



CONFIDENTIAL AND PROPRIETARY INFORMATION IS CONTAINED HEREIN AND MUST BE HANDLED ACCORDINGLY	REVISIONS				
	REV	DESCRIPTION	CHG. NO.	APP'D	DATE
	AP	ADD NOTE 8	RTC1050579	M.B.	3/30/11
	AR	ADD NOTE 9; UPDATE COMMUNICATOR; UPDATE SHEET 10	RTC1057766	T.J.L.	9/6/13

APPROVALS FOR

OUTPUT CODES A,B,F,W I.S. ENTITY PARAMETERS SHEETS 2-3
 OUTPUT CODES A,B (4-20 mA HART) I.S. SEE SHEETS 4-7
 REMOTE METER (4-20 mA HART) I.S. SEE SHEET 6
 OUTPUT CODE F/W (FIELDBUS) I.S. SEE SHEET 8
 FISCO SEE SHEETS 9-10

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 EMBLEMES DE CLASSE I, DIVISION I.

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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 ANGLES ± 1/32 ± 2° DO NOT SCALE PRINT	CONTRACT NO.		 ROSEMOUNT 8200 Market Boulevard • Chanhassen, MN 55317 USA		
	DR. Myles Lee Miller	3/7/01			TITLE
	CHK'D		INDEX OF I.S. CSA FOR 3051S		
	APP'D. Paul C. Sundet	8/6/01	SIZE	FSCM NO	DWG NO.
	APP'D. GOVT.		A		03151-1016
		SCALE	N/A	WT. _____	SHEET 1 OF 10

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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 (V_{oc}) AND MAX. SHORT CIRCUIT CURRENT (I_{sc}) AND MAX. POWER ($V_{oc} \times I_{sc}/4$), FOR THE ASSOCIATED APPARATUS MUST BE LESS THAN OR EQUAL TO THE MAXIMUM SAFE INPUT VOLTAGE (V_{max}), MAXIMUM SAFE INPUT CURRENT (I_{max}), AND MAXIMUM SAFE INPUT POWER (P_{max}) 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 3051S
CLASS I, DIV. 1, GROUPS A, B, C AND D

$V_{MAX} = 30V$	V_{OC} IS LESS THAN OR EQUAL TO 30V
$I_{MAX} = 300mA$	I_{SC} IS LESS THAN OR EQUAL TO 300mA
$C_i = 38nF$	C_A IS GREATER THAN $38nF + C_{cable}$
$L_i = 0$	L_A IS GREATER THAN $0 H + L_{cable}$

FOR OUTPUT CODE A WITH MODEL 300S JUNCTION BOX, 300S PLANTWEB HOUSING, OR 3051S QUICK CONNECT CLASS I, DIV. 1, GROUPS A, B, C AND D

$V_{MAX} = 30V$	V_{OC} IS LESS THAN OR EQUAL TO 30V
$I_{MAX} = 300mA$	I_{SC} IS LESS THAN OR EQUAL TO 300mA
$C_i = 11.4nF$	C_A IS GREATER THAN $11.4nF + C_{cable}$
$L_i = 2.4\mu H$	L_A IS GREATER THAN $2.4\mu H + L_{cable}$

FOR OUTPUT CODE A WITH REMOTE METER CONFIGURATION (OPTION CODES M8 or M9)
CLASS I, DIV. 1, GROUPS A, B, C AND D

$V_{MAX} = 30V$	V_{OC} IS LESS THAN OR EQUAL TO 30V
$I_{MAX} = 300mA$	I_{SC} IS LESS THAN OR EQUAL TO 300mA
$C_i = 0nF$	C_A IS GREATER THAN C_{cable}
$L_i = 58.2\mu H$	L_A IS GREATER THAN $58.2\mu H + L_{cable}$

FOR OUTPUT CODE A WITH HART DIAGNOSTICS SUITE AND MODEL 300S PLANTWEB HOUSING
CLASS I, DIV. 1, GROUPS A, B, C AND D

$V_{MAX} = 30V$	V_{OC} IS LESS THAN OR EQUAL TO 30V
$I_{MAX} = 300mA$	I_{SC} IS LESS THAN OR EQUAL TO 300mA
$C_i = 11.4nF$	C_A IS GREATER THAN $11.4nF + C_{cable}$
$L_i = 0$	L_A IS GREATER THAN $0 H + L_{cable}$

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

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DR. Myles Lee Miller	SIZE A	FSCM NO.	DWG NO. 03151-1016	
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FOR OUTPUT CODE B (SAFETY CERTIFIED SIS) WITH MODEL 300S PLANTWEB HOUSING
CLASS I, DIV. 1, GROUPS A, B, C AND D

