Proteus® Controller Installation & Wiring

Front Panel

Thermal Printer

Paper Feed Button

Paper Slot

7" Color Touchscreen

Power Light

Fault Light

Alarm Light

Proteus X

Proteus® Controller Installation & Wiring

Preparation

- Inspect all of parts for shipping damage.
- Review *Figure 5—Applying Power* in the OEL8000III Installation Manual.
- Determine all of the conduit paths, probe and sensor installation locations, as well as controller and annunciator mounting locations.
- Review the programming instructions, and use the sensor worksheet to prepare the required data in advance of programming the Controller.
- Review the National Electrical Code and federal, state, and local codes applicable to this installation to insure compliance.

Proteus® Controller Installation & Wiring

Returns or Damaged Equipment

UNPACKING, INSPECTION AND DAMAGE CLAIMS

Unpack and thoroughly inspect all equipment before accepting receipt from carrier. If you detect or suspect any damage or loss, do the following:

-Write a detailed description of the damage or loss on the front of the bill of lading and sign it.

-Have the carrier's agent sign the bill of lading.

-Immediately notify the carrier by phone and follow up in writing within 48 hours.

The buyer assumes all risk for damage or loss of merchandise incurred during shipping and is responsible for filing and settling any claims. If you report your loss to OMNTEC® Mfg., Inc. however, we will attempt to assist you with your claim.

RETURNS

You must obtain a Return Material Authorization (RMA) from OMNTEC® Mfg. before returning shipments. Shipments that are returned without such authorization will be rejected. It is also your responsibility to pre-pay all freight charges for returned material. Material for which an RMA has been provided may be shipped to:

OMNTEC Mfg., Inc.
1993 Pond Road
Ronkonkoma, New York 11779
RMA# __ __ __ __ __ __

NOTE: RMA # MUST APPEAR ON SHIPPING LABEL

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Safety

- Always block off the work area and make sure it is safe to service tanks, probes, and sensors before beginning work
- Make sure the main power is shut off before servicing probes, sensors, or internal components of the system
- Do not mount the ATG controller within the hazardous location
- Do not mount RAS remotes within the hazardous location

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Mounting the Controller – Plan Ahead

Do not mount the Controller until you have reviewed the following requirements:

- Obtain proper anchor bolts for wall type.
- Allow 6” clearance on each side for air circulation and serviceability.
- Allow sufficient clearance to open Controller door.
- Allow sufficient clearance for conduit access (conduits enter through designated knockouts).
- Avoid installing in corners.
- Avoid swinging doors that can bang into the Controller.
- If mounting outdoors make sure to use ENC-4X (enclosure), TEM-CS(thermostat), and HTR-1(heater)

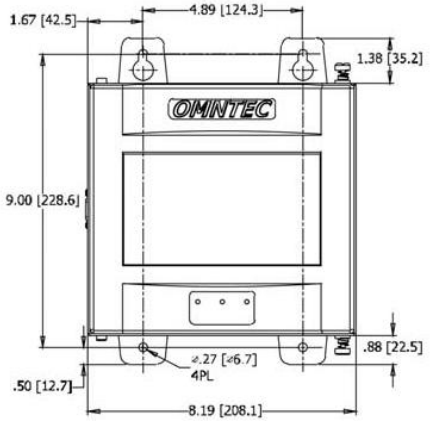
Proteus K4 Controller

Proteus® Controller Installation & Wiring

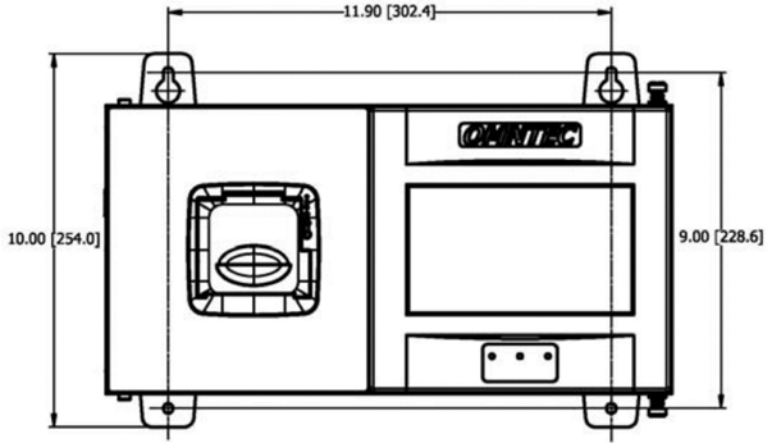
Mounting the Controller

The Controller is mounted on the wall using the top and bottom mounting flanges.

