INSTALLATION INSTRUCTIONS

Original Issue Date: **3/14**

Model: **Generator Sets** with APM802 Controller; Decision-Maker® 3+, 550, 3000, 3500, 6000, and 8000 Controllers; and KPC 1000 Controller

Transfer Switches with Decision-Maker® MPAC 750, 1000, 1200, and 1500 Controllers

Market: **Industrial**

Subject: **Remote Serial Annunciator (RSA III) Kits (Firmware Version 1.0)**

Introduction

RSA III is an annunciator panel offered in several kit configurations to support Kohler power equipment. The RSA III is a remote serial annunciator (Figure 1, Figure 2, and Figure 3) that monitors the condition of the generator set and/or ATS from a remote location. The RSA III alerts the operator through visual and audible signals using LED indication and a horn. An alarm silence and lamp test switch are included.

The RSA III meets NFPA 110, Level 1 applications that require remote controls and alarms be powered by a storage battery such as the engine starting battery. AC adaptor kit GM62466-KP1 is available when NFPA is not required.

The front panel decals include areas that can be used to identify user-selected fault inputs and identify associated power system equipment.

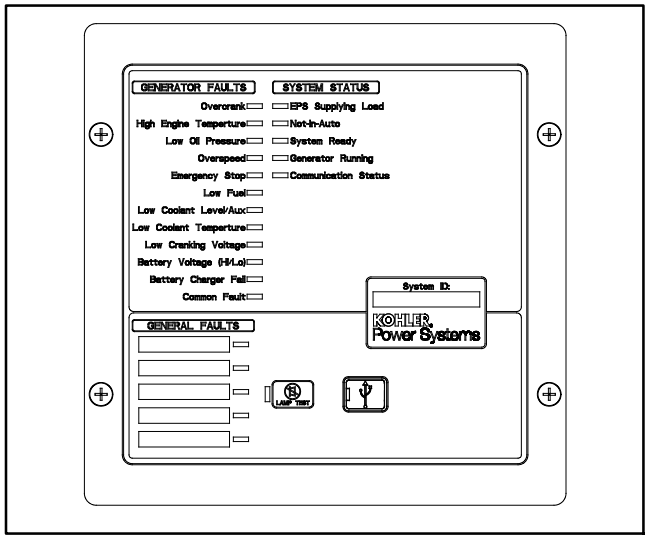

Figure 1 Remote Serial Annunciator (RSA III)

An RSA III annunciator can be used for a single generator set (Figure 1) or with a combination of a generator set and automatic transfer switch(es) (Figure 2 or Figure 3). In systems using more than a single RSA III, one must be designated as the master device to broadcast to additional RSA III annunciators, designated as slave devices. Up to five RSA III slave devices can be used with an RSA III master device. All RSA III annunciators are factory set as the master device, but can be changed to a slave device using a PC and SiteTech™ software that connects to the RSA III front panel via a universal serial bus (USB) connection.

The RSA II can be connected with the RSA III provided that the master remote annunciator is an RSA III.

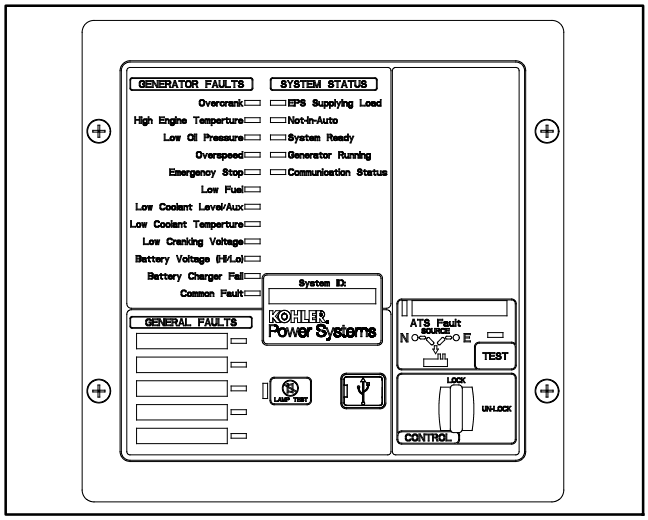

Figure 2 RSA III with Single ATS Control

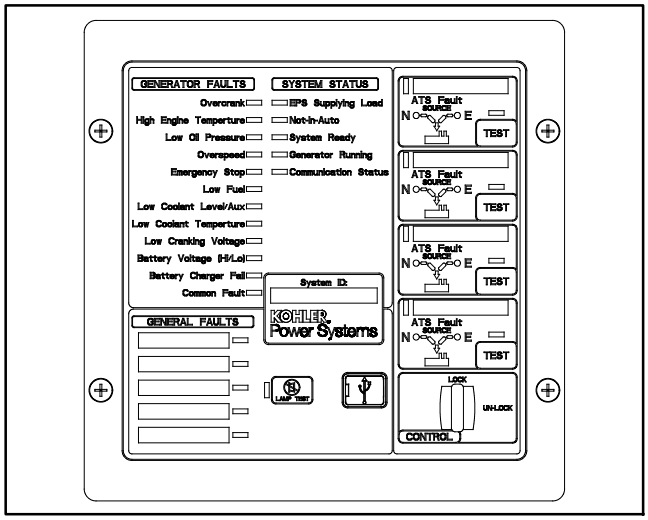

Figure 3 RSA III with Four ATS Controls

Controller	RSA III	RSA III with single ATS	RSA III with multiple ATS	
APM802	**GM91356-KP1, GM91356-S1**	**GM91356-KP2, GM91356-S2**	**GM91356-KP3, GM91356-S3**	Includes RSA III only
DEC 3+	**GM91356-S4**	**GM91356-S5**	**GM91356-S6**	Includes RSA III and communication module, **GM32644-KP1 Comm. Module Kit** (loose)
DEC 3+ **(with GM32644-KP1 Comm. Module)**	**GM91356-KP1, GM91356-S1**	**GM91356-KP2, GM91356-S2**	**GM91356-KP3, GM91356-S3**	Includes RSA III only
DEC 550				
DEC 3000				
DEC 3500				
DEC 6000				
DEC 8000				
KPC 1000	**GM91356-S7**	**GM91356-S8**	**GM91356-S9**	Includes RSA III and KPC 1000 harness
MPAC® 750	—	**GM91356-KP2, GM91356-S2 GM91356-S5 GM91356-S8**	**GM91356-KP3, GM91356-S3 GM91356-S6 GM91356-S9**	See above for controller requirements to determine which kit to use
MPAC® 1000	—			
MPAC® 1200	—			
MPAC® 1500	—			
Any non NFPA110	**GM62466-KP1**	**GM62466-KP1**	**GM62466-KP1**	Optional RSA power supply kit

Figure 4 RSA III Kit Selection

A PC with SiteTech™ software is required to make the RSA III functional. Use your SecurID to access KOHLERnet, click on the TechTools button, and follow the instructions to download the files. See SiteTech™ Software Settings and refer to TP-6701 SiteTech™ Software Operation Manual for more information.

The RSA III kits include components for surface mounting or flush mounting.

RSA III annunciators used with DEC 3+ controllers require a separate communication module that can be provided with RSA III kit selection (Figure 4).

If a fault occurs, the RSA III horn activates and the corresponding LED illuminates. The following paragraphs describe specific features of the RSA III.

If the RSA III is used with an Ethernet communication network, order Modbus® Ethernet converter GM41143-KP2 and refer to TT-1405 Converters, Connections, and Controller Setup for Network Communication for system installation.

If the RSA III is used with a DEC 3+ controller, it will require a communication module board; refer to TT-1285 Program Loader Software instructions for downloading firmware version 1.23 and higher.

The RSA III is compatible with the following controllers:

- APM802 (compatible with RSA firmware version 2.0.8 or higher)
- DEC 3+ controller with GM28725 (red) circuit board, firmware version 1.13 and higher with the GM47242 communication module board. The GM49791-1 communication module board requires controller firmware version 1.23 and higher.
- DEC 3+ controller with GM64497 (blue) circuit board, firmware version 2.03 and higher with all communication module boards.
- DEC 550 controller firmware version 2.10 and higher.
- DEC 3000 controller firmware version 1.0 and higher.
- DEC 3500 controller firmware version 1.0 and higher.
- DEC 6000 controller firmware version 2.5 and higher.
- DEC 8000 (compatible with RSA firmware version 2.0.8 or higher)
- KPC 1000 controller firmware version 1.41 and higher.
- MPAC®750 version 1.00 and higher.*
- MPAC®1000 version 2.03 and higher.*
- MPAC®1200 version 1.00 and higher.*
- MPAC®1500 version 1.15 and higher.*

* RSA III with ATS controls only.

Note: Should any communication issues occur when adding RSA III slaves and/or transfer switches to the system, be sure to power down the RSA III master and then power up the RSA III master so that the RSA III master can recognize the changes.

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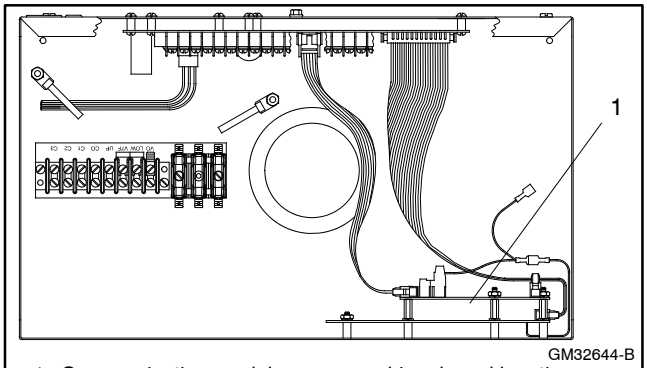
Communication Module for DEC 3+ Controller

GM47242 Circuit Board. Communication module for all generator set models except 450/500REOZVB and 80–150REOZJD; superseded by GM49791-1.

GM49791-1 Circuit Board. Communication module for all generator set models. **Requires firmware version 1.23 or higher with red controller board or 2.03 or higher with blue controller board.**

When adding the RSA III to the 450/500REOZVB and 80–150REOZJD models, check the part number of the circuit board in the communication module location. See Figure 5. Circuit board GM49791-1 must be installed. GM49791-2 circuit board provides controller gauge drivers only and does not have a communication function. Remove GM49791-2 and order GM32644-KP1 communication module kit that includes the GM49791-1 circuit board.



1. Communication module or gauge driver board location (see Communication Module for DEC 3+ Controller section for variations)

Figure 5 DEC 3+ Controller with Installed Comm. Module (Controller Top View)

Identifying the Communication Module in the DEC 3+ Controller

If connecting the RSA III to a generator set with a DEC 3+ controller, the communication module board must be installed. See Figure 5 for the location of communication module board. The communication module is included with RSA III kits GM91356-S5 and GM91356-S6. The communication module is also available as a separate kit GM32644-KP1.

RSA III Features

Horn

Alarm Horn. The alarm horn sounds giving a minimum 70 dB at 0.1 m (0.3 ft.) audible alarm when a warning or shutdown fault condition exists except on high/low battery voltage or EPS supplying load.

Note: Some controllers have programmable digital outputs that can be programmed to common faults and wired to user inputs #1 through #5. These inputs will activate the horn only if the user input is defined in RSA III as a fault via SiteTech™ (if the user input is defined as a warning, the horn will not sound). This is further discussed under Common Faults later.

Note: The alarm horn sound level may vary depending upon the mounting configuration.

External Alarm Horn Contacts. The RSA III circuit board provides a set of contacts to power an external 12 VDC user-supplied alarm horn, which will sound in concert with the on-board horn activation.

Switches with Operating Information

Alarm Silence. Press the Alarm Silence/Lamp Test switch to quiet the alarm during servicing. The horn will reactivate upon additional faults. Red LED flashes slowly.

Lamp Test. Press the Alarm Silence/Lamp Test switch to test the RSA III indicator LEDs, horn, and relays.

Keyswitch (RSA III with ATS controls model only). A two-position key switch located on the front of the RSA III will be used to enable and disable the ATS test feature. This switch has positions for Lock and un-Lock to enable or disable the ATS TEST push buttons functionality. The key switch is removable only in the Lock position.

When connected to an MPAC® 1000 controller, DIP switch #1 must be set for a loaded exercise. See the MPAC® 1000 controller operating instructions for details.

Note: When using a multiple ATS RSA III with fewer than four ATS, the ATS test controls fill from the top down.

The multiple ATS version of the RSA III is capable of displaying the status and faults of up to 4 ATS simultaneously. On a multiple RSA system, only the master RSA III device has the capability of displaying multiple ATS status and faults.

To start a *loaded* remote test

The front panel of the RSA III has an ATS TEST pushbutton for every displayed ATS. The ATS TEST pushbutton will only operate when the control keyswitch is in the unlock position and the ATS is not in local-test mode (test initiated by the ATS controller) or executing a scheduled exercise. The ATS TEST pushbutton will not end a scheduled exercise or a test not requested by the RSA. The RSA III will indicate an ATS on local-test mode (test initiated by the ATS controller) with a solid yellow LED next to the ATS TEST pushbutton or an ATS on remote-test mode (test initiated by the RSA) with a solid green LED next to the ATS TEST pushbutton.

To start a remote test

Place the key-lock switch in the unlock position. Press and hold the ATS TEST pushbutton until an acknowledgement that the ATS is in the remote-test mode is indicated by a solid green LED next to the ATS TEST pushbutton. The Emergency Source Available LED will flash rapidly while the ATS runs through the corresponding time delays. After the transfer to the emergency source is complete the Emergency Source Available LED will flash slowly to indicate the ATS is in the test mode.

To stop a remote test

Place the key-lock switch in the unlock position. Press and hold the ATS TEST pushbutton until the Emergency Source Available LED flashes rapidly while the ATS runs through the corresponding time delays. After the retransfer to the normal source is complete and the time delays expire the Emergency Source Available LED and ATS TEST LED will turn OFF. A loss of normal source during a scheduled exercise or during a remote or local test will deactivate the exercise or test.

Communications

Network communication is available via the RS-485 port. A USB port located on the front panel allows user setup of the RSA III using a PC and SiteTech™ software.

LEDs

There are up to 33 LED indicators on the non-ATS model, up to 41 LED indicators on the single ATS model, and up to 65 LED indicators on the multiple ATS model for status, warning, and/or shutdown. For a summary of the LED descriptions, see Figure 6. Some items have two LEDs:

- Communication status (green functional, red fault).
- High engine temperature (yellow warning, red shutdown).
- Low oil pressure (yellow warning, red shutdown).
- System ready (green functional, red fault).
- (RSA III with ATS controls model only.) ATS fault (yellow warning/red shutdown), source (N–green/E–red, and position (N–green/E–red).

Some functions of the LED include flashing either fast or slow. The fast flash occurs five times per second and the slow flash occurs once per second.

Alarm Silenced. Red LED slowly flashes when alarm horn is deactivated by Alarm Silence/Lamp Test switch.

ATS Available Source N or E (RSA III with ATS controls model only). Green Normal and/or Red Emergency LEDs indicate the power source availability.

ATS Fault (RSA III with ATS controls model only). Red shutdown or Yellow warning LEDs indicate the type of fault.

ATS Position N or E (RSA III with ATS controls model only). Green Normal or Red Emergency LEDs indicate the transfer switch position regardless of the power source availability.

Aux. Fault. See Low Coolant Level/Aux. Fault. The Aux. Fault feature is only associated with DEC 3+ controller function.

Battery Charger Fault. Yellow LED slowly flashes when battery charger malfunctions. Requires battery charger with alarm contact.

Battery Voltage (Hi/Lo). The DEC 3+ controller requires battery charger with alarm contacts. See Figure 64 and Figure 65 relating to battery charger for additional information.

- Yellow LED flashes slowly when battery or charging voltage drops below preset level.
- Yellow LED is steady on if battery voltage exceeds preset level.

Fault and Status Condition	Fault LED	System Monitoring LEDs and Functions					
		System Ready LED	Generator Running LED	Communications Status LED	Common Fault LED	Common Fault Output	Horn
Overcrank (Shutdown)	Red SF	Red SF	Off	Green	Red SF	On	On
High Engine Temperature (Warning)	Yellow SF	Red SF	Green	Green	Red SF	On	On
High Engine Temperature (Shutdown)	Red SF	Red SF	Off	Green	Red SF	On	On
Low Oil Pressure (Warning)	Yellow SF	Red SF	Green	Green	Red SF	On	On
Low Oil Pressure (Shutdown)	Red SF	Red SF	Off	Green	Red SF	On	On
Overspeed (Shutdown)	Red SF	Red SF	Off	Green	Red SF	On	On
Emergency Stop	Red SF	Red SF	Off	Green	Off	On	On
Low Coolant Level/Aux (Shutdown)	Red SF	Red SF	Off	Green	Red SF	On	On
Low Coolant Temperature	Yellow SF	Red SF	Green or Off	Green	Red SF	On	On
Low Fuel	Yellow SF	Red SF	Green or Off	Green	Red SF	On	On
Low Cranking Voltage	Yellow SF	Red SF	Off	Green	Red SF	On	On
Battery Charger Fail	Yellow SF	Green	Green or Off	Green	Off	On	On
Battery Voltage (Hi)	Yellow SF	Green	Green or Off	Green	Off	On	On
Battery Voltage (Lo)	Yellow SF	Green	Green or Off	Green	Off	Off	Off
Common Fault (Warning)	Yellow SF	Green	Green or Off	Green	Red SF	On	Off
Common Fault (Shutdown)	Red SF	Green	Green or Off	Green	Red SF	On	On
User Input #1 (Warning)	Yellow SF	Green	Green or Off	Green	Off	Off	Off
User Input #1 (Shutdown)	Red FF	Green	Green or Off	Green	Off	On	On
User Input #2 (Warning)	Yellow SF	Green	Green or Off	Green	Off	Off	Off
User Input #2 (Shutdown)	Red FF	Green	Green or Off	Green	Off	On	On
User Input #3 (Warning)	Yellow SF	Green	Green or Off	Green	Off	Off	Off
User Input #3 (Shutdown)	Red FF	Green	Green or Off	Green	Off	On	On
User Input #4 (Warning)	Yellow SF	Green	Green or Off	Green	Off	Off	Off
User Input #4 (Shutdown)	Red FF	Green	Green or Off	Green	Off	On	On
User Input #5 (Warning)	Yellow SF	Green	Green or Off	Green	Off	Off	Off
User Input #5 (Shutdown)	Red FF	Green	Green or Off	Green	Off	On	On
ATS Position N (RSA III with ATS only)	Green	Green	Green or Off	Green	Off	Off	Off
ATS Position E (RSA III with ATS only)	Red	Red SF	Green or Off	Green	Off	Off	Off
ATS Available N (RSA III with ATS only)	Green	Green	Green or Off	Green	Off	Off	Off
ATS Available E (RSA III with ATS only)	Red	Red SF	Green or Off	Green	Off	Off	Off
ATS Test (RSA III with ATS only, Test initiated at ATS)	Yellow	Green	Green or Off	Green	Off	Off	On
ATS Test (RSA III with ATS only, Test initiated at RSA)	Green	Green	Green or Off	Green	Off	Off	On
ATS Fault (RSA III with ATS only, No fault)	Green	Green	Green or Off	Green	Off	Off	On
ATS Fault (RSA III with ATS only, With fault)	Red FF	Red SF	Green or Off	Green	Off	Off	On
EPS Supplying Load	Green	Green	Green or Off	Green	Off	Off	Off
Not-In-Auto	Red FF	Red SF	Off	Green	Red SF	On	On
Communication Status (Loss - Master)	Red FF	Off	Off	Red FF	Off	On	On
Communication Status (Loss - Slave)	Red SF	Off	Off	Red SF	Off	On	On
Note: SF = Slow Flash (once per second), FF = Fast Flash (five times per second)							

Figure 6 System Monitoring LEDs and Functions

Common Fault. Red LED flashes slowly when a single or multiple common fault #1 occurs. Yellow LED flashes slowly when a single or multiple common fault #2 occurs. User Programmed Inputs #1 through #5 can be assigned to indicate a common fault and are discussed later in this section. See also Figure 7.

