

DESCRIPTIVE SYSTEM DOCUMENT FOR CERTIFICATE NUMBER IEC Ex ULD 08.0002X

TLS-50/TLS2/TLS-IB CONSOLES  
NON-HAZARDOUS AREA

HAZARDOUS AREA  
INTRINSICALLY SAFE (I.S.) APPARATUS

REV	DESCRIPTION	BY	DATE	ECO
A	INITIAL RELEASE	TB	9/11/09	CN-00507
B	REVISE NOTE 11	JCL	4/28/10	CN-01893
C	ADDED MAG PLUS1 CERTIFICATION NO.: IECEX TUN 12.0027	TB	2012/07/26	CN-05345
D	1. UPDATE GROUNDING SYMBOL. 2. ADD PROTECTIVE STRING 3. ADD CERT. No.: IECEX UL 13.0074X 4. REVISED NOTE 9. 5. REVISED NOTE 15. 6. ADD NOTE 16.	TKR	2013/10/17	CN-06776

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

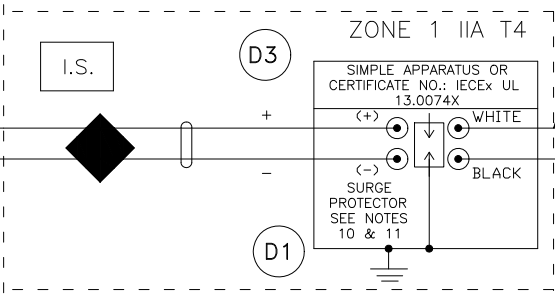
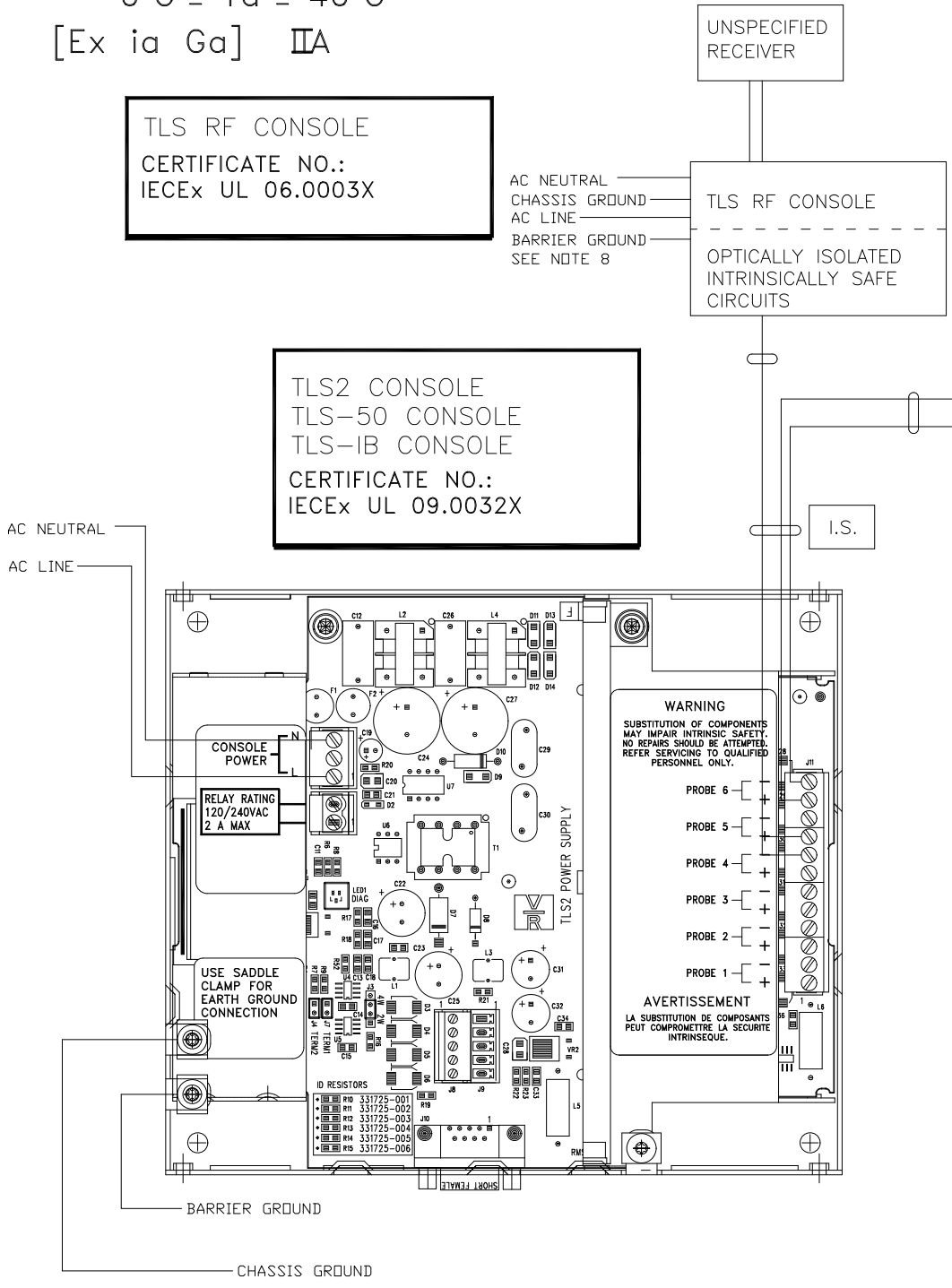
ASSOCIATED APPARATUS  
AMBIENT TEMPERATURE RANGE  
 $0^{\circ}\text{C} \leq T_a \leq 40^{\circ}\text{C}$   
[Ex ia Ga] IIA