$V_{MAX} = 30V$	V_{OC} IS LESS THAN OR EQUAL TO 30V
$I_{MAX} = 300mA$	I_{SC} IS LESS THAN OR EQUAL TO 300mA
$C_1 = 11.4nF$	C_A IS GREATER THAN $11.4nF + C_{cable}$
$L_1 = 570\mu H$	L_A IS GREATER THAN $570\mu H + L_{cable}$

FOR OUTPUT CODE F or W WITH MODEL 300S PLANTWEB HOUSING
CLASS I, DIV. 1, GROUPS A, B, C AND D

$V_{MAX} = 30V$	V_{OC} IS LESS THAN OR EQUAL TO 30V
$I_{MAX} = 300mA$	I_{SC} IS LESS THAN OR EQUAL TO 300mA
$C_1 = 0\mu f$	C_A IS GREATER THAN $0\mu f + C_{cable}$
$L_1 = 0\mu H$	L_A IS GREATER THAN $0\mu H + L_{cable}$

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

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SIZE **A**

SCALE **N/A**

FSCM NO

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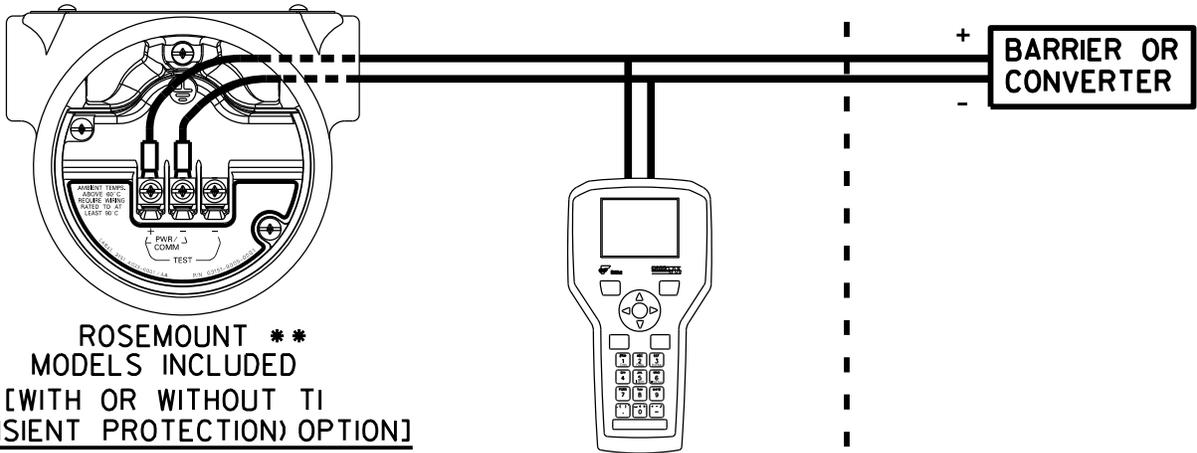
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CSA INTRINSIC SAFETY APPROVALS
CIRCUIT CONNECTION WITH BARRIER OR CONVERTER

