (RX Waiting Time) is expired
Packet containing no valid data	Continues	Not performed

- (4) The following settings can be automatically configured by the LLDP Auto Setting:
- LAN port configuration/VLAN ID
 - LAN port configuration/VLAN priority
 - TOS mode/RTP
 - TOS mode/SIP
- (5) The LLDP Auto Setting is performed for each setting.
- (6) The configuration data assigned to DT820 terminal is used until the LLDP data configured by the LLDP Auto Setting is applied.
- (7) For setting items with invalid data, the LLDP Auto Setting is not performed.
- (8) The priority order of the Layer 2 configuration is as follows:
1. Telephony Server definition
 2. LLDP Auto Setting
 3. Configuration data assignment of DT820 terminal
- Note:** Settings with lower priority are overridden by higher priority settings.
- (9) Modification in the network configuration of the adjacent LLDP-capable device will cause changes in the LLDP information received by DT820, but this will not activate the LLDP Auto Setting. If you need to modify the configuration data of DT820, change the settings on the terminal or restart it.
- (10) Changes in the configuration of the adjacent LLDP-capable device can disconnect communication between the DT820 terminal and the Telephony Server. In this case, DT820 automatically restarts.
- (11) Settings data configured by the LLDP Auto Setting are not stored in the flash memory, and will be lost by turning the power off and on, or doing a hard or soft reset. In this case, perform the LLDP Auto Setting again.
- (12) The AutoConfig is implemented for the settings configured by the Configuration data assignment of DT820 terminal after an IP address is allocated via DHCP, and then the terminal is reset. For this reason, AutoConfig setting has a priority equal to that of the Configuration data assignment.

(13) Conditions for LAN port configuration/VLAN ID

To configure VLAN ID, DT820 needs to receive an LLDP packet containing one or more Network Policy TLVs. VLAN ID is determined based on the received Network TLVs meeting the conditions below:

Network Policy TLV Requirements for VLAN ID Configuration

TLV Element	Condition
Application Type	Voice (1)
Unknown Policy Flag (U)	0

Note: For TLV definition, refer to the relevant manuals.

Note: This TLV definition will affect all types of packets (such as SIP, RTP, and HTTP) handled by DT820.

(14) Conditions for LAN port configuration/VLAN priority

To configure VLAN priority, DT820 needs to receive an LLDP packet containing one or more Network Policy TLVs. VLAN priority is determined based on the received Network TLVs meeting the conditions below:

Network Policy TLV Requirements for VLAN Priority Configuration

TLV Element	Condition
Application Type	Voice (1)
Unknown Policy Flag (U)	0

Note: For TLV definition, refer to the relevant manuals.

Note: This TLV definition will affect all types of packets (such as SIP, RTP, and HTTP) handled by DT820.

(15) Conditions for ToS mode/RTP

To configure ToS mode/RTP, DT820 needs to receive an LLDP packet containing one or more Network Policy TLVs. ToS mode/RTP is determined based on the received Network TLVs meeting the conditions below:

Network Policy TLV Requirements for ToS Mode/RTP Configuration

TLV Element	Condition
Application Type	Voice (1)
Unknown Policy Flag (U)	0
Tagged Flag (T)	Not Applicable

Note: For TLV definition, refer to the relevant manuals.

(16) Conditions for ToS mode/SIP

To configure ToS mode/SIP, DT820 needs to receive an LLDP packet containing one or more Network Policy TLVs. ToS mode/SIP is determined based on the received Network TLVs meeting the conditions below:

Network Policy TLV Requirements for ToS Mode/SIP Configuration

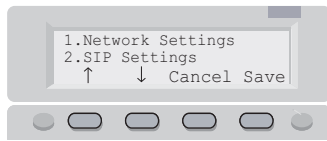
Priority	TLV Element	Condition
Primary	Application Type	Voice Signaling (2)
	Unknown Policy Flag (U)	0
	Tagged Flag (T)	Not Applicable
Secondary	Application Type	Voice (1)
	Unknown Policy Flag (U)	0
	Tagged Flag (T)	Not Applicable

Note: For TLV definition, refer to the relevant manuals.

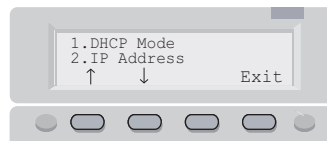
(17) The LCD displays the message “LLDP Receiving...” during the LLDP Auto Setting, including LLDP packet reception.

<How to Enable LLDP and LLDP-MED>

STEP 1: On [Config] menu, select “1. Network Settings.”



STEP 2: The LCD displays [Network Settings] menu. Select “6. Advanced Settings.”



Network Settings Menu List

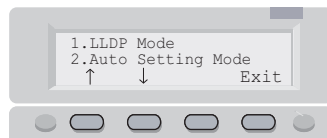
Up
↓
Down

1. DHCP Mode
2. IP Address
3. Default Gateway
4. Subnet Mask
5. DNS Address
6. Advanced Settings

STEP 3: On [Advanced Settings] menu, select “6. LLDP Settings.”



STEP 4: The LCD displays [LLDP Settings] screen. Select “1. LLDP Mode.”



STEP 5: The LCD displays [LLDP Mode] screen.



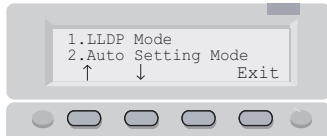
- Press the digit key “2” to transmit/receive LLDP packets.
- Press the digit key “1” not to transmit/receive LLDP packets.
- Press the software key for “OK” when the [LLDP Mode] setting is complete.

Note: “2. Enable” is set by default.

A

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STEP 6: The LCD displays [LLDP Settings] screen.



STEP 7: On [LLDP Settings] menu, select "2. Auto Setting Mode."

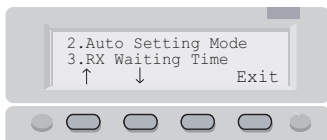


- Press the digit key "2" to enable the Auto Setting Mode.
- Press the digit key "1" to disable the Auto Setting Mode.
- Press the software key for "OK" when the [Auto Setting Mode] setting is complete.

Note:

- "2. Enable" is set by default.
- This data is valid when the LLDP mode is enabled.

STEP 8: The LCD displays [LLDP Settings] screen. Select "3. RX Waiting Time."



STEP 9: The LCD displays [RX Waiting Time] menu.



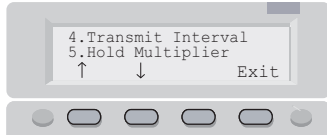
- Set the RX Waiting Time using digit keys.
- You can set 1- 60 (default time: 15) seconds.
- Press the software key for "BK" to delete the RX Waiting Time.
- Press the software key for "OK" when the [RX Waiting Time] settings is complete.

Note: This data is valid when the LLDP mode and Auto Setting Mode are enabled.

B

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STEP 10: The LCD displays [LLDP Settings] menu. Select “4. Transmit Interval.”



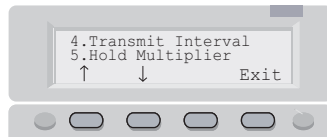
STEP 11: The LCD displays [Transmit Interval] setting screen.



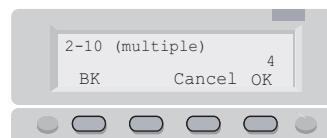
- Set intervals to transmit LLDP packets using digit keys.
- You can set 5-32768 (default interval: 30) seconds.
- Press the software key for “BK” to delete the transmitting interval.
- Press the software key for “OK” when the [Transmit Interval] setting is complete.

Note: This data is valid when the LLDP mode is enabled.

STEP 12: The LCD displays [LLDP Settings] menu. Select “5. Hold Multiplier.”



STEP 13: The LCD displays [Hold Multiplier] setting screen.



- Set the time to live for the LLDP data using Digit Keys.
- The time to live will be determined by multiplying [Transmit Interval] value by the [Hold Multiplier] value. **Note 1**
- You can set 2-10 (default multiplier: 4) times.
- Press the software key for “BK” to delete the [Hold Multiplier] value.
- Press the software key for “OK” when the [Hold Multiplier] settings is complete.

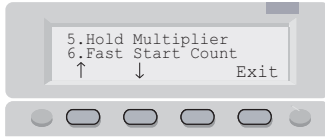
Note: This data is valid when the LLDP mode is enabled.

Note 1: When the value obtained by multiplying [Transmit Interval] value by the [Hold Multiplier] value exceeds 65535 seconds, the time to live for the LLDP data will be 65535 seconds.

C

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STEP 14: The LCD displays [LLDP Settings] menu. Select “6. Fast Start Count.”



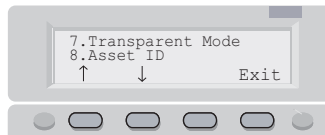
STEP 15: The LCD displays [Fast Start Count] setting screen.



- Set the number of times to transmit LLDP packets at one-second intervals after the terminal starts up using digit keys.
- You can set 1-10 (default count: 3) times.
- Press the software key for “BK” to delete the number.
- Press the software key for “OK” when the [Fast Start Count] settings is complete.

Note: This data is valid when the LLDP mode is enabled.

STEP 16: The LCD displays [LLDP Settings] menu. Select “7. Transparent Mode.”



STEP 17: The LCD displays [Transparent Mode] setting screen.



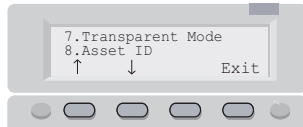
- Press the digit key “2” to enable the Transparent Mode.
- Press the digit key “1” to disable the Transparent Mode.
- Press the software key for “OK” when the [LLDP Mode] setting is complete.

Note: “2. Enable” is set by default.

D

D

STEP 18: The LCD displays [LLDP Settings] menu. Select “8. Asset ID.”



STEP 19: The LCD displays [Asset ID] setting screen.

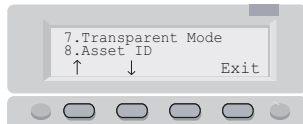


- Set the Asset ID using digit keys for the LLDP packet to be transmitted.
- You can set 1-32 digits of alphanumeric characters for the Asset ID. See [How to Enter Characters on Configuration Menu] for how to enter characters.
- Press the software key for “BK” to delete the Asset ID.
- Press the software key for “OK” when the [Asset ID] settings is complete.

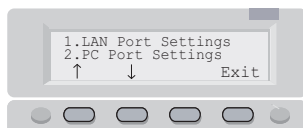
Note: This data is valid when the LLDP mode is enabled.

Note: You can finish this setting by pressing the software key for “OK” without entering digits because of the software specification. In this case, the default data “-” will be set automatically .

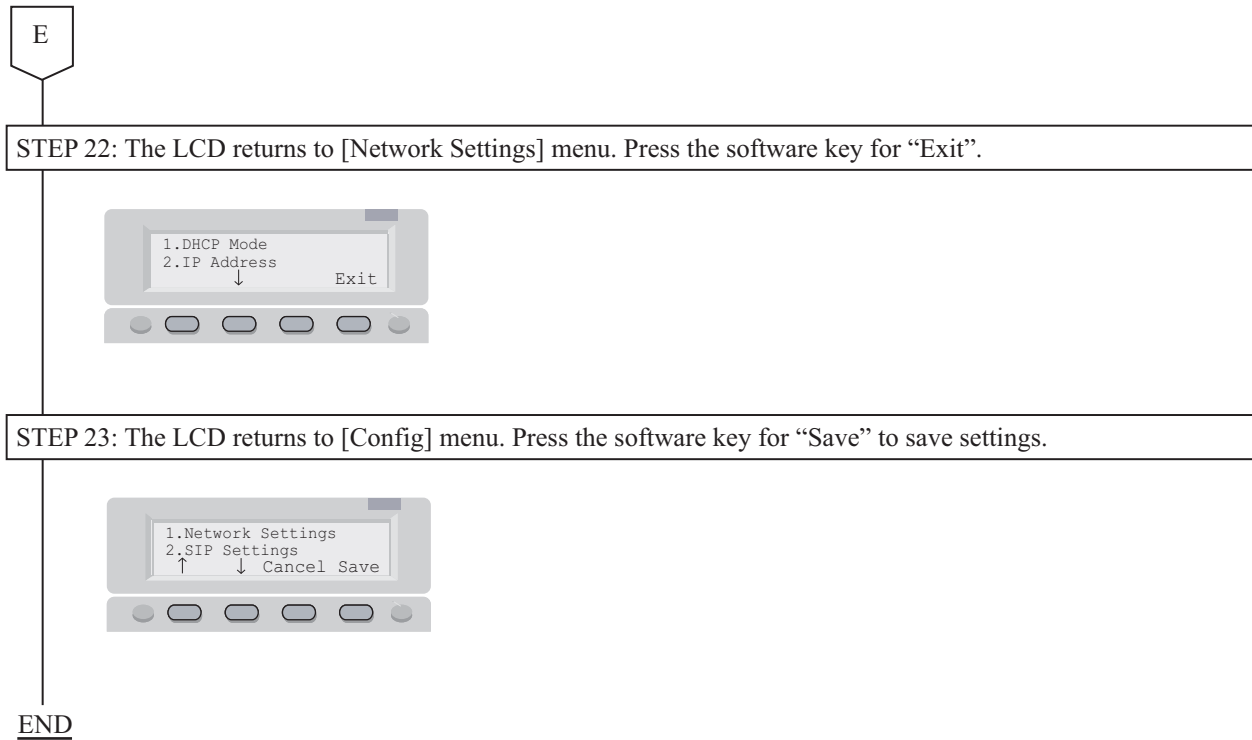
STEP 20: The LCD displays [LLDP Settings] menu. Press the software key for “Exit.”



STEP 21: The LCD returns to [Advanced Settings] menu. Press the software key for “Exit.”



E



1.4.2.21 Spare/Backup IP

This section explains data assignment of Spare/Backup IP.

Even if DT820 fails to obtain an IP address from DHCP server, the DT820 can connect to the Telephony Server using Spare/Backup IP address.

Either of the following will be used as a substitute IP address depending on a substitute IP address mode assigned.

- Spare IP:IP address set by the Configuration Setting
- Backup IP:IP address obtained from DHCP last time

Spare IP

- If you set the following information by the Configuration Settings when substitute IP address mode is Spare IP, DT820 can use the following information as the substitute information while DHCP is out of service.
- IP Address
- Subnet Mask
- Default Gateway
- DNS Server Address

- 2nd - 4th Server Address
- 2nd - 4th Server Port

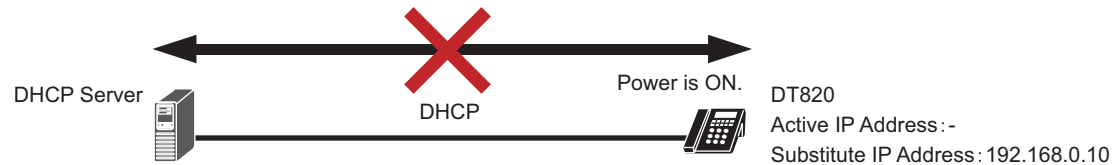
Note: It is mandatory to set IP address and Subnet Mask.

Operation with Spare IP

[1] The power of DT820 is OFF. A substitute IP address is set by Configuration Menu in advance.



[2] The power of DT820 is turned ON. DT820 fails to obtain an IP address because of communication failure.



[3] DT820 starts operating with a substitute IP address.



Backup IP

If you set the following information when substitute IP address mode is Backup IP, DT820 can save the following information which has been obtained from the DHCP server in advance so that DT820 can use the information as the substitute information if the DHCP server becomes out of service in the next time.

- IP Address
- Subnet Mask (obtained through DHCP option 1)
- Default Gateway (obtained through DHCP option 3)
- DNS Server Address (obtained through DHCP option 6)
- 2nd - 4th Server Address (obtained through DHCP option 120)
- 2nd - 4th Server Port (obtained through Vendor-class-identifier option 168)

Operation with Backup IP

- [1] The power of DT820 is OFF.



- [2] The power of DT820 is turned ON. DT820 obtains an IP address from the DHCP server. DT820 operates with the obtained IP address. The obtained IP address is set for the configuration at the same time.



- [3] The obtained IP address is saved as a substitute IP address in the configuration even after DT820 is turned OFF.



- [4] The power of DT820 is turned ON. DT820 fails to obtain an IP address because of communication failure.



- [5] DT820 starts operating with a substitute IP address.



<Service Conditions>

- (1) To use the Spare IP/Backup IP function, DHCP Mode needs to be enabled.
- (2) IP address (ACT) of the Telephony Server needs to be assigned to DT820.
- (3) Spare IP and Backup IP shares a substitute IP address information in the Configuration Settings. Even if the substitute IP address mode has been changed, DT820 maintains the substitute IP address information such as IP address, Subnet Mask, Default Gateway, DNS Server Address, 2nd - 4th Server Address, and 2nd - 4th Server Port.
- (4) Even when the substitute IP address mode is Backup IP address, you can set the information above by Configuration Settings manually, but the information will be overwritten when DT820 obtains the new information from the DHCP server again.

