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

REVISIONS

REV	DESCRIPTION	CHG. NO.	APP'D	DATE
AA	NEW RELEASE	RTC1025256	A.J.W.	1/2/08
AB	ADD NOTE 7	RTC1026347	A.J.W.	6/24/08
AC	ADD NOTE 8; UPDATE COMMUNICATOR	RTC1057766	T.J.L.	9/6/13
AD	UPDATES FOR FIELDBUS SUBMITTAL	RTC1058998	A.S.	2/5/14

APPROVALS FOR

OUTPUT CODE "A" and "F" I.S. ENTITY PARAMETERS SHEET 2
OUTPUT CODE "A" (4-20 mA HART) I.S. SEE SHEETS 3 & 4
OUTPUT CODE "F (FIELDBUS) I.S. SEE SHEET 5
FISCO SEE SHEETS 6 & 7

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.

WARNING - EXPLOSION HAZARD - SUBSTITUTION OF COMPONENTS MAY IMPAIR SUITABILITY FOR CLASS I, DIVISION I.

AVERTISSEMENT - RISQUE D'EXPLOSION - LA SUBSTITUTION DE COMPOSANTS PEUT RENDRE CE MATERIEL INACCEPTABLE POUR LES EMPLACEMENTS DE CLASSE I, DIVISION I.

CAD MAINTAINED (MicroStation)

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

Form Rev AC

CONTRACT NO.

DR. Myles Lee Miller 12/17/07

CHK'D

APP'D.

APP'D. GOVT.

EMERSON Process Management

ROSEMOUNT®
8200 Market Boulevard • Chanhassen, MN 55317 USA

TITLE INDEX OF I.S. CSA FOR 3051SMV

SIZE	FSCM NO	DWG NO.	
A		03151-1207	

SCALE N/A WT. ——— SHEET 1 OF 8

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

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) AND MAX. SHORT CIRCUIT CURRENT (Isc) AND MAX. POWER (Voc X Isc/4), FOR THE ASSOCIATED APPARATUS MUST BE LESS THAN OR EQUAL TO THE MAXIMUM SAFE INPUT VOLTAGE (Vmax), MAXIMUM SAFE INPUT CURRENT (Imax), AND MAXIMUM SAFE INPUT POWER (Pmax) OF THE INTRINSICALLY SAFE APPARATUS. IN ADDITION, THE APPROVED MAX. ALLOWABLE CONNECTED CAPACITANCE (C_a) 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 (L_a) 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.

FOR OUTPUT CODE "A" MODEL 3051SMV — CLASS I, DIV. 1, GROUPS A, B, C AND D

U_i or V_{MAX} = 30V	U_o, V_T or V_{OC} IS LESS THAN OR EQUAL TO 30V
I_i or I_{MAX} = 300mA	I_o, 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 $(\frac{V_{OC} \times I_{OS}}{4})$ IS LESS THAN OR EQUAL TO 1.0 WATT
C_i = 14.8nF	C_A IS GREATER THAN 14.8nF
L_i = 0μH	L_A IS GREATER THAN 0μH
T4 (T_a=-50°C to +70°C)	

FOR OUTPUT CODE "F" MODEL 3051SMV — CLASS I, DIV. 1, GROUPS A, B, C AND D

U_i or V_{MAX} = 30V	U_o, V_T, OR V_{OC} IS LESS THAN OR EQUAL TO 30V
I_i or I_{MAX} = 300mA	I_o, I_T, OR I_{SC} IS LESS THAN OR EQUAL TO 300mA
P_i or P_{MAX} = 1.3 WATT	P_i $(\frac{V_T \times I_T}{4})$ OR $(\frac{V_{OC} \times I_{SC}}{4})$ IS LESS THAN OR EQUAL TO 1.3 WATT
C_i = 0μf	C_A IS GREATER THAN 0μf
L_i = 0μH	L_A IS GREATER THAN 0μH
T4 (T_a = -50°C TO +60°C)	

HART RTD SENSOR PARAMETERS

Vt = 30V
It = 2.31mA
Po = 17.32mW
Ca = 65.2nF
La = 1 H

FIELDBUS RTD SENSOR PARAMETERS

Vt = 30V
It = 18.24mA
Po = 137mW
Ca = 65.2nF
La = 239 mH

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

Rosemount Inc.
8200 Market Boulevard
Chanhassen, MN 55317 USA

CAD MAINTAINED (MicroStation)

