

REV	DESCRIPTION	BY	DATE	ECO
A	INITIAL RELEASE	KG	12/06/11	CN-04265
B	ADDED SURGE PROTECTION TO MAG PROBE AND SURGE PROTECTION NOTES. MAG PLUS1 TEMP RANGE WAS -20°C	TB	2013/03/05	CN-06112

CONTROL DRAWING – INTRINSICALLY SAFE SYSTEM

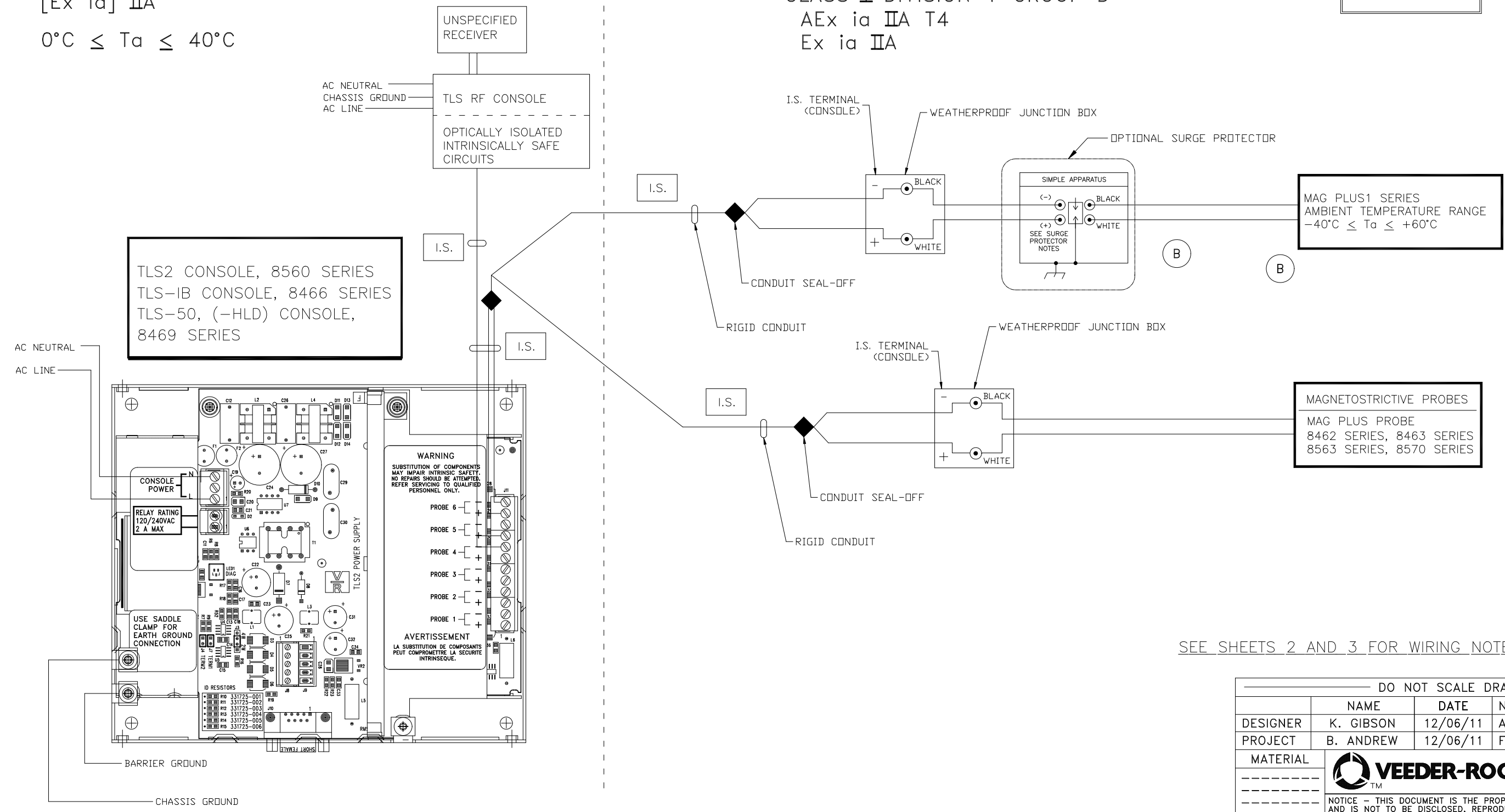
TLS-50 (-HLD)/TLS2/TLS-IB CONSOLES

[AEx ia] IIA
 [Ex ia] IIA
 0°C ≤ Ta ≤ 40°C


NON-HAZARDOUS AREA
 ASSOCIATED APPARATUS

HAZARDOUS AREA
 INTRINSICALLY SAFE (I.S.) APPARATUS
 AMBIENT TEMPERATURE RANGE
 -40°C ≤ Ta ≤ 60°C
 CLASS I ZONE 0
 CLASS I DIVISION 1 GROUP D
 AEx ia IIA T4
 Ex ia IIA

