

REVISIONS				
REV	DESCRIPTION	ECO NO.	APP'D	DATE
AB	CORRECT LOOP WIRING	RTC1016928	D.B.	2/6/04
AC	UPDATE VALUES FOR NOTE 5	RTC1022635	D.B.	9/29/06
AD	UPDATE VALUES IN NOTE 5 ON PAGES 1, 2 AND 3.	RTC1023062	A.S.D.	12/5/06

ROSEMOUNT INC. MODEL 3144P FIELDBUS TEMPERATURE TRANSMITTERS FM INTRINSIC SAFETY INSTALLATION

CLASSIFICATIONS AND "T" RATINGS	FIELDBUS
IS/I/I, II, III/ABCDEFG	T4 (-60°C ≤ Ta ≤ 60°C)
IS/CLASS I, ZONE 0, AEx ia IIC	T4 (-60°C ≤ Ta ≤ 60°C)

- NOTES:
- [1] FM APPROVED INTRINSICALLY SAFE LOOP CALIBRATOR CAN BE CONNECTED TO TERMINALS "+", "-", OR "T": SEE SPECIFIC PRODUCT MANUAL FOR CONNECTION DETAILS.
 - [2] FM APPROVED INTRINSICALLY SAFE TEMP. SENSOR CALIBRATOR CAN BE CONNECTED TO TERMINALS "1" TO "5".

[3] ASSOCIATED APPARATUS PARAMETERS LIMITS	
V_{OC} OR U_b	$\leq V_{MAX}$
I_{SC} OR I_o	$\leq I_{MAX}$
$\frac{(V_{OC} \times I_{SC})}{4}$	$\leq P_{MAX}$
C_A	$\geq C_{CABLE} + C_i$
L_A	$\geq L_{CABLE} + L_i$

FM CERTIFIED PRODUCT
NO MODIFICATIONS PERMITTED WITHOUT THE APPROVAL OF RTC TEMPERATURE DESIGN ENGINEERING

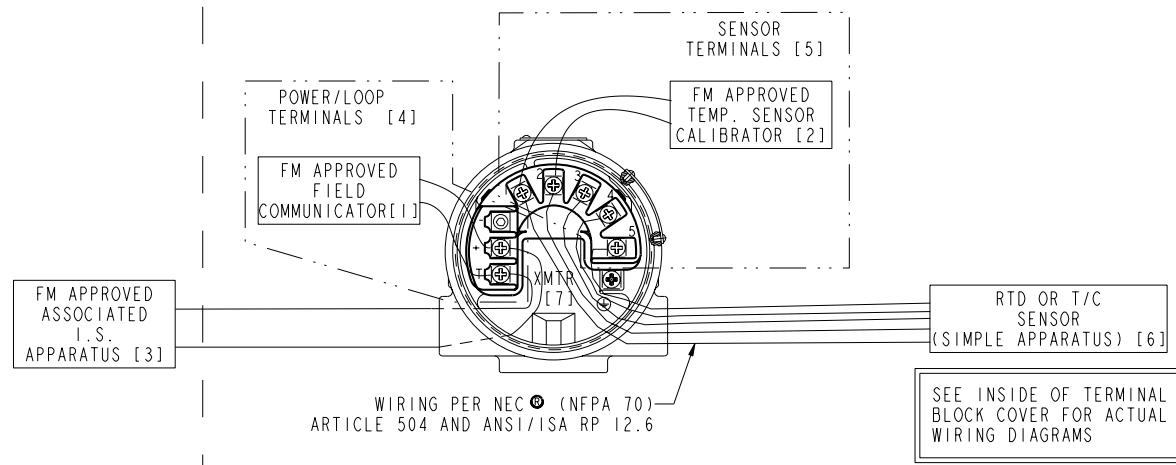
[4] POWER / LOOP TERMINAL PARAMETERS	
FIELDBUS (Terminals "+" & "-")	
U_i	30 Vdc
I_i	300 mA dc
P_i	1.3W
C_i	2.1 nF
L_i	0 uH

