

INSTALLATION INSTRUCTIONS

Original Issue Date: **7/06**

Model: **Model K/S and Model K1/S1 Automatic Transfer Switches**

Market: **ATS**

Subject: **Remote Annunciator Kits GM49279-KP1, GM49279-KP1S, GM49280-KP1, GM49280-KP1S, GM52650-KP1 and GM52650-KP1S**

Introduction

The Remote Annunciator allows remote monitoring and limited control of up to 4 transfer switches connected in an RS-485 network up to 1220 m (4000 ft.) away. Transfer switches equipped with MPAC™ 1000, DXPower™ 1000, MPAC™ 1500, or DXPower™ 1500 controls can be connected to the remote annunciator.

Figure 1 shows the remote annunciator. Remote annunciator features include:

- 5.7-inch industrial-grade 256-color touch screen
- Audible alarm
- Real-time clock with battery back-up
- Password-protected setup screen
- Individual status and detail screens for each ATS:
 - Switch position
 - Source availability
 - Fault conditions
 - Voltages for all sources
 - Frequencies for all sources
 - Time delay identification
 - Time delay time remaining display
 - Generator set fault indication
- Remote control features:
 - Begin test (password-protected)
 - End time delay
 - End test
- AC or DC powered: 100–240 VAC/60 Hz or 24 VDC
- Remote mounting up to 1220 m (4000 ft.) away
- Modbus® communication through RS-485 connections

The annunciator can be mounted in a manufacturer-supplied NEMA 4 enclosure, mounted into a customer-supplied enclosure, or flush-mounted using a manufacturer-supplied mounting plate. See Figure 2.

Read the entire installation procedure and compare the kit parts with the parts list at the end of this publication before beginning installation. Perform the steps in the order shown.



Figure 1 Remote Annunciator

Kit Number	Description
GM49279-KP1/KP1S	Includes NEMA 4 enclosure
GM49280-KP1/KP1S	Includes mounting plate
GM52650-KP1/KP1S	Includes NEMA 4 enclosure and mounting plate

Figure 2 Kits

Notes for Model K and Model S Transfer Switches

Model K/S transfer switches equipped with Series 1000 controllers must have application software version 1.21 or higher to communicate with the Remote Annunciator. An authorized distributor/dealer can load the latest version of application software onto the ATS controller.

A personal computer running the ATS Setup Program is required to configure the communication settings for each Model K/S ATS. The Setup Program is also needed to assign a programmable input if the generator set fault display option is used.

The Remote Annunciator serves as a Modbus® Master device in the network. Only one annunciator can be connected to the ATS or ATS network. The annunciator and connected transfer switches cannot be connected to any other Modbus® network.

Notes for Model K1/S1 Transfer Switches

All Model K1/S1 transfer switches equipped with series 1500 controls can communicate with the remote annunciator. The transfer switch can be configured for communication with the annunciator using the user interface on the transfer switch controller.

Use a personal computer running Monitor III software to assign a unique designation to each transfer switch and to enter load descriptions.

Note: The transfer switch designations and load descriptions are not essential to annunciator operation. However, if more than one ATS is connected, transfer switch identification on the annunciator screen will be difficult without these descriptions. See Figure 19 and Figure 24 for examples.

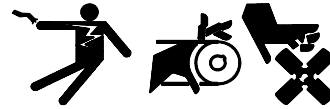
The Remote Annunciator serves as a Modbus® Master device in the network. Model K1/S1 transfer switches are equipped with two (2) Modbus ports, which allow connection of the transfer switch to two (2) Modbus networks.

Modbus is a registered trademark of Schneider Electric.

Safety Precautions

Observe the following safety precautions while installing the kit.

WARNING



**Accidental starting.
Can cause severe injury or death.**

Disconnect the battery cables before working on the generator set. Remove the negative (-) lead first when disconnecting the battery. Reconnect the negative (-) lead last when reconnecting the battery.

Disabling the generator set. Accidental starting can cause severe injury or death. Before working on the generator set or connected equipment, disable the generator set as follows: (1) Move the generator set master switch to the OFF position. (2) Disconnect the power to the battery charger. (3) Remove the battery cables, negative (-) lead first. Reconnect the negative (-) lead last when reconnecting the battery. Follow these precautions to prevent starting of the generator set by an automatic transfer switch, remote start/stop switch, or engine start command from a remote computer.

DANGER



**Hazardous voltage.
Will cause severe injury or death.**

Disconnect all power sources before opening the enclosure.

DANGER



**Hazardous voltage.
Will cause severe injury or death.**

Only authorized personnel should open the enclosure.

Grounding electrical equipment. Hazardous voltage can cause severe injury or death. Electrocutation is possible whenever electricity is present. Ensure you comply with all applicable codes and standards. Electrically ground the generator set, transfer switch, and related equipment and electrical circuits. Turn off the main circuit breakers of all power sources before servicing the equipment. Never contact electrical leads or appliances when standing in water or on wet ground because these conditions increase the risk of electrocution.

Short circuits. Hazardous voltage/current can cause severe injury or death. Short circuits can cause bodily injury and/or equipment damage. Do not contact electrical connections with tools or jewelry while making adjustments or repairs. Remove all jewelry before servicing the equipment.

Making line or auxiliary connections. Hazardous voltage can cause severe injury or death. To prevent electrical shock deenergize the normal power source before making any line or auxiliary connections.

⚠ WARNING



**Airborne particles.
Can cause severe injury or blindness.**

Wear protective goggles and clothing when using power tools, hand tools, or compressed air.

NOTICE

Electrostatic discharge damage. Electrostatic discharge (ESD) damages electronic circuit boards. Prevent electrostatic discharge damage by wearing an approved grounding wrist strap when handling electronic circuit boards or integrated circuits. An approved grounding wrist strap provides a high resistance (about 1 megohm), *not a direct short*, to ground.

1 Installation Procedure

Choose the annunciator location so that the total cable length to connect all transfer switches in the ATS network and the remote annunciator is no more than 1220 m (4000 ft.).

Note: The maximum cable length for RS-485 networks is 1220 m (4000 ft.).

Be sure that the mounting structure can support the weight of the annunciator assembly. The annunciator weights are shown below.

Description	Weight
Assembly with NEMA 4 enclosure	4.2 kg (9 lb.)
Flush-mounted assembly with mounting plate	1.4 kg (3 lb.)

Figure 3 Weights

1.1 Prepare the annunciator enclosure, if used.

For annunciators installed in an enclosure, drill separate holes in the top, bottom, or left side of the enclosure for the power and signal cables. Remove burrs and metal chips. Use separate conduit for power and signal connections.

Note: The enclosures provided with the kits meet NEMA 4 requirements. Use conduit hubs as required to meet the desired NEMA rating (up to NEMA 4) for the application.

1.2 Connect power and communication cables to the annunciator.

Use shielded twisted-pair cable, Belden #9841 or equivalent, to connect the annunciator to the transfer switches. The total cable length must be no more than 1220 m (4000 ft.).

Note: Use separate conduit for power and communication cables.

1. Connect the shielded twisted-pair cable to terminals 1, 5, and 6 on the annunciator's RS-485 connector. See Figure 4 for the connections.
2. Plug the RS-485 connector into the annunciator's 9-pin communication port (COM1). See Figure 4.

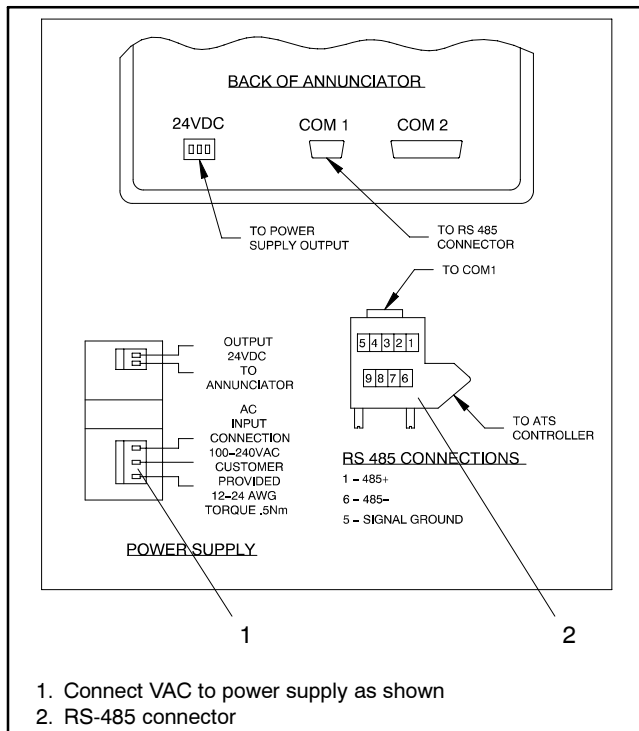


Figure 4 Annunciator Connections

3. Disconnect power to the annunciator power source by opening the line circuit breaker or switch.
4. Connect AC or DC power leads to the annunciator. See Figure 4. Choose step a or b below:
 - a. Connect AC power leads to the annunciator power supply. The power supply accepts 100-240 VAC/60Hz input power. Use #12-#24 AWG cable for the power connections. Tighten the connections to 0.5 Nm (4 in. lb.). The power supply terminals are labeled; OR
 - b. Connect power leads for 24 VDC to the terminals on the back of the annunciator. The terminals are labeled.

Note: Do not connect power to the annunciator at this time.

1.3 Prepare the mounting surface.

NEMA 4 Enclosure. The annunciator enclosure has mounting tabs with 8 mm (0.3 in.) mounting holes. See

Figure 5. Use the dimensions shown in Figure 5 or use the enclosure as a template to mark and drill holes in the mounting surface.

