258X Mounting Assemblies

Contents

1. General

1.1 The 258X Mounting Assemblies are a family of 16-position, 483mm (19-inch) rack-mount echo canceller enclosures designed to support Tellabs E1 echo canceller applications.

Configurations

1.2 Five models of the 258X Mounting Assembly are available. Three are electromagnetic com-patiblility (EMC) -compliant, and these are equipped with a metal front door and metal covers over the upper and lower portions of their printed-circuit-board backplanes. **Removal of one or more of these items causes the assembly to become non-EMC-compliant.** Table 1-1 lists the 258X assemblies and their distinguishing characteristics.

model	impedance	EMC compliant	PCM (E1) connector type
258E	75 ohms	yes	BNC
258F	120 ohms	yes	wire-wrapping
258J	75 ohms	no	BNC
258K	120 ohms	no	wire-wrapping
258M	75 ohms	yes	mini-coax (1.6/5.6)

Table 1-1   Product Feature Matrix

Features

1.3 The 258X Mounting Assemblies provides the following features:
- capacity of sixteen 2581/2582 modules **OR** of fourteen 2581/2582 modules when an optional 2581MC/2582MC Master Canceller is installed in slot 15
- 483mm (19-inch) mounting, standard; 584mm (23-inch) mounting, optional
- shipped center-mount (projected) standard, or can be configured to flush-mount by customer
- slots for redundant 5140A plug-in dc power converters (one converter is mandatory)
- dc input power range of –40 to –75Vdc (nominal –48Vdc), positive ground
- 75-ohm BNC, 75-ohm mini-coax (1.6/5.6), or 120-ohm wire-wrapping PCM (E1) connec-tors (model-dependent)

• two V.24 serial communication ports (SCPs) with daisy-chaining capability for each port
• wire-wrapping alarm contact outputs for urgent, deferred, and service alarms
• designed for BABT Safety compliance

Accessories

1.4 The following accessories are available for the 258X Mounting Assemblies:
• cable, 25-pin male to 25-pin male D-subminiature connector, 0.6m (2 feet) long, 50.8003
• cable, 25-pin male to 25-pin male D-subminiature connector, 1.5m (5 feet) long, 50.8005
• mounting adapter ears for 584mm (23-inch) relay racks, 81.053010
• 2U heat baffle, 80.2187

Reference Documents

1.5 For additional information, please refer to the following Tellabs manuals:
• 2581 and 2582 E1 Echo Canceller Modules practice, part no. 76.81258X
• 2581MC and 2582MC Master Cancellers practice, part no. 76.81258XMC
• 5140X Power Converter Modules practice, part no. 76.815140X
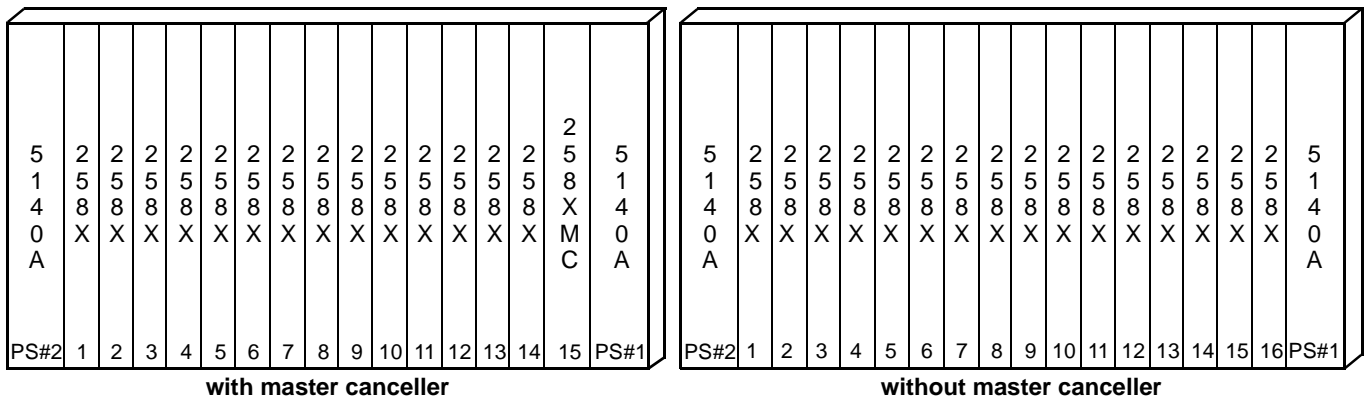
Reason for Revision/Reissue

1.6 This practice section is revised to add information on the 258M Mounting Assembly and to clarify information on connections and switch settings for daisy-chained 258X assemblies.

2.   Applications

2.1 The 258X Mounting Assemblies provides the following significant advantages:
• They represent a high-density, space-efficient solution for sites with high-volume applications and where space is limited.
• They operate over a wide range of dc input power.
• They offer the capability of integral dc power-converter redundancy.

Note: Tellabs recommends that two dc power converters be used in the 258X Mounting Assemblies. With redundant dc power converters, if one fails, the other has the capacity to carry the entire load.

2.2 Figure 2-1 shows a 258X Mounting Assembly equipped for 258 applications both with and without a master canceller.

Note: In the arrangement on the left, the 258XMC module must be in slot 15 to configure the other modules.

Figure 2-1   258X Mounting Assembly, Front View

Note: Rear views of the 258X Mounting Assemblies are shown in Section 3.

3. *Installation*

Inspection

3.1 Inspect the 258X Mounting Assembly upon its arrival to determine any possible shipping damage. If damage is found, immediately file a claim with the carrier. If the mounting assembly is stored, reinspect it again prior to installation.

Mounting

3.2 The 258X assembly installs in a 483mm (19-inch) standard relay rack. When equipped with the optional mounting ears (part no. 81.053010), the assembly can be installed in a 584mm (23-inch) relay rack. In either case, the assembly occupies 257mm (10.1 inches) of vertical rack space.

