

DESCRIPTIVE SYSTEM DOCUMENT FOR CERTIFICATE NUMBER:  
DEMKO 06 ATEX 137480X

AMBIENT TEMPERATURE RANGE  
0°C ≤ Ta ≤ 40°C

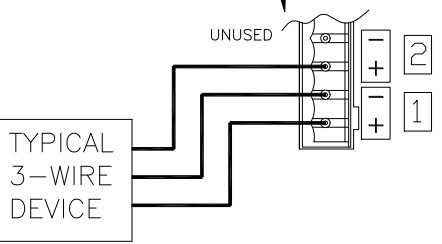
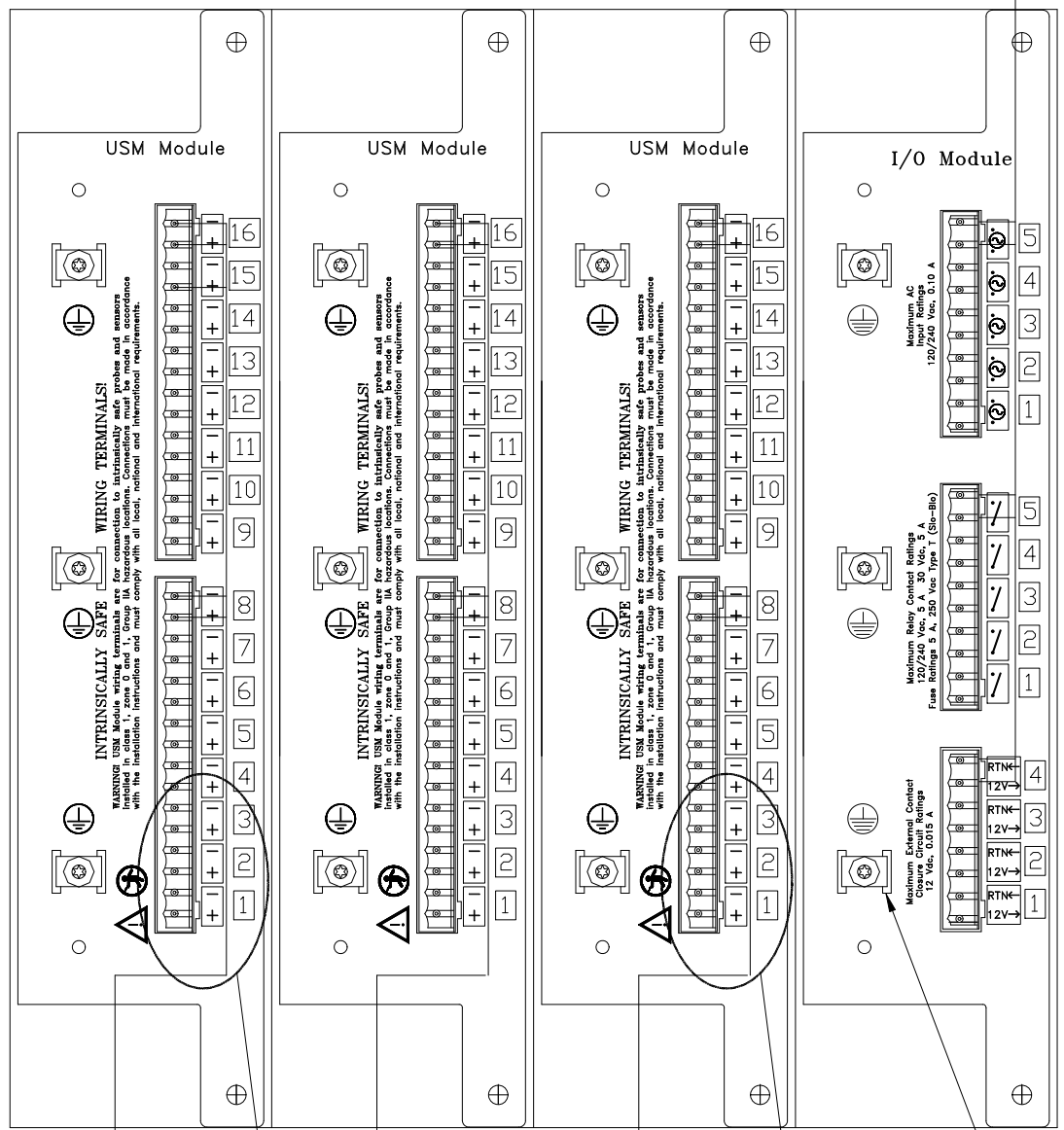
II (1) G [Ex ia] IIA

