Page/Talk Wall Stations
Models SIP-1 and SIP-5

Installation & Operation
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Package Contents

One (1) SIP-1 or SIP-5 Page/Talk Wall Station
Overview

*SIP-1/-5 Page/Talk Wall Stations*
Guardian's Page/Talk Systems provide reliable and easy to use paging and communication within industrial environments such as plants, mills and factories. Individuals can be paged from any station and two or more persons can communicate on any available line.

The Models SIP-1 (Single-line) and SIP-5 (Multi-line) stations described in this manual are designed for use in harsh, industrial environments. Each SIP-1/-5 Wall Station provides up to twelve watts of paging power for an external loudspeaker. A press bar on the handset enables one-hand paging operation.

In order to avoid acoustical feedback from a loudspeaker receiving a signal from the station, a jumper on the circuit board of every station provides for the speaker to be muted when the Page button is pressed. Group muting is also available for the same purpose, this feature mutes adjoining speakers when the page button on any station in the group is pressed.

Guardian's stations and related equipment are compatible with systems provided by most other manufacturers.

### Features

**Enclosure and Faceplate**
- 16 gauge steel, zinc dichromate plated and powder coated

**Ambient Noise Monitor**
- monitors the ambient noise and adjusts speaker volume accordingly
- initial level adjustment on faceplate

**Connectors**
- removable screw and plug Combicon connectors allow for ease of installation, simply screw wires into plug and reinsert plug into PCB socket

**Handset**
- page switch on handset
- noise canceling microphone
- electronic hook switch provides durability

**Headset**
- optional plug in headset

**Controls**
- speaker volume – (externally accessible)
- ambient noise level monitoring
- microphone gain
- receiver volume
- side tone level
Figure 1 - SIP-1/-5 Features

Figure 2 - SIP-1/-5 Dimensions
Figure 3 - Mounting

6.0" [152mm] 7/8" CONDUIT ENTRANCE FOR SPEAKER CONNECTION

2 - 1 3/8" CONDUIT ENTRANCES

COMBICON CONNECTORS

PREFERRED ENTRANCE IF ONLY ONE CABLE

Figure 4 - Wiring

MAIN CIRCUIT BOARD CONNECTOR

J6A AMBIENT NOISE MICROPHONE

J2A/J3A PAGE AND TALK CHANNELS

CONNECTOR BOARD

J7A EXTERNAL SPEAKER
Installing the SIP-1/-5

**WARNING** - high voltages are present in this equipment when it is connected to the power source.

- Ensure that the station is set up for the correct voltage.
- Follow all appropriate electrical codes and use only approved electrical fittings for the installation.
- Choose a wall location that is free of obstructions and permits space for conduit or wire.
- Ensure mounting can support 11 lbs./5 kg and any additional foreseeable load.
- Use the template provided to locate and drill holes for mounting screws.
- Remove the screws on the faceplate and remove the faceplate.
- Secure the unit to the wall.
- Ensure that none of the electrical connection circuits are live.
- Bring cable(s) into the enclosure through the conduit entrance(s) and attach individual wires to the Combicon connector(s). Attach the wires from the first or only cable to the bottom connector. Make Talk channel connections to terminals 1A and 1B for the single line SIP-1.
- If the station is part of a Group Muting series connect the wires assigned to this function to either the Mute or Park terminal on the connector.
- Set the speaker mute jumper on the circuit board to the desired position.
- Plug the connector(s) into the receptacle(s) on the interface board.
- Ensure all connections are secure.
- Replace the faceplate ensuring that the connector is properly seated.
- Apply power to the system.
- Wait at least 60 seconds then adjust speaker volume to the desired level using the potentiometer accessible through the screw hole in the faceplate. Use the tamperproof screwdriver bit provided to remove the screw and a small flat tip screwdriver to make the adjustment.
- Test the installation by making a call as described in the operating section.

Accessing the Interior of the SIP-1/-5

Follow these instructions should it be necessary to access the interior of the SIP-1/-5 for adjustments or repairs.

- Remove power from the wall station. Follow local safety guidelines.
- Remove faceplate cover screws.
- Lift off the faceplate cover.
- Perform the necessary adjustments or repairs.
- Replace the faceplate ensuring that the connector is properly seated.
- Apply power to the wall station.

