

CONTROL DRAWING INTRINSICALLY SAFE SYSTEM

TLS-300 CONSOLE

CLASS I, DIV 1, GROUP D
CLASS I, ZONE 0, GROUP II A
UNLESS OTHERWISE NOTED
AMBIENT TEMPERATURE RANGE
 $-40^{\circ}\text{C} \leq T_a \leq 60^{\circ}\text{C}$

HAZARDOUS AREA
INTRINSICALLY SAFE (I.S.) APPARATUS

REV	DESCRIPTION	BY	DATE	ECO
B	1) ADDED MAG PLUS1 SERIES 2) ADDED AGENCY CONTROLLED STAMP 3) ADDED UNLESS OTHERWISE NOTED	TKR	09/12/12	CN-05364
C	ADDED SURGE PROTECTOR TO MAG PROBES AND SURGE PROTECTOR NOTES. MAG PLUS1 TEMP RANGE WAS -20°C	TB	2013/03/05	CN-06112

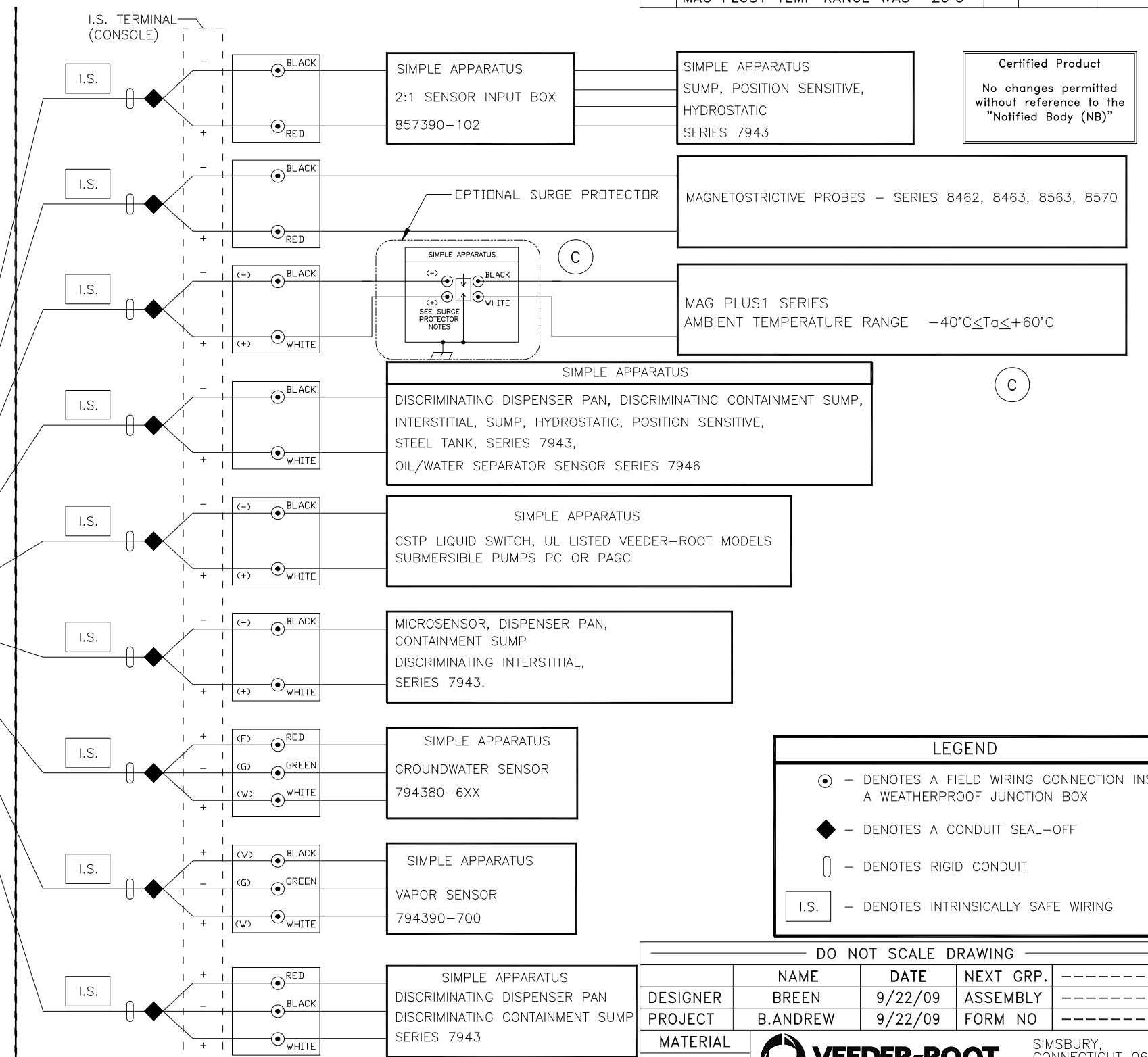
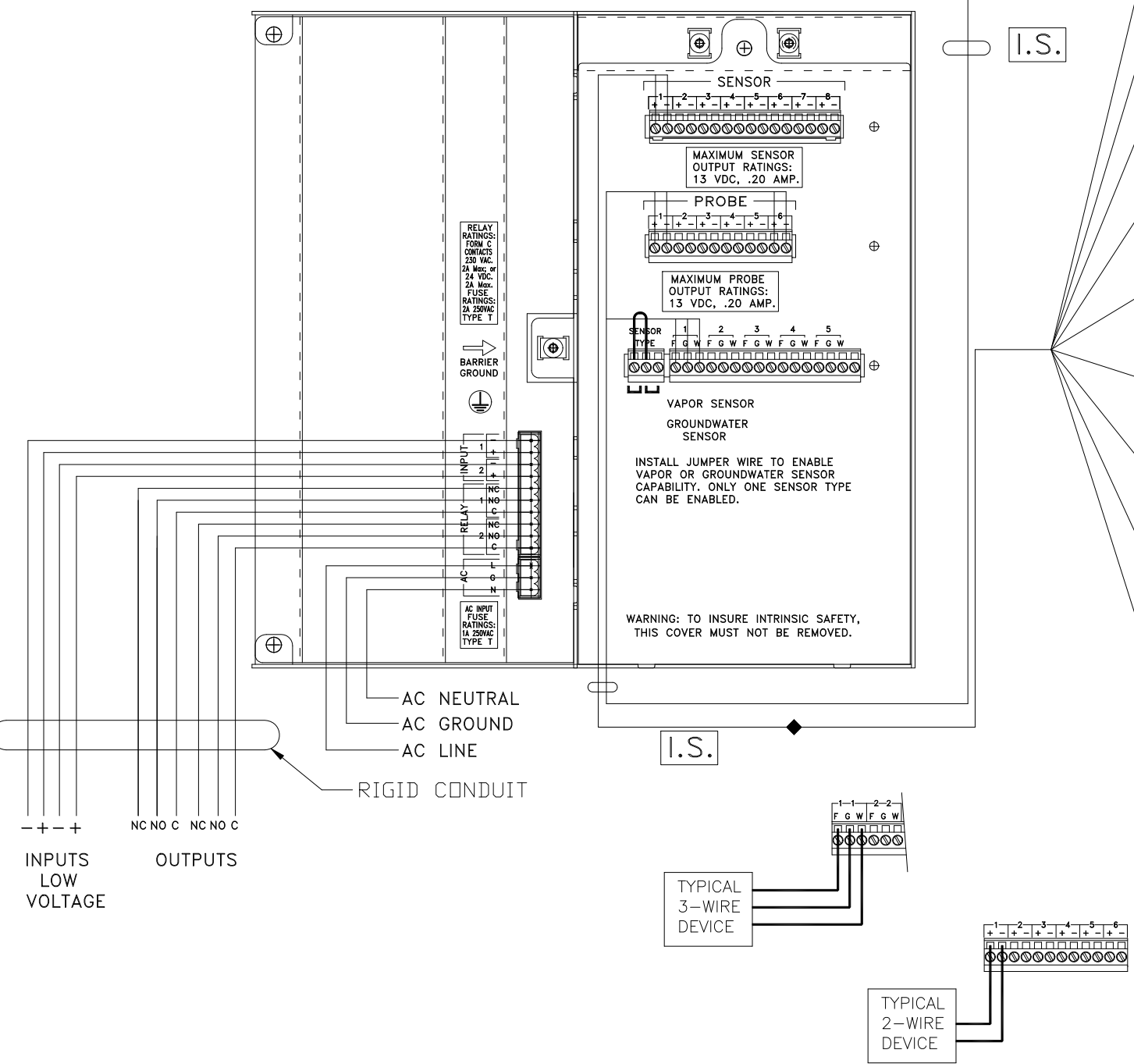
NON-HAZARDOUS AREA
ASSOCIATED APPARATUS