DR.	SIZE	FSCM NO	DWG NO.
Myles Lee Miller	A		03151-1207
ISSUED	SCALE N/A	WT. ———	SHEET 2 OF 8

Form Rev AC

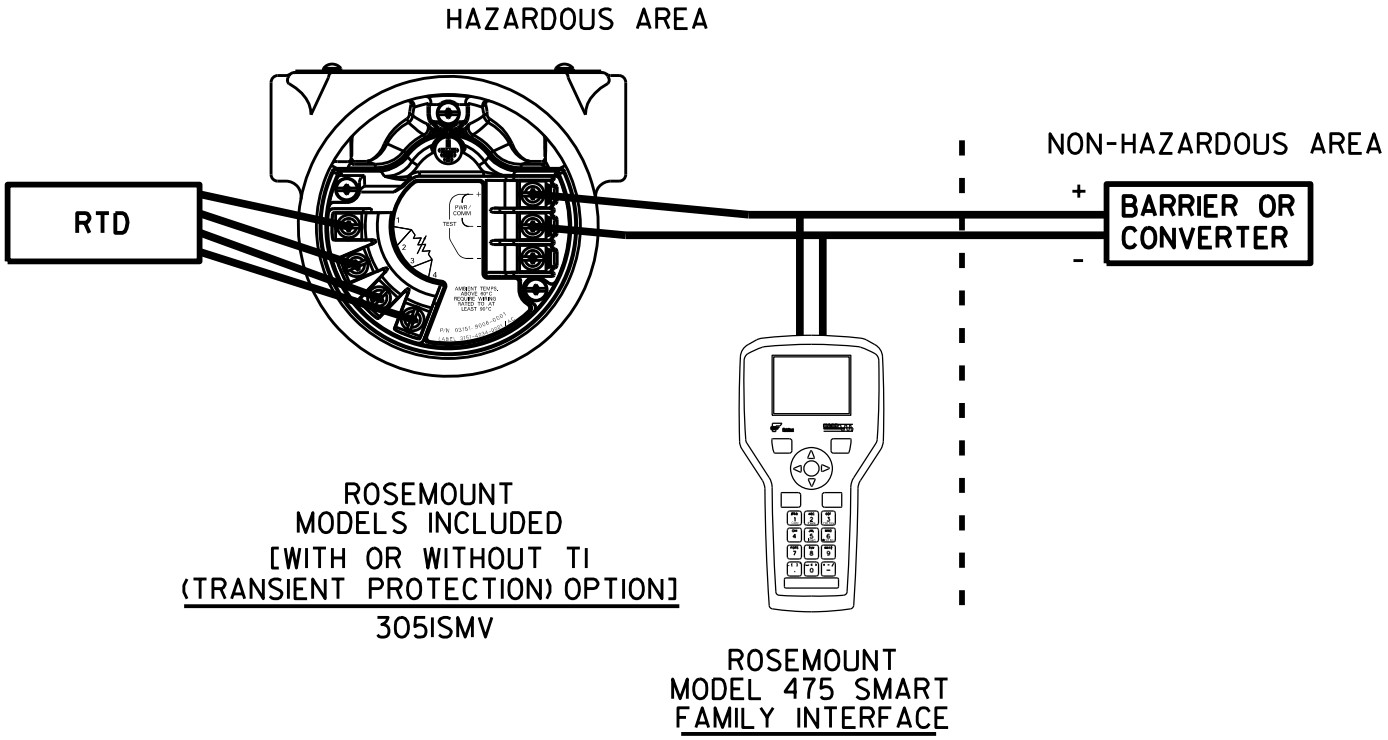
REVISIONS				
REV	DESCRIPTION	CHG. NO.	APP'D	DATE
AD				

CSA INTRINSIC SAFETY APPROVALS

CIRCUIT CONNECTION WITH BARRIER OR CONVERTER

Ex ia

INTRINSICALLY SAFE/SECURITE INTRINSEQUE
4-20 mA, ("A" OUTPUT CODE)



