

CONTROL DRAWING INTRINSICALLY SAFE SYSTEM

NON-HAZARDOUS LOCATION

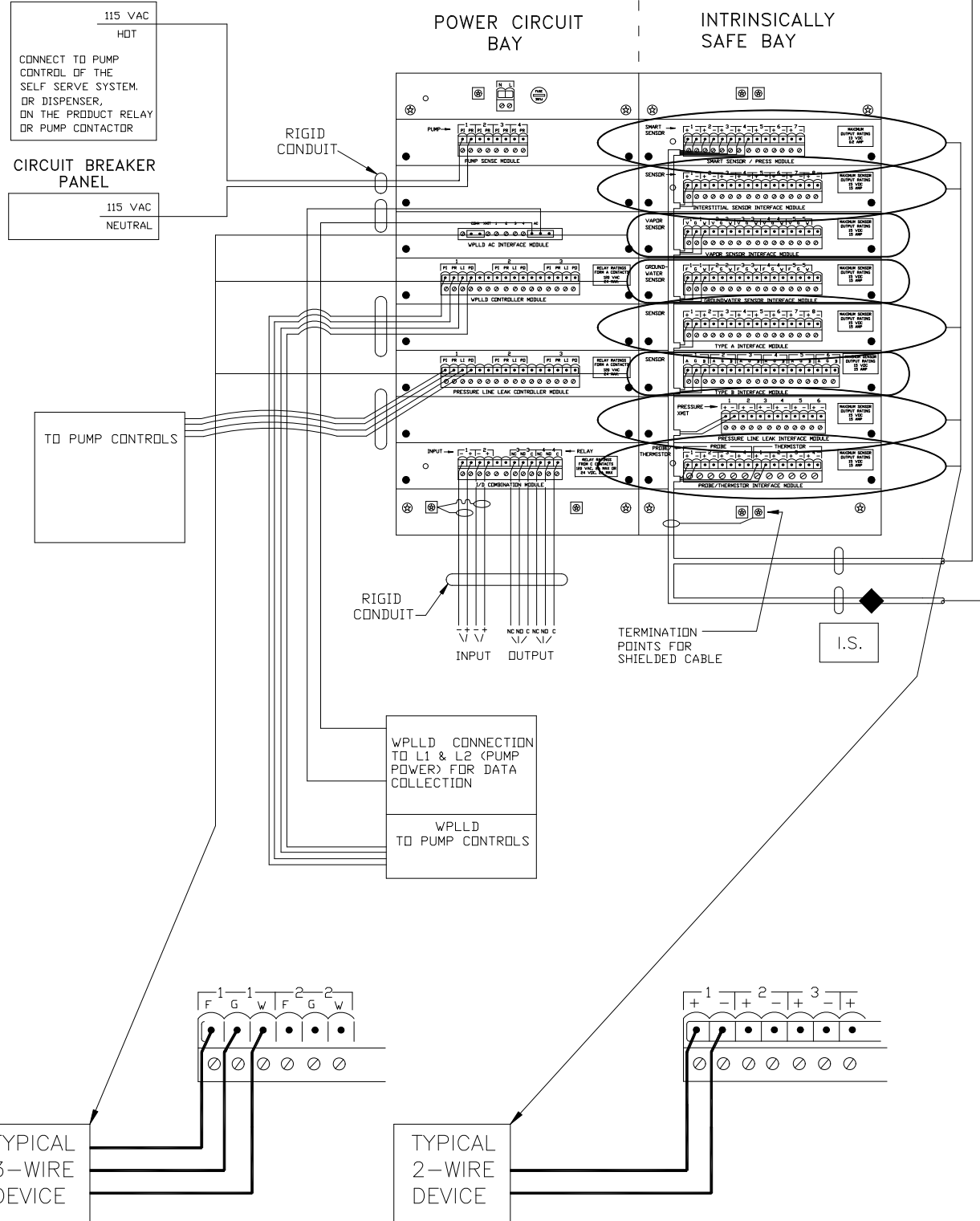
ASSOCIATED APPARATUS

$$0^{\circ} \leq T_a \leq 40^{\circ}C$$

TLS-350 CONSOLE

POWER CIRCUIT BAY

INTRINSICALLY SAFE BAY



UNSPECIFIED RECEIVER

TLS RF CONSOLE

OPTICALLY ISOLATED INTRINSICALLY SAFE CIRCUITS

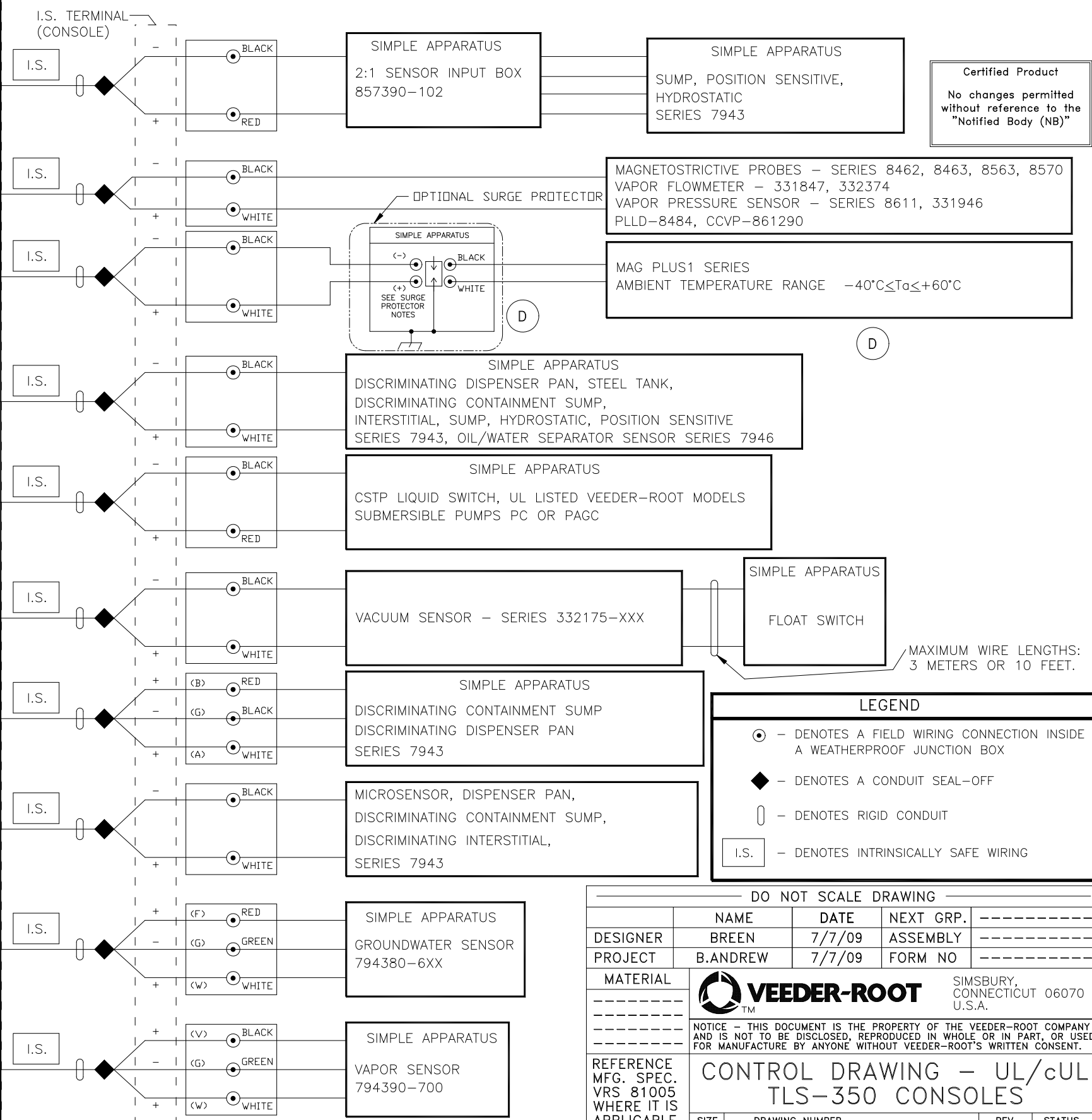
UNSPECIFIED EQUIPMENT
SEE SHEET 2

CLASS I, DIVISION 1, GROUP D
CLASS I, ZONE 0, GROUP IIA

UNLESS OTHERWISE NOTED
AMBIENT TEMPERATURE RANGE
-40°C ≤ T_a ≤ 60°C

HAZARDOUS LOCATION
