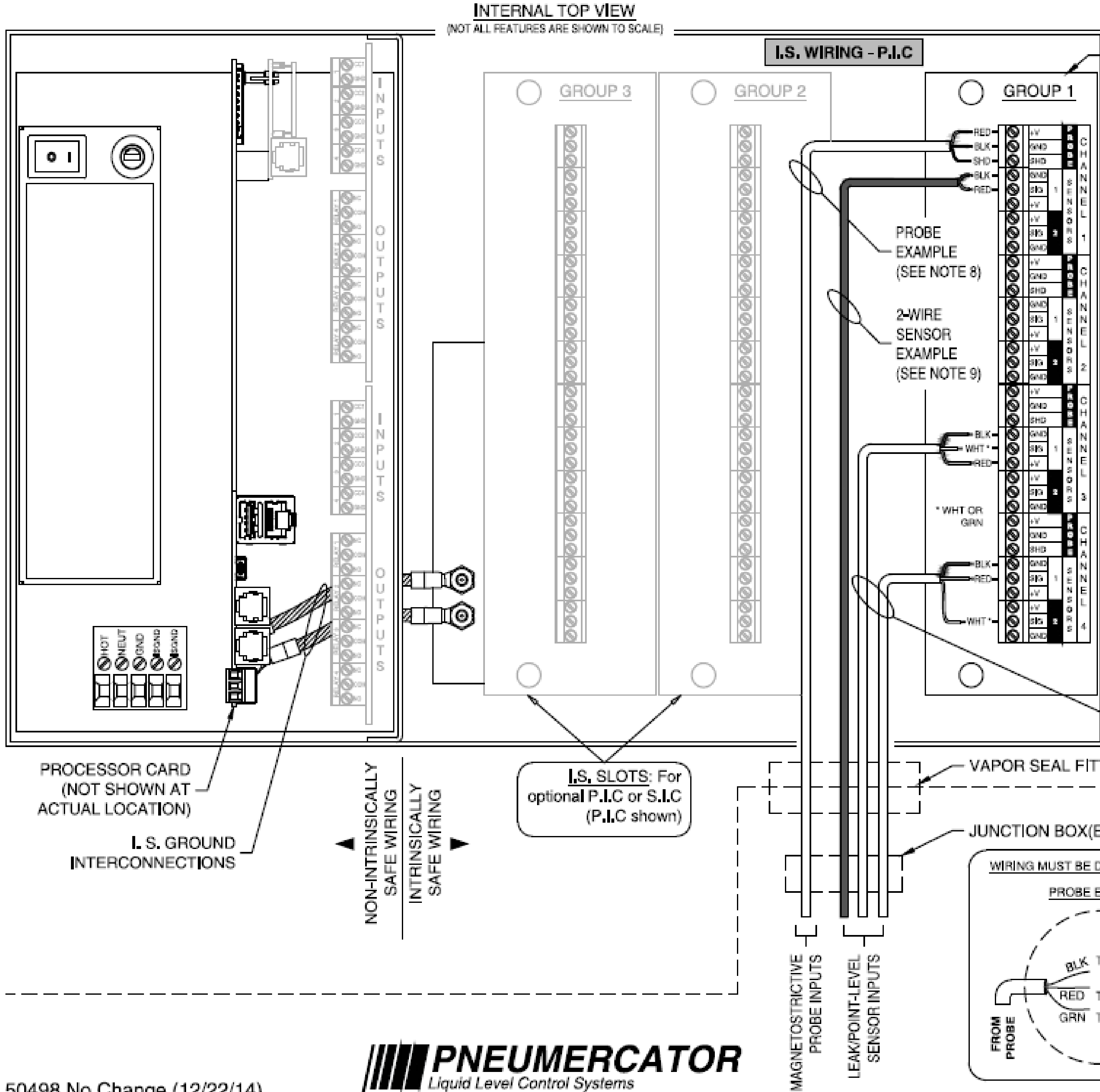
WIRING DRAWING - TANK MANAGEMENT SYSTEM (TMS4000)



