CONFIDENTIAL AND PROPRIETARY INFORMATION IS CONTAINED HEREIN AND MUST BE HANDLED ACCORDINGLY

REVISIONS

REV	DESCRIPTION	CHG. NO.	APP'D	DATE
AD	UPDATE CAPACITANCE AND INDUCTANCE CABLE PARAMETERS, PGS 3 & 4	RTC1058148	J.B.	10/22/13
AE	UPDATE CABLE PARAMETERS, MOVE TABLE TO SHEET 2. DELETE TABLES ON SHEETS 3 AND 4	RTC1066926	J.D.H.	11/23/16

ENTITY APPROVALS FOR MODELS 3051ERS & 300ERS

OUTPUT CODE A (4-20 mA HART) I.S. SEE SHEETS 2-3
REMOTE DISPLAY (4-20 mA HART) I.S. SEE SHEET 4
ALL OUTPUT CODES NONINCENDIVE SEE SHEET 5

THE ROSEMOUNT TRANSMITTERS LISTED ABOVE ARE F.M. APPROVED AS INTRINSICALLY SAFE WHEN USED IN CIRCUIT WITH F.M. APPROVED BARRIERS WHICH MEET THE ENTITY PARAMETERS LISTED IN THE CLASS I, II, AND III, DIVISION 1 GROUPS INDICATED.

TO ASSURE AN INTRINSICALLY SAFE SYSTEM, THE TRANSMITTER AND BARRIER MUST BE WIRED IN ACCORDANCE WITH THE BARRIER MANUFACTURER'S FIELD WIRING INSTRUCTIONS AND THE APPLICABLE CIRCUIT DIAGRAM.

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UNLESS OTHERWISE SPECIFIED DIMENSIONS IN INCHES [mm]. REMOVE ALL BURRS AND SHARP EDGES. MACHINE SURFACE FINISH 125

-TOLERANCE-
.X ± .1 [2,5]
.XX ± .02 [0,5]
.XXX ± .010 [0,25]
FRACTIONS ± 1/32
ANGLES ± 2°

DO NOT SCALE PRINT

CONTRACT NO.

DR. Myles Lee Miller 10/28/10

CHK'D

APP'D. A.J.W.

APP'D. GOVT.

EMERSON Process Management

ROSEMOUNT®
8200 Market Boulevard • Chanhassen, MN 55317 USA

TITLE
INDEX OF I.S. & NONINCENDIVE F.M. FOR 3051ERS

SIZE A | FSCM NO | DWG NO. 03151-1306

SCALE N/A | WT. ——— | SHEET 1 OF 6

Form Rev A/C

REVISIONS				
REV	DESCRIPTION	CHG. NO.	APP'D	DATE
AE				

ENTITY CONCEPT APPROVALS

THE ENTITY CONCEPT ALLOWS INTERCONNECTION OF INTRINSICALLY SAFE APPARATUS TO ASSOCIATED APPARATUS NOT SPECIFICALLY EXAMINED IN COMBINATION AS A SYSTEM. THE APPROVED VALUES OF MAX. OPEN CIRCUIT VOLTAGE (Voc, Uo OR Vt) AND MAX. SHORT CIRCUIT CURRENT (Isc, Io, OR It) AND MAX. POWER Po(Voc X Isc/4) OR (Vt X It/4), FOR THE ASSOCIATED APPARATUS MUST BE LESS THAN OR EQUAL TO THE MAXIMUM SAFE INPUT VOLTAGE (Vmax, OR U_i), MAXIMUM SAFE INPUT CURRENT (Imax OR I_i), AND MAXIMUM SAFE INPUT POWER (Pmax OR P_i) OF THE INTRINSICALLY SAFE APPARATUS. IN ADDITION, THE APPROVED MAX. ALLOWABLE CONNECTED CAPACITANCE (Ca) OF THE ASSOCIATED APPARATUS MUST BE GREATER THAN THE SUM OF THE INTERCONNECTING CABLE CAPACITANCE AND THE UNPROTECTED INTERNAL CAPACITANCE (C_i) OF THE INTRINSICALLY SAFE APPARATUS, AND THE APPROVED MAX. ALLOWABLE CONNECTED INDUCTANCE (La) OF THE ASSOCIATED APPARATUS MUST BE GREATER THAN THE SUM OF THE INTERCONNECTING CABLE INDUCTANCE AND THE UNPROTECTED INTERNAL INDUCTANCE (L_i) OF THE INTRINSICALLY SAFE APPARATUS.