3.3 Tellabs recommends that one 2U heat baffle (part no. 80.2187) be installed between each 258X mounting assembly for ventilation. This heat baffle occupies 89mm (3.5 inches) of vertical rack space (two mounting spaces). Figure 3-1 shows this mounting arrangement.
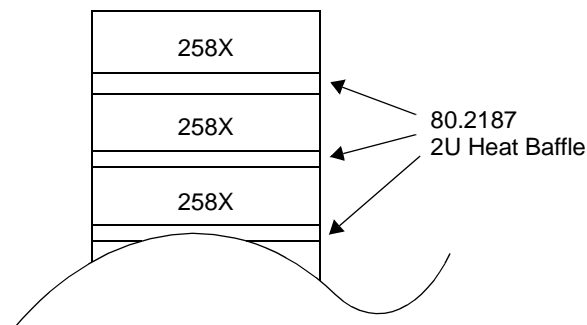

Figure 3-1   Mounting Assembly Arrangement with 2U Heat Baffles

Connections

Warning: **Wire-wrapping pins are static-sensitive. Transmission errors or resets of 258 Echo Cancellers may occur if a grounded wrist strap is not worn to protect against damage from static discharge.**

Danger: **Improper connection of the equipment to a power source can be hazardous. Therefore, be certain to connect the equipment to a –48Vdc supply source that is electrically isolated from the ac source. The –48Vdc source must be reliably connected to earth ground.**

3.4 The 258X Mounting Assemblies are equipped with screw-type connectors for power; wire-wrapping connectors for alarms; BNC, wire-wrapping, or mini-coax (1.6/5.6) connectors for E1 circuit (PCM) connections; and DB25 connectors for the V.24 SCPs (for keyboard control).

3.5 Figures 3-2, 3-3, and 3-4 show the backplanes of the BNC, wire-wrapping, and mini-coax versions, respectively, of the 258X asssemblies. Please note that the lower portion of each version's backplane is identical. The versions shown are all EMC-compliant models, which

have their connector and switch labeling on their metal rear covers. The non-EMC-compliant models are labeled in a similar manner directly on their printed-circuit-board backplanes and V.24-port subassemblies. Information on the connectors and option switches on the backplanes are covered individually later in this section.
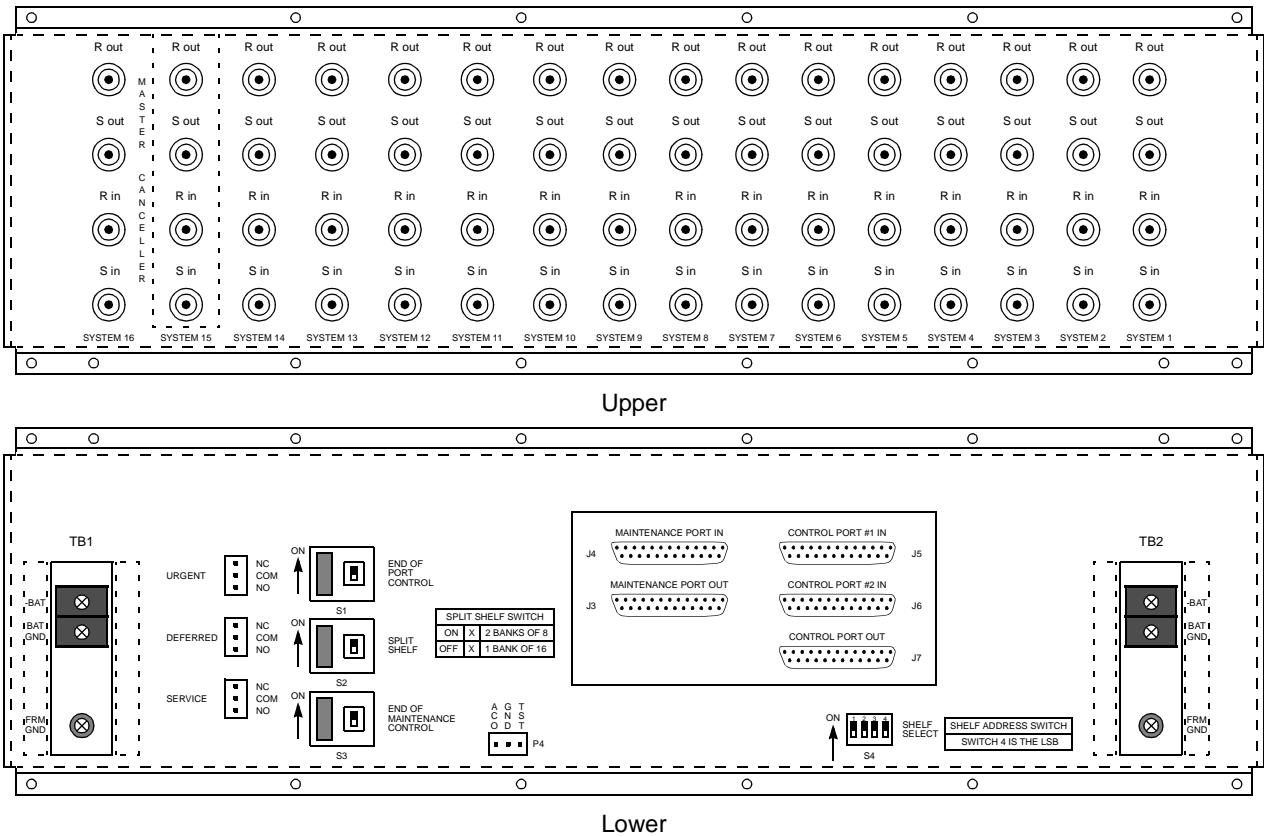

