

49018 STATION SELECTOR SUBASSEMBLY

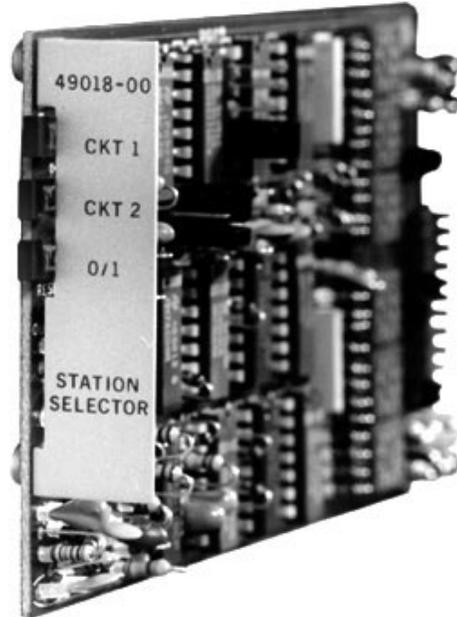


Table of Contents

| | |
|--------------------------------|----|
| Ordering Information | 2 |
| General Description | 2 |
| Circuit Description | 3 |
| Application Information | 7 |
| Installation | 9 |
| Operation | 11 |
| Technical Specifications | 12 |
| Warranty | 14 |

About this Practice:

- This document has been reformatted to meet ISO 9001 requirements.

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

Issue date: June 1997

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 |
|---------------|------------------------------|
| A12-49018-00 | Station Selector Subassembly |

GENERAL DESCRIPTION

The 49018 Station Selector Subassembly provides a two-address binary coded decimal (BCD) decoder for use in Dantel's 440 Communication Management System (CMS) or 440 Teleconference Management System (TMS) single station package. It is primarily used for:

- ◆ Station call
- ◆ All-call
- ◆ Group call decoding.

It can also be used for control functions such as:

- ◆ Initiation of loopback testing
- ◆ Utilization of "*" and "#" BCD data or "A" and "C" BCD data to provide a busy control output and clear output.

The 49018 subassembly also provides a toll restriction function and a ring generator ground enable output.

The 49018 is a plug-in printed circuit subassembly that fits into Dantel's 44020 DTMF Decoder Module. The front panel consists of three LEDs that indicate the station selected and if the "0" or "1" digit is dialed (toll restriction function). The front panel lines up with a cutout in the 44020's front panel to provide an integrated panel surface. The 49018 operates from -10VDC supplied by the host module.

Strap options include:

- ◆ One, two, or three digit address codes
- ◆ Reset in or out
- ◆ "*" or "#" BCD inputs to control the busy output circuit

"A" and "C" BCD for special applications when the "*" and "#" are used for other control control functions

CIRCUIT DESCRIPTION

The functional schematic for the 49018 Station Selector Subassembly is shown in Fig. 1. The circuit consists of:

- ◆ 6 miniature 10-digit code select switches
- ◆ Two output station drivers
- ◆ An address buffer latch
- ◆ Two address comparators
- ◆ A digit counter
- ◆ A clock pulse delay circuit
- ◆ Two station address latches
- ◆ An interdigit and reset timer
- ◆ A supervisory decoder
- ◆ A busy latch
- ◆ A busy reset pulse circuit
- ◆ “0” and “1” digit output drivers

In Dantel's 440 CMS and TMS single station package, the 49018 subassembly BCD address decoder is controlled by BCD inputs from the 44020 DTMF Decoder Module. The 49018 provides buffered outputs for two station addresses. It also includes buffered outputs for busy control, clear, and “0” and “1” digits. The outputs are applied to the 44022 Station Interface Module or the 44023 PABX/Trunk Interface Module of the 440 CMS or TMS.

Miniature 10-digit switches on the 49018 subassembly are used to preset the two address codes (station 1 and station 2). These codes can be one, two, or three digits each. When the correct incoming BCD address is decoded, the respective station driver is grounded. At the same time, the 49018 provides a ground enable output for the ring generator start.