**Tip:** check the label on the main circuit board cover.

**See:** Figure 2 - SIP-1/-5 Dimensions

**See:** Insert - Template

**Note:** Be careful when removing the faceplate. The circuit board is on the faceplate.

**See:** Figure 4 - Wiring and Figure 5 - Electrical Connections

**Note:** Adjust speaker volume while ambient noise at the station is at a minimum.
## Electrical Connection Details

<table>
<thead>
<tr>
<th>Assignment</th>
<th>Designation</th>
<th>Description</th>
<th>Jacket Color</th>
<th>Stripe Color</th>
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<tbody>
<tr>
<td>System Power</td>
<td>J4A/J5A</td>
<td>HOT</td>
<td>Black</td>
<td>Yellow</td>
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<td></td>
<td>J4A/J5A</td>
<td>COM</td>
<td>White</td>
<td>Green</td>
</tr>
<tr>
<td></td>
<td>J4A/J5A</td>
<td>GND</td>
<td>Green</td>
<td>Yellow</td>
</tr>
<tr>
<td>Ambient Noise Microphone</td>
<td>J6A</td>
<td>MIC +</td>
<td>n/a</td>
<td>n/a</td>
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<tr>
<td></td>
<td>J6A</td>
<td>MIC -</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>Speaker</td>
<td>J7A</td>
<td>SPK +</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td></td>
<td>J7A</td>
<td>SPK -</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td></td>
<td>J2A/J3A</td>
<td>PB</td>
<td>White</td>
<td>Brown</td>
</tr>
<tr>
<td>Channel</td>
<td>J2A/J3A</td>
<td>1A Channel 1</td>
<td>Red</td>
<td>Red</td>
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<tr>
<td></td>
<td>J2A/J3A</td>
<td>1B</td>
<td>White</td>
<td>Red</td>
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<td></td>
<td>J2A/J3A</td>
<td>2A Channel 2</td>
<td>Purple</td>
<td>Purple</td>
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<td></td>
<td>J2A/J3A</td>
<td>2B</td>
<td>White</td>
<td>Purple</td>
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<td></td>
<td>J2A/J3A</td>
<td>3A Channel 3</td>
<td>Red</td>
<td>Blue</td>
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<td></td>
<td>J2A/J3A</td>
<td>3B</td>
<td>Blue</td>
<td>Red</td>
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<td></td>
<td>J2A/J3A</td>
<td>4B</td>
<td>White</td>
<td>Yellow</td>
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<tr>
<td></td>
<td>J2A/J3A</td>
<td>5A Channel 5</td>
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<td>Blue</td>
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<td>J2A/J3A</td>
<td>5B</td>
<td>White</td>
<td>Blue</td>
</tr>
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<td>Group Muting of Loudspeakers</td>
<td>J2A/J3A</td>
<td>Mute</td>
<td>Brown</td>
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<tr>
<td></td>
<td>J2A/J3A</td>
<td>Park</td>
<td></td>
<td></td>
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</tbody>
</table>

**Note:**
Channels 2 to 5 connections remain empty for SIP-1 hookup.

If this station is in a Group Muting series, but is not to be muted when paging calls are made from other stations in the group, connect the wires assigned to this function to the Park terminals.

### Figure 5 - Electrical Connections

![Electrical Connections Diagram]

### Figure 6 - Circuit Board Layout

![Circuit Board Layout Diagram]
**Group Muting**

In order to avoid acoustical feedback it may be desirable in certain circumstances to mute speakers associated with adjoining stations when making a paging call. This can be accomplished by interconnecting the “Group Mute” terminals of each station in the group, and setting the speaker mute jumpers on the circuit boards to the appropriate position.

**Note:** Putting the mute jumper of a station in the on position will mute the associated speaker when the page button is pressed. If the jumper is in the off position the speaker will not be muted when the page button is pressed.

If group muting is used the associated speaker of any station in the group with its mute jumper in the on position will be muted when a paging call is made from any station in the group, including the associated station. Any speaker associated with a station with its mute jumper in the off position will not be muted when a paging call is made from any station in the group, including the associated station.

If it is desired to bypass a station in a group, connect the group paging wires to the PARK terminals of that station.

**EXAMPLE OF GROUP MUTING**

If the Group Mute Signal Conductors are attached to the Park terminals of station “B” that station will be bypassed and paging from stations “A” or “C” will have no effect on the output of the loudspeaker associated with Station “B”.

If the Group Mute Signal Conductors are attached to the Mute terminals of station “B” the condition of the loudspeaker associated with that station will depend on the setting of the Mute On/Off jumper. If the jumper is in the ON position the loudspeaker will be muted if a paging call is made from any of the three stations. If the jumper is in the OFF position the paging call will not be muted if a paging call is made from any of the three stations.

