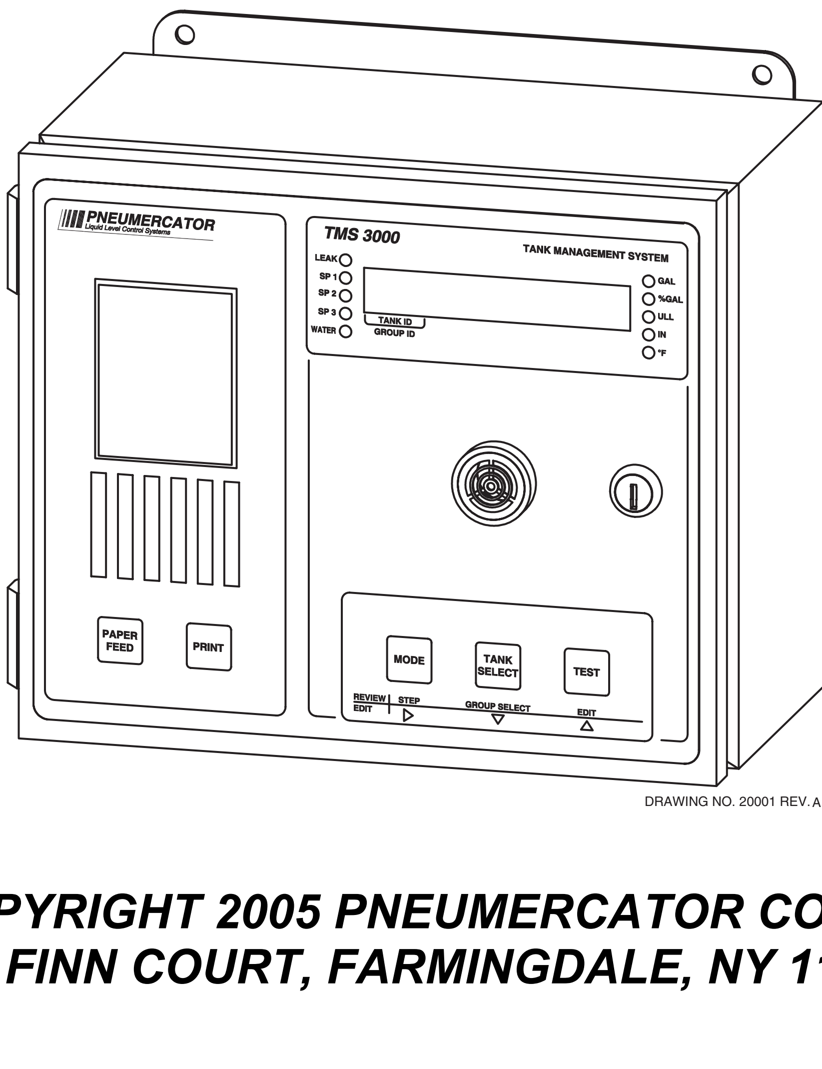
PNEUMERCATOR
Liquid Level Control Systems

Quick Startup Guide

For Factory Preprogrammed
TMS2000 & TMS3000 Systems



DRAWING NO. 20001 REV. A

Pneumercator Co., Inc.
120 Finn Court
Farmingdale N.Y. 11735
Phone (631) 293-8450
Fax (631) 293-8533
Tech Support (800) 209-7858
www.pneumercator.com

Note: Separate manuals are available for System Operation and Installation.

TABLE OF CONTENTS

Figures:

Introduction

This guide is intended for use as a field help guide for factory-trained technicians when performing a startup on the Pneumercator TMS Series tank gauging system. You can use this guide for both the TMS2000 and TMS3000 consoles. The first part of this guide shows what is needed to perform a startup on a FACTORY PREPROGRAMMED TMS Series console. The second part has the basic wiring needed for the TMS2000 & TMS3000 systems. For detailed installation instructions please refer to the appropriate TMS Installation Manual. For systems NOT factory preprogrammed, please refer to the standard TMS Operations Manual for programming instructions. Please make sure that the Warranty Startup paperwork is completely filled out by a factory authorized technician and returned to Pneumercator in a timely fashion to qualify the system for warranty consideration.

For information on becoming a factory authorized service/startup technician, please contact Pneumercator below, or e-mail at training@pneumercator.com. Your local Pneumercator sales representatives may also be of assistance.

This guide is for reference purposes only. Complete installation guidelines are contained in the TMS2000 & TMS3000 Installation manuals.

For more information, please contact:

Pneumercator Co.
120 Finn Court
Farmingdale NY 11735
(631) 293-8450
Fax (631) 293-8533
Toll Free (800) 209-7858
www.pneumercator.com

Startup of Preprogrammed systems

This section is for the startup of systems that have been preprogrammed at the factory with information supplied by the customer/distributor.

IT IS THE RESPONSIBILITY OF THE STARTUP TECHNICIAN TO VERIFY THE INFORMATION PROGRAMMED INTO THE TMS SYSTEM MATCHES THE SITE REQUIREMENTS. IF ANY INFORMATION IS NOT CORRECT, THEY SHOULD CORRECT THE PROGRAMMING PER THE OPERATIONS MANUAL OR CONTACT THE FACTORY FOR PROGRAMMING ASSISTANCE.

All systems are supplied with factory configuration sheets showing what was programmed into the TMS system. Please review these sheets prior to continuing.

1. Verify the list of equipment matches what is found on the packing list.
2. Record probe serial number(s), model number(s), calibration factor(s) (Probe C.F.), and length(s) on the worksheet on Page 2. This information must match the factory programming printout provided with the console to avoid reprogramming the console.

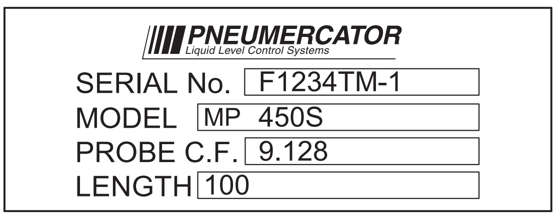


Figure 1 – MP45xS Label

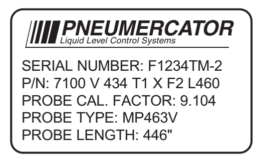


Figure 2 – MP46xS Label

3. Stick tanks for product level & water level and record on the worksheet on Page 2.
   Note: Stick readings should be taken where the **TMS** probe is installed for greater accuracy. There must be measurable product in the tank for the stick readings to serve a purpose.
4. Check wiring and confirm probes & sensors are installed in accordance with the appropriate Installation Manual. (See Figures 9-11)
5. Confirm there are two (2) 12 AWG wires connected to the IS ground terminals going to the main circuit panel ground buss bar. (See Figure 8)
6. Confirm **TMS** system is on a **separate circuit breaker**. (See Figure 8)
7. Power up TMS.
8. Observe and record any alarms or errors. Power fail alarm is normal on startup.
9. Check tank reading and compare INCH LEVEL (product height) with results from step 3 above. Record difference on the worksheet on Page 2.
10. Record water reading from TMS & compare with Step 3 above. Record difference on the worksheet on Page 2.
11. Program float height offsets.
    Note: If programming via the front panel buttons is desired, skip to Page 5.