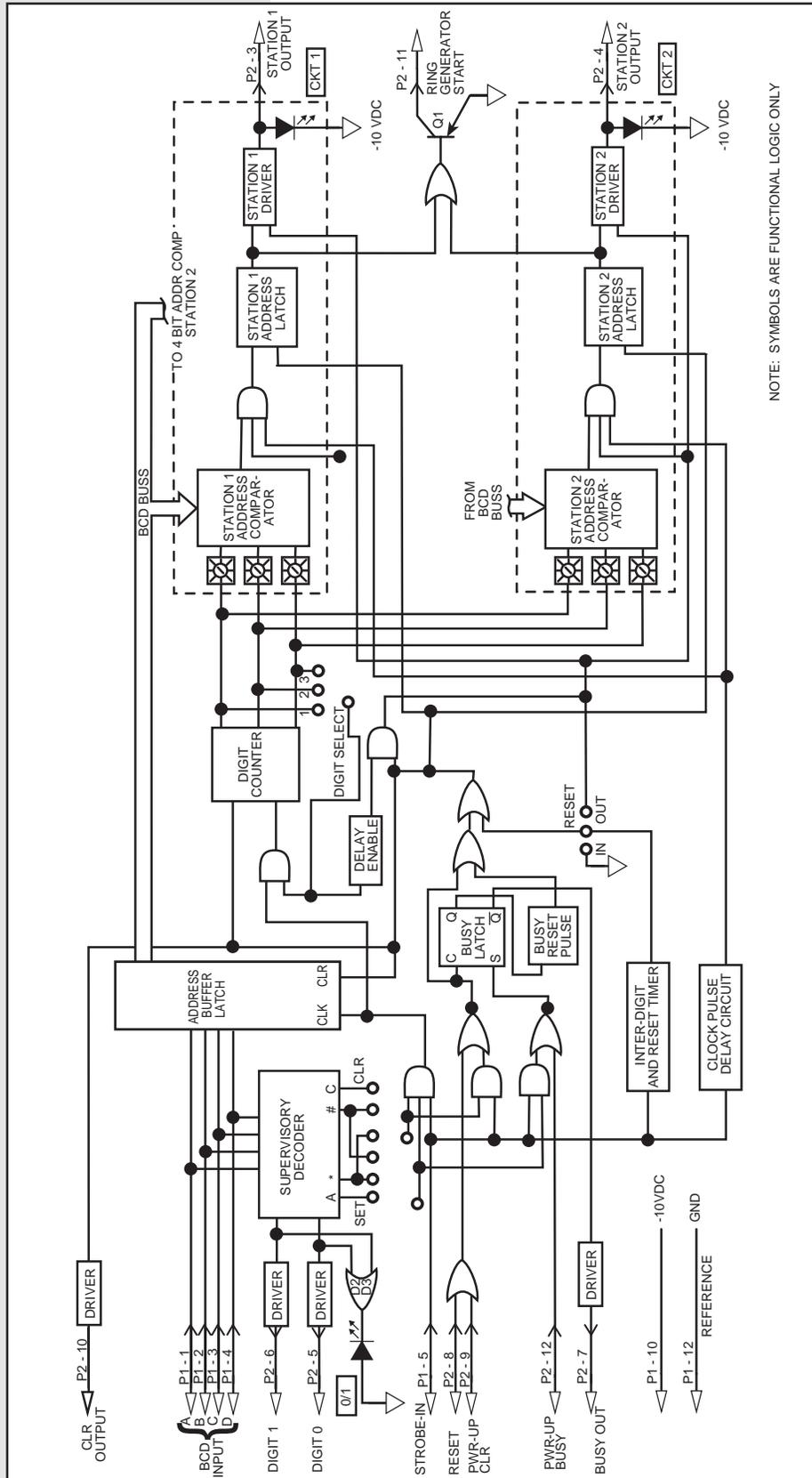
Decoding

The BCD digit inputs from the 44020 DTMF Decoder are loaded into the address buffer latch using pins P1-1, -2, -3, and -4. The digits are loaded on the positive edge of the strobe pulse input at P1-5. The address buffer latch remains in a set state and its output is applied to both station address comparators.

Refer to Fig. 2 for 49018 Subassembly-to-Host Module pin connections.