Controller	Assignment method	Digital input count
Master RSA III	Automatic	5
Slave RSA(s)	Not applicable	Not accessible
APM802	Via SiteTech™	16
Decision-Maker® 3+	Via SiteTech™	3
Decision-Maker® 550	Via SiteTech™	32
Decision-Maker® 3000	Via SiteTech™	3
Decision-Maker® 3500	Via SiteTech™	6
Decision-Maker® 6000	Via SiteTech™	32
Decision-Maker® 8000	Via SiteTech™	8
KPC 1000	Not applicable	0
MPAC® 750	Via SiteTech™	2
MPAC® 1000	Via SiteTech™	2
MPAC® 1200	Via SiteTech™	2
MPAC® 1500	Via SiteTech™	2

Figure 7 RSA III User Defined Inputs and EPS Supplying Load Defaults

Common faults are selectable on the DEC 550 controller using the respective controller menu choices. The 550 controller offers two choices for common fault setup.

- Configure a programmable digital output on the DEC 550 as a common fault and wire that into one of the DEC 550's programmable user inputs 7, 8, or 10. Use SiteTech™ to configure the corresponding RSA user input source 1, 2, or 3 (P41-2, -4, or -6). This is the recommended approach since another line from the DEC 550 to the RSA is unnecessary.

- Configure a programmable digital output on the DEC 550 as a common fault and wire that into the RSA's user input source 1, 2, or 3 (P41-2, -4, or -6).

The DEC 3+ controller offers two choices for common faults using terminal 32 or 32A.

Terminal 32 on the DEC 3+ provides the following ten common faults:

- Auxiliary Warning
- (Generator Switch) Not-In-Auto
- High Engine Temperature Shutdown
- High Engine Temperature Warning
- Low Water Temperature Warning
- Low Fuel Warning
- Low Oil Pressure Shutdown
- Low Oil Pressure Warning
- Overcrank Shutdown
- Overspeed Shutdown

Terminal 32A on the DEC 3+ provides the following five common faults:

- Auxiliary Warning
- Emergency Stop
- High Engine Temperature Shutdown
- Low Oil Pressure Shutdown
- Overspeed Shutdown

Communication Status. The RSA III is shipped from the factory preset as a master device and communicating with a generator set controller on Modbus® address #1 and/or ATS controller on Modbus® address #2 with *ATS connected* set to False. The generator set controller is a slave device. Additional RSA III devices on the same network must be reset in the field as slave devices. See Figure 6 and Figure 8.

LED	LED Status	Horn	Function
Green	Steady on	Off	Communication is okay
Green	Flashes slow	Off	When communication is being established
Green	Flashes fast	Off	When the master RSA II communication configuration does not match the device
Red	Flashes fast	On	When the master RSA II encounters a communication problem with a device
Red	Flashes slow	On	When the slave RSA II does not detect the master RSA II
Red	Steady on	On	When the master RSA II is set up to communicate with the slave RSA II and the slave RSA II does not respond to the master RSA II

Figure 8 Communication Status

Note: Should any communication issues occur when adding RSA III slaves and/or transfer switches to the system, be sure to power down the RSA III master and then power up the RSA III master so that the RSA III master can recognize the changes.

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Emergency Power System (EPS) Supplying Load. (RSA III with ATS only). Use the SiteTech™ software to select the EPS source from the following choices:

- Green LED is steady on when the generator set is supplying more than 5% of standby output current (or when transfer switch is in the emergency position with the DEC 3+ controller).
- The EPS can be configured to receive the ATS position using Modbus®. When the ATS is in the emergency position, the EPS Supplying Load LED is steady on.
- Local EPS supplying load. See Figure 7.

Emergency Stop. Red LED flashes and engine stops when emergency stop is made. May require an optional local emergency stop switch on the generator set controller.

Generator Running. Green LED is steady on when generator set is in operation. See System Ready note.

(Generator Switch) Not-In-Auto. Red LED flashes at a faster rate when generator set master switch is in the RUN or OFF/RESET position.

High Engine Temperature.

- Red LED flashes when engine has shut down because of high engine coolant temperature.
- Yellow LED flashes when engine coolant temperature approaches shutdown range. Requires warning sender on some generator set models.

Low Coolant Level/Aux. Fault. LED is steady on when engine coolant level is below acceptable range on radiator-mounted generator sets only. When used with a DEC 3+ controller, LED indicates low coolant level or auxiliary fault shutdown. Requires customer-supplied low coolant level switch on remote radiator models.

Low Coolant Temperature. Yellow LED flashes when optional engine block heater malfunctions and/or engine coolant temperature is too low. Requires prealarm sender on some generator set models.

Low Cranking Voltage. Yellow LED flashes when engine starting battery voltage drops below preset level.

Low Fuel (Level or Pressure). Yellow LED flashes when level in diesel fuel tank approaches empty or low pressure occurs with gas fuels. Requires customer-supplied level or pressure switch on some generator set models. If the unit shuts down on a Low Fuel Warning, as is possible on some controllers, the RSA III lights the Low Fuel Warning indicator and the Common Fault Indicator.

Low Oil Pressure.

- Red LED flashes when set shuts down because of insufficient oil pressure.
- Yellow LED flashes when engine oil pressure approaches shutdown range. Requires warning sender on some generator set models.

Not-In-Auto. See (Generator Switch) Not-In-Auto.

Overcrank (Locked Rotor). Red LED flashes and cranking stops when engine does not start in either continuous cranking or cyclic cranking modes.

Overspeed. Red LED flashes when engine shuts down because of an overspeed condition.

System Ready.

- Green LED is steady on when generator set master switch is in AUTO and the system senses no faults.
- Red LED flashes when a system fault occurs.

A System Ready red LED and/or a Generator Running LED off, without an associated LED shutdown indication on the RSA III may indicate a fault initiated by the engine ECM. The RSA III will only report on the status of the system ready based on the generator set controller.

User Programmed Inputs #1 to #5**.** Monitors five digital inputs (status, warnings, added user inputs and/or shutdowns). Use the SiteTech™ software to select the desired user input and assign a severity level (warning or shutdown fault). A separate yellow or red LED flashes for each input when a respective warning or shutdown fault occurs or the status changes. See Figure 7.

Note: If in SiteTech™ the user attempts to assign a digital input outside of the range for the controller or ATS, an error message will be displayed by SiteTech™ and the Common Fault LED and associated User Input LED will flash.

The five user input LEDs automatically correspond to the on-board terminal blocks labeled USER 1 to 5, in order of their numeric designators (LED1 to Input1 etc.), unless altered using SiteTech™. Any digital input from the Kohler generator controllers and ATS can be associated with any of the five user input LEDs.

User-defined digital inputs #1 through #5 are selected at the RSA III master only using SiteTech™ software and annunciated to the RSA III slave(s). No user-defined digital input selection is available at the RSA III slave(s). User-defined digital inputs tied directly to the RSA III master are considered local. User-defined digital inputs connected to the controller are considered remote.

Note: Although all digital inputs are selectable on the RSA III, some digital inputs have assigned functions. Check the generator set configuration to determine input availability.

- **DEC 3+ Controller.** User-defined digital input #3 is also used for high battery voltage and requires battery charger with alarms.
- **DEC 550, DEC 3000, DEC 3500, and DEC 6000 Controllers.** User-defined digital inputs tied directly to the RSA III master are considered local.
- **DEC 8000 and APM802 Controllers.** User-defined inputs tied to controller terminal block are considered remote.

Figure 6 shows the status of the system ready LED, generator running LED, communication status LED, common fault LED, common fault output, and horn for each fault or status condition.

Mounting

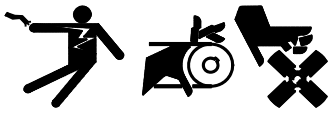
Surface Mounting or Flush Mounting capability is standard.

This document includes installation information for both surface- and flush-mount models.

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 equipment connected to the set, disable the generator set as follows: (1) Shut down the generator set. (2) Place the controller in Out of Service mode. (3) Press the emergency stop button. (4) Disconnect the power to the battery charger, if equipped. (5) Remove the battery cables, negative (–) lead first. Reconnect the negative (–) lead last when reconnecting the battery. Follow these precautions to prevent the starting of the generator set by the remote start/stop switch.

(APM802 Controller)

Disabling the generator set. Accidental starting can cause severe injury or death. Before working on the generator set or equipment connected to the set, 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.

(Decision-Maker® 3+ and 550 Controllers)

Disabling the generator set. Accidental starting can cause severe injury or death. Before working on the generator set or equipment connected to the set, disable the generator set as follows: (1) Press the generator set off/reset button to shut down the generator set. (2) Disconnect the power to the battery charger, if equipped. (3) Remove the battery cables, negative (–) lead first. Reconnect the negative (–) lead last when reconnecting the battery. Follow these precautions to prevent the starting of the generator set by the remote start/stop switch.

(Decision-Maker® 3000, 3500, and 6000 Controllers)

Disabling the generator set. Accidental starting can cause severe injury or death. Before working on the generator set or equipment connected to the set, disable the generator set as follows: (1) If the controller is not already in the MAN (manual) mode, press the Controller Mode button and then press the MAN mode button. (2) If the generator set is running, press and hold the Manual–Stop button for at least 2 seconds to stop the generator set. (3) Press the Controller Mode button and then press the controller Off mode button. (4) Disconnect the power to the battery charger, if equipped. (5) Remove the battery cables, negative (–) lead first. Reconnect the negative (–) lead last when reconnecting the battery. Follow these precautions to prevent the starting of the generator set by the remote start/stop switch.

(Decision-Maker® 8000 Controller)

⚠ CAUTION

Hot surfaces.

(APM802 Controller Heater)

⚠ DANGER

Hazardous voltage.
Will cause severe injury or death.

This equipment must be installed and serviced by qualified electrical personnel.

⚠ DANGER

Hazardous voltage.
Will cause severe injury or death.

Disconnect all power sources before opening the enclosure.

Accessing the middle compartment on the control panel. Hazardous voltage can cause severe injury or death. On the controller base box and automatic voltage regulator, do not touch the terminals for voltage and current measurement. Disconnect all power sources and disable the generator set before servicing.

(Decision-Maker® 8000 Controller)

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.

Installation Procedure

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

Note: Observe applicable local and national electrical codes when installing the wiring system.

1. Remove the generator set from service.

Note: Refer to the procedures in the Safety Precautions for disabling the generator set. The procedure to shut down the generator set varies depending upon the controller.

1.1 Shut down the generator set.

1.2 Disconnect the power to the battery charger, if equipped.

1.3 Disconnect the generator set engine starting battery(ies), negative (–) lead first.

1.4 Remove the controller cover and hardware.

2. Remove the gauge driver board in the DEC 3+ controller (if equipped).

If the unit is an 80–150REOZJD or 450/500REOZVB model, the controller may contain a gauge driver circuit board GM49791-2. Information regarding identifying the circuit board is shown in the Communication Module for DEC 3+ Controller section of this document.

Note: If the unit is not an 80–150REOZJD or 450/500REOZVB model, go to step 3.

Note: If the communication module board GM49791-1 is already installed because GM91356-S4, -S5, or -S6 kit was ordered *installed*, go to step 5.

Otherwise, remove GM49791-2 interface with gauge driver circuit board and replace with GM49791-1 communication interface with gauge driver circuit board. Use the following procedure and refer to Figure 9.

2.1 Disconnect the 10-pin cable at the P8 connector on the circuit board.

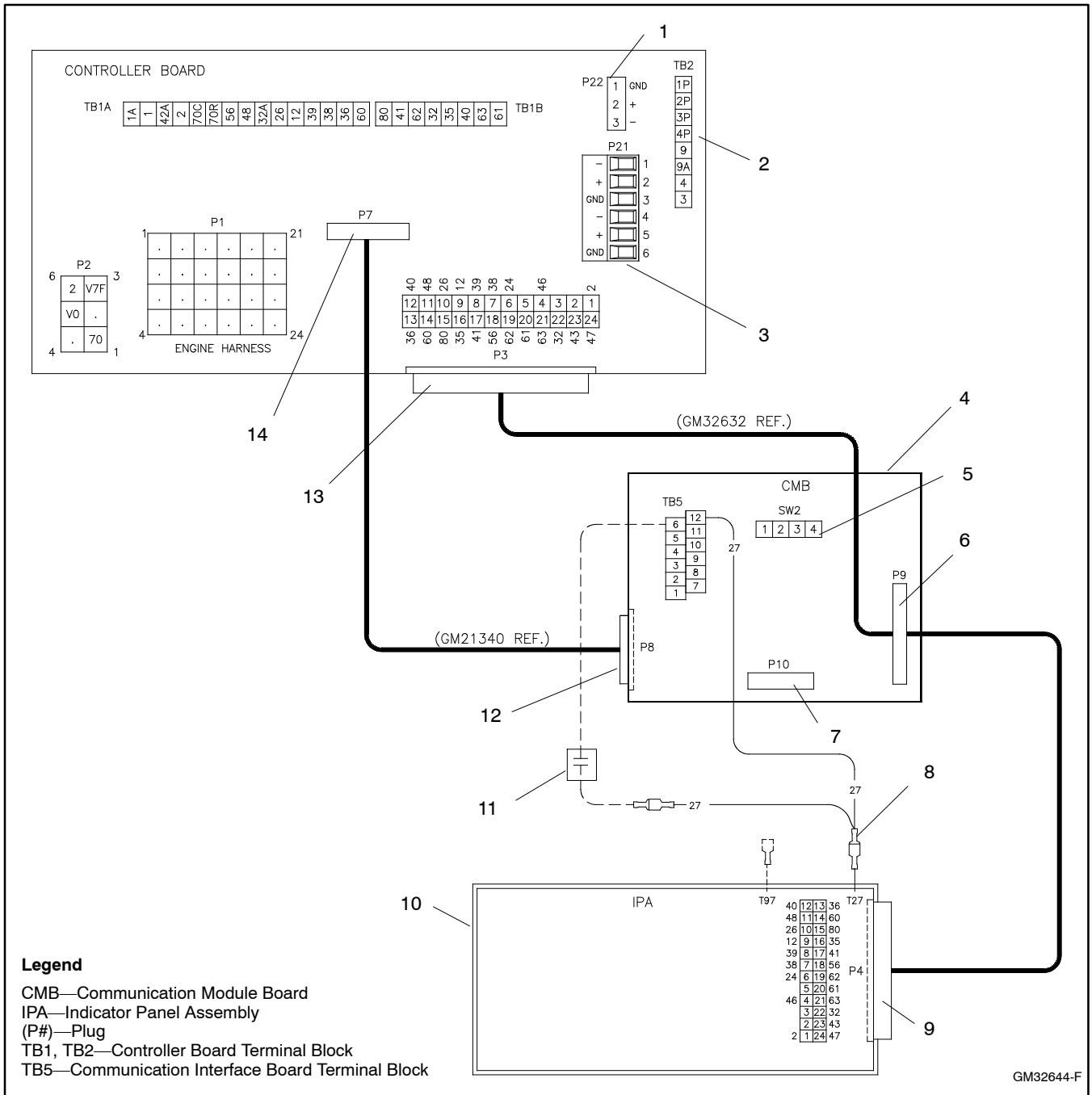
2.2 Disconnect the 8-pin cable at the P10 connector on the circuit board.

2.3 Remove the existing three nuts and lock washers attaching the gauge drive circuit board to the indicator panel circuit board. Leave the existing washers in place. The nuts and lock washers will be reused.

2.4 Remove existing 24-position ribbon cable 336428 between the indicator panel circuit board and the main circuit board. This ribbon cable will not be reused.

2.5 The new 24-position ribbon cable GM32632 has three connectors—one at each end and an inline connector. Attach the end connector (nearest to inline connector) to the indicator panel circuit board P4 connector. The connector is polarized and mates in one position only.

2.6 Attach the other end connector of the 24-position ribbon cable GM32632 to the main circuit board P3 connector. The connector is polarized and mates in one position only.



Legend

CMB—Communication Module Board
IPA—Indicator Panel Assembly
(P#)—Plug
TB1, TB2—Controller Board Terminal Block
TB5—Communication Interface Board Terminal Block

GM32644-F

1. P22 CAN (engine) communication connection
2. DEC 3+ controller main circuit board
3. P21 RS-485 communication connection for remote serial annunciator
4. Communication module board GM49791-1
5. SW2 DIP switch; place SW2-1 in closed position when paralleling REOZV/B/C models
6. 24-position ribbon cable GM32632 to comm. module board
7. P10 used only when GM49791-2 gauge driver board was previously installed; connect P10 to the communication module board to drive coolant temperature and oil pressure gauges on the DEC 3+ controller
8. Lead GM35318 connecting T27 on indicator panel to user input 3 on comm. module board for high battery voltage
9. 24-position ribbon cable GM32632 to indicator panel
10. Controller indicator panel circuit board on the RSA
11. Optional battery charger with HBV alarm contacts
12. 10-position ribbon cable GM21340 to comm. module board
13. 24-position ribbon cable GM32632 to main circuit board
14. 10-position ribbon cable GM21340 to main circuit board

Figure 9 Communication Module Schematic, DEC 3+ Controller

3. Mount the communication module board in the DEC 3+ controller.

Note: Requires DEC 3+ controller logic (red) circuit board GM28725.

Note: Perform step 3 with GM91356-S4, -S5, or -S6 and GM32644-KP1 kit.

3.1 Remove the existing three nuts attaching the indicator panel circuit board. Leave the existing washers in place. The nuts will be reused.

3.2 Attach the three spacers to the indicator panel circuit board studs. See Figure 10.

3.3 Position communication module board GM49791-1 on the spacers.

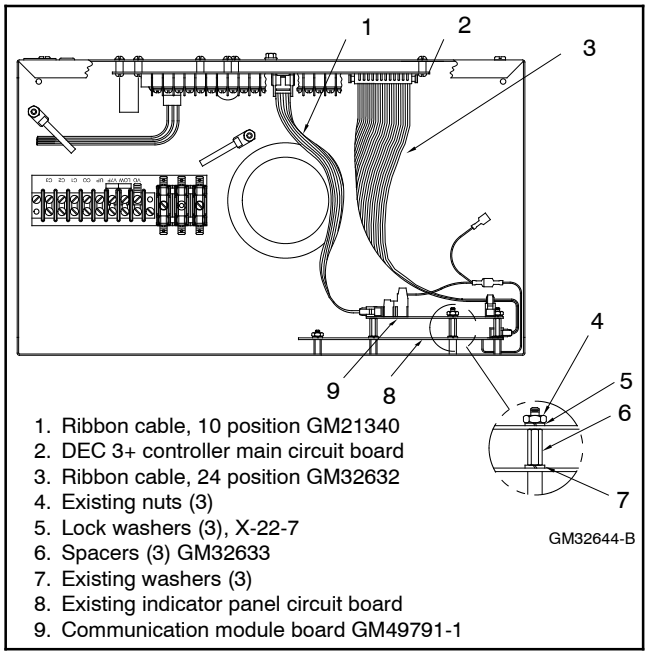
Note: If procedure requires installing a communication module board, refer to TT-1285 Program Loader Software instructions for downloading firmware version **1.23 or higher with red controller board or 2.03 or higher with blue controller board.** The download should be performed in step 8. Configure the DEC 3+ controller for the remote serial annunciator.

3.4 Install three lock washers (X-22-7) from the kit or from step 2.3 and the existing three nuts on the spacers to secure the communication module board. Do not overtighten the nuts.

4. Wire the communication module board in the DEC 3+ controller.

4.1 Attach the 24-position ribbon cable GM32632 inline connector to the communication module board P9 connector. The connector is polarized and mates in one position only.

4.2 Attach the 10-position ribbon cable GM21340 to the communication module board P8 connector and the main circuit board P7 connector. The connectors are polarized and mate in one position only.



