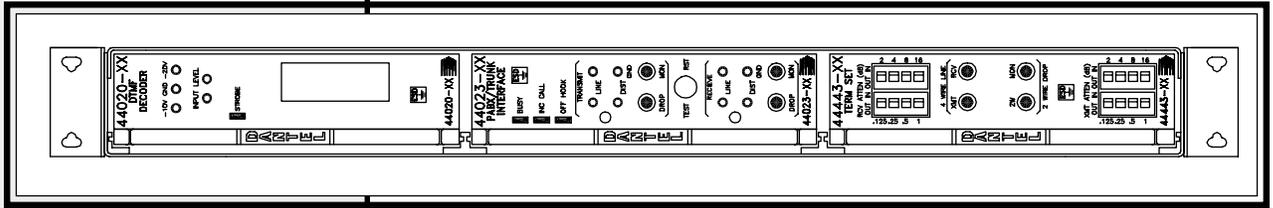


# 00331 DTSS3ON ORDER WIRE/PABX INTERFACE



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### About this Practice:

This practice has been reissued to:

- Replace Fig. 1.

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

**Issue date:** March 1998

**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

**NOTE:** This section lists the different options available for this product. To order any of the available options, contact Dantel Inside Sales through our toll-free number, **1-800-432-6835**.

OPTION NUMBER	FEATURES
B15-00331-00	Off-Net; 2-Wire Interface; 3-Digit Dialing
B15-00331-01	Off-Net; 4-Wire Interface; 3-Digit Dialing
A15-00331-05	Off-Net; 2-Wire Interface; 6-Digit Dialing

## GENERAL DESCRIPTION

The Dantel 00331 DTSS3ON Order Wire/PABX Interface (00331 Interface) lets any station in an order wire system dial an access line directly to a central office or through a PABX. The 00331 Interface can then dial out through the Public Switched Telephone Network (PSTN). Alternately, an outside party can dial into the order wire system and selectively dial any desired station.

The DTSS3ON can be added to any existing order wire system using the DTSS3A Selective Signaling Order Wire terminals. The off-net package does not have to be at the same place as a station package. The modules provide complete level coordinating circuits, including switchable pads on the Term Set front panel.

Three versions of the DTSS3ON are available:

- ◆ The B15-00331-00 unit is equipped with a term set for interfacing two-wire lines. It will work with either ground-start or loop-start systems, with or without wink off.
- ◆ The B15-00331-01 unit does not have the term set, and is used only for interfacing four-wire E and M trunks. Both the -00 and the -01 options feature 3-digit dialing.
- ◆ The A15-00331-05 unit is equipped for interfacing two-wire lines just as the -00 option; however, offers 6-digit station address decoding.

Since the DTSS3A system does not utilize automatic privacy, the off-net package provides a tone which announces that an off-net caller has connected to the system.

# GENERAL DESCRIPTION

The off-net package provides forced disconnect, which allows order wire users to disconnect an unwanted call from the outside by dialing “#” or “\*” and three digits. If the unwanted caller tries to call again, the DTSS3ON will not answer. Normal operation is restored by pressing the “#” or “\*” key again.

The 00331 Interface has three 400-type plug-in modules. The modules include:

- ◆ The 44443 Term Set
- ◆ The 44023 PABX/Trunk Interface
- ◆ The 44020 DTMF Decoder (with 49018 subassembly for 3-digit dialing or 49028 subassembly for 6-digit dialing).

The modules install into a 41071 mounting, which places the three modules horizontally in 1 3/4 inches of rack space.

The 00331 Interface operates on -21 to -56 VDC power.

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**NOTE:** *The modules used in the DTSS3ON are registered under part 68, FCC rules. The Federal Communications Commission requires certain precautions and procedures be followed when connecting the DTSS3ON to the Public Switched Telephone Network. Refer to the 44023 and 44443 module practices for details and for the device registration numbers.*

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# CIRCUIT DESCRIPTION

Fig. 1 shows a 00331 DTSS3ON Order Wire/PABX Interface block diagram. Functional schematics and circuit descriptions of individual modules contained in the 00331 DTSS3ON are located in the practices specific to those modules.