ROSEMOUNT
MODELS INCLUDED
[WITH OR WITHOUT TI
(TRANSIENT PROTECTION) OPTION]
3051SMV

ROSEMOUNT
MODEL 475 SMART
FAMILY INTERFACE

Rosemount Inc. 8200 Market Boulevard Chanhassen, MN 55317 USA			CAD MAINTAINED (MicroStation)	
DR. Myles Lee Miller 12/17/07	SIZE A	FSCM NO	DWG NO. 03151-1207	
ISSUED	SCALE N/A	WT.	SHEET 3 OF 8	

Form Rev AC

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

4-20 mA, ("A" OUTPUT CODE)

DEVICE	PARAMETERS	APPROVED FOR CLASS I, DIV.I
CSA APPROVED SAFETY BARRIER	30 V OR LESS *330 OHMS OR MORE * 28 V OR LESS 300 OHMS OR MORE 25 V OR LESS 200 OHMS OR MORE * 22 V OR LESS 180 OHMS OR MORE	GROUPS A, B, C, D
FOXBORO CONVERTER 2AI-I2V-CGB, 2AI-I3V-CGB, 2AS-I3I-CGB, 3A2-I2D-CGB, 3A2-I3D-CGB, 3AD-I3I-CGB, 3A4-I2D-CGB, 2AS-I2I-CGB, 3F4-I2DA		GROUPS B, C, D
CSA APPROVED SAFETY BARRIER	30 V OR LESS 150 OHMS OR MORE	GROUPS C, D

Rosemount Inc.
8200 Market Boulevard
Chanhassen, MN 55317 USA

DR. Myles Lee Miller

ISSUED

CAD MAINTAINED (MicroStation)

SIZE	FSCM NO	DWG NO.	
A		03151-1207	
SCALE N/A	WT. ———	SHEET 4 OF 8	

Form Rev AC

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

FIELDBUS, ("F" OUTPUT CODE)

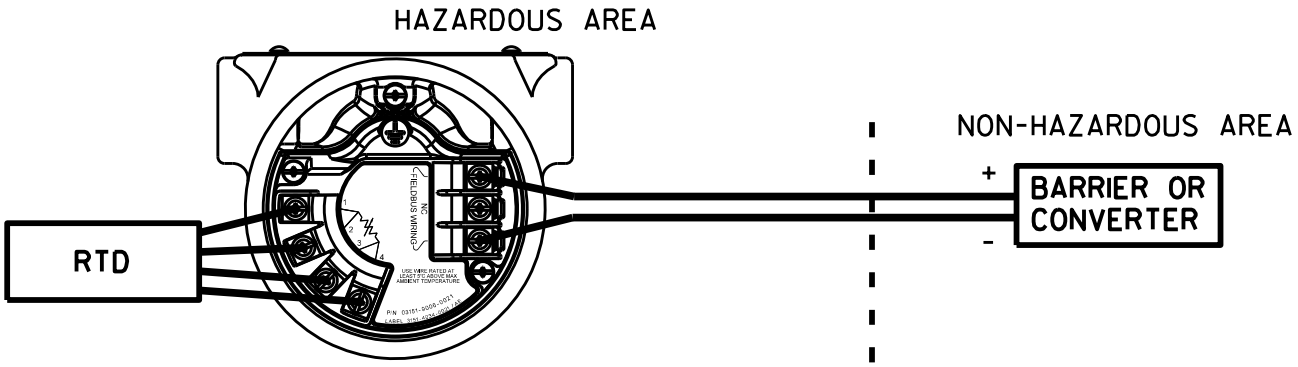
DEVICE	PARAMETERS	APPROVED FOR CLASS I, DIV.I
CSA APPROVED SAFETY BARRIER	30 V OR LESS 300 OHMS OR MORE 28 V OR LESS 235 OHMS OR MORE 25 V OR LESS 160 OHMS OR MORE 22 V OR LESS 100 OHMS OR MORE	GROUPS A, B, C, D

CSA INTRINSIC SAFETY APPROVALS

CIRCUIT CONNECTION WITH BARRIER OR CONVERTER

Ex ia

INTRINSICALLY SAFE/SECURITE INTRINSEQUE
FIELDBUS, ("F" OUTPUT CODE)



ROSEMOUNT **
MODELS INCLUDED
[WITH OR WITHOUT TI
(TRANSIENT PROTECTION) OPTION]
3051SMV with
PLANTWEB HOUSING

WARNING - EXPLOSION HAZARD - SUBSTITUTION OF COMPONENTS MAY IMPAIR SUITABILITY FOR CLASS I, DIVISION I.