NOTE: ENTITY PARAMETERS LISTED APPLY ONLY TO ASSOCIATED APPARATUS WITH LINEAR OUTPUT.

3051S ERS — CLASS I, DIV. 1, GROUPS A, B, C AND D

U_i or V_{MAX} = 30V V_{MIN} = 20V *	Uo, V_T or V_{OC} IS LESS THAN OR EQUAL TO 30V AND GREATER OR EQUAL TO 20V
I_i or I_{MAX} = 300mA	Io, I_T or I_{SC} IS LESS THAN OR EQUAL TO 300mA
P_i or P_{MAX} = 1.0 WATT	$(\frac{V_T \times I_T}{4})$ or $(\frac{Voc \times Isc}{4})$ IS LESS THAN OR EQUAL TO 1.0 WATT
C_i = 12nF	C_A IS GREATER THAN 12nF
L_i = 33µH	L_A IS GREATER THAN 33µH
T4 (Ta=-50°C to +70°C)	

* THE MINIMUM BARRIER OUTPUT VOLTAGE IS REQUIRED TO BE 20V.

MAXIMUM INTERCONNECTING CABLE PARAMETERS
CAPACITANCE - 50 nf INDUCTANCE - 367µH

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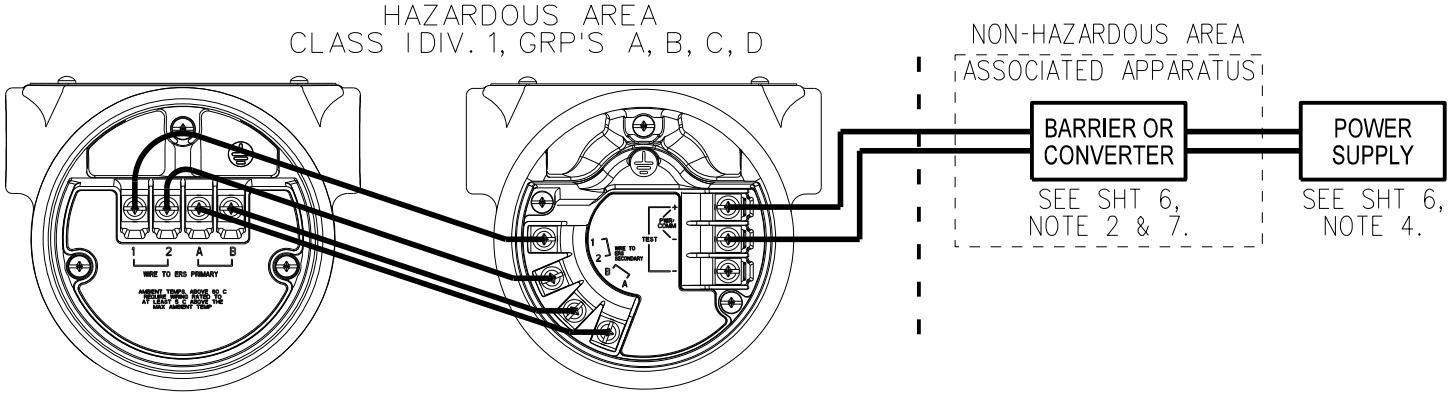
DR. Myles Lee Miller	SIZE A	FSCM NO	DWG NO. 03151-1306
ISSUED	SCALE N/A	WT.	SHEET 2 OF 6