# INSTALLATION

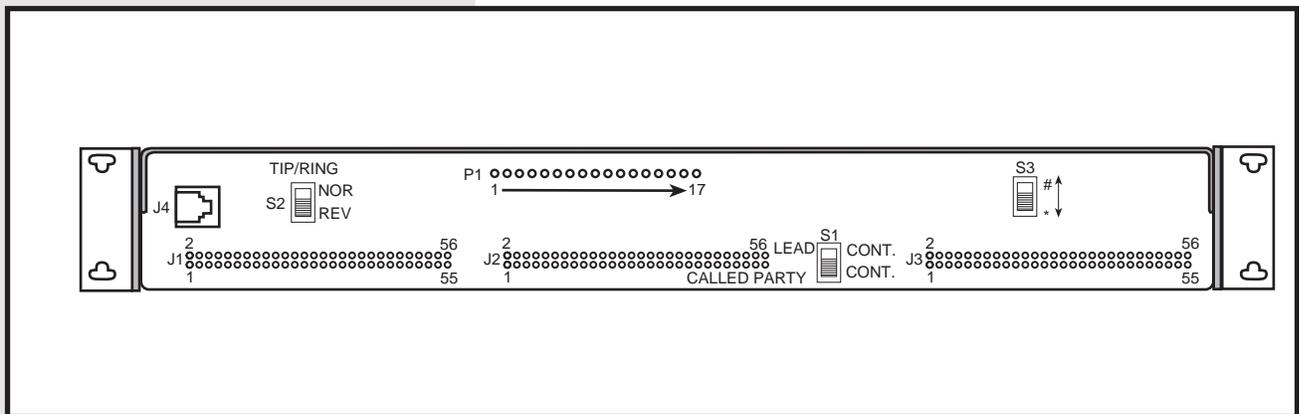
Installation consists of wiring the 00331 Interface, setting the straps and switches, and mounting the 00331 Interface into the rack.

## 1. Wire the 00331 Interface

Refer to Fig. 2 and Table A. The 00331 Interface provides:

- ◆ A modular-type telephone jack for connecting a two-wire line.
- ◆ Wire-wrap terminals to connect four-wire trunks, order wire channel and power.

**FIG. 2 - DTSS30N BACKPLANE CONNECTORS AND SWITCHES**



**TABLE A - 00331 DTSS30N WIRING CONNECTIONS**

FUNCTION	PIN
To 2-Wire Line (-00 only)	J4 or P1-1 (ring) J4 or P1-2 (tip)
To Four-Wire Line (-01 only)	
XMT TIP	P1-16
XMT RING	P1-17
RCV TIP	P1-7
RCV RING	P1-8
E LEAD	P1-5
M Lead Relay	
M LEAD NC	P1-9
M LEAD COMMON	P1-10
M LEAD NO	P1-11
To DTSS3A Order Wire System	
XMT TIP	P1-13
XMT RING	P1-14
RCV TIP	P1-3
RCV RING	P1-4
Power	
Negative Battery	P1-12
Ground	P1-6

# INSTALLATION

## 2. Set the straps and switches

Set switches and straps for the 44020, 49018 (or 49028), 44443, and 44023 modules. Refer to Figs. 3-7 and Table B.