1. Ribbon cable, 10 position GM21340
2. DEC 3+ controller main circuit board
3. Ribbon cable, 24 position GM32632
4. Existing nuts (3)
5. Lock washers (3), X-22-7
6. Spacers (3) GM32633
7. Existing washers (3)
8. Existing indicator panel circuit board
9. Communication module board GM49791-1

Figure 10 Mounting Communication Module Board in the DEC 3+ Controller

4.3 If the unit previously had the GM49791-2 gauge drive circuit board installed, reconnect cable P10 to the communication module board.

4.4 **High Battery Voltage.** Locate T27 lead on the indicator panel assembly and connect communication board HBV harness GM35318. Use the terminal connector on GM35318 with the two leads together. Verify that the stripped end of the harness is securely connected to communication module board terminal TB5-12. See Figure 9 for an illustration of the wiring connection. See Figure 11 and Figure 12 for the communication module board terminal strip location and terminal designations.

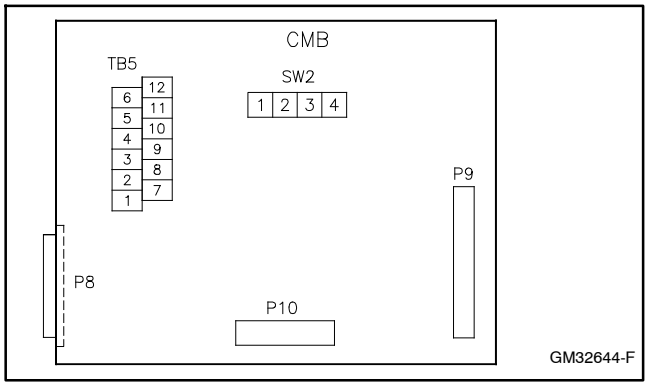


Figure 11 Communication Module Board

Connector Designation	Circuit Board Designation
1	Not used
2	Not used
3	ATS Position Input Return
4	User 1 Input Return
5	User 2 Input Return
6	User 3 Input Return *
7	Not used
8	Not used
9	ATS Position Input
10	User 1 Input
11	User 2 Input
12	User 3 Input *
* Reserved for high battery volts (HBV) on DEC 3+ controllers.	

Figure 12 Communication Module TB5 Terminal Strip Connections

4.5 Connect wiring from the user-supplied battery charger high battery voltage contacts to the remaining terminal on harness GM35318 and TB5-6 for RSA III annunciation of *(high) Battery Voltage*. See Figure 13 for wire sizes.

Length, m (ft.)	Wire Gauge
0–137 (0–450)	22
137–213 (450–700)	20
213–343 (700–1125)	18
343–549 (1125–1800)	16
549–853 (1800–2800)	14

Figure 13 Wire Specifications for Communication Module Connections

4.6 **EPS Supplying Load.** Connect wiring from the user-supplied transfer switch (ATS) emergency position auxiliary contacts to terminals TB5-3 and TB5-9 for RSA III annunciation of *EPS Supplying Load*. See Figure 13 for wire sizes.

4.7 **User Input 1 and User Input 2.** Make additional user-selected connections to the communication module board TB5 terminal block. See Figure 13 for wire sizes. The user-selected connections are defined in Figure 12 and include:

- User Input 1 (remote).
- User Input 2 (remote).

Note: User input 3 is reserved for high battery voltage as outlined in step 4.4.

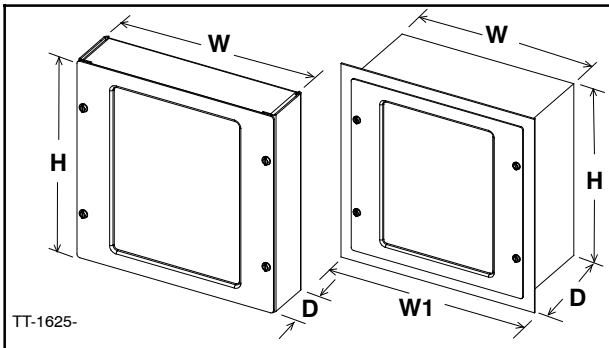
Document the user-selected inputs for future reference. If user-selected inputs 1–2 (remote) are used, the user may add the identification on the RSA III front panel strip. This procedure is further explained in step 6.13 of this instruction.

5. Select a mounting location for the RSA III.

Note: Use step 5 for mounting the RSA III master and the RSA III slaves as needed. Connect up to three RSA III slaves maximum. The RSA III wiring information is covered in step 6.

5.1 Select a visible location for mounting the RSA III up to 853 m (2800 ft.) from the controller. Install the RSA III, either surface- or flush-mounted, in a location easily observable by operating personnel at their work stations. See Figure 14 for RSA III overall dimensions. Refer to Figure 15 and Figure 16 for the dimension prints.

Note: Locate all RSA III within 853 m (2800 ft.) of the controller.



Surface Mounted **Flush Mounted**

Dimensions—W x H x D, mm (in.)

Surface Mounted: 203 x 203 x 76.2 (8.0 x 8.0 x 3.0)

Flush Mounted: 203 x 203 x 76.2 (8.0 x 8.0 x 3.0)
Flush-mounting plate W1: 254 (10.0)

Flush Mounted*: 203 x 203 x 103 (8.0 x 8.0 x 4.1)
Flush-mounting plate W1: 254 (10.0)

* Requires user-supplied Hoffman box 203 x 203 x 102 mm (8 x 8 x 4 in.)

Figure 14 RSA III Box Dimensions

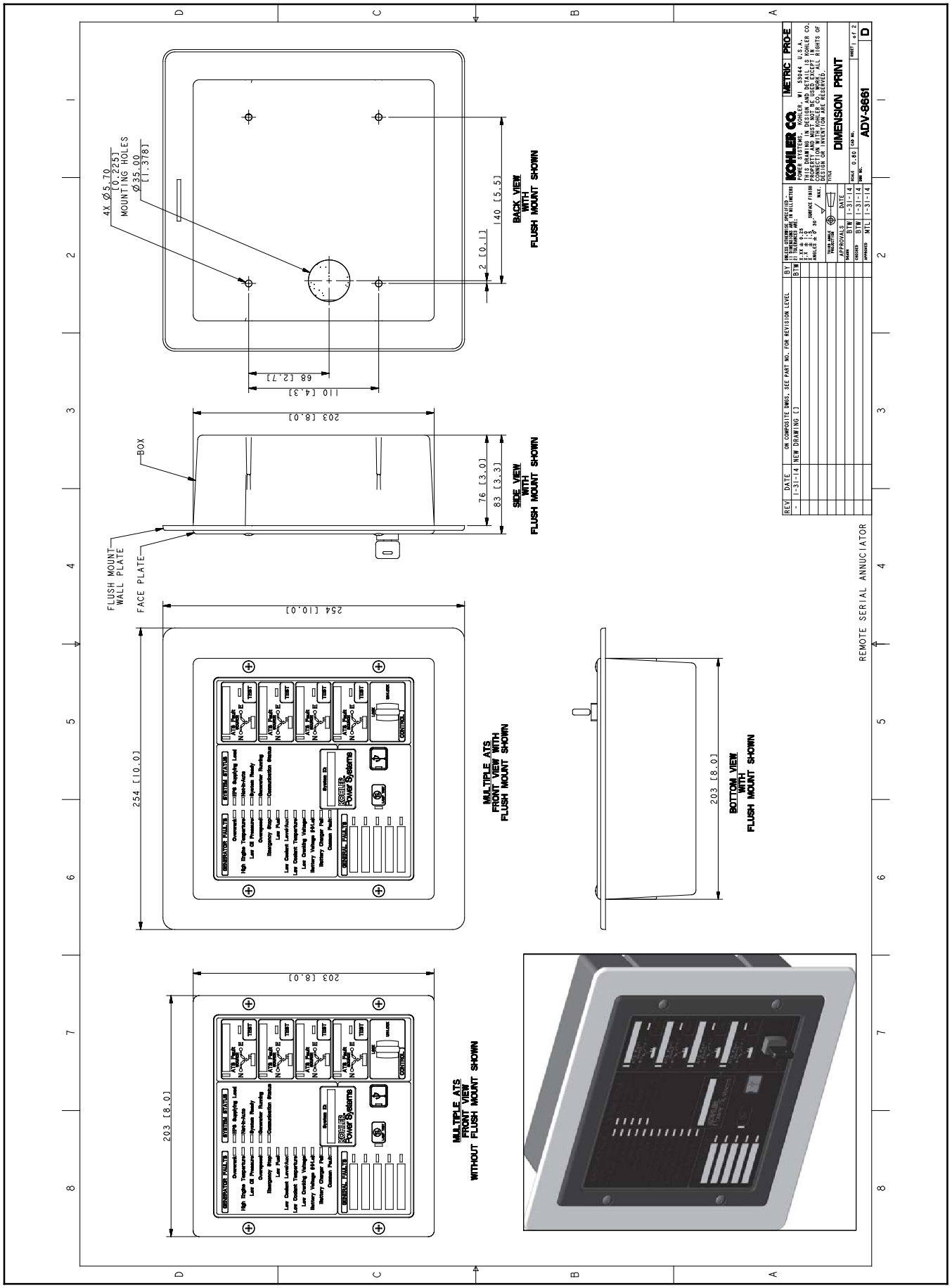


Figure 15 Remote Serial Annunciator Dimension Print ADV-8661A-

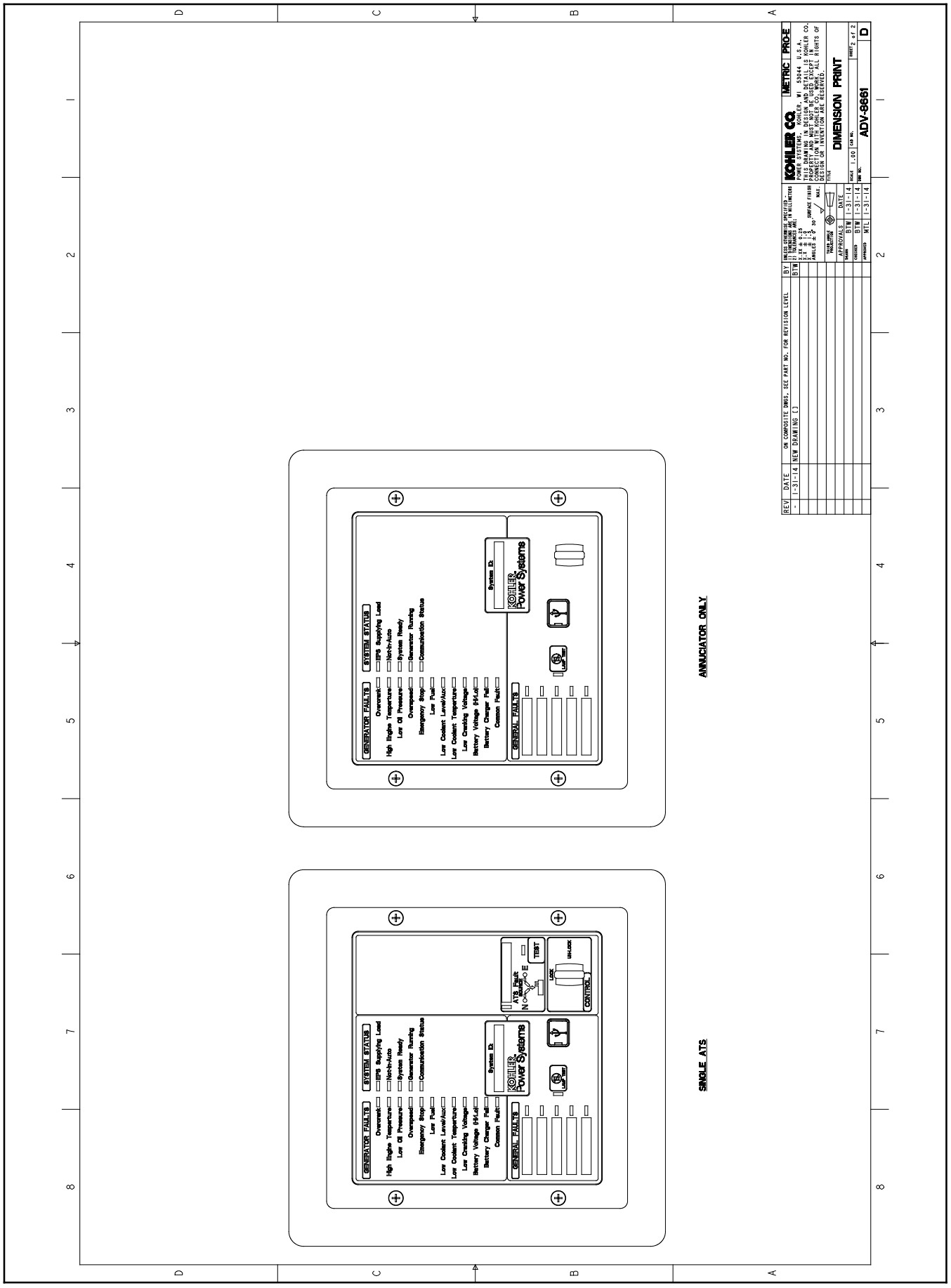


Figure 16 Remote Serial Annunciator Dimension Print ADV-8661B- (modified)

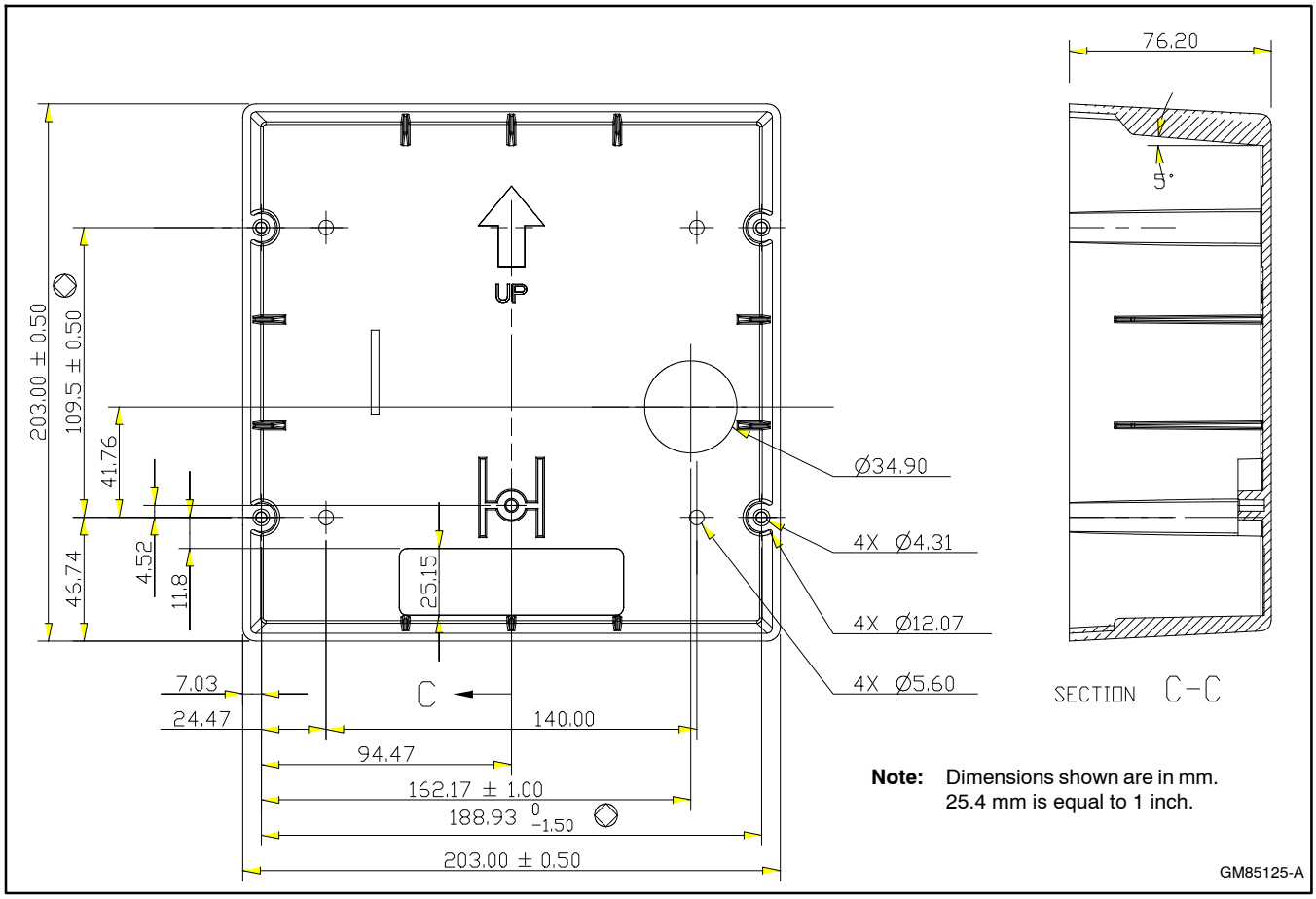


Figure 17 RSA III Mounting Hole Dimensions in Supplied Box GM85123

5.2 Remove four screws X-67-154 from the RSA III bezel GM85134 and remove bezel from the RSA III box GM85123. See Figure 17 for RSA III supplied box mounting hole information.

The installation instructions describe three RSA III mounting scenarios:

- Surface mount with supplied box (step 5.3).
- Flush mount with supplied box (step 5.4).
- Flush mount using a user-supplied Hoffman box (step 5.5).

5.3 **Surface mount RSA III initial installation.**

5.3.1 Prepare the mounting site by drilling pilot holes for anchors, if used.

Note: Mount the RSA III box to a standard 10 cm (4 in.) square electrical box installed in the wall.

5.3.2 Create an opening in the wall for the electrical wiring from the master RSA III to the controller communications and power supply. The wall opening must allow for the wiring of the RSA III slave, if used. Protect the RSA III front panel assembly from dust and debris when drilling the holes.

5.3.3 Drill an appropriate size hole in box GM85125 if a user-supplied conduit connector is required. Install the user-supplied connector.

5.3.4 Temporarily mount the RSA III box to the wall or to the electrical box in the wall and check for proper hole alignment. Adjust as needed. Remove RSA III box.

Note: Use mounting hardware suitable for the wall composition and thickness.

5.3.5 Repeat step 3 for RSA III slaves, as needed.

5.3.6 Proceed to step 6, Wire the RSA III.

5.4 **Flush mount RSA III initial installation with box GM85125 (Part of RSA III kit).**

5.4.1 Prepare mounting site by creating an opening in wall for flush-mounting RSA III box.

5.4.2 Drill an appropriate size hole in box GM85123 if a user-supplied conduit connector is required. Install the user-supplied connector.

Size the flexible conduit for the electrical wiring from master RSA III to the controller communications and power supply. The flexible conduit size must allow for the wiring of a RSA III slave, if used.

5.4.3 Attach the RSA III box to the wall with user- supplied hardware. Protect the RSA III front panel assembly from dust and debris when drilling the mounting holes.

5.4.4 Repeat step 3 for RSA III slaves, as needed.

5.4.5 Proceed to step 6, Wire the RSA III.

5.5 **Flush mount RSA III initial installation with a user-supplied Hoffman box.**

5.5.1 Prepare the mounting site by creating an opening in the wall for flush mounting the RSA III using a user-supplied 203 x 203 x 102 mm (8 x 8 x 4 in.) Hoffman box (part no. A-SG8X8X4) or equivalent.

5.5.2 Use wall-mounting plate GM85126 as a template and drill four 4.4 mm (0.17 in.) diameter holes in the Hoffman box front edge for mounting the RSA III front panel assembly if not already done. See Figure 18.