AVERTISSEMENT - RISQUE D'EXPLOSION - LA SUBSTITUTION DE COMPOSANTS PEUT RENDRE CE MATERIEL INACCEPTABLE POUR LES EMPLACEMENTS DE CLASSE I, DIVISION I.

Rosemount Inc.
8200 Market Boulevard
Chanhassen, MN 55317 USA

CAD MAINTAINED (MicroStation)

DR.	SIZE	FSCM NO	DWG NO.	
Myles Lee Miller	A		03151-1207	
ISSUED	SCALE N/A	WT.	SHEET 5 OF 8	

Form Rev AC

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

FISCO CONCEPT

THE FISCO CONCEPT ALLOWS INTERCONNECTION OF INTRINSICALLY SAFE APPARATUS TO ASSOCIATED APPARATUS NOT SPECIALLY EXAMINED IN SUCH COMBINATION. THE CRITERIA FOR INTERCONNECTION IS THAT THE VOLTAGE (Vmax), THE CURRENT (Imax), AND THE POWER (Pmax) WHICH AN INTRINSICALLY SAFE APPARATUS CAN RECEIVE AND REMAIN INTRINSICALLY SAFE CONSIDERING FAULTS, MUST BE EQUAL OR GREATER THAN VOLTAGE (Voc), AND CURRENT (Isc) WHICH CAN BE DELIVERED BY THE ASSOCIATED APPARATUS, CONSIDERING FAULTS AND APPLICABLE FACTORS.
IN ADDITION, THE MAXIMUM UNPROTECTED CAPACITANCE (C_i) AND THE INDUCTANCE (L_i) OF EACH APPARATUS (OTHER THAN THE TERMINATION) CONNECTED TO THE FIELDBUS MUST BE LESS THAN OR EQUAL TO 5 nF AND 10 µH RESPECTIVELY.

IN EACH SEGMENT ONLY ONE ACTIVE DEVICE, NORMALLY THE ASSOCIATED APPARATUS, IS ALLOWED TO PROVIDE THE NECESSARY ENERGY FOR THE FIELDBUS SYSTEM. THE VOLTAGE (Voc) OF THE ASSOCIATED APPARATUS IS LIMITED TO A RANGE OF 14V TO 24Vd.c. ALL OTHER EQUIPMENT CONNECTED TO THE BUS CABLE HAS TO BE PASSIVE, MEANING THAT THEY ARE NOT ALLOWED TO PROVIDE ENERGY TO THE SYSTEM, EXCEPT A LEAKAGE CURRENT OF 50uA FOR EACH CONNECTED DEVICE. SEPARATELY POWERED EQUIPMENT NEEDS GALVANIC ISOLATION TO ASSURE THAT THE INTRINSICALLY SAFE FIELDBUS CIRCUIT REMAINS PASSIVE.
THE CABLE USED TO INTERCONNECT DEVICES NEEDS TO HAVE THE PARAMETERS IN THE FOLLOWING RANGE:

Loop Resistance R':	15.....150 Ohm/km
Inductance per unit length L':	0.4.....1 mH/km
Capacitance per unit length C':	80.....200 nF

C' = C' line/line + 0.5C' line/screen, if both lines are floating, or
C' = C' line/line + C' line/screen, if the screen is connected to one line

Length of trunk cable:	less than or equal to 1000m
Length of spur cable:	less than or equal to 30m
Length of spur splice:	less than or equal to 1m

AT EACH END OF THE TRUNK CABLE AN APPROVED INFALLIBLE LINE TERMINATION WITH THE FOLLOWING PARAMETERS IS SUITABLE:

R = 90.....100Ohm C = 0.....2.2uF

ONE OF THE ALLOWED TERMINATIONS MIGHT ALREADY BE INTEGRATED IN THE ASSOCIATED APPARATUS. THE NUMBER OF PASSIVE APPARATUS CONNECTED TO THE BUS SEGMENT IS NOT LIMITED DUE TO I. S. REASONS. IF THE ABOVE RULES ARE RESPECTED, UP TO A TOTAL LENGTH OF 1000 m (SUM OF TRUNK AND ALL SPUR CABLES) OF CABLE IS PERMITED.
THE INDUCTANCE AND THE CAPACITANCE OF THE CABLE WILL NOT IMPAIR THE INTRINSIC SAFETY OF THE INSTALLATION.