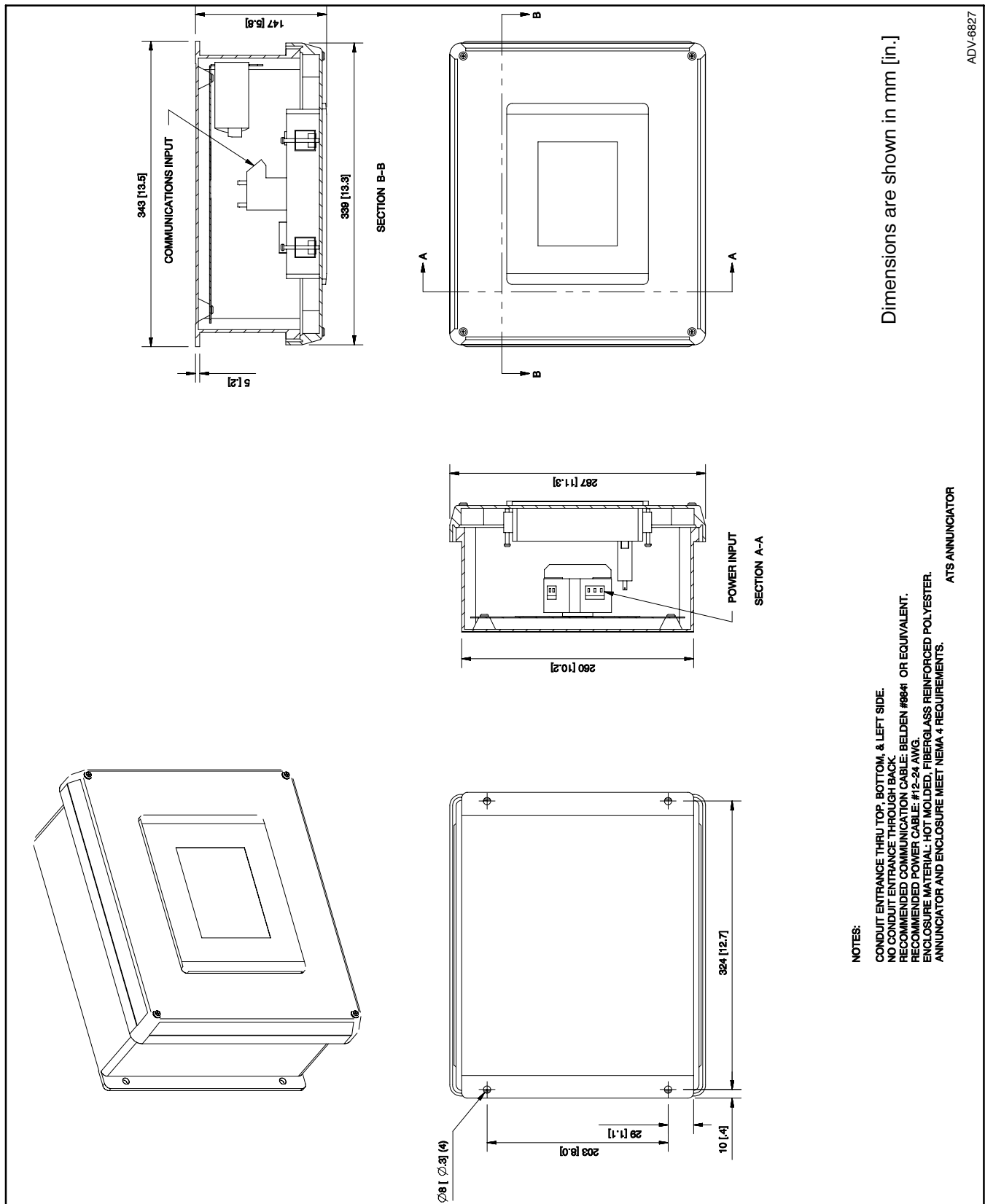


Figure 5 Dimension Drawing, NEMA 4 Enclosure, Kit Part Numbers GM49279-KP1 and GM49279-KP1S

2. Select a location for the mounting plate that provides adequate clearance and depth for the annunciator, power supply, and connectors. See Figure 6. Use the dimensions shown in Figure 6 or use the mounting plate as a template to mark and drill holes in the mounting surface. Remove burrs and metal chips.

1. Use a customer-supplied enclosure. The mounting plate is designed to be used with a Hoffman enclosure part number A-SE12X10X6, A-SG12X10X6, or equivalent; OR

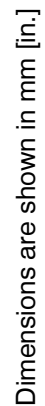


Figure 6 Dimension Drawing, Flush-Mounted Annunciator, Kit Part Numbers GM49280-KP1 and GM49280-KP1S

1.4 Prevent the generator set from starting.

1. Place the generator set master switch in the OFF position.
2. Disconnect the power to the battery charger, if equipped.
3. Disconnect the generator set engine starting battery(ies), negative (-) lead first.

1.5 Disconnect power to the transfer switches.

1. Disconnect power to all transfer switches by opening the Normal and Emergency source circuit breakers or switches.
2. Open the ATS enclosure door to access the ATS controller.

1.6 Connect the generator set fault output to ATS input terminals (optional).

The annunciator can display a generator set fault, if desired. One fault output from the generator set

controller can be connected to the ATS controller's input terminals on terminal block TB1 or to an input/output module.

1. Refer to the generator set controller documentation to identify the normally open output contacts for the selected fault.
2. Use #12-24 AWG cable to connect the generator set output to the ATS input terminal. Choose step a or b, below:
 - a. Connect to programmable input 1 or programmable input 2 on TB1 on the ATS controller's main logic board. See Figure 7 or Figure 8.
 - b. Connect to an available input terminal on an input/output (I/O) module. See Figure 9 through Figure 11. I/O modules are optional equipment. Refer to the instructions provided with the I/O module kit or the transfer switch operation and installation manual.