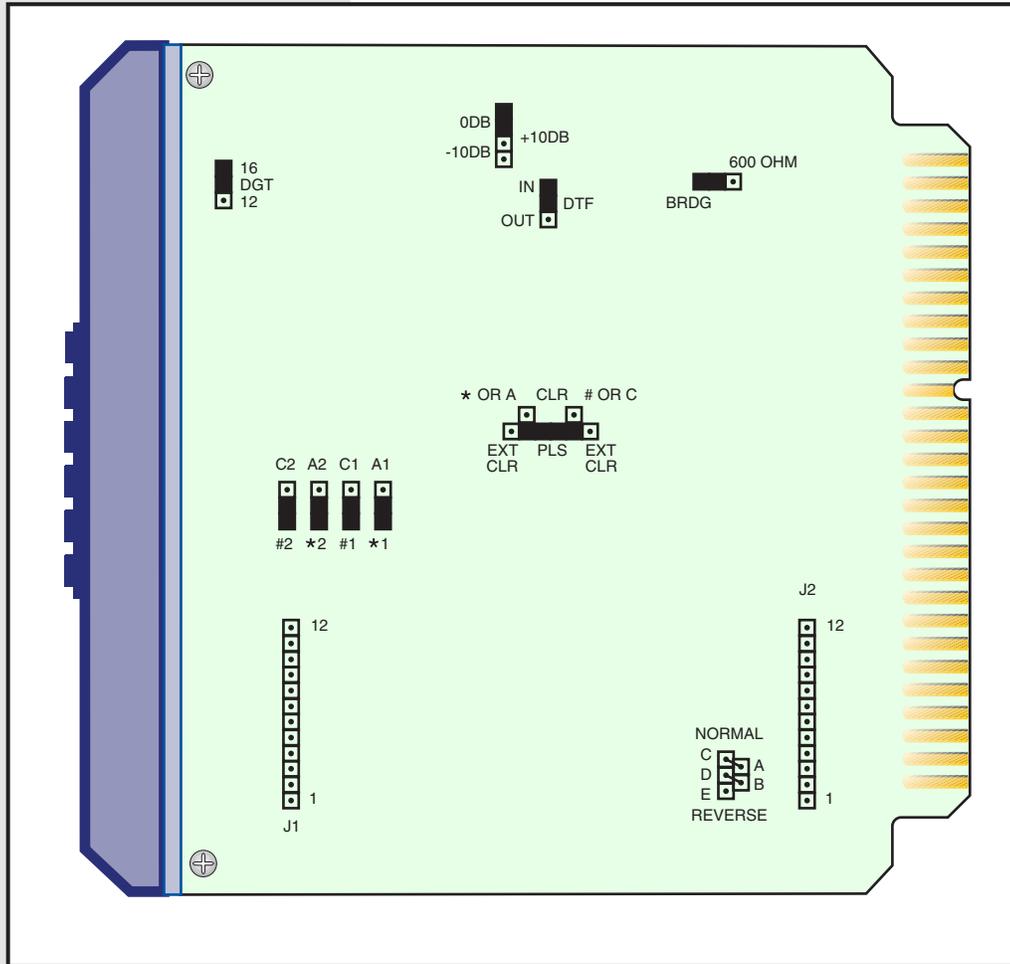
**TABLE B - 00331 DTSS30N NORMAL SWITCH AND STRAP OPTIONS**

OPTION	POSITION	OPTION	POSITION
<b>BACKPLANE</b>		<b>49028 (CONTINUED)</b>	
E-Cont. (-01)	S1 UP	Circuit 1 Code	
Called Party (-00)	S1 DOWN	Three-Digit Codes	S1 through S3
Line T/R Normal	S2 NOR UP	Four-Digit Codes	S1 through S4
Line T/R Reversed	S2 REV DOWN	Five-Digit Codes	S1 through S5
* Control	S3 * DOWN	Six-Digit Codes	S1 through S6
# Control	S3 # UP	Circuit 2 Code (3-Digit)	S7 through S9
<b>44020 MODULE</b>		<b>44023 MODULE</b>	
Input Impedance	BRDG	Line RCV Level -16 to -3dBm	RCV PAD OUT
Input Level 0 to -20dBm	0	Drop XMT Level -3 to +7dBm	XMT PAD OUT
Dial Tone Filter In	DTF IN	Manual Privacy	PVT IN
16-digit Dialing	16 DGT	M Lead Dry Contact	M BATT OUT M GND OUT
* and # Aux. Input	*1, *2, #1, #2	E Lead	E CONT IN
* Non-latching	PLS	Control Interface	
# Non-latching	PLS	Loop Start	LP CONT IN GND ST OUT
<b>49018 SUBASSEMBLY</b>		Ground Start	LP CONT IN GND ST IN
External Reset	RESET OUT	No Conference Delay	CONF OUT
Number of Digits		No Busy Control	B CONT OUT
One-Digit Codes	DIGIT 1	<b>44443 MODULE</b>	
Two-Digit Codes	DIGIT 2	Receive Attenuation (front panel)	8.5 dB
Three-Digit Codes	DIGIT 3	Transmit Attenuation (front panel)	8.5 dB
Circuit Code 1 (Off-Net)		NBO	S3-1 thru 6 open; S3-8 closed
First Digit	S1	Impedance 600 Ohms	S1, S2 on 600
Second Digit	S2		
Third Digit	S3		
Circuit Code 2 (Forced Disconnect)			
First Digit	S4		
Second Digit	S5		
Third Digit	S6		
Busy/Reset			
Normal # Control	# CLR, * SET		
Optional * Control	* CLR, # SET		
<b>49028 SUBASSEMBLY</b>			
Reset			
Self-reset in 3 seconds	X7 IN		
External or decoded tone resets	X7 OUT		
Number of Digits			
Three-Digit Codes	DIGIT X3		
Four-Digit Codes	DIGIT X4		
Five-Digit Codes	DIGIT X5		

UPDATED

# INSTALLATION

FIG. 3 - 44020 DTMF DECODER SWITCH AND STRAP LOCATIONS



**NOTE:**

The straps depicted in Figs. 3-7 are examples showing only the strap locations. Strap each module per usage desired. Refer to Table B.