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

UNSPECIFIED EQUIPMENT
SEE SHEET 2

UNSPECIFIED RECEIVER
TLS RF CONSOLE
OPTICALLY ISOLATED
INTRINSICALLY SAFE
CIRCUITS

INTRINSICALLY SAFE
MODULE



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

MAGNETOSTRICTIVE PROBES - SERIES 8462, 8463, 8563, 8570

MAG PLUS1 SERIES
AMBIENT TEMPERATURE RANGE $-40^{\circ}\text{C} \leq T_a \leq +60^{\circ}\text{C}$

DISCRIMINATING DISPENSER PAN, DISCRIMINATING CONTAINMENT SUMP,
INTERSTITIAL, SUMP, HYDROSTATIC, POSITION SENSITIVE,
STEEL TANK, SERIES 7943,
OIL/WATER SEPARATOR SENSOR SERIES 7946

CSTP LIQUID SWITCH, UL LISTED VEEDER-ROOT MODELS
SUBMERSIBLE PUMPS PC OR PAGC

MICROSENSOR, DISPENSER PAN,
CONTAINMENT SUMP
DISCRIMINATING INTERSTITIAL,
SERIES 7943.

GROUNDWATER SENSOR
794380-6XX

VAPOR SENSOR
794390-700

DISCRIMINATING DISPENSER PAN
DISCRIMINATING CONTAINMENT SUMP
SERIES 7943

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

DO NOT SCALE DRAWING

DESIGNER	NAME	DATE	NEXT GRP.
BREEN	BREEN	9/22/09	ASSEMBLY
PROJECT	B.ANDREW	9/22/09	FORM NO
MATERIAL	SIMSBURY, CONNECTICUT 06070 U.S.A.		
REFERENCE MFG. SPEC. VRS 81005 WHERE IT IS APPLICABLE	NOTICE - THIS DOCUMENT IS THE PROPERTY OF THE VEEDER-ROOT COMPANY AND IS NOT TO BE DISCLOSED, REPRODUCED IN WHOLE OR IN PART, OR USED FOR MANUFACTURE BY ANYONE WITHOUT VEEDER-ROOT'S WRITTEN CONSENT.		
UNSPECIFIED TOLERANCES +/- ---	CONTROL DRAWING - UL/cUL TLS-300 CONSOLES		
SIZE D	DRAWING NUMBER	REV. C	STATUS REL
SCALE NONE	331940-013	SHEET 1	OF 3

FOR WIRING NOTES AND LIMITATIONS
SEE SHEETS 2 AND 3.

DESCRIPTION

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

TLS-300 CONSOLES ARE IDENTIFIED BY FORM NUMBER 8485. A TLS-300 CONSOLE CANNOT BE CONNECTED IN PARALLEL WITH ANOTHER TLS-300 OR ANY OTHER ASSOCIATED APPARATUS. TLS-300 CONSOLES AND OPTIONAL TLS RF CONSOLES MUST BE INSTALLED IN INDOOR NON-HAZARDOUS AREAS.

WARNINGS

SUBSTITUTION OF COMPONENTS MAY IMPAIR INTRINSIC SAFETY.

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-300 CONSOLE IS LIMITED TO A TOTAL OF 32,000 FEET PER CONSOLE.