Upper

Lower

Figure 3-2   258E Mounting Assembly with BNC-Type PCM Connectors on Upper Portion
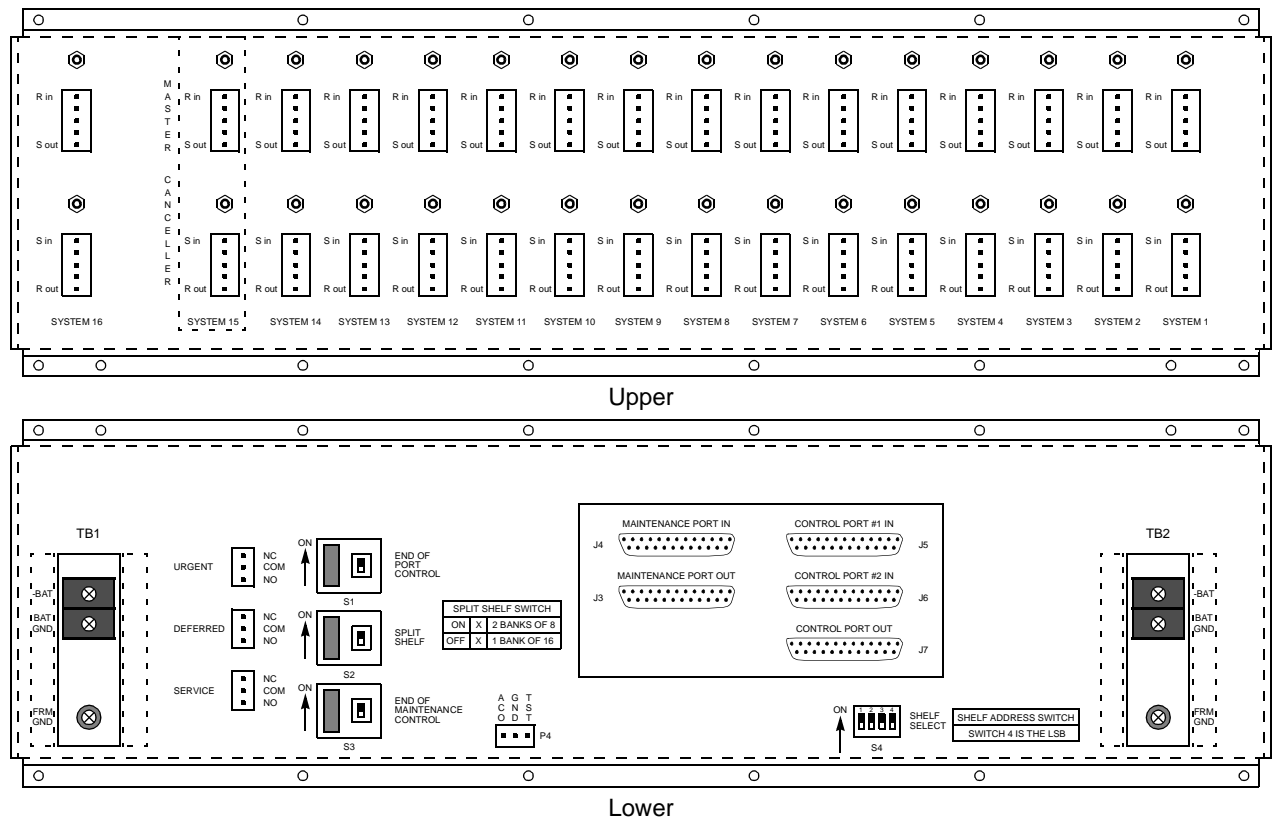
Upper

Lower

Figure 3-3   258F Mounting Assembly with Wire-Wrapping PCM Connectors on Upper Portion
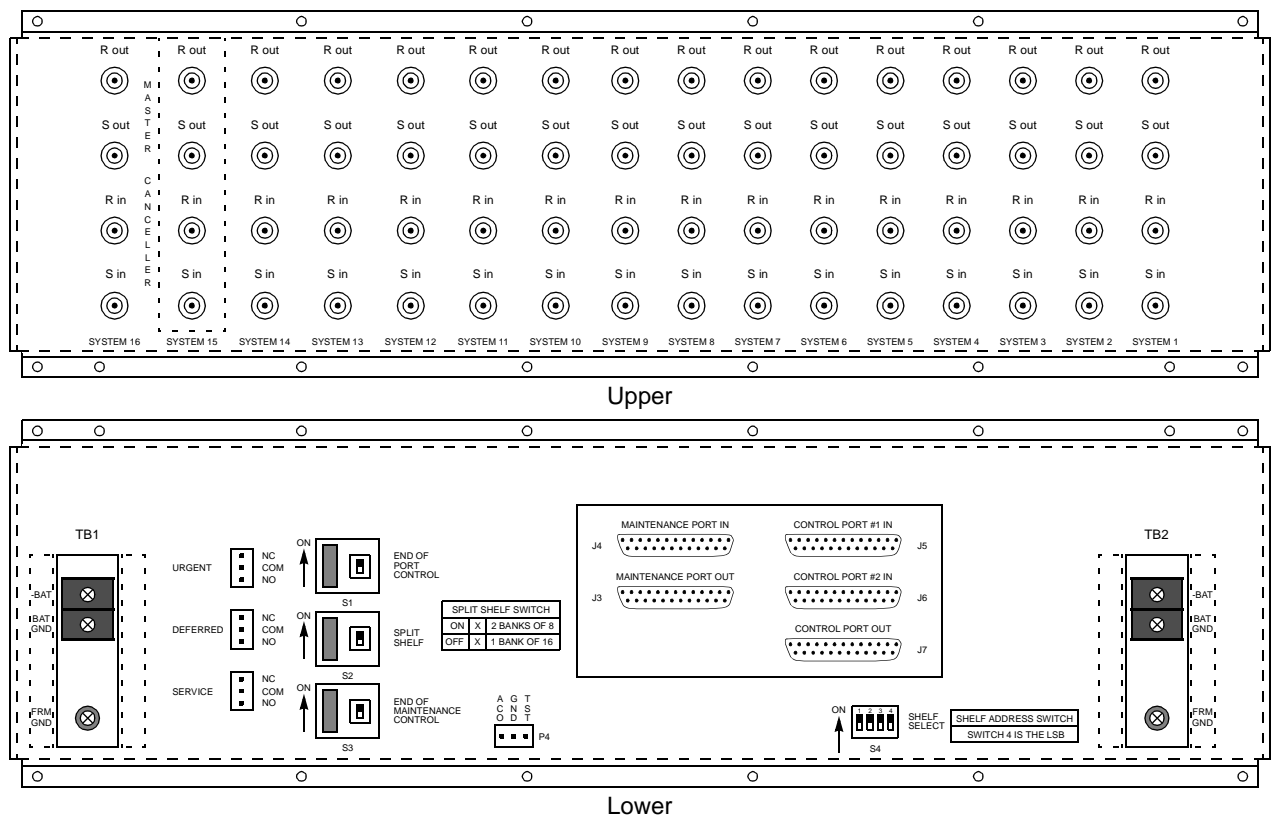
Upper