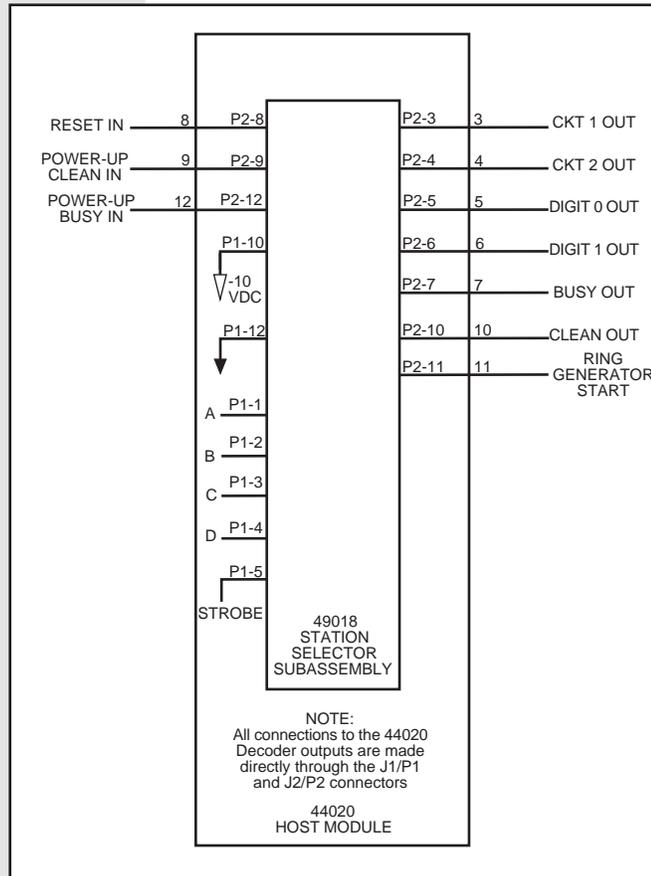
CIRCUIT DESCRIPTION

Fig 1 - 49018 FUNCTIONAL SCHEMATIC



CIRCUIT DESCRIPTION

FIG. 2 - 49018 SUBASSEMBLY-TO-HOST MODULE PIN CONNECTIONS



The strobe pulse also advances the digit counter which counts up to three digits. Additionally, the strobe pulse initiates a clock pulse output from the clock pulse delay circuit to gate the station address latches. During the digit count, selected by the digit strap option, the address in the address buffer latch is compared to the preset address code selected by the miniature 10-digit switches. If the code matches, the matching station address latch is not set and the corresponding station drivers (1 or 2) output (P2-3 or P2-4) is enabled (grounded).

The last digit, whether the digit strapping is a one, two, or three-digit code, will inhibit additional clock pulses from entering the digit counter. When a station driver is enabled, the corresponding front panel LED will light.

The busy control output can be activated internally or externally. This circuit provides a ground output at P2-7 that can be used to apply a busy tone to a subscriber phone or outside line. The busy output can be activated internally when a "*", "#", or "A" BCD input (depending on strapping) is decoded. The busy output can also be activated by an external "Power-up Busy" input at P2-12.

CIRCUIT DESCRIPTION

Clearing

The 49018 can be cleared internally or externally. When strapped for internal clearing, the digit counter is restored three seconds after a complete code is received, whether it is valid or not. When strapped for external clearing, the busy circuit and the digit counter are restored by a “Power-up Clear”, a “Reset” input, or by internal decoding a “*”, “#”, or “C” BCD input, depending on strapping.

Internal Clearing: When the reset strap is IN, the interdigit timer and reset circuit clears the entire station decoder three seconds after the last digit is entered, or if three seconds pass between digits. If the reset strap is OUT, the circuit will not reset after the last digit, but will reset if three seconds pass between digits.

External Clearing: Three modes external clearing can be used to clear or reset the 49018 subassembly:

- ◆ A reset (ground) is provided from the station or PABX/Trunk Interface Module (44022 or 44023) at P2-8 or a “Power-up Clear” at P2-9.
- ◆ The second mode is provided when the “#” or “*” BCD outputs of the supervisory decoder are strapped to the clear and set outputs. Normally, the “#” is used to set the busy latch and the “*” will clear the busy latch. This function can be set to reverse the busy latch operation. The busy latch, when set, provides a ground at P2-7 and applies a reset pulse through the busy reset pulse circuit to clear the 49018 and prepare it to accept the next address. The busy latch remains set until it is cleared by the external reset, “Power-up Clear”, or an internal BCD output from the supervisory decoder.
- ◆ The third mode can be used when the “A” and “C” BCD codes are strapped IN and perform the same functions as described for the “#” and “*” BCD supervisory decoder outputs.

Power-up Busy

A power-up busy input at P2-12 is provided to set the busy latch when the power-up signal from the 44020 DTMF Decoder Module is received. The busy latch may be cleared by external or internal sources as described above.

Clear Output

A clear output (ground) is applied to the 44022 or 44023 interface modules using P2-10 each time the 49018 is cleared.