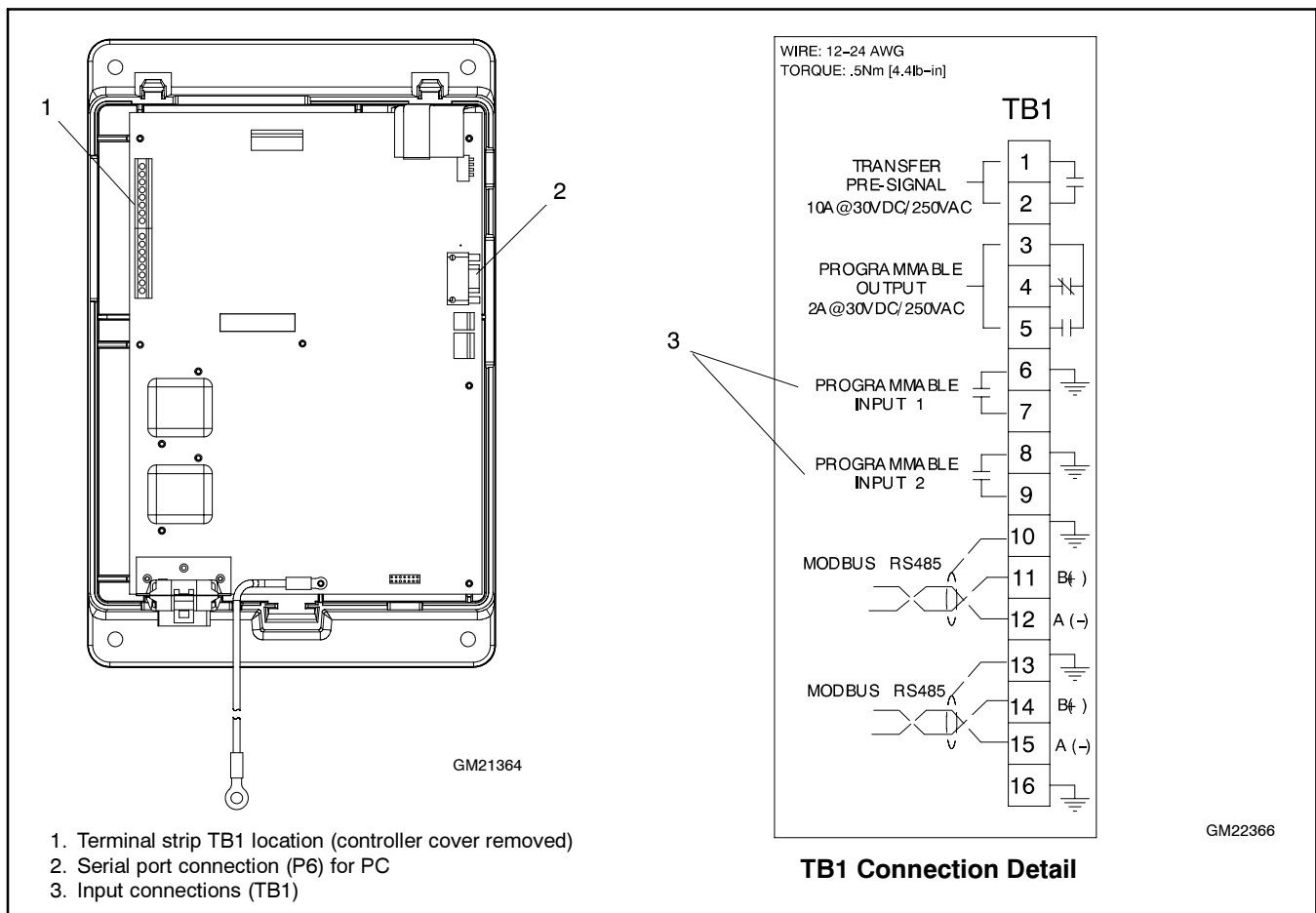


Figure 7 Series 1000 Input Connections

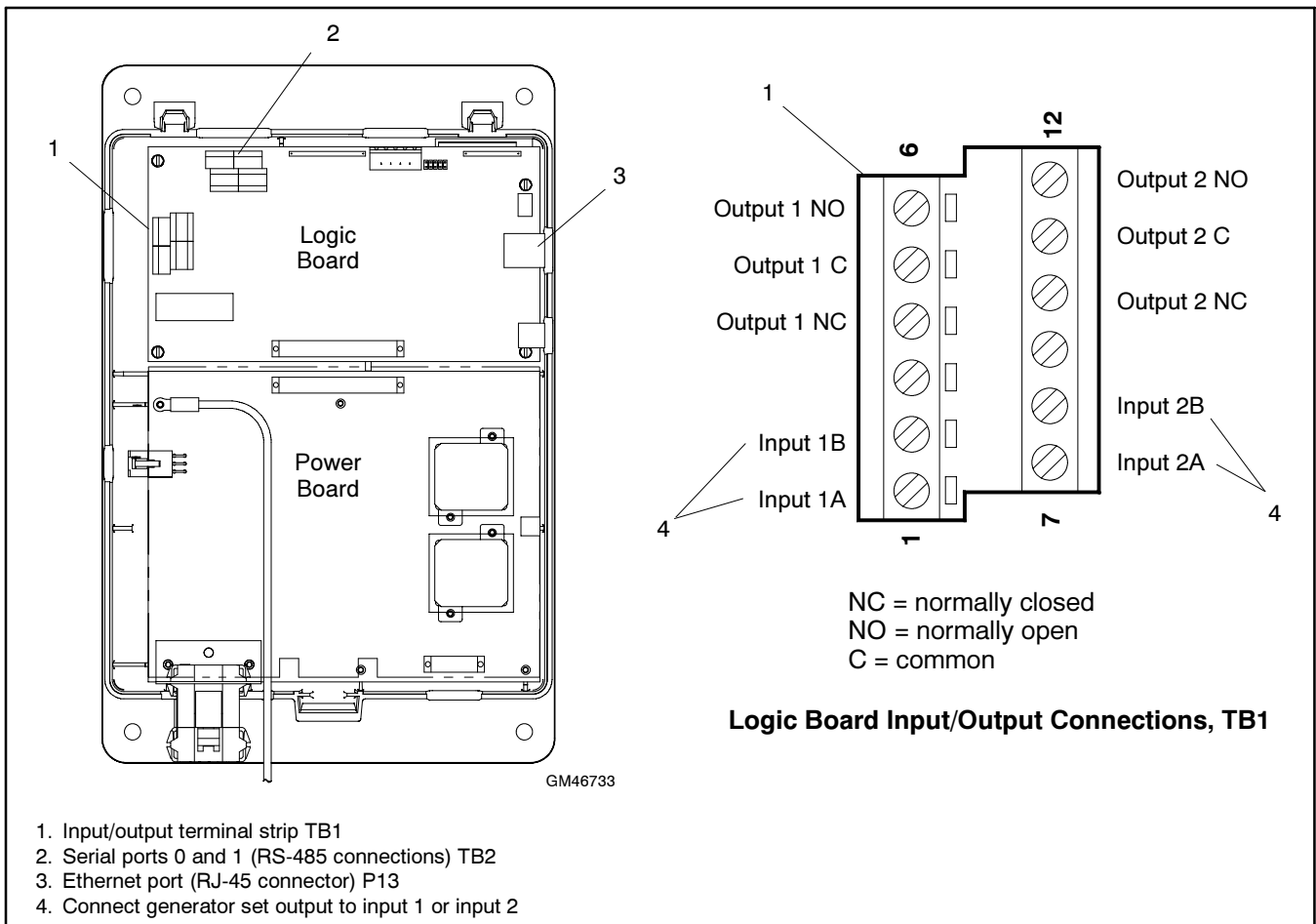


Figure 8 Series 1500 Input Connections

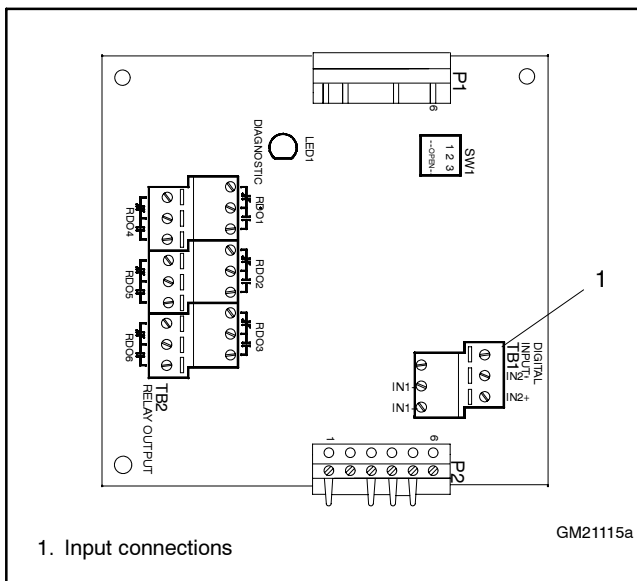


Figure 9 Series 1000 I/O Module Input Connections

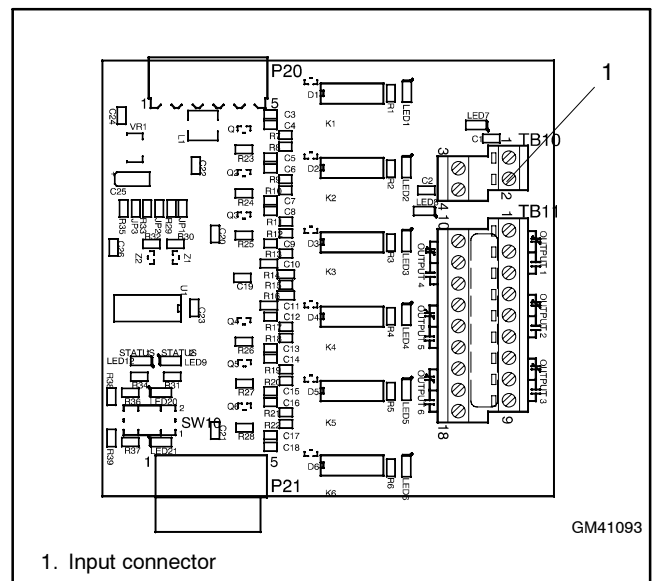


Figure 10 Series 1500 Standard I/O Module

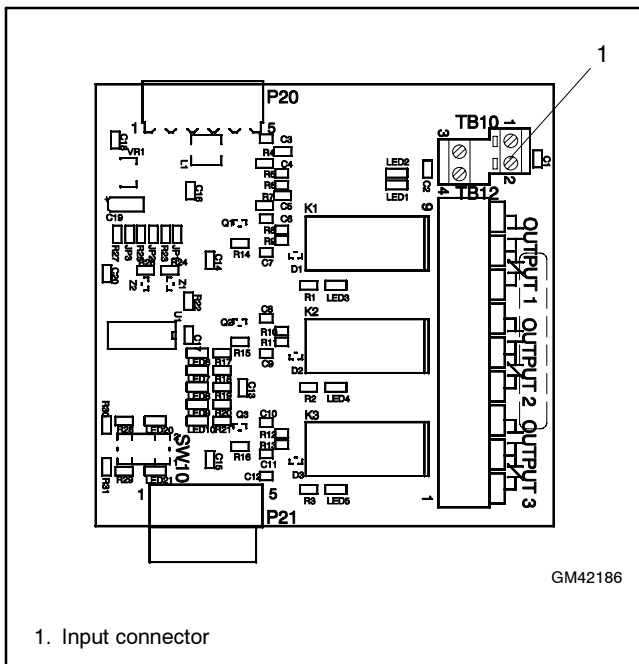


Figure 11 Series 1500 High-Power I/O Module

1.7 Connect transfer switches and annunciator in an RS-485 network.

Use separate conduit for power and signal connections. Use shielded twisted-pair cable, Belden #9841 or equivalent, to connect the annunciator and the transfer switches. The total cable length must be no more than 1220 m (4000 ft.).

1. Connect up to four transfer switches to the annunciator. Connect to the RS-485 terminals on the terminal strip on the transfer switch controller's main logic board. See Figure 12 for the Series 1000 or Figure 13 for the Series 1500.

Note: For Series 1500 units, record the port number (0 or 1) connected to the annunciator for each transfer switch. The port number is required for controller setup later in this procedure.

2. Connect a 121 ohm terminating resistor on the last device in the network. If there is only one device, a terminating resistor may be required depending on the cable distance and the communication speed. Long cables and higher speeds will increase the need for a terminating resistor.
3. Connect the transfer switch to a personal computer at this time. For Series 1000 controls, the Setup Program will be needed to set up the transfer switch communication settings and assign transfer switch and load descriptions. For Series 1500 controls, Monitor III software will be needed to assign transfer switch and load descriptions.
 - a. For the Series 1000, connect the PC to the RS-232 serial port. See Figure 7.
 - b. For the Series 1500, connect the PC in one of two ways:

Connect to the local ethernet through the RJ-45 connector on the ATS controller, or

Connect to the second serial port on the ATS controller. Use an RS-485-to-RS-232 converter and/or a USB-to-serial port converter to connect to the PC as needed. Record the port number (0 or 1) for use during the communication setup later in this procedure.

See Figure 8 and Figure 13.