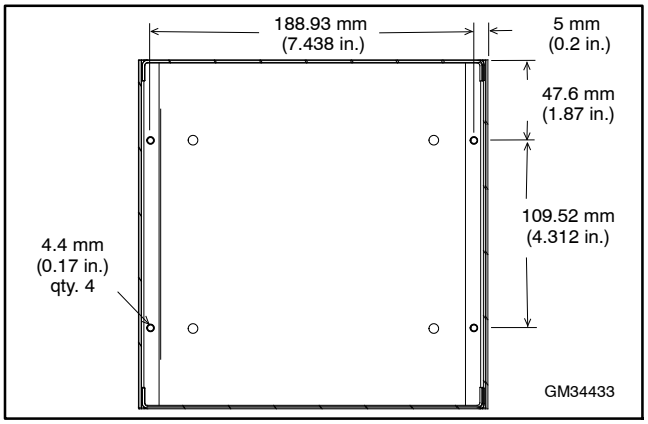


Figure 18 Drilling Mounting Holes in Hoffman Box for RSA III Front Panel Assembly

5.5.3 Select a location on the box and install a user-supplied conduit connector or bushing. Temporarily install the RSA III front panel assembly to be sure the hole location with bushing or conduit connector does not interfere with attaching the RSA III front panel assembly.

Size the flexible conduit for the electrical wiring from the master RSA III to the controller communications and power supply. The flexible conduit size must allow for the wiring of RSA III slave, if used.

5.5.4 Attach the RSA III box to the wall with user- supplied hardware. Protect the RSA III front panel assembly from dust and debris when drilling the mounting holes.

5.5.5 Repeat step 3 for RSA III slaves, as needed.

5.5.6 Proceed to step 6, Wire the RSA III.

6. Wire the RSA III.

The installer must supply all leads. Observe the following guidelines during installation:

- Isolate the RSA III leads from all other voltages.
- Use separate conduit.
- Use grounded metallic conduit for leads or use shielded cable in nonmetallic conduit.
- Use color-coded wire for easy identification.
- Make leads long enough to allow for walls, ductwork, and obstructions. Use Figure 19 to determine the wire gauge for DC power and signal wires.
- Use Belden #9841 or equivalent (shielded twisted-pair cable) for all communication wiring.

Note: When using RS-485 communication cable, connect the “shield” wire at either end but not at both ends.

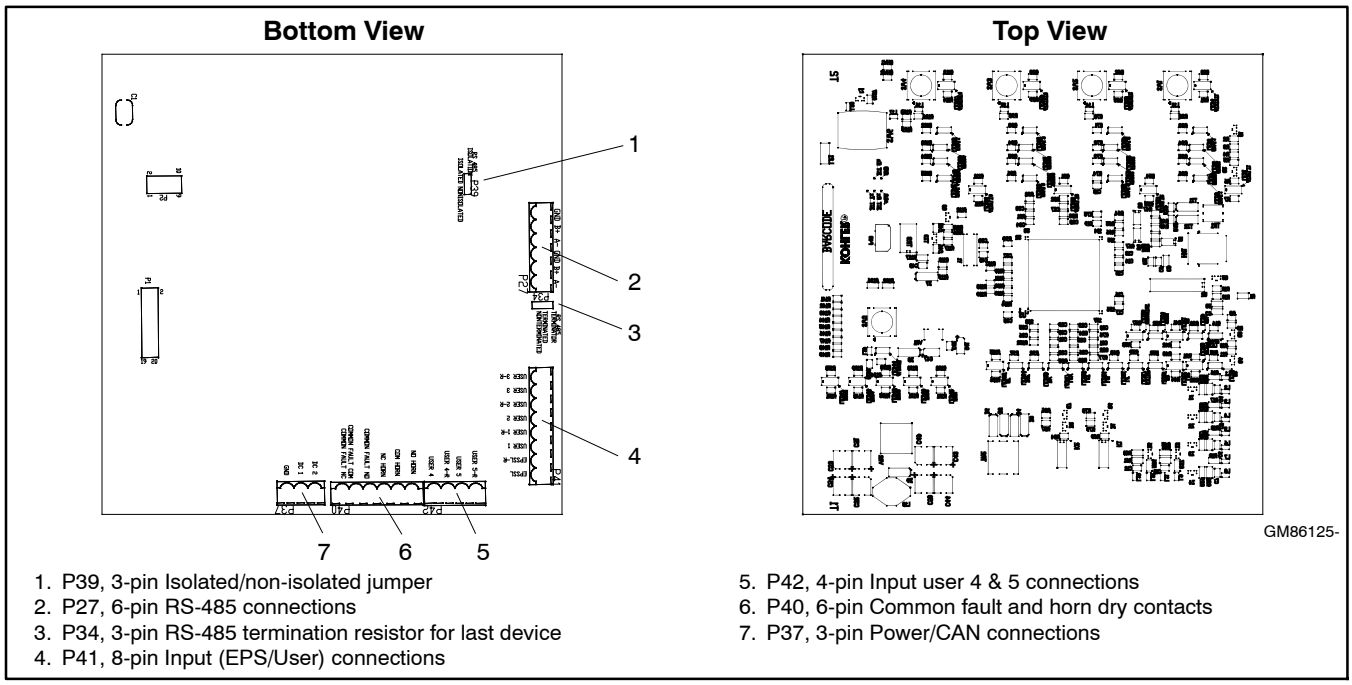
Length, m (ft.)	Wire Gauge
0–137 (0–450)	22
137–213 (450–700)	20
213–343 (700–1125)	18
343–549 (1125–1800)	16
549–853 (1800–2800)	14

Figure 19 Wire Specifications between RSA III and Generator Set Controller for DC Power

Use solid or stranded 14-22 gauge wire. To determine the wire gauge, measure the cable distance between the controller and master RSA III.

For example, if the cable distance between the controller and the master RSA III is 122 m (400 ft.), then the total wire length for each conductor is 122 m (400 ft.). According to the chart in Figure 19, this example requires 22-gauge wire.

Throughout step 6, refer to the following illustrations. See Figure 20 for RSA III circuit board connectors. See Figure 41 for RSA III circuit board terminal connections. **See Figure 57 to Figure 63 for the RSA III wiring diagrams and Figure 64 and Figure 65 for the RSA III interconnection diagrams.**



1. P39, 3-pin Isolated/non-isolated jumper
2. P27, 6-pin RS-485 connections
3. P34, 3-pin RS-485 termination resistor for last device
4. P41, 8-pin Input (EPS/User) connections
5. P42, 4-pin Input user 4 & 5 connections
6. P40, 6-pin Common fault and horn dry contacts
7. P37, 3-pin Power/CAN connections

Figure 20 RSA III Circuit Board GM86125 Connectors

The RSA III has the following wiring and selections:

- P27, 6-pin RS-485 connections (communication between controller and RSA III master). See step 6.3.
- P27, 6-pin RS-485 connections (communication between RSA III master and RSA III slaves). See step 6.4.
- P34, 3-pin RS-485 termination resistor for last device. See step 6.4.
- P37, 3-pin power/CAN connections. See step 6.5.
- P39, 3-pin isolated/non-isolated jumper. See step 6.6.
- P40, 6-pin common fault and horn dry contacts. See step 6.7.
- P41, 8-pin input (EPS/user) connections. See step 6.8.
- P42, 4-pin input user 4 & 5 connections. See step 6.11.

6.1 Deenergize the 12/24-volt DC power source to each RSA III, if not already done.

6.2 **Flush mount RSA III only.** When using a flush-mount RSA III box with a bushing, it is recommended to run all wiring to the RSA III box and then mount it to the wall or to the electrical box in the wall. Check that box is square to the wall; adjust as needed. After the RSA III box is mounted, make the individual electrical connections to the RSA III circuit board as described in the following steps.

Position wall-mounting plate GM85126 against the RSA III bezel GM85134 *prior* to attaching the wiring.

6.3 **P27, 6-pin RS-485 connections (communication between controller and RSA III master).** For RS-485 connections see Figure 21.

P27 RS-485 Connections (from Controller to Master)	
P27-1	(-) Black (from controller)
P27-2	(+) White (from controller)
P27-3	Shield (from controller)
P27-4	(-) Black (to slave or terminating resistor)
P27-5	(+) White (to slave or terminating resistor)
P27-6	Shield (to slave or open)
Note: When using RS-485 communication cable, connect the "shield" wire at either end but not at both ends.	

Figure 21 P27 Connector on Master RSA III

Select and connect the RS-485 wiring from the controller to the RSA III master using Belden #9841 or equivalent. If there is only one RSA III, it is the master. If several RSA III are installed, choose either the RSA III closest to the generator set or determine which RSA III is more practical for use as a master and use a daisy chain wiring configuration for the remaining RSAs. The RSA III connected to controller MUST be assigned as the RSA III master.

Connect RS-485 wiring to 6-position Euroblock plug 294619 (included) and attach to the RSA III circuit board. The Euroblock connector is polarized and attaches in one position only. See Figure 22 for a typical RS-485 connection.

Communication between RSA III Master and RSA III Slave. Figure 23 shows the master/slave RS-485 connections and Figure 20 shows the RSA III with P27 location.

Note: When an RSA III is installed into a system with existing older RSAs, the RSA III must be configured as the master.

Note: Controllers, when communicating with the RSA III, are considered slaves. If the controller is the last device in the network, use a terminating resistor on the controller. See Figure 22. The APM802 and DEC 8000 controllers have a terminating resistor located on the controller. See Figure 36 and Figure 24.

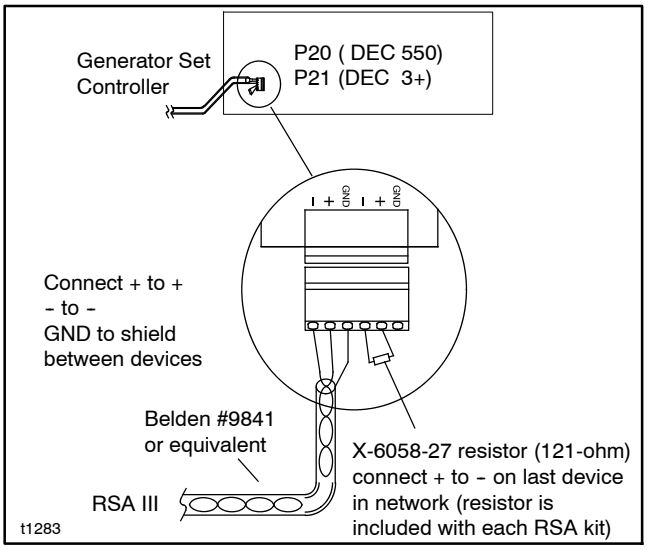
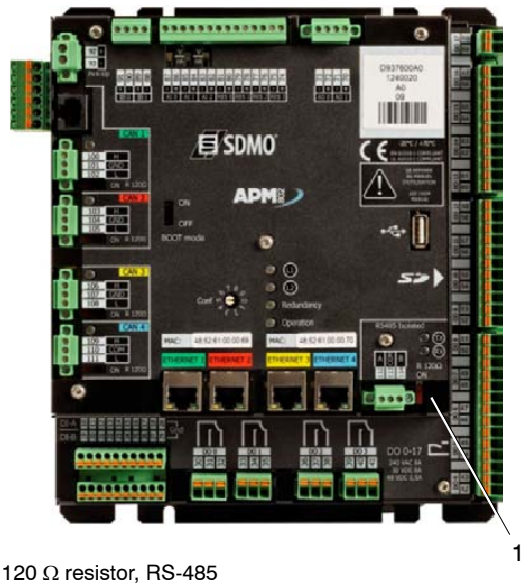


Figure 22 RS-485 Connector Details

P27 RS-485 Connections (from Master to Slave)	
P27-1	(-) Black (from master or previous slave)
P27-2	(+) White (from master or previous slave)
P27-3	Shield (from master or previous slave)
P27-4	(-) Black (to next slave or terminating resistor)
P27-5	(+) White (to next slave or terminating resistor)
P27-6	Shield (to next slave or open)
Note: When using RS-485 communication cable, connect the "shield" wire at either end but not at both ends.	

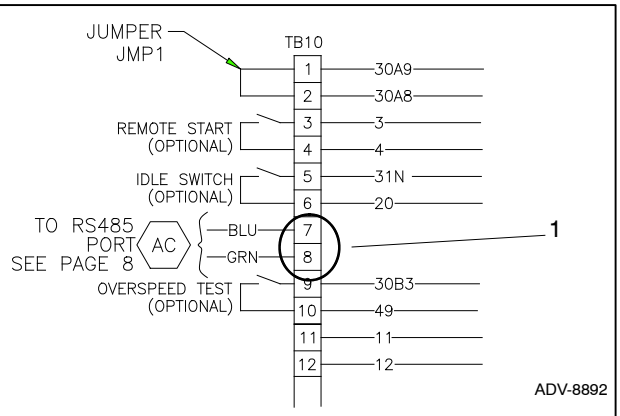
Figure 23 P27 Connection on RSA III Slave

APM802 Controller. On the APM802 controller, the RS-485 connections are located on TB10 and the 120 Ω resistor is located on the base module. See Figure 24. Figure 25 shows the APM802 controller with TB10 location and Figure 26 shows the RS-485 connections.



1. 120 Ω resistor, RS-485

Figure 24 APM802 Controller Base Module



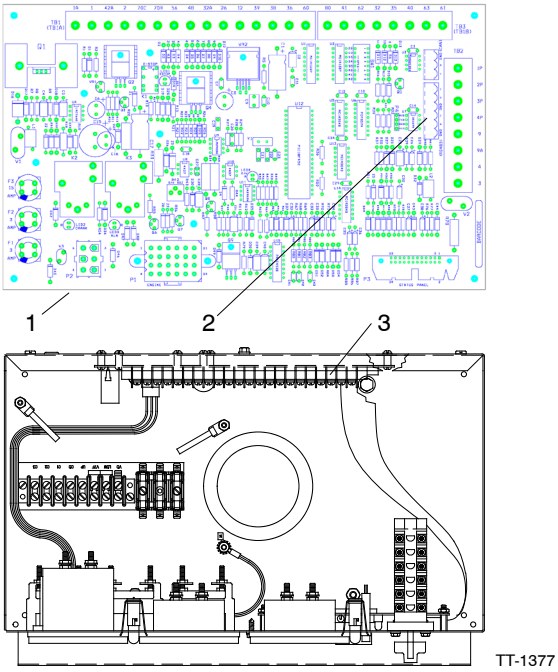
1. RS-485 communication connections to RSA III (master)

Figure 25 RS-485 Connectors on TB10

TB10 Connector	Circuit Board Designation	Wire Designation
7	(+)	White
8	(-)	Black
Do not connect at TB10 or base module; tape to insulate unused end.		Shield
Note: When using RS-485 communication cable, connect the “shield” wire at the RSA III P27 connection but not at the APM802 controller/TB10 connection.		

Figure 26 APM802, RS-485 Connections on TB10

DEC 3+ Controller. Figure 27 shows the DEC 3+ controller with P21 location and Figure 28 shows the RS-485 connections.



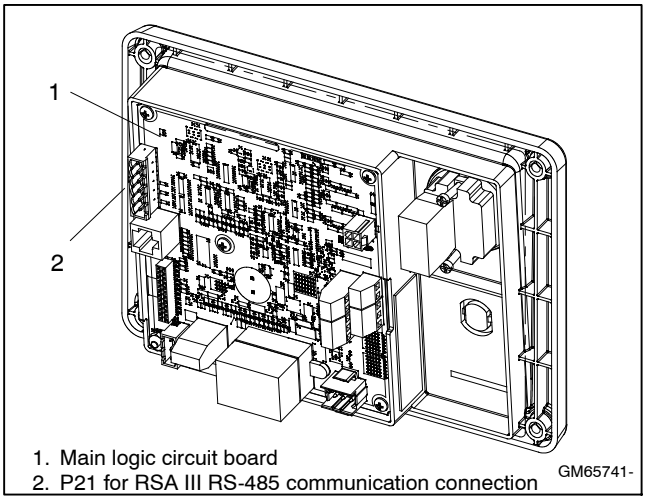
1. Main circuit board GM28725 (top view)
2. P21 for RSA III RS-485 communication connection
3. Main circuit board mounted on the controller rear panel

Figure 27 DEC 3+ Controller RS-485 Connections

P21 Connector	Circuit Board Designation	Wire Designation
P21-1	-	Black
P21-2	+	White
P21-3	GND	Shield
Note: When using RS-485 communication cable, connect the “shield” wire at either end but not at both ends.		

Figure 28 DEC 3+ Controller P21 RS-485 Connections

DEC 3000 Controller. Figure 29 shows the DEC 3000 controller with P21 location and Figure 30 shows the RS-485 connections.



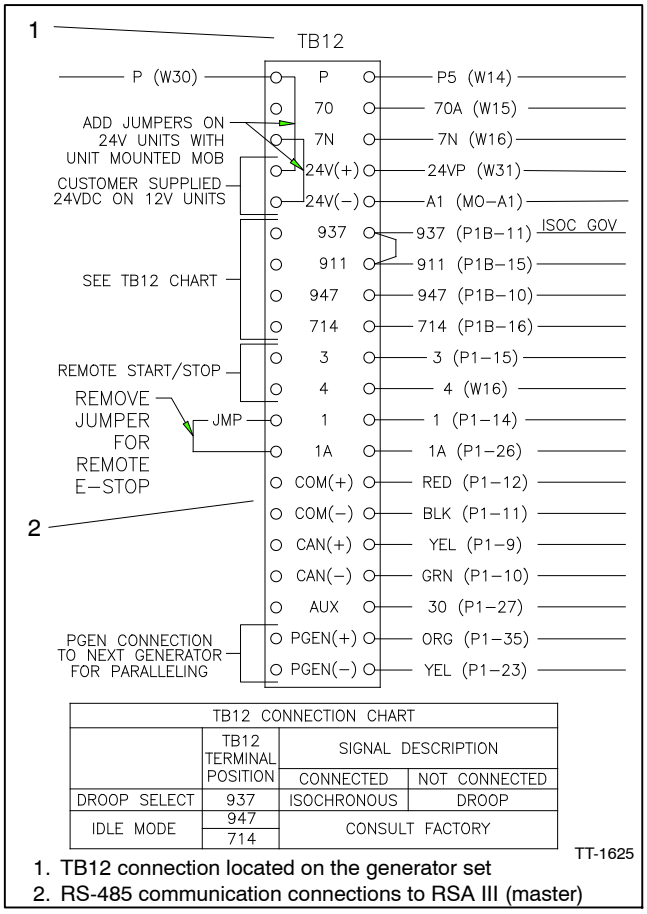
1. Main logic circuit board
2. P21 for RSA III RS-485 communication connection

Figure 29 DEC 3000 Controller RS-485 Connectors

P21 Connector	Circuit Board Designation	Wire Designation
P21-1	GND	Shield
P21-2	(+)	White
P21-3	(-)	Black
P21-4	GND	Shield
P21-5	(+)	White
P21-6	(-)	Black
Note: When using RS-485 communication cable, connect the "shield" wire at either end but not at both ends.		

Figure 30 DEC 3000 P21 RS-485 Connections

DEC 3500 Controller. Figure 31 shows the DEC 3500 controller with TB12 location and Figure 32 shows the RS-485 connections.



TB12 CONNECTION CHART			
	TB12 TERMINAL POSITION	SIGNAL DESCRIPTION	
		CONNECTED	NOT CONNECTED
DROOP SELECT	937	ISOCHRONOUS	DROOP
IDLE MODE	947	CONSULT FACTORY	
	714		

1. TB12 connection located on the generator set
2. RS-485 communication connections to RSA III (master)

Figure 31 DEC 3500 Controller RS-485 Connectors

TB12 Connector	Circuit Board Designation	Wire Designation
COM (+)	(+)	White
COM (-)	(-)	Black
Do not connect at TB12 or DEC 3500, tape to insulate unused end.		Shield
Note: When using RS-485 communication cable, connect the "shield" wire at the RSA III P27 connection but not at the DEC 3500 controller/TB12 connection.		

