

SYSTEM DESCRIPTIVE DOCUMENT FOR CERTIFICATE NUMBER:  
 DEMKO 17 ATEX 1889X  
 IECEx UL 17.0054X  
 UL22UKEX2389X

REV	DESCRIPTION	BY	DATE	ECO
B	REVISED PER AGENCY REQUEST	CT	2018-06-01	CN-19925
C	UPDATES TO NOTES 8, 9, & 12	KG	2018-06-12	CN-20005
D	REMOVED REMOTE PULSER FROM NOTE 10 ON SHEET 2; ADDED UKCA MARK	KG	2022-12-02	70401

ELECTRONIC METER REGISTER

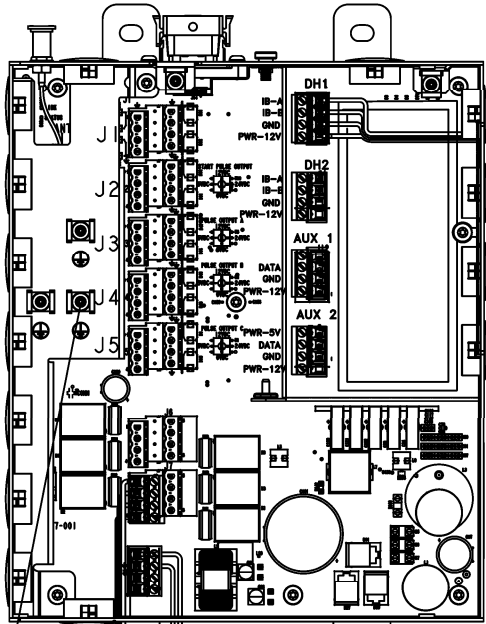
Ex II (1) G [Ex ia Ga] IIA  
 [Ex ia Ga] IIA

EMR4 (IB)  
 INTERCONNECTION BOX  
 8457 SERIES  
 CERTIFICATE NO.:  
 DEMKO 17 ATEX 1889X  
 IECEx UL 17.0054X  
 UL22UKEX2389X