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

HAZARDOUS AREA

NON-HAZARDOUS AREA



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

305IS WITH 300S
JUNCTION BOX or
PLANTWEB HOUSING

ROSEMOUNT
MODEL 475 SMART
FAMILY INTERFACE

** FOR FIELDBUS OPTIONS("F" or "W" OUTPUT CODE),
SEE PAGE 6 FOR PARAMETERS AND CIRCUIT CONNECTION TO BARRIER.

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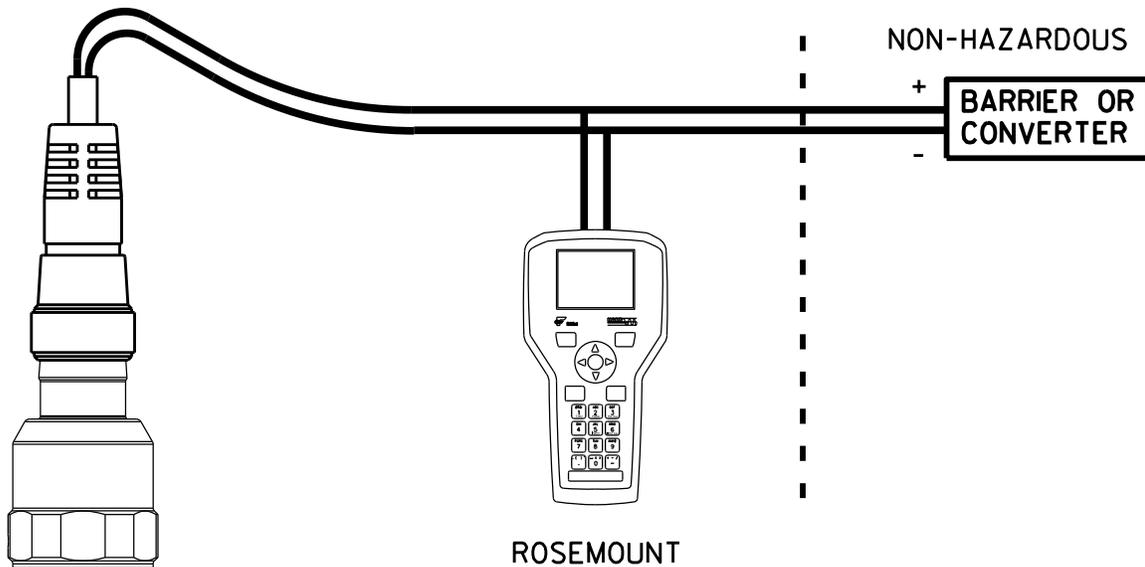
REVISIONS				
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CSA INTRINSIC SAFETY APPROVALS
CIRCUIT CONNECTION WITH BARRIER OR CONVERTER

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

HAZARDOUS AREA

NON-HAZARDOUS AREA



305IS QUICK CONNECT

ROSEMOUNT
MODEL 475 SMART
FAMILY INTERFACE

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SIZE
A

FSCM NO

DWG NO.

03151-1016

ISSUED

SCALE **N/A**

WT. _____

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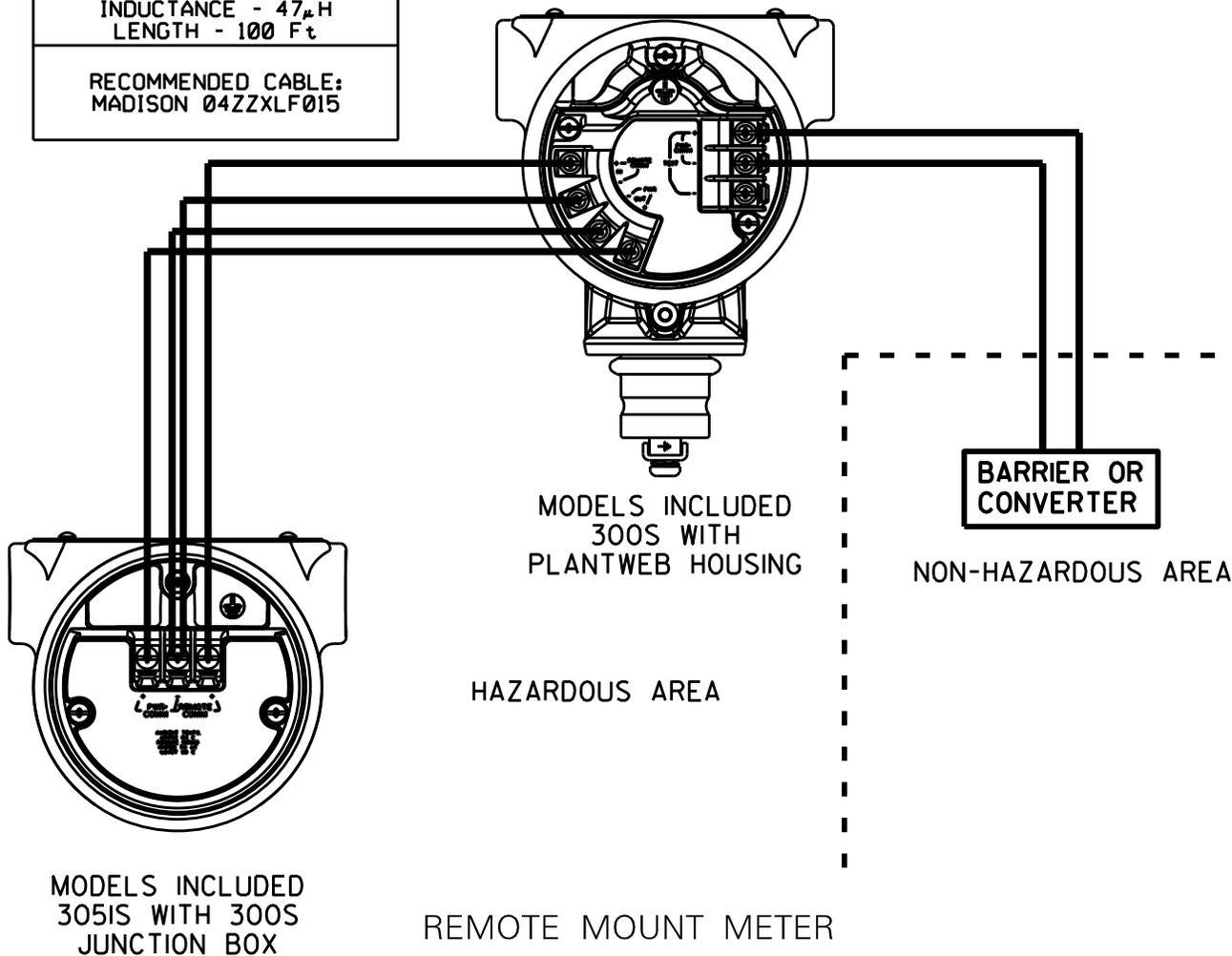