EACH CABLE (OR I.S. WIRING), USED TO CONNECT INTRINSICALLY SAFE DEVICES TO THE TLS-300 CONSOLE, MUST BE RATED 100 PICOFARAD/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.

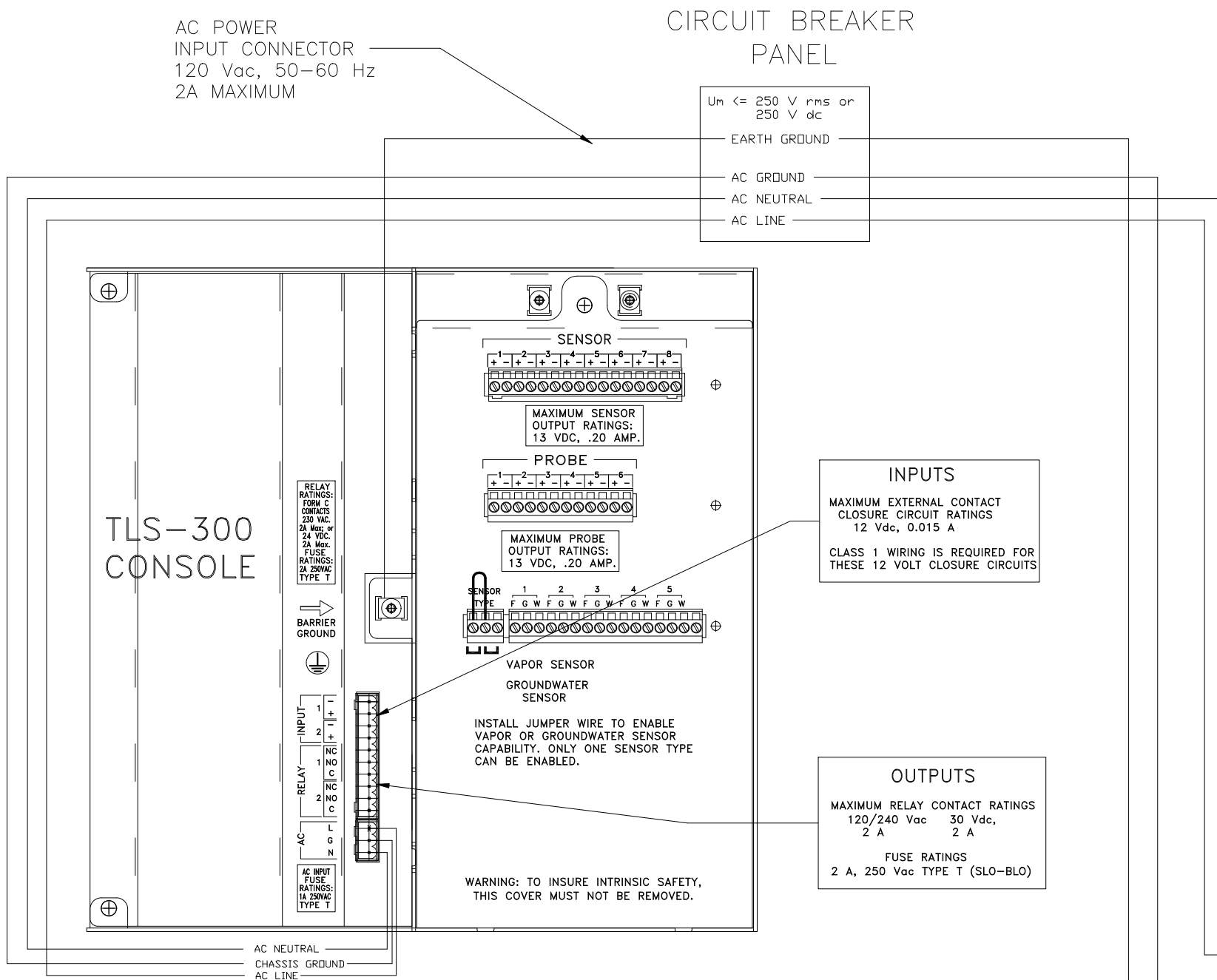
THE MAXIMUM SAFE AREA VOLTAGE (Um) OF THIS EQUIPMENT IS 250V RMS OR DC. PERIPHERAL EQUIPMENT CONNECTED TO THE TLS-300 CONSOLE MUST NOT USE OR GENERATE MORE THAN 250V RMS OR DC WITH RESPECT TO EARTH GROUND.