Lower

Figure 3-4   258M Mounting Assembly with Mini-Coax PCM Connectors on Upper Portion

Power Connections

3.6 Input-power connections to the 258X assemblies are made to barrier-type terminal blocks **TB1** and/or **TB2** on the lower portion of the assembly backplane. These two terminal blocks are isolated from one another. If one power converter is used (see the note following paragraph 2.1), –40Vdc to –75Vdc power (positive ground referenced) must be applied to the terminal block behind the slot for that one converter. If redundant power converters are used, power must be applied to both **TB1** and **TB2**.

PCM Connections

3.7 The PCM (E1) connections are made to the connectors on the upper portion of the assembly backplane. These connectors are of three types, depending upon 258X model: 75-ohm BNC (258E and 258J), 120-ohm wire-wrapping (258F and 258K), and 75-ohm mini-coax (1.6/5.6) (258M). Figure 3-5 shows the three types of connectors enlarged and with their electrical connections identified. (The locations of these connectors on the assembly backplanes are shown in Figures 3-2, 3-3, and 3-4 above.)
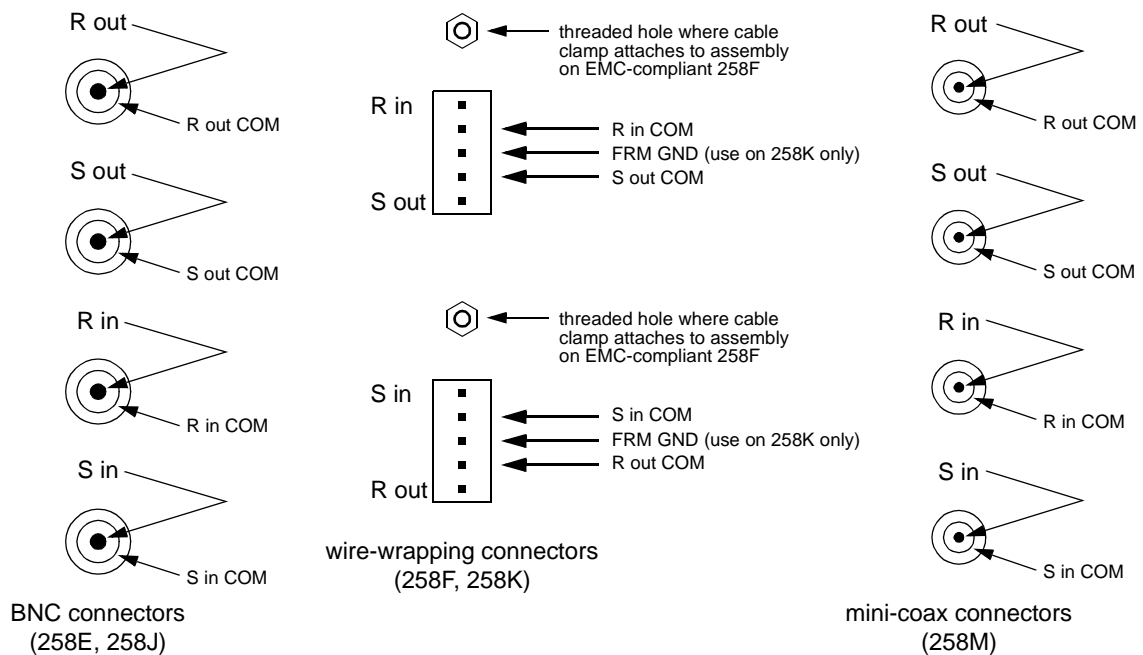

Figure 3-5   PCM Connectors Enlarged to Show Electrical Connection Detail

Ground Connections

3.8 For the EMC-compliant mounting asemblies, frame ground (FRM GND) is connected to the cable shields of the PCM connectors as follows:

• For the 258E assembly (75-ohm BNC-type PCM connectors), **R in COM** and **S in COM** are capacitively coupled to frame ground while **R out COM** and **S out COM** are hard-wired to frame ground.

• For the 258M assembly (75-ohm mini-coax PCM connectors), **R in COM**, **S in COM**, **R out COM**, and **S out COM** are all hard-wired to frame ground.

• For the 258F assembly (120-ohm wire-wrapping PCM connectors), separate frame ground connections must be made by the installer. This is done by attaching the exposed shield of each cable to the assembly via the cable clamp associated with the connector (the cable clamps are supplied with the assembly). This provides a significantly more robust connection than a drain-wire connection to the FRM GND pin on the wire-wrapping connector.

3.9 For the non-EMC-compliant 258J assembly, no frame ground connection is made to the cable shields of its 75-ohm BNC-type PCM connectors. For the non-EMC-compliant 258K assembly, the frame ground connections are made by attaching each cable's drain wire to the frame ground (middle) pin on the associated 120-ohm wire-wrapping connector.

Alarm Connections

3.10 Normally closed (**NC**), common (**COM**), and normally open (**NO**) wire-wrapping terminals for the **URGENT**, **DEFERRED**, and **SERVICE** alarm output contacts are provided. Individual mounting-position alarms, however, are not provided.

3.11 Urgent alarms are caused by the following:
- loss of signal, framing loss, multiframe (MF) sync loss, or excessive bit error rate (BER) at the send-in or receive-in ports
- self-test failure of all channels
- internal module fault
- total loss of +5V supply

3.12 Deferred alarms are caused by the following:
- BER (remote) alarm MF Remote at the send-in and receive-in ports
- alarm indication signal (AIS) or MF AIS received at the send-in and receive-in ports
- self-test failure of one or more channels
- single power-converter failure

3.13 Service alarms are activated to alert personnel to urgent or deferred alarms.

> **Note:** **Refer to individual echo canceller practices for additional specific information regarding alarms.**

Serial Communication Port Connections

3.14 The 258X Mounting Assembly provides two V.24 SCPs: the Control Port and the Maintenance Port. Up to eight mounting assemblies (128 echo cancellers) can be daisy-chained on either or both SCPs. Connections to the SCPs are made via 25-pin female D-subminiature connectors on the V.24 port subassembly mounted on the assembly backplane. Instructions for making these connections are provided later in this section.