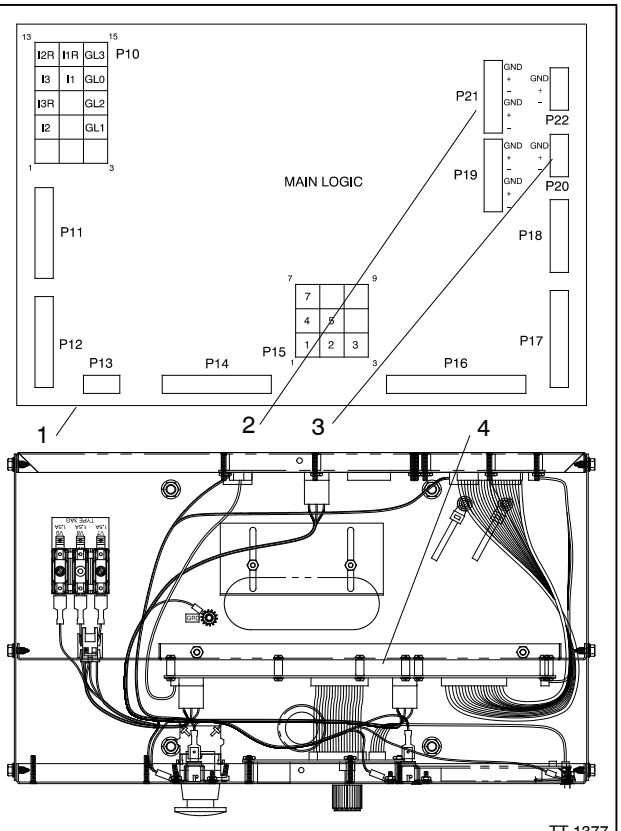
Figure 32 DEC 3500 TB12 RS-485 Connections

DEC 550 Controller. Figure 33 shows the RS-485 connections and Figure 34 shows the DEC 550 controller with P20 location.

DEC 6000 Controller. Figure 33 shows the RS-485 connections and Figure 35 shows the DEC 6000 controller with P20 location.

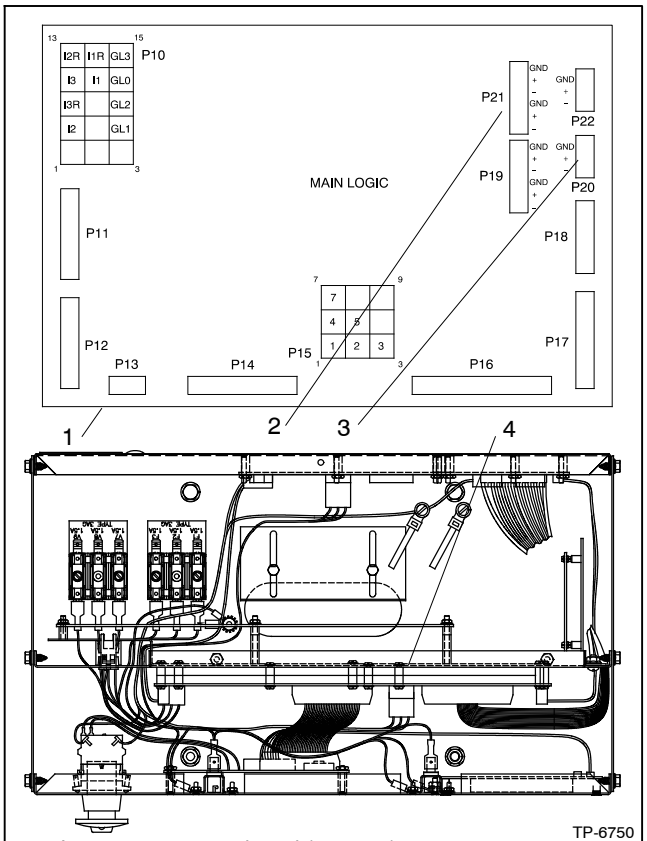
P20 Connector	Circuit Board Designation	Wire Designation
P20-1	GND	Shield
P20-2	+	White
P20-3	–	Black
Note: When using RS-485 communication cable, connect the "shield" wire at either end but not at both ends.		

Figure 33 DEC 550 and DEC 6000 Controllers P20 RS-485 Connections



1. Main circuit board (top view)
2. P21 for KBus RS-485 communication connection
3. P20 for RSA III RS-485 communication connection
4. Main logic (microprocessor)/communication circuit board

Figure 34 DEC 550 Controller RS-485 Connections



1. Interconnect circuit board (top view)
2. P21 for PGEN communication connection
3. P20 for RSA III RS-485 communication connection
4. Main logic (microprocessor)/communication circuit board

Figure 35 DEC 6000 Controller RS-485 Connections

DEC 8000 Controller. On the Decision-Maker® 8000, the RS-485 connections and the 120 Ω resistor are located on the base module. See Figure 36.

Note: On the Decision-Maker® 8000, the polarity of the RS-485 connections is reversed when compared to the RSA III. Connect the black (–) wire to the B connection and the white (+) wire to the A connection on the controller base box.

Note: When using RS-485 communication cable, connect the "shield" wire at the RSA III P27 connection but not at the controller connection. Tape to insulate unused end.

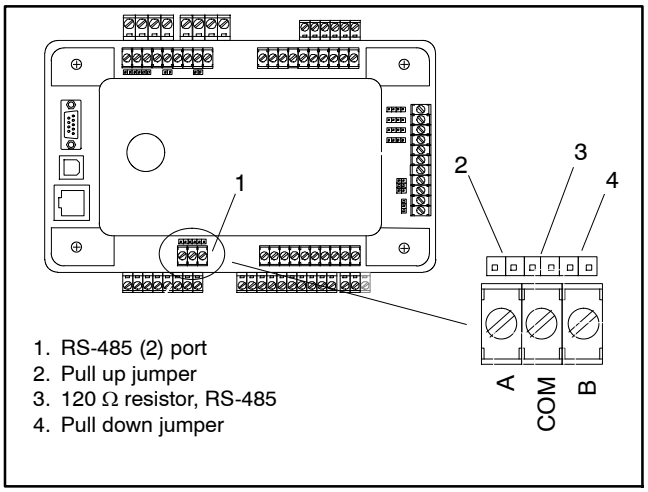


Figure 36 DEC 8000 Base Box and RS-485 Connectors

6.4 **P27, 6-pin RS-485 connections (communication between RSA III master and RSA III slave.** Select and connect the RS-485 wiring from the RSA III master to the RSA III slave(s) in a daisy chain wiring configuration using Belden #9841 or equivalent. Figure 23 shows the master/slave RS-485 connections and Figure 20 shows the RSA III with P27 location. See the wiring diagrams in Figure 57 to Figure 63 for additional information regarding master/slave RSAs.

Connect RS-485 wiring to 6-position Euroblock plug 294619 (included) and plug into the RSA III circuit board. The Euroblock connector is polarized and attaches in one position only.

Each RSA III is shipped with a termination resistor in the NON-TERMINATED position on P34 connector. If there are more than five Modbus® devices connected on the network place the termination resistor in the last RSA slave.

Determine the position of the termination resistor in P34 connector based on the following applications.

RSA III Master only or RSA III Master with RSA III Slaves (with up to five Modbus® devices). Verify that the termination resistor is in the NON-TERMINATED position on P34 connector on the RSA III master and slaves.

RSA III Master with RSA III Slaves (with more than five Modbus® devices). Verify that the termination resistor is in the IN position on P34 connector on the last RSA III slave in the daisy chain connection. Place the termination resistor in the NON-TERMINATED position on P34 connector on the RSA III master and all RSA III slaves except the last RSA III slave.

Note: Controllers, when communicating with the RSA III, are considered slaves. If the controller is the last device in the network, use a terminating resistor on the controller. The APM802 and DEC 8000 controllers have a terminating resistor located on the controller. See Figure 36 and Figure 24.

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6.5 **P37, 3-pin power connections.** Each RSA III requires a 12/24-volt, 200 mA (min.) DC power source. The RSA III voltage should match the generator set starting system. Provide an engine starting battery connection to P37. The 12- or 24-volt positive and negative wires can be connected to either P37-2 or P37-3 terminals as they are not polarity sensitive. See Figure 20 for location of P37 and Figure 37 for terminal identification.

Attach to the battery positive (+) connection at the starter solenoid and the battery negative (–) connection at the engine ground. Do not use terminals 42A and 2 on the controller connection kit terminal strip. The battery positive (+) lead should be fuse protected.

AC adapter kit GM62466-KP1 is available to supply 12 VDC power to a single RSA III. See Figure 38 for components of the kit and Figure 62 for electrical connections to P38.

Note: Keep the power source deenergized at this time.

P37 Power Connections	
P37-1	Ground
P37-2	12/24 VDC battery input1 (not polarity sensitive)
P37-3	12/24 VDC battery input2 (not polarity sensitive)

Figure 37 P37 Power/CAN Connections

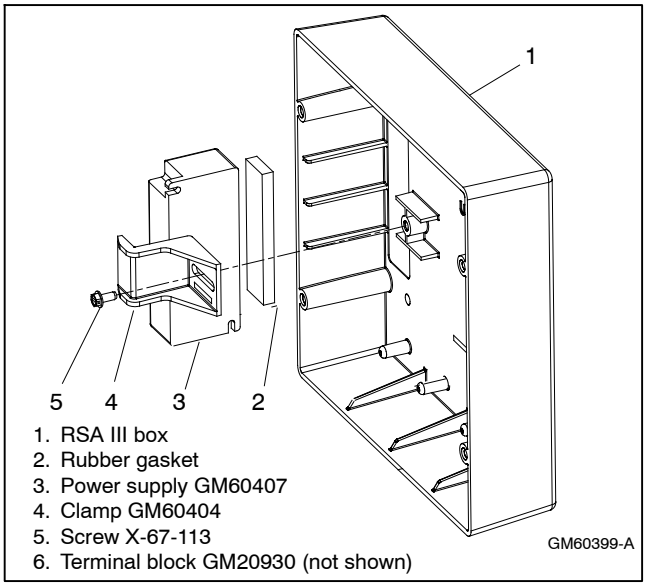


Figure 38 AC Adapter Kit GM62466-KP1

6.6 **P39, 3-pin isolated/non-isolated jumper**. See Figure 39 for P39 connections. See Figure 20 for the location of P39 on the RSA III.

Insulated	Isolated RS-485 (default setting)
Non-isolated	Non-isolated RS-485

Figure 39 P39 Isolation Jumper Connections

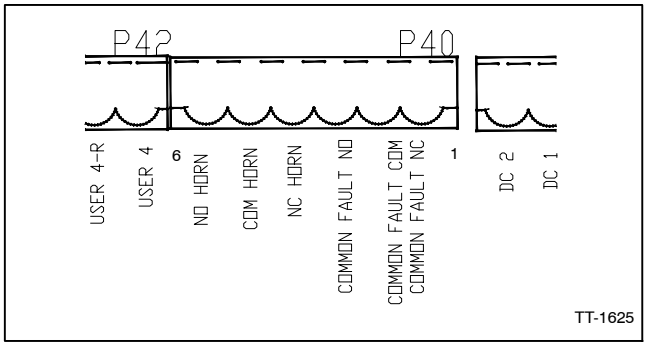
When using the **DEC 3+ controller**, choose the isolated connection on the master RSA III where the RS-485 cable shield and ground leads are connected at the master RSA III, but are not grounded to the RSA III circuit board.

Note: When using the **DEC 550 and DEC 6000 controllers**, choose the non-isolated connection on the master RSA III where the RS-485 cable shield and ground leads are connected at the master RSA III and grounded to the RSA III circuit board. The non-isolated connection ties the ground wire and shield (both of which are connected to the GND terminal of terminal block P27) to the same ground as the RSA III circuit board.

When the slave RSA III is not the only item on the network, use the isolated connection where the RS-485 cable shield and ground leads are connected but not grounded to the RSA III circuit board.

Note: When the slave RSA III is the only item on the network (connects only to a Modbus® to Ethernet converter), use the non-isolated connection where the RS-485 cable shield and ground leads are connected and grounded to RSA III circuit board.

6.7 **P40, 6-pin common fault output and horn dry contacts.** These dry contact relays energize when the alarm horn sounds and activate user-supplied devices. See Figure 40 for P40 connections. See Figure 20 for the location of P40 on the RSA III. The dry contacts are rated at 220 VAC @ 0.8 amps and 30 VDC @ 2 amps.



P40 Output Connections	
P40-1	Common fault relay normally closed
P40-2	Common fault relay common
P40-3	Common fault relay normally open
P40-4	Horn relay normally closed
P40-5	Horn relay common
P40-6	Horn relay normally open

Figure 40 P40 Common Fault Output and Alarm Horn Dry Contacts

6.8 **P41, 8-pin input (EPS/user) connections.** See Figure 20 for location of P41 on the RSA III. See Figure 41 for P41 User Input 1–3 Connections. See Figure 42 for P42 User Input 4–5 Connections (Decision-Maker® 3500 controllers only).

P41 Input/Connections	
P41-1	Local ATS emergency on input *
P41-2	Local ATS emergency on input return *
P41-3	User input 1
P41-4	User input 1 return
P41-5	User Input 2
P41-6	User Input 2 return
P41-7	User Input 3
P41-8	User Input 3 return
* Applies to Decision-Maker® 3+ controller only. Supplied via Modbus® RS-485 on the Decision-Maker® 550, 3000, 3500 controllers.	

Figure 41 RSA P41User Input 1–3 Connections

P42 Connections	
P42-1	User input 4
P42-2	User input 4 return
P42-3	User input 5
P42-4	User input 5 return

Figure 42 RSA P42 User Input 4–5 Connections

6.9 Make any additional *local* user-selected connections to the RSA III P41 connector. User-defined inputs can be used for any status, warning, or shutdown including open circuit breaker, air damper, etc. The user-selection connections are defined in Figure 43 and Figure 44 and include:

- User Input 1 (local).
- User Input 2 (local).
- User Input 3 (local).
- User Input 4 (local).
- User Input 5 (local).
- ATS emergency input (local). Connect wiring from the user-supplied transfer switch (ATS) emergency position auxiliary contacts. See the respective ATS wiring diagram(s).

Note: User-defined digital inputs #1 to #5 are selected at the RSA III master only and annunciated to the RSA III slave(s). No user-defined digital input selection is available at the RSA III slave(s).

Controller	User Input 4		User Input 5	
Master RSA III (Local)	P42-1 user-selectable	P42-2 (ground)	P42-3 user-selectable	P42-4 (ground)
DEC 3500	TB1-DI 4	TB1-GND or ground	TB1-DI 5	TB1-GND or ground

Figure 43 RSA III Local P42 Input Connections

Controller	User Input 1		User Input 2		User Input 3		ATS Emergency Aux. Contacts for EPS Supplying Load Input	
Master RSA III (Local)	P41-3 user-selectable	P41-4 (ground)	P41-5 user-selectable	P41-6 (ground)	P41-7 user-selectable	P41-8 (ground)	P41-1 on RSA III	P41-2 (ground) on RSA III
DEC 3+	TB5-10 on comm. module, user- selectable	TB5-4 (ground)	TB5-11 on comm. module, user- selectable	TB5-5 (ground)	TB5-12 on comm. module, user- selectable	TB5-6 (ground)	TB5-9 on comm. module and then to P41-8 on RSA III	TB5-3 on comm. module and then to P41-7 (ground) on RSA III
					Also used for high battery voltage on comm. module			
DEC 550	TB4-7 (D7) user-selectable using Menu 9	TB4-28 (ground)	TB4-8 (D8) user-selectable using Menu 9	TB4-29 (ground)	TB4-10 (D10) user-selectable using Menu 9	TB4-31 (ground)	via RS-485	via RS-485
DEC 3000	TB1-DI 1	TB1-GND or ground	TB1-DI 2	TB1-GND or ground	TB1-DI 3	TB1-GND or ground	via RS-485	via RS-485
DEC 3500	TB1-DI 1	TB1-GND or ground	TB1-DI 2	TB1-GND or ground	TB1-DI 3	TB1-GND or ground	via RS-485	via RS-485
DEC 6000	TB4-7 (D7) user-selectable using Menu 9	TB4-28 (ground)	TB4-8 (D8) user-selectable using Menu 9	TB4-29 (ground)	TB4-10 (D10) user-selectable using Menu 9	TB4-31 (ground)	via RS-485	via RS-485
MPAC® 750	Main logic board input #1		Main logic board input #2		—		via RS-485	via RS-485
MPAC® 1000								
MPAC® 1200								
MPAC® 1500								

Figure 44 RSA III Local P41 Input Connections

6.10 **APM802 Controllers only.** For the user-defined digital inputs 1 to 5 on the RSA III, use the controller digital inputs connections located on TB10. After the RSA III installation is complete, these digital inputs are selected with SiteTech™ software under the Product Connection Inputs menu. Refer to the wiring diagram manual to determine the connections on TB10 and Figure 45 to determine the digital input designations.

Digital Inputs	Designation
Digital Input 1	Low Fuel Level Switch
Digital Input 2	Breaker Open Status
Digital Input 3	Remote Reset
Digital Input 4	Aux Shutdown
Digital Input 5	High Fuel Level Switch
Digital Input 6	Aux Warning
Digital Input 7	Low Oil Level
Digital Input 8	Battery Charger Fault
Digital Input 9	Fuel Leak Alarm
Digital Input 10	Idle Mode
Digital Input 11	GFCI Tripped
Digital Input 12	Remote Speed Adjust Enable
Digital Input 13	Key Switch Enable
Digital Input 14	Load Shed Enable
Digital Input 15	Overcrank Test
Digital Input 16	Reserved for Factory Use

Figure 45 Digital Inputs on APM802 Controller

6.11 **DEC 550 and DEC 6000 Controllers only.** The RSA III user inputs 1–3, when in the remote connection, are tied to the controller digital inputs. See Figure 46.

If required, the user-input selection tied to digital inputs D7, D8, and/or D10 can be changed using Menu 9, Input Setup. Refer to the DEC 550 (TP-6200) or DEC 6000 (TP-6750) controller operation manual as needed.

RSA III User Inputs (Remote)	Tied to DEC 550 and 6000 Controller Digital Inputs
1	D7
2	D8
3	D10

Figure 46 RSA III Remote User Inputs with DEC 550 and DEC 6000 Controllers

6.12 **DEC 8000 Controllers only.** For the user-defined digital inputs 1 to 5 on the RSA III, use the controller binary inputs connections located on the customer connection block, TB1. After the RSA III installation is complete, these digital inputs are selected with SiteTech™ software under the Product Connection Inputs menu. Refer to the wiring diagram manual to determine the connections on TB1 and to Figure 47 to determine the binary input designations and functionality.

Binary Inputs	Default Definitions
Binary Input 1	Auxiliary Fault Shutdown
Binary Input 2	Auxiliary Warning – Always/Anytime
Binary Input 3	Auxiliary Warning – Running Only
Binary Input 4	Low Coolant Level
Binary Input 5	Ground Fault Detected
Binary Input 6	Remote Fault Reset
Binary Input 7	Remote Generator Circuit Breaker Button (close/trip)
Binary Input 8	Auxiliary Slow Stop

Figure 47 Binary Inputs on DEC 8000 Controller

6.13 Document the user-selected inputs for future reference. If user-selected inputs 1 to 5 (remote) are used, the user may add the identification on the RSA III front panel strip. Use a black permanent marker on the respective white blank box to identify the user input. The user can also fill in the generator ID location information if needed. Allow the marker ink to dry before handling the RSA III front panel.

Other methods for adding the information to the identification strip would be to use a PC and print the information on an adhesive label or use a label maker. The print font on the RSA III front panel is Myriad bold 10 point. Attach the printed label(s) to the white blank boxes on the RSA III front panel.

6.14 The RSA III connected to the controller MUST be assigned as the RSA III master. See Figure 48 for a summary of the EPS Supplying Load (ATS) annunciation sources.

Note: Does not apply to DEC 3000 controllers.

Source	DEC 3+ Controller	DEC 550/DEC 6000 Controllers
Local (hard wired)	RSA III connection to the ATS	
Remote (RS-485)	Communication module board connection to ATS	Controller connection to ATS

Figure 48 EPS Supplying Load (ATS) Annunciation Sources

Use the SiteTech™ software to select either that the generator set controller activates EPS Supplying Load LED or the transfer switch activates LED or local EPS supplying load.

