Dantel

00330 DTSS3A

SELECTIVE SIGNALING ORDER WIRE TERMINAL

Y2K Compliant

Table of Contents

About this Practice:

This practice has been reissued to:
• Update Fig. 2.

Reissued Practices: Updated and new content can be identified by a banner in the right margin.

Issue date: November 1999

UPDATED

CAUTION

• Install or remove modules from the shelf only when the power is off. If you install a module in the shelf with the power on, the internal circuitry may suffer damage and the product warranty will be void.

• Remove and install circuit boards only in a static-safe environment (use antistatic wrist straps, smocks, footwear, etc.).

• Keep circuit boards in their antistatic bags when they are not in use.

• Do not ship or store circuit boards near strong electrostatic, electromagnetic, magnetic, or radioactive fields.

• For more complete information on electrostatic discharge safety precautions, refer to Bellcore™ Technical Reference # TR-NWT-000870.

ORDERING INFORMATION

OPTION NUMBER	FEATURES
A15-00330-00	3-digit Order Wire, phone
A15-00330-01	3-digit Order Wire, phone w/ headset jack
A15-00330-02	3-digit Order Wire
A15-00330-07	6-digit Order Wire
A15-00330-31	3-digit Order Wire, 49921 Multi-Line Pick-Up Key, phone w/ headset jack
A15-00330-32	3-digit Order Wire, 49921 Multi-Line Pick-Up Key
A15-00330-37	6-digit Order Wire, 49921 Multi-Line Pick-Up Key
A15-00330-42	3-digit Order Wire, 49922 M Lead Control Driver
A15-00330-72	3-digit Order Wire, 49924 Active Auxiliary Port

GENERAL DESCRIPTION

The 00330 DTSS3A provides voice coupling and DTMF decoding for a telephone, headset, and loudspeaker in a selective signaling order wire system.

The DTSS3A comes in a housing measuring 15-3/8"W x 7-7/8"D x 1-3/4"H. It can be installed in 19- or 23-inch equipment racks.

The unit features one- to six-digit station dialing and one- to three-digit all call dialing.

Unanswered calls time out in 90 seconds or may be voluntarily terminated by the caller. A buzzer is cycled one second on/two seconds off for an incoming call. Ring-back tone is provided at the same rate. The buzzer and ring-back tone may be turned off. Outputs are available for external bells or lights to signal incoming calls.

The DTSS3A works with either a two-wire or four-wire telephone.

The front of the DTSS3A includes a headset jack, speaker mute switch, test points, test jacks, operational-indicating LEDs, and a test/reset switch. The backplane includes a modular phone jack and wire-wrap pins for external connections.

GENERAL DESCRIPTION

The following accessory subassemblies may be installed on the backplane:

♦ 49921 Multi-Line Pick-Up Key Subassembly - Adapts up to four key system phones to order wire. Use with four-wire phones only.

♦ 49922 M Lead Control Driver - Adapts M lead control in fiber optic communications system.

♦ 49924 Active Auxiliary Port - Provides three-way active bridge for repeater applicatons where the levels are not +7 dBm RCV/-16 dBm XMT.

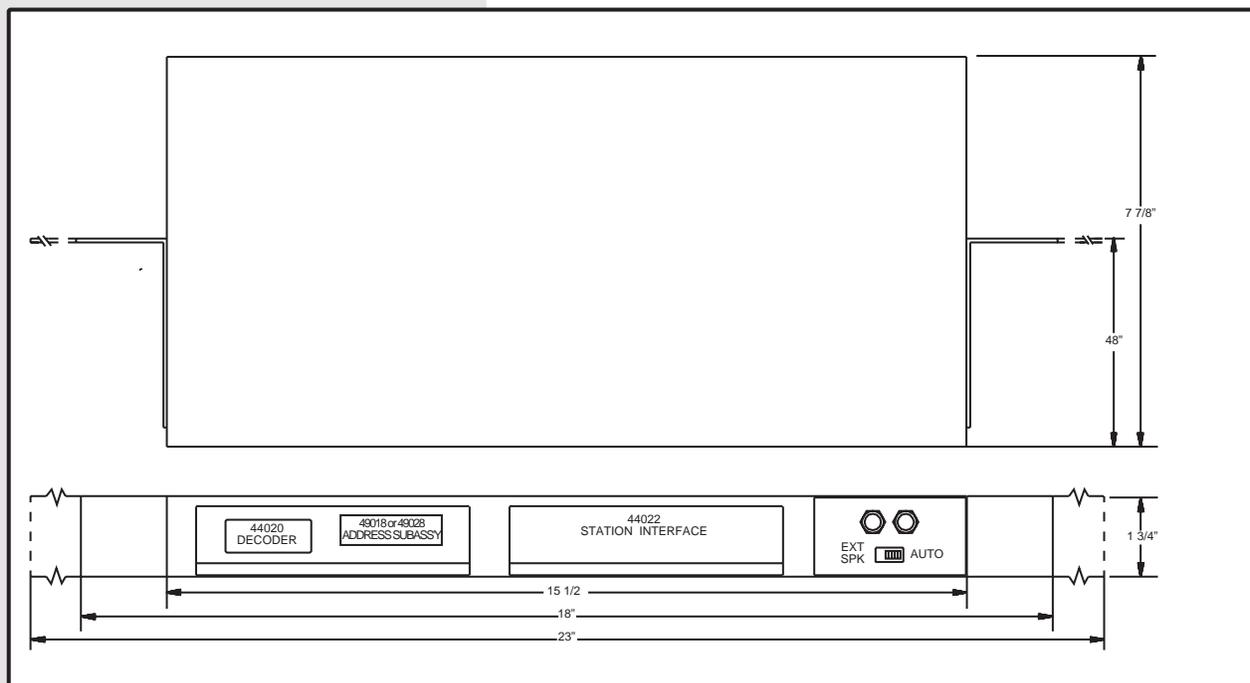The terminal operates on -22 to -56 VDC input power.