- (5) When DT820 uses the substitute IP address, DT820 attempts to connect to the 2nd Server without connecting to the 1st Server. When the 2nd Server does not answer or an error occurs, DT820 attempts to connect to the next server. DT820 keeps using the substitute IP address without obtaining an IP address from the DHCP server.
- (6) When DT820 fails to connect to all of the 2nd - 4th servers, an error occurs. Then DT820 performs retry to obtain an IP address from the DHCP server. If DT820 obtains an IP address successfully, DT820 attempts to connect to the 1st server without using the substitute IP address.
- (7) DT820 uses the following Configuration data when the substitute IP address is in service. DT820 determines the setting data kind on a group basis. When the setting data is included to the same group, the same setting data kind, Configuration (substitute) or Configuration, will be used.

Configuration data : Configuration data in [0. Config] - [1. Network Settings] - [6. Advanced Settings] (substitute) - [6.Spare IP Settings] - [2.Network Settings]/[3.SIP Settings]

Configuration data : Configuration data in [0. Config] - [1. Network Settings]/[2. SIP Settings]

Priority Order of Setting Data Kind While Using Substitute IP Address

Group	Group A	Group B	Group C	Group D	Group E
Setting Data	IP Address Subnet Mask	Default Gateway	DNS Server Address	2nd/3rd/4th Server Address	2nd/3rd/4th Server Port
Priority Order					
Primary	Configuration data (substitute)	Configuration data (substitute)	Configuration data (substitute)	Configuration data (substitute)	Configuration data (substitute)

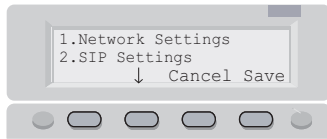
Note: When no higher priority data is set in the configuration, the lower priority data will be used without using the default data. When no data exists in all the groups, the default data of the lowest priority will be used.

- (8) Even if the DHCP server allows DT820 to obtain IP address, DT820 does not obtain the IP address automatically. Restart the DT820 (by manual operation, operation from the Telephony Server or turn OFF and ON the DT820).
- (9) If the DHCP server recovers while using a substitute IP address, the DHCP server may distribute the duplicated IP address of the substitute IP address which DT820 uses. Also network failure occurs if the DHCP server distributes the duplicated IP address of the substitute IP address which DT820 uses over the networks.
- (10) The Spare IP/Backup IP function will become active after restarting DT820.
- (11) The Spare IP/Backup IP function will become active after DT820 data clear (Initialization, Station Data Clear).

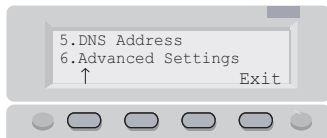
- (12) Even when DT820 fails to connect to the Telephony Sever, the DT820 can save the substitute IP address information in Backup IP mode at the time it obtains an IP address from the DHCP server.
- (13) A substitute IP address may inhibit DT820 from connecting to the Telephony Server if the substitute IP address duplicates other IP addresses used for the equipment in the network.
- (14) AutoConfig is not be activated while a substitute IP address is in service.
- (15) When AutoConfig Mode is in service, the operation mode of Spare IP/Backup IP will become the default data by initialization. In the case of Backup IP, the IP address obtained from the DHCP server last time will be maintained.
- (16) The obtained data from the DHCP server last time for Backup IP will be deleted when DT820 data clear (Initialization, Station Data Clear) is performed. In the factory setting, DT820 does not have the data required for Backup IP so that Backup IP is not activated.
- (17) Backup data is a target of [1. Setting] - [3. Data Backup/Restore] in the configuration menu.
- (18) When the substitute IP address mode is Backup IP, DT820 saves an IP address obtained from the DHCP server in the Flash Memory. If the power of DT820 is turned OFF while saving the IP address in the Flash Memory, DT820 may not start up.
- (19) When the substitute IP address is out of service, the LCD displays the error message "Parameter Missing". DT820 retries to obtain the IP address from the DHCP server when the certain period of time has elapsed since the LCD displays the error, or a user of DT820 presses the software key for "Exit." Configuration setting is available even when the LCD displays the error message.
- (20) When the substitute IP address mode is Backup IP, only IP addresses that are obtained through DHCP option 120 can be saved as 2nd - 4th Server Addresses. IP addresses obtained through DHCP option 162 are recognized as used for Location Diversity [L-55], and cannot be saved.

<How to Set the Substitute IP Address>

STEP 1: On [Config] menu, select “1. Network Settings.”



STEP 2: The LCD displays [Network Settings] menu. Select “6. Advanced Settings.”



Network Settings Menu List

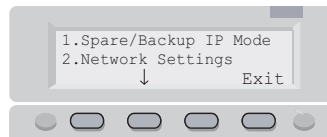
Up
↓
Down

1. DHCP Mode
2. IP Address
3. Default Gateway
4. Subnet Mask
5. DNS Address
6. Advanced Settings

STEP 3: On [Advanced Settings] menu, select “6. Spare IP Settings.”



STEP 4: The LCD displays [Spare IP Settings] screen. Select “1. Spare/Backup IP Mode.”



STEP 5: The LCD displays [Spare/Backup IP Mode] screen.



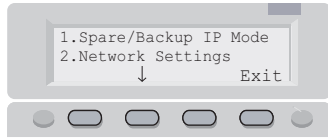
- Press the digit key “1” to disable the Spare/Backup IP.
- Press the digit key “2” to use the Spare IP.
- Press the digit key “3” to use the Backup IP.
- Press the software key for “OK” when the [Spare/Backup IP Mode] setting is complete.

A

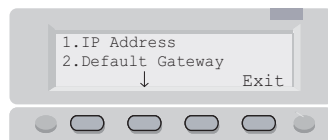
Note: This data is valid when the Spare/Backup IP is disabled.

A

STEP 6: The LCD displays [Spare IP Settings] menu. Select “2. Network Settings.”



STEP 7: The LCD displays [Network Settings] menu.



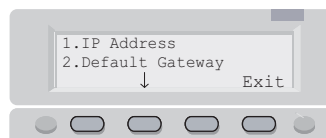
STEP 8: On [Network Settings] menu, select “1. IP Address.” Assign the IP address using the digit keys.



- Use "*" to separate each byte.
- Press the software key for "BK" to delete the input value.
- Press the software key for "OK" when the [IP Address] setting is complete.

Note: When Backup IP is in service, this data will be overwritten by obtained IP address if the terminal obtains an IP address from DHCP server.

STEP 9: The LCD displays [Network Settings] menu.



B

B

STEP 10: On [Network Settings] menu, select “3. Subnet Mask.” Assign the Subnet Mask using the digit keys.



- Use "*" to separate each byte.
- Press the software key for "BK" to delete the input value.
- Press the software key for "OK" when the [Subnet Mask] setting is complete.

Note: When Backup IP is in service, this data will be also overwritten by obtained Subnet Mask if the terminal obtains an IP address from DHCP server.

STEP 11: The LCD displays [Network Settings] menu.



STEP 12: On [Network Settings] menu, select “2.Default Gateway.” Assign the Default Gateway address using the digit keys.



- Use "*" to separate each byte.
- Press the software key for "BK" to delete the input value.
- Press the software key for "OK" when the [Default Gateway] setting is complete.

Note: When Backup IP is in service, this data will be overwritten by obtained Default Gateway address if the terminal obtains an IP address from DHCP server. If obtained data does not have a Default Gateway address, the existing data is maintained.

STEP 13: The LCD displays [Network Settings] menu.



C

C

STEP 14: On [Network Settings] menu, select “4. DNS Address.” Assign the DNS address using digit keys.



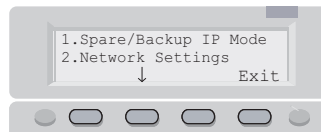
- Use “*” to separate each byte.
- Press the software key for “BK” to delete the input value.
- Press the software key for “OK” when the [DNS Address] setting is complete.

Note: When Backup IP is in service, this data will be overwritten by obtained DNS address if the terminal obtains an IP address from DHCP server. If obtained data does not have a DNS address, the existing data is maintained.

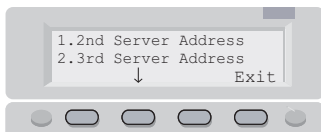
STEP 15: The LCD displays [Network Settings] menu.



STEP 16: On [Network Settings] menu, press software key for “Exit” to go back to [Spare IP Settings] menu.



STEP 17: On [Spare IP Settings] menu, select “3. SIP Settings.”



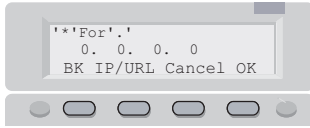
- Press the digit key “1” to Set the 2nd Server IP Address.
- Press the digit key “2” to Set the 3rd Server IP Address.
- Press the digit key “3” to Set the 4th Server IP Address.
- Press the digit key “4” to Set the 2nd Server port number.
- Press the digit key “5” to Set the 3rd Server port number.
- Press the digit key “6” to Set the 4th Server port number.

D

D

STEP 18: The LCD displays the selected [Server Address] or [Server Port] setting screen.

- Setting 2nd - 4th Server Address



- Use "*" to separate each byte.
- Press the software key for "BK" to delete the input value.
- Press the software key for "OK" when all settings are complete.

Note: The figure shows an example when "1. 2nd Server Address" is selected in [SIP Settings] menu.

Note: When Backup IP is in service, this data will be overwritten by obtained SIP Server address if the terminal obtains an IP address from DHCP server. If obtained data does not have a SIP Server address, the existing data is maintained.

- Setting 2nd - 4th Server Port

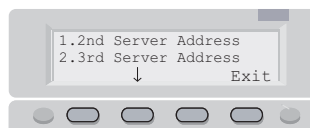


- Use digit keys.
- It is possible to enter 0 or values between 1024-65535.
- Default value is 0.
- Press the software key for "OK" when all settings are complete.

Note: The figure shows an example when "4. 2nd Server Port" is selected in [SIP Settings] menu.

Note: When Backup IP is in service, this data will be overwritten by obtained SIP Server port number if the terminal obtains an IP address from DHCP server. If obtained data does not have a SIP Server port number, the existing data is maintained.

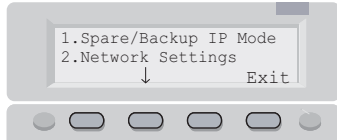
STEP 19: The LCD displays [SIP Settings] menu.



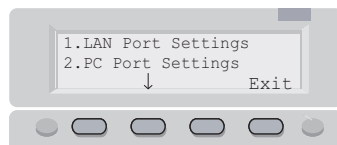
E

E

STEP 20: The LCD returns to [Spare IP Settings] menu. Press the software key for “Exit.”



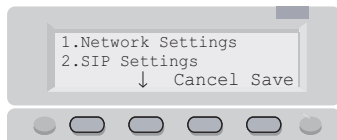
STEP 21: The LCD returns to [Advanced Settings] menu. Press the software key for “Exit.”



STEP 23: The LCD returns to [Network Settings] menu. Press the software key for “Exit”.



STEP 24: The LCD returns to [Config] menu. Press the software key for “Save” to save settings.



END

1.4.2.22 File Downloading

This section explains how to update program and how to download Music-on-Hold file on DT820 terminal using configuration menu. FTP/TFTP server is required for file downloading.

<Before Downloading>

Before downloading program and Music-on-Hold file on terminal, prepare the following:

- DT820
- Device with FTP/TFTP server function (PC)
- HUB and LAN cable for connecting DT820 and FTP/TFTP server to network
- Download file

TYPE		DEFAULT FILE NAME
Music-on-Hold file (Note 11)		MOH.wav
Ringing Tone file (Note 11 , Note 13)		Melody1.wav ~ Melody3.wav
Configuration file		config.tgz
Boot & Program file	DT820 (6-button type)	ityisipe.tgz
	DT820 (8-button type (DESI-LESS))	ityisipex.tgz
Voice file (Note 13)		voice.tgz
Language Pack file (Note 12)		LangPack.tgz

Note 11: File with the up to 32 seconds long replay can be downloaded.

Note 12: For more information about “Language Pack file”, see Section 1.4.2.24 Font Download Feature.

Note 13: Not supported for DT820 (6-button type).

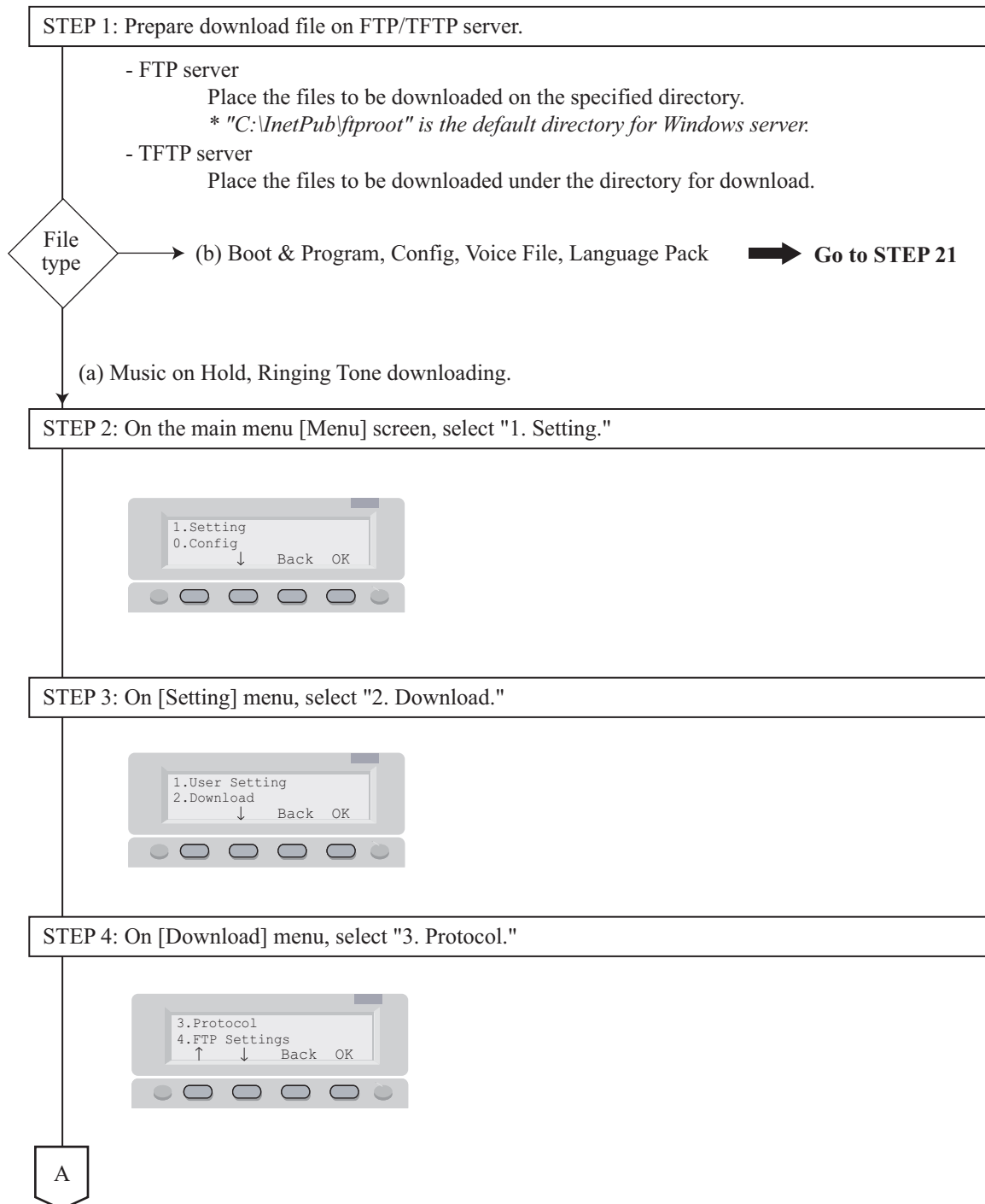
Note: After downloading, the parameters assigned on each configuration menu may return to factory default. Be sure to write down the assigned value before starting the downloading procedure.

Caution: Observe the following while program downloading:

- Do Not Turn OFF the power of the terminal, the Telephony Server, and DHCP server.
- Do Not Unplug or Plug the LAN cable connecting to the terminal, the Telephony Server, and DHCP.
- Do Not Turn OFF the power of the HUB connecting to the terminal, the Telephony Server, and DHCP.

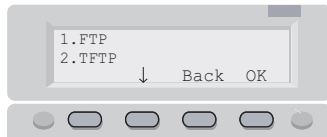
<Downloading Procedure>

Program downloading procedure is explained. Also program downloading specifying the file name is available.