- **DO NOT** remove the motherboard or any other internal component to mount the Controller from the inside.
- **DO NOT** drill any holes into any part of the Controller.
- **USE A LEVEL!!!**



Proteus B Mounting



Proteus K & X Mounting

Proteus® Controller Installation & Wiring

Electrical Specifications

Specifications	
Input Power:	100-240 VAC +/- 10% 50/60 Hz 60 watts
Voltage to Sensors:	12 VDC
Voltage to Probes:	28 VDC
Display: **Audible alarm:** **System status:**	Color 7 inch graphic display with touch screen 85 dB piezoelectric horn 3 LED's (OK, fault, alarm)
Operating Temperature:	20 to 140° F (-7° to 60° C)
Approvals:	UL-listed, CUL-listed, ATEX, IECEx

Proteus® Controller Installation & Wiring

Conduit

Base the location and number of conduits required for the installation on the number and diameter of the probe and sensor cables. Use a junction box inside the building to combine the cables as described below. **Observe the applicable codes pertaining to which cables may or may not be combined into a single conduit.**

You must have separate conduits as follows:

- AC Power cables must be combined in a separate (isolated) conduit.
- All Annunciator (RAS series) cables must be combined in a separate (isolated) conduit.
- MTG Probe and Sensor cables may share a separate (isolated) conduit.
- Alarm relay cables must be combined in a separate (isolated) conduit.

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Conduit Selection

- Use and select the proper conduit types and sizes in accordance with applicable codes.
- Determine the conduit size based on the number and size of cables it will carry.
- Plan the conduit installation so that the junction box in the manway will not become submerged in water after a heavy rain.
- Rigid metal conduit, 3/4 inch or larger (use reducer coupling, do not drill into box) is recommended between the controller and the tank area.
- Do not combine probe and sensor cables with other wires in the same conduit.
- Install the conduit seal fittings in accordance with NFPA 70 (National Electrical Code) and NFPA 30 (Automotive and Marine Station Code).
- Seal offs must be installed for all probe and sensor conduits