INSTALLATION

Installation of the 00330 consists of mounting the equipment shelf, wiring the shelf, setting the switches and straps on all the modules, and aligning the unit.

1. EQUIPMENT MOUNTING

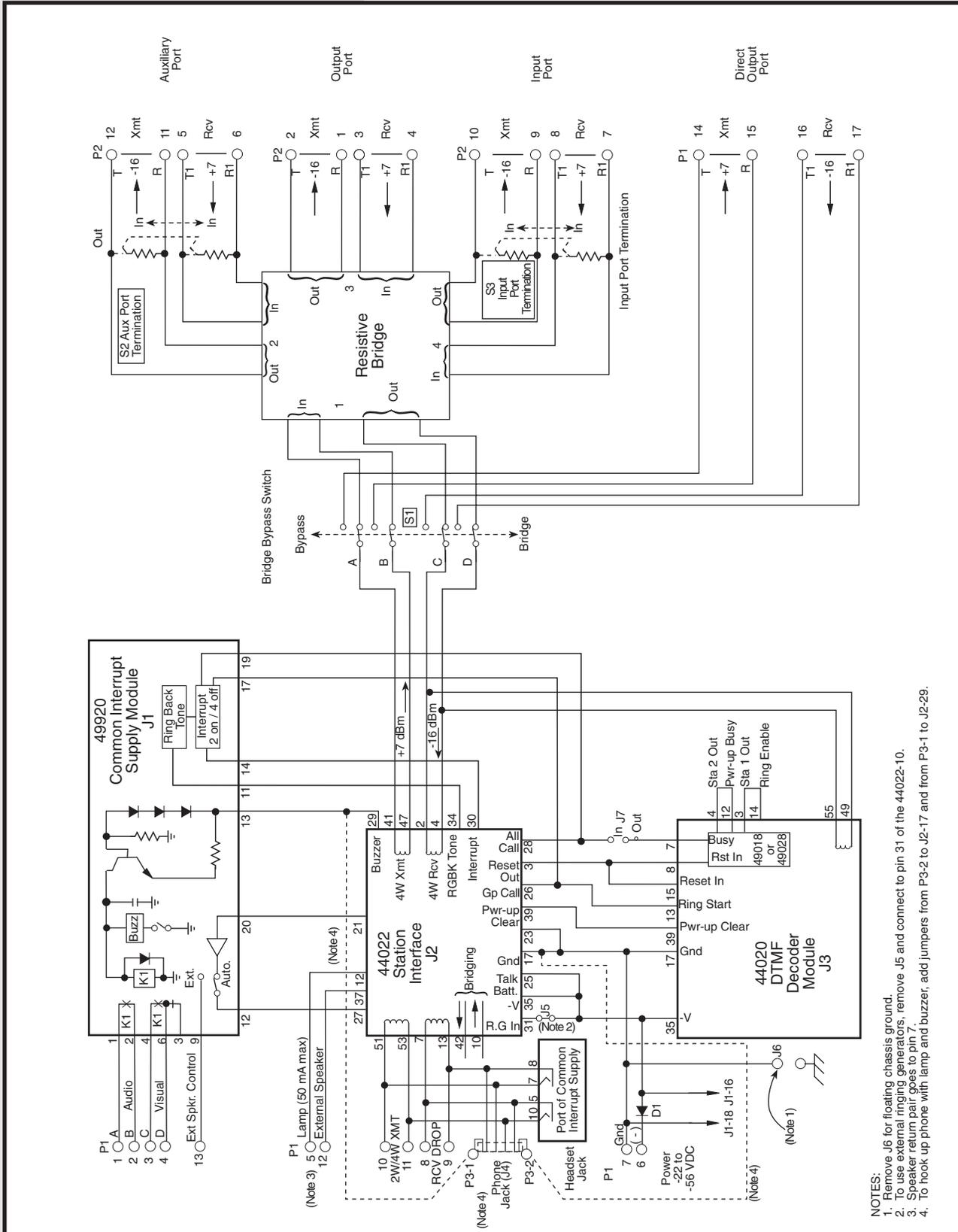Install the DTSS3A in an equipment rack using the hardware supplied. Refer to Fig. 1.