Probe Worksheet

	Ex: F1	Probe 1	Probe 2	Probe 3	Probe 4	Probe 5	Probe 6
Probe Information							
Serial #	F1234TM-1						
Model #	MP450S						
C.F.	9.128						
Length	100”						
Product Level Information							
Stick	42.5”						
TMS	43.7”						
Prod HO	-1.2”						
Water Level Information							
Stick	0.0”						
TMS	1.7”						
H2O HO*	-1.5”						

	Ex: F2	Probe 7	Probe 8	Probe 9	Probe 10	Probe 11	Probe 12
Probe Information							
Serial #	F1234TM-2						
Model #	MP463V						
C.F.	9.104						
Length	446”						
Product Level Information							
Stick	242.5”						
TMS	224.7”						
Prod HO	+17.8”						
Water Level Information							
Stick	0.0”						
TMS	5.5”						
H2O HO*	-5.0”						

*Note: The final water level should be set to at least 0.2” for MP45xS or 0.5” for MP46xS to allow for thermal expansion and/or contraction of the system. The MP46xS Series probes should be allowed to settle for a couple of days before performing the float offset adjustments. If this is not feasible, adjust the final water level to 1.0” to allow for probe straightening/settling. If the TMS has a negative water level calculation, the Water alarm will immediately activate.

Programming Float Height Offsets using TMS Communicator

1) Install TMSComm on your computer.
    a. Insert TMSComm CD-ROM and follow on-screen instructions.
    Note: if upgrading from a previous version of TMSComm, be sure to run the Site Update Utility after installation is complete.

2) Start TMSComm by clicking on Pneumercator in the Start menu under Programs or All Programs and then clicking TMSComm.

3) Sign into the TMSComm Administrator account.
    a. Click on the Options menu and click on the Security tab.
    b. Click the Login… button and enter the User Name and Password.
    User Name: ADMIN Password: ROBUST
    Note: the password for TMSComm before version 94 is JONESTOWN.

4) Create a Site to connect to.
    a. Click on the Sites menu and click Select Sites.
    b. Click the New Record button.
    Note: If you already have a site configured, simply select the site by clicking on its name and clicking the Close button. Proceed with Step 5.
    c. Enter a Site Name.
    d. Verify the settings below Site Name match Figure 3.
    Note: COM Port must be set according to your computers hardware settings.
    e. Click the Close button.

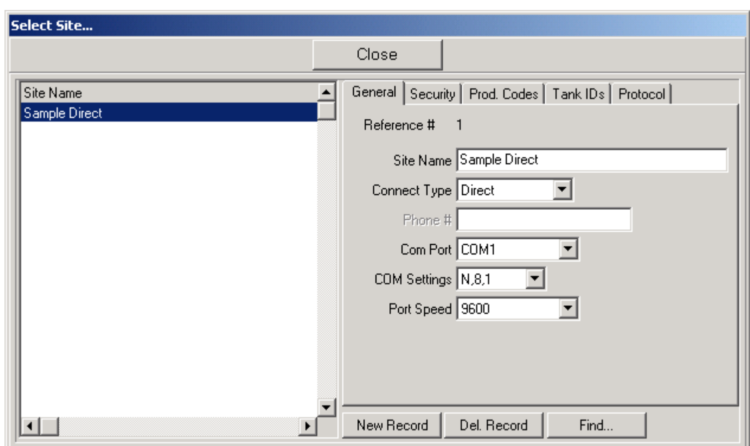


Figure 3 – TMSComm Direct Connect Site Default Settings

5) Connect to the Site by clicking Connect in the Sites menu.

6) Read the configuration from the TMS.
   a. Click on the Configurations menu.
   b. Click on the File menu in the Configurations window and choose Read Configuration From TMS.

7) Verify the Probe Information from the worksheet on Page 2 matches the data entered in the Probe section of the Tanks tab in the Configuration window. If this is correct, proceed to the next step. If this is not correct, make the appropriate changes, proceed to Step 10, then return to Step 8.

8) Enter the Height Float Offset (HO) information from the worksheet on Page 2 as shown in Figure 4 for both the Product and Water floats.

9) Click the close button.

10) Click on the File menu and select the Write configuration to TMS option.

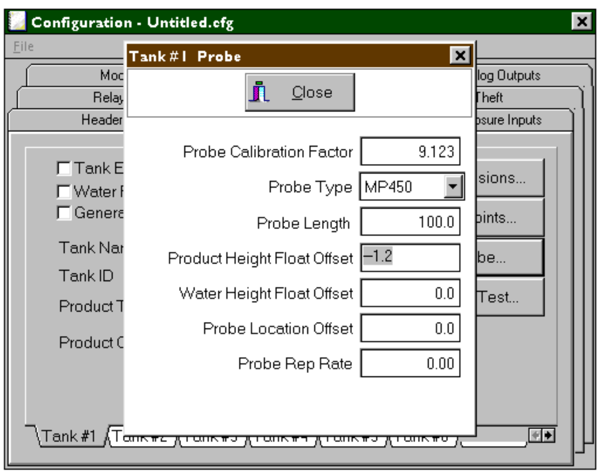
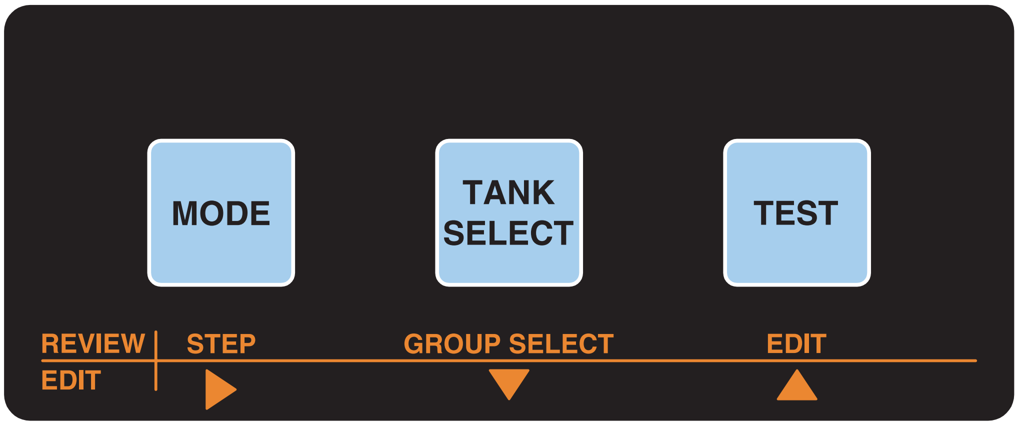


Figure 4 - TMSComm Probe Configuration Window

Programming Float Height Offsets using TMS Front Panel

Refer to the Figure 5 below for the relative locations of the buttons. Note that each button has three labels depending upon your display status. Without entering programming mode, the main labels printed on the buttons are used. Once in programming mode, a nonflashing display represents Review Mode where a flashing display represents Edit Mode. Note that this represents the latest front panel button configuration available. Earlier systems maintained the same labeling system but had physically different buttons.