TLS-450 CONSOLE  
CERTIFICATE NO.:  
DEMKO 07 ATEX 16184X

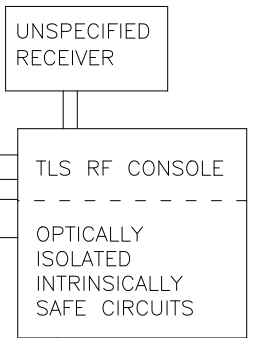
NON-HAZARDOUS AREA

ASSOCIATED APPARATUS  
TLS RF CONSOLE  
CERTIFICATE NOS.:  
DEMKO 06 ATEX 137478X

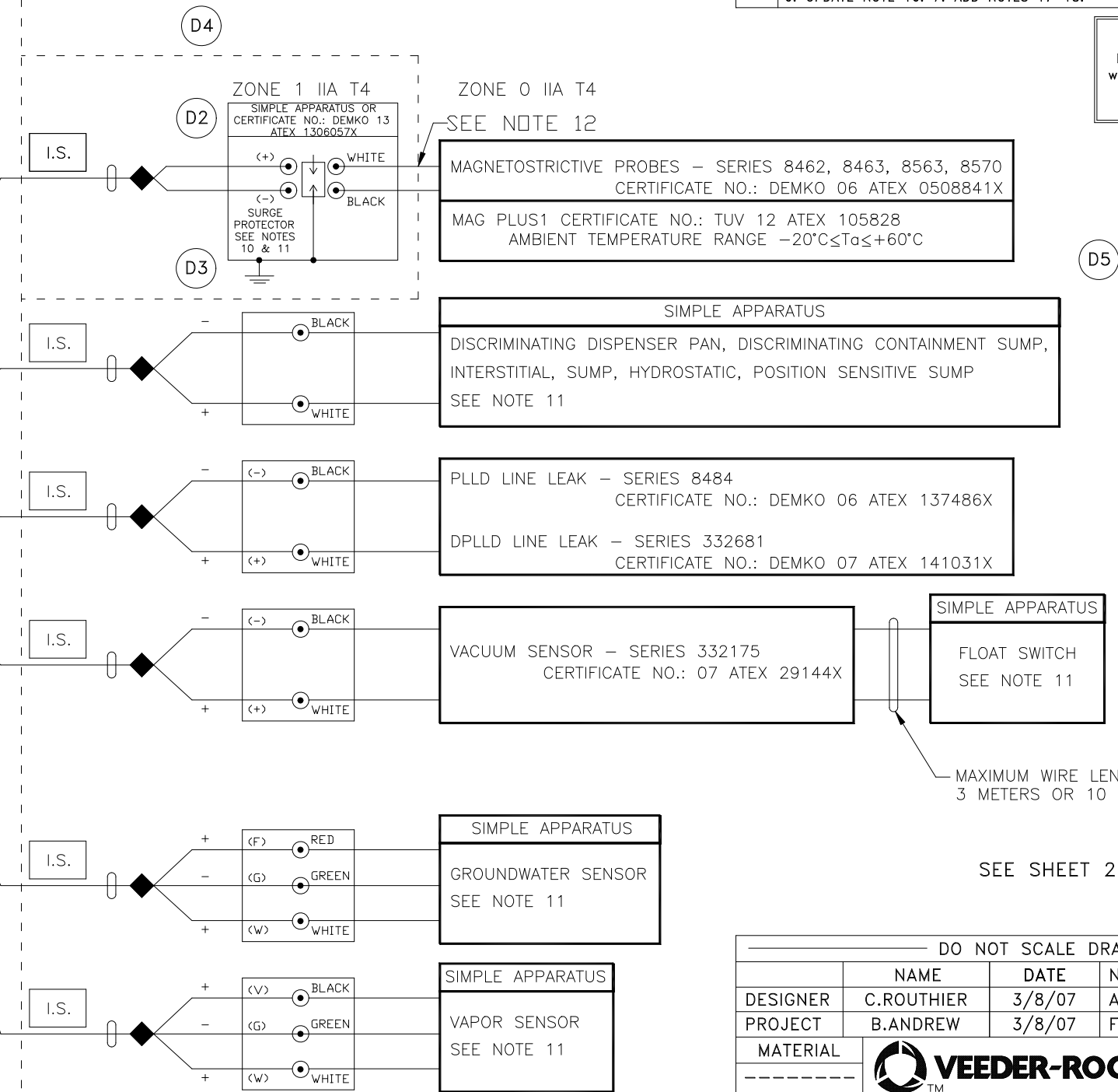
TLS-450 CONSOLE



TERMINATION POINTS FOR SHIELDED CABLE



HAZARDOUS AREA  
INTRINSICALLY SAFE (I.S.) APPARATUS  
AMBIENT TEMPERATURE RANGE  
(UNLESS NOTED)  
-40°C ≤ Ta ≤ 60°C  
II 1 G Ex ia IIA T4  
II 2 G Ex ia IIA T4  
II 1/2 G Ex ia IIA T4



REV	DESCRIPTION	BY	DATE	ECO
A	INITIAL RELEASE	CAR	8/16/07	T374-064
B	ADDED SURGE PROTECTOR; REMOVED OPTICAL DISC. SOLID STATE SENSOR AND OPTICAL MICROSENSOR; UPDATED NOTES 8, 10, AND 11	KG	4/26/12	CN-04987
C	ADDED MAG PLUS1 CERTIFICATION NO.: TUV 12 ATEX 105828	TB	2012/07/26	CN-05344