Paging calls from outside the Group will always be heard, regardless of the position of the mute jumper.
Ambient Noise Level Adjustment
The Ambient Noise Sensor on Guardian's Page/Talk stations automatically adjusts the volume of the associated loudspeaker up to 10dB, so that pages can be heard over the background noise.

There are two controls on the circuit board to adjust the Ambient Noise Sensor mechanism. The Paging Speaker Volume Control – which is accessible either from the faceplate or from the back of the module – sets the volume of the speaker to a comfortable level when the ambient noise is at a minimum. The Ambient Noise Monitor Adjustment Control determines how the speaker volume tracks the ambient noise. That is if the speaker is not loud enough with a high ambient noise the control can be adjusted to increase the volume. Alternatively if the speaker is too loud with a high ambient noise the control can be adjusted to decrease the volume. It is usually not necessary to change the setting of the Ambient Noise Monitor Adjustment Control since it is set at the factory for average conditions. Adjustment could be necessary if for some reason the Ambient Noise Sensor Microphone is shielded from the source of ambient noise or some similar situation exists.

Operating the SIP-1 Single Line Station

Initiating a Call
- Remove the handset.
- Ensure that the line is free.

Broadcasting a Page
- Press and hold the Page button on the handset.
- Broadcast the page. (e.g. "Joe, I need to talk to you, pick up a handset.")

Connecting with a Second Party
- When the second party picks up their handset, both parties are connected and can carry on a conversation.

Freeing the Line
- Place the handset back on the cradle.

Operating the SIP-5 Multi Line Station

Initiating a Call
- Remove the handset.
- Select a free line using the Line selector.

Broadcasting a Page
- Press and hold the Page button on the handset.
- Broadcast the page that includes the number of the line you are using. (e.g. "Joe, talk to me on line one.")

Connecting with a Second Party
- When the second party selects the appropriate channel and picks up their handset, both parties are connected and can carry on a conversation.

Freeing the Line
- Place the handset back on the cradle.
## Troubleshooting

**Note:** If access to the interior of the SIP-1/-5 is required refer to the appropriate section.

**Station Is Dead But Associated Speaker Is Working**
- No Repair Possible, Return Station For Repair.

**Station Is Dead And Associated Speaker Is Not Working**
- Ensure power is being supplied to the station.
- Check the fuse located on the circuit board and replace if necessary. Correct the problem that caused the fuse to fail.

**Handset Microphone Volume Too Low**
- Adjust TX level control on circuit board.

**Handset Receiver Volume Too Low**
- Adjust RX level control on circuit board.

**Feedback Or Distortion**
- Adjust sidetone level control on circuit board.
- Inspect the line and connections for shorts and grounds.

**Sidetone**
- Adjust sidetone level control on circuit board.

**Station Stays On or Off Hook**
1. Ensure power is being supplied to the station.
2. Test the proximity switch in the handset receiver cradle by moving a small, permanent magnet over the area while listening on the handset for the line to open and close.
3. If the movement of the magnet switches the on/off hook condition, the magnet in the receiver cartridge of the handset may be weak – try another handset. It is not necessary to wire in the new handset to perform this test – if the new handset switches the on/off hook condition, replace the existing handset with the new unit.
4. If the movement of the magnet does not appear to switch the on/off hook condition the handset itself may be defective – try another handset.
5. If these remedies do not correct the problem return the station for repair.

**Excessive Noise on Line**
- Verify no other station’s handset is off the hook.

**Crosstalk**
- Inspect wire terminations for crossed wire pairs.

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*See: Accessing the Interior of the SIP-1/-5*

*See: Warranty and Product Return*

*See: Engineering Specifications for correct fuse rating*
## Engineering Specifications

### Electrical Requirements

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<th>Requirement</th>
<th>Specification</th>
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<tr>
<td>Input Voltage</td>
<td>120/240VAC</td>
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<tr>
<td>Input Frequency</td>
<td>50/60Hz</td>
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<tr>
<td>Input Current</td>
<td>120VAC 0.1AMP, 240VAC 0.05 AMP</td>
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<tr>
<td>Fuse</td>
<td>120VAC 0.5AMP, 240VAC 0.25 AMP - 2AG FAST BLOW</td>
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### Handset Amplifier