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CSA INTRINSIC SAFETY APPROVALS
CIRCUIT CONNECTION WITH BARRIER OR CONVERTER

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

MAXIMUM CABLE PARAMETERS
CAPACITANCE - 24 nF
INDUCTANCE - 47 μH
LENGTH - 100 Ft
RECOMMENDED CABLE: MADISON 04ZZXLF015



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

APPROVED FOR
CLASS I, DIV. I

DEVICE

PARAMETERS

GROUPS A, B, C, D

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

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

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FIELD BUS, ("F" or "W" OUTPUT CODE)

APPROVED FOR
CLASS I, DIV. I

DEVICE

PARAMETERS

GROUPS A, B, C, D

CSA APPROVED
SAFETY BARRIER

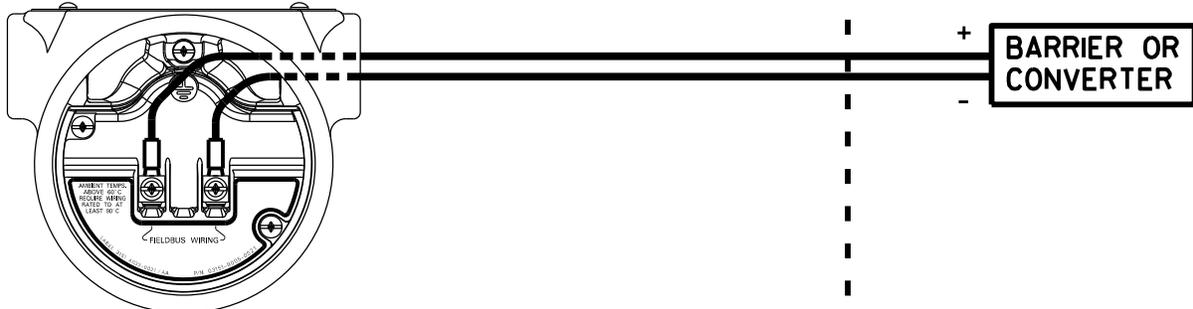
30 V OR LESS
300 OHMS OR MORE
28 V OR LESS
235 OHMS OR MORE
25 V OR LESS
160 OHMS OR MORE
22 V OR LESS
100 OHMS OR MORE

CSA INTRINSIC SAFETY APPROVALS
CIRCUIT CONNECTION WITH BARRIER OR CONVERTER

Ex ia
INTRINSICALLY SAFE/SECURITE INTRINSEQUE
FIELD BUS, ("F" or "W" OUTPUT CODE)

HAZARDOUS AREA

NON-HAZARDOUS AREA



ROSEMOUNT **
MODELS INCLUDED
[WITH OR WITHOUT TI
(TRANSIENT PROTECTION) OPTION]
305IS WITH 300S
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 EMBLEMES
DE CLASSE I, DIVISION I.

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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 (V_{max}), THE CURRENT (I_{max}), AND THE POWER (P_{max}) WHICH AN INTRINSICALLY SAFE APPARATUS CAN RECEIVE AND REMAIN INTRINSICALLY SAFE CONSIDERING FAULTS, MUST BE EQUAL OR GREATER THAN VOLTAGE (V_{oc}), AND CURRENT (I_{sc}) 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 FIELD BUS MUST BE LESS THAN OR EQUAL TO 5 nF AND 10 μ H RESPECTIVELY.

IN EACH SEGMENT ONLY ONE ACTIVE DEVICE, NORMALLY THE ASSOCIATED APPARATUS, IS ALLOWED TO PROVIDE THE NECESSARY ENERGY FOR THE FIELD BUS SYSTEM. THE VOLTAGE (V_{oc}) 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 50 μ A FOR EACH CONNECTED DEVICE. SEPARATELY POWERED EQUIPMENT NEEDS GALVANIC ISOLATION TO ASSURE THAT THE INTRINSICALLY SAFE FIELD BUS 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:

$$R = 90.....100\text{Ohm} \quad C = 0.....2.2\mu\text{F}$$

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 PERMITTED. THE INDUCTANCE AND THE CAPACITANCE OF THE CABLE WILL NOT IMPAIR THE INTRINSIC SAFETY OF THE INSTALLATION.