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Proteus X Conduit Knockouts

5 6 7

8

1 3

2 4

12 14

13

KNOCKOUTS 5, 6, 7, 12 for RELAY CONNECTIONS

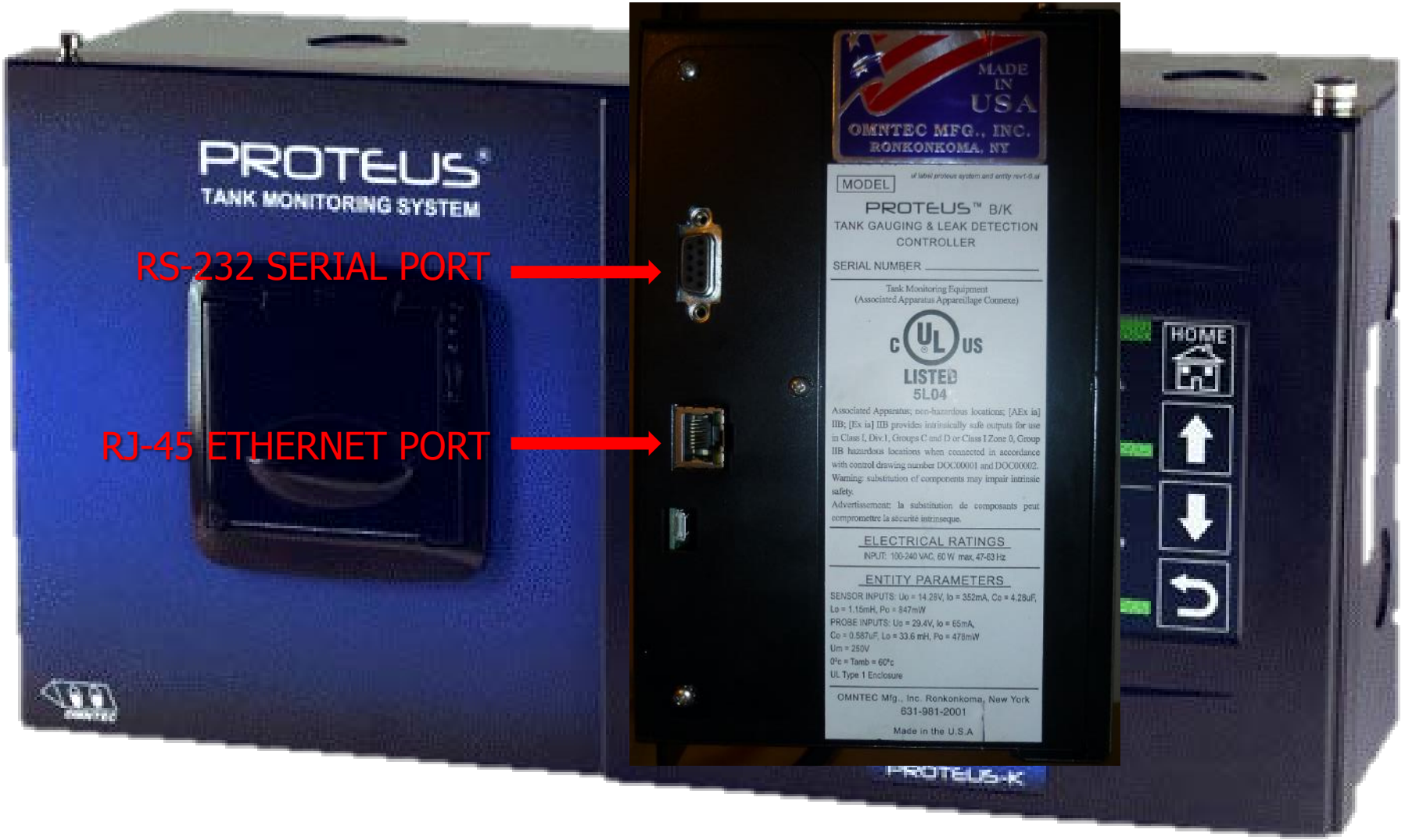
KNOCKOUTS 1, 2, 3, 4, 8, 13 for PROBES & SENSORS

KNOCKOUT 14 for AC POWER & GROUND

Proteus® Controller Installation & Wiring

Proteus K Data Connections

LEFT SIDE



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Proteus K Interior Connections

Proteus® Controller Installation & Wiring

Grounding

Earth Ground Warning
The earth ground terminal must be connected to maintain intrinsic safety as well as UL and NEC.

- Requires 12 gauge earth ground wire
- Ground wire must be <1Ω to ground
- Connect directly to ground bar at main service disconnect, not to sub panel
- DO NOT rely on metal conduit for grounding

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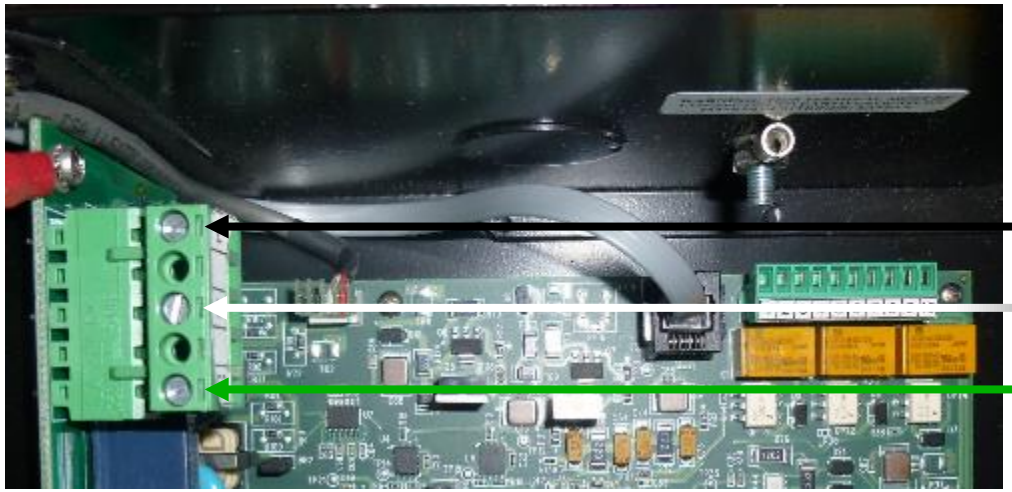
Connect AC Line Power

15A Service



Connect the line voltage wire to the L terminal.