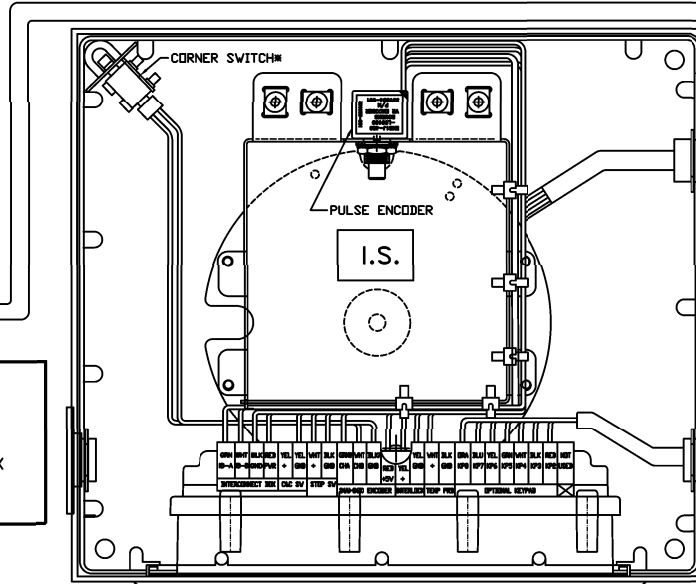
NON-HAZARDOUS AREA  
 ASSOCIATED APPARATUS

HAZARDOUS AREA  
 INTRINSICALLY SAFE (I.S.) APPARATUS

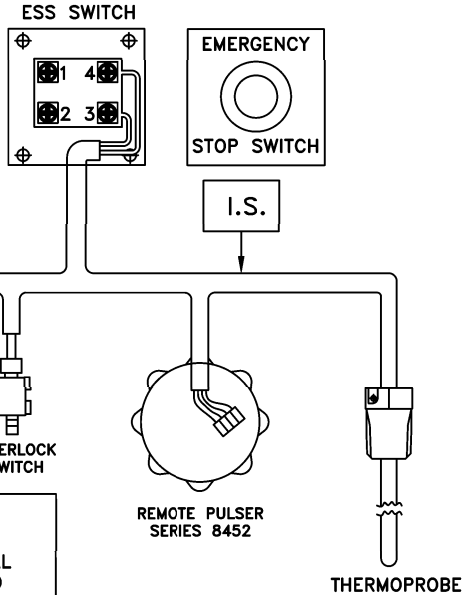
Ex II 1 G Ex ia IIA T4 Ga  
 Ex ia IIA T4 Ga



DISPLAY HEAD #1  
 8455 SERIES  
 CERTIFICATE NO.:  
 DEMKO 17 ATEX 1889X  
 IECEx UL 17.0054X  
 UL22UKEX2389X



\*CORNER SWITCH METER MOUNTED ONLY, SEE SHEET 3 FOR REMOTE DISPLAY SWITCH.



I.S. INDICATES  
 INTRINSICALLY SAFE  
 CONNECTIONS

Ex PRODUCT - SCHEDULE  
 No changes permitted without reference  
 to the "Notified Body (NB)".  
 Reference EP-81034-169

NOTES: SEE SHEET 2  
 WIRE TABLE: SEE SHEET 3

+12/24 VDC  
 5 AMP MAX.  
 DC GROUND

UNSPECIFIED  
 EQUIPMENT

BARRIER  
 GROUND  
 CONNECTION

DO NOT SCALE DRAWING			
NAME	DATE	NEXT GRP.	
DESIGNER T. BREEN	2017/01/26	ASSEMBLY	
PROJECT B. ANDREW	2017/01/26	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	SYSTEM DESCRIPTIVE DOCUMENT ATEX/IECEx EMR4		
UNSPECIFIED TOLERANCES +/- 0.005	SIZE D	DRAWING NUMBER 331940-022	REV. D STATUS REL
	SCALE NONE	SHEET 1	OF 3

**NOTES:**


1. EACH CABLE RUN (OR WIRING) USED TO CONNECT I.S. DEVICES TO THE IB MUST NOT EXCEED A RATED CAPACITANCE OF 328 pf/METER OR 100 pf/FOOT.
2. EACH CABLE RUN MUST NOT EXCEED A RATED INDUCTANCE OF 0,656  $\mu$ H/METER OR 0,2  $\mu$ H/FOOT.
3. INTERCONNECTING CABLE SHALL HAVE A MINIMUM RESISTANCE OF 6.35m $\Omega$  PER FOOT.
4. DELETED.
5. INTRINSICALLY SAFE DEVICE CONNECTIONS: CONNECT ONLY 1 ELECTRONIC METER REGISTER DISPLAY HEAD OR REMOTE DISPLAY TO DH1 TERMINALS. CONNECT ONLY 1 ELECTRONIC METER REGISTER DISPLAY HEAD OR REMOTE DISPLAY TO DH2 TERMINALS.
6. NON-HAZARDOUS AREA APPARATUS WHICH IS UNSPECIFIED EXCEPT THAT IT 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.
7. CONNECT THE BARRIER GROUND TO THE EARTH GROUND BUS AT THE POWER DISTRIBUTION PANEL WITH 4 sq mm (10 AWG) OR LARGER CONDUCTOR. GROUNDING MUST COMPLY WITH EN 60079-14, CLAUSE 6.3.
8. A MAXIMUM CABLE LENGTH OF 305 METERS OR 1,000 FEET IS ALLOWED TO CONNECT ANY SINGLE I.S. DEVICE TO THE ASSOCIATED APPARATUS. THE TOTAL ALLOWABLE CABLE LENGTH USED TO CONNECT ALL OF THE I.S. DEVICES TO THE ASSOCIATED APPARATUS IS 610 METERS OR 2,000 FEET. FOR CABLE LIMITATIONS BETWEEN THE EMR4 DISPLAY HEAD AND THE EMERGENCY STOP SWITCH, CORNER AND/OR C&C SWITCH, THERMOPROBE, PULSE ENCODER, REMOTE PULSER AND THE KEY PAD SEE TABLE "EMR4 I.S.CABLE AND WIRE DESCRIPTIONS" ON SHEET 3.
9. 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.
10. THE AMBIENT TEMPERATURE RANGE FOR THE INTERCONNECT BOX IS -25°C TO +40°C. THE AMBIENT TEMPERATURE FOR THE DISPLAY HEAD, EMERGENCY STOP SWITCH, THERMOPROBE, CORNER AND/OR C&C SWITCH, INTERLOCK SWITCH ROTARY PULSE ENCODER, AND KEYPAD IS -40°C TO +60°C. AMBIENT TEMPERATURE FOR THE REMOTE PULSER IS -25°C TO +70°C.
11. SPECIAL CONDITIONS, SAFE USE, AS APPLICABLE AND AS DEFINED ON THE CERTIFICATES, INSTALLATION INSTRUCTIONS AND THE SYSTEM DESCRIPTIVE DOCUMENT, 331940-022, MUST BE TAKEN INTO ACCOUNT.  