DWG NO. 20043 REV. N/C

Figure 5 - TMS Front Panel Keys Layout (TMS3000 colors shown)

1) Enter programming Mode by pressing and holding the TEST button and then pressing the MODE button at the same time until LoG (Log) appears. Release both buttons.

2) Press the EDIT (TEST) button repeatedly until ConFiG (Config) appears flashing.

3) Press the ► (MODE) button one time. HEAdEr (Header) appears.

4) Press the EDIT (TEST) button repeatedly until ProbE (Probe) appears flashing.

5) Press the ► (MODE) button one time. The value for Probe CF for Tank Channel 1 is displayed.

6) Press the GROUP SELECT (TANK SELECT) button until the desired Tank Channel number is displayed over the TANK ID label on the display.

7) Press and hold the STEP (MODE) button until it beeps ONE TIME and immediately release the button. Repeat this twice more and Prod HO (Prod HO) will appear briefly then the current value for the Product Float Height Offset will appear. Note that this number will start with a + (+) or a - (-) sign indicating a positive or negative number.

8) Press the EDIT ENABLE/THEFT ALARM ACKNOWLEDGE button on the inside of the front door up one time. This will NOT cause the display to change but will authorize you to make programming changes to the TMS.

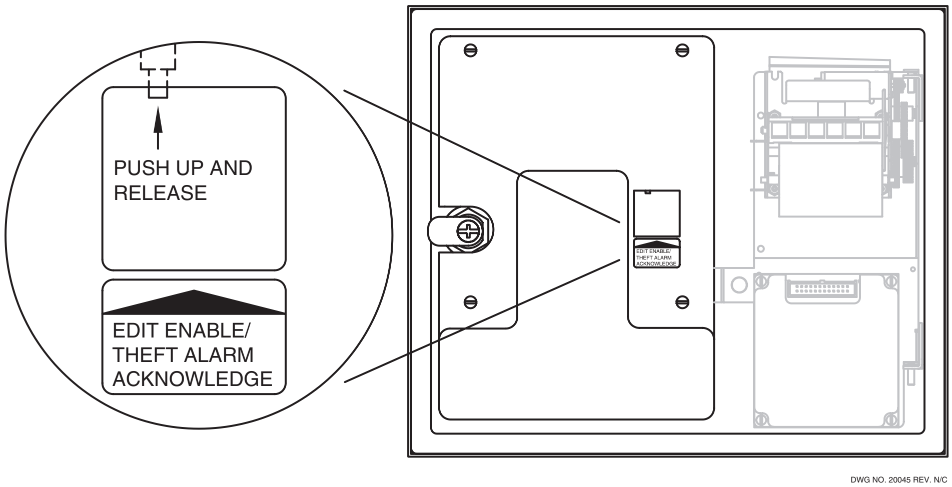


Figure 6 - Edit Enable Button

9) Press the EDIT (TEST) button one time and the first digit (cursor) will start flashing. This digit indicates a positive or negative number. Use the ▼ (GROUP SELECT) and/or ▲ (TEST) buttons to change the value of what's flashing. Use the ► (MODE) button to move the cursor to the right. Once the last digit is flashing the correct value, enter by pressing the ► (MODE) button. It will stop flashing and show you the current value for the Product Float Height Offset.

10) Press and hold the STEP (MODE) button until it beeps ONE TIME and immediately release the button. h2o HO (H_2O HO) will appear briefly then the current value for the Water Float Height Offset will appear. Note that this number will start with a ⊣ (+) or a - (-) sign indicating a positive or negative number.

11) Press the EDIT (TEST) button one time and the first digit (cursor) will start flashing. This digit indicates a positive or negative number. Use the ▼ (GROUP SELECT) and/or ▲ (TEST) buttons to change the value of what's flashing. Use the ► (MODE) button to move the cursor to the right. Once the last digit is flashing the correct value, enter by pressing the ► (MODE) button. It will stop flashing and show you the current value for the Water Float Height Offset.

12) Press and hold the STEP (MODE) button until it beeps TWO TIMES and immediately release the button. rEturn (Return) appears.

13) Press the EDIT (TEST) button two times. ProbE (Probe) will appear flashing on the display.

14) Press the GROUP SELECT (TANK SELECT) button until rEturn (Return) appears flashing.

15) Press the ► (MODE) button one time. ConF ig (Config) appears.

16) Press the EDIT (TEST) button until rEturn (Return) appears flashing.

17) Press the ► (MODE) button one time. The system returns to normal operating mode.

TMS Front Panel Navigation Chart

Navigation-Level

Review Mode (no flash)

Display Parent Menu Title:
Press and release STEP (MODE)

Enter Navigation Mode (EDIT MODE):
Press and release EDIT (TEST)

Edit Mode (flashing)

Accept Flashing Menu (Review Mode in Child Menu):
Press and release ▶ (MODE)

Navigate Down Menu List:
Press and release ▼ (TANK SELECT)

Navigate Up Menu List:
Press and release ▲ (TEST)

Note: Pressing EDIT while RETURN is displayed returns you to the previous menu.

Parameter-Level

Review Mode (no flash)

View Parameter Name:
Press and release STEP (MODE)

View Next Parameter:
Hold STEP (MODE) until one beep

Advance to End of Menu (RETURN)
Hold STEP (MODE) until two beeps

Change Group ID:
Hold GROUP SELECT (TANK SELECT)

Change Parameter Value (EDIT MODE):
Press and release EDIT (TEST)

Note: EDIT MODE cannot be entered from this menu unless EDIT ENABLE has been pressed.

Note: Pressing EDIT while RETURN is displayed returns you to the previous menu.

Edit Mode (flashing)

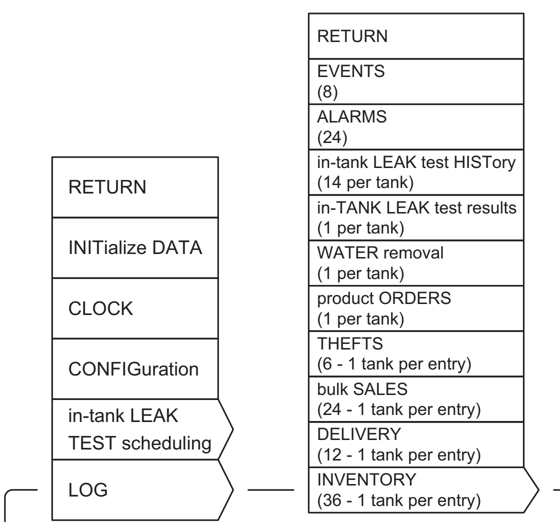
Accept Flashing Value:
Press and release ▶ (MODE)

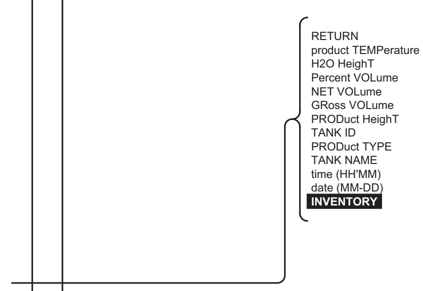
Note:
Numeric values typically change one digit at a time. "Press and release ▶ (MODE)" will cause the digit to the right to flash. When the right-most digit flashes, "Press and release ▶ (MODE)" will enter this value.