D	1. ADD II 2...T4 AND II 1/2...T4. 2. ADD CERT. NO...1306057X. 3. UPDATE GROUNDING SYMBOL. 4. UPDATE DASHED LINES 5. REMOVE SIMPLE APPARATUS, SEE PREVIOUS REV 6. UPDATE NOTE 16. 7. ADD NOTES 17-18.	TKR	2014/3/25	CN-06775

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

MAGNETOSTRICTIVE PROBES - SERIES 8462, 8463, 8563, 8570  
CERTIFICATE NO.: DEMKO 06 ATEX 0508841X  
MAG PLUS1 CERTIFICATE NO.: TUV 12 ATEX 105828  
AMBIENT TEMPERATURE RANGE -20°C ≤ Ta ≤ +60°C

DISCRIMINATING DISPENSER PAN, DISCRIMINATING CONTAINMENT SUMP,  
INTERSTITIAL, SUMP, HYDROSTATIC, POSITION SENSITIVE SUMP  
SEE NOTE 11

PLLD LINE LEAK - SERIES 8484  
CERTIFICATE NO.: DEMKO 06 ATEX 137486X  
DPLLD LINE LEAK - SERIES 332681  
CERTIFICATE NO.: DEMKO 07 ATEX 141031X

VACUUM SENSOR - SERIES 332175  
CERTIFICATE NO.: 07 ATEX 29144X  
SIMPLE APPARATUS  
FLOAT SWITCH  
SEE NOTE 11

GROUNDWATER SENSOR  
SEE NOTE 11

VAPOR SENSOR  
SEE NOTE 11

MAXIMUM WIRE LENGTHS:  
3 METERS OR 10 FEET.