Use the SiteTech™ software to select the high speed mode for direct connection to the DEC 550 and DEC 6000 controllers. Select lower speed for network connection with the Modbus®/ Ethernet converter. The lower speed allows network functionality reducing loss of communication faults.

6.15 Replace the controller cover and hardware on the DEC 550 and DEC 6000 controllers and the access panels on the DEC 8000 and APM802 controllers.

7. Complete the RSA III final installation.

Proceed to either Step 7.1, Surface mount RSA III final installation, or Step 7.2, Flush mount RSA III final installation.

7.1 Surface mount RSA III final installation.

7.1.1 Mount the RSA III box to the wall or to the electrical box in the wall if not already done. Check that the box is square to the wall; adjust as needed.

7.1.2 Position the RSA III front panel assembly to the surface-mount box and install four self-tapping screws X-67-154. Do not tighten the screws.

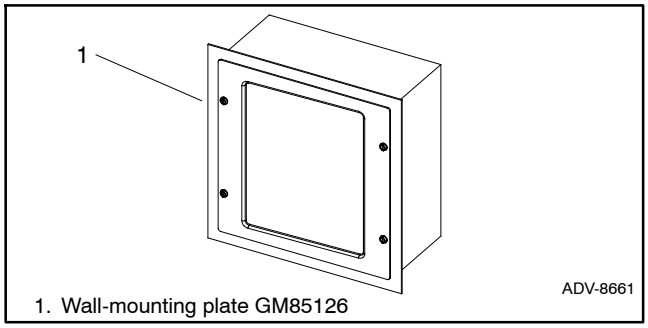
7.1.3 Center the remote annunciator in the box and square with the wall. Tighten the screws.

7.1.4 Proceed to step 8.

7.2 Flush mount RSA III final installation.

7.2.1 Place wall-mounting plate GM85126 *behind* the RSA III front panel assembly flange if not already done. See Figure 49.

Note: The wall-mounting plate can be installed behind the RSA III front panel assembly flange even if RSA III front panel assembly is already wired.



1. Wall-mounting plate GM85126

Figure 49 RSA III Wall-Mounting Plate

7.2.2 Align the holes of the wall-mounting plate with the RSA III front panel assembly to the surface-mount box and install four self-tapping screws X-67-154. Do not tighten the screws.

7.2.3 Center the remote annunciator in the box and position wall-mounting plate square with the wall. Tighten the screws.

7.2.4 Proceed to step 8.

8. Configure the DEC 3+ controller for the remote serial annunciator.

Note: After setting DIP switches to the generator set application, be sure to *power down* and then *power up* the controller; either disconnect the battery and then reconnect the battery of the generator set, use the prime power switch (if equipped), or remove and then replace the F2 controller fuse. The controller will NOT acknowledge the DIP switch change until after generator set controller is *powered up*.

8.1 Set the controller Modbus® address to #1 by placing DIP switches 6, 7, and 8 to the open position. See Figure 50.

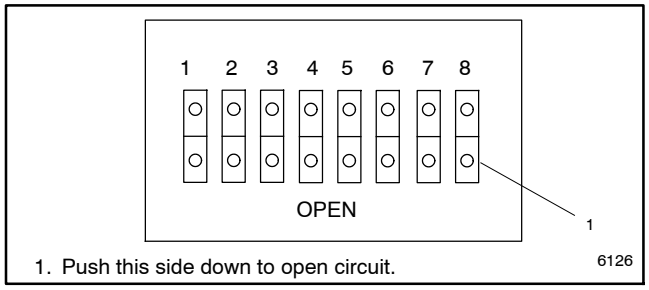


Figure 50 DEC 3+ Controller DIP Switches

8.2 The DEC 3+ controller baud rate is fixed at 19200. No change is required.

8.3 If the RSA III is used with a DEC 3+ controller and it required installing a communication module board, refer to TT-1285 Program Loader Software instructions for downloading **firmware version 1.23 or higher with red controller board or 2.03 or higher with blue controller board.**

8.4 Replace the controller cover and hardware.

9. Restore the generator set to service.

9.1 Place the generator set master switch in the OFF/RESET position (OFF mode on the Decision-Maker© 8000 or Out-of-Service mode on the APM802 controller).

9.2 Reconnect the generator set engine starting battery, negative (–) lead last.

9.3 Reconnect power to the battery charger, if equipped.

9.4 Energize the RSA III(s).

9.5 Place the generator set in AUTO (select AUT mode on the Decision–Maker© 8000) for startup by remote transfer switch or remote start/stop switch.

9.6 Reset alarm horns as needed.

10. Configure the APM802 controllers for the remote serial annunciator.

The APM802 is factory configured to work with the RSA III. The APM802 controller defaults to a 19200 baud rate and to an address of #1. Refer to Figure 51 for the default APM802 controller settings.

Note: The RS-485 address on the APM802 must match the address on the RSA III master.

Serial Link Settings	Setting Selection
Speed	19200 bauds
Stop bit	1
Parity	Without
Function	Modbus slave
Slave number	1 (must match address on the RSA III master)

Figure 51 APM802 Configuration

11. Configure the DEC 550 and DEC 6000 controllers for the remote serial annunciator.

Note: Refer to the DEC 550 (TP-6200) or DEC 6000 (TP-6750) controller operation manual as needed.

11.1 Replace the controller cover and hardware.

11.2 Press the Reset Menu key on the controller keypad.

11.3 Go to Menu 14, Programming Mode, and press the down arrow key to Programming Mode.

If Programming Mode—Local is shown, go to step 11.8.

If Programming Mode—Local is NOT shown, press the right arrow key to select Local. Press YES and the Enter key.

11.4 Enter the access code. The factory default access code is the number 0. Press the Enter key.

11.5 Press the Reset Menu key on the controller keypad.

11.6 Go to Menu 6, Time and Date, and set the correct time and date.

11.7 Press the Reset Menu key on the controller keypad.

11.8 Go to Menu 13, Communications, and press the right arrow key to Protocol—Modbus®.

11.9 Set the controller Modbus® address to #1 by pressing the down arrow key to Address. Enter number 1 and the Enter key.

11.10 Press the down arrow key to Baud Rate.

If 19200 is shown, go to step 11.12.

If 19200 is NOT shown, press the right arrow key to select 19200. Press YES and the Enter key.

11.11 Press the Reset Menu key on the controller keypad.

11.12 Go to Menu 14, Programming Mode, and press the down arrow key to Programming Mode—Local.

11.13 Press the right arrow key to Programing Mode-Off. Press YES and the Enter key,

11.14 Enter the access code. The factory default access code is the number 0. Press the Enter key.

12. Configure the DEC 3000/DEC 3500 controllers for the remote serial annunciator.

The Decision-Maker® 3000 and 3500 controllers default to a 19200 baud rate and to a Modbus® address #1. If the Modbus® settings need to be altered, use SiteTech™ software to make the configuration changes.

13. Configure the DEC 8000 controllers for the remote serial annunciator.

On the Decision-Maker® 8000 controller, use the controller menus to change the setpoints shown in Figure 52. Refer to the controller operation manual for instructions on changing settings.

For RS-485 port 2, the internal converter must be enabled and the Modbus® communication speed must be set to 19200 bps.

Setpoints	Setting Selection
Contr. address	1 (default)
RS232(2) mode	0 - DIRECT (default)
RS232(2) MBCSpd	1 - 19200
RS485(2) conv.	ENABLED (default)

Figure 52 DEC 8000 Configuration

SiteTech™ Software Settings

After the RSA III master and RSA III slaves are installed, use the SiteTech™ software to set up each RSA III.

Note: The RSA III requires a power source to P37. Use either the engine starting batteries or a 120 VAC to 12 VDC adapter when programming changes.

The following information assumes the technician has downloaded the SiteTech™ software from Tech Tools onto a PC laptop and is connected to the respective RSA III using a USB 2.0 cable, A Male to Mini B Male, 5 pin.

See Figure 53 for SiteTech™ software sample screen. The shaded entries are read only. The top of the screen provides the user with the ability to update firmware and reset to factory defaults. There is a pull down screen for showing parameters with expand all and collapse all features. The user can cut, copy, and/or paste entries and then either apply or discard the changes.

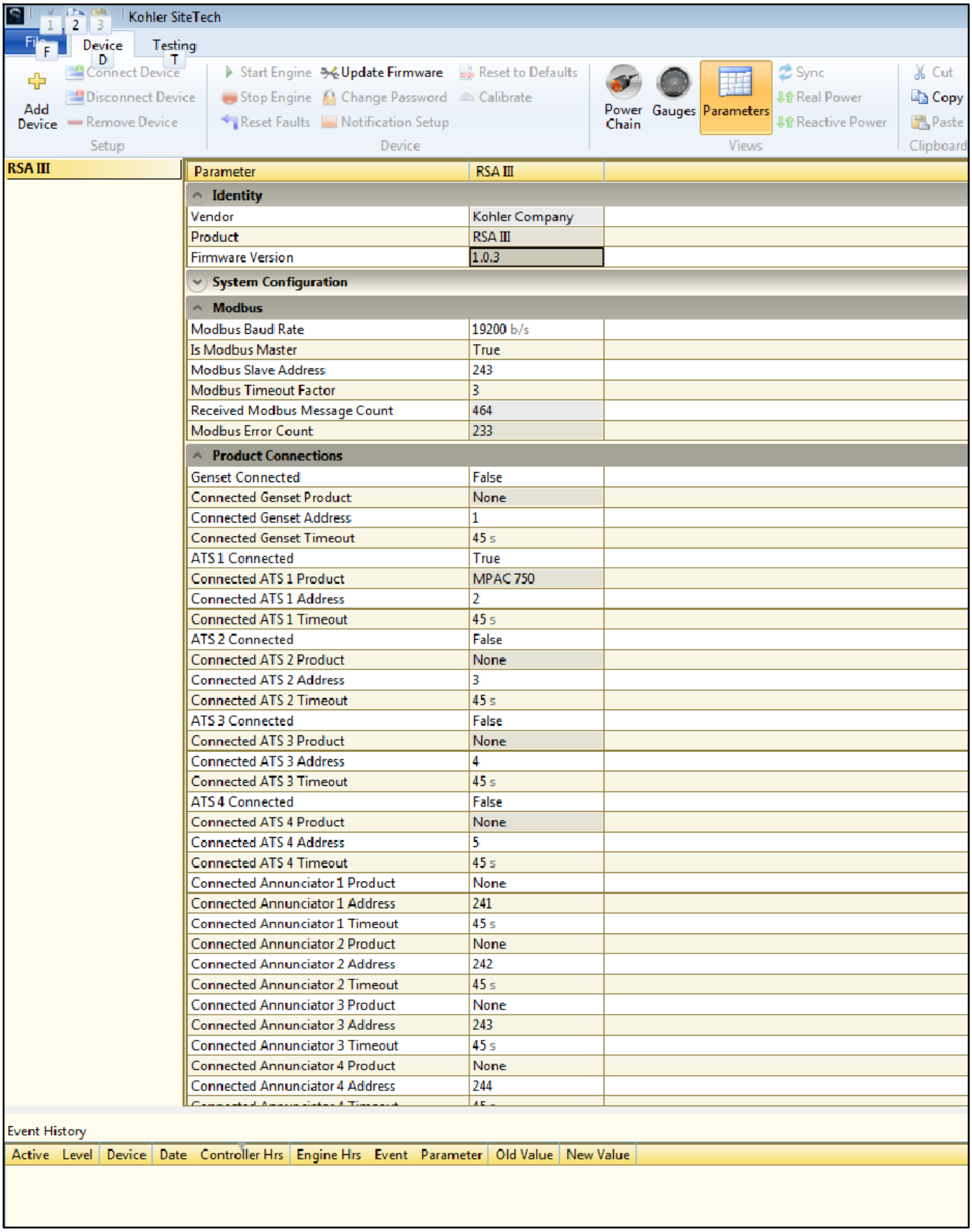


Figure 53 RSA III Generator Set and ATS Setup on SiteTech™ (Sample Screen)

The Menu List Summary indicates the various displays within the SiteTech™ software screens. Some displays are read only while other fields require user input to set up the RSA III. See Figure 54.

The User-Defined Settings (Figure 55) indicate the ranges and default values for each selection. Value entries outside the setting range are not accepted by the firmware. Use the table to record user-defined settings during the setup. The RSA III default settings and ranges provide guidelines. Non-adjustable user-defined settings are factory-set or firmware controlled.

The SiteTech™ software has four fields of information (Identity, Modbus®, Product Connections, and Product Connection Inputs). The following information provides a summary of the purpose of the four fields.

Identity *(Read only)*	**Modbus** *(Read/Write)*	**Product Connections** *(Read/Write)*	**Product Connection Inputs** *(Read/Write)*
● Vendor ● Product ● Firmware Version	● Modbus Baud Rate ● Is Modbus Master? ● Modbus Slave Address ● Modbus Timeout Factor ● Received Modbus * Message Count * ● Modbus Error Count * * Read only	● Connected GenSet ○ Product ○ Address ○ Timeout ● Connected ATS ○ Connected ○ Product ○ Address ○ Timeout ● Connected Annunciator 1 ○ Product ○ Address ○ Timeout ● Connected Annunciator 2 ○ Product ○ Address ○ Timeout ● Connected Annunciator 3 ○ Product ○ Address ○ Timeout ● Connected Annunciator 4 ○ Product ○ Address ○ Timeout ● Connected Annunciator 5 ○ Product ○ Address ○ Timeout	● EPS Supplying Load Indicator ● Digital Input 1 ○ Source ○ Event Level ● Digital Input 2 ○ Source ○ Event Level ● Digital Input 3 ○ Source ○ Event Level ● Digital Input 4 ○ Source ○ Event Level ● Digital Input 5 ○ Source ○ Event Level

Figure 54 Menu List Summary

Selection Description	Display or Default Selection	Setting Range	Lamp	Alarm Horn	User-Defined Settings
Identity					
Vendor	Kohler Company				Not adjustable
Product	RSA III				Not adjustable
Firmware Version	1.0.9				Not adjustable
Modbus					
Modbus Baud Rate (kbps)	19.2	9.6, 19.2, 38.4, or 57.6			
Is Modbus Master?	True	True or False			
Modbus Slave Address	246	1–247			
Modbus Timeout Factor (1–fast, 10 slow)	5	1–10			
Received Modbus Message Count	#				Not adjustable
Modbus Error Count	#				Not adjustable
Product Connections					
Connected GenSet Product	none	See Controller List *			
Connected GenSet Address	1	1–247			
Connected GenSet Timeout	45 seconds §	1–120 seconds			
Connected ATS Product	none	See ATS List †			
Connected ATS Address	2	1–247			
Connected ATS Timeout	45 seconds §	1–120 seconds			
Connected (Slave) Annunciator 1 Product	none	See Annunciator List ‡			
Connected (Slave) Annunciator 1 Address	3 (If RSA 1000, then 247)	1–247			
Connected (Slave) Annunciator 1 Timeout	45 seconds §	1–120 seconds			
Connected (Slave) Annunciator 2 Product	none	See Annunciator List ‡			
Connected (Slave) Annunciator 2 Address	4 (If RSA 1000, then 247)	1–247			
Connected (Slave) Annunciator 2 Timeout	45 seconds §	1–120 seconds			
Connected (Slave) Annunciator 3 Product	none	See Annunciator List ‡			
Connected (Slave) Annunciator 3 Address	5 (If RSA 1000, then 247)	1–247			
Connected (Slave) Annunciator 3 Timeout	45 seconds §	1–120 seconds			
Connected (Slave) Annunciator 4 Product	none	See Annunciator List ‡			
Connected (Slave) Annunciator 4 Address	6 (If RSA 1000, then 247)	1–247			
Connected (Slave) Annunciator 4 Timeout	45 seconds §	1–120 seconds			
Connected (Slave) Annunciator 5 Product	none	See Annunciator List ‡			
Connected (Slave) Annunciator 5 Address	7 (If RSA 1000, then 247)	1–247			
Connected (Slave) Annunciator 5 Timeout	45 seconds §	1–120 seconds			
Product Connections Inputs					
EPS Supplying Load Indicator	Generator	Local (hardwired), Generator, or ATS			
Digital Input 1 Source	Local	Local (hardwired), Generator, or ATS			
Digital Input 1 Event Level	Warning	Warning or Fault	Warning–Yellow, Fault–Red	Yes (if Fault)	
Digital Input 2 Source	Local	Local (hardwired), Generator, or ATS			
Digital Input 2 Event Level	Warning	Warning or Fault	Warning–Yellow, Fault–Red	Yes (if Fault)	
Digital Input 3 Source	Local	Local (hardwired), Generator, or ATS			
Digital Input 3 Event Level	Warning	Warning or Fault	Warning–Yellow, Fault–Red	Yes (if Fault	
Digital Input 4 Source	Local	Local (hardwired), Generator, or ATS			
Digital Input 4 Event Level	Warning	Warning or Fault	Warning–Yellow, Fault–Red	Yes (if Fault	
Digital Input 5 Source	Local	Local (hardwired), Generator, or ATS			
Digital Input 5 Event Level	Warning	Warning or Fault	Warning–Yellow, Fault–Red	Yes (if Fault	

***** Controller List includes: Decision-Maker® 3+, 550, 3000, 3500, 6000, 8000, APM802, or KPC 1000.
† ATS List includes: None, MPAC® 750, MPAC® 1000, MPAC® 1200, or MPAC® 1500.
‡ Annunciator List includes: None, RSA 1000, RSA II, or RSA III.
§ The SiteTech™ software may have a different default setting for selected devices.

Figure 55 User-Defined Settings

Identity

The identity field provides the user read only information including the **Firmware (Software) Version**. Record this number for upgrading firmware when troubleshooting.

Modbus®

The **Modbus® Baud Rate** is selectable and must be the same for all connected devices. The Modbus® field establishes the RSA III as a master or slave. Enter true or false to the **Is Modbus Master?** line item. When used as a slave, create a **Modbus® Slave Address** to identify this RSA III on the Modbus® network.

The **Modbus® Timeout Factor** is a user-selectable entry of 1 (fast)–10 (slow) with the default setting of 5. Typically the default setting will provide adequate system performance. The user may increase/decrease the timeout factor as needed to optimize the RSA III with the network system.

Line items **Received Modbus® Message Count** and **Modbus® Error Count** indicate the performance of the network. Showing Modbus® Error Count instances is typical of some network communications and not a reason for concern.

Product Connections

The generator set and ATS product IDs are no longer user configurable. The IDs are recognized by the RSA III at the specified Modbus address. See Figure 53.

The product connection field requires three entries (Product, Address, and Timeout).

The device description or **Product** identifies what type of device is connected to the RSA III master such as a generator set, transfer switch (ATS), or RSA III slave(s).

Each connection requires a unique **Address**. Change the default setting as needed to create different addresses based on the range of 1–247. In addition, each field creates addresses for each of the RSA III slaves. Up to five slaves can be driven by one RSA III master.

The Modbus® **Timeout** period is separately assignable for each device. The timeout period is a user-selectable entry of 1–120 seconds with the default setting of 15 seconds. Increase the timeout factor as needed when working with a slow or unstable network to prevent interruption or nuisance timeouts.

The **Connected ATS** parameter indicates if the RSA III should expect an ATS on the network at the address specified. When set to True, the RSA III notifies the user when it cannot communicate with the ATS. If the RSA III auto-detection logic finds an ATS on the network, the RSA III sets the ATS connected parameter to True and saves the setting. Should the ATS be removed from the network for some reason, set this parameter back to False.

Product Connection Inputs

The product connection input field provides the user with choices to show selected status, warning, or shutdown faults. EPS supplying load and three digital inputs are available for monitoring.

For **EPS Supplying Load Indicator** connections, refer to Figure 56 to select the EPS source.

The **Source** can be from the generator set, ATS, or (local) hardwired directly to the RSA III. Refer to Figure 56.

Select the **Event Level** as either a warning (yellow light) or fault shutdown (red light).

This field also provides an **Events Log** which is a history of faults that the RSA III encounters while energized. The generator set may or may not be running at the time of the event. Review the Events Log for a summary of the performance of the network communication.