FIG. 1 - MOUNTING DIMENSIONS

Fig. 2 - Functional Schematic, DTSS3A

2. WIRING

Wire the DTSS3A as required. Refer to Fig. 2 for a functional schematic of the unit.

The DTSS3A uses a buzzer to announce incoming calls. A phone with a ringer may be used with an external ringing generator connected to the order wire terminal. (Refer to note 2, on Fig. 2.) When using a phone with a ringer, replace the 44022-00 module with a 44022-10 module.

The DTSS3A can be expanded to two or three phones at a single location. To add phones, connect the bypass ports of additional DTSS3A units to ports 2 and 4 of the bridge on the main order wire terminal.

3. SWITCH AND STRAP SETTINGS

Refer to Tables A through F and Figs. 3 through 8 to set the straps and switches on the modules and DTSS3A backplane.

44020 DTMF Decoder

Refer to Table A and Fig. 3 to set the straps and switches on the DTMF Decoder.
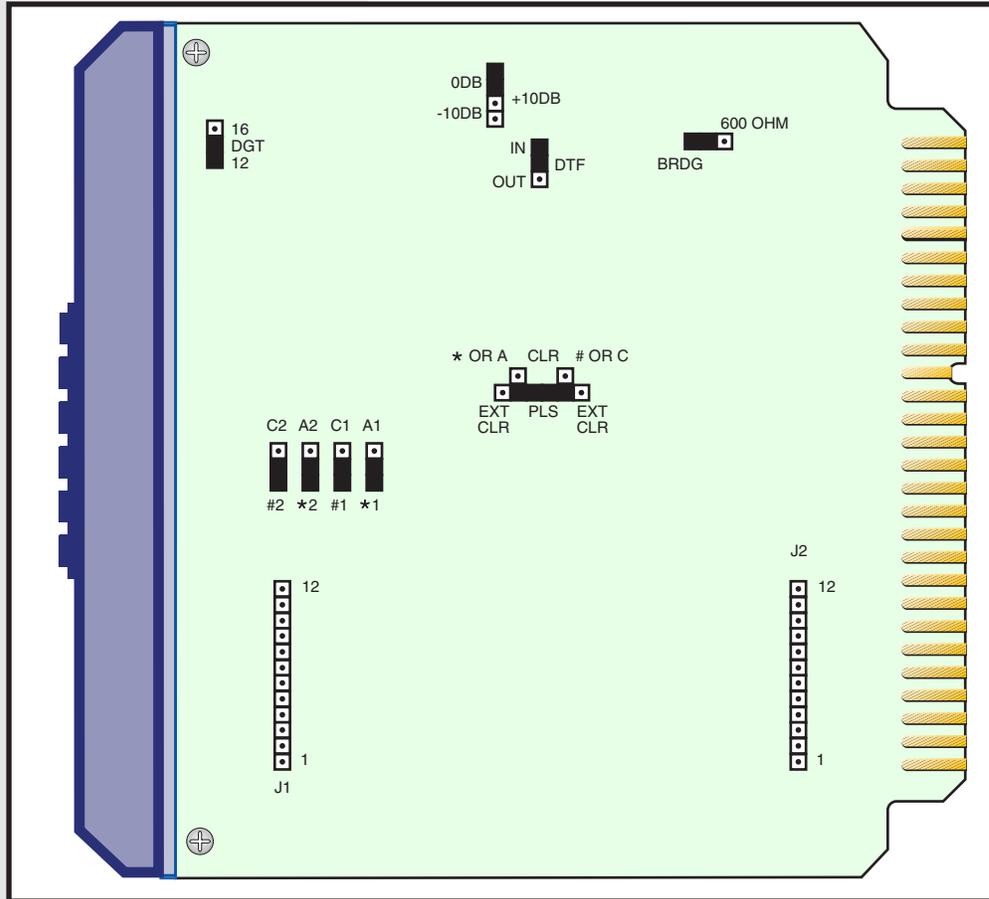
TABLE A - SWITCH AND STRAP SETTINGS, 44020 DTMF DECODER MODULE