[1] Configuration Settings on Terminal

A

STEP 5: On [Protocol] screen, select the file server's protocol type "1. FTP" or "2. TFTP", and then press the software key for "OK."



- When FTP is selected ➡ Go to STEP 6

- When TFTP is selected ➡ Go to STEP 15

STEP 6: The LCD displays [Download] menu. Select "4. FTP Settings".

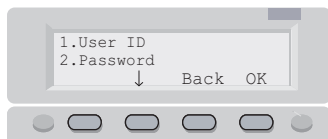


Download Menu List

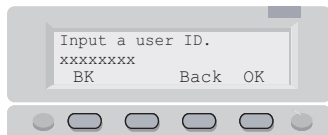
Up
↓
Down

- | |
|---------------------|
| 1. Download Files |
| 2. Download Address |
| 3. Protocol |
| 4. FTP Settings |

STEP 7: On [FTP Settings] menu, select "1. User ID".

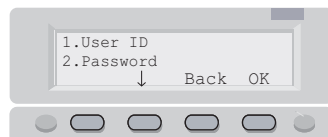


STEP 8: On [User ID] screen, enter user ID by the digit keys, and then press the software key for "OK."



Note: See [How to Enter Characters on Configuration Menu] for the way to enter characters.

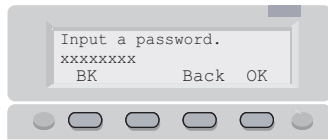
STEP 9: The LCD displays [FTP Settings] menu. Select "2. Password."



B

B

STEP 10: On [Password] screen, enter password by the digit keys, and then press the software key for "OK."



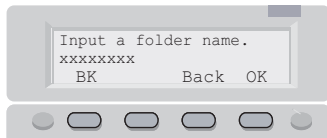
Note: See [How to Enter Characters on Configuration Menu] for the way to enter characters.

Note: Alphanumeric characters are available. "*" is displayed instead of the entered character.

STEP 11: The LCD displays [FTP Settings] menu. Select "3. Folder."



STEP 12: On [Folder] screen, enter the download file stored directory, and then press the software key for "OK."



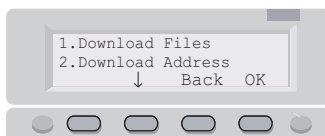
Note: See [How to Enter Characters on Configuration Menu] for the way to enter characters.

Note: Specify full-path directory; from the root directory to the target file on FTP server.

STEP 13: The LCD displays [FTP Settings] menu. Press the software key for "Back" to return to [Download] menu.



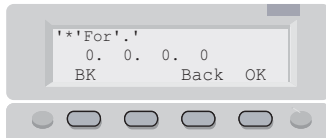
STEP 14: On [Download] menu, select "2. Download Address."



C

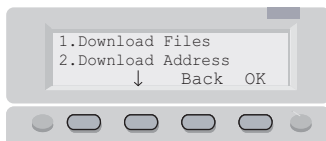
C

STEP 15: The LCD displays [Download Address] screen. Assign the IP address of FTP/TFTP server using digit keys.

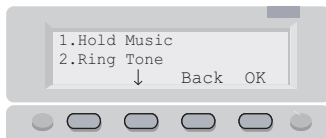


Use "*" to separate each bytes.
Press the software key for "OK" when all settings are complete.

STEP 16: The LCD displays [Download] menu. Select "1. Download Files."



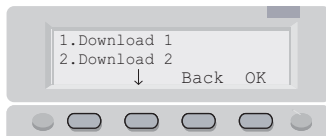
STEP 17: On [Download Files] menu, select the download file type and then press the software key for "OK."



- Music-on-Hold file, select "1. Hold Music" ➡ **Go to STEP 19**

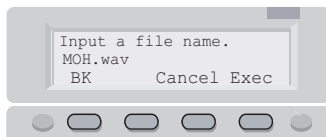
- Ringing Tone file, select "2. Ring Tone" ➡ **Go to STEP 18**

STEP 18: To download Ringing Tone file, [Ring Tone] menu is displayed. Select one of the menus by digit key, and then press the software key for "OK."



STEP 19: File name is displayed for each selected download file.

This is an example for selecting Music-on-Hold.



Default file names

- Music-on-Hold: MOH.wav

- Ringing Tone: Melody1.wav ~ Melody3.wav

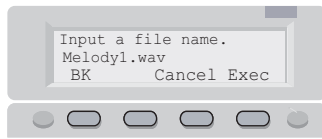
Change the download file name ➡ **Go to STEP 20**

Not change the download file name, check the file name and press the software key for "Exec." ➡ **Go to STEP 41**

D

D

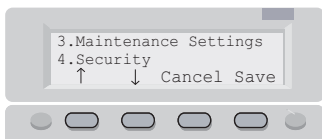
STEP 20: When you want to change the download file name, perform this step.



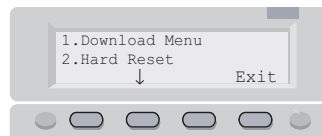
1. Press the software key for "BK" to delete the displayed file name.
2. Enter other name (up to 20 characters).
3. Press the software key for "Exec". ➡ **Go to STEP 41**

Note: See [How to Enter Characters on Configuration Menu] for the way to enter characters.

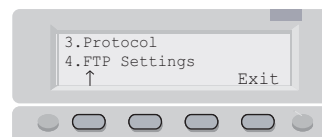
STEP 21: Following STEP 1 for (b) Boot & Program, Config, Voice File, Language Pack, on [Config] menu, select "3. Maintenance Settings."



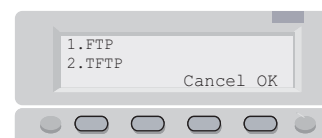
STEP 22: The LCD displays [Maintenance] menu. Select "1. Download Menu."



STEP 23: On [Download menu], select "3. Protocol."



STEP 24: On [Protocol] screen, select the file server's protocol type "1. FTP" or "2. TFTP", and then press the software key for "OK."



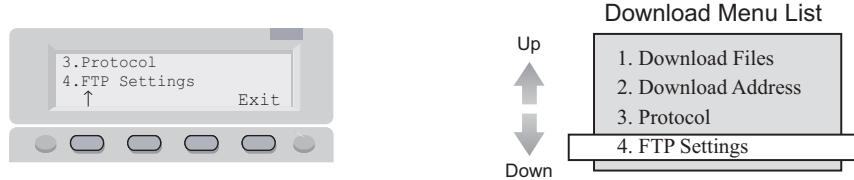
- When FTP is selected ➡ **Go to STEP 25**

- When TFTP is selected ➡ **Go to STEP 33**

E

E

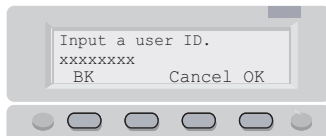
STEP 25: The LCD displays [Download Menu]. Select "4. FTP Settings."



STEP 26: On [FTP Settings] menu, select "1. User ID."



STEP 27: On [User ID] screen, enter user ID by the digit keys, and then press the software key for "OK."

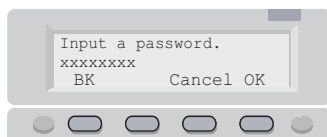


Note: See [How to Enter Characters on Configuration Menu] for the way to enter characters.

STEP 28: The LCD displays [FTP Settings] menu. Select "2. Password."



STEP 29: On [Password] screen, enter password by the digit keys, and then press the software key for "OK."



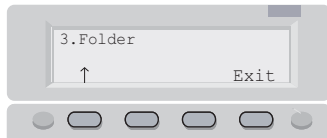
Note: See [How to Enter Characters on Configuration Menu] for the way to enter characters.

Note: Alphanumeric characters are available. "*" is displayed instead of the entered character.

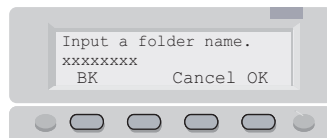
F

F

STEP 30: The LCD displays [FTP Settings] menu. Select "3. Folder."



STEP 31: On [Folder] screen, enter the download file stored directory, and then press the software key for "OK."



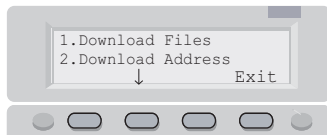
Note: See [How to Enter Characters on Configuration Menu] for the way to enter characters.

Note: Specify full-path directory; from the root directory to the target file on FTP server.

STEP 32: The LCD displays [FTP Settings] menu. Press the software key for "Exit" to return to [Download Menu].



STEP 33: On [Download Menu], select "2. Download Address."



STEP 34: The LCD displays [Download Address] screen. Assign the IP address of FTP/TFTP server using digit keys.

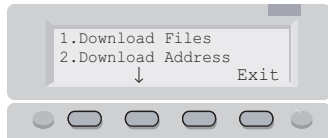


Use "***" to separate each bytes.
Press the software key for "OK" when all settings are complete.

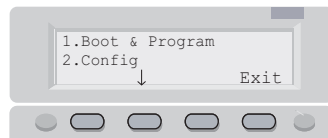
G

G

STEP 35: The LCD displays [Download Menu] screen. Select "1. Download Files."



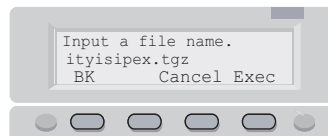
STEP 36: On [Download Files] menu, select the download file type and then press the software key for "OK."



- Boot & Program file, select "1. Boot & Program"
- Configuration file, select "2. Config"
- Voice file, select "3. Voice File"
- Translation data file, select "4. Language Pack"

STEP 37: File name is displayed for each selected download file.

This is an example for selecting Boot & Program file.



Change the download file name ➡ Go to STEP 38

Not change the download file name, check the file name and press the software key for "Exec." ➡ Go to STEP 39

Note: See Download file on page 220 for the default file name of each type.

STEP 38: When you want to change the download file name, perform this step.



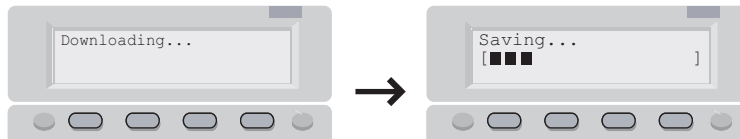
1. Press the software key for "BK" to delete the displayed file name.
2. Enter other name (up to 20 characters).
3. Press the software key for "Exec". ➡ Go to STEP 39

Note: See [How to Enter Characters on Configuration Menu] for the way to enter characters.

H

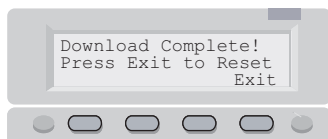
H

STEP 39: The terminal starts downloading. "Downloading..." flashes on the LCD.

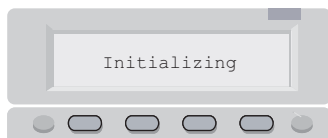


Note: Do not power off the terminal during the LCD displaying "Saving...". It may cause trouble in the terminal starting up.

STEP 40: The LCD displays the message below. Press the software key for "Exit" to restart the terminal.

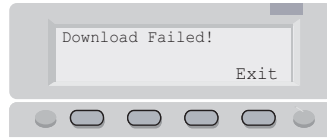


STEP 41: The terminal restarts reading out the downloaded program.



END

Note: In the case of download failure, the LCD displays the message below.



The following table lists the points to be checked. Try downloading again.

CAUSE	COUNTERMEASURES
Target download file is not put in the directory specified by FTP/TFTP server.	Place the download file on the directory where FTP/TFTP server specifies.
File name differs between the file on the FTP/TFTP server and the file you try to download.	Assign the same file name on the server and on the terminal.
The IP address of FTP/TFTP server assigned on the configuration settings is wrong.	Enter correct IP address of FTP/TFTP server.
FTP/TFTP server or the network device (e.g. HUB) between the server and the terminal is not turned on.	Turn the power on for the devices.
LAN cable disconnection.	Connect LAN cable to the terminal and FTP/TFTP server.

When the LCD responses “Download Failed” message again even after some retry, the memory of the terminal may be damaged. Contact a maintenance personnel.

[2] Configuration Settings by Web Programming

STEP 1: Prepare download file on FTP/TFTP server. (See STEP 1 in [1] Configuration Settings on Terminal.)

STEP 2: Select [Maintenance] → [Download Menu] → [Download Files].

[Config] for Configuration file download
 [Boot & Program] for Boot & Program file download
 [Voice File] for voice file download
 [Language Pack] for translation data file download

Note: Web Programming does not support the downloading of Music-on-Hold and Ringing Tone. Refer to [1] Configuration Settings on Terminal for these types of file downloading.

STEP 3: Enter the parameters below and then click the “OK” button. The terminal starts downloading.

[Protocol] : Select the protocol of the file server storing download file.
 [Download Address] : Enter the IP address of FTP/TFTP server.
 [folder] : Enter the folder name on which download file is stored.
 [File name] : Enter target download file name. **Note 14**
 [User ID] : Enter User ID.
 [Password] : Enter password.

Note 14: See Download file on page 188 for the default file name of each type.

Note: The LCD displays the messages below:

STATE	LCD
While download is in progress	Downloading...
Succeeded in downloading	Download Complete! Press Exit to Reset.
Failed in downloading	Download Failed!

1.4.2.23 Online Monitoring

Online Monitoring menu supports displaying the information of configuration parameter settings and the voice related data (QoS settings) on the LCD of DT820. In addition, ping command is available to check the network connection. The following three menus are supported:

- QoS - - - - - - - -The number of voice (RTP) packet-loss events, codec type, and payload cycle on the call can be checked.
- System Information - - -The current settings value of the parameters in configuration menu can be checked.
- Ping - - - - - - - -Send ping command to specified IP address.

<How to Start/Exit Online Monitoring Menu>

This section explains how to start/exit Online Monitoring menu:

[1] Start Online Monitoring Menu

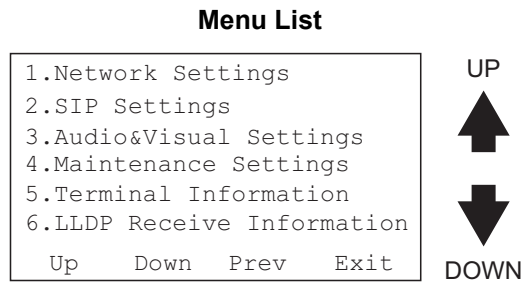
While the LCD displays “Connecting...”, pressing the “Help” key (lower right of the LCD) for over one second will open Online Monitoring Menu (**Note 15**) when the LCD displays the login screen for login mode or the time display.

Note 15: Refer to Section 1.4.1.1 Configuration Setup on Terminal for the startup procedure of DT820.

Online Monitoring Menu

1.QoS
2.System Information
Up Down Exit

Pressing the software key for “Up” and “Down” will scroll one line up/down. The following shows a menu of System Information as an example.



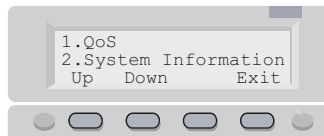
[2] Exit Online Monitoring Menu

Pressing the “Exit” key (lower left of the LCD) or the software key for “Exit” will close the Online Monitoring Menu.

[3] Operation in Online Monitoring Menu

- The following sections explain the terminal operation in Online Monitoring menu using DT820 as an example procedure.
- Pressing the software keys for “Up” and “Down” will scroll one line up and down (**Note 16**). Cursor key cannot scroll the menu.

Note 16: The software keys for “Up” and “Down” are displayed only when scrolling is required for the menu list.



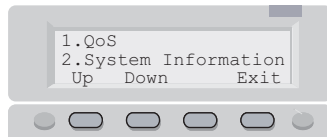
- Use digit keys corresponding to the menu number to select the target menu. Enter key is not available to confirm the selecting menu.

<QoS>

To display RTP packet related information by QoS menu, follow the steps below.

STEP 1: Open [Online Monitoring] menu referring to Section <How to Start/Exit Online Monitoring Menu>.

STEP 2: Select “1. QoS.”



STEP 3: The LCD lists packet loss, code, and payload information.



- **Lost Packet:** The number of packet-loss in receiving RTP packet is displayed (8 digits).
Note 17, Note 18
- **Codec:** Codec type (G.711μ, G.711A, G.729a) applied in the call is displayed.
Note 19
- **Payload:** Payload size (10 ms, 20 ms, 30 ms, or 40 ms) applied in the call is displayed. **Note 19**

STEP 4: To display Online Monitoring’s other menu, press the software key for “Prev.” To close Online Monitoring menu, refer to Section <How to Start/Exit Online Monitoring Menu>.

END

Note 17: The maximum number to be displayed is “99999999”. Even if the number of packet-loss events exceeds 99999999, “99999999” is displayed on the LCD.

Note 18: When a call is in progress, the LCD displays the number of packet-loss in receiving RTP packet for five seconds, then after that, counts up the number again for another five seconds.
In other state, the total number of packet-loss in receiving RTP packet for the last call is displayed. When starting a new call, the number of packet-loss events for the last call is cleared and the counting for the new call is started.