Toll Restriction Outputs

A toll restriction output is provided whenever a “0” or “1” BCD signal is decoded by the supervisory decoder. The “0” or “1” outputs do not require a reset code. They are applied through respective buffer drivers at P2-5 or P2-6 to an external device when toll restriction to a public telephone is desired.

CIRCUIT DESCRIPTION

Ring Start Output

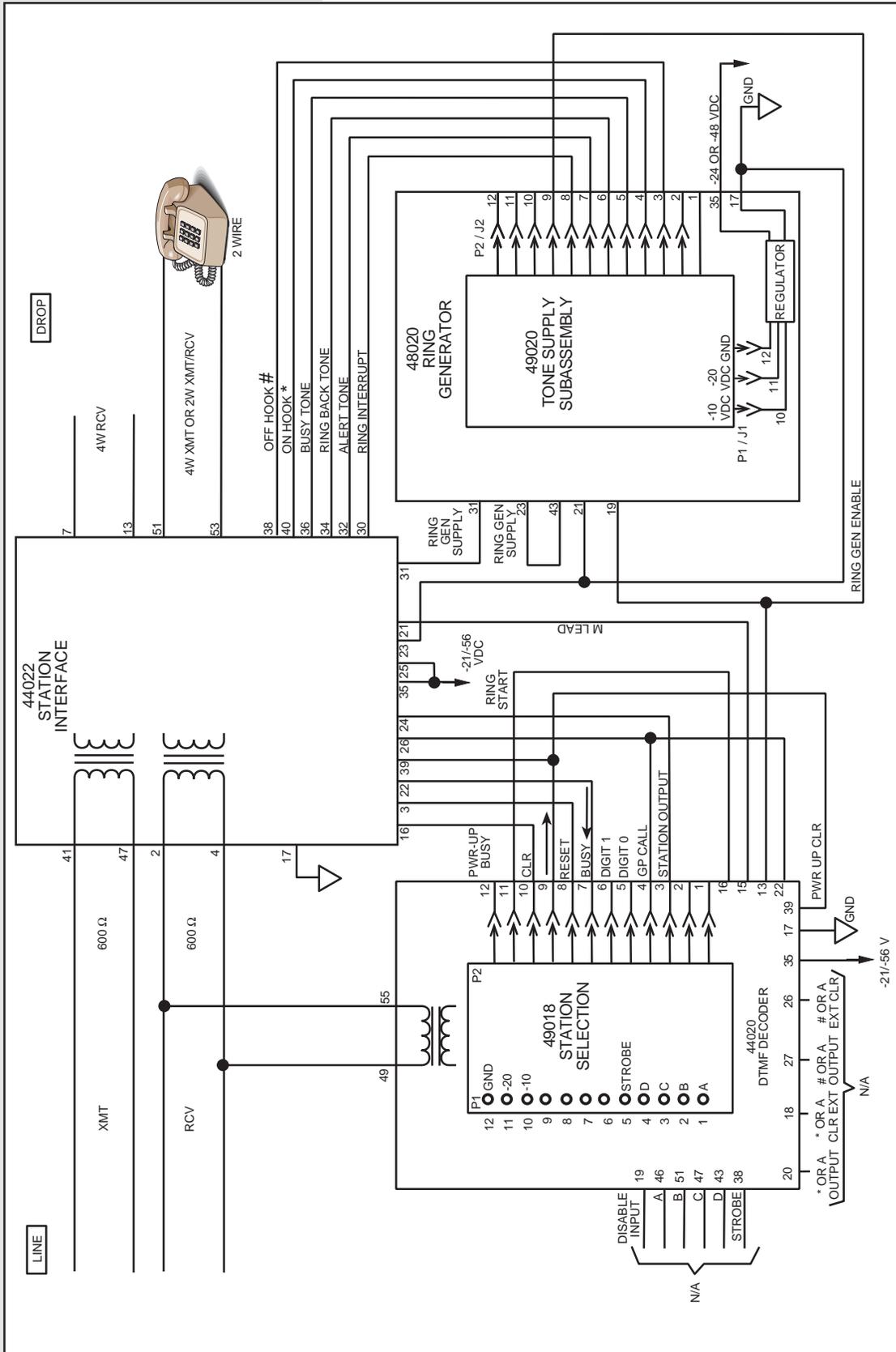
A ring generator enable (ground) output is applied to the 48020 Ringing Generator Module and the 49020 Tone Supply Subassembly using P2-11 when an address has been selected. This output is switched to ground through the open collector of Q1. The ground enables the ring generator and the ring/ring back interrupt functions.