Connect the neutral wire to the N terminal.

Connect the field ground wire to the F.G. terminal.

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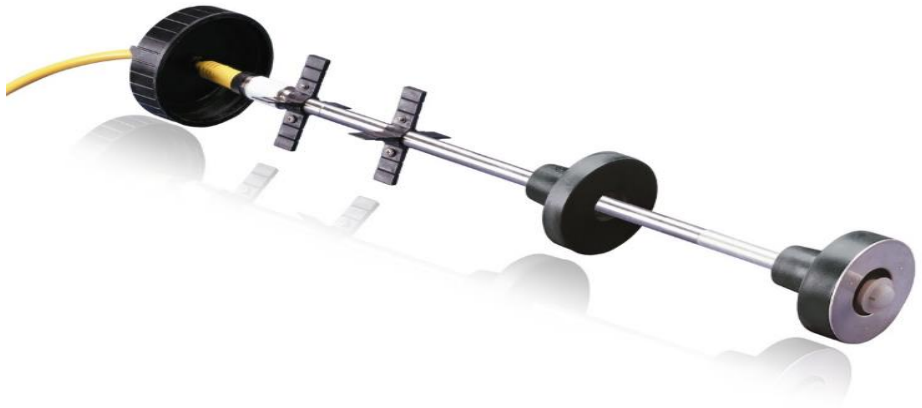
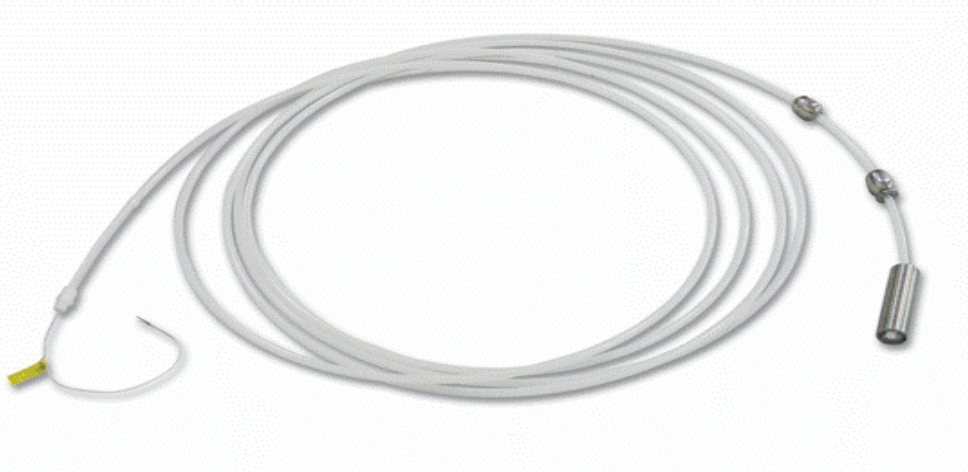
Probe Installation

- All probes will come with a 4” Buna float kit that has either one or two floats depending on which probe type you are installing(this can be found using the serial number located on the head of the probe)
- On a two float probe, the product float is put on the probe first followed by the water float which has a ballast on the bottom of the float
- A flexible probe requires a 3 ft. minimum overhead clearance and must not be bent, twisted, or rolled in a tighter radius than 3 ft.
- All MTG probes must use OMNTEC EC-2 or Belden 8761 cable
- Do not exceed 1000 ft. of cable when installing probes





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Sensor Installation

- Up to 16 sensors may be wired into one sensor bus
- There is one sensor bus connection for both the Proteus B and K, the Proteus X can have up to 4 sensor buses
- All sensors can be wired with OMNTEC EC-4, Belden 9940, or any 22 awg or better shielded cable equivalent
- Do not exceed 2000 ft. of cable to the farthest sensor on your sensor bus