Note 19: The display patterns for Codec and Payload are as follows:

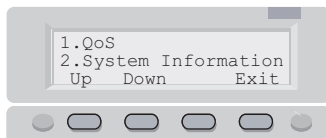
Codec	Payload
G.711μ	10, 20, 30, 40
G.711A	10, 20, 30, 40
G.729a	10, 20, 30, 40

<System Information>

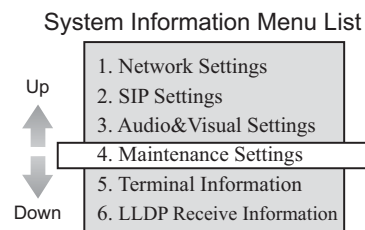
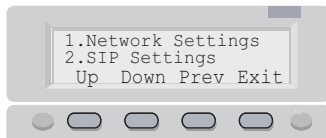
To display the current configuration settings by System Information menu, follow the steps below.

STEP 1: Open [Online Monitoring] menu referring to <How to Start/Exit Online Monitoring Menu>.

STEP 2: Select “2. System Information.”



STEP 3: The LCD displays the System Information menu.



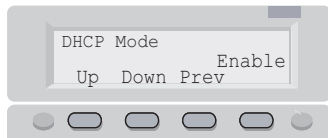
A

A

- Select “1. Network Settings.”
to display the network related parameters assigned in “Network Settings” in [Config] menu.
→ Go to [1] Network Settings.
- Select “2. SIP Settings.”
to display the SIP server related parameters assigned in “SIP Settings” of [Config] menu.
→ Go to [2] SIP Settings.
- Select “3. Audio&Visual Settings.”
to display the sound and LCD indication related parameters assigned in “Audio&Visual Settings” of [Config] menu.
→ Go to [3] Audio & Visual Settings.
- Select “4. Maintenance Settings.”
to display the maintenance related parameters assigned in “Maintenance Settings” of [Config] menu.
→ Go to [4] Maintenance Setting.
- Select “5. Terminal Information.”
to display the parameters available to list in “Terminal Information” of [Config] menu.
→ Go to [5] Terminal Settings.
- Select “6. LLDP Receive Information.”
to display the parameters available to list in “LLDP Receive Information” of [Config] menu.
→ Go to [6] LLDP Settings.

[1] Network Settings

STEP 1: When “1. Network Settings” is selected, the LCD displays the following “DHCP Mode.”

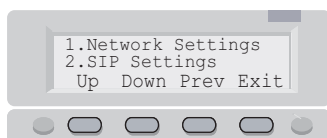


STEP 2: Switch the page to display other parameters by pressing the software key for “Up” and “Down.”

- DHCP Mode ----- Whether to use DHCP
- IP Address-----IP address of terminal **Note 20**
- Default Gateway -----IP address of default gateway
- Subnet Mask -----Subnet mask **Note 20**
- DNS Address-----IP address of DNS server
- VLAN Mode ----- Whether to use VLAN on terminal
- VLAN ID -----VLAN ID on terminal
- VLAN Priority -----VLAN Priority on terminal
- Speed & Duplex-----Communication speed of LAN port (10M, 100M, Full/Half-Duplex, Auto negotiation)
- PC Port VLAN Mode ----- Whether to use VLAN of PC port
- PC Port VLAN ID -----VLAN ID of PC port
- PC Port VLAN Priority ---VLAN Priority of PC port
- PC Port Speed & Duplex --Communication speed of PC port (10M, 100M, Full/Half-Duplex, Auto negotiation)
- PC Port Available----- Whether to use PC port **Note 21**
- EAPOL Forwarding ----- Whether to forward EAPOL from PC port
- CDP Mode ----- Whether to inform power consumption information by CDP
- ToS (RTP)-----ToS setting for RTP packet
- ToS (SIP) -----ToS setting for SIP packet
- Supplicant Mode ----- Whether to use Supplicant function
- EAP Method -----802.1X authentication method (EAP-MD5)
- EAP VLAN----- Whether to add VLAN tag to EAP packet
- Account (MD5) -----User ID for MD5 authentication
- 802.1X Status -----MD5 authentication status
- SIP Self Port -----SIP port number for the terminal
- RTP Self Port-----RTP port number for terminal

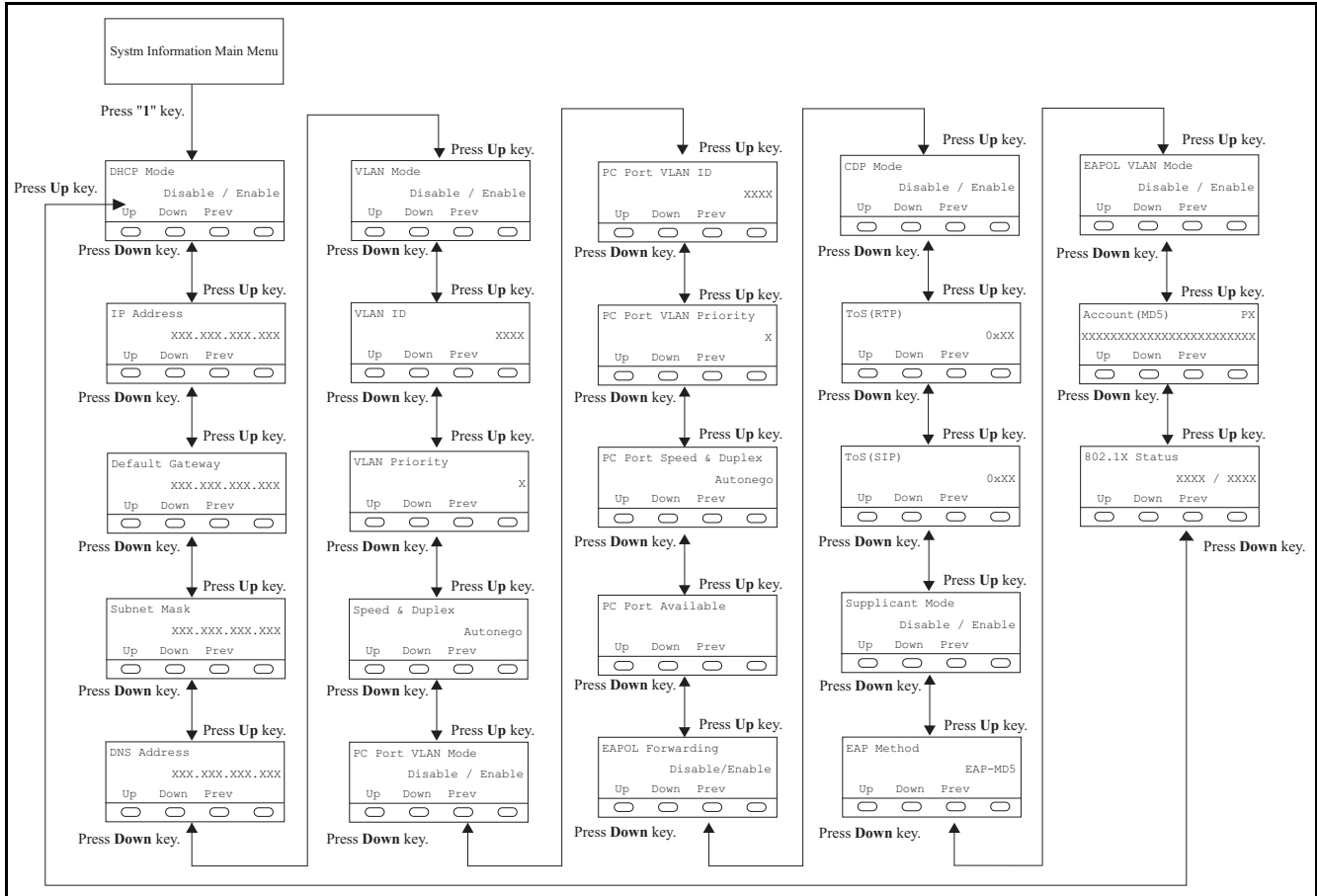
**See Parameters in Network Settings for the page switching order by Up and Down key.*

STEP 3: Pressing the software key “Prev” returns the LCD to System Information menu.



END

Parameters in Network Settings



- Note 20:** IP address of DT820 is displayed in the following way.
- “(DHCP)” is displayed when the parameter is obtained from DHCP server.



- “(Spare IP)” is displayed when the parameter is assigned by Spare IP function.



- “(Backup IP)” is displayed when the parameter is assigned by Backup IP function.



Note 21: Depending on the direction by the Telephony Server and the configuration settings, PC Port has the following three patterns of display.

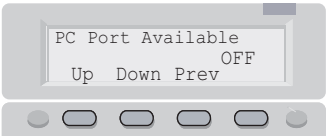
(1) PC port is enabled by Telephony Server's direction.



(2) PC port is disabled by Telephony Server's direction.

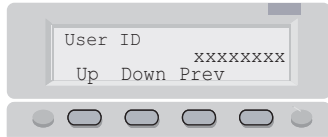


(3) PC port is disabled by configuration settings.



[2] SIP Settings

STEP 1: When “2.SIP Settings” is selected, the LCD displays the User ID for digest authentication as follows.

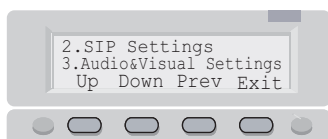


STEP 2: Switch the page to display other parameters by pressing the software key for “Up” and “Down.”

- User ID - - - - - User ID for digest authentication **Note 22**
- Terminal URL - - - - - Terminal FQDN informed by SIP server
- Connecting Server - - - - - IP address or FQDN of the connecting SIP server **Note 22, Note 23, Note 24**
- 1st Server - - - - - IP address or FQDN of the 1st SIP server **Note 22, Note 23, Note 25, Note 26**
- 2nd Server - - - - - IP address or FQDN of the 2nd SIP server **Note 22, Note 23, Note 25, Note 26**
- 3rd Server - - - - - IP address or FQDN of the 3rd SIP server **Note 22, Note 23, Note 25, Note 26**
- 4th Server - - - - - IP address or FQDN of the 4th SIP server **Note 22, Note 23, Note 25, Note 26**
- Access Mode - - - - - Access mode to SIP server (Remote/Normal)
- Port (1st) - - - - - Destination port number of the sending packet to 1st SIP server
- Port (2nd) - - - - - Destination port number of the sending packet to 2nd SIP server
- Port (3rd) - - - - - Destination port number of the sending packet to 3rd SIP server
- Port (4th) - - - - - Destination port number of the sending packet to 4th SIP server
- Area ID - - - - - Country code (tone pattern)
- Authentication Mode - - - - - Whether to use terminal authentication
- Retransmit Interval - - - - - Re-sending timer for registration process (Standard/6 seconds)
- Keeping Call - - - - - Whether to use call hold function when communication failure occurs with the Telephony Server
- Howler Tone - - - - - Whether to ring howler tone
- NAT Traversal Mode - - - - - Data assignment on the terminal is prohibited.
- Network Area Name - - - - - Data assignment on the terminal is prohibited.
- WAN Mate IP Address - - - - - Data assignment on the terminal is prohibited.
- WAN SIP Mate Port - - - - - Data assignment on the terminal is prohibited.
- WAN Self IP Address - - - - - Data assignment on the terminal is prohibited.

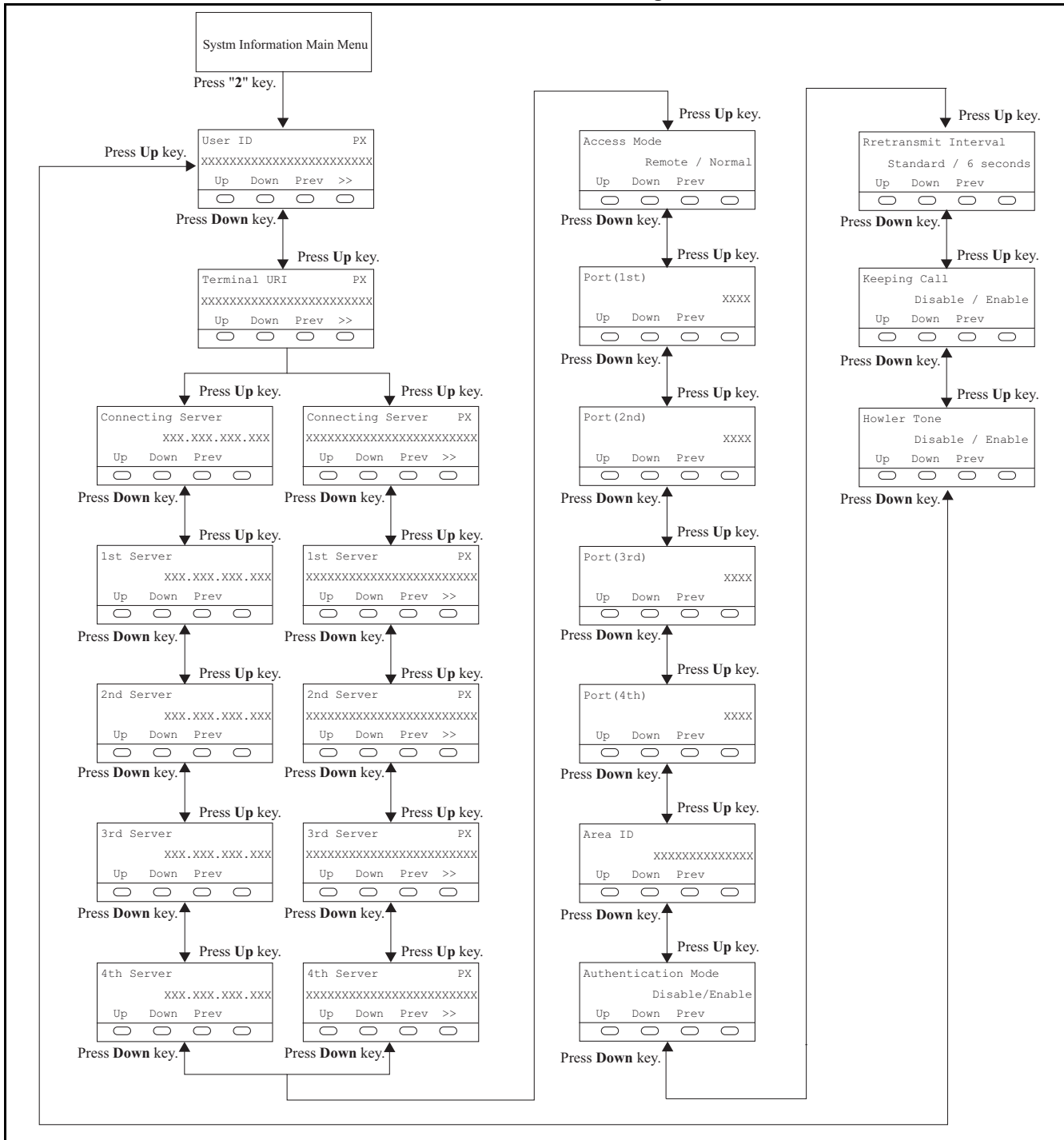
**See Parameters in SIP Settings for the page switching order by Up and Down key.*

STEP 3: Pressing the software key “Prev” returns the LCD to System Information menu.



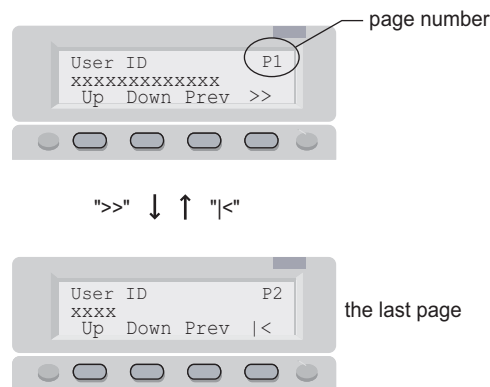
END

Parameters in SIP Settings



Note: "SIP server" used here refers to the Telephony Server. The Telephony Server acts as SIP server where DT820 terminal is registered.

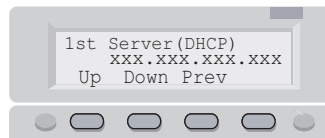
Note 22: When the assigned parameter cannot be displayed in one page, the LCD displays as follows.



Note 23: About IP address of SIP server (Telephony Server), refer to “Registration Destination of IP Devices/Stations” in System Description.

Note 24: “Connecting Server(*)” means the system that supports Location Diversity [L-55]. “(*)” is displayed when registration is completed successfully by the SIP server address specified on the address list. This mark is not displayed during registration is in progress.

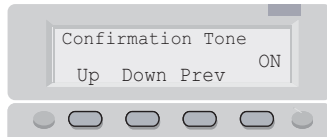
Note 25: “(DHCP)” is displayed when the parameter is obtained from DHCP server.