APPLICATION INFORMATION

The 49018 subassembly is mounted to a 44020 DTMF Decoder Module in a 440 CMS or TMS single station package. The 44020 module provides power and all input/output connections to the 49018. Fig. 3 shows a typical order wire application.

APPLICATION INFORMATION

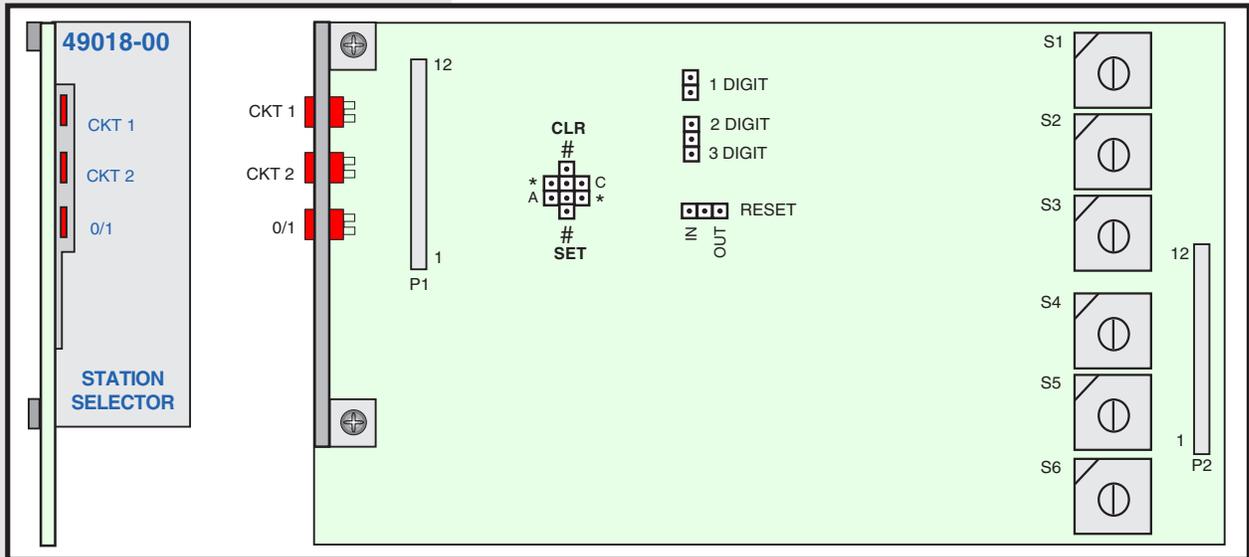
FIG. 3 - 49018 SUBASSEMBLY APPLICATION DIAGRAM



INSTALLATION

The four straps used on the 49018 subassembly are described below. Refer to Fig. 4 and Table A.

FIG. 4 - 49018 SWITCH AND STRAP LOCATIONS



Clear and Set Straps:

The clear and set straps provide selection of “#” and “*” or “A” and “C” BCD outputs to the supervisory decoder. “#” and “*” are normally strapped to set and clear, respectively, the busy latch circuit, and station one and two address latches when a 12-button DTMF phone pad is used. The “A” and “C” BCD outputs are strapped when the “#” and “*” functions are used for other applications

Reset Strap:

When strapped IN, the internal reset is initiated after three seconds or after three seconds have passed between digits. When strapped OUT, reset is controlled externally as described in the *Circuit Description* section of this manual.

Digits:

The digits straps provide selection of one, two, or three digit address codes.

INSTALLATION

TABLE A - 49018 STRAP OPTIONS

| OPTION | STRAP SETTING OR SWITCH |
|--------------------------------|-------------------------|
| RESET | |
| Self reset in 3 seconds | Reset IN |
| External or decoded tone reset | Reset OUT |
| NUMBER OF DIGITS | |
| One-digit codes | Digit 1 |
| Two-digit codes | Digit 2 |
| Three-digit codes | Digit 3 |
| CIRCUIT 1 CODE | |
| First digit | S1 |
| Second digit | S2 |
| Third digit | S3 |
| CIRCUIT 2 CODE | |
| First digit | S4 |
| Second digit | S5 |
| Third digit | S6 |
| BUSY/RESET (WITH TONE) | |
| Busy with * | SET * |
| Reset with # | CLR # |
| Busy with # | SET # |
| Reset with * | CLR * |
| Busy with A | SET A |
| Reset with C | CLR C |

Installation

Verify that the option straps are installed as desired

Remove the hole plug from the front panel of the 44020 host module. Insert P1 and P2 of the 49018 subassembly into J1 and J2 of the 44020, ensuring that all the pins go in straight. The subassembly should sit down on the standoffs and appear straight in the 44020's cutout. Secure with two screws in the mounting standoffs.