INTRINSICALLY SAFE (I.S.) APPARATUS

REV	DESCRIPTION	BY	DATE	ECO
D	ADDED SURGE PROTECTOR TO MAG PROBES AND SURGE PROTECTOR NOTES MAG PLLUS1 TEMP RANGE WAS -20°C	TB	2013/03/05	CN-06112



Certified Product
No changes permitted without reference to the "Notified Body (NB)"

LEGEND

- - DENOTES A FIELD WIRING CONNECTION INSIDE A WEATHERPROOF JUNCTION BOX
- ◆ - DENOTES A CONDUIT SEAL-OFF
- - DENOTES RIGID CONDUIT
- I.S. - DENOTES INTRINSICALLY SAFE WIRING

MAXIMUM WIRE LENGTHS:
3 METERS OR 10 FEET.

FOR WIRING NOTES AND LIMITATIONS
SEE SHEET 2 AND 3

DO NOT SCALE DRAWING

DESIGNER	NAME	DATE	NEXT GRP.
BREEN	BREEN	7/7/09	ASSEMBLY
PROJECT	B.ANDREW	7/7/09	FORM NO

MATERIAL: SIMSBURY, CONNECTICUT 06070 U.S.A.

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REFERENCE MFG. SPEC. VRS 81005 WHERE IT IS APPLICABLE

UNSPECIFIED TOLERANCES +/- N/A

SIZE	DRAWING NUMBER	REV.	STATUS
D	331940-011	D	REL

SCALE: NONE SHEET 1 OF 3

DESCRIPTION

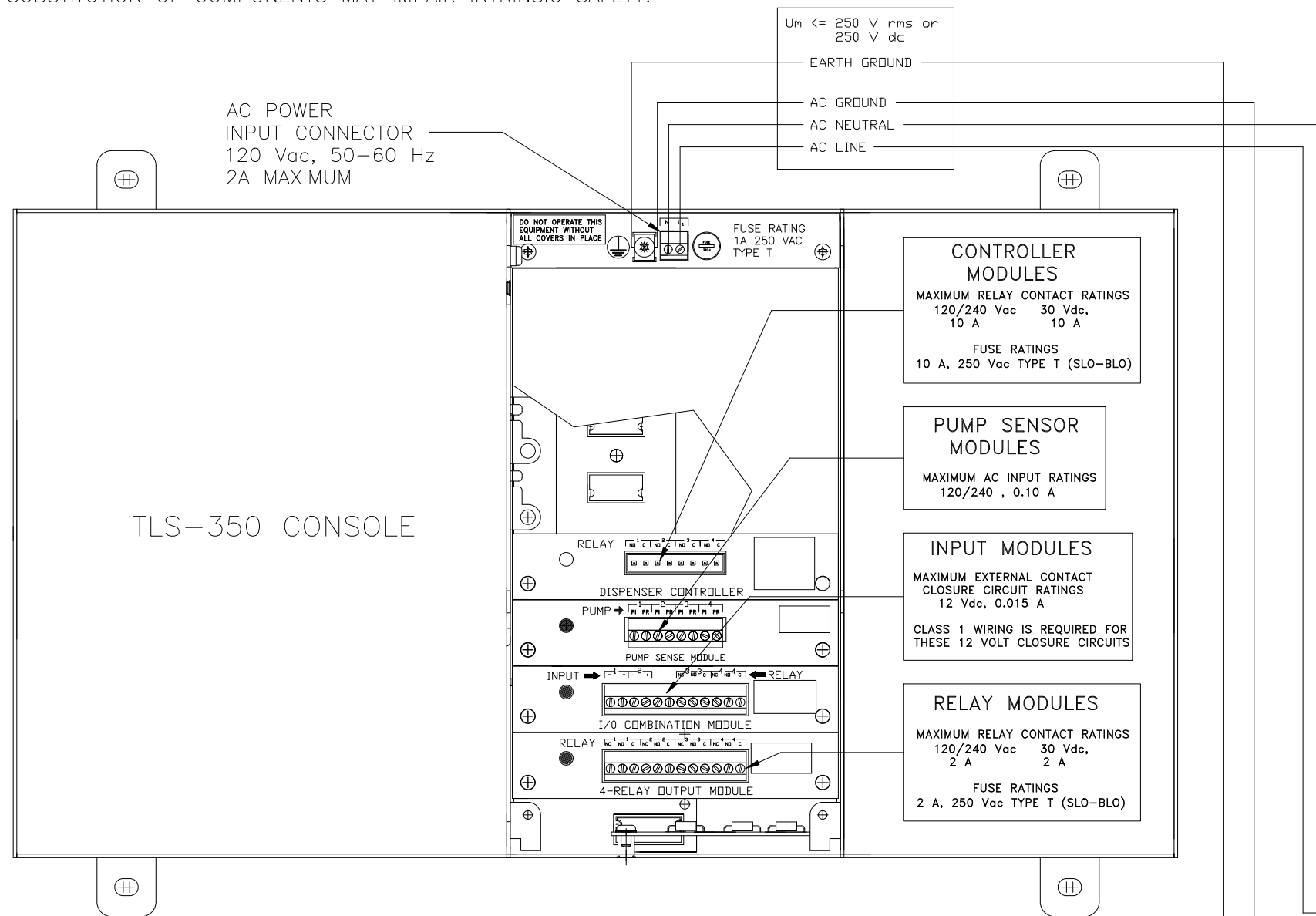
THIS CONTROL DRAWING DESCRIBES THE INTRINSICALLY SAFE EQUIPMENT AND ASSOCIATED APPARATUS THAT TOGETHER FORM AN INTRINSICALLY SAFE SYSTEM.