Note 26: SIP server’s address assigned either by DHCP server option 162 or by the configuration settings is displayed for 1st Server ~ 4th Server parameters though, when the registration process is completed successfully by the SIP server’s address specified by the address list, “IP Address is Invalid!” is displayed for 1st Server ~ 4th Server parameters recognizing the Location Diversity connection.

[3] Audio & Visual Settings

STEP 1: When “3. Audio & Visual Settings” is selected, the LCD displays the following.



STEP 2: Switch the page to display other parameters by pressing the software key for “Up” and “Down.”

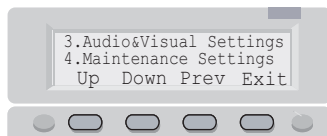
- Confirmation Tone - - - - -Whether to ring confirmation tone
- Music - - - - -Music-on-Hold (download file or default file (Minuet))
- Sidetone Volume- - - - -Sidetone volume
- Send Gain - - - - -Sending gain for handset
- Receive Bias - - - - -Receiving bias for handset
- Receive Gain - - - - -Receiving gain for handset
- Ring (Internal call) - - - - -Ringing tone pattern for incoming station call
- Ring (External Call) - - - - -Ringing tone pattern for incoming trunk call
- Volume Indication- - - - -Whether to display the volume gage
- Language- - - - -Language for date and time display
- RTP Alarm- - - - -Whether to ring alarm for inform packet-loss in receiving RTP

Note 27

- DTMF Play Mode- - - - -Whether to ring DTMF when receiving DTMF signal **Note 28**

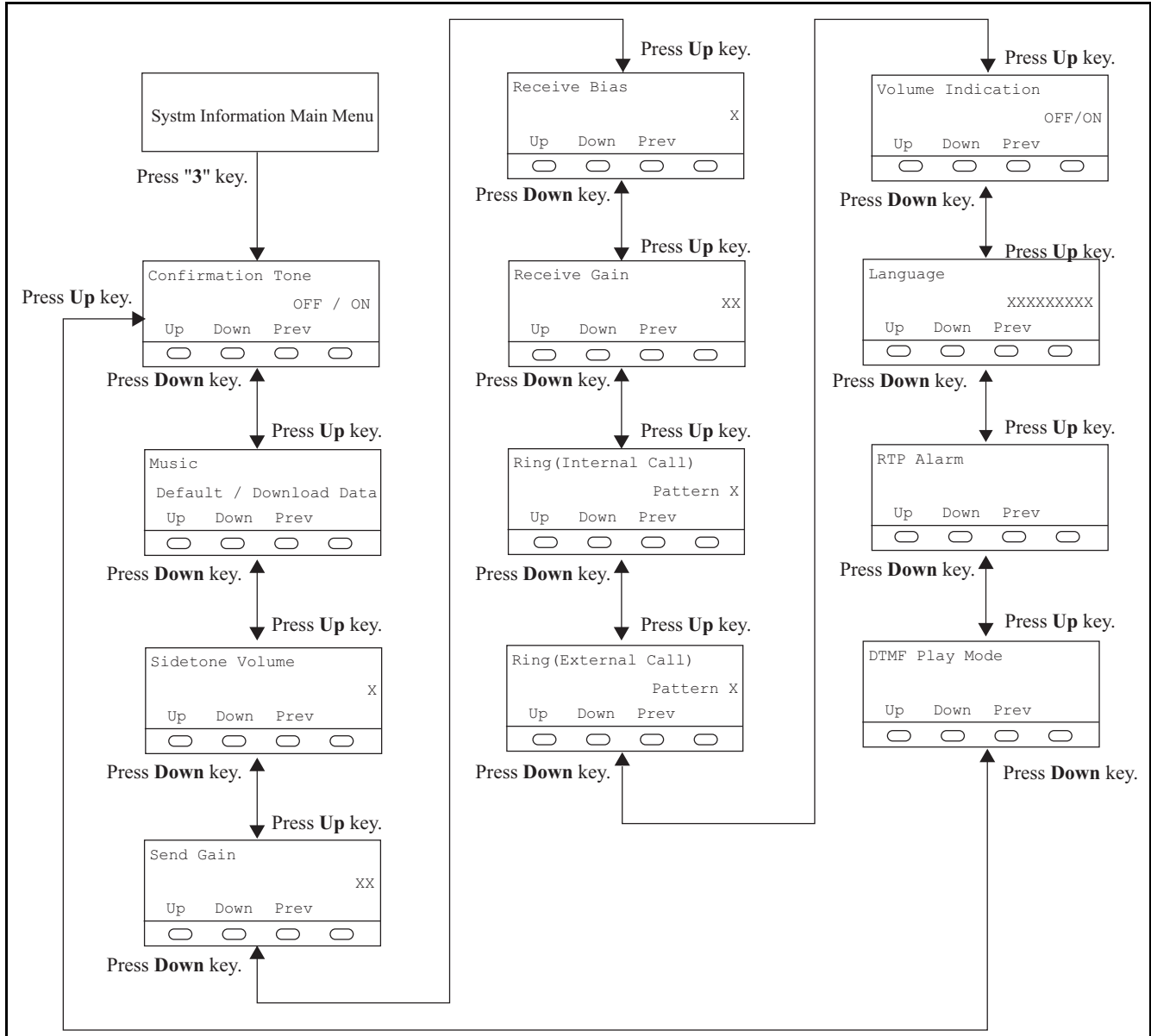
**See Parameters in Audio & Visual Settings for the page switching order by Up and Down key.*

STEP 3: Pressing the software key “Prev” returns the LCD to System Information menu.



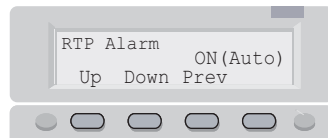
END

Parameters in Audio & Visual Settings

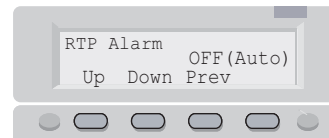


Note 27: Depending on the direction by the Telephony Server and the configuration settings, RTP Alarm parameter has the following four patterns of display.

(1) RTP alarm is enabled by Telephony Server's direction.



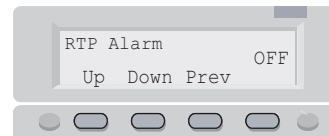
(2) RTP alarm is disabled by Telephony Server's direction.



(3) RTP alarm is enabled by configuration settings.

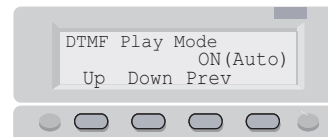


(3) RTP alarm is disabled by configuration settings.

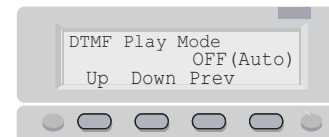


Note 28: Depending on the direction by the Telephony Server and the configuration settings, DTMF Play Mode parameter has the following four patterns of display.

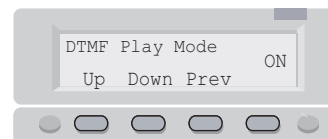
(1) DTMF is enabled by Telephony Server's direction.



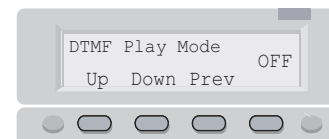
(2) DTMF is disabled by Telephony Server's direction.



(3) DTMF is enabled by configuration settings.



(3) DTMF is disabled by configuration settings.



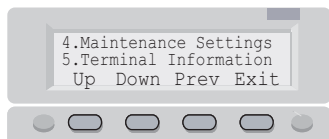
[4] Maintenance Settings

STEP 1: When “4. Maintenance Settings” is selected, the LCD displays the following.



- Download Address - - - - - IP address of FTP/TFTP server for program and file downloading
- Download Config Version - - Downloaded configuration file version
- Auto Config File Name - - - The name of a file used by Auto Config

STEP 2: Pressing the software key “Prev” returns the LCD to System Information menu.



END

[5] Terminal Settings

STEP 1: When “5. Terminal Settings” is selected, the LCD displays the following.

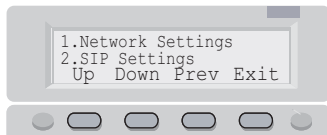


STEP 2: Switch the page to display other parameters by pressing the software key for “Up” and “Down.”

- Hardware Version - - - - -Hardware version of terminal, destination of the unit attached
- MAC Address - - - - -MAC address of terminal
- Firmware Version - - - - -Firmware version of terminal
- Bottom Option - - - - -ADA Unit version attached to terminal
- Side Option1 - - - - -Side option name of terminal
- Side Option2 - - - - -Side option name of terminal

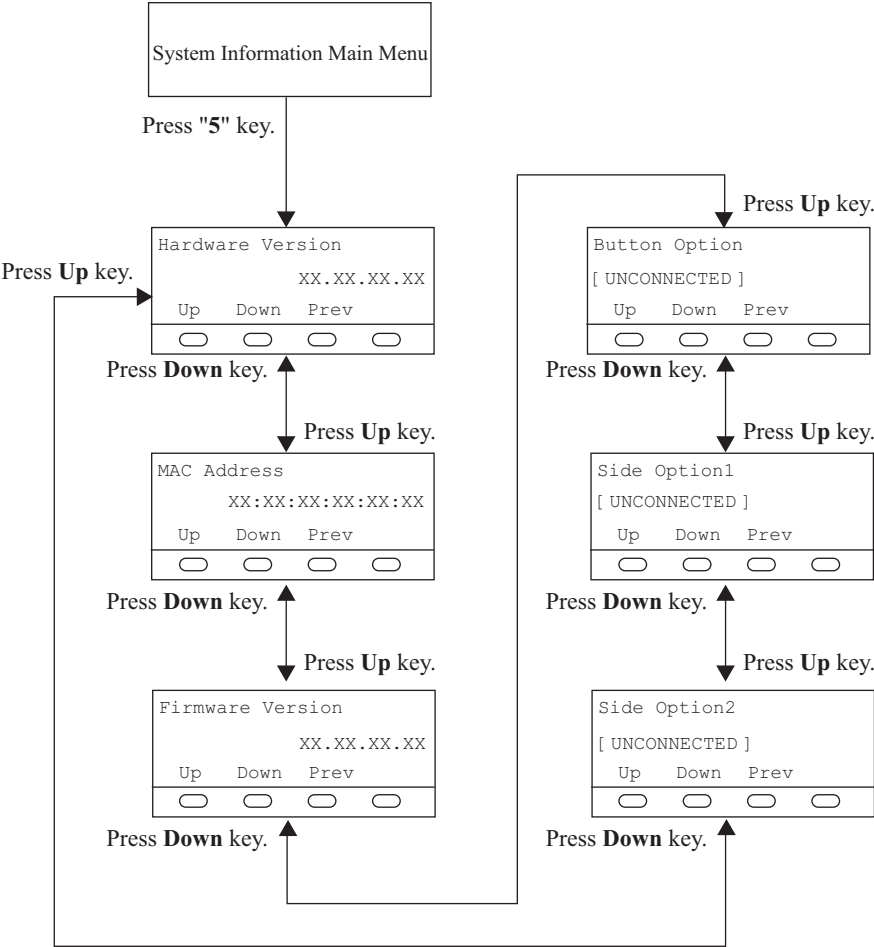
**See Parameters in Terminal Settings for the page switching order by Up and Down key.*

STEP 3: Pressing the software key “Prev” returns the LCD to System Information menu.



END

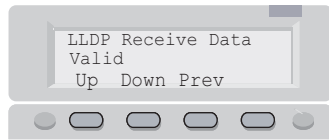
Parameters in Terminal Settings



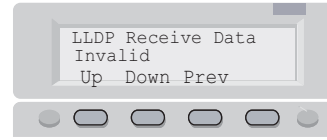
[6] LLDP Settings

STEP 1: When “6. LLDP Settings” is selected, the LCD displays the following.

[Example]
When received LLDP data is valid



[Example]
When received LLDP data is invalid



STEP 2: When the received LLDP data is valid, switch the page to display other parameters by pressing the software key for “Up” and “Down.”

- Manufacturer Name----- Manufacturer Name in the received LLDP packet
- Model Name ----- Model Name in the received LLDP packet
- System Name----- TLV Element “system name” of System Name TLV in the received LLDP packet
- System Description ----- TLV Element “system description” of System Description TLV in the received LLDP packet
- Chassis ID ----- TLV Element “chassis ID” of Chassis ID TLV in the received LLDP packet
- Port ID ----- TLV Element “port ID” of Port ID TLV in the received LLDP packet
- Port Description ----- TLV Element “port description” of Port Description TLV in the received LLDP packet
- PHY Auto-nego status ----- TLV Element “auto-negotiation support/status” of MAC/PHY Configuration/Status TLV in the received LLDP packet
- Speed & Duplex ----- MAC/PHY Configuration/Status TLV operational MAU type in the received LLDP packet
- Unknown Flag (Voice)----- Unknown Tag Flag of Network Policy TLV in the received LLDP packet
- VLAN Tag Flag (Voice)----- TLV Element “T” of Network Policy TLV in the received LLDP packet

A

A

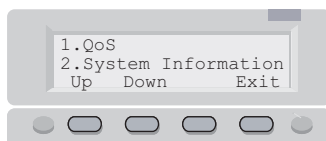
- VLAN ID (Voice) - - - - - TLV Element “VLAN ID” of Network Policy TLV in the received LLDP packet
- L2 Priority (Voice) - - - - - TLV Element “L2 Priority” of Network Policy TLV in the received LLDP packet
- DSCP Value (Voice) - - - - - TLV Element “DSCP Value” of Network Policy TLV in the received LLDP packet
- Unknown Flag (VoiceSignal) - - - Unknown Tag Flag of Network Policy TLV in the received LLDP packet
- VLAN Tag Flag (VoiceSignal) - - TLV Element “T” of Network Policy TLV in the received LLDP packet
- VLAN ID (VoiceSignal) - - - - - TLV Element “VLAN ID” of Network Policy TLV in the received LLDP packet
- L2 Priority (VoiceSignal) - - - - - TLV Element “L2 Priority” of Network Policy TLV in the received LLDP packet
- DSCP Value (VoiceSignal) - - - - TLV Element “DSCP Value” of Network Policy TLV
- Location ID (Civic) - - - - - Location Identification TLV
- Location ID (ECS ELIN) - - - - - Location Identification TLV
- Asset ID - - - - - Asset ID

*See Parameters in LLDP Settings for the page switching order by Up and Down key.

Note: “No Data” means there is no valid data in the following cases:

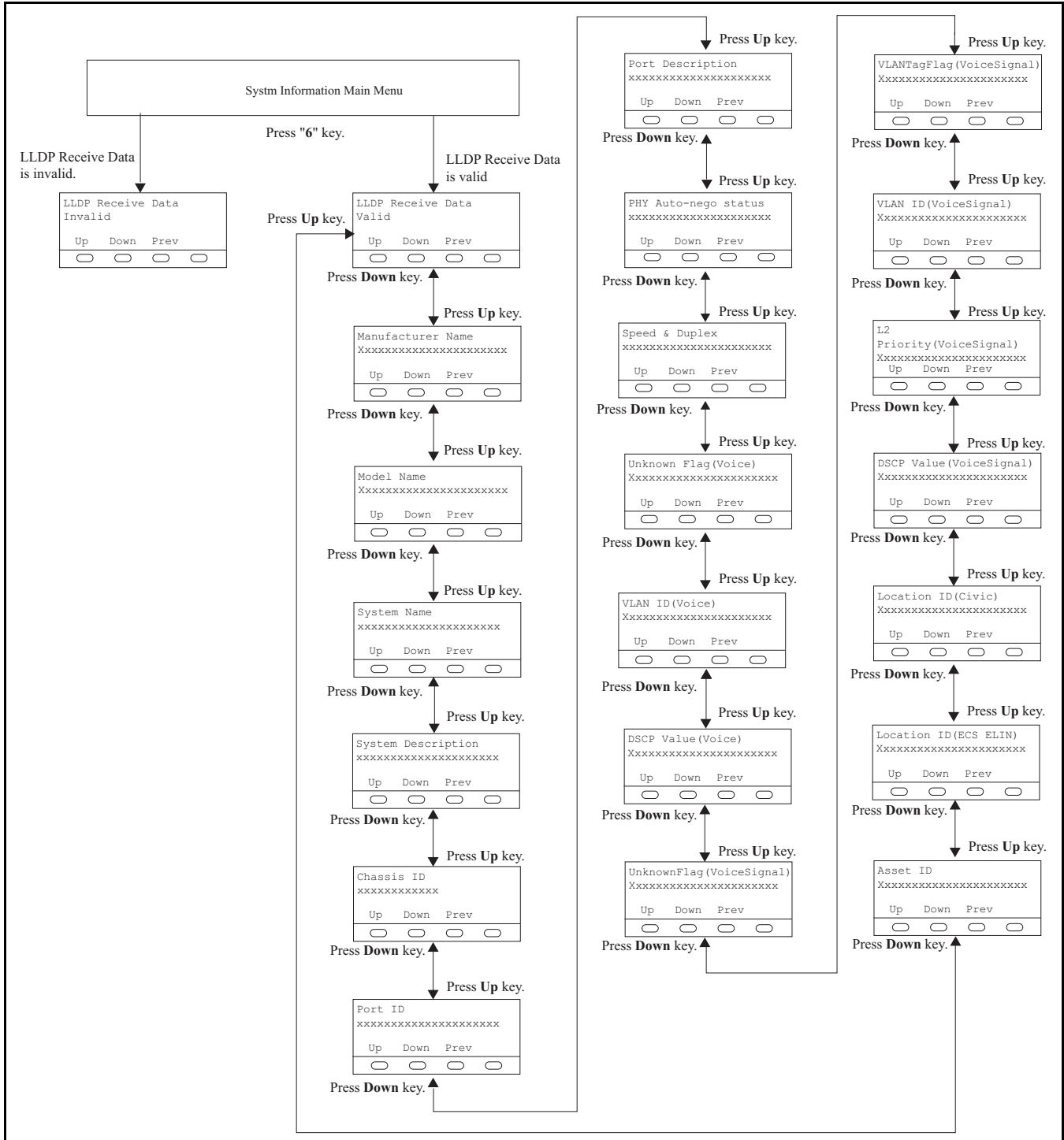
- LLDP Mode is disabled.
- The terminal does not receive LLDP packets.
- The terminal receives LLDP packets containing no relevant information.