[5] ASSOCIATED APPARATUS LIMITS AT SENSOR TERMINALS ("1" THRU "5")	
FIELDBUS	
U_o	13.9 Vdc
I_o	23 mA
P_o	79 mW
C_o	0.73 uF
L_o	75 mH

- [6] ANSI/ISA RP 12.6 (SIMPLE APPARATUS) DEFINITION: A DEVICE WHICH WILL NEITHER GENERATE NOR STORE MORE THAN 1.5 VOLTS, 100 mA, 25 mW, OR 20 microJoules.
- [7] 3144P FIELDBUS TEMPERATURE TRANSMITTERS
- [8] WARNING: TO PREVENT IGNITION OF FLAMMABLE OR COMBUSTIBLE ATMOSPHERES, DISCONNECT POWER BEFORE SERVICING.
- [9] WARNING: SUBSTITUTION OF COMPONENTS MAY IMPAIR INTRINSIC SAFETY OR SUITABILITY FOR DIVISION 2.
- [10] NO REVISIONS TO DRAWING WITHOUT PRIOR FACTORY MUTUAL APPROVAL.
- [11] ASSOCIATED APPARATUS MANUFACTURER'S INSTALLATION DRAWING MUST BE FOLLOWED WHEN INSTALLING THIS EQUIPMENT.
- [12] CONTROL EQUIPMENT CONNECTED TO BARRIER MUST NOT USED OR GENERATE MORE THAN 250 Vrms OR Vdc.
- [13] THE ASSOCIATED APPARATUS MUST BE FACTORY MUTUAL APPROVED.
- [14] RESISTANCE BETWEEN INTRINSICALLY SAFE GROUND AND EARTH GROUND MUST BE LESS THAN 1 OHM
- [15] THE ENTITY CONCEPT ALLOWS INTERCONNECTION OF INTRINSICALLY SAFE APPARATUS WITH ASSOCIATED APPARATUS WHEN THE FOLLOWING IS TRUE:
 V_{max} OR $U_i \geq V_{oc}$, V_t OR U_o ; I_{max} OR $I_i \geq I_{sc}$, I_t OR I_o ; P_{max} OR $P_i \geq P_o$;
 $C_a \geq C_i + C_{cable}$; $L_a \geq L_i + L_{cable}$.

UNCLASSIFIED LOCATION

HAZARDOUS (CLASSIFIED) LOCATION
INTRINSICALLY SAFE FOR CLASS I, DIVISION 1, GROUPS A,B,C,D,E,F,G
CLASS I, ZONE 0 AEx ia IIC
NONINCENDIVE FOR CLASS I, DIVISION 2, GROUPS A,B,C,D



CONFIDENTIAL AND PROPRIETARY INFORMATION IS CONTAINED HEREIN AND IS TO BE HANDLED ACCORDING TO:	UNLESS OTHERWISE SPECIFIED DIMENSIONS IN INCHES (mm).	ROSEMOUNT <small>8200 Market Boulevard Chanhassen, MN 55317 USA</small>	
	REMOVE ALL BURRS AND SHARP EDGES. MACHINE SURFACE FINISH 125	TITLE FM I.S. NONINCENDIVE FIELD CIRCUIT CONFIGURATIONS FOR MODELS 3144P	
	-TOLERANCES- .X ± .1 (2.5) .XX ± .02 (0.5) .XXX ± .010 (0.25) FRACTIONS ANGLES ± 1/32 ± 2° DO NOT SCALE PRINT	DR. Hiep NGUYEN 9/18/03 APP'D DIRK BAUSCHKE 12/22/03	SIZE D DRAWING NO. 03144-5075 CAD MAINTAINED. (PRO/E)