I.S. SLOT #1
STANDARD PROBE INTERFACE CARD (P.I.C)
4-PROBE/8-SENSOR INPUTS

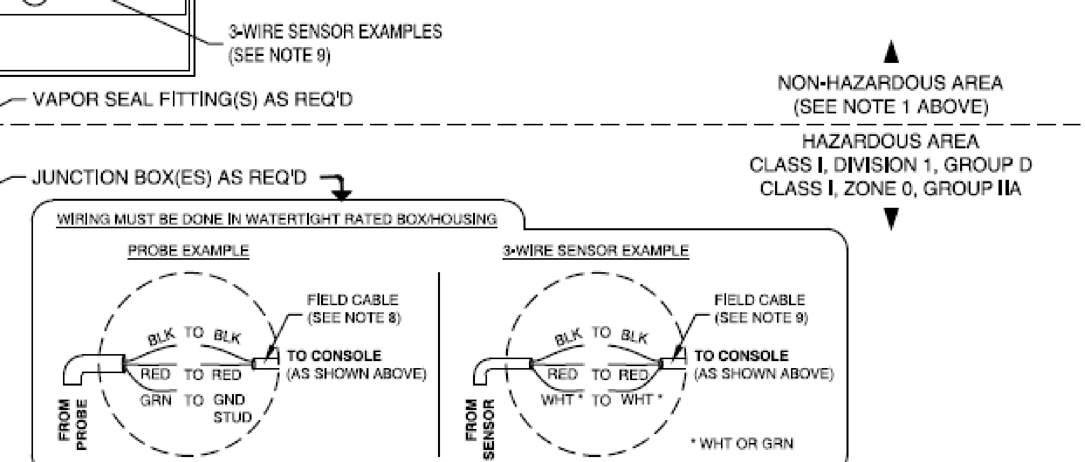
⚠ IMPORTANT NOTES - READ CAREFULLY BEFORE INSTALLATION

UNLESS OTHERWISE SPECIFIED:
(NOTES 3-7 DO NOT APPLY TO THIS PAGE)

1. CONSOLE MOUNTING: MOUNT AS CLOSE AS PRACTICAL TO DIVIDING BOUNDRY OF THE HAZARDOUS AND NON-HAZARDOUS AREAS. NEVER MOUNT INSIDE THE HAZARDOUS AREA.
2. INTRINSICALLY SAFE INPUT WIRING: INSTALLATIONS SHALL COMPLY WITH THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE (ANSI/NFPA 70) AND THE CANADIAN ELECTRICAL CODE (CEC). NON-INTRINSICALLY SAFE WIRING CANNOT BE RUN IN CONDUIT OR OPEN RACEWAYS TOGETHER WITH INTRINSICALLY SAFE WIRING.
   a. THE MAGNETOSTRICTIVE PROBE INPUTS AND THE SENSOR INPUTS ARE TWO DIFFERENT INTRINSICALLY SAFE CIRCUITS AND MUST BE INSTALLED IN SEPARATE CABLES OR IN ONE CABLE WHICH HAS SUITABLE INSULATION. REFER TO NEC ARTICLE 504-30 (b) OR CEC APPENDIX F6.3 FOR ADDITIONAL INFORMATION.
   b. I.S. ELECTRO-OPTIC/DRY CONTACT AND MAGNETOSTRICTIVE-PROBE ENTITY PARAMETERS: (between ground and any ungrounded contact) Vt = 29.4 Volts; It = 0.149 Amps; Ca = 0.88μF; La = 10mH.
   c. IF THE ELECTRICAL PARAMETERS OF THE CABLE ARE UNKNOWN, THE FOLLOWING VALUES MAY BE USED. Capacitance = 60 pF/ft; Inductance = 0.20 μH/ft.
   d. IN ORDER TO DETERMINE THE SUITABILITY OF THE CONNECTION BETWEEN THE TMS4000 AND INTRINSICALLY SAFE DEVICES, THE TOTAL PARAMETERS FOR EACH INTRINSICALLY SAFE SENSOR INPUT CIRCUIT MUST BE DETERMINED. First the Cc and Lc of each cable is calculated using length and the manufactures specified parameters or the values given in note (c). The Cc and Lc for each intrinsically safe circuit is then determined by adding the Cc and Lc for all cables used in each sensor input circuit. The Ci and Li for each intrinsically safe circuit is then determined by adding the Ci and Li for all devices connected to each sensor input circuit.
   e.

TMS4000		I.S. EQUIPMENT	
Vt	≤	Vmax	(smallest Vmax of any I.S. device in circuit)
It	≤	Imax	(smallest Imax of any device in circuit)
Ca	≥	Ci+Cc	(using Ci and Cc totals for each ciruit)
La	≥	Li+Lc	(using Ci and Cc totals for each circuit)

8. SHIELDED PROBE FIELD CABLE IS REQUIRED, THE SHIELD WIRE MUST BE CONNECTED TO THE PROBE SHIELD TERMINAL IN THE CONSOLE I.S. COMPARTMENT AND SHOULD BE CUT BACK AND LEFT UNTERMINATED AT THE PROBE JUNCTION BOX.
9. SHIELDED SENSOR FIELD CABLE IS NOT REQUIRED, BUT IF USED, THE SHIELD WIRE MUST BE CONNECTED TO THE SENSOR GROUND TERMINAL IN THE CONSOLE I.S. COMPARTMENT AND SHOULD BE CUT BACK AND LEFT UNTERMINATED AT THE SENSOR JUNCTION BOX.