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<th>Requirement</th>
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<tr>
<td>Output Level</td>
<td>1.5VRMS NOMINAL INTO 33 OHM LOAD</td>
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<tr>
<td>Output Limiter</td>
<td>1.5VRMS NOMINAL</td>
</tr>
<tr>
<td>Transmit Gain</td>
<td>50dB</td>
</tr>
<tr>
<td>Frequency Response</td>
<td>250 – 4000HZ</td>
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<tr>
<td>Distortion</td>
<td>1.0% MAXIMUM THD @ 1000HZ</td>
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</table>

### Speaker Amplifier

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<tbody>
<tr>
<td>Output Level</td>
<td>12 WATTS MAXIMUM WITH NOMINAL VOLTAGE</td>
</tr>
<tr>
<td>Amplifier Gain</td>
<td>1.5VRMS AT RATED OUTPUT</td>
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<tr>
<td>Frequency Response</td>
<td>250 – 4000HZ</td>
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<tr>
<td>Distortion</td>
<td>1% MAXIMUM THD @ 1000HZ 10WATTS</td>
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<tr>
<td>Input Impedance</td>
<td>200K OHMS, NOMINAL</td>
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### Environmental

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<tr>
<td>Weather Tight</td>
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<td>Dust Tight</td>
<td>ENCLOSURE GASKET</td>
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### Mechanical

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<tr>
<th>Requirement</th>
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<tbody>
<tr>
<td>Body Construction</td>
<td>16 GAUGE STEEL, ZINC DICROMATE PLATED AND POWDER COATED</td>
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<tr>
<td>Color</td>
<td>STANDARD YELLOW, OTHER COLORS OPTIONAL</td>
</tr>
<tr>
<td>Dimensions</td>
<td>12.3 X 8.0 X 5.7 INCHES (313 X 203 X 145 MM)</td>
</tr>
<tr>
<td>Net Weight</td>
<td>11 LBS/5 KG</td>
</tr>
<tr>
<td>Standard Mounting</td>
<td>VERTICAL WALL</td>
</tr>
<tr>
<td>Wiring Access</td>
<td>1 3/8” OPENINGS FOR OWNER SUPPLIED FITTINGS</td>
</tr>
<tr>
<td>Handset Material</td>
<td>HIGH IMPACT ABS</td>
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<tr>
<td>Microphone</td>
<td>NOISE CANCELING DYNAMIC</td>
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### Compliance

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<th>Requirement</th>
<th>Specification</th>
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<tbody>
<tr>
<td>Canadian Standards Association (Canada &amp; USA)</td>
<td>CSA C22.2 No.205 SIGNAL EQUIPMENT</td>
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<td>CSA C22.2 No. 60950 SAFETY OF INFORMATION TECHNOLOGY EQUIPMENT</td>
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<td></td>
<td>UL464 AUDIBLE SIGNAL APPLIANCES</td>
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</table>
Warranty
Guardian Telecom warrants your product to be free of defects in material and workmanship for a period of one year. Guardian Telecom will repair or replace any defective unit that is under warranty free of charge.

This warranty is null and void if any non-authorized modifications have been made to this product, or if it has been subjected to misuse, neglect, or accident. This warranty covers bench repairs only; such repairs must be made at Guardian Telecom or an authorized service depot. Guardian Telecom is not responsible for costs incurred for on-site service calls, freight, or brokerage.

*A return authorization must be obtained prior to warranty claims or repairs.*

Disclaimer
The products covered by this manual are designed for use in Industrial Environments and/or Hazardous Locations. Due to the range of possible applications for these instruments the manufacturer will not be responsible for damages or losses of any kind suffered as a result of the use of this product, including consequential damages.

Warning
High voltages may be present in this product, ensure that power is removed before installing, performing maintenance or making repairs.

Service Telephone Number

**1-800-363-8010**

Guardian Telecom provides a customer service telephone number which is toll-free within North America. If you need assistance when installing or operating this product, please call the toll-free telephone number between regular business hours (8:00AM-5:00PM), Mountain Standard Time. If you are calling outside of regular business hours, please leave a detailed message, and a member of Guardian Telecom's Service Department will return your call as soon as possible. If your product requires service, Guardian personnel will supply you with an RMA (return materials authorization) number over the telephone or through our web site product return page. This number must be included with your return address and the name of the person to contact.