OPTION	SETTINGS	OPTION	SETTINGS
Input Impedance		Auxiliary Output	
Bridging	BRDG *	* and #	#2, *2, #1, *1 *
600 Ohm	600 ohms	A and C	C2, A2, C1, A1
Input Level		* or A	
-10 to +10 dBm	-10	Nonlatching	PLS *
0 to -20 dBm	0 *	Externally cleared	EXT CLR
-10 to -30 dBm	+10	Cleared by # or C	# or C CLR
Dial Tone Filter		# or C	
In	DTF IN *	Nonlatching	PLS *
Out	DTF OUT	Externally cleared	EXT CLR
Dialing		Cleared by * or A	* or A CLR
12-digit	12 DGT *	* Factory Setting	
16-digit	16 DGT		
* Factory Setting			

FIG. 3 - SWITCH AND STRAP LOCATIONS, 44020

49018 Station Selector

The 44020 DTMF Decoder can be equipped with one of two subassemblies. If the 49018 Station Selector is used, refer to Table B and Fig. 4 to set the straps and switches.

TABLE B - SWITCH AND STRAP SETTINGS, 49018 STATION SELECTOR MODULE

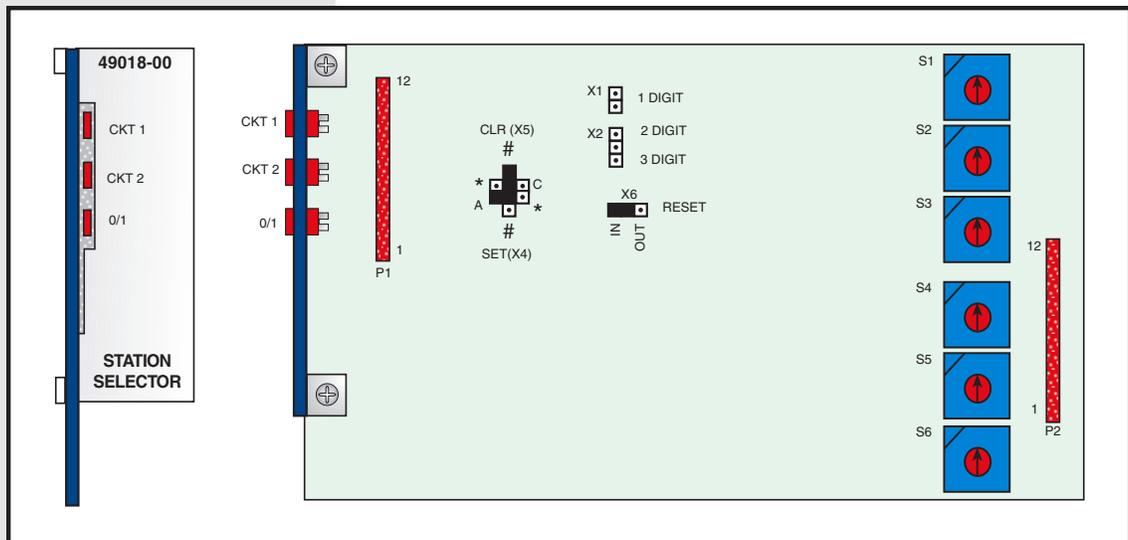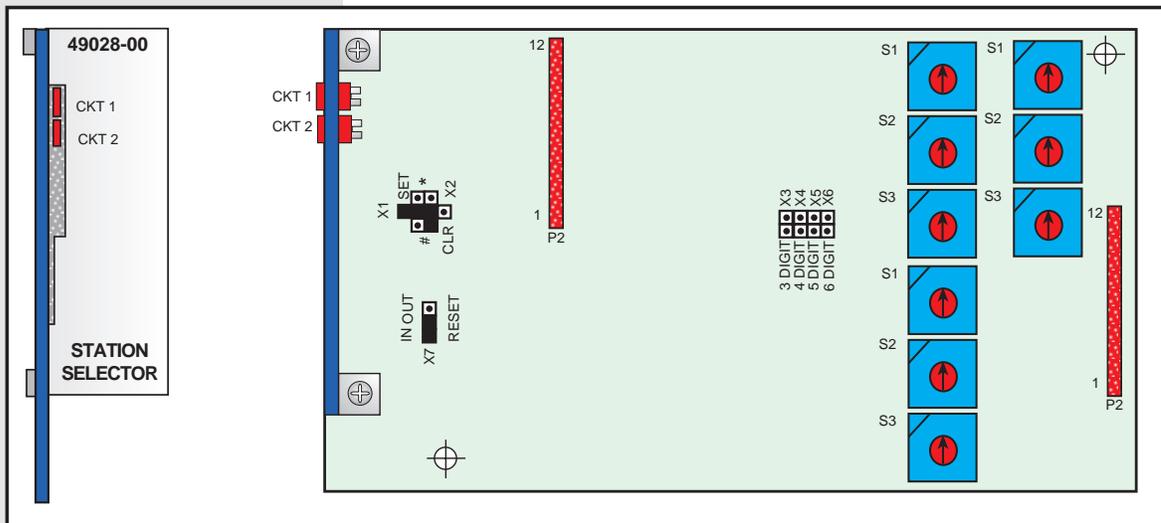| OPTION	SETTINGS
Reset	
3 second reset	IN *
External or Tone	OUT
Number of Digits	
1-digit Codes	Digit 1
2-digit Codes	Digit 2
3-digit Codes	Digit 3 *
Station-Call Code	
First Digit	S1
Second Digit	S2
Third Digit	S3
All-Call Code	
First Digit	S4
Second Digit	S5
Third Digit	S6
Call Cancellation	
* Tone	SET A *
# Tone	CLR # *
* Factory Setting	