TLS-350 CONSOLES ARE IDENTIFIED BY FORM NUMBERS 8470 AND 8482. A TLS-350 CONSOLE CANNOT BE CONNECTED IN PARALLEL WITH ANOTHER TLS-350 OR ANY OTHER ASSOCIATED APPARATUS. TLS-350 CONSOLES AND OPTIONAL TLS RF CONSOLES MUST BE INSTALLED IN INDOOR NON-HAZARDOUS AREAS.

WARNINGS

SUBSTITUTION OF COMPONENTS MAY IMPAIR INTRINSIC SAFETY.

CIRCUIT BREAKER
PANEL



WIRING NOTES

INTRINSICALLY SAFE (I.S.) WIRING MUST BE INSTALLED IN ACCORDANCE WITH ARTICLE 504-20 OF THE NEC (NATIONAL ELECTRICAL CODE), ANSI/NFPA 70 OR OTHER APPLICABLE LOCAL CODES. ALL OTHER WIRING MUST BE INSTALLED ACCORDING TO LOCAL CODES.

THE MAXIMUM CABLE LENGTH ALLOWED, USED TO CONNECT ANY INTRINSICALLY SAFE DEVICES TO THE TLS-350 CONSOLE IS LIMITED TO A TOTAL OF 64,000 FEET PER CONSOLE.

EACH CABLE (OR I.S. WIRING), USED TO CONNECT INTRINSICALLY SAFE DEVICES TO THE TLS-350 CONSOLE, MUST BE RATED 100 PICO FARAD/FOOT (OR LESS CAPACITANCE PER FOOT) AND MUST BE RATED 0.2 MICROHENRY/FOOT (OR LESS INDUCTANCE PER FOOT).

I.S. GROUNDING POINTS MUST BE CONNECTED TO A SUITABLE GROUND ELECTRODE THROUGH LESS THAN ONE OHM DC RESISTANCE TO THE EARTH GROUND BUS AT THE DISTRIBUTION PANEL IN ACCORDANCE WITH THE NEC/CEC OR OTHER LOCAL CODES.