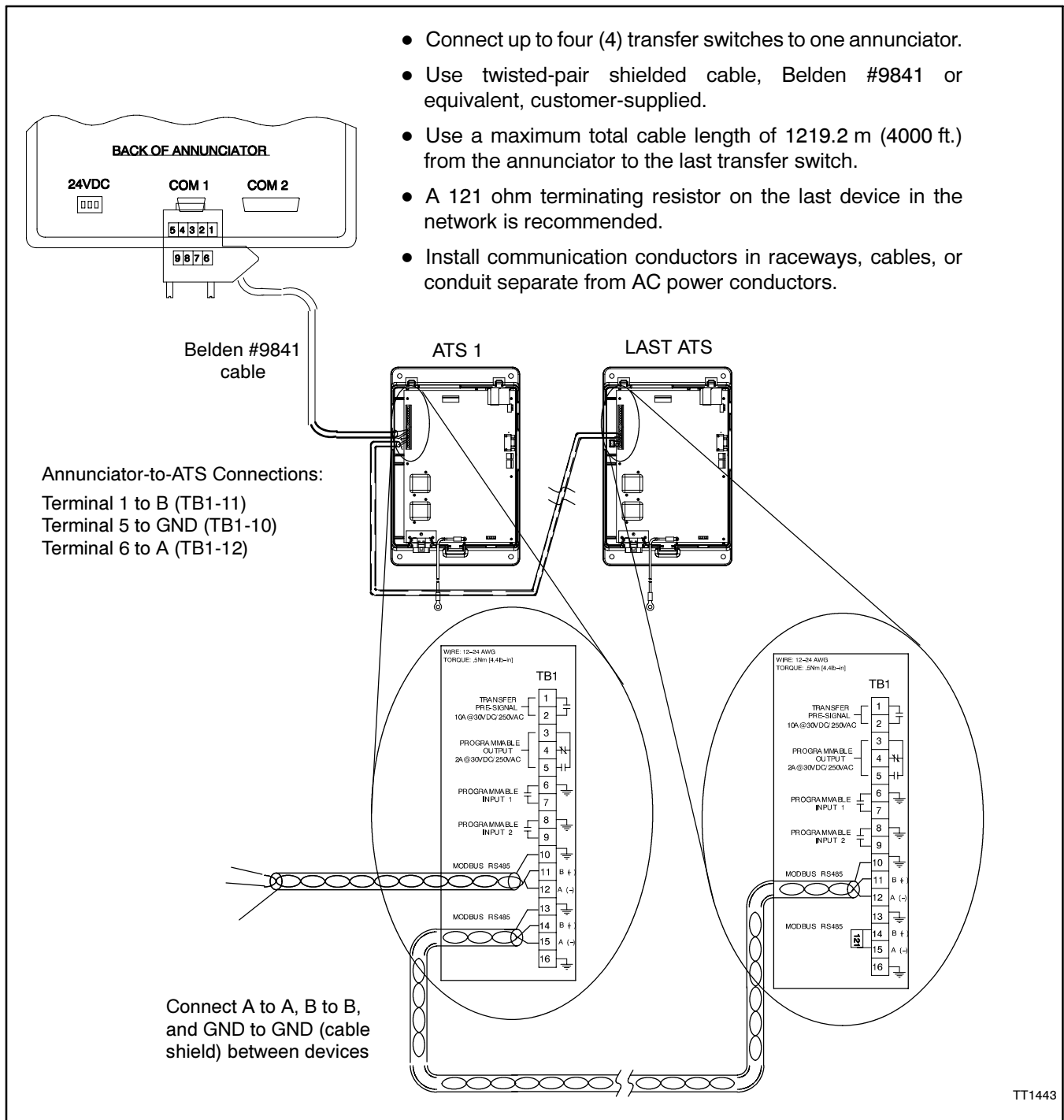
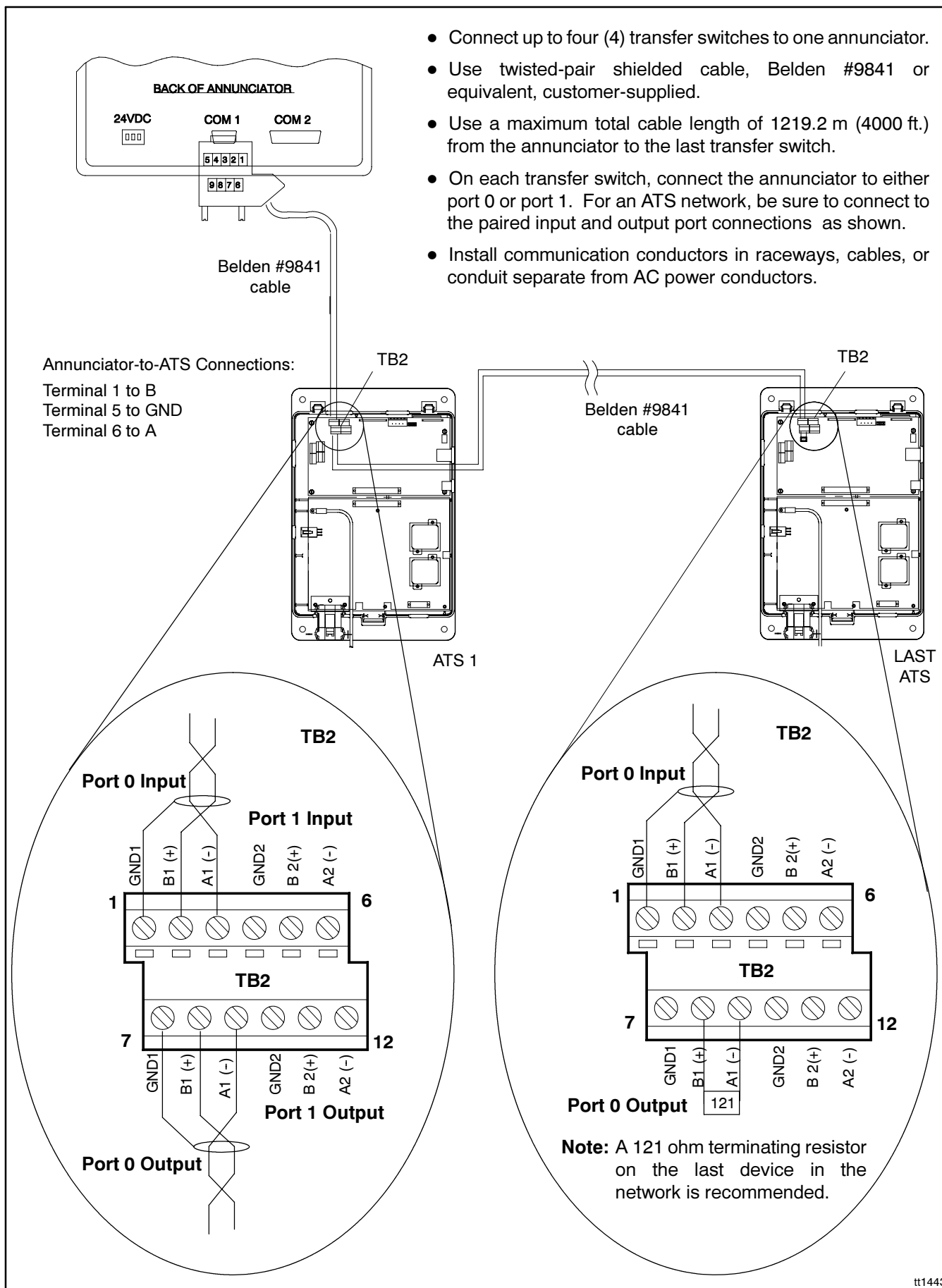


Figure 12 Annunciator and ATS Connections, Series 1000



tt1443

Figure 13 Annunciator and ATS Connections, Series 1500

1.8 Install the annunciator assembly.

1. Use customer-supplied hardware to install the annunciator assembly using the mounting holes drilled in Section 1.3.
2. Close the annunciator enclosure, if used, and secure the cover screws.

1.9 Reconnect power to the transfer switch.

1. Close and lock the transfer switch enclosure door.
2. Reconnect power to the ATS by closing the Normal and Emergency source circuit breakers or switches.

1.10 Restore the generator set to service.

1. Check that the generator set master switch is in the OFF position.

2. Reconnect the generator set engine starting battery, negative (-) lead last.
3. Reconnect power to the battery charger, if equipped.
4. Move the generator set master switch to the AUTO position.

1.11 Connect power to the annunciator.

Connect power to the annunciator power source by closing the line circuit breaker or switch or connecting the DC power leads to the 24 VDC power source.

2 Transfer Switch Setup

Configure the transfer switch communication settings and assign the programmable input, if used.

2.1 Model K/S with Series 1000 Controls

A personal computer running the Setup Program is required to configure the communication parameters for each transfer switch. Use a null modem cable to connect a personal computer to the serial port (P6) on the ATS main logic board. See Figure 7.

Disconnect power to the ATS before opening the enclosure door to connect or disconnect the null modem cable. Close the enclosure door and reconnect power to the transfer switch in order to check and configure the ATS settings.

Refer to the Setup Program operation and installation manual for instructions to install and run the program.

Use the following procedure to configure the communication parameters for each ATS. Also use the Setup Program to assign the programmable input if an output from the generator set was connected to an ATS input terminal in Section 1.6. Use the programmable input/output window in the Setup Program to assign the input to *Remote Common Fault*.

1. Select the Network Interface Port window and open the associated setup window.
 - a. Assign a unique network address to each ATS. The addresses must be numbered 1, 2, 3, and 4 in the order that the transfer switches are connected to the annunciator, with number 1 being closest to the annunciator.
 - b. Set the baud rate for each ATS to match the annunciator baud rate. A baud rate of 19200 is recommended. The 9600 baud may also be used. See step 3.7 for instructions to change the annunciator baud rate, if necessary.
2. To assign ATS designations and load descriptions, select the System Information window and open the associated setup window.
 - a. Assign a unique designation to each transfer switch in the network. The annunciator displays the first 13 digits of the ATS designation in the Summary Screen. Choose short names or names that uniquely identify the ATS in the first 13 characters.
 - b. In the same System Information setup window, assign a unique load description. The load description will be displayed in the annunciator's Detail Screen.

3. If an output from the generator set was *not* connected to an ATS input terminal in Section 1.6, proceed to step 5.
4. To assign the output from the generator set to the remote common fault input on the ATS, select the Programmable Input/Output data window and open the associated setup window.
 - a. Select the input terminals on the main logic board or the I/O module. For an I/O module, be careful to select the I/O module address first.
 - b. Use the dropdown arrow next to the selected input to display the list of available programmable inputs. Select *Remote Common Fault* and click OK to save the setting.
5. Disconnect and exit the program as instructed in the Setup Program operation and installation manual.
6. Close and secure the transfer switch door after disconnecting the null modem cable. Reconnect power to the transfer switch.
7. Repeat the configuration for each transfer switch monitored by the remote annunciator, selecting unique ATS and load descriptions to identify each unit.

2.2 Model K1/S1 with Series 1500 Controls

2.2.1 Configure the ATS Communication Settings and Optional Input

Configure the transfer switch communication settings and inputs using the Series 1500 controller's user interface. Refer to the transfer switch operation/Installation Manual for detailed instructions during the following procedure.

If the transfer switch is connected to an ethernet network for Monitor III or some other application, contact your local network administrator for assistance with the ethernet settings in the following procedure.

Use the following procedure to configure the communication parameters for each ATS, and to assign the programmable input if an output from the generator set was connected to an ATS input terminal in Section 1.6. The steps are arranged in the order that the setup screens appear on the Series 1500 controller.