FIG. 4 - SWITCH AND STRAP LOCATIONS, 49018

49028 Station Selector

The 44020 DTMF Decoder can be equipped with one of two subassemblies. If the 49028 Station Selector is used, refer to Table C and Fig. 5 to set the straps and switches.

TABLE C - SWITCH AND STRAP SETTINGS, 49028 STATION SELECTOR

OPTION	SETTINGS
Reset	
3 second reset	X7 IN *
External or Tone	X7 OUT
Number of Digits	
3-digit Codes	Digit X3
4-digit Codes	Digit X4
5-digit Codes	Digit X5
6-digit Codes	Digit X6 *
Circuit 1 Code	
3-digit Codes	S1 through S3
4-digit Codes	S1 through S4
5-digit Codes	S1 through S5
6-digit Codes	S1 through S6
Circuit 2 Code	S7 through S9
Call Cancellation	
* Tone	SET A *
# Tone	CLR # *
* Factory Setting	

FIG. 5 - SWITCH AND STRAP LOCATIONS, 49028

44022 Subscriber Line Interface

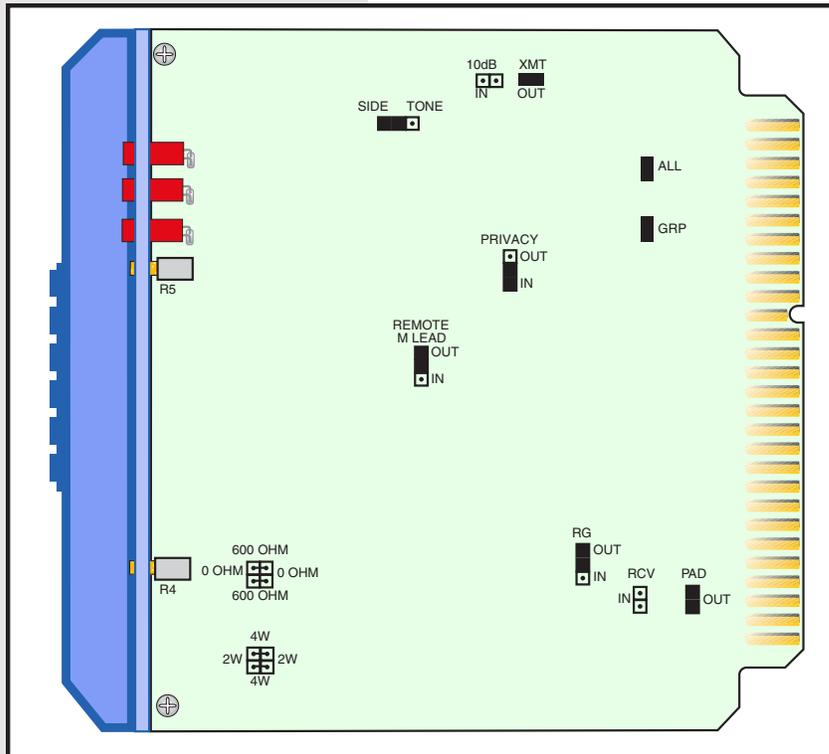Refer to Table D and Fig. 6 to set the straps and switches on the Subscriber Line Interface.

TABLE D - SWITCH AND STRAP SETTINGS, 44022 SUBSCRIBER LINE INTERFACE MODULE

OPTION	SETTINGS
Ringback Tone	
Group Call	GP IN *
All Call	ALL IN *
4-Wire Line RCV	
-3 to +7 dBm	RCV PAD IN
-16 to -3 dBm	RCV PAD OUT *
4-Wire Line XMT	
-3 to +7 dBm	XMT PAD OUT *
-16 to -3 dBm	XMT PAD IN
M Lead Control	
M Lead Driver	IN **
Off Hook	OUT *
Privacy	
Auto or Manual	PRIVACY IN *
None	PRIVACY OUT
2W/4W Drop	
2-Wire	2W (straps vertical)
4-Wire	4W (straps horizontal)
Sidetone	
4W with Sidetone	SIDETONE IN *
4W without Sidetone	SIDETONE OUT
2W (all uses)	SIDETONE OUT
4W Drop RCV	
600 ohms	600 ohms (straps horizontal) *
0 ohms	0 ohms (straps vertical)
Ring Generator	
None	OUT *
External	IN ***

*   Factory Setting.
**   Use the IN position if DTSS3A is equipped with 49922 M Lead Control Driver.
***   Available on 46022-10 only.