PNEUMERCATOR
Liquid Level Control Systems

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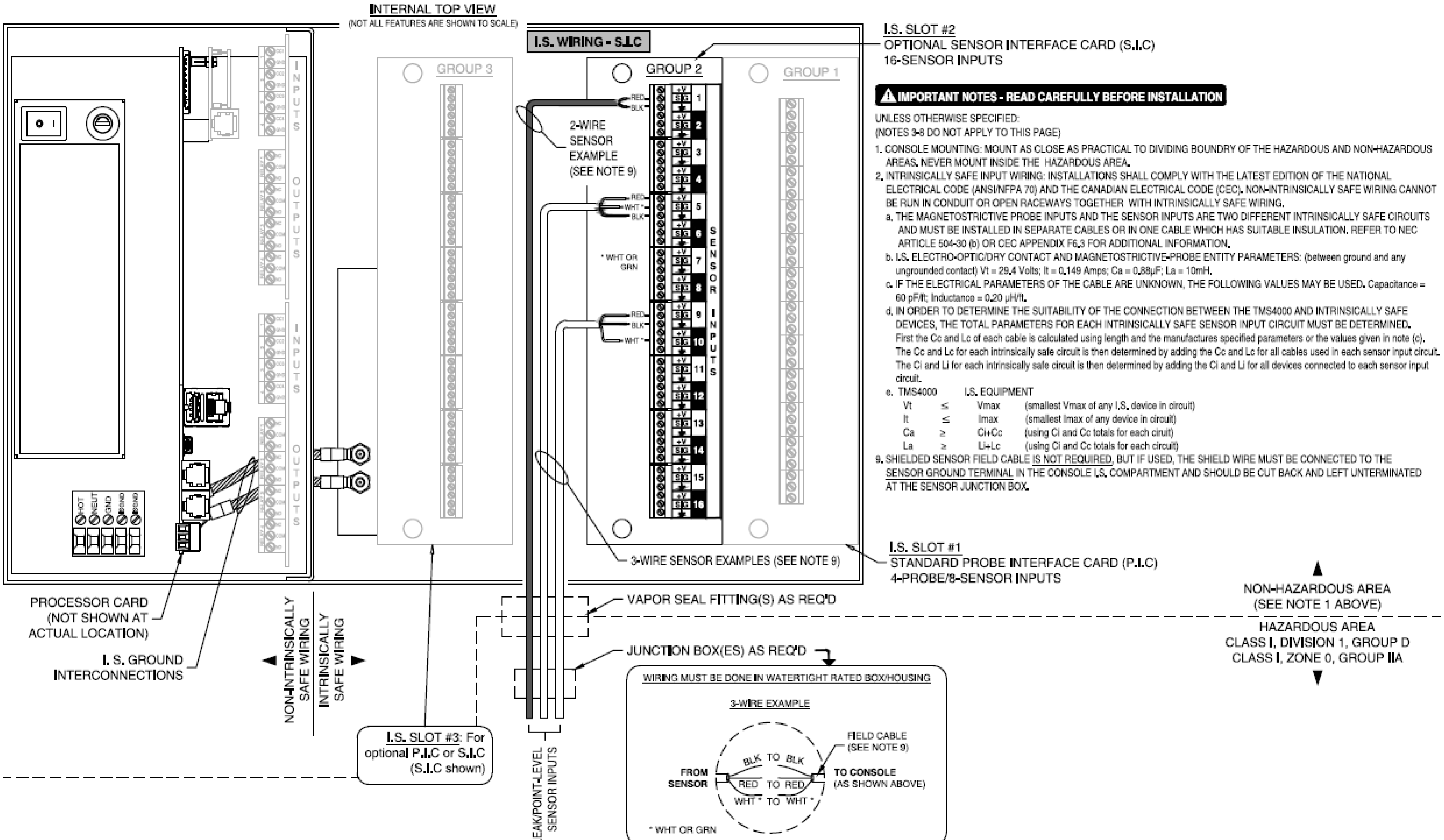