1. Navigate to the Communications Setup screen on the Series 1500 controller. Press the right arrow button to enter the setup and set the following parameters. Be sure to save each setting.

The communication settings are summarized in Figure 14.

2. MODBUS Server TCP. If the transfer switch is connected to a PC through the ethernet connection for Monitor III or some other application, set this to Enable. Otherwise, select Disable.
3. MODBUS Server Port 0. Enable if the annunciator or a PC is connected to port 0. See Figure 13.
4. MODBUS Server Port 1. Enable if the annunciator or a PC is connected to port 1. See Figure 13.
5. MODBUS Address Port 0 and Port 1. Assign a network address for the port connected to the annunciator. The addresses must be numbered 1, 2, 3, and 4 in the order that the transfer switches are connected to the annunciator, with number 1 being closest to the annunciator.

If the other port is connected to a PC, assign that port a different network address that is not used for any of the annunciator ports in the network.

Communications Setup Parameter	Possible Settings	Annunciator Connection	Ethernet*	Notes
Modbus Server TCP	Enabled or Disabled		X*	Enable if using an Ethernet connection for Monitor III
Modbus Server Port 0	Enabled or Disabled	X		Enable for Modbus communication through serial port 0 on the main logic board.
Modbus Server Port 1	Enabled or Disabled	X		Enable for Modbus communication through serial port 1 on the main logic board.
Modbus Addr Port 0	001-247 default = 1	X		Address for RS-485 serial port 0 (on the logic board). Each port must have a different address.
Modbus Addr Port 1	001-247 default = 2	X		Address for RS-485 serial port 1 (on the logic board). Each port must have a different address.
Baud Rate Port 0	9600, 19200, 57600	X		Use 9600 or 19200 for annunciator communication. Baud rate in bits per second for serial communication between the controller and a personal computer's COM port.
Baud Rate Port 1	9600, 19200, 57600	X		
Modbus TCP Unit ID	001-247 default = 3	—	X*	Factory-set to 3. A unit ID is required for Modbus over TCP communication. The unit ID for TCP communication is analogous to the Modbus address for serial communication through the RS-485 ports.
IP Address	—	—	X*	Obtain from your local network administrator. Every device on the network must have a unique IP address.
Subnet Mask	—	—	X*	Obtain from your local network administrator.
MAC Address	Factory-set, fixed	—	X*	Hardware address, entered at the factory. Not adjustable. Appears only in the Communications View screen.
* Ethernet settings are applicable only if the ATS is connected to the Ethernet for Monitor III or applications other than annunciator communication.				

Figure 14 Series 1500 Communication Settings

6. Baud Rate Port 0 and Port 1. Set the baud rate for each ATS to match the annunciator baud rate. A baud rate of 19200 is recommended. The 9600 baud may also be used. See step 3.7 for instructions to change the annunciator baud rate, if necessary.

If the other port is connected to a PC, set the port's baud rate as required (for example, to match the Monitor III baud rate).

7. If the transfer switch is NOT connected to a PC through the ethernet connection, proceed to step 11. Otherwise, proceed to the next step to set up the ethernet communication settings. Contact your local network administrator for assistance.
8. MODBUS TCP Unit ID. This is factory-set to 3. Change if necessary. (Required for ethernet connections only, not used for annunciator connection.)
9. IP Address. Obtain an IP address from your local network administrator. (Required for ethernet connections only, not used for annunciator connection.)
10. Subnet mask. Obtain from your local network administrator. (Required for ethernet connections only, not used for annunciator connection.)
11. To assign the output from the generator set to the remote common alarm input on the ATS, navigate to the Set Input/Output data screen.

If an output from the generator set was *not* connected to an ATS input terminal in Section 1.6, proceed to step 12.

- a. Select Set Main Board I/O if the generator set output has been connected to the controller's main logic board I/O connection. Select Set Auxiliary I/O if the generator set output has been connected to an I/O module. For an I/O module, step to the connected module number.
 - b. Scroll through the list of available programmable inputs. Select *Remote Common Alarm* and save the setting.
12. Repeat the configuration for each transfer switch connected to the remote annunciator.

2.2.2 Use Monitor III to Assign Descriptions

The annunciator display identifies the transfer switch by its designation and load description. Use the Monitor III program to assign a unique designation to each transfer switch and to enter load descriptions. Refer to TP-6347, Monitor III Operation/Installation Manual, for instructions to assign designations and load descriptions through the System Information setup window.

Note: The transfer switch designations and load descriptions are not essential to annunciator operation. However, if more than one ATS is connected, transfer switch identification on the annunciator screen will be difficult without these descriptions. See Figure 19 and Figure 24 for examples.

1. Assign a unique designation to each transfer switch in the network. The annunciator displays the first 13 digits of the ATS designation in the Summary Screen. Choose short names or names that uniquely identify the ATS in the first 13 characters.
2. Assign load descriptions for each ATS. The load description will be displayed in the annunciator's Detail Screen.

3 Operation Instructions

The annunciator uses an analog resistive touch screen. Use your finger, the eraser end of a pencil, or other soft instrument to touch the buttons on the screen.

Note: Do not use any sharp or metal instruments, including screwdrivers or ballpoint pens, to touch the screen.

3.1 Annunciator Startup and Indicators

1. Connect power to the annunciator by closing the line circuit breaker or switch.
2. Four LEDs indicate the annunciator status. See Figure 15. The rightmost LED lights to indicate power to annunciator. The other LEDs light and flicker to indicate communication between the annunciator and the transfer switch network. If the communication LED flashes steadily, the annunciator is not communicating with the transfer switch network.

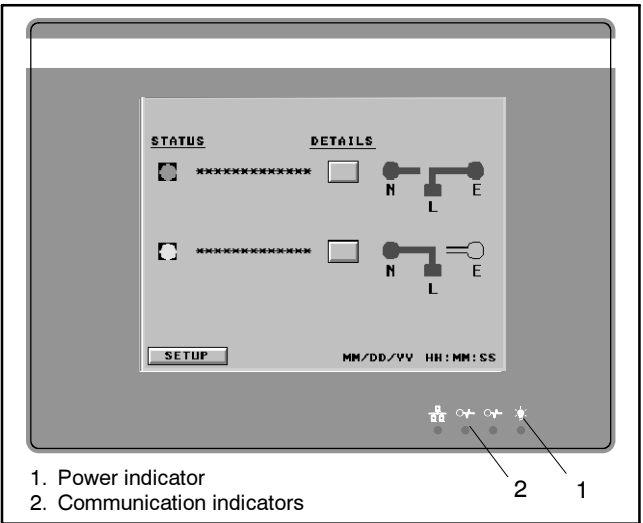


Figure 15 Annunciator LEDs

3. At initial startup, the annunciator assumes that one transfer switch is connected. The annunciator goes through an automatic startup sequence and then a summary screen similar to that shown in Figure 16 appears.

Note: At startup, the summary screen shows only one ATS. Proceed to the next step for instructions to set the number of connected transfer switches.

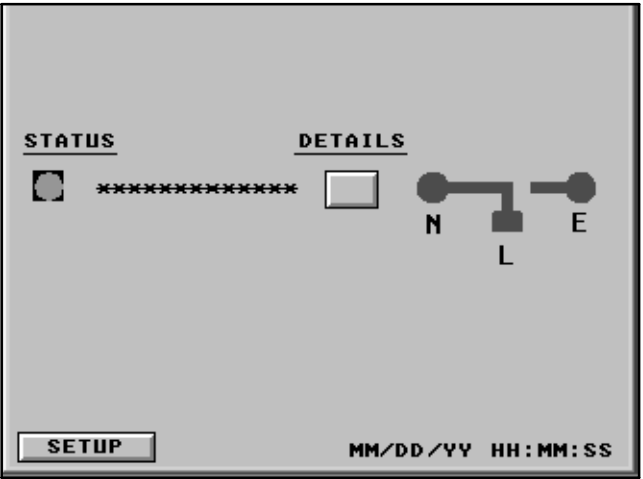


Figure 16 Summary Screen, One ATS

3.2 Annunciator Setup

Note: In sample screens shown throughout these instructions, asterisks (***) indicate text and pound signs (##.##) indicate numerical values.

1. Press the Setup button at the lower left corner of the Summary screen. The Setup screen shown in Figure 17 appears.

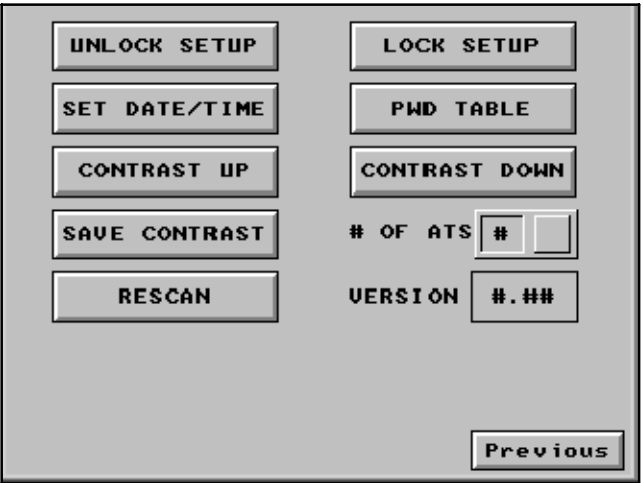


Figure 17 Setup Screen

2. Press the Unlock Setup button.

Note: Unlocking the setup allows the user to change the number of switches, date, time, and passwords.

3. The screen prompts you to enter a password. The default password is 00000000 (8 zeros). Enter the password.
4. When the correct password has been entered, the Setup screen returns. Press the button to the right of # OF ATS in the second column. See Figure 17. A numeric keypad appears. Touch the correct number of connected transfer switches and press the enter key (ENT).

Note: A maximum of four (4) transfer switches can be connected to the annunciator.

5. Press the Set Date/Time button and enter the current date and time.
6. Press the PWD Table button to change the password. Change the password for level 1 access to prevent unauthorized users from unlocking the setup. See Section 3.6.2 for more information about level 1 and level 3 passwords.

See Figure 18. To change the password, touch the 8-digit password on the left side of the screen. Then use the numeric touchpad on the right to type in the new 8-digit password. Press ENT (enter), then press OK.