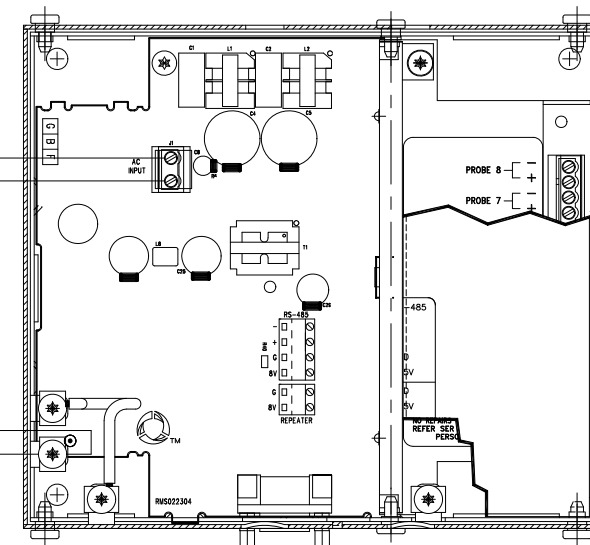
CABLES (OR I.S. WIRING) USED TO CONNECT SEPARATE I.S. DEVICES TO THE ASSOCIATED APPARATUS MUST HAVE SUITABLE INSULATION AS REQUIRED BY ARTICLE 504.30(B) OF THE NEC.

ASSOCIATED APPARATUS MUST BE INSTALLED IN ACCORDANCE TO THIS CONTROL DRAWING AND ARTICLE 504 OF THE NEC OR SECTION 18 OF THE CEC.

THE MAXIMUM SAFE AREA VOLTAGE (U_m) OF THIS EQUIPMENT IS 250V RMS OR DC. PERIPHERAL EQUIPMENT CONNECTED TO THE TLS-350 CONSOLE MUST NOT USE OR GENERATE MORE THAN 250V RMS OR DC WITH RESPECT TO EARTH GROUND.

INSIDE THE MODULE AREA OF BOTH NON-I.S. COMPARTMENT AND I.S. COMPARTMENT, ANY COMBINATION OF UP TO EIGHT MODULES MAY BE INSTALLED. I/O MODULES PROVIDE WIRING TERMINALS FOR THE CONNECTION OF EQUIPMENT INSTALLED IN NON-HAZARDOUS LOCATIONS. THE I.S. MODULES PROVIDES WIRING TERMINALS FOR THE CONNECTION OF INTRINSICALLY SAFE APPARATUS.

THE ELECTRONICS LOCATED IN THE BARRIER CIRCUIT FORMS AN INTRINSICALLY SAFE ENERGY LIMITED SYSTEM. PROBE AND SENSORS CONNECTED TO THE OUTPUT TERMINALS OF THE I.S. MODULES ARE CONSIDERED INTRINSICALLY SAFE APPARATUS AND ARE APPROVED FOR USE IN CLASS I, ZONE 0, GROUP IIA OR CLASS I DIVISION 1 GROUP D HAZARDOUS (CLASSIFIED) LOCATIONS.



TLS-RF CONSOLE

		SIMSBURY, CONNECTICUT 06070 U.S.A.	
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CONTROL DRAWING UL TLS-350 CONSOLES			
SIZE	DRAWING NUMBER	REV.	STATUS
D	331940-011	D	REL
SCALE	NONE	SHEET	2 OF 3

LIMITATIONS

A MAXIMUM OF 4 TLS-RF CONSOLES AND UP TO 64 INTRINSICALLY SAFE DEVICES MAY BE CONNECTED TO THE INTRINSICALLY SAFE COMPARTMENT OF THE TLS-350 CONSOLE.

THE MAXIMUM NUMBER OF A SPECIFIC DEVICE TYPE IS LIMITED ACCORDING TO THE INSTALLATION INSTRUCTIONS PROVIDED WITH THE ASSOCIATED APPARATUS. FOR EXAMPLE, A MAXIMUM OF 64 MAG PROBES MAY BE USED WITH A SINGLE TLS-350 CONSOLE.