Proteus® Controller Installation & Wiring

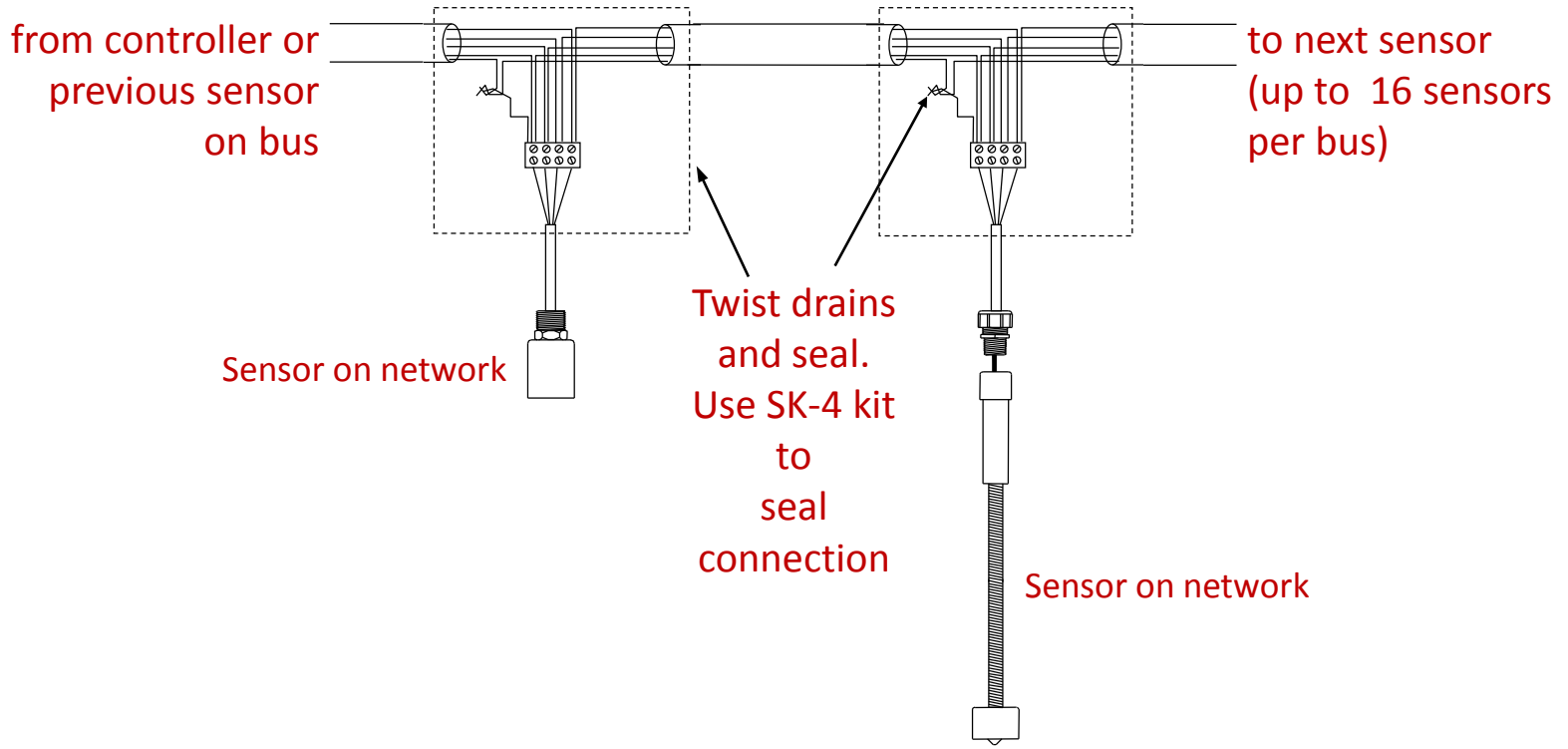
Probe & Sensor Wiring

- All wiring must enter the controller through the designated preformed knockouts.
- Splice sensor and probe wires using the SK-4 connector sealing kit.
- Two or more probes may not be combined into a single cable.
- Probes and sensors may not be combined into a single cable.
- Probe cables and sensor cables must be completely enclosed in conduit from junction box to the controller.
- Probe and sensor cables may share the same conduit.