THE EMR DISPLAY HEAD, REMOTE DISPLAY HEAD, KEYPAD, PULSE ENCODER, THERMOPROBE, ESS SWITCH AND CORNER SWITCH CONTAIN ALUMINUM. CARE MUST BE TAKEN TO AVOID IGNITION HAZARDS DUE TO IMPACT OR FRICTION.
12. THIS SYSTEM DESCRIPTIVE DOCUMENT DESCRIBES THE INTRINSICALLY SAFE EQUIPMENT AND ASSOCIATED APPARATUS THAT TOGETHER FORM AN INTRINSICALLY SAFE SYSTEM.
13. EMR4 IB BOXES MUST BE INSTALLED IN AN INDOOR, NON-HAZARDOUS AREA IN ACCORDANCE WITH THE DESCRIPTIVE SYSTEM DOCUMENT AND THE INSTALLATION INSTRUCTIONS. AN EMR4 IB CAN BE CONNECTED TO ANY INTRINSICALLY SAFE APPARATUS AS DESCRIBED ON SHEET ONE OF THIS DOCUMENT. MULTIPLE SOURCES OF POWER, ADDITIONAL EMR4 IB BOXES OR OTHER ASSOCIATED APPARATUS, CANNOT BE CONNECTED TO THE SAME INTRINSICALLY SAFE APPARATUS.

**STANDARDS:**

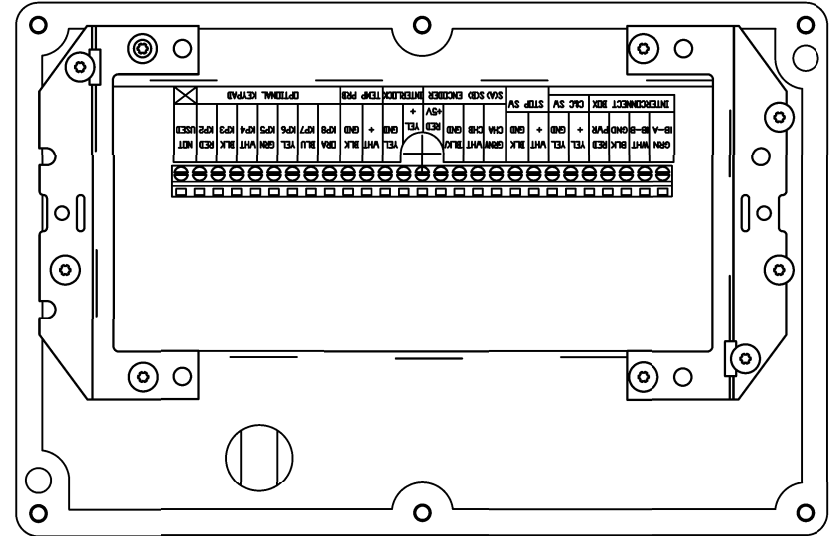
IEC 60079-0	ELECTRICAL APPARATUS FOR POTENTIALLY EXPLOSIVE ATMOSPHERES-PART 0: GENERAL REQUIREMENTS, 6TH EDITION
IEC 60079-11	ELECTRICAL APPARATUS FOR POTENTIALLY EXPLOSIVE ATMOSPHERES-PART 11: INTRINSIC SAFETY "I", 6TH EDITION
IEC 60079-25	ELECTRICAL APPARATUS FOR EXPLOSIVE GAS ATMOSPHERES-PART 25: INTRINSICALLY SAFE SYSTEMS, 2ND EDITION
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