3.15 The port with the higher priority is the Control Port. It is used with digital switching equipment when such equipment provides a direct interface for controlling the individual channels of the cancellers. This port can also support all the maintenance access, software downloading, and other functions normally intended for the Maintenance Port. If desired, the assembly can be partitioned (via switch option) into two groups of eight cancellers each. With the assembly partitioned in this manner, two Control Ports are made available. Details on this option are provided in paragraphs 3.20 through 3.22.

3.16 The Maintenance Port is used primarily for maintenance activities that do not require real-time speed, e.g., system-level commands, menu-driven software, and software downloads. (For example, the Maintenance Port normally handles the optioning process and also allows for reviewing alarm history information and viewing the performance screen.) These maintenance-type functions are accommodated through this port, leaving the Control Port free to handle live traffic on a priority basis. Because these commands are exercised on a relatively infrequent basis, slow access time is not a significant factor.

> **Note:** **The master canceller interrupts maintenance communications while its display is active.**

3.17 Baud rates for each port are independently adjustable and can be set to any one of the following: 300; 600; 1200; 2400; 4800; 9600; 19,200; or 38,400 baud. This is done either via the Master Canceller (if present) or a terminal. See the applicable echo canceller manual for details.

Alarm Cutoff, System Ground, and Test Connections

3.18 Alarm cutoff, system ground, and test connections are made to connector **P4**, a three-pin wire-wrapping terminal, as described below.

- Grounding the **ACO** (alarm cutoff) pin turns off external alarm indicators (typically, these are external audible alarms). The **ACO** pin is normally connected to ground via a push-button (or other switch) that allows for manual activation of the ACO function.

- The **TST** (test) pin is connected to the **GND** (system ground) pin to perform a flash down-load of system software when doing a firmware upgrade. Please refer to the Tellabs *2500-Series Universal Firmware Download Program (UFDP)* manual (practice section 812500UFDP) for instructions on performing such a firmware upgrade.

Option Switch Overview

3.19 The dual in-line packaged (DIP) switches (**S1** through **S4**) enable the user to:

- determine how the assembly's backplane bus and Control Port are partitioned (**S2**).

- when multiple assemblies are deployed on a daisy chain, set a unique shelf address (position on the chain) for each mounting assembly (**S4**).

- identify the mounting assembly as the last (or only) assembly on a daisy chain (**S1** and **S3**).

Instructions for setting these switches are provided below.

Switch Settings and Cable Connections for Assembly Partitioning

SPLIT SHELF Option Switch Settings

3.20 The **SPLIT SHELF** switch (**S2**) allows partitioning of the 258X assembly's backplane bus, which normally addresses all 16 echo cancellers in the shelf, into 2 groups of 8 cancellers each. With the assembly configured for one 16-canceller group, a single Control Port is established. With the assembly partitioned into two 8-canceller groups, two separate Control Ports are established, with Control Port #1 addressing cancellers 1 through 8 and Control Port #2 addressing cancellers 9 through 16. Details on these arrangements follow.

3.21 With **S2** in the **OFF** (down) position, a single Control Port addresses all 16 echo cancellers in the assembly. Up to eight 258X assemblies optioned in this manner can be daisy-chained to DTE via their Control Ports, in which case up to 128 echo cancellers are addressed via a single Control Port (see note below). Refer to paragraph 3.17 above for baud-rate option selections and to Table 3-1 below for a switch setting summary. Information on making Control-Port daisy-chain connections appears later in this section.

Note: **Although up to 8 assemblies (128 echo cancellers) can be daisy-chained via the Control Port, Tellabs recommends that users minimize the chaining together of Control Ports for the following reasons:**

1. **If the baud rate is not at maximum or if simultaneous status changes occur on many channels on the link, the cumulative echo canceller response time (for status changes) can increase drastically. This either slows traffic down on the switch or slows the activation of echo cancellation at the beginning of the call.**

2. **If the Control Port fails, communication is lost to *ALL* channels.**

3.22 With **S2** in the **ON** (up) position, two separate Control Ports that address eight cancellers each are established for the mounting assembly. Some customers use this capability to ensure that the individual channel-control activity is not blocked or disrupted in any manner under high-traffic conditions on the bus. Refer to paragraph 3.17 above for baud-rate option selections and to Table 3-1 below for a switch setting summary. Please be aware that Control-Port daisy-chaining of 258X assemblies optioned for two Control Ports **is not possible**.

assembly partitioning arrangement	switch S2 position
one bank of 16 echo cancellers	OFF (down)
two banks of 8 echo cancellers	ON (up)

Table 3-1   Switch S2 Setting Summary

Cable Construction and Connection to DTE

3.23   Two 25-pin female D-subminiature connectors, **J5** (labeled **CONTROL PORT #1 IN**) and **J6** (labeled **CONTROL PORT #2 IN**), are provided for connecting DTE to the Control Port(s). When only a single connection is made (if the user intends to address all 16 canceller positions from a single digital-switch connection), connector **J5** is used. When two connections are made (if the user intends to address two groups of eight canceller positions from two digital-switch connections), connectors **J5** and **J6** are both used.

Note: Connector *J7* (labeled *CONTROL PORT OUT*) is used only when two or more 258X assemblies are to be daisy-chained to one another via their Control Ports. See paragraphs 3.30 and 3.31 for information on making Control-Port daisy-chain connections.

3.24   With the 258X Mounting Assembly configured for **one bank of 16 echo cancellers**:

- Connect a straight-through cable wired as shown in Figure 3-6 from the data terminal equipment (DTE) to connector **J5** on the 258X assembly's V.24 port subassembly.