MAGNETOSTRICTIVE PROBE – ENCLOSURE CONTAINS ALUMINUM. CARE MUST BE TAKEN TO AVOID IGNITION HAZARD DUE TO IMPACT OR FRICTION

VAPOR FLOW METERS, PART NUMBERS 331847-001 AND 332374-001 ARE ONLY SUITABLE FOR USE INSIDE THE BASE OF A FLAMMABLE LIQUID DISPENSER WHEN FACTORY INSTALLED BY THE RESPECTIVE ORIGINAL EQUIPMENT MANUFACTURER

VAPOR FLOW METERS PART NUMBERS 331847-002 AND 332374-002 ARE SUITABLE FOR IN-THE-FIELD INSTALLATIONS, WHEN MOUNTED INSIDE FLAMMABLE LIQUID DISPENSERS THAT ARE EVALUATED AS A PART OF A LISTED BY REPORT RETROFIT KIT.

LISTED VAPOR PRESSURE SENSORS, PART NUMBERS 861190-001, 861190-002 AND 861190-003 ARE SUITABLE FOR USE INSIDE THE BASE OF A FLAMMABLE LIQUID DISPENSER WHEN INSTALLED BY THE RESPECTIVE ORIGINAL EQUIPMENT MANUFACTURER. VAPOR PRESSURE SENSORS, PART NUMBERS 861190-001, 861190-002 AND 861190-003 ARE ALSO SUITABLE FOR USE WHEN MOUNTED TO THE VAPOR VENT STACK THAT IS USED FOR VENTING FLAMMABLE VAPORS.

VAPOR PRESSURE SENSORS, PART NUMBERS 861190-001, 861190-002 AND 861190-003 ARE SUITABLE FOR IN-THE-FIELD INSTALLATIONS, WHEN MOUNTED INSIDE FLAMMABLE LIQUID DISPENSERS THAT ARE EVALUATED AS A PART OF A LISTED BY REPORT RETROFIT KIT.

SURGE PROTECTION

D

SURGE PROTECTION COMPONENTS MUST BE GAS TUBE TYPE, UL RECOGNIZED, CATEGORY CODE VZC42, PER UL 1449 AND WITH AN I_{max} RATING OF AT LEAST 10kA 8/20us OR GREATER WHEN INSTALLED AT THE TANK ENTRY.

CONNECT THE SURGE PROTECTOR IN ACCORDANCE WITH NFPA 780, CLAUSE 4.18.3.2.

CONSULT THE LOCAL AUTHORITY HAVING JURISDICTION PRIOR TO INSTALLING ANY SURGE PROTECTION DEVICES. SOME INSTALLATIONS MAY REQUIRE A 5 FOOT SPACING DISTANCE BETWEEN SURGE PROTECTOR AND ANY TANK ACCESS POINT OR VENT. REFERENCE NFPA 30.

THE SURGE PROTECTION DEVICE MUST BE A SIMPLE APPARATUS ONLY (NFPA 70, CLAUSE 504.2) SUITABLE TO THE AUTHORITY HAVING JURISDICTION.

EVALUATED IN CONJUNCTION WITH AN APPROVED AND COMPATIBLE ASSOCIATED APPARATUS ie, ASSOCIATED APPARATUS BEARS THE UL/cUL MARK AND THE SYSTEM IS INSTALLED IN ACCORDANCE WITH APPROVED INSTALLATION INSTRUCTIONS.

CLASS I, DIVISION 1, GROUP D

UL 1238 CONTROL EQUIPMENT FOR USE WITH FLAMMABLE LIQUID DISPENSING DEVICES.

UL 913 INTRINSICALLY SAFE APPARATUS

CSA C22.2 No.0 CANADIAN ELECTRICAL CODE, PART II

CSA C22.2 No.0.4M BONDING AND GROUNDING OF ELECTRICAL EQUIPMENT
(PROTECTIVE GROUNDING)

CSA C22.2 No.142-M PROCESS CONTROL EQUIPMENT

CSA C22.2 No.157 INTRINSICALLY SAFE AND NONINCENDIVE EQUIPMENT FOR USE IN
HAZARDOUS LOCATIONS, CONSUMER AND COMMERCIAL PRODUCTS.



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CONNECTICUT 06070
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CONTROL DRAWING UL TLS-350 CONSOLES

SIZE	DRAWING NUMBER	REV.	STATUS
D	331940-011	D	REL
SCALE	NONE	SHEET	3 OF 3