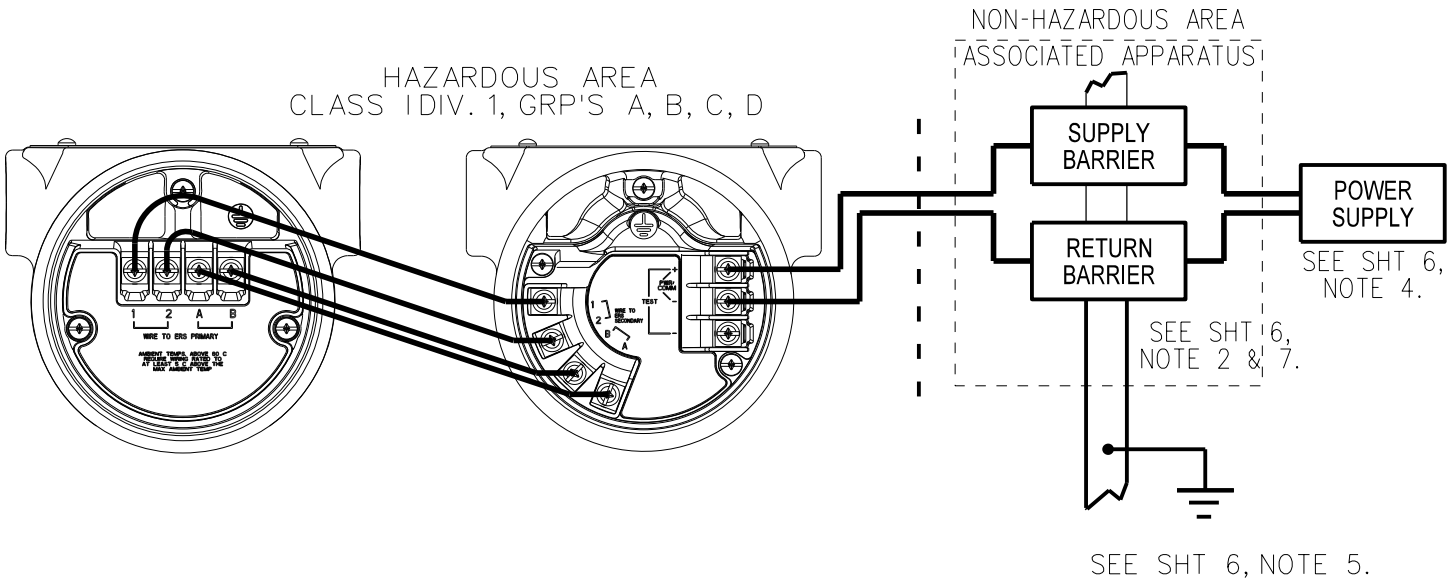
Form Rev AC

REVISIONS				
REV	DESCRIPTION	CHG. NO.	APP'D	DATE
AE				

CIRCUIT DIAGRAM 1
ONE BARRIER OR CONVERTER: SINGLE OR DUAL CHANNEL



CIRCUIT DIAGRAM 2
SUPPLY AND RETURN BARRIERS
(ONLY FOR USE WITH BARRIERS APPROVED IN THIS CONFIGURATION)



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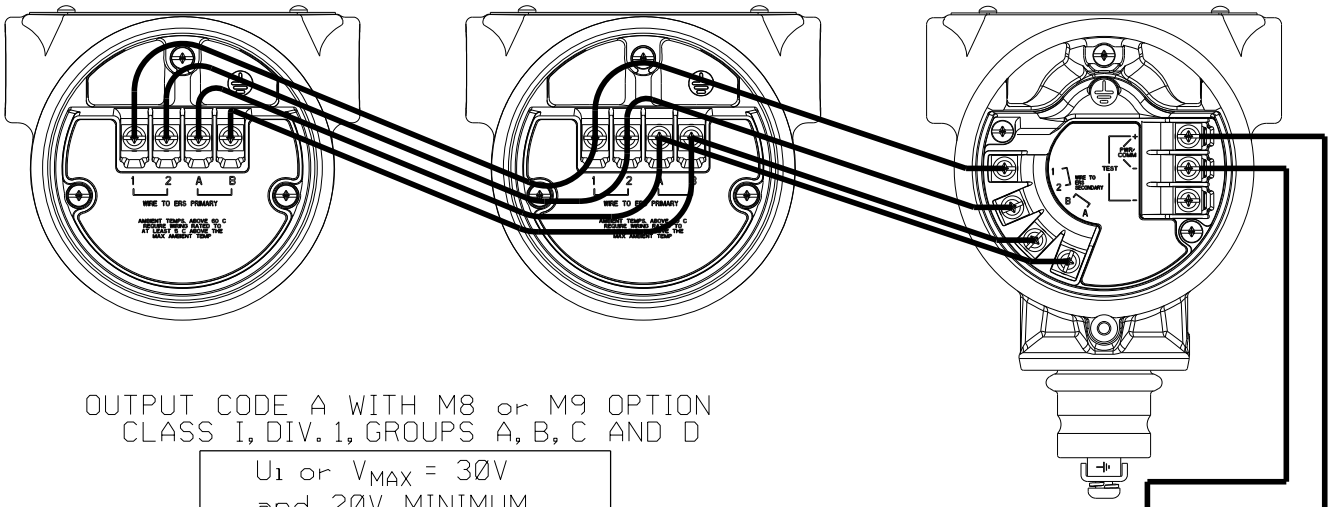
DR.	SIZE	FSCM NO	DWG NO.	
Myles Lee Miller	A		03151-1306	
ISSUED	SCALE N/A	WT.	SHEET 3 OF 6	