With the assembly configured for **two banks of 8 echo cancellers**:

- Connect a straight-through cable wired as shown in Figure 3-6 from DTE No. 1 (DTE 1) to connector **J5** on the 258X assembly's V.24 port subassembly for echo cancellers 1 through 8.
- Connect a straight-through cable wired as shown in Figure 3-6 from DTE No. 2 (DTE 2) to connector **J6** on the 258X assembly's V.24 port subassembly for echo cancellers 9 through 16.
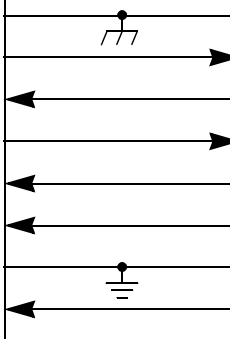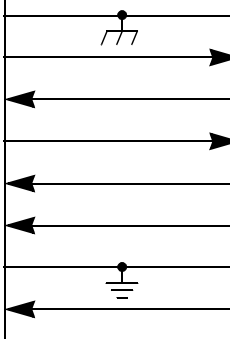
DTE side		Cable Wiring	258X side (data communication equipment [DCE])	
signal	pin no.		pin no. (J5 or J6)	signal
FRAME GND	1		1	FRAME GND
TXD	2	→	2	TXD
RXD	3	←	3	RXD
RTS	4	→	4	RTS
CTS	5	←	5	CTS
DSR	6	←	6	DSR
GND	7		7	GND
DCD	8	←	8	DCD
DTR	20	→	20	DTR

Figure 3-6   258X-Assembly Control-Port-to-DTE Cable Wiring

Shelf Addressing in Daisy Chains

3.25 Shelf addressing in a daisy chain is assigned via four-position **SHELF SELECT** DIP switch **S4**. This switch must be correctly set for proper communication with each 258-series echo canceller in the chain. The slot or canceller address is the same for the Control Port and Maintenance Port. (Stated another way, regardless of which SCP is being used, the address of a particular slot is the same.) A daisy chain from the Control Port, the Maintenance Port, or both ports can be configured. If daisy chains from both ports are used, the chains can contain the same number or different numbers of assemblies. If the chains contain different numbers of assemblies, switch **S4** on each assembly must be set in accordance with its position on the **longer** chain.

3.26 See Table 3-2 for setting shelf addresses via switch **S4**. As mentioned above, up to 8 assemblies (128 slots) can be programmed. Note that the **S4** address settings for positions 1 through 8 on the daisy chain equate to 0 through 7 binary, respectively.

SHELF SELECT switch (S4) settings				mounting assembly position in daisy chain
S4-1	**S4-2**	**S4-3**	**S4-4**	
0 (ON)	0 (ON)	0 (ON)	0 (ON)	1
0 (ON)	0 (ON)	0 (ON)	1 (OFF)	2
0 (ON)	0 (ON)	1 (OFF)	0 (ON)	3
0 (ON)	0 (ON)	1 (OFF)	1 (OFF)	4
0 (ON)	1 (OFF)	0 (ON)	0 (ON)	5
0 (ON)	1 (OFF)	0 (ON)	1 (OFF)	6
0 (ON)	1 (OFF)	1 (OFF)	0 (ON)	7
0 (ON)	1 (OFF)	1 (OFF)	1 (OFF)	8

Table 3-2   SHELF SELECT Switch (S4) Settings

Connections and Switch Settings for Non-Daisy-Chained 258X Assemblies

3.27 For a non-daisy-chained 258X assembly (i.e, for a single 258X assembly connected to digital switching equipment), connections from DTE to the assembly's one or two Control Ports (connectors **J5** and **J6** [DCE]) are made via the straight-through cable shown above in Figure 3-6. See paragraphs 3.23 and 3.24 for instructions.

3.28 Connections from DTE to the Maintenance Port (connector **J4** [DCE]) of a non-daisy-chained 258X assembly are made via the straight-through cable shown below in Figure 3-8. This cable can also be connected to the front panel of the echo canceller.

3.29 Set the option switches on a non-daisy-chained 258X assembly as follows:

- **S1** (**END OF PORT CONTROL**) to **ON**.
- **S2** (**SPLIT SHELF**) as required for either one or two Control Ports; see paragraphs 3.19 through 3.22 above.
- **S3** (**END OF MAINTENANCE CONTROL**) to **ON**.
- **S4** (**SHELF SELECT**): don't care. Although switch **S4** is essentially nonfunctional in a single-shelf application, it is recommended in such applications that all positions of **S4** be set to **0** (**ON**), denoting position 1.

Connections and Switch Settings for Control-Port Daisy Chain

> **Note:** See paragraphs 3.24 and 3.23 for information on connector usage for Control-Port daisy chains.

3.30 Connector **J7** (labeled **CONTROL PORT OUT**), a 25-pin female D-subminiature connector, is used only when two or more 258X assemblies are to be daisy-chained to one another via their Control Ports (see note below). In this case, connector **J7** connects to connector **J5** on the next 258X assembly in the daisy chain.

> **Note:** Remember that only 258X assemblies whose backplane buses are configured to address all 16 cancellers in the assembly (i.e., assemblies with one Control Port) can be daisy-chained via their Control Ports. Thus, switch *S2* on all assemblies in a Control-Port daisy chain must be set to *OFF* (down).

3.31 Up to eight 258X Mounting Assemblies can be placed on the same V.24 Control-Port daisy chain. Connections to the first mounting assembly in the daisy chain are made via the straight-through cable shown above in Figure 3-6. Connections between assemblies in the daisy chain are made via the straight-through cable shown below in Figure 3-7 (see Figure 3-8 for the correct Control-Port daisy-chain setup).

from J7 in daisy dhain (DCE)		cable wiring	to J5 in daisy chain (DCE)	
signal	J7 pin no.		J5 pin no.	signal
FRAME GND	1		1	FRAME GND
TXD	2		2	TXD
RXD	3		3	RXD
GND	7		7	GND
DTR	20		20	DTR