AMBIENT TEMPERATURE RANGE  
(UNLESS NOTED)  
 $-40^{\circ}\text{C} \leq T_a \leq 60^{\circ}\text{C}$   
Ex ia IIA T4 Ga  
D2 Ex ia IIA T4 Gb  
Ex ia IIA T4 Ga/Gb  
ZONE 0 IIA T4

TLS RF CONSOLE  
CERTIFICATE NO.:  
IECEX UL 06.0003X

TLS2 CONSOLE  
TLS-50 CONSOLE  
TLS-IB CONSOLE  
CERTIFICATE NO.:  
IECEX UL 09.0032X

MAGNETOSTRICTIVE PROBES  
MAG PLUS PROBE  
8462 SERIES, 8463 SERIES  
8563 SERIES, 8570 SERIES  
CERTIFICATE NO.:  
IECEX UL 06.0001X  
MAG PLUS1 SERIES PROBE  
CERTIFICATE NO.:  
IECEX TUN 12.0027  
AMBIENT TEMPERATURE  
RANGE  $-20^{\circ}\text{C} \leq T_a \leq +60^{\circ}\text{C}$



SEE SHEET 2 FOR NOTES


DO NOT SCALE DRAWING				
	NAME	DATE	NEXT GRP.	-----
DESIGNER	T. BREEN	9/11/09	ASSEMBLY	-----
PROJECT	B. ANDREW	9/11/09	FORM NO	-----
MATERIAL	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.				
REFERENCE MFG. SPEC. VRS 81005 WHERE IT IS APPLICABLE	DESCRIPTIVE SYS DOCUMENT IECEX TLS-50, TLS2 & TLS-IB			
UNSPECIFIED TOLERANCES +/- 0.005	SIZE D	DRAWING NUMBER 331940-103	REV. D	STATUS REL
	SCALE	NONE	SHEET 1	OF 2

NOTES:

1. THE TOTAL ALLOWABLE CABLE LENGTH USED TO CONNECT ALL OF THE I.S. DEVICES TO THE ASSOCIATED APPARATUS IS 2,438 METERS OR 8,000 FEET.
2. EACH CABLE (OR WIRING) USED TO CONNECT I.S. DEVICES TO THE CONSOLE MUST NOT EXCEED A CAPACITANCE OF 328 pf/METER OR 100 pf/FOOT.
3. THE TOTAL CABLE CAPACITANCE, COMBINING ALL OF THE CABLE USED TO CONNECT THE INTRINSICALLY SAFE DEVICES TO THE ASSOCIATED APPARATUS, MUST NOT EXCEED 0,8μF.
4. EACH CABLE MUST NOT EXCEED AN INDUCTANCE OF 0,656 μH/METER OR 0,2 μH/FOOT.
5. THE L/R RATIO OF THE CABLE MUST NOT EXCEED 200 μH/OHM.
6. FOR EACH TLS CONSOLE INSTALLED THE MAXIMUM NUMBER OF I.S. DEVICES CONNECTED TO THE ASSOCIATED APPARATUS IS 8. A MAXIMUM OF TWO TLS RF CONSOLES CAN BE CONNECTED TO THE TLS2, TLS-50 AND TLS-IB CONSOLES, WHERE EACH CONNECTED TLS RF CHANNEL EQUALS ONE I.S. DEVICE.
7. NON-HAZARDOUS ASSOCIATED APPARATUS IS AS SHOWN AND MUST NOT BE SUPPLIED FROM OR CONTAIN, UNDER NORMAL OR ABNORMAL CONDITIONS, A SOURCE OF POTENTIAL WITH RESPECT TO EARTH IN EXCESS OF 250V RMS OR 250V dc, Um = 250V.
8. CONNECT THE BARRIER GROUND TO THE EARTH GROUND BUS AT THE POWER DISTRIBUTION PANEL WITH A 4 sq. mm (10 AWG) (OR LARGER) CONDUCTOR. GROUNDING MUST COMPLY WITH IEC 60079-0, CLAUSE 15.4.
- D4 9. THIS SYMBOL, ⊙ , DENOTES A FIELD WIRING CONNECTION INSIDE A WEATHERPROOF JUNCTION BOX. EACH INTRINSICALLY SAFE DEVICE MAY USE AN OPTIONAL SURGE PROTECTOR IN PLACE OF THE WEATHERPROOF JUNCTION BOX LOCATED IN ZONE 1. SURGE PROTECTORS CONSIST OF EITHER A CERTIFIED IN-LINE DEVICE, OR ARE SIMPLE APPARATUS.
10. A RISK ANALYSIS MUST BE PERFORMED TO DETERMINE IF THE INSTALLATION LOCATION IS SUSCEPTIBLE TO LIGHTNING OR OTHER SURGES. IF NECESSARY, ADD PROTECTION AGAINST LIGHTNING AND OTHER ELECTRICAL SURGES IN ACCORDANCE WITH IEC 60079-25, SECTION 10. IF REQUIRED, INSTALL A SURGE PROTECTOR IN ZONE 1 AS CLOSE AS POSSIBLE TO THE BOUNDARY WITH ZONE 0. THE SITE PREPARATION GUIDE, MANUAL NO. 577013-578, PROVIDES ADDITIONAL DETAILS ABOUT RISK ASSESSMENT.
11. IT IS THE RESPONSIBILITY OF THE INSTALLER TO DETERMINE COMPLIANCE OF SIMPLE APPARATUS. SIMPLE APPARATUS USED WITH THIS SYSTEM MUST CONFORM TO THE FOLLOWING REQUIREMENTS:
  - A) CONSTRUCTED OF PASSIVE COMPONENTS ONLY, FOR EXAMPLE, SWITCHES, JUNCTION BOXES AND RESISTORS.
  - B) CONSTRUCTED WITHOUT ANY SOURCES OF STORED ENERGY SUCH AS BATTERIES, CAPACITORS AND INDUCTORS.
  - C) CONSTRUCTED WITHOUT SOURCES OF GENERATED ENERGY THAT PRODUCE MORE THAN 1.5V, AND 25mW OR SOURCES THAT CONTAIN A MEANS OF INCREASING THE VOLTAGE.