# INSTALLATION

FIG. 4 - 49018 ADDRESS SELECTOR SWITCH AND STRAP LOCATIONS

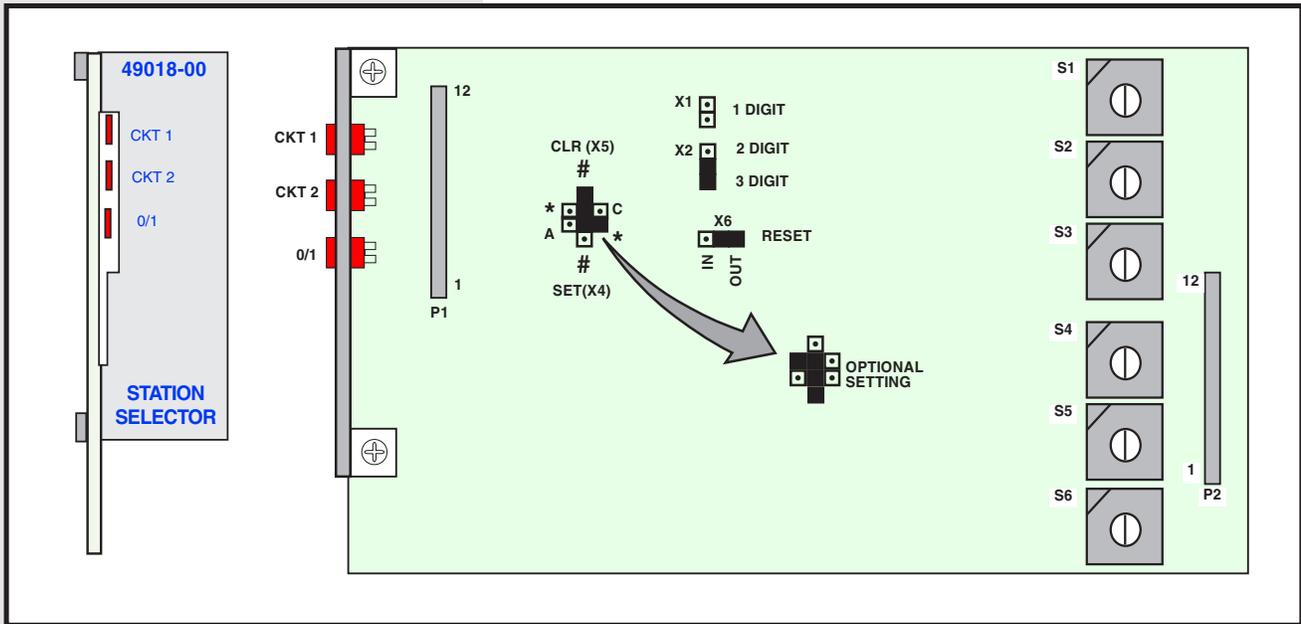