Form Rev AC

REVISIONS				
REV	DESCRIPTION	CHG. NO.	APP'D	DATE
AE				



OUTPUT CODE A WITH M8 or M9 OPTION
CLASS I, DIV. 1, GROUPS A, B, C AND D

U_1 or V_{MAX} = 30V and 20V MINIMUM
I_1 or I_{MAX} = 300mA
P_1 or P_{MAX} = 1.0 WATT
C_1 = 0
L_1 = 58.2 μH
T4 (Ta=-50°C to +70°C)

BARRIER OR CONVERTER

ASSOCIATED APPARATUS
SEE SHT 6, NOTE 2 & 7.

NON-HAZARDOUS AREA

HAZARDOUS AREA
CLASS I DIV. 1, GRP'S A, B, C, D

POWER SUPPLY

SEE SHT 6, NOTE 4.

REMOTE MOUNT METER

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DR.	SIZE	FSCM NO	DWG NO.
Myles Lee Miller	A		03151-1306
ISSUED	SCALE N/A	WT.	SHEET 4 OF 6

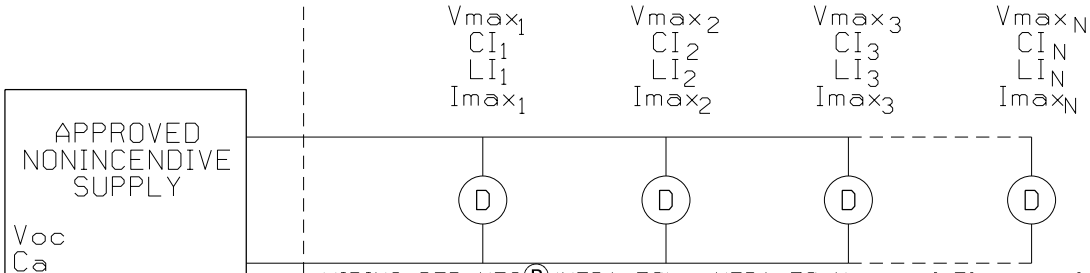
Form Rev AC

REVISIONS				
REV	DESCRIPTION	CHG. NO.	APP'D	DATE
AE				

NONINCENDIVE FIELD CIRCUIT
CLASS I, DIV. 2 LOCATIONS

NON-CLASSIFIED LOCATION

HAZARDOUS (CLASSIFIED) LOCATION
CLASS I, DIV. 2, GRP'S A, B, C, D



SEE SHT 6, NOTES 2, 4, & 11

WIRING PER NEC® (NFPA 70) 501-4 (b) EXCEPTION (NONINCENDIVE FIELD CIRCUIT)

NFPA 70 National Electrical Code® ARTICLE 501-4(b) EXCEPTION: "WIRING IN NONINCENDIVE CIRCUITS SHALL BE PERMITTED USING ANY OF THE METHODS SUITABLE FOR WIRING IN ORDINARY LOCATIONS."

IN NORMAL OPERATION

DEVICES CONTROL THROUGH-CURRENT

PARAMETERS (NON-INCENDIVE FIELD WIRING) DEVICE ROSEMOUNT 3051S/300S

		3051ERS 4-20mA / HART	MODEL 300ERS REMOTE METER
Vmax		30V	30V
Maximum normal operating current		22mA	22mA
	C_i	12nF	0nF
	L_i	33uH	58.2μH

$Imax_N >= Iq_N + Isignal_N$

ROSEMOUNT 3051 TRANSMITTERS ARE CURRENT CONTROLLERS ON INDIVIDUAL PARALLEL BRANCHES WITH RESPECT TO THE POWER SUPPLY. IN NONINCENDIVE INSTALLATIONS THE Imax FOR EACH TRANSMITTER IS NOT RELATED TO THE MAXIMUM CURRENT OF THE POWER SUPPLY (Isc) IN THE SAME MANNER AS FOR TRANSMITTER INSTALLED PER I.S. REQUIREMENTS, BECAUSE NONINCENDIVE REQUIREMENTS INCLUDE ONLY NORMAL OPERATING CONDITIONS.