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Connection Type	Controller	Step	Operation Manual	Other Information
EPS Supplying Load		6.8		ATS emergency aux. contact connections
Remote (Generator Set)	APM802	6.10	TP–7070	Wiring diagram for the respective generator set
(Local) hardwired	Decision-Maker® 3+	6.9	TP-6161 (Industrial) or TP-6441 (Marine)	Wiring diagram for the respective generator set
Remote (Generator Set)	Decision-Maker® 550	6.11	TP-6200 (Industrial) or TP-6441 (Marine)	Wiring diagram for the respective generator set
(Local) hardwired	Decision-Maker® 3000	6.9	TP-6694	Wiring diagram for the respective generator set
(Local) hardwired	Decision-Maker® 3500	6.9	TP-6914 (Industrial) or TP-6861 (Marine)	Wiring diagram for the respective generator set
Remote (Generator Set)	Decision-Maker® 6000	6.11	TP-6750	Wiring diagram for the respective generator set
Remote (Generator Set)	Decision-Maker® 8000	6.12	TP-6990	Wiring diagram for the respective generator set
(Local) hardwired	KPC 1000	6.9	TP-6427 and TP-6471 (Software)	Wiring diagram for the respective generator set
Remote (ATS)	MPAC® 1000	6.9	TP-6126	Model KCT/KCP ATS
Remote (ATS)	MPAC® 1500	6.9	TP-6714	Model KCS/KCP/KCC/KBS/KBP/KBC/KGS/ KGP/KSS/KSP/KEP ATS
Remote (ATS)	Decision-Maker® MPAC® 750	6.9	TP-6865	Model KSS ATS
Remote (ATS)	Decision-Maker® MPAC® 1200	6.9	TP-6866	Model KCS/KCP/KCC/KSS/KSP ATS
Remote (ATS)	Decision-Maker® MPAC® 1500	6.9	TP-6883	Model KCS/KCP/KCC/KBS/KBP/KBC/KGS/ KGP/KEP ATS