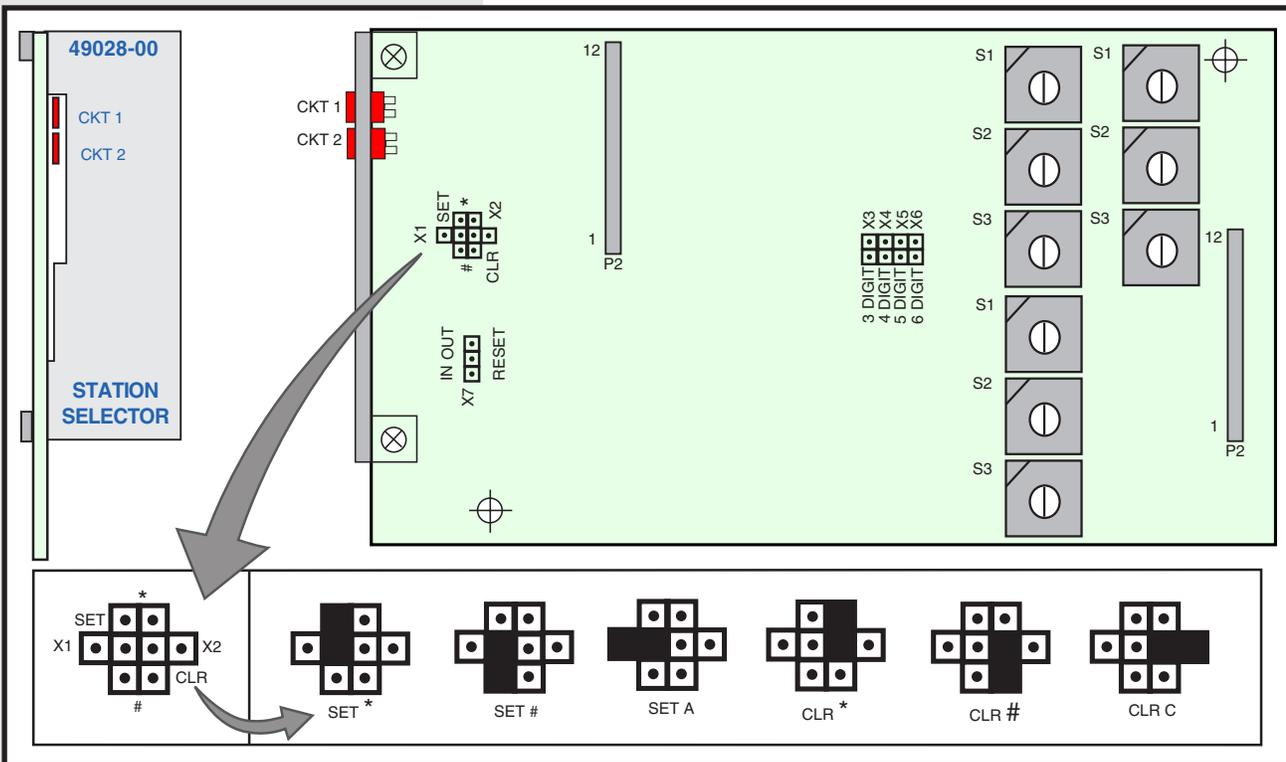
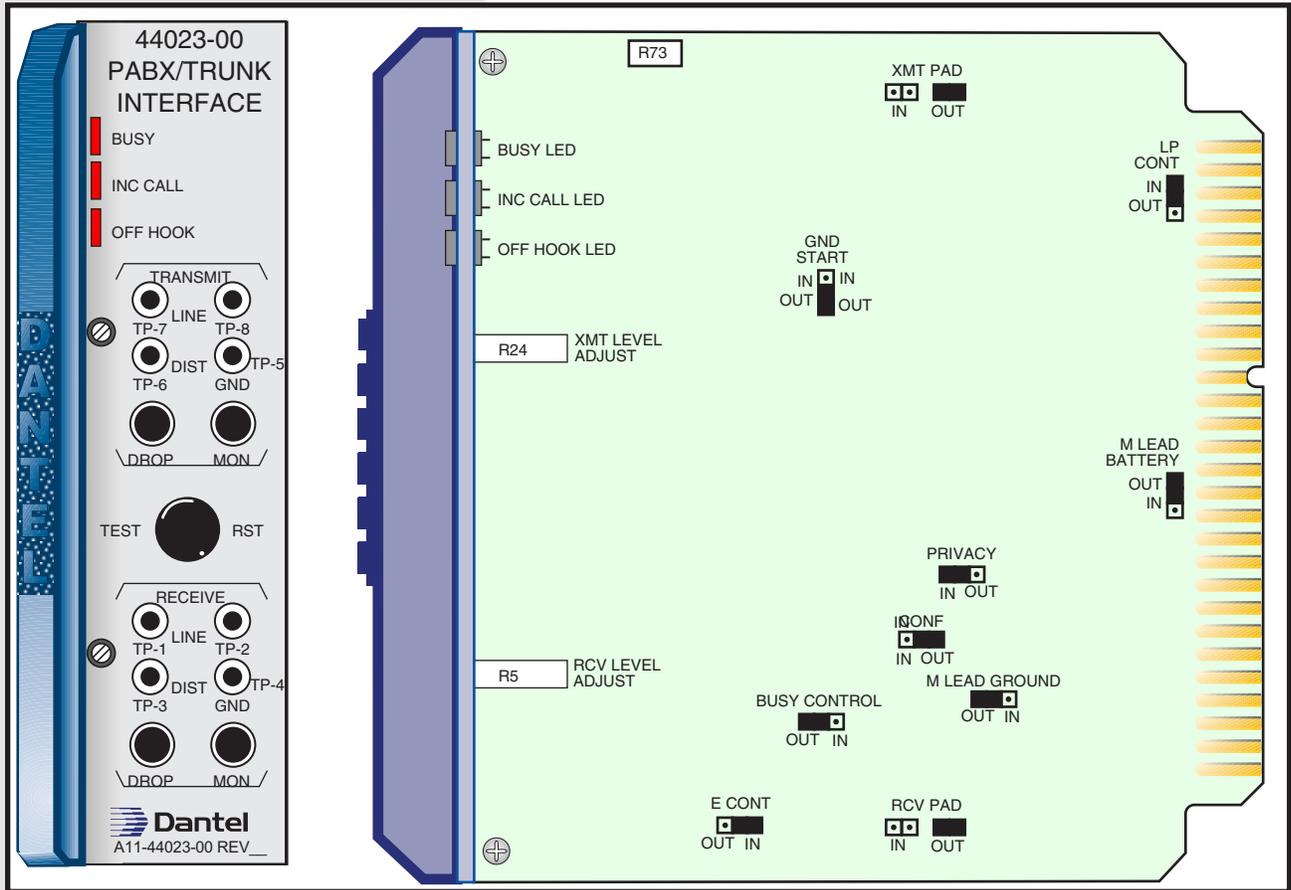