Note:
Text values flash all at once. "Press and release ▶ (MODE)" will enter this setting.

Decrease Parameter Value:
Press and release ▼ (TANK SELECT)

Increase Parameter Value:
Press and release ▲ (TEST)





View

View Tank Contents:
Press and release MODE

Change Displayed Units:
Hold MODE until one beep

View Different Tank Number:
Press and release TANK SELECT

Enable / Disable Autocycle Tank Number:
Hold TANK SELECT until one beep

TMS Navigation Flowchart Vxx0005

Figure 7A - TMS Front Panel Navigation Chart - Legend

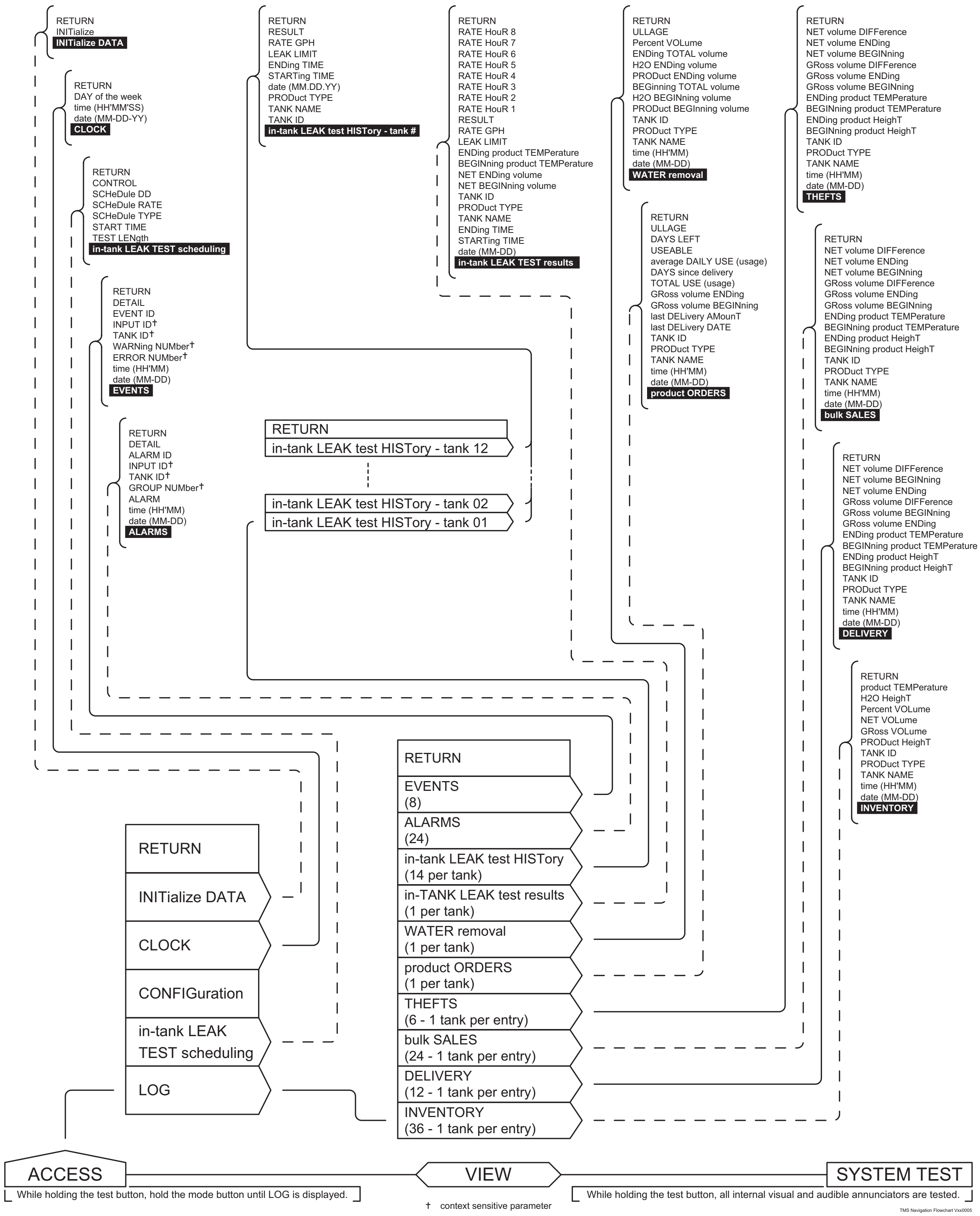


Figure 7B - TMS Front Panel Navigation Chart - All menus except Configuration

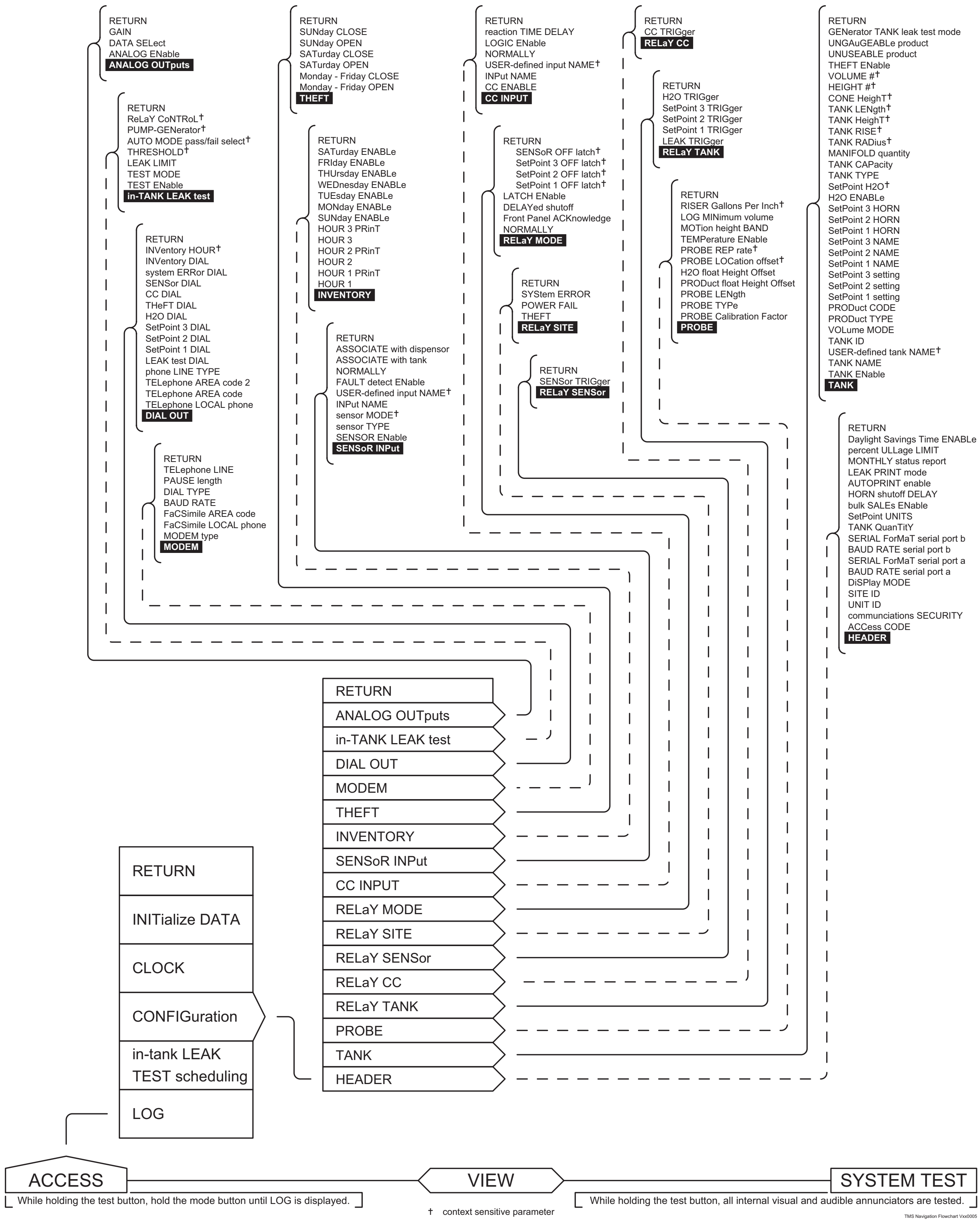


Figure 7C - TMS Front Panel Navigation Chart - Configuration menu only

TMS Wiring Diagrams