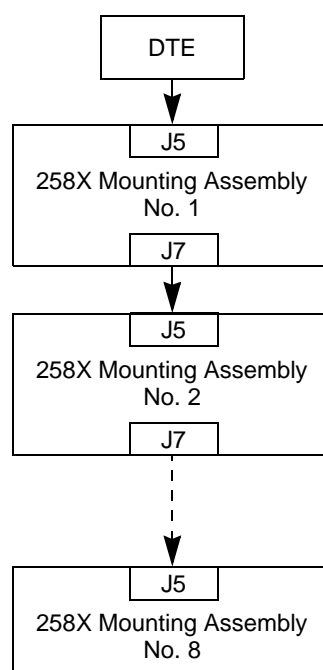**Figure 3-7   258X-Assembly Contol-Port-to-Control-Port Daisy-Chain Cable Wiring**

Figure 3-8   V.24 Control-Port Daisy Chains

3.32   Set the 258X-assembly option switches as follows for Control-Port daisy-chain setup:

1. On the **last** 258X assembly in the daisy chain, set **S1** (**END OF PORT CONTROL**) to **ON**. On all other mounting assemblies in the daisy chain, set **S1** to **OFF**.

2. Set **S2** (**SPLIT SHELF**) on all 258X assemblies in the daisy chain to **OFF** (down).

3. Set **S4** (**SHELF SELECT**) on each 258X Mounting Assembly according to its position on the daisy chain. See Table 3-2 for **S4** settings. If daisy chains from both the Control Port and the Maintenance Port are being used, set **S4** on each 258X assembly according to its postion on the **longer** of the two daisy chains.

4. If a Maintenance-Port daisy chain **is not** being used, **S3** (**END OF MAINTENANCE CONTROL**) is essentially nonfunctional and can therefore be left in either the **ON** or **OFF** position. If a Maintenance-Port daisy chain **is** being used, see the subsection below entitled "Connections and Switch Settings for Maintenance-Port Daisy Chain" for instructions on setting **S3**.

Connections and Switch Settings for Maintenance-Port Daisy Chain

3.33   Connector **J4** (labeled **MAINTENANCE PORT IN**), a 25-pin female D-subminiature connector, is used to connect DTE to the 258X assembly's Maintenance Port. Connector **J3** (labeled **MAINTENANCE PORT OUT**), also a 25-pin female D-subminiature connector, connects to connector **J4** on the next 258X assembly on the daisy chain.

3.34   Up to eight 258X Mounting Assemblies can be placed on the same V.24 remote Maintenance-Port daisy chain. Connections to the first mounting assembly are made via the straight-through cable shown below in Figure 3-9. Connections between assemblies in the daisy chain are made via the straight-through cable shown below in Figure 3-10 (see Figure 3-11 for the correct Maintenance-Port daisy-chain setup).
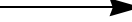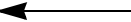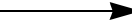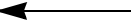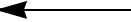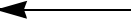
DTE side		cable wiring	258X side J4 (DCE)	
signal	pin no.		pin no.	signal
FRAME GND	1		1	FRAME GND
TXD	2		2	TXD-C
RXD	3		3	RXD-C
RTS	4		4	RTS
CTS	5		5	CTS
DSR	6		6	DSR-C
GND	7		7	GND
DCD	8		8	DCD-C

Figure 3-9   258X-Assembly Maintenance-Port-to-DTE Cable Wiring

from J3 in daisy dhain (DCE)		cable wiring	to J4 in daisy chain (DCE)	
signal	J3 pin no.		J4 pin no.	signal
FRAME GND	1		1	FRAME GND
TXD-C	2		2	TXD-C
RXD-C	3		3	RXD-C
MENU	4		4	MENU
GND	7		7	GND

Figure 3-10   258X-Assembly Maintenance-Port-to-Maintenance-Port Daisy-Chain Cable Wiring
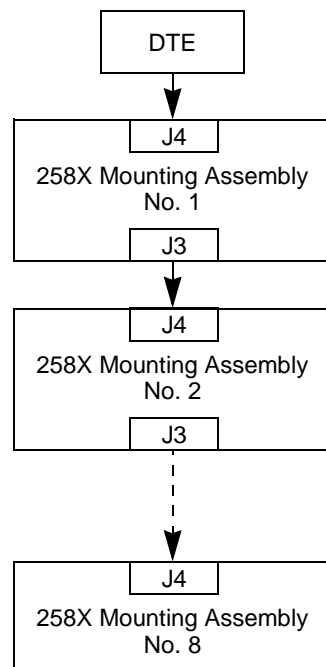
Figure 3-11   V.24 Maintenance-Port Daisy Chain

3.35   Set the 258X assembly's option switches as follows for Maintenance-Port daisy-chain setup:

1. On the **last** 258X Mounting Assembly in the daisy chain, set **S3** (**END OF MAINTE-NANCE CONTROL**) to **ON**. On all other mounting assemblies in the daisy chain, set **S3** to **OFF**.

2. If a Control-Port daisy chain **is** being used, **S2** (**SPLIT SHELF**) on all 258X assemblies in the daisy chain should already be set to **OFF** (down) per the preceding procedure. If a Control-Port daisy chain **is not** being used, set **S2** on each assembly as required per the instructions in paragraphs 3.20 through 3.22 above (if you have not already done so).

3. Set **S4** (**SHELF SELECT**) on each 258X Mounting Assembly according to its position on the daisy chain. See Table 3-2 for **S4** settings. If daisy chains from both the Control Port and the Maintenance Port are being used, set **S4** on each 258X assembly according to its postion on the **longer** of the two daisy chains.

4. If a Control-Port daisy chain **is not** being used, **S1** (**END OF PORT CONTROL**) is essentially nonfunctional and can therefore be left in either the **ON** or **OFF** position. If a Control-Port daisy chain **is** being used, see the subsection above entitled "Connections and Switch Settings for Control-Port Daisy Chain" for instructions on setting **S1**.