FIG. 5 - 49028 ADDRESS SELECTOR SWITCH AND STRAP LOCATIONS



# INSTALLATION

**FIG. 6 - 44023 PABX/TRUNK INTERFACE SWITCH AND STRAP LOCATIONS**

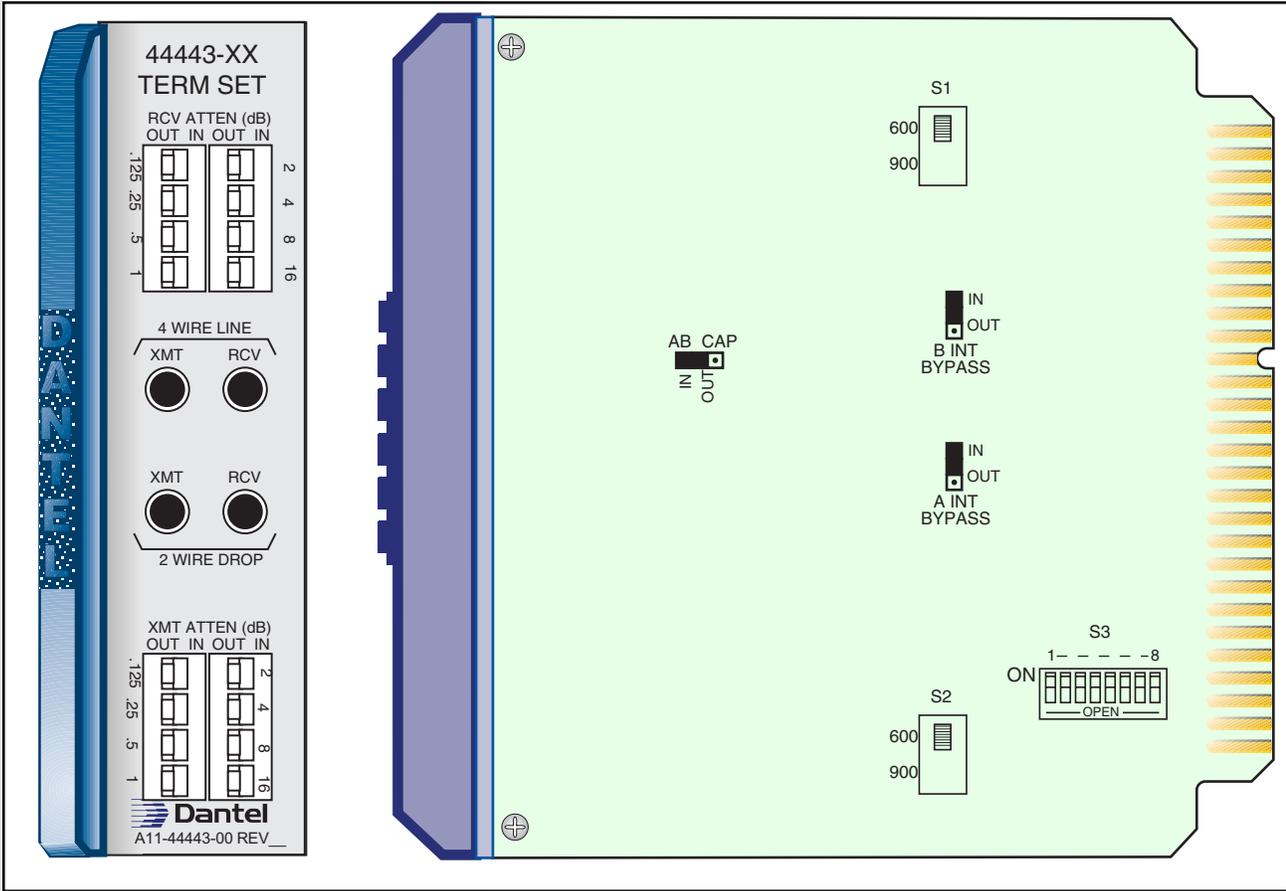


**NOTE:**

The straps depicted in Figs. 3-7 are examples showing only the strap locations. Strap each module per usage desired. Refer to Table B.

# INSTALLATION

FIG. 7 - 44443 TERM SET SWITCH AND STRAP LOCATIONS



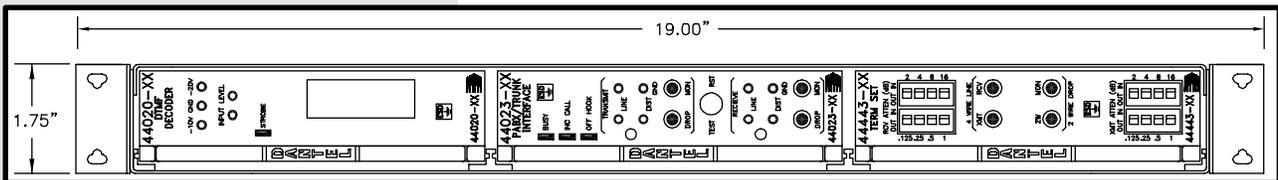
**NOTE:**

The straps depicted in Figs. 3-7 are examples showing only the strap locations. Strap each module per usage desired. Refer to Table B.

**3. Mount the 00331 Interface into the rack**

Refer to Fig. 8 for 00331 Interface dimensions.

FIG. 8 - DTSS3ON FRONT VIEW



# OPERATION

This Off-Net package allows any station in the order wire system to access a Telco central office or PABX line. The Telco central office or PABX line accesses the touch-tone into the public-switched telephone network. Conversely, an outside party can call into the order wire network and selectively dial any station desired.

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**To call out from any terminal on the order wire system:**

1. Pick up the handset and press “#”.
2. Dial the outside access code and listen for dial tone.
3. Dial the desired outside number.
4. To terminate the call, press #.

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**To call into the order wire system from the outside:**

1. Access the seven digit number for the outside Telco line associated with the off-net. The caller hears one ring, followed by a short tone burst.
2. Dial the desired order wire station code. The caller will hear a ring-back tone until the party answers.

In a loop trunk, the person at the answering order wire station must dial a “\*” or “#” or the call terminates in 10 to 80 seconds. Terminate the call by hanging up or dialing “#” (or “\*” if the call was answered by dialing “#”).

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**NOTE:** *When using two-wire lines under loop control with no wink, the person at the called order wire station must dial a “\*” within 10 to 80 seconds (adjustable) or an automatic disconnect occurs. (The “\*” overrides the disconnect.) To terminate the call, dial “#”. These are factory options and may be reversed if desired. Refer to the 49018 practice for strapping options.*

*Neither step is necessary when using loop control with wink or ground start trunks.*

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## ALIGNMENT PROCEDURE

The 00331 DTSS30N Order Wire system comes from the factory with all switch, strap, and level settings set. If the levels required are different than the standard level settings, use the procedure described in Table C.

The equipment necessary is a transmission test set capable of serving as a:

- ◆ Signal Generator sending a 1kHz, 600 ohm signal at various levels
- ◆ 600 ohm level Meter (with and without 600 ohm termination).

