| REV | DESCRIPTION | BY | DATE | ECO |
|---|---|---|---|---|
| D | ADDED MAG PLUS1 CERTIFICATION NO.: TUV 12 ATEX 105828 | TB | 2012/07/26 | CN-05344 |
| E | 1. ADD II 2...IIA AND II 1/2...IIA 2. ADD CERT. NO...1306057X. 3. UPDATE GROUNDING SYMBOL. 4. ADD NOTES 14-17. | TKR | 2013/10/17 | CN-06775 |

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

HAZARDOUS AREA

INTRINSICALLY SAFE (I.S.) APPARATUS

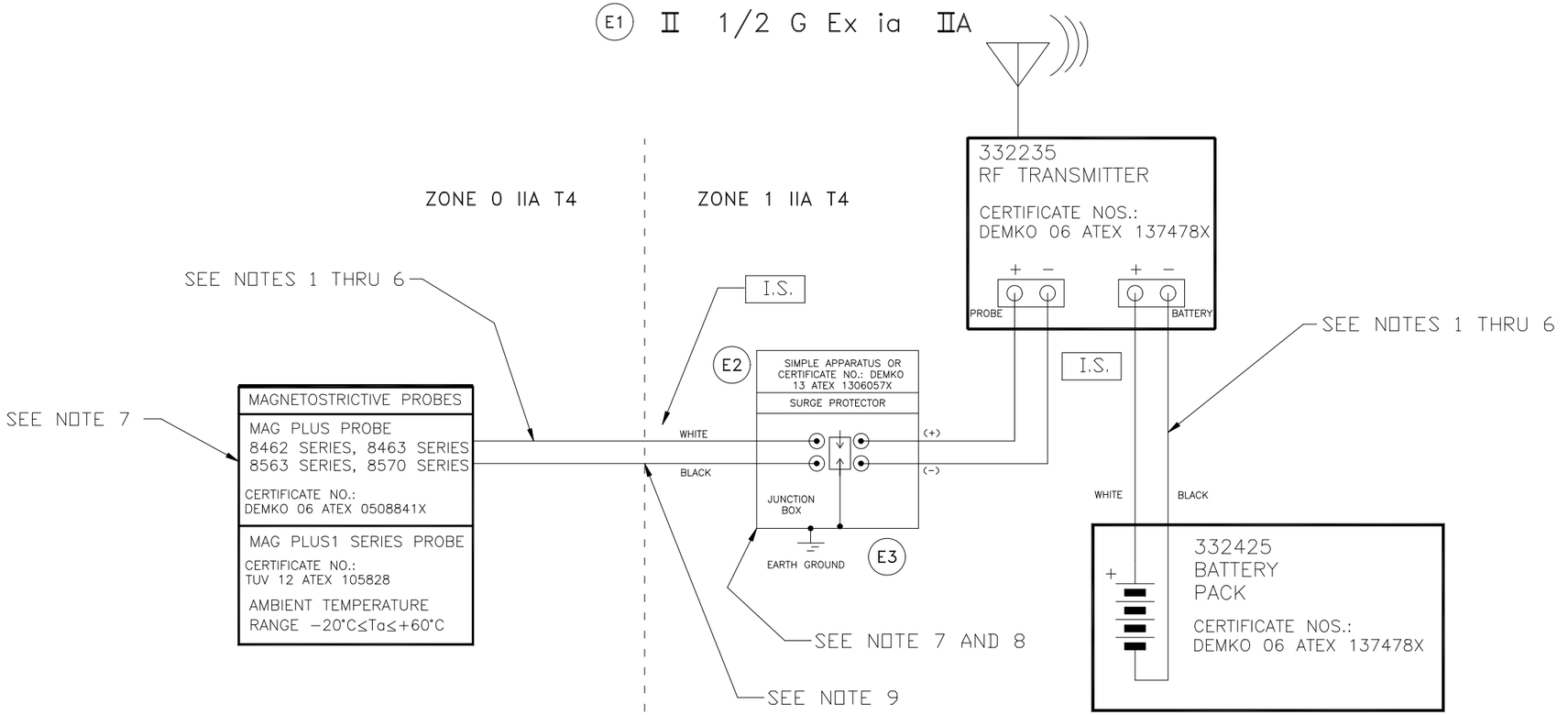
## TLS RADIO GROUP

AMBIENT TEMPERATURE RANGE
(UNLESS NOTED)
$-40°C \leq Ta \leq 60°C$

Ex II 1 G Ex ia IIA
II 2 G Ex ia IIA
E1 II 1/2 G Ex ia IIA

Certified Product

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




SEE SHEET 2 FOR NOTES

DO NOT SCALE DRAWING

| | NAME | DATE | NEXT GRP. | ---------- |
|---|---|---|---|---|
| DESIGNER | C. ROUTHIER | 2/19/04 | ASSEMBLY | ---------- |
| PROJECT | J. BEVINS | 2/19/04 | FORM NO | ---------- |

MATERIAL
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VEEDER-ROOT™ SIMSBURY, CONNECTICUT 06070 U.S.A.