ROSEMOUNT INC. MODEL 3144P FIELDBUS TEMPERATURE TRANSMITTERS

FM FISCO SAFETY INSTALLATION

CLASSIFICATIONS AND "T" RATINGS	FIELDBUS
IS/I/I, II, III/ABCDEFG	T4 (-60°C ≤ Ta ≤ 60°C)
IS/CLASS I, ZONE 0, AEx ia IIC	T4 (-60°C ≤ Ta ≤ 60°C)

NOTES:

- [1] FM APPROVED INTRINSICALLY SAFE LOOP CALIBRATOR CAN BE CONNECTED TO TERMINALS "+", "-", OR "T": SEE SPECIFIC PRODUCT MANUAL FOR CONNECTION DETAILS.
- [2] FM APPROVED INTRINSICALLY SAFE TEMP. SENSOR CALIBRATOR CAN BE CONNECTED TO TERMINALS "1" TO "5".

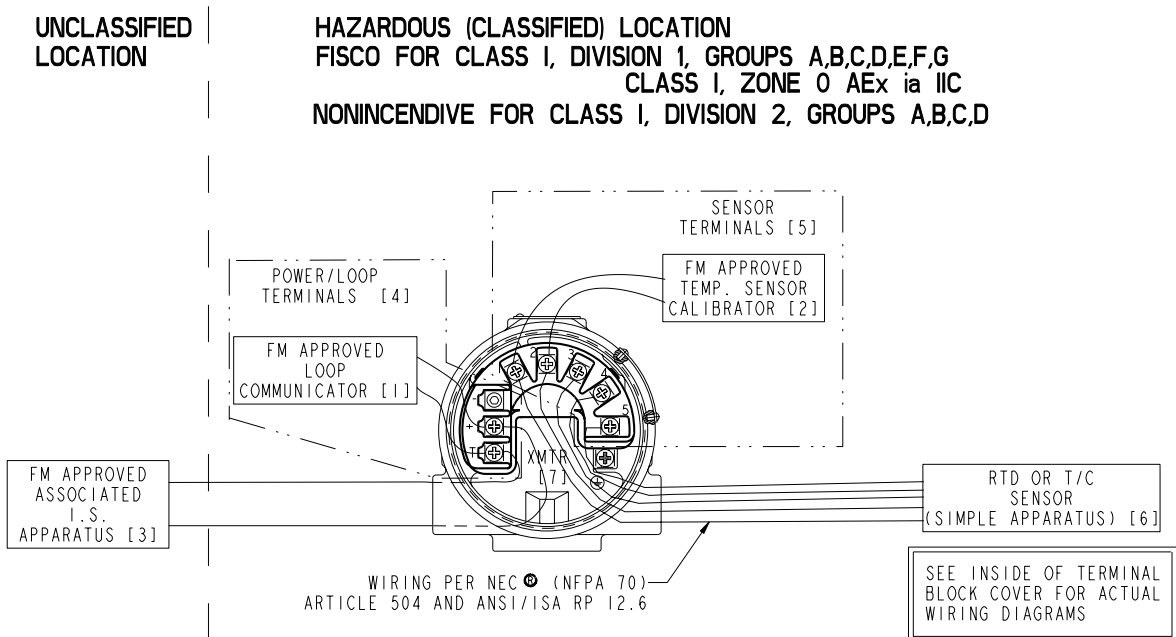
[3] ASSOCIATED APPARATUS PARAMETERS LIMITS	
V_{oc} OR $U_o \leq V_{MAX}$	
I_{sc} OR $I_o \leq I_{MAX}$	
$\frac{(V_{oc} \times I_{sc})}{4} \leq P_{MAX}$	
$C_A \geq C_{CABLE} + C_i$	
$L_A \geq L_{CABLE} + L_i$	

FM CERTIFIED PRODUCT
NO MODIFICATIONS PERMITTED WITHOUT THE APPROVAL OF RTC TEMPERATURE DESIGN ENGINEERING

[4] POWER / LOOP TERMINAL PARAMETERS	
FIELDBUS (Terminals "+" & "-")	
$U_i =$	17.5 V
$I_i =$	380 mA
$P_i =$	5.32W
$C_i =$	2.1 nF
$L_i =$	0