INSTALLATION

Fig. 6 - Switch and Strap Locations, 44022

49920 Interrupt Supply

Refer to Table E and Fig. 7 to set the straps and switches on the Interrupt Supply.

Table E - Switch and Strap Settings, 49920 Interrupt Supply Module

OPTION	SETTINGS
Interrupt	
Normal	NORM *
Reverse	REV
Ringback Tone	
Continuous	TEST
Cycling	ON *
Defeated	OFF
Speaker Control (S1)	
Automatic	AUTO *
External Control	EXT SPK
Buzzer (S2)	
Operational	ON *
Defeated	OFF
* Factory Setting	

CONTINUED . . .

INSTALLATION

FIG. 7 - SWITCH AND STRAP LOCATIONS, 49920
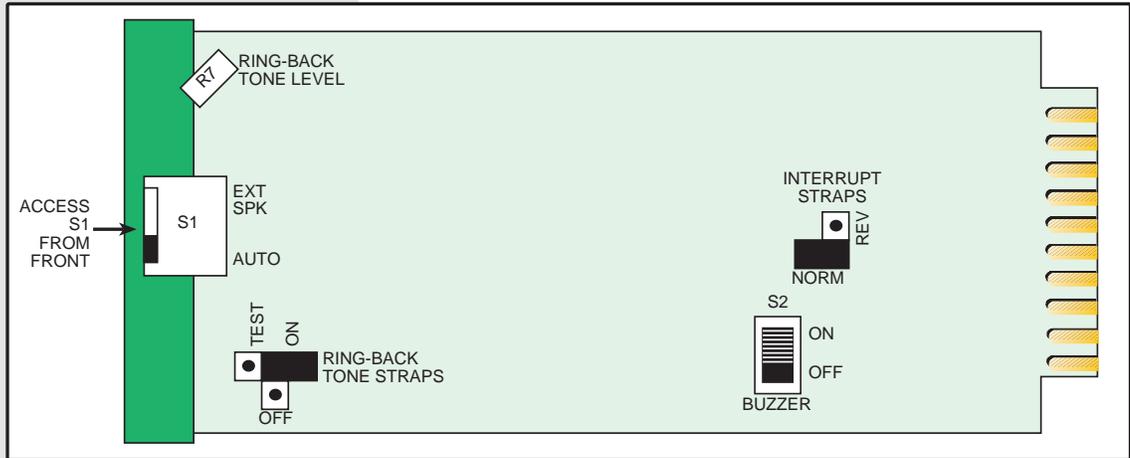
DTSS3A Backplane

Refer to Table F and Fig. 8 to set the straps and switches on the Order Wire Backplane.

TABLE F - SWITCH AND STRAP SETTINGS, 00330 DTSS3A BACKPLANE

OPTION	SETTINGS
Bridge Bypass	
Bridge out of circuit	S1 BYPASS *
Bridge in circuit	S1 BRIDGE
Bridge Auxiliary Port	
Terminated	S2 IN *
Unterminated	S2 OUT
Bridge Input Port	
Terminated	S3 IN *
Unterminated	S3 OUT
J6	
Chassis ground tied to signal ground.	IN *
Floating chassis ground.	OUT
J5	
No external ringing generator.	IN *
External ringing generator (see Note 2 of Fig. 2).	OUT
J7	Do not change.
* Factory Setting	

FIG. 8 - SWITCH AND STRAP LOCATIONS, 00330 BACKPLANE
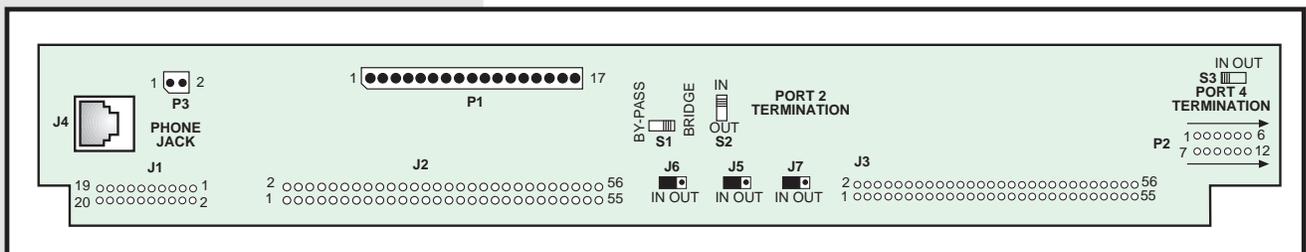
INSTALLATION

4. ALIGNMENT

All straps and levels are factory-set. If necessary, refer to Table G and Fig. 9 to align the order wire terminal.