LIMITATIONS

A MAXIMUM OF 1 TLS-RF CONSOLES AND UP TO 32 INTRINSICALLY SAFE DEVICES MAY BE CONNECTED TO THE INTRINSICALLY SAFE COMPARTMENT OF THE TLS-300 CONSOLE.

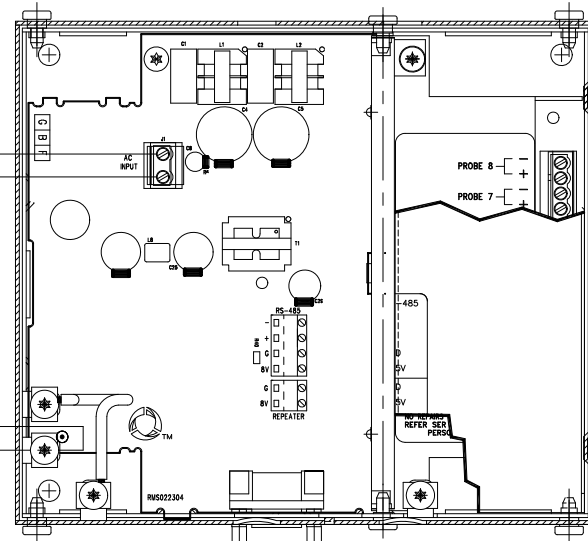
THE MAXIMUM NUMBER OF A SPECIFIC DEVICE TYPE IS LIMITED ACCORDING TO THE INSTALLATION INSTRUCTIONS PROVIDED WITH THE ASSOCIATED APPARATUS. FOR EXAMPLE, ONLY 8 MAG PROBES MAY BE USED WITH A SINGLE TLS-300 CONSOLE.

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



INPUTS
 MAXIMUM EXTERNAL CONTACT CLOSURE CIRCUIT RATINGS
 12 Vdc, 0.015 A
 CLASS 1 WIRING IS REQUIRED FOR THESE 12 VOLT CLOSURE CIRCUITS

OUTPUTS
 MAXIMUM RELAY CONTACT RATINGS
 120/240 Vac 30 Vdc,
 2 A 2 A
 FUSE RATINGS
 2 A, 250 Vac TYPE T (SLO-BLO)



TLS-RF CONSOLE

I/O CONNECTIONS 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 1, ZONE 0, GROUP IA OR CLASS I, DIVISION 1, GROUP D HAZARDOUS (CLASSIFIED) LOCATIONS.

		SIMSBURY, CONNECTICUT 06070 U.S.A.	
		NOTICE - THIS DOCUMENT IS THE PROPERTY OF THE VEEDER-ROOT COMPANY AND IS NOT TO BE DISCLOSED, REPRODUCED IN WHOLE OR IN PART, OR USED FOR MANUFACTURE BY ANYONE WITHOUT VEEDER-ROOT'S WRITTEN CONSENT.	
CONTROL DRAWING-UL/cUL TLS-300 CONSOLES			
SIZE	DRAWING NUMBER	REV.	STATUS
D	331940-013	C	REL
SCALE	NONE	SHEET	2 OF 3

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.

Ⓒ SURGE PROTECTION

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.



NOTICE - THIS DOCUMENT IS THE PROPERTY OF THE VEEDER-ROOT COMPANY AND IS NOT TO BE DISCLOSED, REPRODUCED IN WHOLE OR IN PART, OR USED FOR MANUFACTURE BY ANYONE WITHOUT VEEDER-ROOT'S WRITTEN CONSENT.

CONTROL DRAWING-UL/cUL
TLS-300 CONSOLES

SIZE	DRAWING NUMBER	REV.	STATUS
D	331940-013	C	REL
SCALE	NONE	SHEET	3 OF 3