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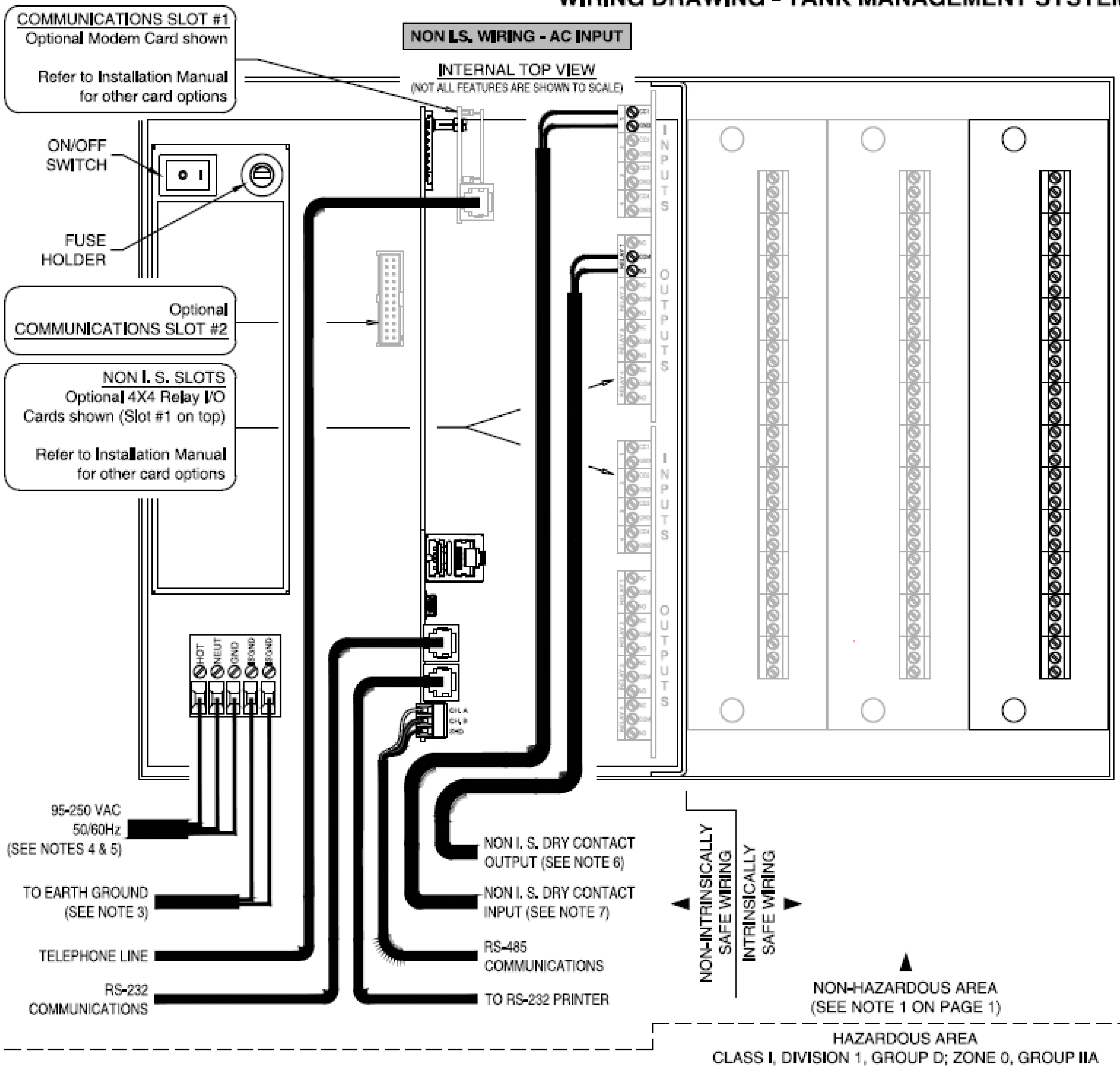

⚠ IMPORTANT NOTES - READ CAREFULLY BEFORE INSTALLATION

UNLESS OTHERWISE SPECIFIED:
(NOTES 1,2, 8 & 9 DO NOT APPLY TO THIS PAGE)

3. WARNING: TO INSURE INTRINSIC SAFETY, A 12 AWG WIRE MUST BE CONNECTED TO EACH TERMINAL. EACH WIRE MUST THEN BE CONNECTED TO THE SYSTEM EARTH GROUND (GROUND BUSS BAR) AT THE SERVICE PANEL. THE RESISTANCE BETWEEN THE EARTH GROUND TERMINAL BLOCK AND EARTH GROUND SHALL BE LESS THAN 1 OHM.
4. CONSOLE CANNOT BE CONNECTED TO EQUIPMENT THAT USES OR GENERATES MORE THAN 250 VOLTS WITH RESPECT TO EARTH.
5. POWER TO THE TMS4000 CONSOLE SHOULD BE PROPERLY WIRED TO A SEPARATE DEDICATED 115/230 VAC CIRCUIT BREAKER.
6. DRY CONTACT SWITCH OUTPUT WIRING: WIRE TO COMMON AND EITHER NORMALLY OPEN OR NORMALLY CLOSED FOR DESIRED SWITCH CONTACT. OUTPUT RATED 10 AMPS AT 120 VAC, 6 AMPS AT 240 VAC (VOLTAGE MUST BE LESS THAN 120 VAC OR 240 VAC RESPECTIVELY).
7. NEC CLASS 2 CIRCUITS.