7. Use the Contrast Up and Contrast Down buttons to adjust the display, if desired. A password is not required to adjust the contrast.
8. Press the Rescan button to read the ATS designation and load description, if desired. The annunciator reads these items only on initial startup or when Rescan is pressed.
9. Find the version number of the annunciator's application software in the Version box. The software is factory-installed and not changeable in the field.
10. Press the Lock Setup button when finished to prevent unauthorized changes.
11. Press the Previous button at the lower right corner of the Setup Screen to return to the Summary Screen.

Note: It may take several seconds to update the settings and return to the Summary Screen.

12. Verify that the Summary Screen now displays the status of each connected transfer switch. See Figure 19, Figure 20, and Figure 21.

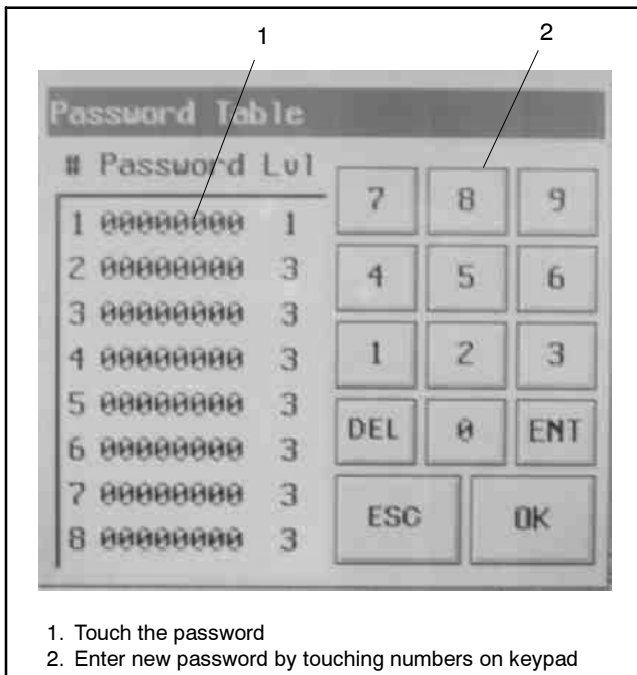


Figure 18 Changing a Password

3.3 Summary Screens

The Summary Screens show the following information for each transfer switch. See Figure 16, Figure 19, Figure 20, and Figure 21.

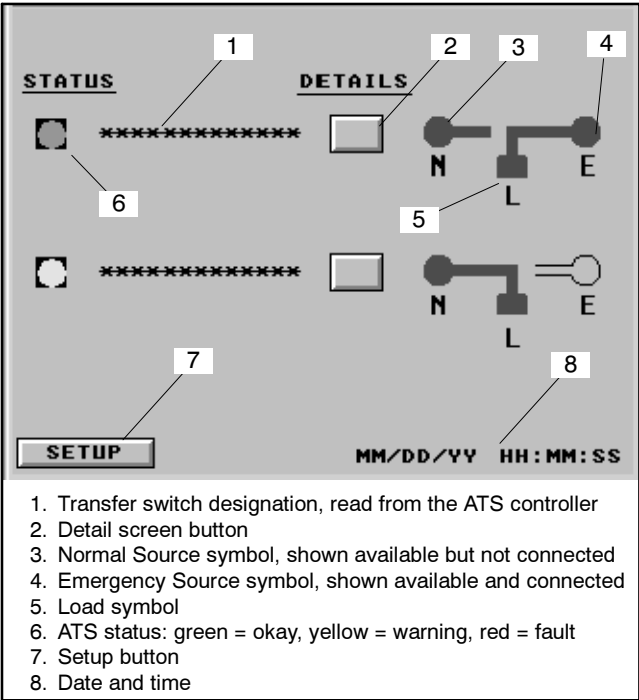


Figure 19 Summary Screen, Two Transfer Switches

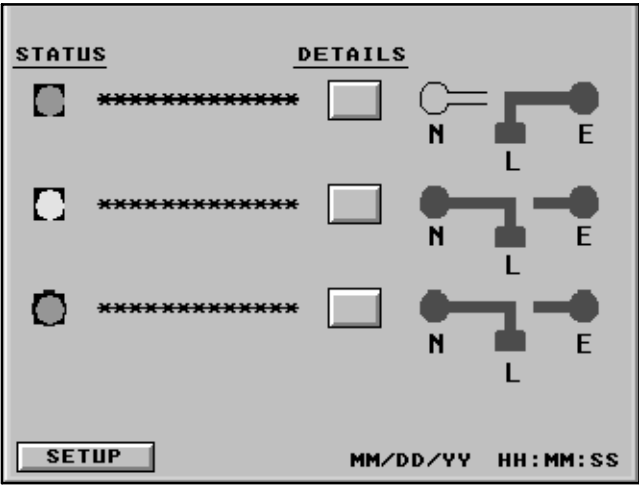


Figure 20 Summary Screen, Three Transfer Switches

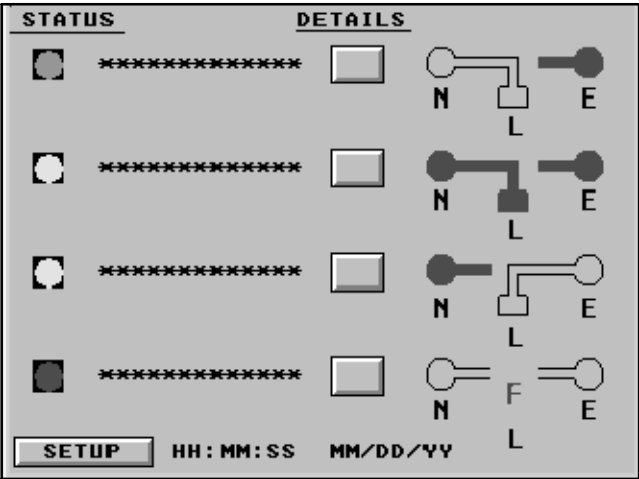


Figure 21 Summary Screen, Four Transfer Switches

3.3.1 Transfer Switch Status

The annunciator reads the transfer switch status from the ATS controller. The status of each transfer switch is shown by a colored circle on the left side of the Summary Screen. See Figure 22 for the indicator colors.

The annunciator alarm will sound on a fault condition. The alarm can be silenced by pressing the Details button and entering the Detail Screen. See step 3.4.

ATS Status Indicator Color	Indicates:
Green	OK
Yellow	Warning
Red	Fault

Figure 22 ATS Status Indicator Colors

3.3.2 Transfer Switch Designation

The transfer switch designation identifies the ATS and is read from the ATS controller. See Section 2 for imore information about ATS designations.

3.3.3 Detail Screen Button

Press the button to the right of the ATS designation to open the Detail Screen for that transfer switch. Entering the Detail Screen silences the audible alarm. See Section 3.4 for instructions for the Detail Screens.

3.3.4 Source Available

The sources are identified on the Summary Screen as N for the normal source and E for emergency. The round symbols above the N and E are red if the source is available or gray if the source is not available. See Figure 23.

Source Indicator Color	Indicates:
Red	Source Available
Gray	Source Not Available

Figure 23 Source Indicator Colors

3.3.5 Contactor Position

The letter L with the square symbol above it on the Summary screen represents the load. A solid line from one source symbol (N or E) to the load symbol (L) indicates the contactor position; the load is connected to either the Normal or Emergency source.

If there is no solid line from the load symbol to either source symbol, then the contactor is in the Off position (programmed-transition switches only).

If there is no solid line from the load symbol to either source and the letter F is displayed between the source symbols, a fault is indicated. The contactor position is unknown. Refer to the transfer switch literature to diagnose and correct the fault. See Figure 21 for an example of a status screen indicating this type of fault.

3.3.6 Date and Time

The date and time are maintained by the battery-backed clock in the annunciator. They are not read from the ATS. See Section 3.2 to set the date and time.

3.3.7 Setup Button

Press the Setup button in the lower left corner to return to the Setup Screen.

3.4 Detail Screens

Separate Detail Screens for each transfer switch contain the following information and buttons. See Figure 24.

3.4.1 Status

The top line in the body of the detail screen displays the transfer switch status. The status message indicates system ready, faults, test running, time delay active, or other conditions read from the ATS controller.

3.4.2 Load

The annunciator reads the load description from the ATS controller. Use the Setup program or the Monitor III program to assign a unique description to the load.

3.4.3 Transfer Switch Description (Designation)

The transfer switch description identifies the ATS and is read from the ATS controller. The description is also called the *designation* in the ATS Setup program.

Use the Setup program or the Monitor III program to assign a unique designation to each transfer switch in the network.