SEE SHEET 2 FOR NOTES

DO NOT SCALE DRAWING				
DESIGNER	NAME	DATE	NEXT GRP.	
C.ROUTHIER	C.ROUTHIER	3/8/07	ASSEMBLY	
B.ANDREW	B.ANDREW	3/8/07	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 UNspecified TOLERANCES +/- N/A				
DESIGNER		DESCRIPTIVE SYS DOCUMENT ATEX TLS-450 CONSOLES		
SIZE	DRAWING NUMBER		REV.	STATUS
D	331940-006		D	REL
SCALE	NONE		SHEET	1 OF 2

NOTES:

1. THE TOTAL ALLOWABLE CABLE LENGTH USED TO CONNECT UP TO 16 I.S. DEVICES TO EACH USM MODULE IS 7,315 METERS OR 24,000 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 EACH USM MODULE, MUST NOT EXCEED 5,0μF.
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-450 CONSOLE INSTALLED, THE MAXIMUM NUMBER OF I.S. DEVICES CONNECTED TO EACH ASSOCIATED APPARATUS IS 64. A MAXIMUM OF TWO TLS RF CONSOLES CAN BE CONNECTED TO A UNIVERAL SENSOR MODULE (USM) MODULE, 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 EN 60079-14, CLAUSE TITLED "EARTHING OF INTRINSICALLY SAFE CIRCUITS."
9. THIS SYMBOL, ⊙, DENOTES A FIELD WIRING CONNECTION INSIDE A WEATHERPROOF JUNCTION BOX.
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 EN 60079-25, SECTION TITLED "PROTECTION AGAINST LIGHTNING AND OTHER ELECTRICAL SURGES." 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 EN 60079-11, CLAUSE TITLED "DIELECTRIC STRENGTH REQUIRMENT" AND ITS TERMINALS MUST CONFORM TO EN 60079-11, CLAUSE 6.2.
  - E) NON-METALIC ENCLOSURES AND ENCLOSURES OF LIGHT METALS MUST COMPLY WITH EN 60079-0 SECTIONS 7 & 8 AND EN 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 EN 60079-11, SECTION TITLED "SIMPLE APPARATUS".
  - G) SIMPLE APPARATUS SHALL NOT CONTAIN ANY MEANS OF INCREASING THE AVAILABLE VOLTAGE OR CURRENT, FOR EXAMPLE DC TO DC CONVERTERS.
12. CABLE GLAND MUST BE A SUITABLE PROCESS CONNECTION IN ACCORDANCE WITH EN 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. ANY COMBINATION OF UP TO FOUR MODULES MAY BE INSTALLED IN ANY SINGLE CONSOLE.

MODULE TYPES:


- A) I/O MODULES PROVIDE WIRING TERMINALS FOR THE CONNECTION OF EQUIPMENT IN NON-HAZARDOUS LOCATIONS.
- B) SENSOR (USM) MODULES PROVIDE WIRING TERMINALS FOR THE CONNECTION OF INTRINSICALLY SAFE EQUIPMENT.

15. THIS SYSTEM DESCRIPTIVE DOCUMENT DESCRIBES THE INTRINSICALLY SAFE EQUIPMENT AND ASSOCIATED APPARATUS THAT TOGETHER FORM AN INTRISICALLY SAFE SYSTEM.
- (D6)** 16. TLS-450 CONSOLES MUST BE INSTALLED IN AN INDOOR, NON-HAZARDOUS AREA IN ACCORDANCE WITH THE DESCRIPTIVE SYSTEM DOCUMENT AND THE INSTALLATION INSTRUCTIONS. ONLY ONE TLS-450 CONSOLE CAN BE CONNECTED TO ANY SINGLE INSTRINSICALLY 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.
- (D7)** 17. 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.
18. REFERENCE THE DEVICE CERTIFICATION FOR APPLICABLE STANDARD EDITIONS.

STANDARDS:

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

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

		SIMSBURY, CONNECTICUT 06070 U.S.A.	
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DESCRIPTIVE SYS DOCUMENT ATEX TLS-450 CONSOLES			
SIZE	DRAWING NUMBER	REV.	STATUS
D	331940-006	D	REL
SCALE	NONE	SHEET	2 OF 2