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



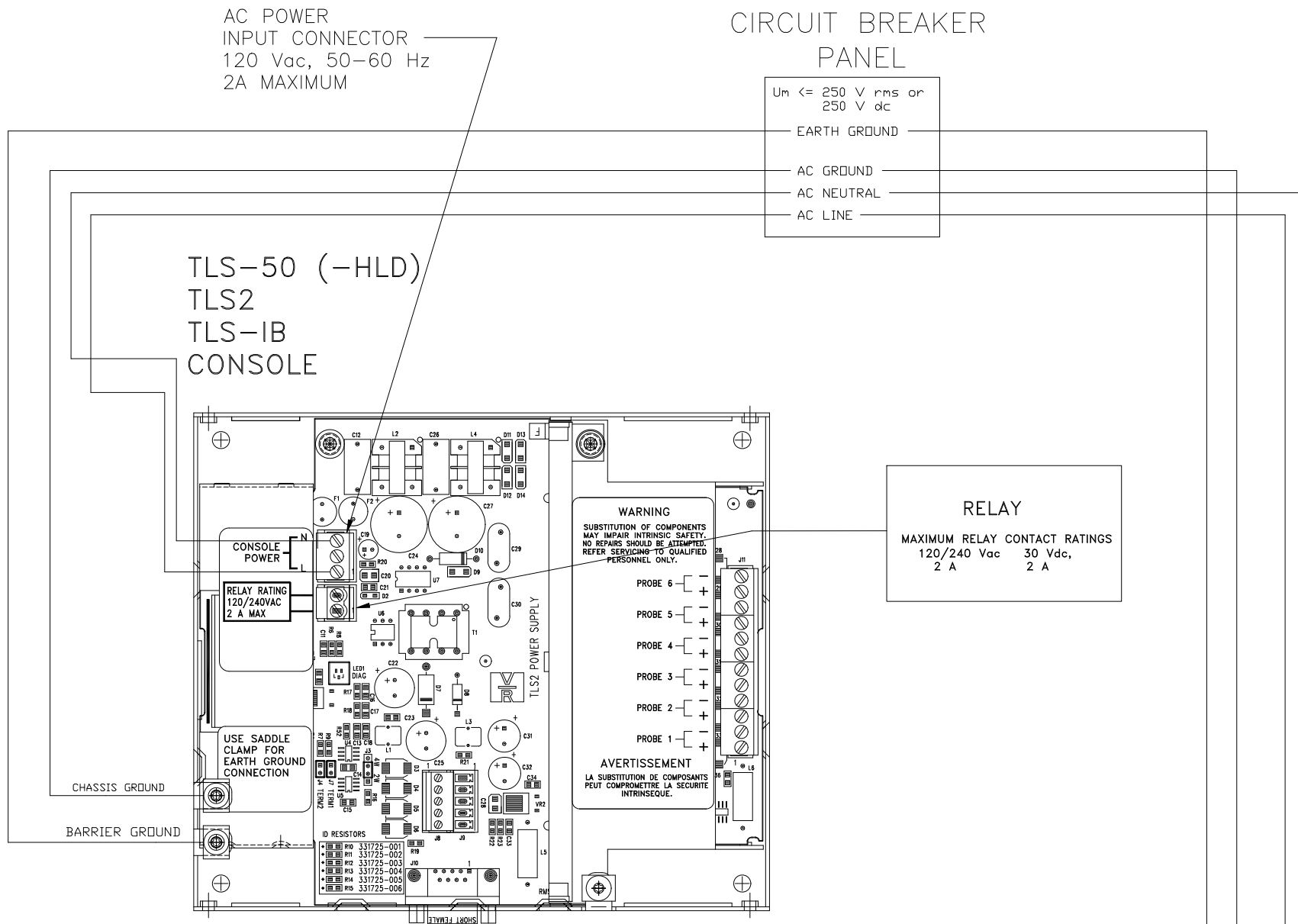
SEE SHEETS 2 AND 3 FOR WIRING NOTES AND LIMITATIONS

DO NOT SCALE DRAWING				
	NAME	DATE	NEXT GRP.	-----
DESIGNER	K. GIBSON	12/06/11	ASSEMBLY	-----
PROJECT	B. ANDREW	12/06/11	FORM NO	-----
MATERIAL	 SIMSBURY, CONNECTICUT 06070 U.S.A.			
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REFERENCE MFG. SPEC. VRS 81005 WHERE IT IS APPLICABLE	CONTROL DRAWING UL/cUL TLS-50 (-HLD), TLS2 & TLS-IB			
UNSPECIFIED TOLERANCES +/- 0.005	SIZE D	DRAWING NUMBER 331940-014	REV. B	STATUS REL
SCALE	NONE	SHEET 1	OF 3	