Rosemount Inc.
8200 Market Boulevard
Chanhassen, MN 55317 USA

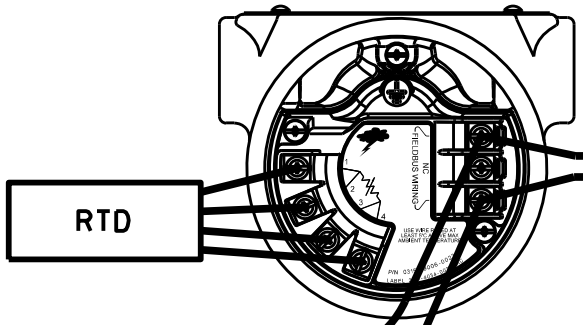
CAD MAINTAINED (MicroStation)

DR. Myles Lee Miller	SIZE A	FSCM NO	DWG NO. 03151-1207
ISSUED	SCALE N/A	WT. ———	SHEET 6 OF 8

Form Rev AC

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

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



HAZARDOUS AREA | NON-HAZARDOUS AREA

RTD

CSA APPROVED
FISCO POWER SUPPLY

U_i (Vmax) = 17.5V
I_i (Imax) = 380mA
C_i = 0, L_i = 0
LEAKAGE CURRENT:
LESS THAN OR
EQUAL TO 50uA
TEMPERATURE
CLASSIFICATION: T3C

ANY CSA APPROVED FISCO FIELD DEVICE

OUTPUT CODE F
with APPROVAL CODE IF

MODELS INCLUDED

3051SMV with
PLANTWEB HOUSING

FISCO FIELD DEVICE

CSA APPROVED TERMINATOR

Rosemount Inc.
8200 Market Boulevard
Chanhassen, MN 55317 USA

CAD MAINTAINED (MicroStation)

DR.	SIZE	FSCM NO	DWG NO.
Myles Lee Miller	A		03151-1207
ISSUED	SCALE N/A	WT. ———	SHEET 7 OF 8

Form Rev AC

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

NOTES:

1. APPROVED ASSOCIATED APPARATUS MUST BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
2. CSA APPROVED ASSOCIATED APPARATUS MUST MEET THE FOLLOWING PARAMETERS: V_{oc}/U_o LESS THAN OR EQUAL TO V_{max}/V_i AND I_{sc}/I_o LESS THAN OR EQUAL TO I_{max}/I_i.
3. THE MAXIMUM NON-HAZARDOUS AREA VOLTAGE MUST NOT EXCEED 250V.
4. THE INSTALLATION MUST BE IN ACCORDANCE WITH CANADIAN ELECTRICAL CODE, SECTION 18.
5. USE WIRE RATED AT LEAST 5°C ABOVE MAXIMUM AMBIENT TEMPERATURE.
6. WARNING: SUBSTITUTION OF COMPONENTS MAY IMPAIR INTRINSIC SAFETY.
7. THIS PRODUCT MEETS THE DUAL SEAL REQUIREMENTS OF ANSI/ISA 12.27.01. NO ADDITIONAL PROCESS SEALING IS REQUIRED. THE DUAL SEAL PROCESS TEMPERATURE RANGE IS -50°C TO 315°C. FOR THE IN-SERVICE LIMITS APPLICABLE TO A SPECIFIC MODEL, SEE "PROCESS TEMPERATURE LIMITS" IN APPENDIX "A" OF THE PRODUCT MANUAL.
8. TEMPERATURE CODE T3C AT 70°C MAXIMUM OPERATING TEMPERATURE.

Rosemount Inc.
8200 Market Boulevard
Chanhassen, MN 55317 USA

CAD MAINTAINED (MicroStation)

DR.	SIZE	FSCM NO	DWG NO.	
Myles Lee Miller	A		03151-1207	
ISSUED	SCALE N/A	WT.	SHEET 8 OF 8	

Form Rev AC