REFERENCE: APPENDIX A7 (FM3611 1999)

Imax for an individual device = Iq + Isignal

Iq = Quiescent current through device (Maximum quiescent current for the device)

Isignal = Signaling current through device (Protocol may limit signaling to one device at a time)

Operating Imax = $Iq_1 + Iq_2 + ... + Iq_N + I_{signal}$ max

I_{signal} max = Max. of ($Isignal_1$, $Isignal_2$, ..., $Isignal_N$)

TEMP CODE: T4 (Ta = -50°C TO +70°C

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SIZE	FSCM NO	DWG NO.	
A		03151-1306	
SCALE N/A	WT.	SHEET 5 OF 6	

Form Rev AC

REVISIONS				
REV	DESCRIPTION	CHG. NO.	APP'D	DATE
AE				

NOTES:

1. NO REVISION TO THIS DRAWING WITHOUT PRIOR FACTORY MUTUAL APPROVAL.
2. ASSOCIATED APPARATUS MANUFACTURER'S INSTALLATION DRAWING MUST BE FOLLOWED WHEN INSTALLING THIS EQUIPMENT.
3. DUST-TIGHT CONDUIT SEAL MUST BE USED WHEN INSTALLED IN CLASS II AND CLASS III ENVIRONMENTS.
4. CONTROL EQUIPMENT CONNECTED TO BARRIER MUST NOT USE OR GENERATE MORE THAN 250 Vrms or Vdc.
5. RESISTANCE BETWEEN INTRINSICALLY SAFE GROUND AND EARTH GROUND MUST BE LESS THAN 1 OHM.
6. INSTALLATION SHOULD BE IN ACCORDANCE WITH ANSI/ISA-RP12.6 "INSTALLATION OF INTRINSICALLY SAFE SYSTEMS FOR HAZARDOUS (CLASSIFIED) LOCATIONS" AND THE NATIONAL ELECTRICAL CODE (ANSI/NFPA 70).
7. THE ASSOCIATED APPARATUS MUST BE FM APPROVED.
8. WARNING - SUBSTITUTION OF COMPONENTS MAY IMPAIR INTRINSIC AND NON-INCENDIVE SAFETY.
9. ASSOCIATED APPARATUS MUST MEET THE FOLLOWING PARAMETERS:
   Uo or Voc or Vt LESS THAN or EQUAL TO U_i (Vmax)
   Io or Isc or It LESS THAN or EQUAL TO I_i (Imax)
   Po or Pmax LESS THAN or EQUAL TO P_i (Pmax)
   Ca IS GREATER THAN or EQUAL THE SUM OF ALL C_i's PLUS Ccable
   La IS GREATER THAN or EQUAL THE SUM OF ALL L_i's PLUS Lcable
10. WARNING - TO PREVENT IGNITION OF FLAMMABLE OR COMBUSTIBLE ATMOSPHERES, DISCONNECT POWER BEFORE SERVICING.
11. THE ASSOCIATED APPARATUS MUST BE A RESISTIVELY LIMITED SINGLE OR MULTIPLE CHANNEL FM APPROVED BARRIER HAVING PARAMETERS LESS THAN THOSE QUOTED, AND FOR WHICH THE OUTPUT AND THE COMBINATIONS OF OUTPUTS IS NON-IGNITION CAPABLE FOR THE CLASS, DIVISION AND GROUP OF USE.
12. FIELD WIRING SHOULD BE RATED TO 70°C.
13. THE MODEL 3051SERS ENCLOSURE CONTAINS ALUMINUM AND IS CONSIDERED TO CONSTITUTE A POTENTIAL RISK OF IGNITION BY IMPACT OR FRICTION. CARE MUST BE TAKEN INTO ACCOUNT DURING INSTALLATION AND USE TO PREVENT IMPACT OR FRICTION.

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Form Rev AC