Checkout

Refer to Table B for checkout procedure.

INSTALLATION

TABLE B - 49018 SUBASSEMBLY CHECKOUT PROCEDURE

| STEP | ACTION | RESULTS |
|------|---|---|
| 1 | Remove power from shelf | |
| 2 | Install 49018 Subassembly as described in <i>Installation</i> section | |
| 3 | Verify strapping: A. Busy/Reset (1) SET * (2) CLR # (or per application) B. Reset OUT C. Digits 1,2, or 3 | |
| 4 | Install 44020 with 49018 subassembly on extender card and insert in shelf. | |
| 5 | Apply power to shelf | Power-up Clear resets all 49018 subassembly circuits |
| 6 | On phone dial pad, press Station 1 numbers as set on S1, S2, and S3. | CKT 1 LED on front panel comes ON. Station 1 44022 or 44023 functions activate. |
| 7 | Press # (or selected "clear" code). | All 49018 circuits clear. |
| 8 | Press * (or selected "busy" code). | 44022 or 44023 shows "busy" condition. |
| 9 | On phone dial pad, press Station 2 numbers as selected on S4, S5, and S6. | CKT 2 LED on front panel comes ON. Station 2 44022 or 44023 functions activate. |
| 10 | Press and hold the "1" digit. | Front panel 0/1 LED comes ON. |
| 11 | Release the "1" digit. | 0/1 LED goes OFF. |
| 12 | Press and hold the "0" digit. | 0/1 LED comes ON. |
| 13 | Release the "0" digit. | 0/1 goes OFF. |
| 14 | Remove power from shelf. | |
| 15 | Remove extender card, ensuring straps are set for system operation. | |
| 16 | reinstall 44020 in shelf and apply power. | |

OPERATION

The 49018 subassembly is operated as an integral part of the 440 system single-package operation. When a station is dialed, verify that CKT#1 or CKT#2 LED comes ON as appropriate. If the toll restriction is in use, verify that the 0/1 LED comes ON when a "0" or "1" is pressed on the phone keypad.

NOTE: *The toll restriction does not have to be connected for the 0/1 LED to light when the "0" or "1" key is pressed.*

TECHNICAL SPECIFICATIONS

| DESCRIPTION | VALUE |
|--|---|
| Input Voltage Range | -10 ± VDC (from host module) |
| Input Power Requirements | |
| Idle | 0.7 mA |
| Full Load | 18.0 mA |
| Heat Dissipation | |
| Idle | 0.03 BTU/Hr. |
| Full Load | 0.62 BTU/Hr. |
| Inputs: BCD, Power-up Clear, Reset, Power-up Busy | CMOS, 100K ohms to -10 VDC, Logic 1 = 0 ± 0.5VDC (ground), Logic 0 = 10 ± 0.5VDC, Decoded state is Logic 1 |
| Outputs: Station 1, Station 2, Clear, Digit "1" or "0", Busy | Open Drain 200 mA, -21 to -56VDC, Logic 1 = 0 ± 0.5VDC (ground), Logic 0 = 10 ± 0.5VDC, Decoded state is Logic 1 |
| Ring Generator Start | Open Collector 50 mA, -56VDC max., Logic 1 = 0VDC (ground), Decoded state is Logic 1 |
| Station Outputs | 2 (CKT 1 and CKT 2), strappable for 1, 2, or 3 digits |
| Valid Codes | BCD 1 thru 9 and 0 for CKT 1 & 2, "*" & "#" or A & C for clear or busy |
| Clear Output | Occurs on reset input, power-up clear input or reset as specified below |
| Reset Modes | |
| Interdigit Time Out | 3 seconds nominal between digits |
| Reset | Strappable for self-clear 3 seconds after decoding, triggered clear from external device or from "*", "#", or "C" tone. |
| Physical Dimensions | 5.0" x 2.9" x 0.9" |
| Weight | 2.2 Oz. |
| Operating Temperature Range | 0 to 60° C |

NOTES

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 Customer Support Services 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



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