[5] ASSOCIATED APPARATUS LIMITS AT SENSOR TERMINALS ("1" THRU "5")	
FIELDBUS	
$U_o =$	13.9 Vdc
$I_o =$	23 mA
$P_o: max =$	79 mW
$C_o =$	0.73 uF
$L_o =$	75 mH

- [6] ANSI/ISA RP 12.6 (SIMPLE APPARATUS) DEFINITION: A DEVICE WHICH WILL NEITHER GENERATE NOR STORE MORE THAN 1.5 VOLTS, 100 mA, 25 mW, OR 20 microJoules.
- [7] 3144P FIELDBUS TEMPERATURE TRANSMITTERS
- [8] WARNING: TO PREVENT IGNITION OF FLAMMABLE OR COMBUSTIBLE ATMOSPHERES, DISCONNECT POWER BEFORE SERVICING.
- [9] WARNING: SUBSTITUTION OF COMPONENTS MAY IMPAIR INTRINSIC SAFETY OR SUITABILITY FOR DIVISION 2.
- [10] NO REVISIONS TO DRAWING WITHOUT PRIOR FACTORY MUTUAL APPROVAL.
- [11] ASSOCIATED APPARATUS MANUFACTURER'S INSTALLATION DRAWING MUST BE FOLLOWED WHEN INSTALLING THIS EQUIPMENT.
- [12] CONTROL EQUIPMENT CONNECTED TO BARRIER MUST NOT USED OR GENERATE MORE THAN 250 Vrms OR Vdc.
- [13] THE ASSOCIATED APPARATUS MUST BE FACTORY MUTUAL APPROVED.
- [14] RESISTANCE BETWEEN INTRINSICALLY SAFE GROUND AND EARTH GROUND MUST BE LESS THAN 1 OHM
- [15] THE ENTITY CONCEPT ALLOWS INTERCONNECTION OF INTRINSICALLY SAFE APPARATUS WITH ASSOCIATED APPARATUS WHEN THE FOLLOWING IS TRUE:
 V_{max} OR $U_i \geq V_{oc}$, V_f OR U_o ; I_{max} OR $I_i \geq I_{sc}$, I_f OR I_o ; P_{max} OR $P_i \geq P_o$;
 $C_a \geq C_i + C_{cable}$; $L_a \geq L_i + L_{cable}$.



ROSEMOUNT INC. MODEL 3144P FIELDBUS TEMPERATURE TRANSMITTER
FM DIV. 2 INSTALLATION OPTIONS

CLASSIFICATIONS AND "T" RATINGS	FIELDBUS
NI/1/2/ ABCD	T6 (-60°C ≤ T _a ≤ 50°C) T5 (-60°C ≤ T _a ≤ 75°C)

NOTES:

[1] FM INTRINSICALLY SAFE OR NONINCENDIVE FIELD CIRCUIT APPROVED LOOP CALIBRATOR CAN BE CONNECTED TO TERMINALS "+", "-", OR "T": SEE SPECIFIC PRODUCT MANUAL FOR CONNECTION DETAILS.

[2] FM INTRINSICALLY SAFE OR NONINCENDIVE FIELD CIRCUIT APPROVED TEMP. SENSOR CALIBRATION CAN BE CONNECTED TO TERMINALS "1" TO "5".