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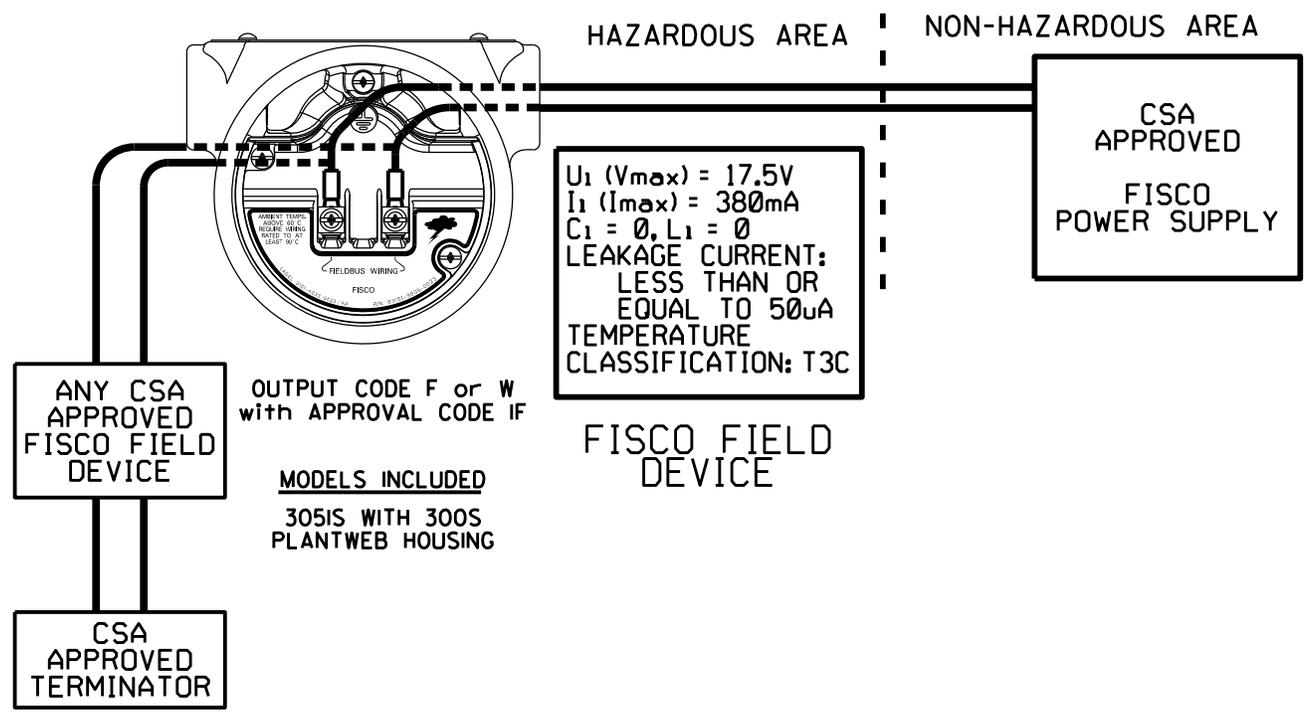
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HAZARDOUS AREA
CLASS I DIV. I, GRP'S A, B, C, D



9. TEMPERATURE CODE T3C AT 70°C MAXIMUM OPERATING TEMPERATURE.
8. THE 305IS REQUIRES A CLASS 2 OR GROUNDED CIRCUIT.
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.
6. WARNING: SUBSTITUTION OF COMPONENTS MAY IMPAIR INTRINSIC SAFETY.
5. CAUTION: USE ONLY SUPPLY WIRES SUITABLE FOR 5°C ABOVE SURROUNDING TEMPERATURE.
4. THE INSTALLATION MUST BE IN ACCORDANCE WITH CANADIAN ELECTRICAL
3. THE MAXIMUM NON-HAZARDOUS AREA VOLTAGE MUST NOT EXCEED 250V.
2. CSA APPROVED ASSOCIATED APPARATUS MUST MEET THE FOLLOWING PARAMETERS:
Voc LESS THAN OR EQUAL TO (Vmax AND Isc LESS THAN OR EQUAL TO (Imax).
1. APPROVED ASSOCIATED APPARATUS MUST BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

NOTES:

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