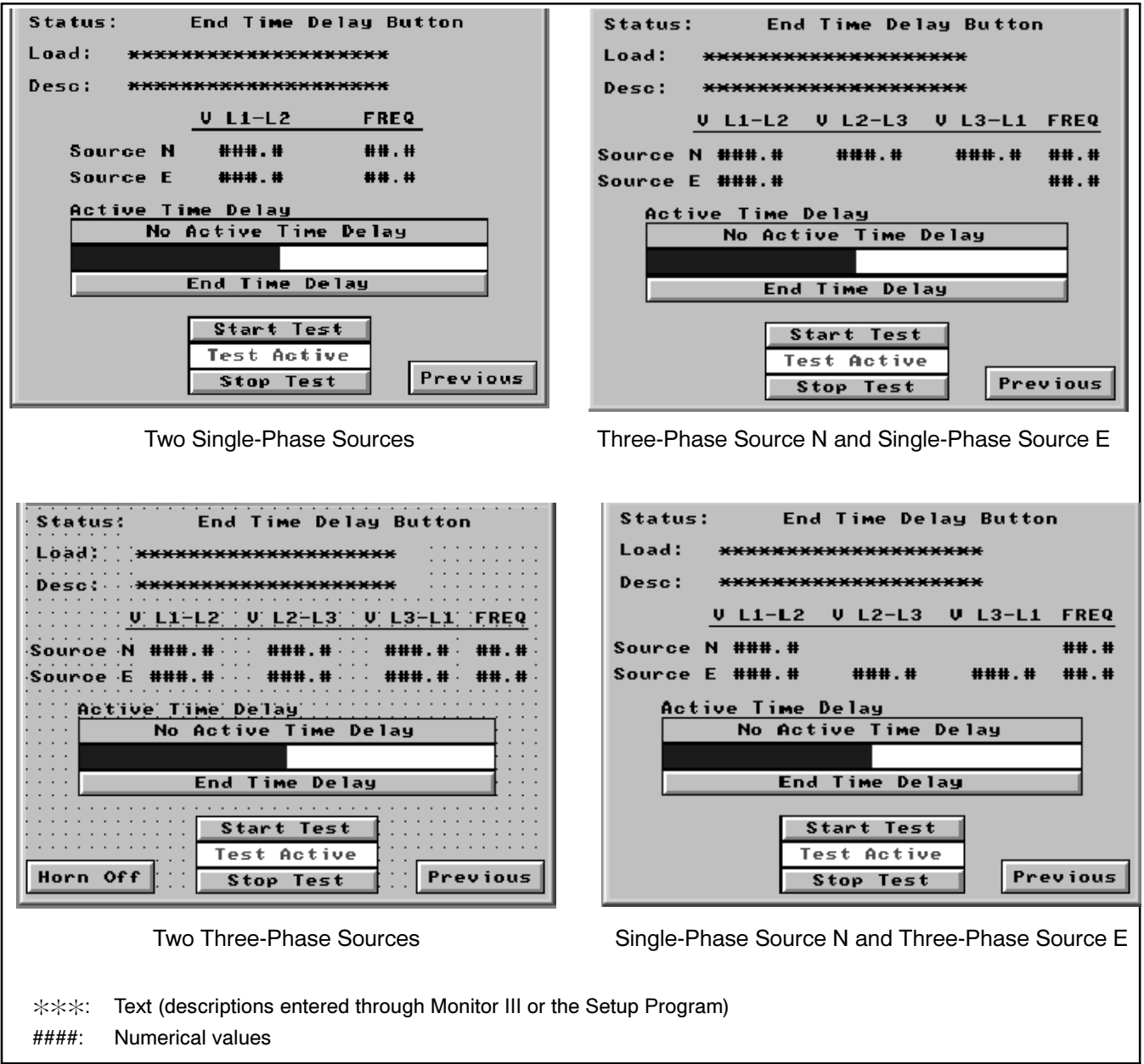


Figure 24 Detail Screens

3.4.4 Source Voltage and Frequency

The measured voltage on each phase of each source is displayed in the center of the screen. The measured frequency is shown in the last column of the display. A blank column appears in some cases if one of the sources is single-phase.

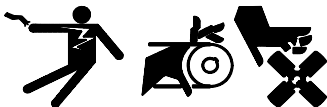
3.4.5 Time Delay Indication and Control

The Active Time Delay section of the screen identifies the active time delay, uses a bar display to show the time delay progress, and provides an End Time Delay button for control. Press the End Time Delay button to end a time delay early, if desired. No password is needed to end a time delay.

Note: The End Time Delay button ends the currently active delay. Consecutive programmed time delays will operate unless the End Time Delay button is pressed for each one.

3.4.6 Test Indication and Control

⚠ WARNING



**Accidental starting.
Can cause severe injury or death.**

Disconnect the battery cables before working on the generator set. Remove the negative (-) lead first when disconnecting the battery. Reconnect the negative (-) lead last when reconnecting the battery.

Disabling the generator set. Accidental starting can cause severe injury or death. Before working on the generator set or connected equipment, disable the generator set as follows: (1) Move the generator set master switch to the OFF position. (2) Disconnect the power to the battery charger. (3) Remove the battery cables, negative (-) lead first. Reconnect the negative (-) lead last when reconnecting the battery. Follow these precautions to prevent starting of the generator set by an automatic transfer switch, remote start/stop switch, or engine start command from a remote computer.

Note: DIP switches on the transfer switch controller determine whether the test sequence runs with or without load. See the transfer switch operation and installation manual.

The Test section in the center bottom area of the screen indicates whether a test is running and allows the user to start and stop a test.

Note: A level 3 password is required to start a test.

Press the Start Test button in the detail screen to begin a test. The warning screen shown in Figure 25 appears. When it is safe to start the generator set, press the Start Test button. The password screen will appear. Enter the password by pressing the number buttons on the screen to start the test. The test warning screen shown in Figure 25 appears.

Press the Stop Test button to end the test. A password is not required to stop the test.

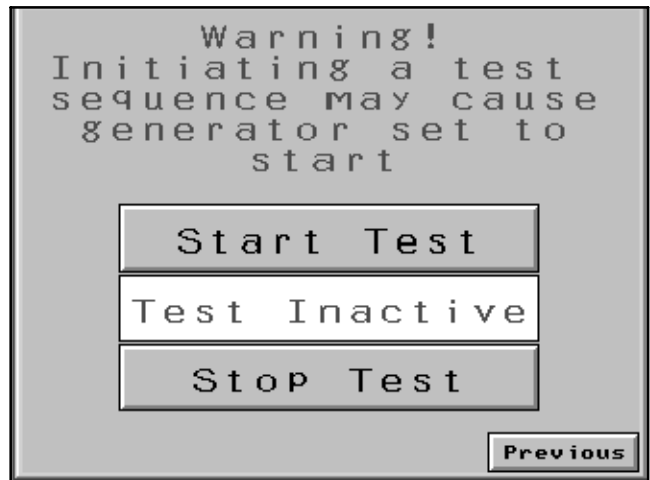


Figure 25 Test Warning Screen

3.5 Sleep Mode

After a preset time (normally 30 minutes), the annunciator screen goes dark and the unit enters the "sleep mode" or screensaver mode. Touch the screen to bring the annunciator out of the sleep mode.

The following conditions will bring the annunciator out of sleep mode:

- Loss of the Normal source
- A fault condition (shutdown)
- A warning

Transfer switch warnings and faults also activate the audible alarm.

A communications error will not bring the annunciator out of sleep mode.

See Section 3.7 for instructions to change the screensaver time.

3.6 Access and Passwords

Access to certain adjustments is controlled by passwords and DIP switch settings.

3.6.1 DIP Switch Settings

The annunciator’s DIP switch settings can be used to control access.

Note: Disconnect power before opening the annunciator enclosure.

The DIP switches are located on the back of the annunciator. See Figure 26. Disconnect power to the annunciator and open the enclosure to adjust the DIP switches. DIP switches 1 through 5, 9, and 10 are always ON for this application. Switches 6, 7, and 8 can be used to control user access as described in the following sections. See Figure 27.

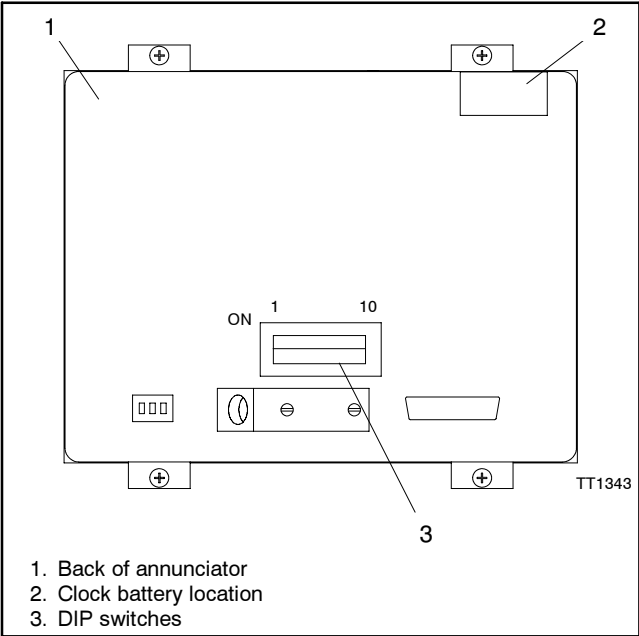


Figure 26 Annunciator DIP Switches

DIP Switch	Position *	Function
6	ON	Annunciator requires a password at startup.
	OFF	No password required at startup. Normal position.
7	ON	Annunciator displays System menu at startup.
	OFF	No access to the system menu. Normal position.
8	ON †	Default user level is 1. No passwords required. †
	OFF	Default user level is 9. Provides password protection of test start and other parameters. Normal position.

* ON = DIP switch up, OFF = down
† Setting DIP switch 8 to the ON position allows users to start a test without entering a password.

Figure 27 DIP Switches that Control Access

Figure 28 shows the DIP switch settings for normal operation and for access to the System Menu.

DIP Switch Settings *		
DIP Switch	For System Menu Access	For Normal Operation
1	ON	ON
2	ON	ON
3	ON	ON
4	ON	ON
5	ON	ON
6	OFF	OFF
7	ON	OFF
8	ON	OFF
9	ON	ON
10	ON	ON

* ON = DIP switch up, OFF = down

Figure 28 DIP Switch Settings

3.6.2 Passwords

Use different passwords to control access at different levels. This application uses level 1 and level 3 passwords. Other levels are not applicable.

Use level 3 for normal user access. Level 3 requires entering a password to start and stop a test and does not allow the user to unlock the setup or view and change passwords. See Section 3.6.1 and Figure 27 to set the password for level 3.

The level 1 password allows the greatest access to view and adjust communication settings, change passwords, and clear the annunciator’s memory. See Section 3.2 for instructions to change the passwords through the Setup Screen.

A level 1 password is required to unlock the setup in order to change the number of transfer switches or view and change passwords for all levels. Lock the setup again to prevent unauthorized access to the password table.

Note: When setup has been unlocked using a level 1 password, the user can start a test without entering the password again. Be sure to lock the setup to prevent test initiation by unauthorized users.

3.6.3 Forgotten Passwords

Set DIP switch 8 to the ON position to view and change passwords without entering a password first. Use this feature only if passwords have been lost or forgotten; otherwise, DIP switch 8 should remain in the OFF position. Follow the instructions in Section 3.2 to access the password table. Move DIP switch 8 to the OFF position when finished.