TABLE G - TEST AND ALIGNMENT PROCEDURE

	Test and Alignment Procedure - DTSS3A Order-Wire Terminal	
Step	**Action**	**Results**
1	Remove back panel cover plate. Set S1 (on the backplane) in the BYPASS position.	
2	Disconnect any equipment at the DIRECT OUTPUT PORT (P1 14-15 and P1 16-17)	
3	Calibrate transmit (XMT)	
	A. Set tone generator for 1 KHz and connect a terminated 600-ohm meter across the generator terminals.	Set the generator output level for 0dBm.
	B. Remove the meter. Connect the tone generator to the DROP XMT jack on the 44022 front panel using a bantam-sized phone plug.	OFF-HOOK LED should come on.
	NOTE: Generator must be capable of simulating off-hook telephone (DC loop current) to enable transmit path through a 44022. Use hold or external 600-ohm resistor on generator.	
	C. Connect a terminated 600-ohm meter to the XMT LINE test points on the 44022 module's front panel.	Meter shows transmit level. Set XMT LEVEL ADJUST pot on 44022 front panel for a reading of +7 dBm.
	D. Disconnect meter and tone generator.	
4	Calibrate receive (RCV) level.	
	A. Press the TEST/RST switch on the 44022 front panel.	OFF-HOOK LED should be on.
	B. Set tone generator for 1 KHz and connect to the RCV LINE test points on the 44022 front panel. Connect a bridging (unterminated) 600-ohm meter across the LINE test points on the 44022 front panel.	Set generator level for -16 dBm reading.
	C. Terminate meter in 600-ohms and move to the RECEIVE DROP jack on the 44022 front panel. Use a bantam-sized phone plug. Note: If using two-wire phone, use XMT jack.	Meter shows receive level. Set RCV LEVEL ADJUST pot for a reading of -13 dBm. Note: If using two-wire phone, level should be -4 dBm.
5	Test complete. Remove test equipment and connect external equipment. Press the TEST/RST button.	OFF HOOK LED should go off.

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INSTALLATION

FIG. 9 - FRONT PANEL VIEW, 44022-X0 STATION INTERFACE
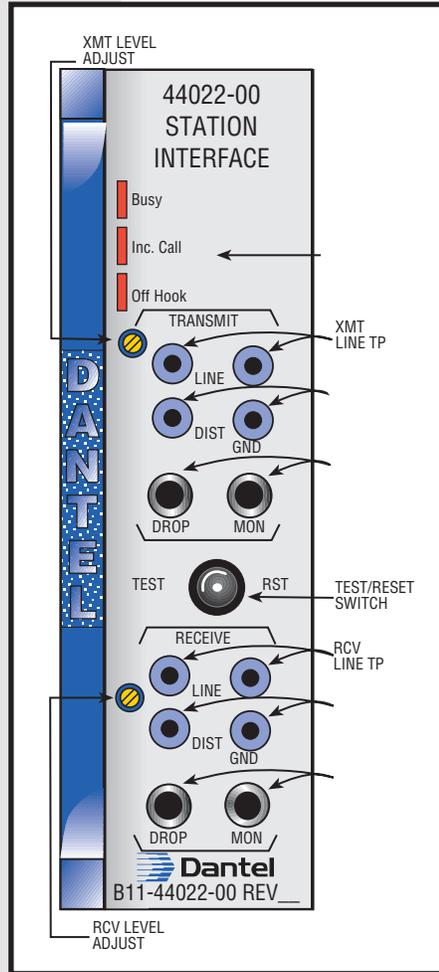
OPERATION

The DTSS3A operates as a party-line communications system with station selection and conferencing capabilities. System activity can be monitored with the loudspeaker. Privacy is not provided.

To place a call:

1. Determine if the system is being used by:

    ♦ Listening to the loudspeaker, or

    ♦ Taking the phone off hook and listening, or

    ♦ Plugging in a headset and listening.

2. If the order wire is available, take the phone off hook and dial the desired station using the appropriate station call number (code). To call all stations on the system, dial the all call number. The buzzer will sound at the called station, and you will hear the ring-back tone (optional).

3. If the call is not answered, you can:

    ♦ Press the * button to cancel a station call or the # button to cancel an all call, or

    ♦ Wait 90 seconds for the call to be cancelled automatically.