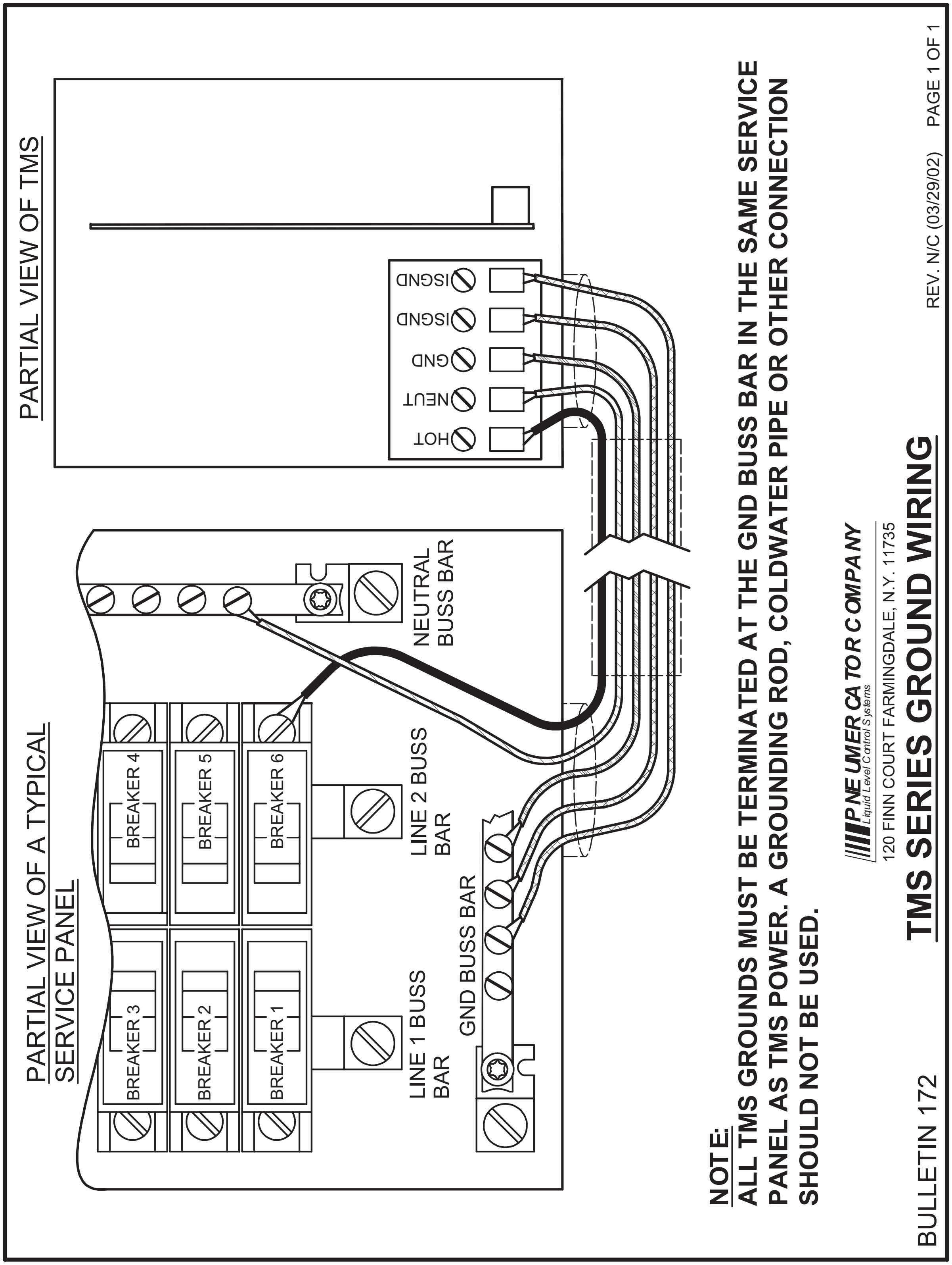


Figure 8 - TMS AC Power Wiring

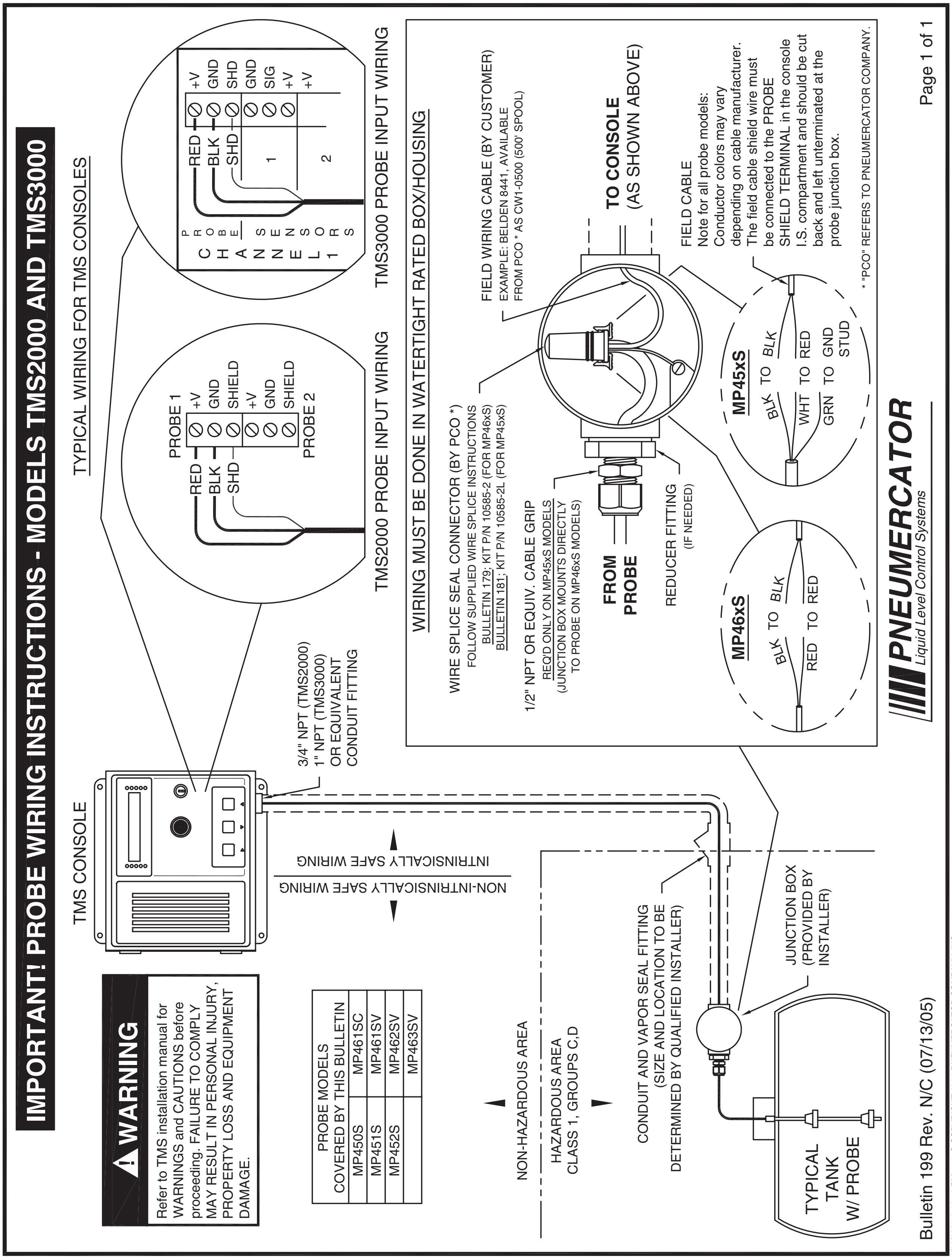
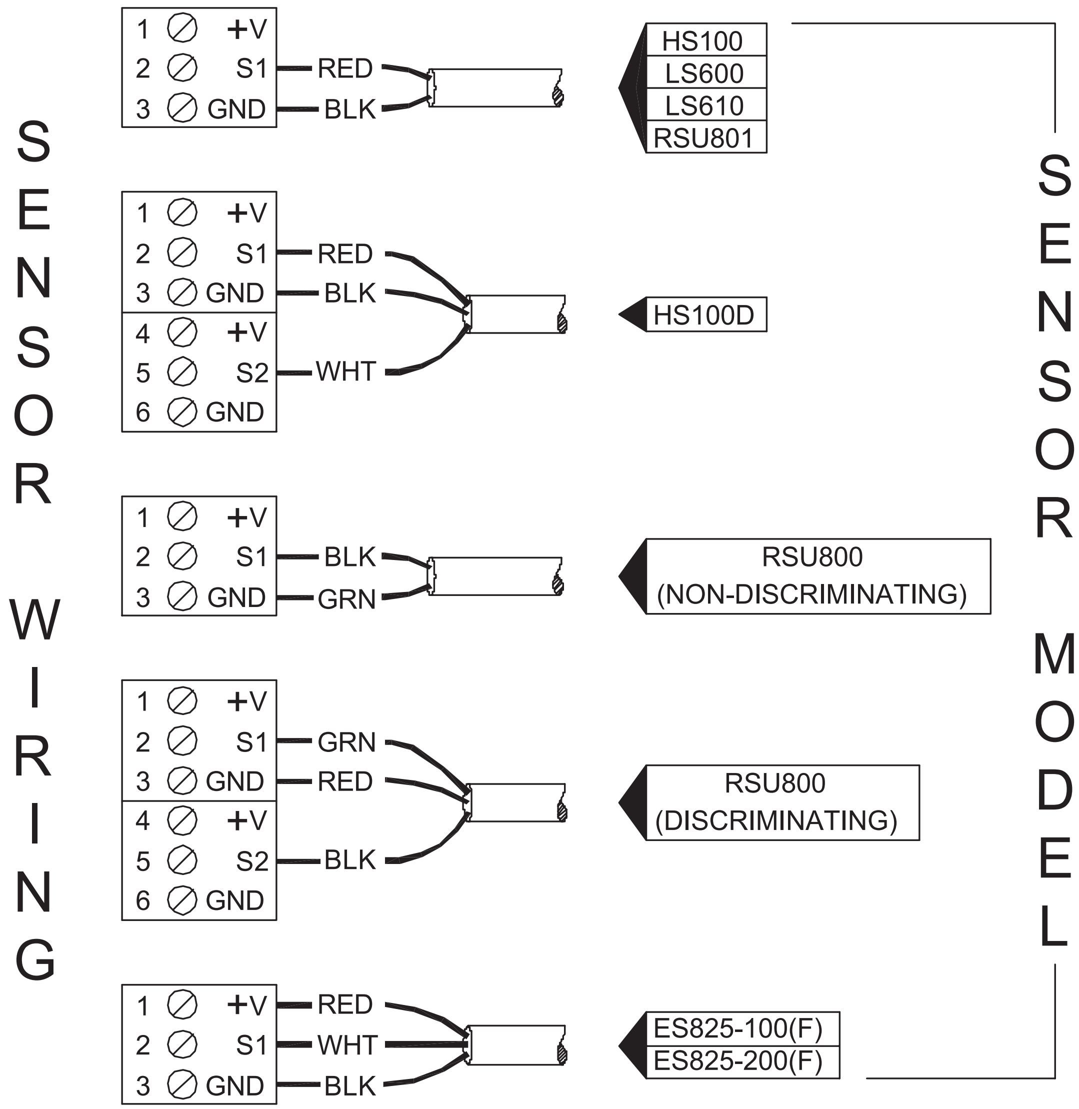


Figure 9 - TMS Probe Wiring

IMPORTANT! TMS2000 SENSOR WIRING INSTRUCTIONS

IDENTIFY THE TYPE OF SENSOR(S) TO BE INSTALLED. WIRING MUST BE TERMINATED ON THE TERMINALS INDICATED BELOW TO ENSURE CORRECT OPERATION OF SENSORS.