4. Specifications

Physical

Dimensions	• Height: 257mm (10.1 inches) • Width: 483mm (19 inches) • Depth: 232mm (9.1 inches)
Weight	• 3.86kg (8.5 pounds) empty (approximate)
Heat Dissipation	• Air convection

Electrical

Input Voltage	• −40 to −75Vdc, positive ground referenced
Input Current	• 6.0A, maximum
Redundancy	• Assembly accepts two nominal −48Vdc sources that are isolated
Power Connections	• Via screw terminals that accept 10 to 14AWG wire
Alarm Connections	• Via 0.045-inch square wire-wrapping posts
75-ohm PCM Connections	• Via BNC plug connectors (258E and 258J) • Via mini-coax (1.6/5.6) connectors (258M)
120-ohm PCM Connections	• Via 0.045-inch square wire-wrapping posts (258F and 258K)

Environmental

Operating Temperature	• 0° to +50° C (+32° to +122° F), humidity to 95% (no condensation)
Storage Temperature	• −40° to +60° C (−40° to +140° F)

5. Troubleshooting, Technical Assistance, Repair and Return

Troubleshooting

5.1   Table 5-1 will assist in the testing or troubleshooting of the 258X Mounting Assembly and will aid in the localization of trouble to this specific equipment. If additional technical assistance is required, refer to paragraph 5.2 for phone numbers. If the equipment appears to be defective, substitute new equipment (if possible) and conduct testing again. If the substitute operates correctly, the original should be considered defective and returned to Tellabs for repair or replacement as directed in paragraph 5.3. We strongly recommend that no internal (component-level) testing or repairs be attempted on the equipment. Unauthorized testing or repairs may void its warranty.

trouble condition	solution
Power LED is off, or echo cancellers do not power up.	• Verify that the proper dc input voltage is applied to the mounting assembly (determined by the power converters) and that polarity is correct. • Check the mounting assembly for physical damage, and check the power converter and alarm connectors for bent or broken pins. • If one power converter is used, verify that nominal −48Vdc power is applied to the terminal block directly behind the slot where the converter is installed. Also verify that the power LED(s) is lighted on the power converter. • If two power converters are used, verify that nominal −48Vdc power is applied to the terminal blocks directly behind the slots that contain the converters. Also verify that the power LED(s) is lighted on both converters. If one of the two converters is malfunctioning, it can be isolated by checking for proper power-up indications with each converter plugged in separately.
For problems not related to power:	• Verify that all echo cancellers are properly seated. • Ensure that all PCM and V.24 connections are secure and in the correct locations. • Ensure that all external equipment connected to the mounting assembly (muxes, switch interfaces, office repeaters, etc.) is operating properly. • If the problem still exists, refer to the echo canceller troubleshooting guides in their respective practices.

Table 5-1   Troubleshooting Guide

Technical Assistance

5.2   Contact Tellabs Technical Assistance as follows:

Location	Telephone	FAX
Tellabs International, Inc., Sucursal, Buenos Aires, **Argentina**	+541.393.0764, .0892, or .0835	+541.393.0732
Tellabs Pty. Ltd., Milson's Point (Sydney), NSW, **Australia**	+61.2.9966.1043	+61.2.9966.1038
Tellabs International, Inc., Rio de Janeiro, **Brazil**	+55.21.233.1604	+55.21.233.1604
Tellabs Communications Canada Ltd., Mississauga, Ontario, **Canada**	905-858-2058	905-858-0418
Tellabs International, Inc., Beijing, **China**	+86.10.6501.1873	+86.10.6501.1871
Tellabs International, Santa Fe de Bogota, **Colombia**	+571.623.3162 or .3216	+571.623.3047
Tellabs International, Inc., **Dubai, U.A.E.**	+971.4.373250	+971.4.376526
Tellabs U.K. Ltd., High Wycombe, Bucks, **England**	+44.1494.555800	+44.1494.555801

Location	Telephone	FAX
Martis Oy, Espoo, **Finland**	+358.9.41.31.21	+358.9.41.31.2815
Tellabs SAS, Guyancourt, **France**	+33.1.345.20838	+33.1.309.60170
Tellabs GmbH, Munich, **Germany**	+49.89.54.90.05.+ext. or 0 (switchboard)	+49.89.54.90.05.44
Tellabs H.K. Ltd., **Hong Kong**	+852.2866.2983	+852.2866.2965
Tellabs GmbH Representative Office, Budapest, **Hungary**	+36.1.2681220	+36.1.2681222
Tellabs International, Inc., Bangalore, **India**	+91.80.2261807	+91.80.2262170
Tellabs Ltd., County Clare, **Ireland**	+353.61.703000	+353.61.703333
Tellabs de Mexico, Mexico City, **Mexico**	525.282.1107, .1432, .1050, or .0981	525.282.0218
Tellabs Singapore PTE, Ltd., **Singapore**	+65.336.7611	+65.336.7622
Tellabs South Africa, Hennopsmeer, **Republic of South Africa**	+27.12.672.8025	+27.12.672.8024
Tellabs International, Inc., Seoul, **South Korea**	+82.2.589.0667 or .0668	+82.2.589.0669
Tellabs Southern Europe S.A., Barcelona, **Spain**	+34.3.414.70.16	+34.3.414.69.25
Tellabs AB, Stockholm, **Sweden**	+46.8.678.4040	+46.8.678.4041
Tellabs International, Inc., Bangkok, **Thailand**	+662.642.7817	+662.642.7820
USA and **Puerto Rico**	800-443-5555*	630-512-7097
*All other **Caribbean** and **South American** locations, or if the toll-free number is busy, telephone 630-378-8800		

Repair and Return

5.3 If equipment needs repair, contact Tellabs' Product Services Department with the equipment's model and issue numbers and warranty date code. You will be issued a Material Return Authorization (MRA) number and instructions on how and where to return the equipment.

Location	Telephone	FAX
Martis Oy, Espoo, **Finland**	+358.0.502.771	+358.0.502.7815
Tellabs Communications Canada Ltd., Mississauga, Ontario, **Canada**	905-858-2058	905-858-0418
Tellabs Ltd., County Clare, **Ireland**	+353.61.703000	+353.61.703333
Tellabs Operations, Inc., **Lisle, IL USA**	(800) 443-5555 (USA and Puerto Rico only), 630-378-8800 (other International)	630-512-7097 (both)

5.4 Repair service includes an attempt to remove any permanent markings made by customers on Tellabs equipment. If equipment must be marked, it should be done with nonpermanent materials and in a manner consistent with the correct handling of electrostatically sensitive devices.