4. When the call is answered, the ring-back tone and buzzer stop operating.

5. Additional stations can be added to the conversation by dialing the appropriate station numbers.

TECHNICAL SPECIFICATIONS

Description	Value
Input Voltage Range	-22 VDC to -56 VDC
Frequency Response	300 Hz to 3400 Hz +/- 0.5 dB
Return Loss	20 dB
Maximum Loop Loss	250 ohms @-24 VDC, nominal; 1000 ohms @-48 VDC, nominal
Single levels Bridge Input, Output and Auxiliary Ports Receive Transmit	 +7 dBm -16 dBm
Direct Output Port Receive Transmit	 -16 dBm Factory set. Adjustable between -16 and +7 dBm XMT and RCV +7 dBm
Drop (to phone) 4-Wire Receive 2- or 4-Wire Transmit 2-Wire Receive	 -13 dBm, nominal 0 dBm, nominal -4 dBm, nominal
Ring-Back Tone Level (Composite)	-16 dBm
Ring-Back Tone Frequencies	440 Hz and 480 Hz
External Speaker Control	Ground to unmute monitor output (diode protected to -56 VDC)
External Speaker Output Impedance Level	 Less than 100 ohms (to drive external power amplifier) +3 dBm (1.1 VRMS)
Lamp-Lead Output	Open collector to negative input battery, 50 mA maximum
Input Power Requirement Idle Full Load	 70 mA 150 mA
Heat Dissipation Idle Full Load	 9.6 Btu/Hr. 28.8 Btu/Hr.
Physical Dimensions	15-3/8" wide (plus mounting hardware) x 7-7/8" deep x 1-3/4" high
Weight	4.5 lbs.
Operating Temperature Range	0 to 60 Degrees C.
Decoder Specifications	Refer to 44020 practice for complete decoder specifications
Dial Codes	Two circuits, all call and station call. All call is strappable for one, two or three digits, Station call is strappable for up to six digits (depending on subassembly). Uses DTMF numbers 1 through 9 and 0
Timeout of Unanswered Call	90 seconds
Ring-Back and Buzzer Rate	1 second on/2 seconds off
Interdigit Timeout	Resets if more than three seconds elapse between digits (codes larger than 2 digits)
Line-Side Interface	Four wire
Line Impedance	600 ohms
External Bell Contacts Configuration Contact Ratings	 Form A, two each (normally open) 2 amps @ 30 VDC; 0.5 amps @ 125 VAC
Headset Impedance	52 ohms

WARRANTY

LIMITED WARRANTY

The Seller warrants that the standard hardware products sold will be free from defects in material and workmanship and perform to the Seller's applicable published specifications for a period of 18 months for hardware, and 3 months for software, from the date of the original invoice. The liability of the Seller hereunder shall be limited to replacing or repairing, at its option, any defective products which are returned F.O.B. to the Seller's plant, (or, at the Seller's option, refunding the purchase price of such products). In no case are products to be returned without first obtaining permission and a customer return authorization number from the Seller. In no event shall the Seller be liable for any consequential or incidental damages.

Equipment or parts which have been subject to abuse, misuse, accident, alteration, neglect, unauthorized repair or installation are not covered by warranty. The Seller shall make the final determination as to the existence and cause of any alleged defect. No warranty is made with respect to custom equipment or products produced to the Buyer's specifications except as specifically stated in writing by the Seller in the contract for such custom equipment.

This warranty is the only warranty made by the Seller with respect to the goods delivered hereunder, and may be modified or amended only by a written instrument signed by a duly authorized officer of the Seller and accepted by the Buyer.

Warranty and remedies on products not manufactured by the Seller are in accordance with warranty of the respective manufacturer. THE SELLER MAKES NO OTHER WARRANTY OF ANY KIND WHATSOEVER, EXPRESSED OR IMPLIED; AND ALL IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE WHICH EXCEEDS THE AFORESAID OBLIGATIONS IS HEREBY DISCLAIMED BY THE SELLER.

IN CASE OF DIFFICULTY

If you experience difficulty with this equipment, check the following, as appropriate:

1. **Switch settings**
2. **Signal levels**
3. **Software configuration**
4. **Connections between Dantel's equipment and your equipment.**

If there is still a problem, substitute equipment that is known to be good. For additional assistance, call Dantel's Technical Field Service Department weekdays, 6 A.M. to 5 P.M. pacific time:

1-800-4DANTEL (1-800-432-6835).

If a thorough checkout shows a piece of equipment has malfunctioned, you may return it to the factory. For repairs and emergency replacements, obtain a Return Material Authorization (RMA) number from the Customer Service Representative at **1-800-4DANTEL** (1-800-432-6835).

To ensure expedient processing of your order, provide a purchase order number and shipping and billing information when requesting an RMA number. Also, when the units are returned to Dantel, include a description of the failure symptoms for each unit returned. Send defective equipment to:

Dantel, Inc.   •   2991 North Argyle Avenue   •   Fresno, California 93727-1388

Dantel

P.O. Box 55013 • Fresno, CA 93747-5013   Phone (559) 292-1111   Fax (559) 292-9355   http://www.dantel.com