STEP 3: Pressing the software key “Prev” returns the LCD to System Information menu.



END

Parameters in LLDP Settings

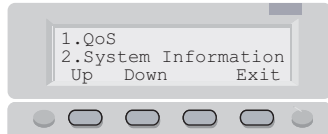


<Ping>

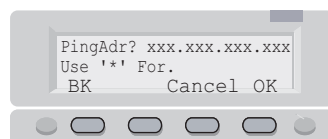
To check the network connection by sending Ping packet to specified IP address, follow the steps below.

STEP 1: Open [Online Monitoring] menu referring to Section <How to Start/Exit Online Monitoring Menu>.

STEP 2: Select “3. Ping.”



STEP 3: Enter the destination IP address, and then press the software key for “OK.”



Use digit key for entering number.
Press “*” for separating each byte.

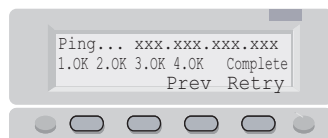


Note:When the network is disabled (e.g. IP address cannot be obtained from DHCP server), the LCD displays “DHCP Server Down” message.

STEP 4: Ping command is started. The LCD displays the destination IP address and the processing state.



STEP 5: “Complete” is displayed after sending Ping four times.



STEP 6: To display Online Monitoring’s other menu, press the software key for “Prev.” To close Online Monitoring menu, refer to Section <How to Start/Exit Online Monitoring Menu>.

END

1.4.2.24 Font Download Feature

This feature enables a terminal to support various languages using fonts which are not included in the standard firmware. When using this feature, download the font data file called “Language Pack” from configuration menu or Web Programming.

<Service Conditions>

- (1) After “Language Pack” is downloaded, the language is set as “Automatic”. Therefore, from [Menu], select [1. Settings] → [1. User Setting] → [3. Display] → [6. Language] to display the language you want to use.
- (2) When you download “Language Pack” newly, the previous data of “Language Pack” will be deleted.
- (3) The download font is surely displayed in left-aligned.
- (4) When language is set as the downloaded language, the text you can enter is English only.

<Before Downloading>

Before downloading the font data file, prepare the following:

- DT820
- Device with FTP/TFTP server function (PC)
- HUB and LAN cable for connecting DT820 and FTP/TFTP server to network
- Download file

TYPE	DEFAULT FILE NAME
Language Pack file	LangPack.tgz

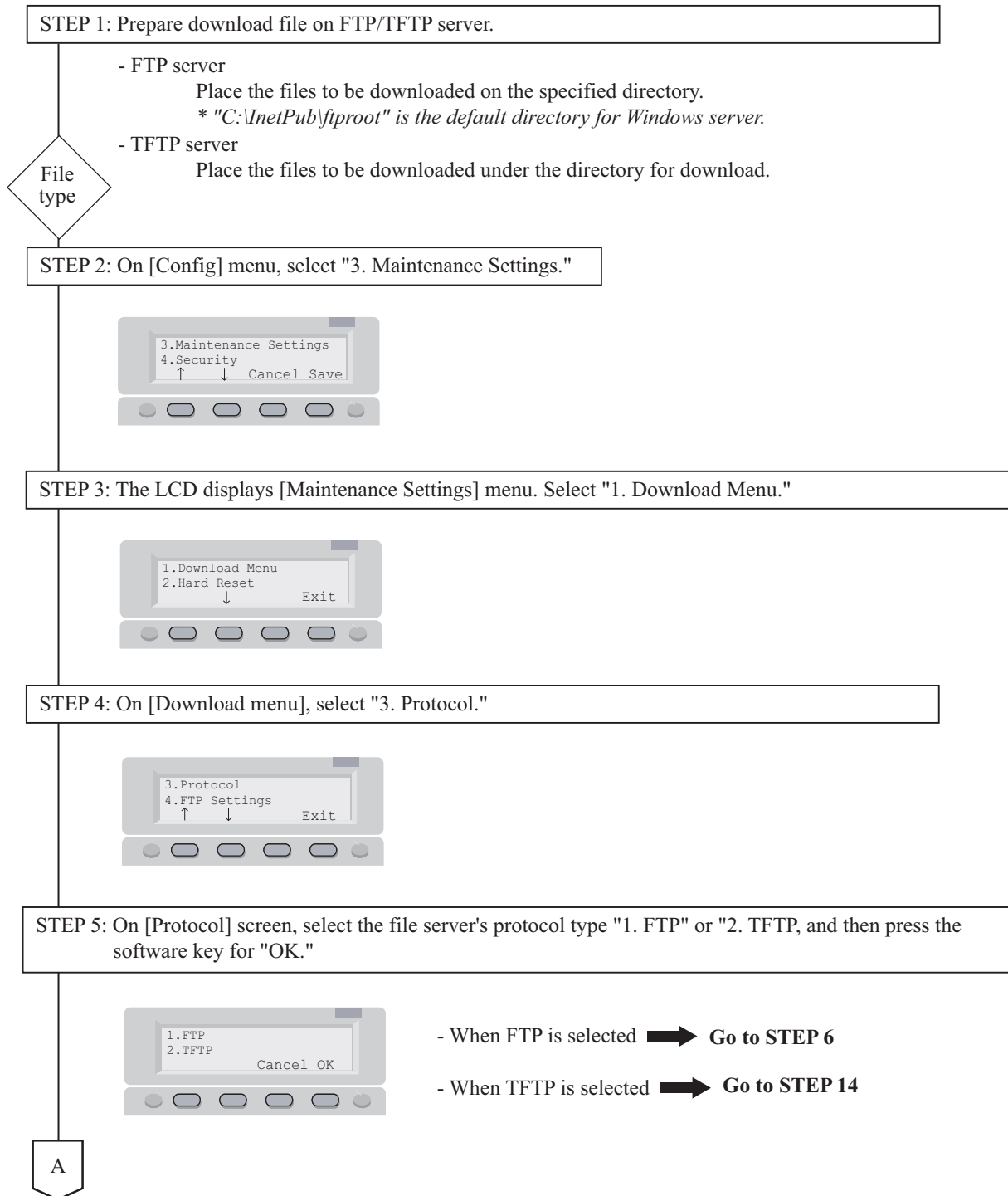
Note: After downloading, the parameters assigned on each configuration menu may return to factory default. Be sure to write down the assigned value before starting downloading procedure.

Caution: Observe the following while program downloading:

- Do Not Turn OFF the power of the DT820, the Telephony Server, DHCP server.
- Do Not Unplug or Plug the LAN cable connecting to the DT820, the Telephony Server, DHCP.
- Do Not Turn OFF the power of the HUB connecting to the DT820, Telephony Server, DHCP.

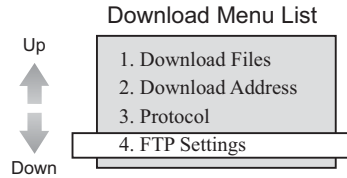
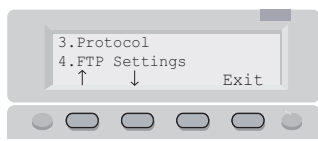
<Downloading Procedure>

Following shows the procedure of program download. Also program download by specifying a file name is available.

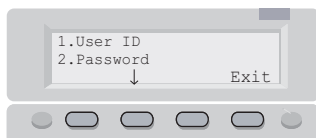
[1] Configuration Settings on Terminal

A

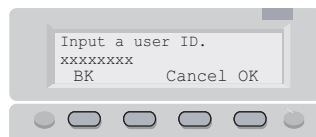
STEP 6: The LCD displays [Download Menu]. Select "4. FTP Settings".



STEP 7: On [FTP Settings] menu, select "1. User ID".



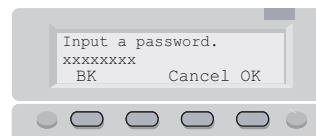
STEP 8: On [User ID] screen, enter user ID by the digit keys, and then press the software key for "OK."



STEP 9: The LCD displays [FTP Settings] menu. Select "2. Password."



STEP 10: On [Password] screen, enter your password using the digit keys, and then press the software key for "OK."



B

B

STEP 11: The LCD displays [FTP Settings] menu. Select "3. Folder."



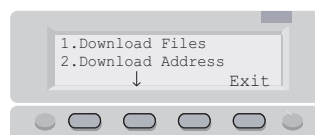
STEP 12: On [Folder] screen, enter the download file stored in the directory, and then press the software key for "OK."



STEP 13: The LCD displays [FTP Settings] menu. Press the software key for "Exit" to return to [Download Menu].



STEP 14: On [Download Menu], select "2. Download Address."



STEP 15: The LCD displays [Download Address] screen. Assign the IP address of FTP/TFTP server using digit keys.

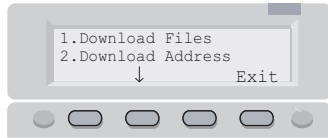


Use "*" to separate each bytes.
Press the software key for "OK" when all settings are completed.

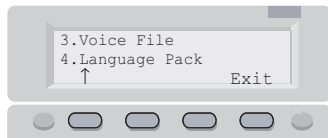
C

C

STEP 16: The LCD displays [Download Menu] screen. Select "1. Download Files."

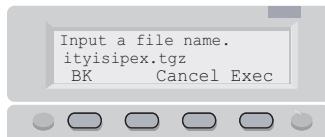


STEP 17: On [Download Files] menu, select "4. Language Pack" and then press the software key for "OK."



STEP 18: File name is displayed for each selected download file.

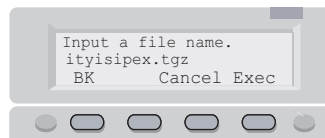
This is an example for selecting Boot & Program file.



Change the download file name ➡ **Go to STEP 19**

Not change the download file name, check the file name and press the software key for "Exec." ➡ **Go to STEP 20**

STEP 19: When you want to change the download file name, perform this step.

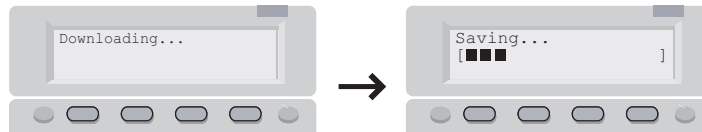


1. Press the software key for "BK" to delete the displayed file name.
2. Enter other name (up to 20 characters).
3. Press the software key for "Exec". ➡ **Go to STEP 20**

D

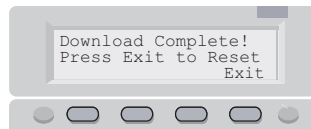
D

STEP 20: The terminal starts downloading. "Downloading..." flashes on the LCD.

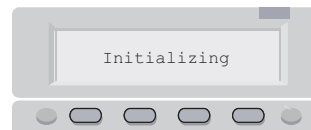


Note: Do not power off the terminal while the LCD is displaying "Saving...". It may cause trouble in the terminal starting up.

STEP 21: The LCD displays the message below. Press the software key for "Exit" to restart the terminal.



STEP 22: The terminal restarts reading out the downloaded program.



END

Note: The following table lists the points to be checked. Try downloading again.

CAUSE	COUNTERMEASURES
Target download file is not put in the directory specified by FTP/TFTP server.	Place the download file on the directory where FTP/TFTP server specifies.
File name differs between the file on the FTP/TFTP server and the file you try to download.	Assign the same file name on the server and on the terminal.
The IP address of FTP/TFTP server assigned on the configuration settings is wrong.	Enter correct IP address of FTP/TFTP server.
FTP/TFTP server or the network device (e.g. HUB) between the server and the terminal is not turned on.	Turn the power on for the devices.
LAN cable disconnection.	Connect LAN cable to the terminal and FTP/TFTP server.

When the LCD returns "Download Failed" messages even after some retry, the memory of the terminal may be damaged. Contact a maintenance personnel.

[2] Configuration Settings by Web Programming

STEP 1: Prepare download file on FTP/TFTP server. (See STEP 1 in [1] Configuration Settings on Terminal.)

STEP 2: Select [Maintenance] → [Download Menu] → [Download Files] → [Language Pack].

STEP 3: Enter the parameters below and then click the “OK” button. The terminal starts downloading.

[Protocol] : Select the protocol of the file server storing download file.
 [Download Address] : Enter the IP address of FTP/TFTP server.
 [folder] : Enter the folder name on which download file is stored.
 [File name] : Enter target download file name. **Note 1**
 [User ID] : Enter User ID.
 [Password] : Enter password.

Note 1: See Download file on page 220 for the default file name of each type.

Note: The LCD displays the messages below:

STATE	LCD
While download is in progress	Downloading...
Succeeded in downloading	Download Complete! Press Exit to Reset.
Failed in downloading	Download Failed!

1.4.3 DT820 Configuration Menu List (FW 1.0.0.0)

This section lists the configuration menu used for DT820 (8-button (DESI-LESS)/6-button) configuration settings. DT820 columns on the tables below show whether the menu is available or not for each terminal type.

LEGEND	X: Available	N: Not available	-: Not applicable
---------------	--------------	------------------	-------------------

1. Setting

Parameter	Description	Default	8-Button (DESI-Less)	6-Button
1. User Setting	Sets user interface related.	-	X	X
1. Incoming Call	Sets ringing and lamp indication data for incoming call.	-	X	X
1. Offhook Ring	Selects whether to use offhook ringing (ringing for incoming call in busy state).	Enable	X	X
1. Disable	Offhook ringing is OFF.			
2. Enable	Offhook ringing is ON.			
2. Headset Ring Note 1	Selects whether to use headset ringing.	Disable	X	X
1. Disable	Headset ringing is OFF.			
2. Enable	Headset ringing is ON.			
3. Ring Tone	Sets Ringing Tone for incoming call termination.	-	X	X
1. External Call	Sets Ringing Tone for external call termination. * Tone Type 1 rings when Automatic is selected.	Automatic	X	X
0. Automatic	Sets Automatic for the Ringing Tone of incoming call termination.			
1. Tone Type 1 ~ 14. Tone Type 14	Sets Tone Type 1 ~ Tone Type 14 for Ringing Tone.			
15. Download 1 ~ 17. Download 3	Sets Download 1 ~ Download 3 for Ringing Tone.			-
2. Internal Call	Sets Ringing Tone for station call termination. * Tone Type 1 rings when Automatic is selected.			X
0. Automatic	Sets Automatic for the Ringing Tone of incoming call termination.			
1. Tone Type 1 ~ 14. Tone Type 14	Sets Tone Type 1 ~ Tone Type 14 for Ringing Tone.			
15. Download 1 ~ 17. Download 3	Sets Download 1 ~ Download 3 for Ringing Tone.			-
2. Talk	Sets call related data.	-	X	X
1. RTP Alarm	Sets whether to allow the alarm for detecting packet loss in receiving speech packets.	Automatic	X	X
0. Automatic	Applies RTP alarm setting on the Telephony Server.			
1. Disable	Alarm is OFF.			
2. Enable	Alarm is ON.			