Proteus® Controller Installation & Wiring

Sensor Splicing

Red=Power, Green=Comm A, White=Comm B, Black=Ground, Bare=Shield



Proteus® Controller Installation & Wiring

Remote Annuciators/Remote Display

- RAS remotes are powered by 12V DC
- Do not exceed 2000 ft. of cable when connecting an RAS remote
- RAS remotes do not require shielded cable
- If connecting an RAS with more than 2 lights to a Proteus K, you must also use an XC-R8

- The RD-625 can be connected to a Proteus K or X using the RS-485 port
- The 485 port can be configured within the Proteus Comm Port Settings Menu
- Can be displayed up to 2000 ft away using RS-485 communication

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MCU Relay Connections

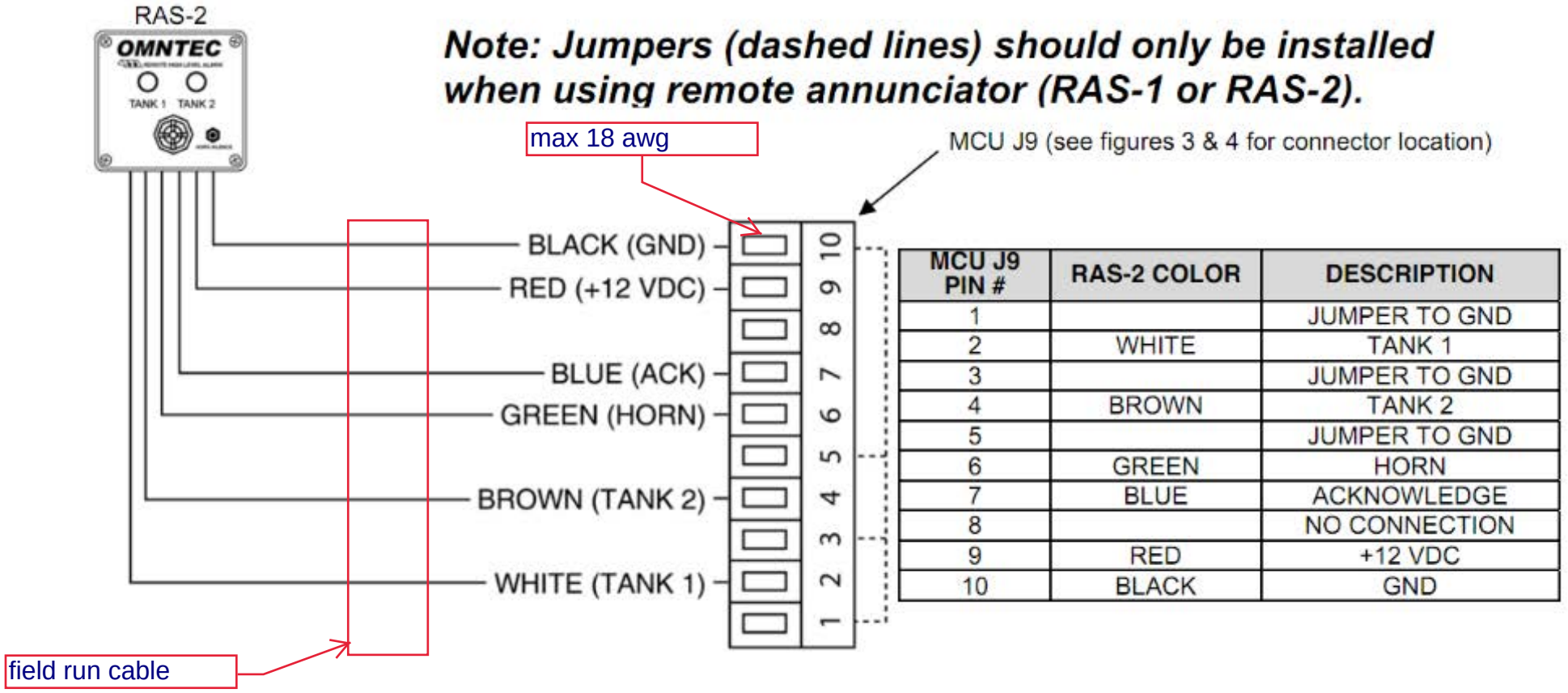
18 AWG WIRE MAX

MCU J9 RELAY CONNECTOR

- MCU relays specified rating is .45A at 125V AC
- MCU relays cannot be used for direct pump shutdown
- MCU relays are primarily used for a remote annunciator