[3] ASSOCIATED NONINCENDIVE APPARATUS PARAMETERS LIMITS

$$V_{oc} \text{ OR } U_0 \leq V_{max}$$

$$C_A \geq C_{CABLE} + C_i$$

$$L_A \geq L_{CABLE} + L_i$$

[4] TRANSMITTER POWER/LOOP TERMINAL PARAMETER LIMITS

FIELDBUS
("+" TO "-")
 $V_{max} = 55 \text{ Vdc}$

$$C_i = 2.1 \text{ nF}$$

$$L_i = 0 \text{ uH}$$

[5] ASSOCIATED NONINCENDIVE (ANI) FIELD CIRCUIT PARAMETER LIMITS AT SENSOR TERMINALS ("1" THRU "5")

	FIELDBUS
$U_0 =$	13.9 Vdc
$I_0 =$	23 mA
$P_0 : max =$	79 mW
$C_0 =$	0.73 nF
$L_0 =$	75 mH

[6] ANSI/ISA RP 12.6 (SIMPLE APPARATUS) DEFINITION: A DEVICE WHICH WILL NEITHER GENERATE NOR STORE MORE THAN 1.5 VOLTS, 100 mA, 25 mW.

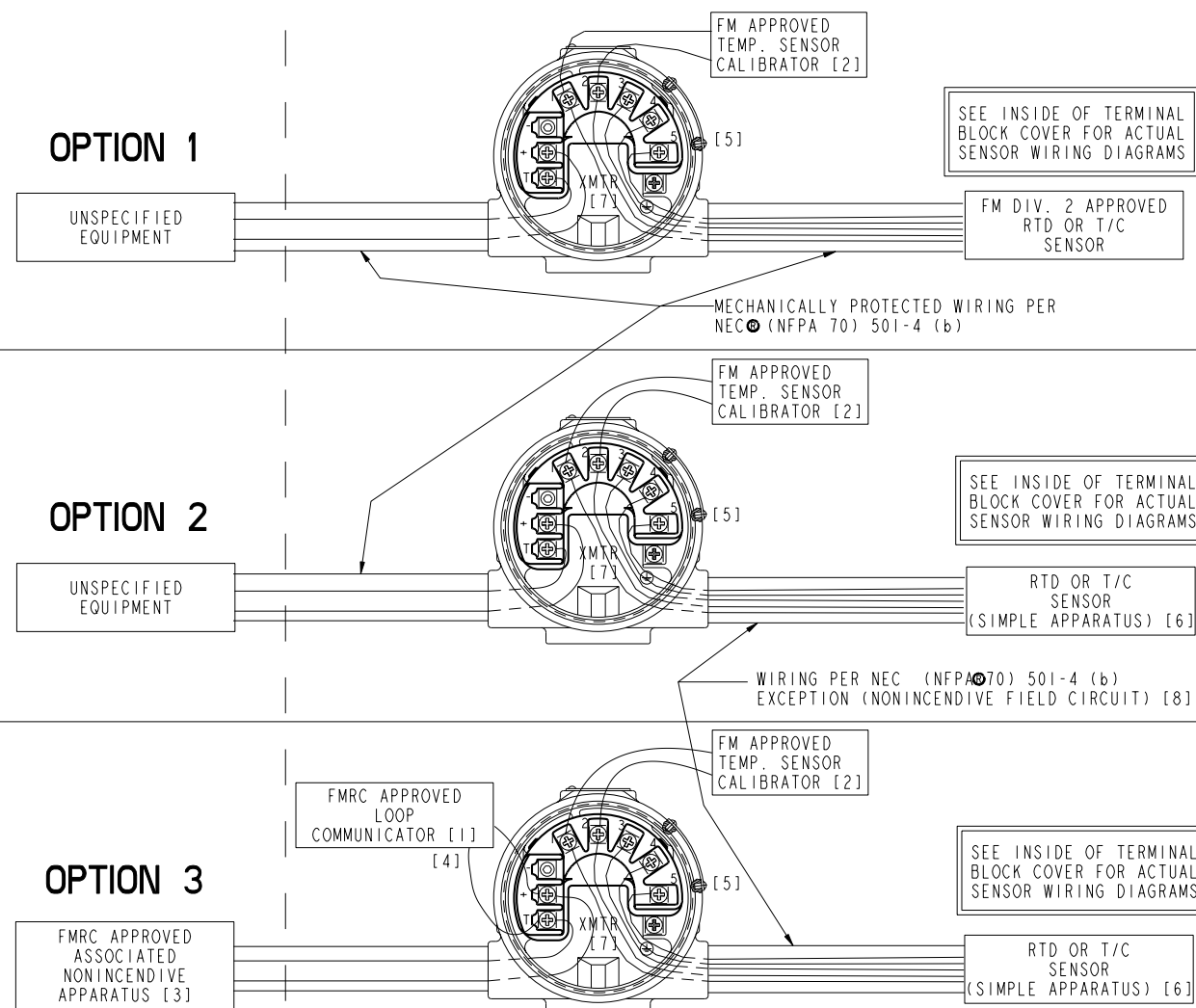
[7] 3144P FIELDBUS TEMPERATURE TRANSMITTERS.