Figure 56 Product Connection Input Instructions

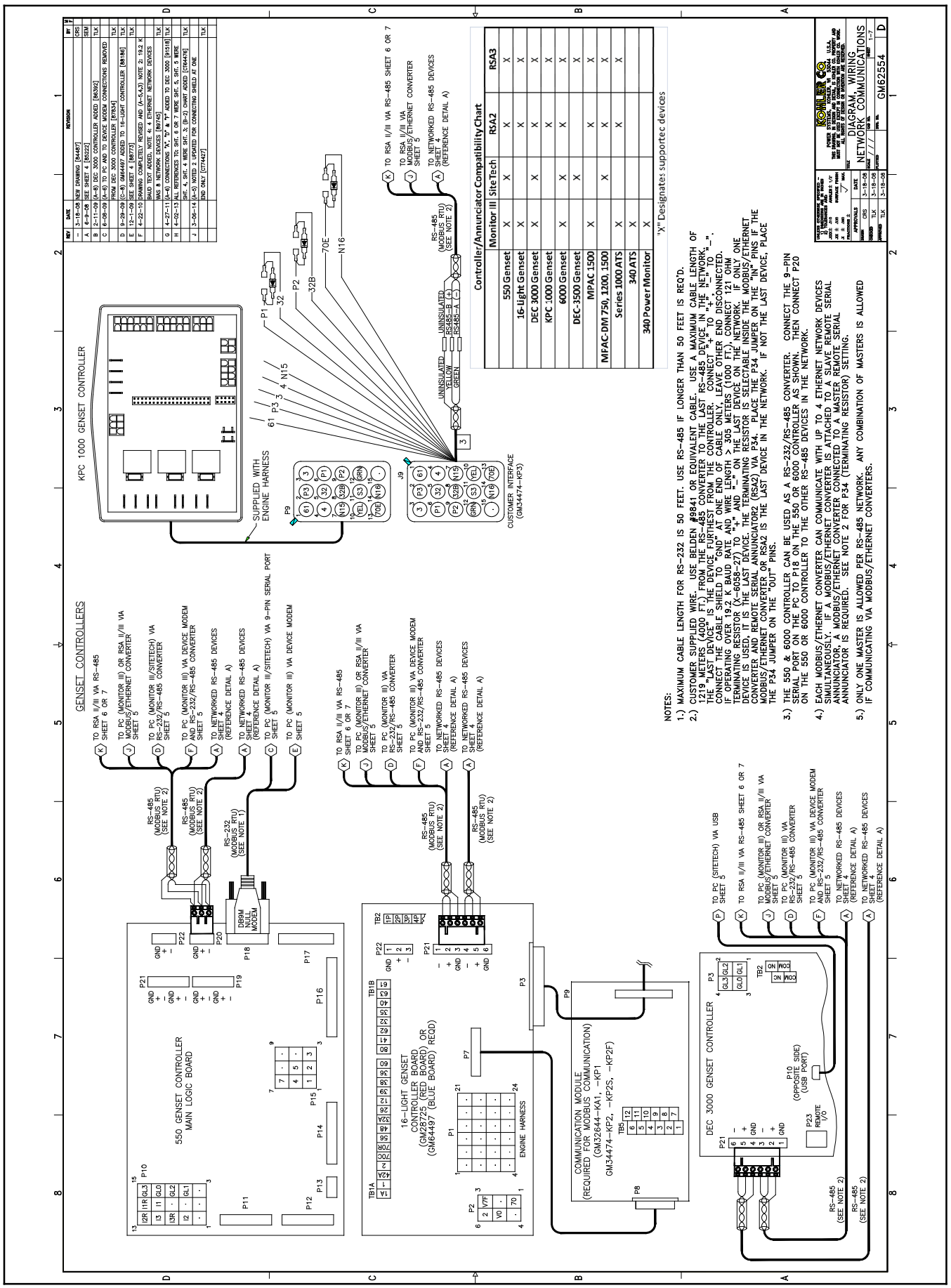

Figure 57 RSA III Wiring Diagram GM62554A-J

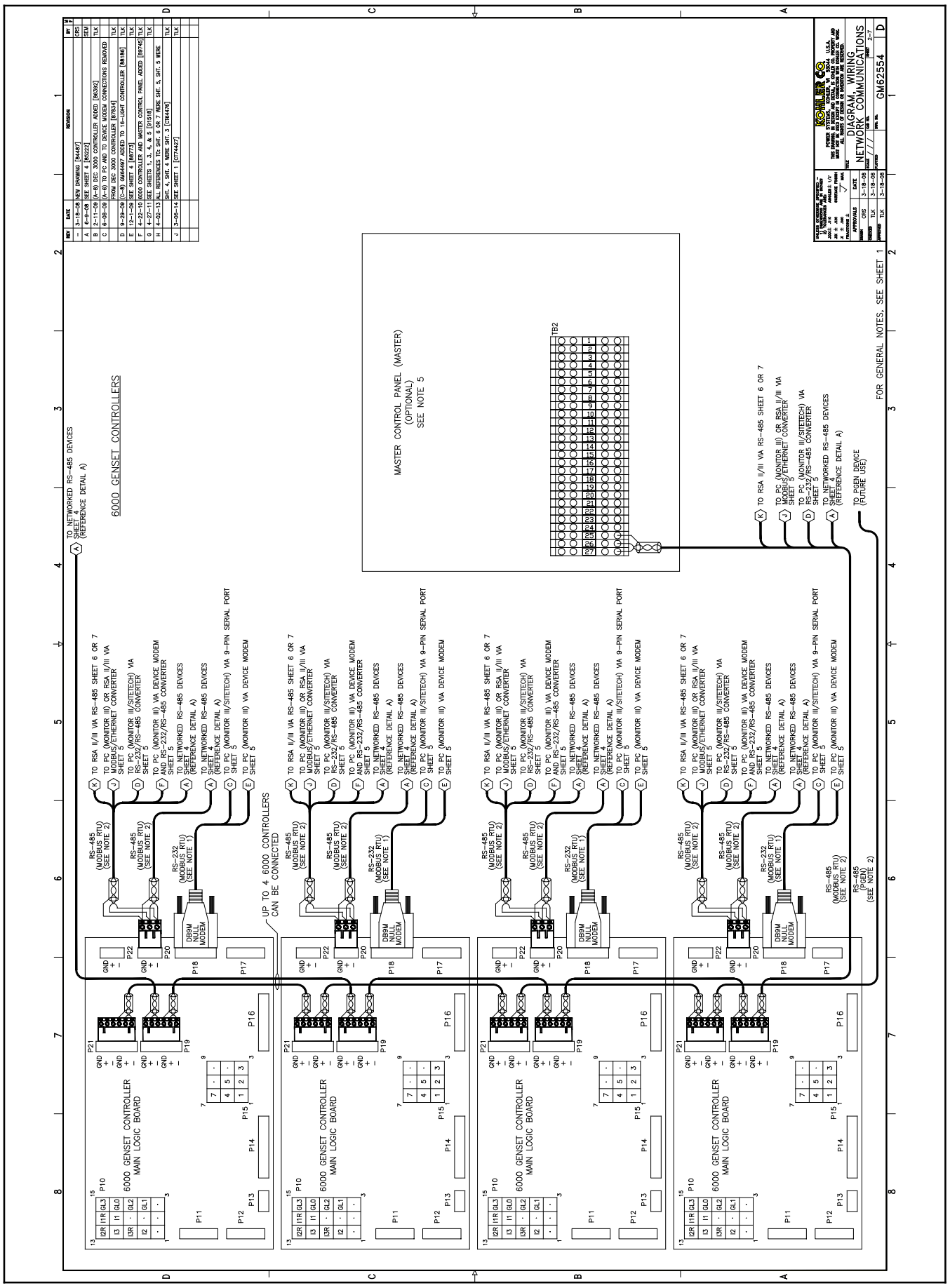

Figure 58 RSA III Wiring Diagram GM62554B-J

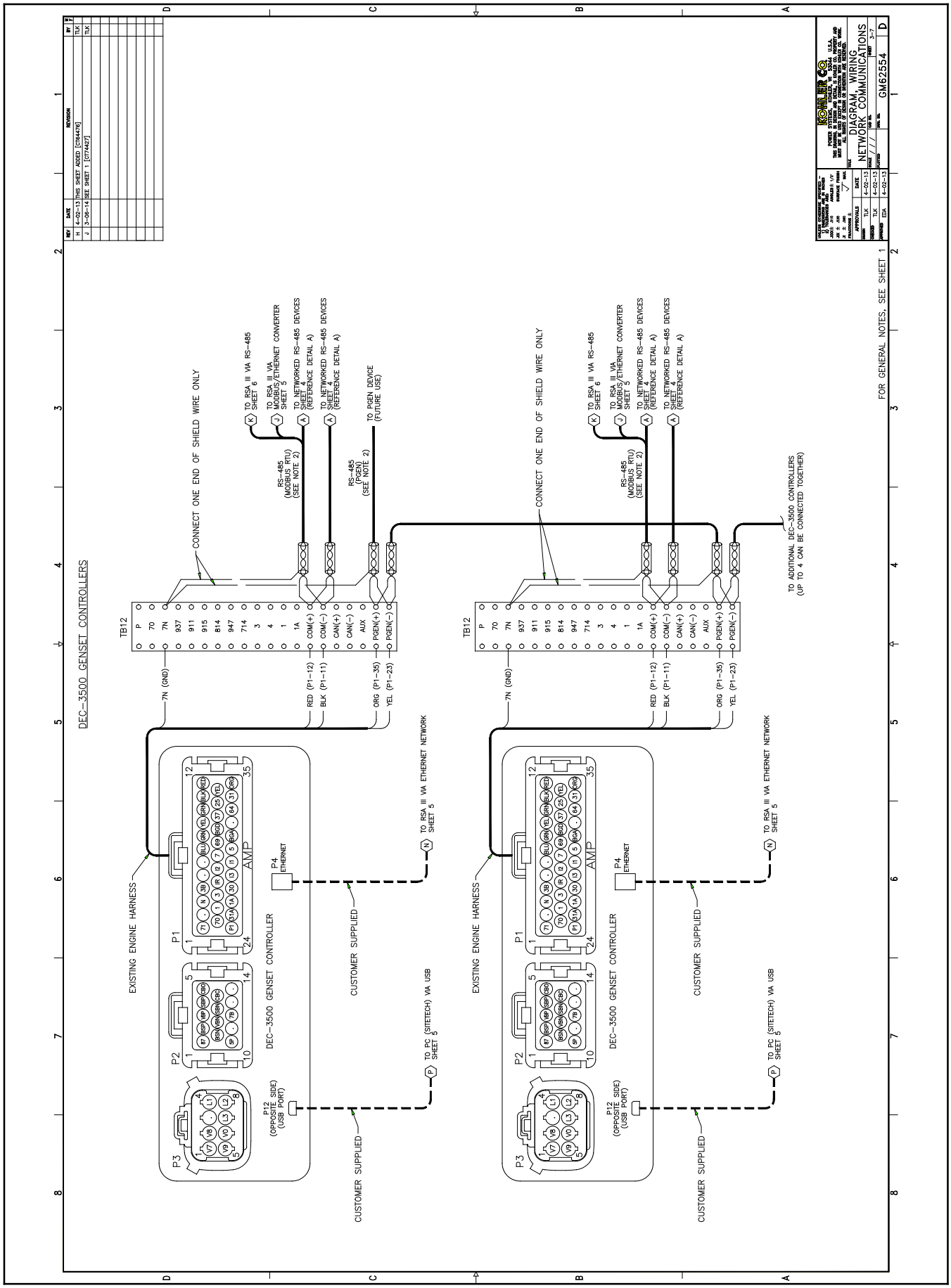

Figure 59 RSA III Wiring Diagram GM62554C-J

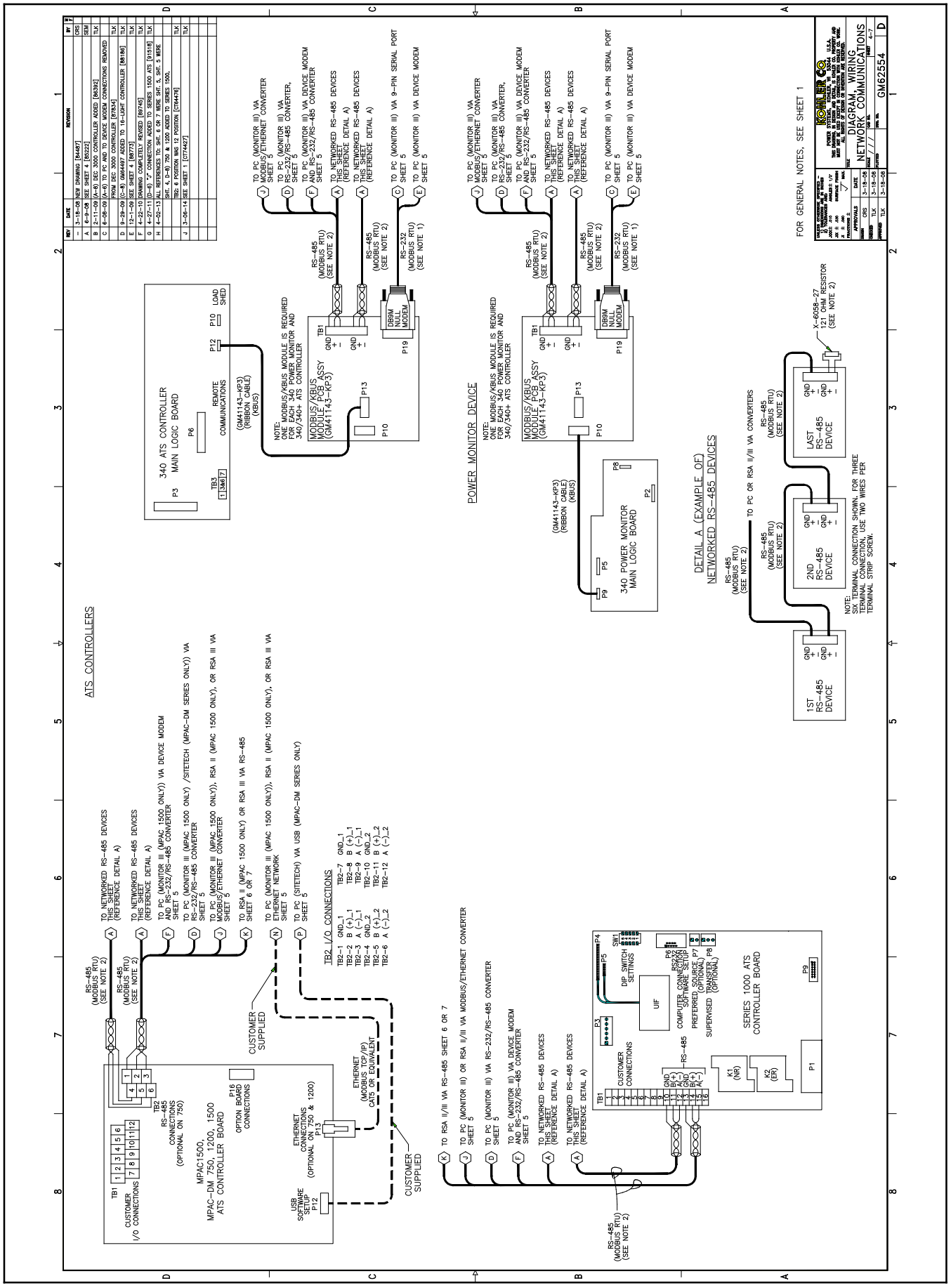

Figure 60 RSA III Wiring Diagram GM62554D-J

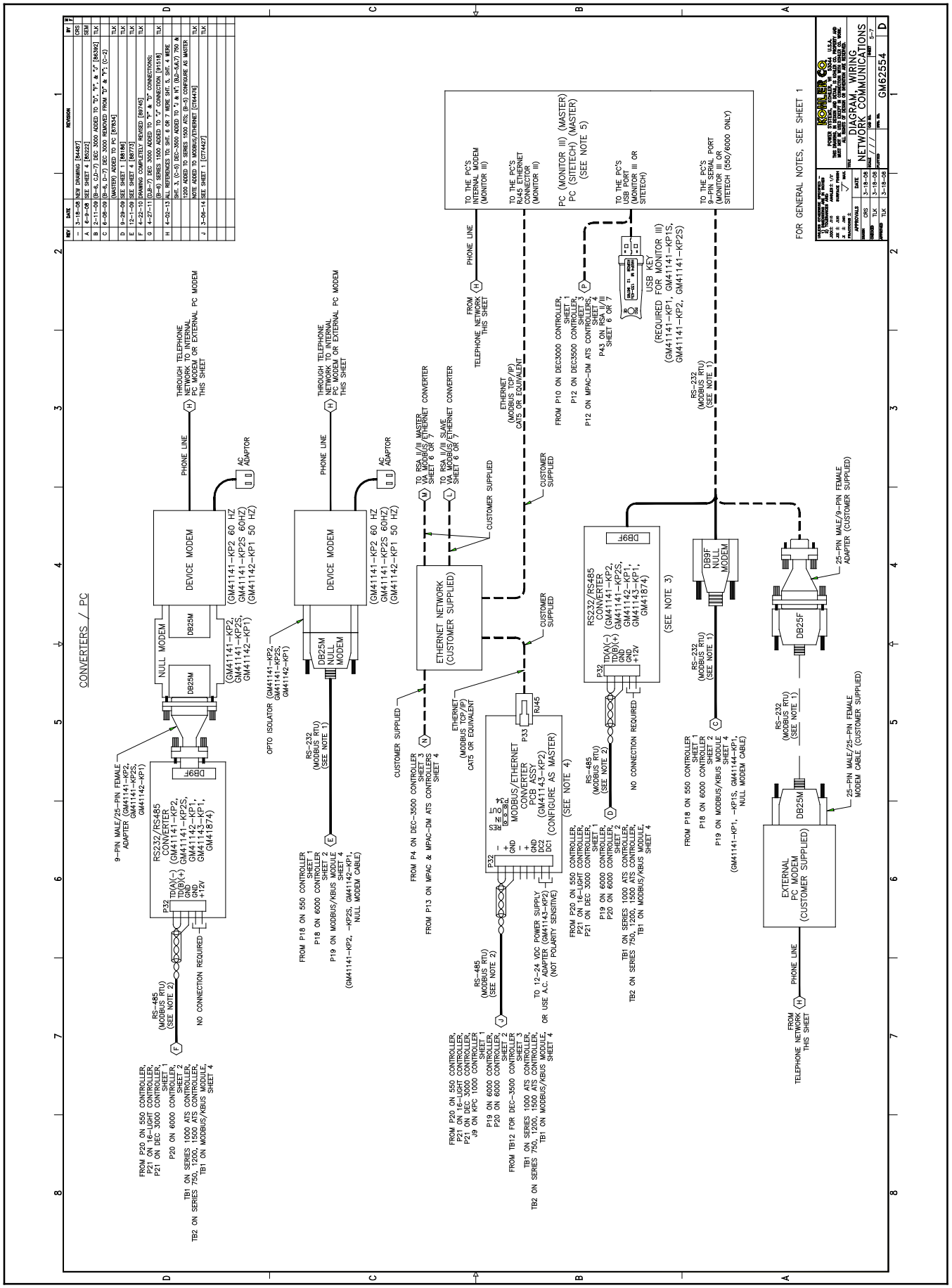

Figure 61 RSA III Wiring Diagram GM62554E-J

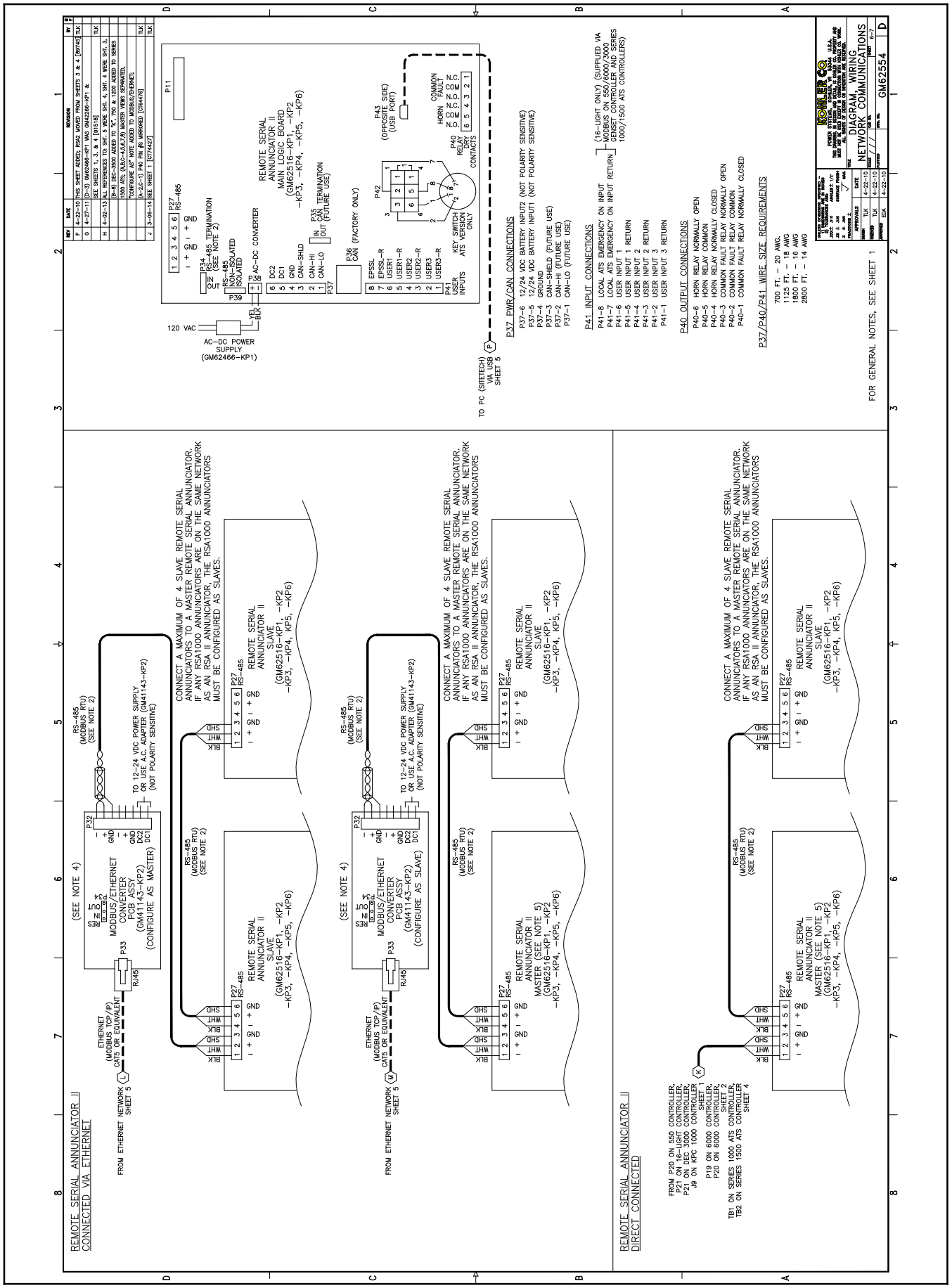

Figure 62 RSA III Wiring Diagram GM62554F-J

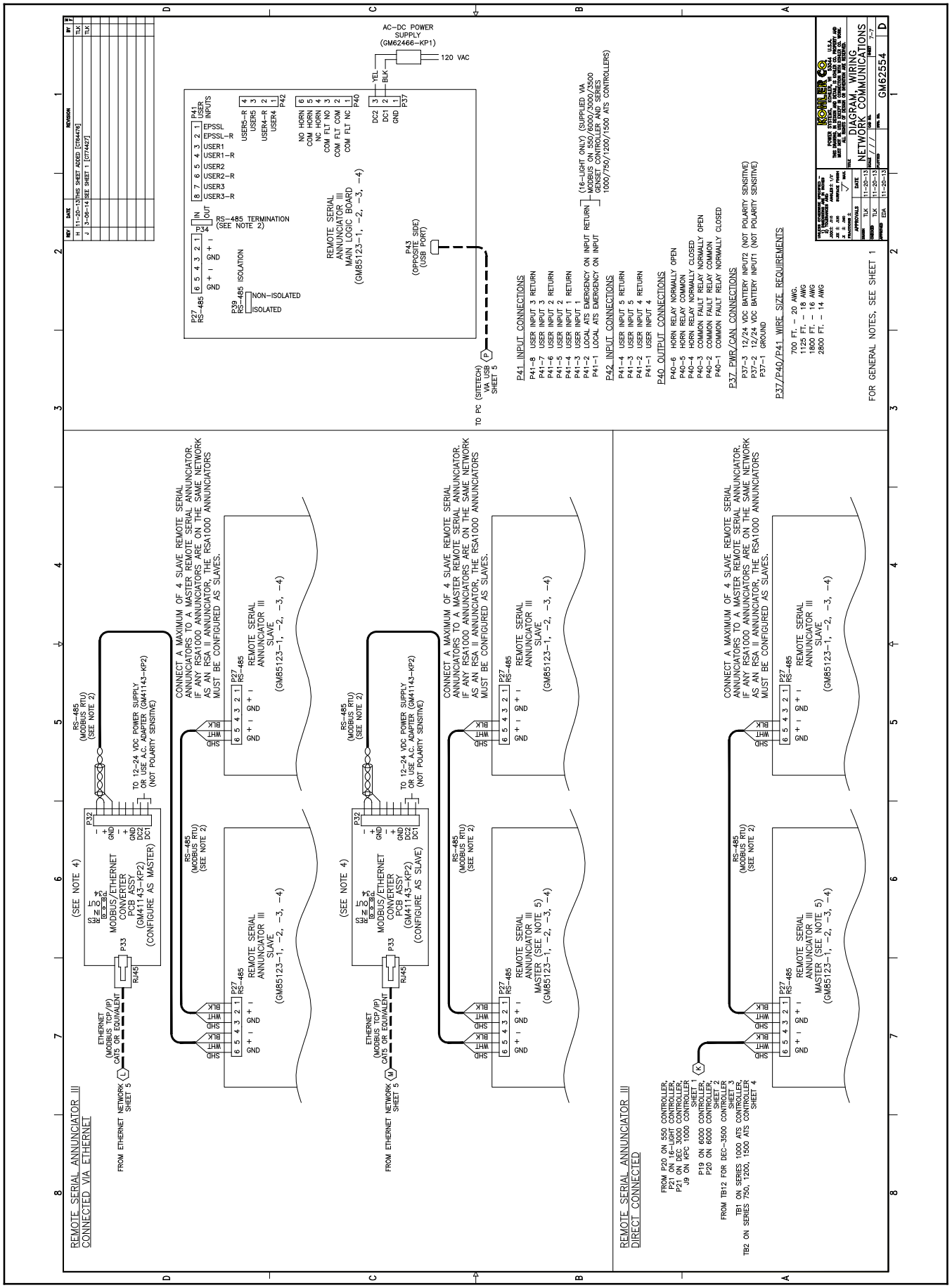

Figure 63 RSA III Wiring Diagram GM62554G-J

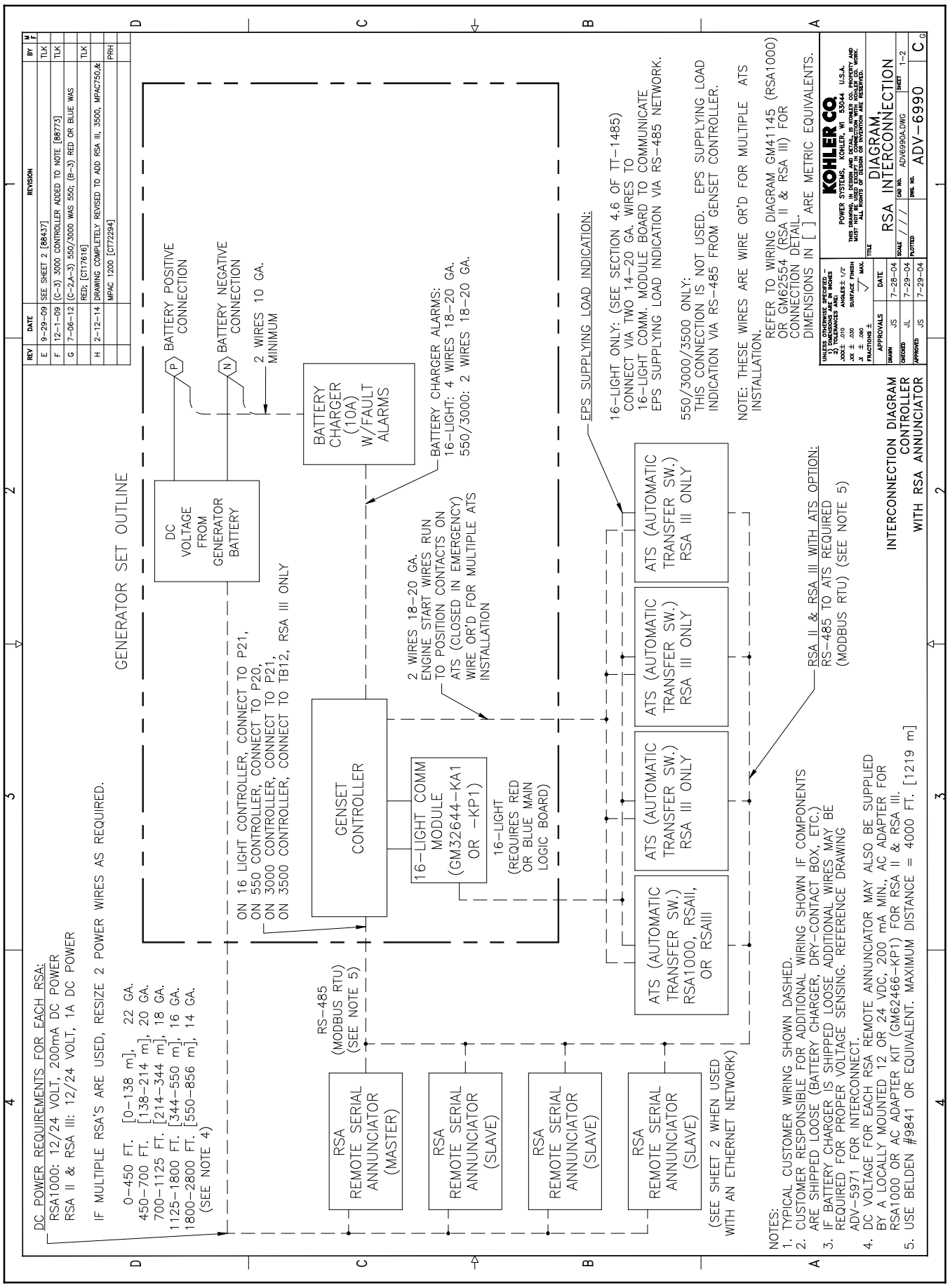

Figure 64 RSA III Interconnection Diagram ADV-6990A-H

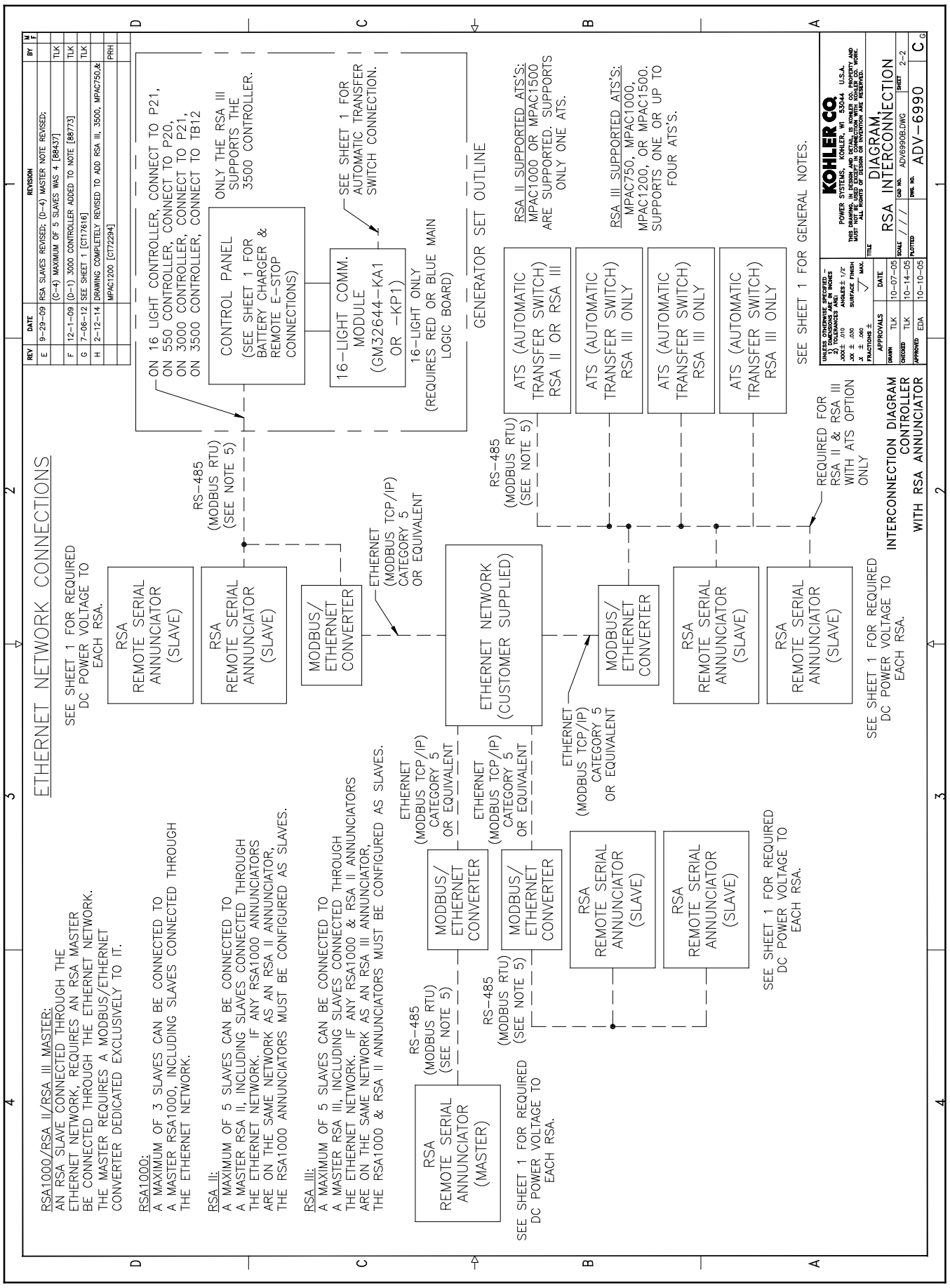

Figure 65 RSA III Interconnection Diagram ADV-6990B-H

Parts List

Remote Serial Annunciator Kits and Communication Module Kit

Qty.	Description	Remote Serial Annunciator Kits GM91356								
		Standard RSA Kits			Decision-Maker® 3+ RSA Kits with communication module			KPC 1000 RSA Kits		
		-KP1, -S1: No ATS	-KP2, -S2: One ATS	-KP3, -S3: Four ATS	-S4: No ATS	-S5: One ATS	-S6: Four ATS	-S7: No ATS	-S8: One ATS	-S9: Four ATS
1	Ribbon cable, 10-position				GM21340	GM21340	GM21340			
1	Ribbon cable, 24-position				GM32632	GM32632	GM32632			
3	Spacer, 8-32 x 5/8 male-female				GM32633	GM32633	GM32633			
1	Communication module board				GM49791-1	GM49791-1	GM49791-1			
1	Harness, comm. HBV wiring				GM35318	GM35318	GM35318			
1	Remote serial annunciator overlay	GM85132	GM85131	GM85127	GM85132	GM85131	GM85127	GM85132	GM85131	GM85127
5	Screw, plastic self-tapping	GM23307	GM23307	GM23307	GM23307	GM23307	GM23307	GM23307	GM23307	GM23307
1	Board, main logic	GM86125	GM86125	GM86125	GM86125	GM86125	GM86125	GM86125	GM86125	GM86125
2	Euroblock plug, 6-position	GM62619	GM62619	GM62619	GM62619	GM62619	GM62619	GM62619	GM62619	GM62619
1	Euroblock plug, 8-position	GM62699	GM62699	GM62699	GM62699	GM62699	GM62699	GM62699	GM62699	GM62699
1	Bezel	GM85134	GM85134	GM85134	GM85134	GM85134	GM85134	GM85134	GM85134	GM85134
1	Box, RSA III	GM85125	GM85125	GM85125	GM85125	GM85125	GM85125	GM85125	GM85125	GM85125
1	Connector plug, 6-position	337131	337131	337131						
4	Screw, self-tapping	X-6071-7	X-6071-7	X-6071-7	X-6071-7	X-6071-7	X-6071-7	X-6071-7	X-6071-7	X-6071-7
3	Washer, #8 lock				X-22-7	X-22-7	X-22-7			
1	Harness, pigtail							GM60452	GM60452	GM60452
1	Connector plug, 15-position							30712	30712	30712
1	Plate, wall-mounting	GM85126	GM85126	GM85126	GM85126	GM85126	GM85126	GM85126	GM85126	GM85126

Communication Module Kit

Qty.	Description	GM32644-KP1
1	Ribbon cable, 10-position	GM21340
1	Communication module board	GM49791-1
1	Ribbon cable, 24-position	GM32632
3	Spacer, 8-32 x 5/8 male-female	GM32633
3	Washer, #8 lock	X-22-7
1	Harness, communication HBV wiring	GM35318

AC Adapter Kit

Qty.	Description	GM62466-KP1
1	Clamp, power supply	GM60404
1	Supply, power	GM60407
1	Screw, hex	X-67-113
1	Block, terminal	GM20930
1	Gasket, rubber	—

Notes

Notes

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KOHLERPower.com

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