REFERENCE MFG. SPEC. VRS 81005 WHERE IT IS APPLICABLE

UNSPECIFIED TOLERANCES +/− 0.005

DESCRIPTIVE SYS DOCUMENT
ATEX TLS RADIO GROUP

| SIZE | DRAWING NUMBER | REV. | STATUS |
|---|---|---|---|
| D | 331940-005 | E | REL |

SCALE NONE SHEET 1 OF 2

NOTES:

1. THE MAXIMUM CABLE LENGTH CONNECTING THE BATTERY PACK TO THE RF TRANSMITTER SHALL NOT EXCEED 7.62 METERS OR 25 FEET.

2. A MAXIMUM CABLE LENGTH OF 152 METERS OR 500 FEET IS ALLOWED TO CONNECT ANY SINGLE I.S. DEVICE TO THE RF TRANSMITTER. THE TOTAL ALLOWABLE CABLE LENGTH USED TO CONNECT ALL OF THE I.S. DEVICES TO THE RF TRANSMITTER IS 305 METERS OR 1,000 FEET.

3. EACH CABLE (OR WIRING) USED TO CONNECT I.S. DEVICES TO THE RF TRANSMITTER MUST NOT EXCEED A CAPACITANCE OF 328 pf/METER OR 100 pf/FOOT.

4. THE TOTAL CABLE CAPACITANCE, COMBINING ALL OF THE CABLE USED TO CONNECT THE INTRINSICALLY SAFE DEVICES TO THE ASSOCIATED APPARATUS, MUST NOT EXCEED 0,1$\mu$F.

5. EACH CABLE MUST NOT EXCEED AN INDUCTANCE OF 0,656 $\mu$H/METER OR 0,2 $\mu$H/FOOT.

6. THE L/R RATIO OF THE CABLE MUST NOT EXCEED 200 $\mu$H/OHM.

7. 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.

8. 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 REQUIREMENT" 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 $-40°C \leq Ta \leq +60°C$. OTHER TYPES OF SIMPLE APPARATUS MUST BE ASSESSED IN ACCORDANCE WITH EN 60079-11, CLAUSE TITLED "SIMPLE APPARATUS."

   G) SIMPLE APPARATUS SHALL NOT CONTAIN ANY MEANS OF INCREASING THE AVAILABLE VOLTAGE OR CURRENT, FOR EXAMPLE DC TO DC CONVERTERS.

9. CABLE GLAND MUST BE A SUITABLE PROCESS CONNECTION IN ACCORDANCE WITH EN 60079-26.

10. SPECIAL CONDITIONS FOR SAFE USE, AS APPLICABLE AND AS DEFINED IN THE CERTIFICATE OF CONFORMITY AND THE SITE PREPARATION GUIDE, MANUAL NO. 577013-578, MUST BE TAKEN INTO ACCOUNT.

11. THIS SYSTEM DESCRIPTIVE DOCUMENT DESCRIBES THE INTRINSICALLY SAFE EQUIPMENT AND ASSOCIATED APPARATUS THAT TOGETHER FORM AN INTRINSICALLY SAFE SYSTEM.

12. THE RF TRANSMITTER IS IDENTIFIED BY FORM NO. 332235. THE BATTERY PACK IS IDENTIFIED BY FORM NO. 332425. THE BATTERY PACK CANNOT BE CONNECTED IN PARALLEL WITH ANOTHER BATTERY PACK OR ANY OTHER SOURCE OF ELECTRICAL POWER.

13. REFERENCE THE DEVICE CERTIFICATION FOR APPLICABLE STANDARD EDITIONS.

(E4) 14. 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.

15. TLS RADIO CONSOLES MUST BE INSTALLED IN AN INDOOR, NON-HAZARDOUS AREA IN ACCORDANCE WITH THE DESCRIPTIVE SYSTEM DOCUMENT AND THE INSTALLATION INSTRUCTIONS. ONLY ONE TLS RADIO 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.

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.

17. 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 |

VEEDER-ROOT™ SIMSBURY, CONNECTICUT 06070 U.S.A.



# DESCRIPTIVE SYS DOCUMENT ATEX TLS RADIO GROUP

| SIZE | DRAWING NUMBER | REV. | STATUS |
|---|---|---|---|
| D | 331940-005 | E | REL |

SCALE NONE SHEET 2 OF 2