  - D) IF CONSTRUCTED WITH A METALLIC HOUSING THE SIMPLE APPARATUS SHALL BE CAPABLE OF WITHSTANDING THE TEST VOLTAGE TO EARTH IN ACCORDANCE WITH IEC 60079-11, CLAUSE 6.3.12 AND ITS TERMINALS MUST CONFORM TO IEC 60079-11, CLAUSE 6.2.1.
  - E) NONMETALIC ENCLOSURES AND ENCLOSURES OF LIGHT METALS MUST COMPLY WITH IEC 60079-0 SECTIONS 7 & 8 AND IEC 60079-26 CLAUSE 4.3.3.
  - F) BASED ON THE AVAILABLE POWER WITHIN THE SYSTEM, SIMPLE APPARATUS THAT HAVE ELECTRICAL COMPONENTS THAT EXCEED 20 sq. mm IN TOTAL SURFACE AREA, MAY BE ASSESSED AS HAVING A T4 TEMPERATURE CODE, AT THE SPECIFIED AMBIENT TEMPERATURE RANGE OF -40°C ≤ Ta ≤ +60°C. OTHER TYPES OF SIMPLE APPARATUS MUST BE ASSESSED IN ACCORDANCE WITH IEC 60079-11, SECTION 6.2.
12. CABLE GLAND MUST BE A SUITABLE PROCESS CONNECTION IN ACCORDANCE WITH IEC 60079-26.
13. SPECIAL CONDITIONS FOR SAFE USE, AS DEFINED IN THE CERTIFICATE OF CONFORMITY AND THE SITE PREPARATION GUIDE, MANUAL NO. 577013-578, MUST BE TAKEN INTO ACCOUNT.
14. THIS SYSTEM DESCRIPTIVE DOCUMENT DESCRIBES THE INTRINSICALLY SAFE EQUIPMENT AND ASSOCIATED APPARATUS THAT TOGETHER FORM AN INTRINSICALLY SAFE SYSTEM.
- D5 15. TLS-50, TLS2 AND TLS-IB CONSOLES MUST BE INSTALLED IN AN INDOOR, NON-HAZARDOUS AREA IN ACCORDANCE WITH THE DESCRIPTIVE SYSTEM DOCUMENT AND THE INSTALLATION INSTRUCTIONS. ONLY ONE TLS-50, TLS-2, TLS-IB CONSOLE CAN BE CONNECTED TO ANY SINGLE INTRINSICALLY SAFE APPARATUS AS DESCRIBED ON SHEET ONE OF THIS DOCUMENT. MULTIPLE SOURCES OF POWER, ADDITIONAL TLS CONSOLES OR OTHER ASSOCIATED APPARATUS, CANNOT BE CONNECTED TO THE SAME INTRINSICALLY SAFE APPARATUS.
- D6 16. THE MAG PLUS1 SERIES PROBES MARKED Ex ia IIB T4 OR Ex ia IIC T4, WHEN USED WITHIN THIS SYSTEM THE DEVICE IS LIMITED TO GROUP IIA.

STANDARDS:

[Ex ia Ga], GROUP IIA, T4	
IEC 60079-0	ELECTRICAL APPARATUS FOR POTENTIALLY EXPLOSIVE ATMOSPHERES-PART 0: GENERAL REQUIREMENTS
IEC 60079-11	ELECTRICAL APPARATUS FOR POTENTIALLY EXPLOSIVE ATMOSPHERES-PART 11: INTRINSIC SAFETY "I"
IEC 60079-25	ELECTRICAL APPARATUS FOR EXPLOSIVE GAS ATMOSPHERES-PART 25: INTRINSICALLY SAFE SYSTEMS
IEC 60079-26	ELECTRICAL APPARATUS FOR EXPLOSIVE GAS ATMOSPHERES - PART 26: CONSTRUCTION, TEST AND MARKING OF GROUP II ZONE 0 ELECTRICAL APPARATUS

		SIMSBURY, CONNECTICUT 06070 U.S.A.	
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DESCRIPTIVE SYS DOCUMENT IECEX TLS-50, TLS2 & TLS-IB			
SIZE	DRAWING NUMBER	REV.	STATUS
D	331940-103	D	REL
SCALE	NONE	SHEET	2 OF 2