1. Setting (Continued)

Parameter		Description	Default	8-Button (DESI-Less)	6-Button
2. DTMF Tone		Sets whether to hear DTMF (PB) tone on receiving DTMF signal.	Automatic	X	X
	0. Automatic	Applies DTMF tone setting on the Telephony Server.			
	1. Disable	DTMF tone is OFF.			
	2. Enable	DTMF tone is ON.			
3. Key Touch Tone		Sets touch tone for pressing digit key.	Automatic Note 3	X	X
	0. Automatic	Sets Automatic to key touch tone.			
	1. Disable	Sets key touch tone disabled.			
	2. Tone	Sets key touch tone enabled.			
	3. Voice	Enables the key touch tone by voice recognition.			–
4. Hold Music		Sets Music-on-Hold.	Default	X	X
	1. Default	Applies the default music (Minuet).			
	2. Download	Applies the downloaded music.			
3. Display		Sets display related data.	-	X	X
1. Calendar Format		Sets calendar display format and time display format.	Automatic Note 6	X	X
	1. Calendar Format	Specifies the calendar display format.			
	0. Automatic	Sets Automatic for calendar display format.			
	1. Type 1	Sets Type 1 ~ Type 5 for calendar display format.			
	2. Type 2				
	3. Type 3				
	4. Type 4				
	5. Type 5				
	2. Time Format	Switches 12-hour/24-hour display.	Automatic Note 4		
	0. Automatic	Sets Automatic for time display.			
	1. 12 hour Indication	Sets 12-hour display.			
	2. 24 hour Indication	Sets 24-hour display.			
2. Local Volume		Selects whether to display volume gage when adjusting the volume level.	Automatic Note 5	X	X
	0. Automatic	Sets Automatic for volume gage display.			
	1. Disable	Volume gage is not displayed.			
	2. Enable	Volume gage is displayed.			
3. Screen Saver		Sets Screen Saver related data.	-	-	-
	1. Screen Saver Mode	Selects whether to use Screen Saver.	Disable	X	X
	1. Disable	Screen Saver is not used.			
	2. Enable	Screen Saver is used.			
	2. Wait Time	Sets wait time until Screen Saver activation (1-999 min.).	120	X	X
4. Back Light		Switches ON/OFF the backlight on the terminal.	Enable Note 2	X	X
	1. Disable	Backlight is OFF.			
	2. Enable	Backlight is ON.			

1. Setting (Continued)

Parameter		Description	Default	8-Button (DESI-Less)	6-Button
5. Language		Selects the language on the time display and the setting menu.	Automatic Note 6	X	X
	0. Automatic	Sets Automatic for language setting on the LCD.			
	1. Japanese	Selected language is displayed on the LCD. The parameters of language are displayed as native language. For the details, refer to “ Section 1.4.2.18 Language ”.			
	2. NEC English				
	3. NEC Portuguese				
	4. NEC Spanish				
	5. NEC French				
	6. German				
	7. Italian				
	8. Dutch				
	9. Norwegian				
	10. Danish				
	11. Swedish				
	12. Greek				
	13. English				
	14. Portuguese				
	15. Spanish				
	16. French				
	17. Russian				
	18. Turkish				
	19. Romania				
	20. Polish				
	21. Catalan				
	22. Korean				
6. Advanced		Sets other data for display.	Enable	X	X
	1..Backlight Fade Control	Sets whether Backlight Fade Control is in service, when turning on/off the backlight of the display.			
	1.Disable	Disables Backlight Fade Control.			
	2.Enable	Enables Backlight Fade Control.			
4. Change Password		Assigns the password of the terminal, used for data clear, security, and login of user mode.	0000	X	X
0. Setting Reset		Initializes all the assigned personal information on the terminal to factory default.	-	X	X

1. Setting (Continued)

Parameter	Description	Default	8-Button (DESI-Less)	6-Button
2. Download	Sets download related data.			
1. Download Files	Downloads files of Music-on-Hold, Ringing Tone, and Phonebook.	-	X	X
1. Hold Music	Downloads a sound file used for Music-on-Hold.	MOH.wav	X	X
2. Ring Tone	Downloads a sound file used for Ringing Tone.	-	X	-
1. Download 1	Downloads Melody 1 ~ Melody 3.	Melody1.wav		
2. Download 2		Melody2.wav		
3. Download 3		Melody3.wav		
2. Download Address	Sets IP address of FTP/TFTP server.	0.0.0.0	X	X
3. Protocol	Specifies the protocol for file downloading.	FTP	X	X
1. FTP	FTP is used.			
2. TFTP	TFTP is used.			
4. FTP Settings	Sets data for accessing FTP server.	-	X	X
1. User ID	Sets user ID for login to FTP server.			
2. Password	Sets password for login to FTP server.			
3. Folder	Specifies the directory to save the download file.			
3. Data Backup/Restore	Makes backup of terminal data or restores from backup file.	-	X	X
1. Data Backup	Saves the terminal setting to backup file.	PersonalData.tgz		
2. Data Restore	Restores the terminal data by reading out the saved backup file.	PersonalData.tgz	X	X
3. Server Address	Sets IP address of FTP/TFTP server.	0.0.0.0	X	X
4. Protocol	Specifies the protocol for file downloading.	FTP	X	X
1. FTP	FTP is used.			
2. TFTP	TFTP is used.			
5. FTP Settings	Sets data for accessing FTP server.	-	X	X
1. User ID	Sets user ID for login to FTP server.			
2. Password	Sets password for login to FTP server.			
3. Folder	Specifies the directory to save backup file.			

Note 1: Do not go the handset off-hook when headset is used.

Note 2: In the case of power failure for backlight, the terminal follows the Telephony Server's direction discarding the terminal's setting.

Note 3: A tone will be provided if Automatic has been set.

Note 4: 12-Hour Indication is applied when Automatic has been set.

Note 5: A setting for Enable is applied when Automatic has been set.

Note 6: A setting on the Telephony Server is applied when Automatic has been set.

0. Config

Parameter	Description	Default	8-Button (DESI-Less)	6-Button
1. Network Settings	Sets network related data.	-	X	X
1. DHCP Mode	Selects whether to use DHCP protocol.	Enable	X	X
1. Disable	DHCP is not used.			
2. Enable	DHCP is used.			
2. IP Address	Sets the terminal's IP address.	0.0.0.0	X	X
3. Default Gateway	Sets default router's IP address.	0.0.0.0	X	X
4. Subnet Mask	Sets subnet mask.	0.0.0.0	X	X
5. DNS Address	Sets DNS server's IP address.	0.0.0.0	X	X
6. Advanced Settings	Sets network expanded data.	-	X	X
1. LAN Port Settings	Sets LAN port.	-	X	X
1. Speed&Duplex	Sets communication speed of Ether port.	Autonego	X	X
1. Autonego	Autonegotiation			
2. 100M Full	100Mbps in full-duplex mode			
3. 100M Half	100Mbps in half-duplex mode			
4. 10M Full	10Mbps in full-duplex mode			
5. 10M Half	10Mbps in half-duplex mode			
2. VLAN Mode	Selects whether to use VLAN on terminal.	Disable	X	X
1. Disable	VLAN is not used.			
2. Enable	VLAN is used.			
3. VLAN ID	Sets VLAN ID of terminal [0-4094].	7	X	X
4. VLAN Priority	Sets VLAN Priority of terminal [0-7].	5	X	X
5. Auto-MDI/MDIX	Selects whether to use Auto-MDIX. Auto-MDIX is available only when "1. Autonego" is assigned in "1. Speed&Duplex".	Enable	X	X

0. Config

Parameter	Description	Default	8-Button (DESI-Less)	6-Button
2. PC Port Settings	Sets PC port.	-	X	X
1. Speed&Duplex	Sets communication speed of PC port.	Autonego	X	X
1. Autonego	Autonegotiation			
2. 100M Full	100Mbps in full-duplex mode			
3. 100M Half	100Mbps in half-duplex mode			
4. 10M Full	10Mbps in full-duplex mode			
5. 10M Half	10Mbps in half-duplex mode			
2. Port VLAN Mode	Selects whether to use port VLAN of PC port.	Disable	X	X
1. Disable	Port VLAN of PC port is not used.			
2. Enable	Port VLAN of PC port is used.			
3. Port VLAN ID	Sets port VLAN ID of PC port [0-4094].	1	X	X
4. Port VLAN Priority	Sets port VLAN priority of PC port [0-7].	0	X	X
5. Port Available	Selects whether to use PC port.	Automatic	X	X
0. Automatic	Sets Automatic for PC port.			
1. Disable	PC port is not used.			
6. EAPOL Forwarding	Select whether to forward EAPOL packet from PC port.	Disable	X	X
1. Disable	Not forward EAPOL packet from PC port.			
2. Enable	Forwards EAPOL packet from PC port.			
7. PC Port Security	Select whether to clear authentication status of the terminal which is connected to PC port for authentication switch when the link of PC port has been down.	Enable	X	X
1. Disable	Not clear the authentication status.			
2. Enable	Clear the authentication status.			
8. Auto-MDI/MDIX	Selects whether to use Auto-MDIX. Auto-MDIX is available only when “1. Autonego” is assigned in “1. Speed&Duplex”.	Enable	X	X
3. Type of Service	Sets ToS value.	-	X	X
1. RTP	Sets ToS value for RTP in Hex.	A0		
2. SIP	Sets ToS value for SIP in Hex.	C0		
4. Self Port Settings	Sets each port for the terminal.	-	-	-
1. RTP Self Port	Sets RTP port for the terminal [1024-65520 (except 59986-60000)]. Note 12, Note 13	3462	X	X
2. SIP Self Port	Sets SIP port for the terminal [1024-65534]. Note 13	5060	X	X
5. LLDP Settings	Sets information related to LLDP.	-	-	-
1. LLDP Mode	Sets whether to transmit/receive LLDP packets.	Enable	X	X
1. Disable	The terminal does not transmit/receive LLDP packets.			
2. Enable	The terminal transmits/receives LLDP packets.			

0. Config

Parameter		Description	Default	8-Button (DESI-Less)	6-Button
	2.Auto Setting Mode	Sets whether to perform data setting automatically when LLDP packets are received.	Enable	X	X
	1. Disable	The terminal does not perform data setting automatically when LLDP packets are received.			
	2. Enable	The terminal performs data setting automatically when LLDP packets are received.			
	3.RX Waiting Time	For Auto Setting, sets the waiting time until the terminal receives LLDP packets (1-60 seconds).	15	X	X
	4.Transmit Interval	Sets intervals to transmit LLDP packets (5-32768 seconds).	30	X	X
	5.Hold Multiplier Note 14	Sets a multiplier determining the time to live for the LLDP packets to be transmitted (2-10 multiples).	4	X	X
	6.Fast Start Count	Sets the number of times to transmit LLDP packets at one-second intervals after the terminal starts up (1-10 times).	3	X	X
	7.Transparent Mode	Sets whether Transparent Mode of LLDP packets is enabled between the PC port and the LAN port.	Enable	X	X
	1. Disable	Transparent Mode of LLDP packets is disabled.			
	2. Enable	Transparent Mode of LLDP packets is enabled.			
	8.Asset ID	Sets the Asset ID for LLDP packets to be transmitted.	- Note 11	X	X

0. Config

Parameter	Description	Default	8-Button (DESI-Less)	6-Button
6.Spare IP Settings	Sets information related to Spare IP/Backup IP.	-	-	-
1.Spare/Backup IP Mode	Specifies which mode is to be used for Spare IP Settings.	Disable	X	X
1. Disable	Both Spare and Backup IPs are disabled.			
2. Spare IP	Spare IP is enabled.			
3. Backup IP	Backup IP is enabled.			
2.Network Settings	Sets network related data when Spare/Backup IP is enabled.	-	X	X
1. IP Address	Sets the terminal's IP address when Spare/Backup IP is enabled.	0.0.0.0		
2. Default Gateway	Sets default router's IP address when Spare/Backup IP is enabled.	0.0.0.0		
3. Subnet Mask	Sets subnet mask when Spare/Backup IP is enabled.	0.0.0.0		
4. DNS Address	Sets DNS server's IP address when Spare/Backup IP is enabled.	0.0.0.0		
3.SIP Settings	Sets SIP related data when Spare/Backup IP is enabled.	-	-	-
1.2nd Server Address	Specifies the address of the server to be set as the 2nd SIP server.	0.0.0.0	X	X
2.3rd Server Address	Specifies the address of the server to be set as the 3rd SIP server.	0.0.0.0	X	X
3.4th Server Address	Specifies the address of the server to be set as the 4th SIP server.	0.0.0.0	X	X
4.2nd Server Port	Specifies the port number of the server to be set as the 2nd SIP server [0, 1024-65535]	0	X	X
5.3rd Server Port	Specifies the port number of the server to be set as the 3rd SIP server [0, 1024-65535]	0	X	X
6.4th Server Port	Specifies the port number of the server to be set as the 4th SIP server [0, 1024-65535]	0	X	X
7.TTL Settings	Setting for multicast TTL (Time To Live)	-	-	-
1. RTP (Multicast)	Sets the value of multicast TTL (1-255)	32	X	X
8.Priority Queue	Sets whether to enable Priority Queue of the internal switching HUB.	Disable	X	X
1. Disable	Priority Queue is disabled.		X	X
2. Enable	Priority Queue is enabled.		X	X
2. SIP Settings	Sets SIP related data.	-	X	X
1. SIP User	Sets user data.	-	X	X
1. User ID	Sets user ID for digest authentication.	-	X	X
2. Password	Sets password for digest authentication.	-	X	X
3. Extension Number	Not used.	-	-	-
Note 10				
4. Backup Logon	Not used.	-	-	-
Note 10				

0. Config

Parameter	Description	Default	8-Button (DESI-Less)	6-Button
2. Server Address&URI	Sets IP address or URI of SIP server. Note 7 , Note 8	-	X	X
1. 1st Server Address	Sets IP address or fully qualified domain name (FQDN) of 1st ~ 4th SIP server.	-	X	X
2. 2nd Server Address				
3. 3rd Server Address				
4. 4th Server Address				
5. Registrar Destination	Sets IP address or fully qualified domain name (FQDN) of registrar destination.	-	X	X
1. 1st Register Address	Sets IP address or fully qualified domain name (FQDN) or 1st ~ 4th registrar server.	-	X	X
2. 2nd Register Address				
3. 3rd Register Address				
4. 4th Register Address				
3. Access Mode	Sets access mode for SIP server.	Normal	X	X
1. Normal	Normal access			
2. Remote	Remote access			
4. SIP Server Port	Sets SIP server port [1024-65535].	5060	X	X
1. 1st Server Port	Specifies the destination port number of sending packet to 1st ~ 4th SIP server.			
2. 2nd Server Port				
3. 3rd Server Port				
4. 4th Server Port				
5. Registrar Destination	Sets port for registrar server [1024-65535].			
1. 1st Register Port	Sets port for 1st ~ 4th registrar server.			
2. 2nd Register Port				
3. 3rd Register Port				
4. 4th Register Port				

0. Config

Parameter	Description	Default	8-Button (DESI-Less)	6-Button
5. Area ID	Sets the area (country) using the terminal.	Automatic	X	X
0. Automatic	The Telephony Server side setting is applied when Automatic is selected.			
1. Japan	Selects the area (country) Note: Area IDs allowed on the Telephony Server can be selected.			
2. America (Canada and North America)				
3. Australia				
4. Others				
5. Hong Kong				
6. Malaysia				
7. Singapore				
8. Mexico				
9. Taiwan				
10. NewZealand				
11. Korea				
12. Brazil				
13. China				
14. Thailand				
15. Thailand (EGAT)				
16. Sri Lanka				
17. Germany				
18. Italy				
19. Netherlands				
20. Catalonia (Not used)				
21. Denmark				
22. Sweden				
23. Poland				
24. Czech				
25. Norway				
26. France				
27. Portugal				
28. Spain				
29. Austria				
30. Belgium				
31. UK				
32. Greece				
33. Switzerland				
34. South Africa				
35. Brazil (EMEA)				

0. Config

Parameter	Description	Default	8-Button (DESI-Less)	6-Button
6. Extra Function	Sets expanded data related to SIP packet.	-	X	X
1. Retransmit Interval	Selects Retransmit Interval of REGISTER and SUBSCRIBE message during the registration process.	Standard	X	X
1. Standard	SIP Standard Retransmit Interval is used (500ms, 1s, 2s, 4s, 4s, 4s, 4s, 500ms).			
2. 6 Seconds	Original Retransmit Interval is used (6s, 6s, 6s, 6s, 6s, 2s).			
2. Keeping Call	Selects whether to use call hold function on the terminal.	Enable	X	X
1. Disable	Calls in progress are not held even when the terminal detects communication failure with the Telephony Server.			
2. Enable	Calls in progress are held even when the terminal detects communication failure with the Telephony Server.			
3. Howler Tone	Not used.	-	-	-
7. Encryption	Sets encryption data.	Disable	X	X
1. Authentication Mode	Selects whether to use authentication.		X	X
1. Disable	Authentication is not used.			
2. Enable	Authentication is used.			
2. One Time Password	Sets One Time Password.	-	X	X
3. Authentication Status	Displays authentication status.	-	X	X
8. NAT Traversal Note 10	Not used.	-	-	-
1.NAT Traverse Mode				
1.Disable				
2.Dynamic				
3.Static				
2.Network Area Name				
3.WAN Settings				
1.WAN Mate IP Address				
2.WAN SIP Mate Port				
3.WAN Self IP Address				