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Ph. (403) 258-3100
Fax. (403) 253-4967
www.guardiantelecom.com

Feedback
Guardian Telecom continually strives to make reliable, durable, and easy to use products. If you, as an installer or user of our equipment, have any suggestions for improvements to this or any of our products or documents, including this manual, we would appreciate hearing from you.
Guardian Product Return

Guardian products have been quality tested and are in full working order when shipped from the factory, given the rugged nature of these products, shipping is not expected to damage a unit. In the unlikely event of a malfunction, Guardian follows the three step procedure below.

### Step I - On-Site Correction

- The most common source of difficulties with a new product is improper installation in one of two ways: incorrect wiring connections or connection to an incorrect power source.
- Product wiring needs to be properly connected to the on-site wiring. Correct wiring instructions are shown in the user manual included with the product.

### Step II - Return Materials Authorization (RMA)

- When a product has been installed following user manual instructions, and the unit fails to operate, the user must contact Guardian Telecom to obtain authorization to return the product. This can be done by completing a RMA form online at www.guardiantelecom.com, or by calling the service telephone number given in this manual.
- After providing information on the product, the owner and the nature of the problem, Guardian will issue a RMA number, to be shown on documentation returned with the product.
- In addition to the RMA number, shipping documents should include name, address and telephone number of the owner along with contact information for the person responsible for the repair and/or the user who identified the malfunction.
- (Where a product is being returned for repair from outside of Canada, customs documentation must show the product’s serial number, date of export [date of purchase], and a notation that the equipment is: “Canadian goods returning.”)

### Step III - Factory Authorized Service

- Once received, each product is carefully inspected and tested. If the product is under warranty, repairs are completed and the product returned to the owner, generally within five working days of receipt by the factory.
- A product that has been subjected to misuse, neglect or accident or is beyond the warranty period will be evaluated. The service department will provide the owner’s representative with a repair cost estimate. Once approved, repairs are completed and the product returned, generally within five working days.
Page/Talk Product Series Description
Guardian's Page/Talk Systems provide reliable and easy to use paging and communication within industrial environments and hazardous locations, such as plants, mills and factories. Wall and desk stations are available in both single line and multi line models. Individuals can be paged from any station and two or more persons can communicate on any available line. With the addition of a Merge/Isolate Cabinet up to 12 zones are supported.

These systems provide quality paging and communication functions, and with the telephone interface unit, communication outside the system. Speaker amplifier units provide the capability of adding extra speakers without the need for a Page/Talk station. The alarm tone generator provides synthesized audio alarm signals for plant safety systems and can be programmed to activate strobe lights for additional warning in noisy environments.

Guardian's Stations and related equipment are compatible with systems provided by most other manufacturers.

Page/Talk System Models and Options

Standard Stations
- P5901 SIP-1 Single Line Wall Station
- P5906 SIP-5 Multi Line Wall Station
- P5950 SIA Amplifier Unit
- P5911 DTP-1 Single Line Desk Set
- P5916 DTP-5 Multi Line Desk Set
- P5921 WTP-1 Single Line Weather Proof Wall Station, NEMA 4X
- P5926 WTP-5 Multi Line Weather Proof Wall Station, NEMA 4X
- P5922 WTA Weather Proof Amplifier Unit, NEMA 4X

Hazardous Location and Explosion Proof Stations
- P5900 SIP-H-1 Single Line Wall Station, Class I, Div.2
- P5905 SIP-H-5 Multi Line Wall Station, Class I, Div.2
- P5951 SIA-H Amplifier Unit, Class I, Div. 2
- P5910 DTP-H-1 Single Line Desk Set, Class I, Div.2
- P5915 DTP-H-5 Multi Line Desk Set, Class I, Div.2
- P5920 WTP-H-1 Single Line Weather Proof Wall Station, NEMA 4X, Class I, Div.2
- P5925 WTP-H-5 Multi Line Weather Proof Wall Station, NEMA 4X, Class I, Div.2
- P5957 WTA-H Weather Proof Amplifier Unit, NEMA 4X, Class I, Div. 2
- P5930 EXP-1 Explosion Proof Single Line Wall Station, Class I, Div.1
- P5935 EXP-5 Explosion Proof Multi Line Wall Station, Class I, Div.1
- P5956 EXA Explosion Proof Amplifier Unit, Class I, Div. 1

Options
- P5940 PTI Telephone Interface Unit
- P5980 PTL Line Balance Assembly
- P5970 AG17 Alarm Tone Generator
- P5960 AG17 Alarm Tone Generator, (with optional relay board.)

Cable
- P005219 Standard 16 Conductor
- P005366 Heavy Duty 16 Conductor