# OPERATION

TABLE C - 00331 DTSS3ON ORDER WIRE ALIGNMENT PROCEDURE (-00 AND -01)

STEP	ACTION	RESULT
1	Refer to Fig. 1. <i>NOTE: If using a PABX 4-wire trunk, start at step 2d.</i>	The functional schematic shows the normal systems levels used in the alignment.
2	Calibrate the two-wire RCV level.	
2a	Set tone generator to 1kHz and connect a 600 ohm terminated meter across the generator terminals.	Set the generator output level for -4dBm.
2b	Remove the meter. Using a bantam-sized phone plug, connect the tone generator to the 2-WIRE DROP front panel jack of the 44443 Term Set.	
2c	Plug 600 ohm terminated meter into the 4-WIRE XMT front panel jack of the 44443 module. <i>NOTE: If using a PABX 2-wire trunk, skip steps 2d and 2e.</i>	Meter shows XMT level. Set the level for -16dBm by using the front panel XMT pad switches on the 44443 module.
2d	Set the tone generator for 1kHz and connect a 600 ohm terminated meter across the generator terminals.	Set the generator output level for -16dBm.
2e	Remove the meter. Connect the tone generator to the TRANSMIT DROP jack of the 44023 module.	
2f	Press the TEST/RST switch on the 44023 front panel.	Off-hook LED comes on.
2g	Connect the meter to the TRANSMIT LINE test points on the 44023 module front panel.	Set the level for existing system requirements.
2h	Disconnect transmit receive level.	
3	Calibrate the transmit receive level.	
3a	The TEST/RST switch on the front panel of the 44023 should not be changed.	Off-hook LED is on. press TEST/RST switch on the 44023 if it is not.
3b	Set the tone generator output for existing system level and 1kHz. Connect it to the RECEIVE LINE test points on the 44023 front panel.	
3c	Move meter to the RECEIVE DROP front panel jack on the 44023 and terminate in 600 ohms. <i>NOTE: If testing an A15-00331-01, go to step 4.</i>	Meter shows DROP RECEIVE level. Adjust receive pot for +7dBm.
3d	Move meter to the 2-WIRE DROP jack on the front panel of the 44443 module.	Meter shows transmit level to CO line. Set level for -6dBm using the 4-wire RCV front panel pads on the 44443 module.
4	Test complete. Remove all test equipment and reconnect the external equipment. Press the TEST/RST button on the 44023.	All LEDs should go out.

# TECHNICAL SPECIFICATIONS

## TECHNICAL SPECIFICATIONS - 00331 DTSS3ON ORDER WIRE/PABX INTERFACE

DESCRIPTION	VALUE
Frequency Response	300 Hz to 3400 Hz $\pm$ 0.5 dB
Return Loss (2-Wire Line only)	20 dB
<b>SIGNAL LEVELS (FACTORY-SET; ADJUSTABLE)</b>	
<b>LINE SIDE (ORDER WIRE SYSTEM)</b>	
Receive	-16 dBm
Transmit	+7 dBm
<b>DROP SIDE (OUTSIDE LINE)</b>	
Two-Wire Option (-00)	
Receive	-6 dBm
Transmit	-4 dBm
Four-Wire Option (-01)	
Receive	+7 dBm
Transmit	-16 dBm
Busy Tone	-24 dBm
Alert Tone	-10 dBm
Off-Hook Tone	-13 dBm
On-Hook Tone	-13 dBm
Input Voltage Range	-21 VDC to -56 VDC
Input Power Requirements	
Idle	55 mA
Full Load	150 mA
Heat Dissipation	
Idle	4.5 BTU/Hr. @ -24V; 9.0 BTU/Hr @ -48V
Full Load	12.3 BTU/Hr. @ -24V; 24.6 BTU/Hr @ -48V
Physical Dimensions	17 3/4"W x 1 3/4"H x 7 1/2" D (plus mounting hardware)
Weight	-00, 8.5 lbs.; -01, 7 lbs.
Operating Temperature Range	0° to 60° C.
Decoder Specifications	Refer to 44020 practice
Dial Codes	Two circuits, off-net call and forced disconnect, strappable for one-, two-, or three-digits.
Clear Code	* or #, strappable (on 49018 subassembly)
Time-out of Unanswered Call	Adjustable, 10 to 80 seconds max.
Line and Drop Impedances	600 ohms
E Lead	Ground to operate, -56 VDC max.
M Lead	
Normally Closed	On-hook = closed; Off-hook = open. Strappable to ground through 4.7K ohm resistor.
Normally Open	On-hook = open; Off-hook = closed. Strappable to battery through 4.7K ohm resistor.

# 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**



P.O. Box 55013 • Fresno, CA 93747-5013 Phone (209) 292-1111 Fax (209) 292-9355 <http://www.dantel.com>