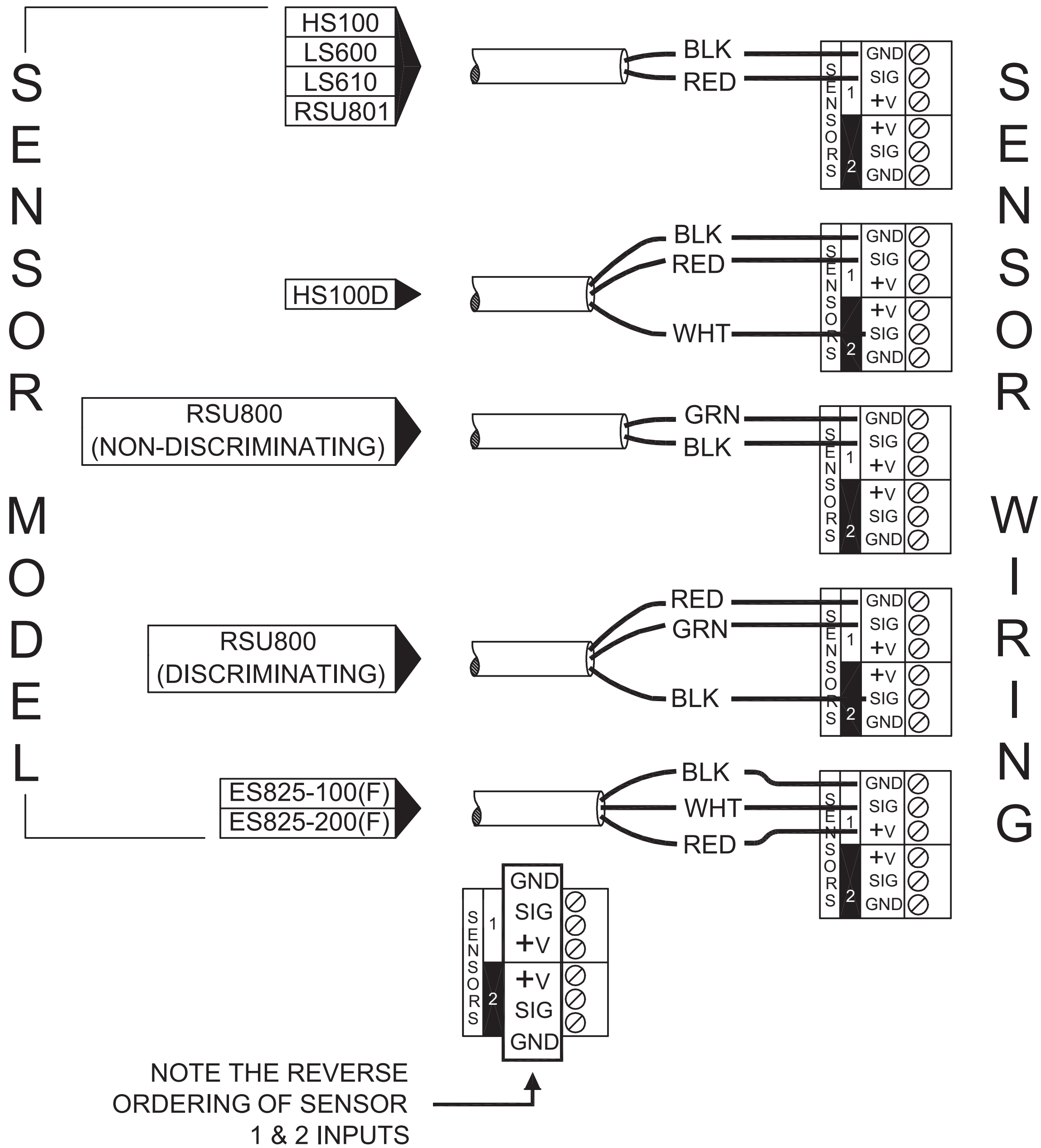
PNEUMERCATOR
Liquid Level Control Systems

BULLETIN 173 REV. N/C 05/09/02 | 120 FINN COURT FARMINGDALE, N.Y. 11735 | PAGE 1 OF 1

Figure 10 - TMS2000 Sensor Wiring

IMPORTANT! TMS3000 SENSOR WIRING INSTRUCTIONS

IDENTIFY THE TYPE OF SENSOR(S) TO BE INSTALLED. WIRING MUST BE TERMINATED ON THE TERMINALS INDICATED BELOW TO ENSURE CORRECT OPERATION OF SENSORS.