[8] MUST BE INSTALLED IN ACCORDANCE WITH THE NATIONAL ELECTRIC CODE (ANSI-NFPA 70) FOR WIRING IN DIVISION 2 HAZARDOUS (CLASSIFIED) LOCATIONS.

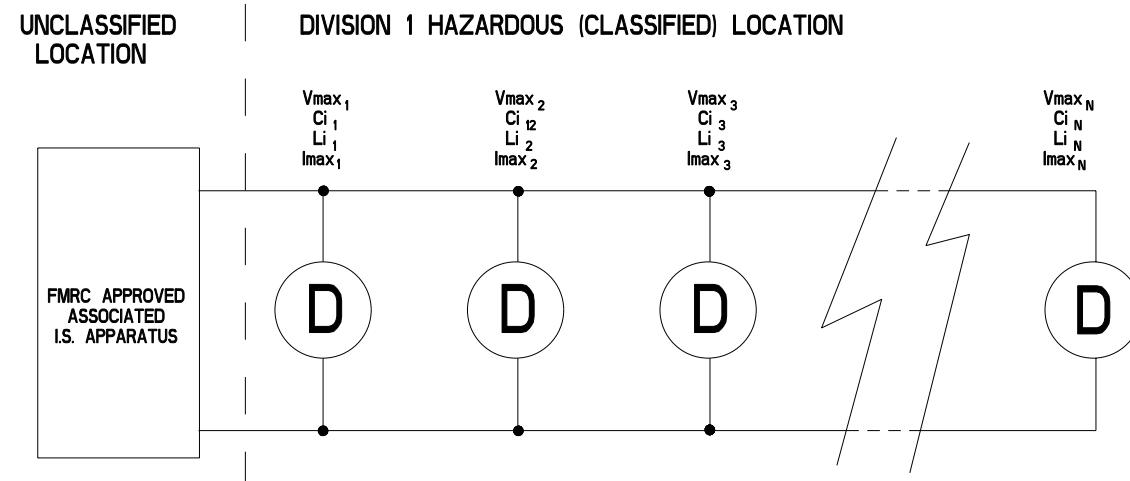
[9] DUST-TIGHT CONDUIT SEAL MUST BE USED WHEN INSTALLED IN CLASS II AND CLASS III ENVIRONMENTS.

UNCLASSIFIED LOCATION

DIV. 2 HAZARDOUS (CLASSIFIED) LOCATION
SUITABLE FOR CLASS II, III, DIVISION 2, GROUPS F & G



ROSEMOUNT INC. INTRINSICALLY SAFE FM DIV. 1 INSTALLATION



PARAMETERS

SUPPLY	DEVICE
V_{oc}	\leq Minimum of $(V_{max_1}, V_{max_2}, \dots, V_{max_N})$
I_{sc}	\leq Minimum of $(I_{max_1}, I_{max_2}, \dots, I_{max_N})$
C_a	$\geq C_{i_1} + C_{i_2} + \dots + C_{i_N} + C_{cable}$
L_a	$\geq L_{i_1} + L_{i_2} + \dots + L_{i_N} + L_{cable}$

NOTE: [1] REFER TO PAGE 1 FOR I.S. ENTITY PARAMETERS FOR THE 3144P FIELDBUS.