Proteus® Controller Installation & Wiring

Single Remote Annunciator Wiring



MCU J9 PIN #	RAS-2 COLOR	DESCRIPTION
1		JUMPER TO GND
2	WHITE	TANK 1
3		JUMPER TO GND
4	BROWN	TANK 2
5		JUMPER TO GND
6	GREEN	HORN
7	BLUE	ACKNOWLEDGE
8		NO CONNECTION
9	RED	+12 VDC
10	BLACK	GND

XB-RB8 Relay Interface Board Installation

Dry contacts rated at 120VAC @ 5 amps resistive

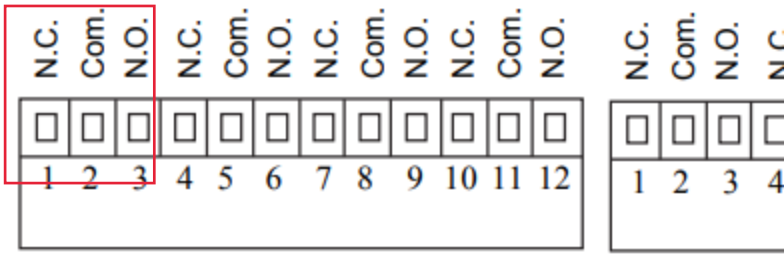
1. Attach wires to the top of the removable connector.

XB-RB8 In an energized unalarmed state:
(Defaulted in failsafe mode, non-failsafe mode will reverse all N.O. and N.C. contacts.)

Relay Outputs #1 - #4		
1	- Normally Closed	
2	- Common	R1
3	- Normally Open	
4	- Normally Closed	
	- Common	R2
	- Normally Open	
	- Normally Closed	
	- Common	R3
	- Normally Open	
	- Normally Closed	
11	- Common	R4
12	- Normally Open	

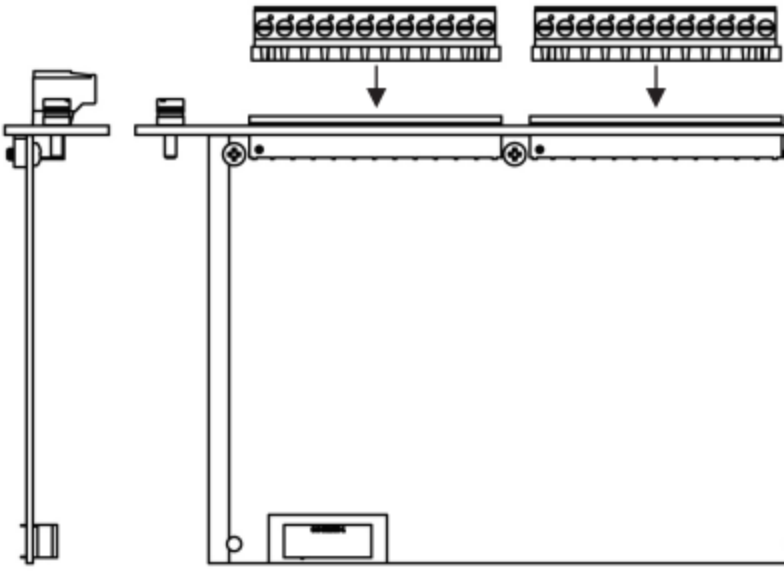
Relay Outputs #5 - #8		
1	- Normally Closed	
2	- Common	R5
3	- Normally Open	
4	- Normally Closed	
5	- Common	R6
6	- Normally Open	
7	- Normally Closed	
8	- Common	R7
9	- Normally Open	
10	- Normally Closed	
11	- Common	R8
12	- Normally Open	

relay #1 will be programmed to communicate low level setting of 30% to the heating control panel



CONNECTOR RELAY OUTPUTS #1 - #4

CONNECTOR SIDE VIEW



XB-RB8 SIDE VIEW

2. Insert XB-RB8 interface board into designated card slot in OEL8000III.

To program relay trigger points refer to the OEL8000III Programming Manual