PNEUMERCATOR
Liquid Level Control Systems

BULLETIN 174 REV. N/C 05/09/02 120 FINN COURT FARMINGDALE, N.Y. 11735 PAGE 1 OF 1

Figure 11 - TMS3000 Sensor Wiring

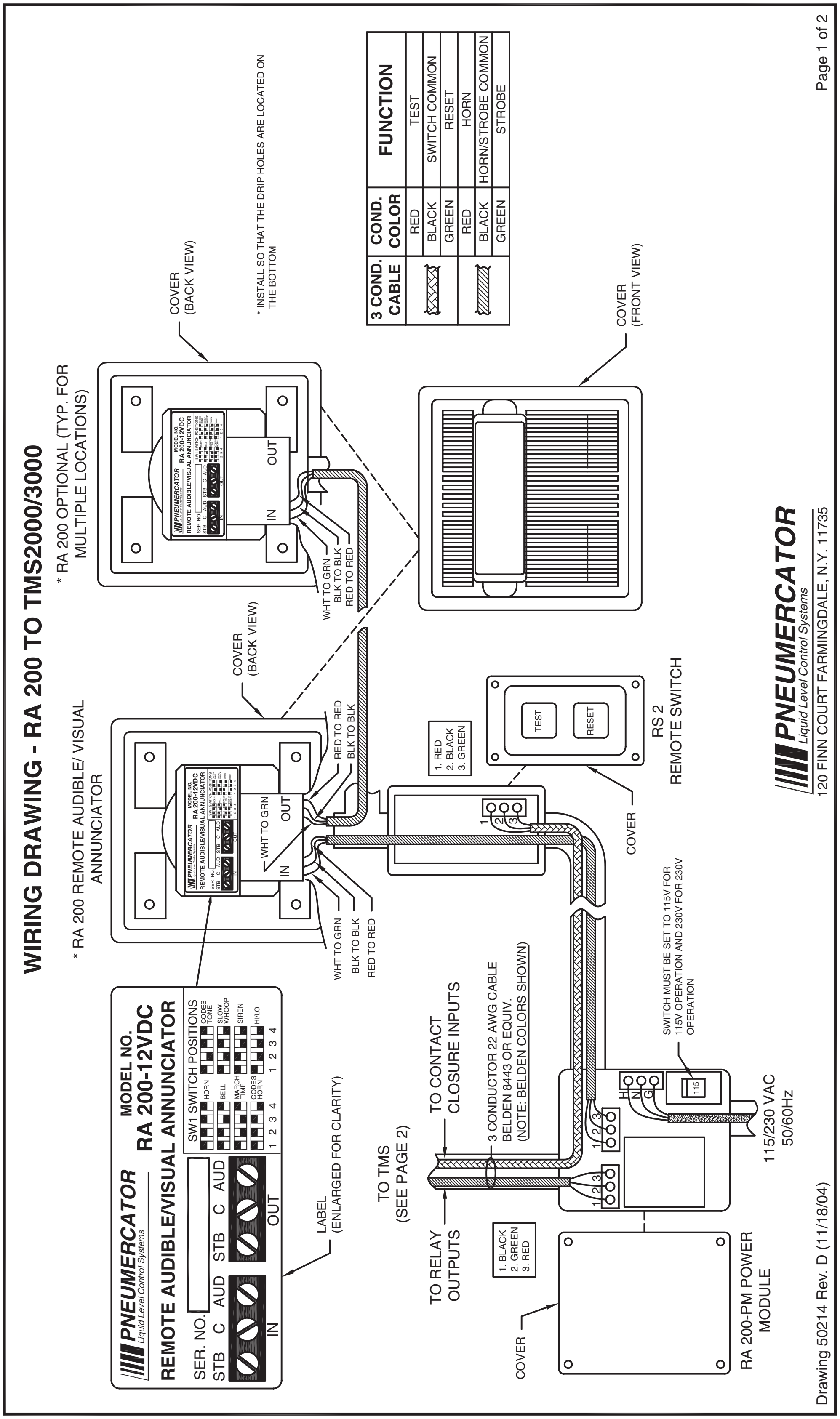


Figure 12A - TMS Series to RA200 Wiring

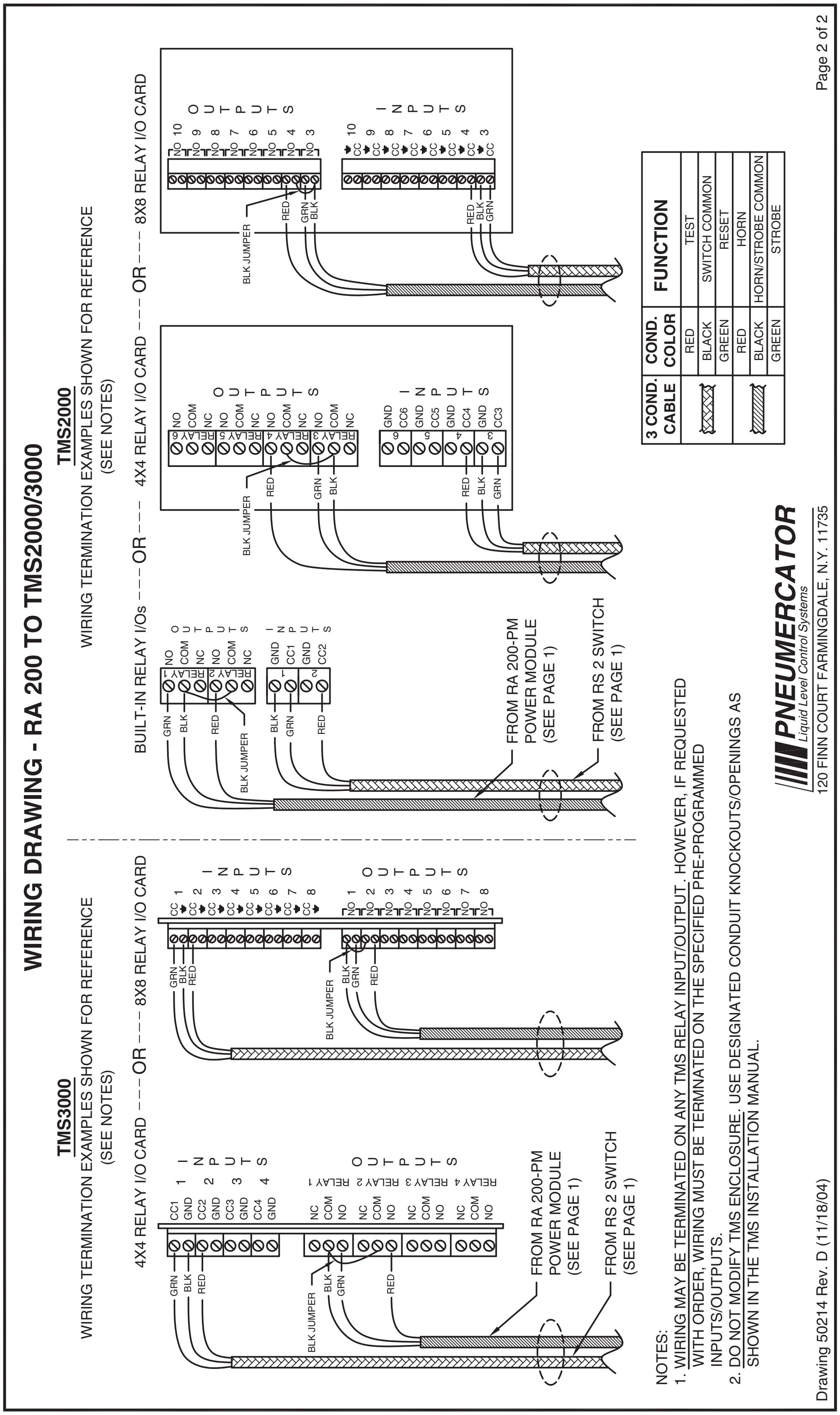


Figure 12B - TMS Series to RA200 Wiring

RA200 Remote Alarm Programming

Contact Closure 1	Reset
Contact Closure 2	Test
Relay 1	Strobe
Relay 2	Horn

Note: Refer to Figure12 for a complete wiring diagram to a TMS Series.

The following wiring scenario is being provided as a guideline only. The advantage to wiring the CC Inputs as illustrated is to use the Reset switch in combination with the Test switch. The relays can be wired in any combination. This is the way your system will be preprogrammed if supplied with an RA200 alarm.

Programming:

1. Sets the tank conditions that must occur to activate the relays.

Front Panel	
Config ⇨ Rely Tank	
	Relays
Leak Trig	no.no.no
SP1 Trig	01.02.no
SP2 Trig	01.02.no
SP3 Trig	no.no.no
H2O Trig	no.no.no

TMS Communicator	
Configuration ⇨ Relays ⇨ Tank Triggers	
	Relays
Leak Trigger	None - None - None
Set Point #1 Trigger	Relay #1 - Relay #2 - None
Set Point #2 Trigger	Relay #1 - Relay #2 - None
Set Point #3 Trigger	None - None - None
Water Trigger	None - None – None

2. Chooses the CC Inputs that the relays will react to.

Front Panel	
Config ⇨ Rely cc	
cc Trig	Relays
1	02.no.no
2	01.02.no

TMS Communicator	
Configuration ⇨ Relays ⇨ Non-Hazardous Contact Closure Inputs	
CC Trigger	Relay Selects
#1	Relay #2 – None – None
#2	Relay #1 – Relay #2 – None

3. Controls the behavior of a relay.

Front Panel				
Config ⇨ Rely Mode				
Relay	Normally	FP Ack	Delay	Latch En
1	Off	No	None	No
2	Off	Yes	None	No

TMS Communicator				
Configuration ⇨ Relays ⇨ Relay Mode				
Relay	Normal Contact State	Allow Front Panel Acknowledgements	Delayed Shutoff	Latch Enable
#1	Off	☐	None	☐
#2	Off	☑	None	☐

4. Controls the behavior of a Contact Closure Input.

Front Panel			
Config ⇨ cc Input			
CC Input	cc Enable	Inp Name	Normally
1	Ack	Input	Open
2	Relay	Input	Open

TMS Communicator			
Configuration ⇨ Contact Closure Inputs ⇨ Non-Hazardous Contact Closure Inputs			
CC Input	Contact Closure Enable	Input Name	Normally
#1	Acknowledge	Input	Open
#2	Relay	Input	Open