DESCRIPTION

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

TLS-50 (-HLD), TLS2, AND TLS-IB CONSOLES ARE IDENTIFIED BY FORM NUMBERS 8469, 8560, AND 8466 RESPECTIVELY. TLS-50 (-HLD), TLS2, AND TLS-IB CONSOLES CANNOT BE CONNECTED IN PARALLEL WITH ANOTHER TLS CONSOLE OR ANY OTHER ASSOCIATED APPARATUS. TLS-50 (-HLD), TLS2, AND TLS-IB CONSOLES AND OPTIONAL TLS RF CONSOLES MUST BE INSTALLED IN INDOOR NON-HAZARDOUS AREAS.



RELAY OUTPUT CONNECTIONS PROVIDE WIRING TERMINALS FOR THE CONNECTION OF EQUIPMENT INSTALLED IN NON-HAZARDOUS LOCATIONS. THE I.S. WIRING TERMINALS ARE FOR THE CONNECTION OF INTRINSICALLY SAFE APPARATUS.

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

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-50 (-HLD), TLS2 OR TLS-IB CONSOLE IS LIMITED TO A TOTAL OF 8,000 FEET PER CONSOLE.

EACH CABLE (OR I.S. WIRING), USED TO CONNECT INTRINSICALLY SAFE DEVICES TO THE TLS-50 (-HLD), TLS2 OR TLS-IB 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.

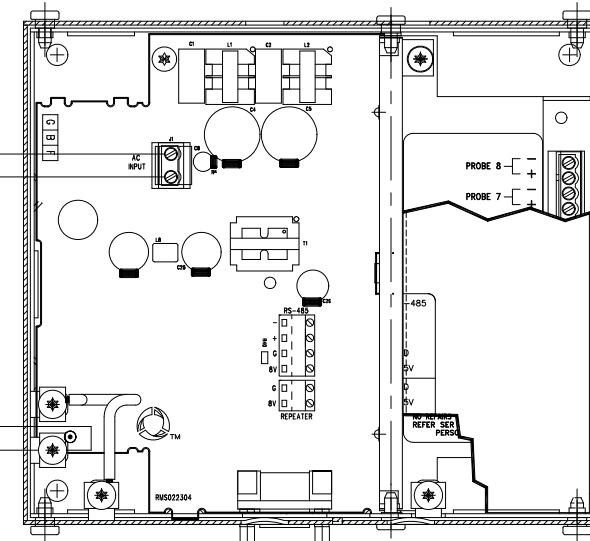
THE MAXIMUM SAFE AREA VOLTAGE (U_m) OF THIS EQUIPMENT IS 250V RMS OR DC. PERIPHERAL EQUIPMENT CONNECTED TO THE TLS-50 (-HLD), TLS2 OR TLS-IB CONSOLE MUST NOT USE OR GENERATE MORE THAN 250V RMS OR DC WITH RESPECT TO EARTH GROUND.

LIMITATIONS

A MAXIMUM OF 1 TLS-RF CONSOLE AND UP TO 8 INTRINSICALLY SAFE DEVICES MAY BE CONNECTED TO THE INTRINSICALLY SAFE COMPARTMENT OF THE TLS-50 (-HLD), TLS2 OR TLS-IB 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-50 (-HLD), TLS2 OR TLS-IB CONSOLE.

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



TLS-RF CONSOLE



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CONTROL DRAWING
UL/cUL TLS-50 (-HLD), TLS2 & TLS-IB

SIZE	DRAWING NUMBER	REV.	STATUS
D	331940-014	B	REL
SCALE	NONE	SHEET	2 OF 3

STANDARDS APPLIED

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

B

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 8/20 μ s 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.



SIMSBURY,
CONNECTICUT 06070
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CONTROL DRAWING
UL/cUL TLS-50 (-HLD), TLS2 & TLS-IB

SIZE	DRAWING NUMBER	REV.	STATUS
D	331940-014	B	REL
SCALE	NONE	SHEET	3 OF 3