0. Config

Parameter	Description	Default	8-Button (DESI-Less)	6-Button
3. Maintenance Settings	Sets maintenance related data.	-	X	X
1. Download Menu	Downloads specified file to the terminal.	-	X	X
1. Download Files	Specifies download file name for each file type.	-	X	X
1. Boot & Program	Downloads boot and program.	ityisipex.tgz ityisipe.tgz	X -	- X
2. Config	Downloads configuration file.	config.tgz	X	X
3. Voice File	Downloads voice file.	voice.tgz	X	-
4. Language Pack	Downloads translation data file.	LangPack.tgz	X	X
2. Download Address	Sets IP address of FTP/TFTP server.	0.0.0.0	X	X
3. Protocol	Selects FTP or TFTP for file downloading protocol.	FTP	X	X
1. FTP	FTP is used.			
2. TFTP	TFTP is used.			
4. FTP Settings	Sets data for accessing FTP server.	-	X	X
1. User ID	Sets user ID for login to FTP server.	-	X	X
2. Password	Sets password for login to FTP server.	-	X	X
3. Folder	Specifies the directory to save the download file.	-	X	X
2. Hard Reset	Resets the terminal without data saving.	-	X	X
3. Data Clear	Initializes the terminal selecting the initialization mode.	-	X	X
1. Factory Value	Initializes the terminal to factory default.	-	X	X
2. Terminal Data	Clears terminal data on the terminal.	-	X	X
3. Personal Data	Clears personal data on the terminal.	-	X	X
4. Adjust	Adjusts LCD, audio, and button kit.	-	X	X
1. Default Audio	Sets audio data.	-	X	X
1. Sidetone Volume	Sets Side Tone volume [0-7].	4	X	X
2. Send Gain	Sets sending gain of handset [0-31].	24	X	X
3. Receive Bias	Sets receiving bias of handset [0-7].	0	X	X
4. Receive Gain	Sets receiving gain of handset [0-31].	22	X	X
5. Talk Characteristics	Sets talk characteristics of handset.	-	X	X
1.Noise Suppression	Sets whether to enable the Noise Suppressor. (Set "1.Disable" in normal operation.)	Disable	X	X
2. Handsfree Mode	Sets whether to enable the Handsfree Mode	Retro mode		
6. DTMF Send Level	Sets DTMF Send Level [0-48]. (level 0 (maximum) ~ level 48 (minimum))	32		
5. Auto config	Selects whether to use auto-config function.	Enable	X	X
1. Disable	Auto config is not used.			
2. Enable	Auto config is used.			

0. Config

Parameter	Description	Default	8-Button (DESI-Less)	6-Button
6. Data Maintenance	Sets data maintenance related.	-	X	X
1. Backup	Executes data backup.	-	X	X
1. All Data	Executes backup for all the configuration setting and data.	AllData.tgz	X	X
2. Terminal Data	Executes backup for terminal setting and data.	TerminalData.tgz	X	X
3. Personal Data	Executes backup for personal setting and data.	PersonalData.tgz	X	X
2. Restore	Executes restoration.	-	X	X
1. All Data	Restores all the configuration setting and data.	AllData.tgz	X	X
2. Terminal Data	Restores terminal setting and data.	TerminalData.tgz	X	X
3. Personal Data	Restores personal setting and data.	PersonalData.tgz	X	X
3. Server Address	Sets IP address of the server that executes data backup/restoration.	0.0.0.0	X	X
4. Protocol	Selects FTP or TFTP for file downloading protocol.	FTP	X	X
1. FTP	FTP is used.			
2. TFTP	TFTP is used.			
5. FTP Settings	Sets data for accessing FTP server.	-	X	X
1. User ID	Sets user ID for login to FTP server.	-	X	X
2. Password	Sets password for login to FTP server.	-	X	X
3. Folder	Specifies the directory to save the download file.	-	X	X
7. Simple Test Note 9	Changes the terminal to test mode.	-	X	X
1. Call Test	Starts call test.	-	X	X
2. Call Test Address	Sets an IP address of the opposite terminal to perform the call test.	10.136.20.188	X	X
3. Key Test 1 (Random)	Tests to press the random button.	-	X	X
4. Key Test 2 (Sequential)	Tests to press the sequential button.	-	X	X
5. Loop Back Test	Tests the voice loop back.	-	X	X
1. Handset - Hand Speaker	Tests to speak and receive on the hand speaker.	-	X	X
2. Handset - Speaker	Tests to speak on the handset and receive on the speaker.	-	X	X
3. Headset - Head Speaker	Tests to speak and receive on the head speaker.	-	X	X
4. Headset - Speaker	Tests to speak on the headset and receive on the speaker.	-	X	X
5. MIC - Hand Speaker	Tests to speak on the MIC and receive on the hand speaker.	-	X	X
6. MIC - Head Speaker	Tests to speak on the MIC and receive on the head speaker.	-	X	X
7. MIC - Speaker	Tests to speak on the MIC and receive on the speaker.	-	X	X

0. Config

Parameter	Description	Default	8-Button (DESI-Less)	6-Button
6. Speaker Test	Tests the speaker.	-	X	X
1. Japan	A dial tone for Japan is heard in maximum volume.	-	X	X
2. America	A dial tone for North America is heard in maximum volume.	-	X	X
7. Receiver Test	Receiver Test for a handset	-	X	X
4. Security	Sets security related data.	-	X	X
1. Web Programming	Selects whether to use Web Programming.	Enable	X	X
1. Disable	Web Programming is disabled.			
2. Enable	Web Programming is enabled.			
2. Admin Password	Sets administrator's password.	6633222	X	X
3. 802.1X Supplicant	Sets 802.1X authentication related parameter.	-	X	X
1. Supplicant	Sets whether to use supplicant on the terminal.	Disable	X	X
1. Disable	Supplicant is disabled on the terminal.			
2. Enable	Supplicant is enabled on the terminal.			
2. Account	Sets user ID for EAP-MD5.	-	X	X
3. Password	Sets password for EAP-MD5.	-	X	X
4. EAPOL VLAN Mode	Selects whether to add VLAN tag to EAP packet.	Enable	X	X
1. Disable	VLAN tag is not added to EAP packet.			
2. Enable	VLAN tag is added to EAP packet.			
4 User Password	Setting for User Password.	-	X	X
1. Expiration Date	Sets the expiration of user password (0-90 days).	0	X	X
2. Warning Interval	Sets the interval to regenerate the warning message which prompts a password resetting (1-24 hours).	1	X	X
5. Terminal Information	Displays terminal information.	-	X	X
Hardware Version	Displays hardware version of the terminal.	-	X	X
MAC Address	Displays MAC address of the terminal.	-	X	X
Firmware Version	Displays firmware version of the terminal.	-	X	X
6. Application Settings	Sets application data.	-	X	X
1. IPM Self Port	Sets the port for connecting to IP Phone Manager [1024-65535 (except 17185, 60000)]. Note 13	3530	X	X

Note 7: "SIP server" used here refers to the Telephony Server. The Telephony Server acts as SIP server where the terminal is registered.

Note 8: For IP address of SIP server (Telephony Server), refer to "Registration Destination of IP Devices/Stations" in System Description.

Note 9: This service is available to perform various tests such as Key Test, LED, LCD, and Call Test.

Note 10: This item appears in the menu, but the assignment of this parameter is prohibited.

Note 11: "-" is displayed in default settings.

Note 12: Odd numbered ports cannot be assigned.

Note 13: A unique number must be assigned to each of the following ports. For RTP Self Port, 16 ports starting from an assigned port are used.

Note 14: LLDP time to live = LLDP packet transmission interval × the set value (65535 at most)

1.4.4 Error Messages

The following messages might be displayed when an error occurs during DT820 setup.

Note: “SIP server” used in this section refers to the Telephony Server. The Telephony Server acts as SIP server where DT820 terminal is registered.

Error Messages on DT820 (Setup) (1 of 3)

ERROR MESSAGES	CAUSE	COUNTERMEASURE
Licensed Number of Terminals is exceeded. Capability Exceeded Exit	The number of registered terminals exceeds the number of registration allowed (Though this indication is shown, you can move to the Configuration Mode by using normal operation.)	Add the licenses to be required.
Config Data Error Config Data Error Exit	There is an error to the data setting.	If it is failed again, contact the maintenance person.
Parameter is abnormal Parameter Missing Exit	In spite of “DHCP Disable,” the IP address of the terminal has not been assigned. Or, there is a defect to the setting of DT820. (From this indication, configuration display can be shown by the ordinary configuration data assignment operation.)	- Correct the data assignment. - Check the data assignment on “config” display, saving the data again. - If the error still remains, the flash ROM may be faulty.
DHCP server cannot be found. DHCP Server Not Found Exit	No answer from the DHCP server, after sending a request from the DT820. (From this indication, configuration display can be shown by the ordinary configuration data assignment operation.)	- Connect a DHCP server to the same network. - Check that a DHCP server and the DT820 are connected to the network. - Check that a DHCP server is operating normally. - Check that the network equipment is connected correctly. - When the DT820 is not used, set the parameter to “DHCP Disable”.
DHCP Lease Parameter Error DHCP Lease Parameter Error Exit	Not operable because of a discrepancy in the optional information acquired from DHCP.	If it is failed again, contact the maintenance person.

Error Messages on DT820 (Setup) (2 of 3)

ERROR MESSAGES	CAUSE	COUNTERMEASURE
SIP server cannot be found. SIP Server Not Found Exit	No answer from the SIP server, after sending a request from the DT820. (From this indication, configuration display can be shown by the ordinary configuration data assignment operation.) DNS server cannot be connected, or name solution is failed if FQDN is designated to SIP server address.	- Connect a SIP server to the same network. - Check that a SIP server and the DT820 are connected to the network. - Check that a SIP server is operating normally. - Check the SIP server address again. Note 1 - When the DT820 is not used, set the parameter to "DHCP Disable".
SIP server cannot be supported. SIP Server Not Supported Exit	SIP server does not support operation by the connected equipment.	Connect a DT820 that is supported by the SIP server.
DT820 cannot communicate due to network failure. Network Busy (Restart) Exit	Time-out of response for a request. (DT820 will be reset after the left error message is displayed for thirty seconds.)	- Check the network status and connection status, and the physical connection such as cable connection. - Check that DT820 is connected to the network. - Check that IP address is not overlapped. - Check that the network equipment is connected correctly. - Check that the network traffic is not too high. - Check that the Duplex is set for the LAN equipment on the network correctly. - Check that the Duplex of SW port connected to DT820 is set to Auto. - Check that the station number is not overlapped.
DHCP IP address is expired. DHCP IP Address expired Exit	Though DHCP attempted to renew a lease for the IP address, the server didn't send back the response. (The DHCP address is expired.)	- The DHCP server setting and cable connection. - Check that the DHCP server function is operating normally.
Config Login is failed. Config Login Failed! Exit	The invalid password is entered to enter into the configuration menu.	Enter the valid password.
Download is failed. Download Failed Exit	The download failed.	If it is failed again, contact the maintenance person.

Error Messages on DT820 (Setup) (3 of 3)

ERROR MESSAGES	CAUSE	COUNTERMEASURE
Illegal Line Equipment Number Illegal LEN Exit	After sending "initial setup request" from the terminal to DRS, "Illegal Line Equipment Number" was received. (From this indication, configuration display can be shown by the ordinary configuration data assignment operation.)	- Change or adjust the LENS of the terminal at the system. - Confirm the office data setting.
SP-PHD is not available Not acceptable Here Exit	After sending "initial setup request" from the terminal to DRS, "Not acceptable Here" was received. (From this indication, configuration display can be shown by the ordinary configuration data assignment operation.)	- Investigate the reason why SP-PHD is not available. - Confirm the office data setting. - Restart the system.
Registration Module Cannot Recognize Equipment Type Illegal Equipment Type Exit	Registration Module cannot recognize the equipment type message received from the terminal. (From this indication, configuration display can be shown by the ordinary configuration data assignment operation.)	Restart the system.
PH cannot partially be used PH Partially Available Exit	After sending "initial setup request" from the terminal to DRS, "PH Partially Available" was received. (From this indication, configuration display can be shown by the ordinary configuration data assignment operation.)	- Investigate the reason why SP-PHD is not available. - Confirm the office data setting.
DRS resource not available Resource unavailable Exit	Registration cannot be performed because Telephony Server's resources are not available. (From this indication, configuration display can be shown by the ordinary configuration data assignment operation.)	- Confirm the office data setting. - Restart the system. - Please contact the system maintenance personnel for further information.
Telephony Server Internal Process Error Parse Error Exit	An error concerning the internal process of Telephony Server has occurred. (From this indication, configuration display can be shown by the ordinary configuration data assignment operation.)	- Confirm the office data setting. - Restart the system. - Please contact the system maintenance personnel for further information.
Unrecognized Error Information Received Resource unavailable Exit	After sending "initial setup request" from the terminal to DRS, unrecognized error information for the terminal was received. (From this indication, configuration display can be shown by the ordinary configuration data assignment operation.)	- Confirm the office data setting. - Restart the system. - Please contact the system maintenance personnel for further information.

Note 1: About IP address of SIP server (Telephony Server), refer to "Registration Destination of IP Devices/Stations" in System Description.

The following messages may be displayed in DT820 operation.

Error Messages on DT820 (Others)

ERROR MESSAGES	EXAMPLE	ACTION
Desired station number duplicates already registered one. Override? Yes No	When “Yes” is selected, the DT820 connected later is starting to operate, and the DT820 connected earlier will be unavailable and restart. When “No” is selected, change the station number set for the DT820 and restart it.	- If the left message is displayed continuously: • Select “Yes” to override and “No” not to override. • Check the office data related to the DT820 again.

1.4.4.1 When Switching from Dual Configuration to Single Configuration

IP terminal may fail to log in to the system since the information of the stopped system will remain right after switching from dual configuration to single configuration. Therefore, wait for two minutes before logging in.

Note: Wait for two minutes before logging in also when stopping one system in dual configuration.

1.4.4.2 Other Information

Only the call termination on My Line enables illumination and displaying phonebook for incoming call. Information, such as number and internal/external call, is managed by each terminal according to notifications from the system.

APPENDIX B Power Consumption for DT800/DT700 Series Terminals

The table below shows the power consumption of the DT800 Series terminals, which support only IEEE802.3at Type 1.

DT800 Series Terminal Power Chart

DT800 Series/ DT700 Series	IEEE 802.3at Type 1	Label Indication (Maximum Current with All Options)				Maximum Current Without Options			
		48 VDC		24 VDC		48 VDC		24 VDC	
ITZ-24CG-3	Class 3	230 mA	11.0 W	450 mA	11.0 W	102 mA	4.9 W	204 mA	4.9 W
ITZ-24DG-3	Class 3	230 mA	11.0 W	450 mA	11.0 W	102 mA	4.9 W	204 mA	4.9 W
ITZ-12CG-3	Class 3	230 mA	11.0 W	450 mA	11.0 W	102 mA	4.9 W	204 mA	4.9 W
ITZ-12DG-3	Class 3	230 mA	11.0 W	450 mA	11.0 W	102 mA	4.9 W	204 mA	4.9 W
ITZ-24D-3	Class 2	130 mA	6.2 W	260 mA	6.2 W	81 mA	3.9 W	162 mA	3.9 W
ITZ-12D-3	Class 2	130 mA	6.2 W	260 mA	6.2 W	81 mA	3.9 W	162 mA	3.9 W
ITZ-8LDG-3	Class 2	125 mA	6.0 W	250 mA	6.0 W	91 mA	4.4 W	182 mA	4.4 W
ITZ-8LD-3	Class 2	130 mA	6.2 W	260 mA	6.2 W	81 mA	3.9 W	162 mA	3.9 W
ITY-8LDX-1	Class 1	75 mA	3.6 W	- Note 1		75 mA	3.6 W	- Note 1	
ITY-6LD-1	Class 1	75 mA	3.6 W	- Note 1		75 mA	3.6 W	- Note 1	

Note: Label Indication:
DT830 - Maximum watts when adding options or modular upgrades.

Note 1: AC adapter is not used for DT820. Therefore, 24 VDC is not supported.

IEEE802.3at Type 1 Class Specifications

IEEE802.3at Type 1	Minimum	Maximum
Class 4	-	-
Class 3	6.49 W	12.95 W
Class 2	3.84 W	6.49 W
Class 1	0.44 W	3.84 W
Class 0	0.44 W	12.95 W