FOR I.S. CABLE AND WIRE DESCRIPTIONS SEE SHEET 3

		SIMSBURY, CONNECTICUT 06070 U.S.A.	
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<b>SYSTEM DESCRIPTIVE DOCUMENT</b> <b>ATEX/IECEX EMR4</b>			
SIZE	DRAWING NUMBER	REV.	STATUS
D	331940-022	D	REL
SCALE	NONE	SHEET	2 OF 3

**EMR4 I.S. CABLE AND WIRE DESCRIPTIONS**

<u>SIMPLE APPARATUS</u>	<u>MAXIMUM LENGTH</u>	<u>TYPE</u>
THERMOPROBE	7,620 mm 25 FT	EXTERNAL CABLE, 2 CONDUCTOR
REMOTE PULSER	10,668 mm 35 FT	EXTERNAL CABLE, 4 CONDUCTOR
CORNER, INTERLOCK OR C&C SWITCH	7,620 mm 25 FT	INTERNAL WIRE, 2 CONDUCTOR
OPTIONAL KEYPAD	915 mm 3 FT	INTERNAL WIRE, 7 CONDUCTOR
EMERGENCY STOP SW	7,620 mm 25 FT	EXTERNAL CABLE, 2 CONDUCTOR
DISPLAY HEAD OR REMOTE DISPLAY HEAD	305 METERS 1000 FT	EXTERNAL CABLE, 4 CONDUCTOR



**REMOTE DISPLAY HEAD  
(BODY REMOVED FOR CLARITY)  
WIRING IDENTICAL TO DISPLAY HEAD**

<b>WIRE TABLE</b>							
<b>IB BOX CABLE CONNECTIONS</b>		<b>PULSE ENCODER WIRE CONNECTIONS</b>		<b>KEYPAD CABLE CONNECTIONS</b>		<b>INTERLOCK SWITCH AND CORNER SWITCH CABLE CONNECTIONS</b>	
SIGNAL	WIRE COLOR	SIGNAL	WIRE COLOR	SIGNAL	WIRE COLOR	SIGNAL	WIRE COLOR
PWR	RED	+5V	RED	KP2	RED	GND	YELLOW
GND	BLACK	GND	BLACK	KP3	BLACK	CCS	YELLOW
IB-B	WHITE	CHB	WHITE	KP4	WHITE		
IB-A	GREEN	CHA	GREEN	KP5	GREEN		
<b>ESS (OPTIONAL) SWITCH CONNECTIONS</b>		<b>THERMOPROBE (OPTIONAL) CABLE CONNECTIONS</b>		KP6	YELLOW		
SIGNAL	WIRE COLOR	SIGNAL	WIRE COLOR	KP7	BLUE		
GND	BLACK	TP	BLACK	KP8	ORANGE		
ESS	WHITE	TP	WHITE				

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**SYSTEM DESCRIPTIVE DOCUMENT  
ATEX/IECEX EMR4**

SIZE	DRAWING NUMBER	REV.	STATUS
D	331940-022	D	REL
SCALE	NONE	SHEET	3 OF 3