3.7 System Menu

The System Menu allows the operator to view and adjust communication settings or clear the annunciator memory. Level 1 access is required in order to display the system menu, which is shown in Figure 29.

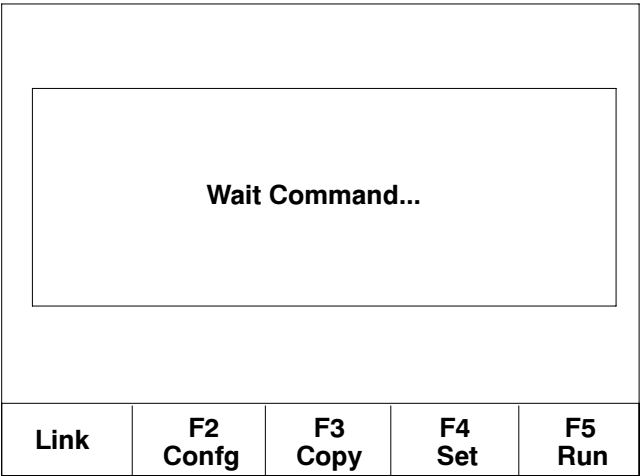


Figure 29 System Menu

1. To access the system menu, disconnect power from the unit, open the enclosure, and change the DIP switches to match the settings for system menu access shown in Figure 28.
2. Close the box and reconnect power to the annunciator. The system menu shown in Figure 29 appears after the startup screens.

Buttons in the System Menu that are used in this application are described in the following sections. The other buttons are not used.

3.7.1 Configure

Use the instructions in this section to change the baud rate or screensaver time, if necessary. Pressing the F2 Config button brings up the configuration table shown in Figure 30.

Note: Many of the communications settings shown in the configuration tables are required for successful communication between the annunciator and the transfer switch network. Change only the settings described below.

1. From the System Menu shown in Figure 29, press the F2 Config button to access the configuration table shown in Figure 30.

Date (mm-dd-yy)	(mm-dd-yy)
Day of the week	(today)
Time (hh:mm:ss)	(hh:mm:ss)
COM1 (Primary)	Enabled
COM2 (Secondary)	Enabled
Printer	Disabled
Battery check	Enabled
Screen saver time (Min.)	30
Download/Upload/Copy port	COM2
RTC adjust	+24

+	↑	-	PgUp	Quit	Save & Quit
←	↓	→	PgDn		

Figure 30 Configuration Table, First Screen

COM1 parameter setting					
Baud rate	19200				
Data bits	8 bit				
Parity	None				
Stop bits	1 bit				
Command delay (x 10 ms)	002 (minimum)				
Node address	000				
PLC model code	0				
Command retry time	00				
+	↑	-	PgUp	Quit	Save and Quit
←	↓	→	PgDn		

Figure 31 Configuration Table, Second Screen

2. Press the buttons at the bottom of the table to move up, down, left, or right to highlight the setting.
3. Press the + and - buttons to increase or decrease the value.
4. The date, day of the week, and time can be changed here or from the setup screen; see Section 3.2.
5. Use the up and down arrow buttons to adjust the screensaver time, if desired. Screensaver times are given in minutes.

Note: Setting the screensaver time to zero (0) causes the display to stay on continuously, which shortens the life of the display. Setting the screensaver time to zero is not recommended.

6. Compare all other settings to the values shown in Figure 30 to ensure that they have not been changed inadvertently.
7. Press the PgDn (page down) button to advance to the COM 1 parameter setting screen shown in Figure 31.
8. Set the baud rate to either 9600 or 19200.

Note: The annunciator baud rate must match the baud rates of all connected transfer switches.

9. Compare all other settings to the values shown in Figure 31 to ensure that they have not been changed inadvertently.

Pressing PgDn from this screen advances to the COM2 parameter setting screen. COM2 is used only at the factory. It should not be necessary to change the settings for COM2.

10. Press Save and Quit to save changes and exit the Configuration table, or press Quit to discard changes.
11. Proceed to Section 3.7.2 to check the new settings, if desired, or disconnect power and reset the DIP switches to the normal operation positions given in Figure 28. Close the box and reconnect power.

3.7.2 Run

From the System Menu screen shown in Figure 29, touch RUN to operate the annunciator to check the new settings, if desired. The Summary Screen appears as described in Section 3.1.

Note: Running the annunciator using the RUN button in the Level 1 mode allows the user to start a test without entering a password.

The RUN button does not reset the system for normal operation. See Section 3.7.5 for instructions to return the system to normal operation after making changes in the System Menu.

Disconnect and reconnect power to the annunciator if it is necessary to return to the System Menu after entering the RUN mode.

3.7.3 Clear Data RAM

Use Clear Data RAM to return the annunciator to the default settings, if necessary. For example, if too many transfer switches were entered in the Setup Screen's # of ATS parameter, press Clear Data RAM to reset the number to 1.

From the System Menu screen shown in Figure 29, touch F4 Set. Then touch Clear Data Ram.

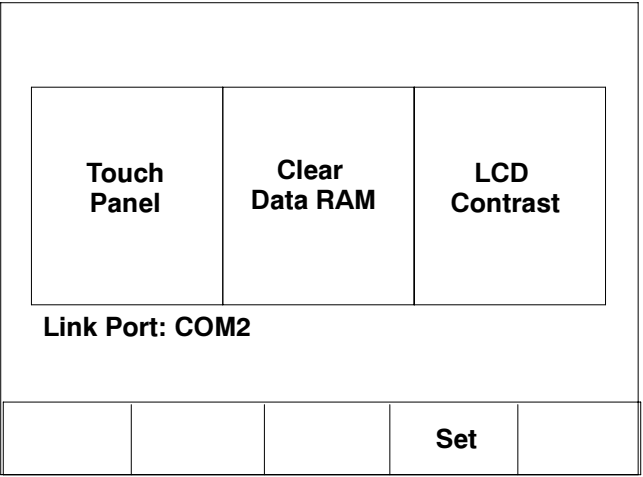


Figure 32 Set Screen

3.7.4 Touch Panel

The Touch Panel button calibrates the display. The display has been calibrated at the factory and should not require recalibration. If you press this button by mistake, use a dull pencil or other soft item to carefully touch the white dots on the screen as directed. If a rectangle appears at the center of the screen, press it to return to the system menu.

3.7.5 Return to Normal Operation

After completing the necessary changes in the system menu, disconnect power to the annunciator, open the enclosure, and reset the DIP switches to the normal operation settings shown in Figure 28. Normal operation mode prevents test initiation and access to the passwords by unauthorized users.

3.8 Annunciator Troubleshooting

Figure 33 lists some potential symptoms, possible causes, and recommended solutions.

Symptom	Possible Cause	Recommended Action
Display “hangs up,” does not respond to touch.	Too many transfer switches entered in the Setup Screen.	Clear the Data RAM to reset the number of transfer switches to 1. See 3.7.3. Check that all ATS's are connected and configured correctly before resetting the number of transfer switches. See Installation Procedure.
Communications Error warning displayed and slower-than-normal flashing of the lower LED.	Loose connections. Incorrect communications settings on annunciator or one or more transfer switches.	Check ATS network connections. Check connections to the annunciator. Check the baud rates on the annunciator and all connected transfer switches. Check the ATS network addresses. Compare annunciator communications settings to Figure 30 and Figure 31 and adjust, if necessary.
System Menu does not change and annunciator does not run when the Run button is pressed.	Annunciator application code error.	Contact the factory.
Lost or forgotten passwords.		See Section 3.6 for instructions to set DIP switch 8 to the ON position in order to review the passwords and change them, if necessary. Be sure to set DIP switch 8 to the OFF position when finished.
Clock loses time.	Weak or dead battery.	Replace the annunciator battery with part number GM31562, available through your distributor/dealer. See Figure 26 for battery location.

Figure 33 Annunciator Troubleshooting

4 Parts Lists

Annunciator Kits, Enclosed

Kits: GM49279-KP1 and GM49279-KP1S			
Qty.	Description	GM49279-KP1	GM49279-KP1S
1	Decal, danger	362176	362176
1	Connector, plug	GM23792	GM23792
1	Enclosure, annunciator	GM28885	GM28885
4	Bracket, mtg	GM29233	GM29233
1	Panel, mtg	GM29524	GM29524
1	Power supply	GM29525	GM29525
1	Decal	GM29542	GM29542
1	Annunciator	GM49276	GM49277
1	Plate, bezel	GM49278	GM49278
1	Panel, annunciator	—	—
1	Lead	SW1-1812-0505	SW1-1812-0505
1	Lead	SW2-1812-0505	SW2-1812-0505
4	Screw, slotted pan head machine	X-50-73	X-50-73

Annunciator Kits, Flush-Mounted

Kits: GM49280-KP1, and GM49280-KP1S			
Qty.	Description	GM49280-KP1	GM49280-KP1S
1	Decal, danger	362176	362176
1	Connector, plug	GM23792	GM23792
4	Bracket, mtg	GM29233	GM29233
1	Power supply	GM29525	GM29525
1	Decal	GM29542	GM29542
1	Annunciator	GM49276	GM49277
1	Plate, bezel	GM49278	GM49278
1	Panel, annunciator	GM30040	GM30040
1	Lead	SW1-1812-0505	SW1-1812-0505
1	Lead	SW2-1812-0505	SW2-1812-0505

Annunciator Kits, Enclosed or Flush-Mounted

Kits: GM52650-KP1 and GM52650-KP1S			
Qty.	Description	GM52650-KP1	GM52650-KP1S
1	Decal, danger	362176	362176
1	Connector, plug	GM23792	GM23792
1	Enclosure, annunciator	GM28885	GM28885
4	Bracket, mtg	GM29233	GM29233
1	Panel, mtg	GM29524	GM29524
1	Power supply	GM29525	GM29525
1	Decal	GM29542	GM29542
1	Annunciator	GM49276	GM49277
1	Plate, bezel	GM49278	GM49278
1	Panel, annunciator	GM30040	GM30040
1	Lead	SW1-1812-0505	SW1-1812-0505
1	Lead	SW2-1812-0505	SW2-1812-0505
4	Screw, slotted pan head machine	X-50-73	X-50-73

Notes