

Sensor Wiring Instructions and Approval Drawings

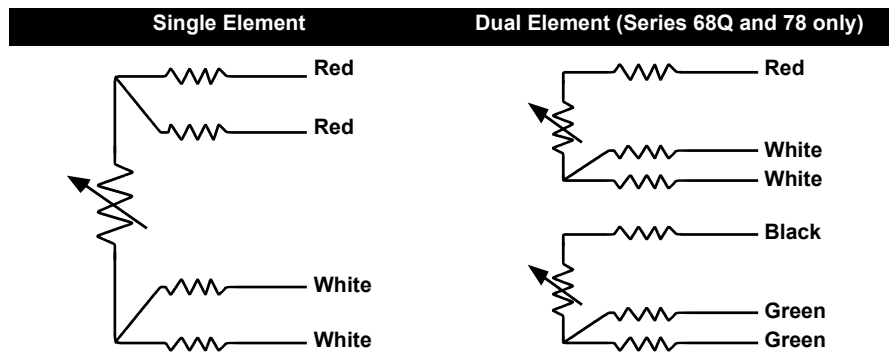
Wiring Instructions	page 1-1
Approval Drawings for Hazardous Location Installation	page 1-3

WIRING INSTRUCTIONS

Series 58C, 68, 68Q, and 78 RTDs

Series 58C, 68, 68Q, and 78 temperature sensors are provided with four lead wires and can be used in 2-wire, 3-wire, or 4-wire configurations. In addition, the Series 78 sensor is available with dual elements (dual 3-wire configuration). See Figure 1-1.

Figure 1-1. Series 68, 78, and 58C Lead Wire Configurations.



NOTE: For 3-wire systems use one White and two Red leads. Do not common the White leads. Insulate or terminate the unused White lead in a manner that prevents shorting to the ground. For 2-wire systems, common both sets of leads.

Series 58C, 68, 68Q, and 78 RTD

Series 58C Sheath Cutting Procedure

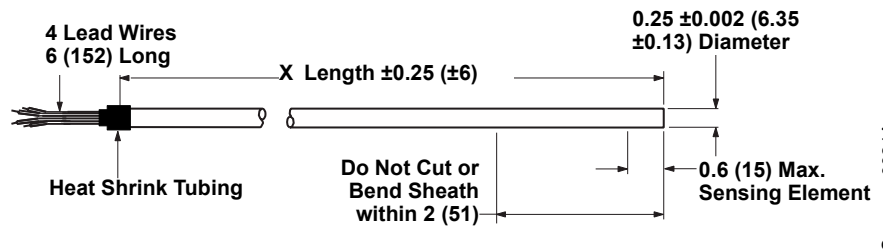
1. Determine the length to which the sheath will be cut. The finished length needs to include an additional 1.5 inches for compression fittings, or 2.5 inches for spring-loaded fittings (see Figure 1-2).
2. Remove and save the heat shrink tubing from the rear of the sensor.
3. Place the sensor in a vise, taking care not to overtighten, and position the tubing cutter on the sheath.
4. Score the sheath to a depth of approximately $\frac{1}{64}$ inch. **To prevent damage to the lead wire insulation, do not cut completely through the sheath.**
5. Firmly grasp the end of the sheath with your hand or a pair of pliers. Using a sharp snapping motion, break off and remove the excess sheath material. Take care not to strip or damage the lead wire insulation while removing the excess sheath material.

NOTE

If you are unable to easily break off the excess sheath material, deepen the score and repeat Step 5.

6. Replace the heat shrink tubing.

Figure 1-2. Series 58C Sensor Dimensional Drawings



**Series 183
 Thermocouples**

Rosemount Series 183 Thermocouples are manufactured using ISA Type J, K, E, or T wire with “Special Limits of Error” accuracy, the characteristics of which are outlined in Table 1-1. They can be installed using different junction and lead wire configurations (see Figures 1-3 and 1-4).

Table 1-1. Characteristics of Series 183 Thermocouple Types.

ISA Thermocouple Types	Thermocouple Wire Alloys	Temperature Range		Limits of Error (Interchangeability)
		°C	°F	
J	Iron/Constantan	0 to 760	(32 to 1400)	±1.1 °C or ±0.4% of measured temperature, whichever is greater
K	Chromel/Alumel	0 to 1150	(32 to 2102)	±1.1 °C or ±0.4% of measured temperature, whichever is greater
E	Chromel/Constantan	0 to 900	(32 to 1652)	±1.0 °C or ±0.4% of measured temperature, whichever is greater
T	Copper/Constantan	-180 to 0	(-292 to 32)	±1.0 °C or ±1.5% of measured temperature, whichever is greater
		0 to 371	(32 to 700)	±0.5 °C or ±0.4% of measured temperature, whichever is greater

Figure 1-3. Series 183 Junction Configurations

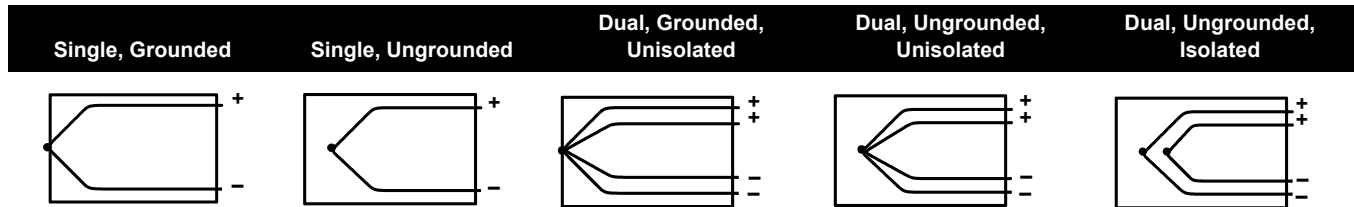
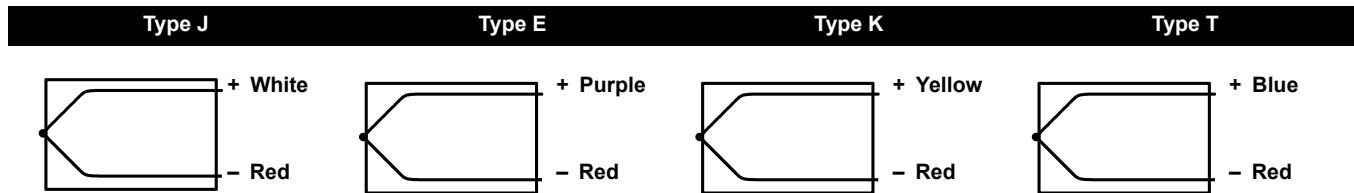


Figure 1-4. Series 183 Lead Wire Configurations



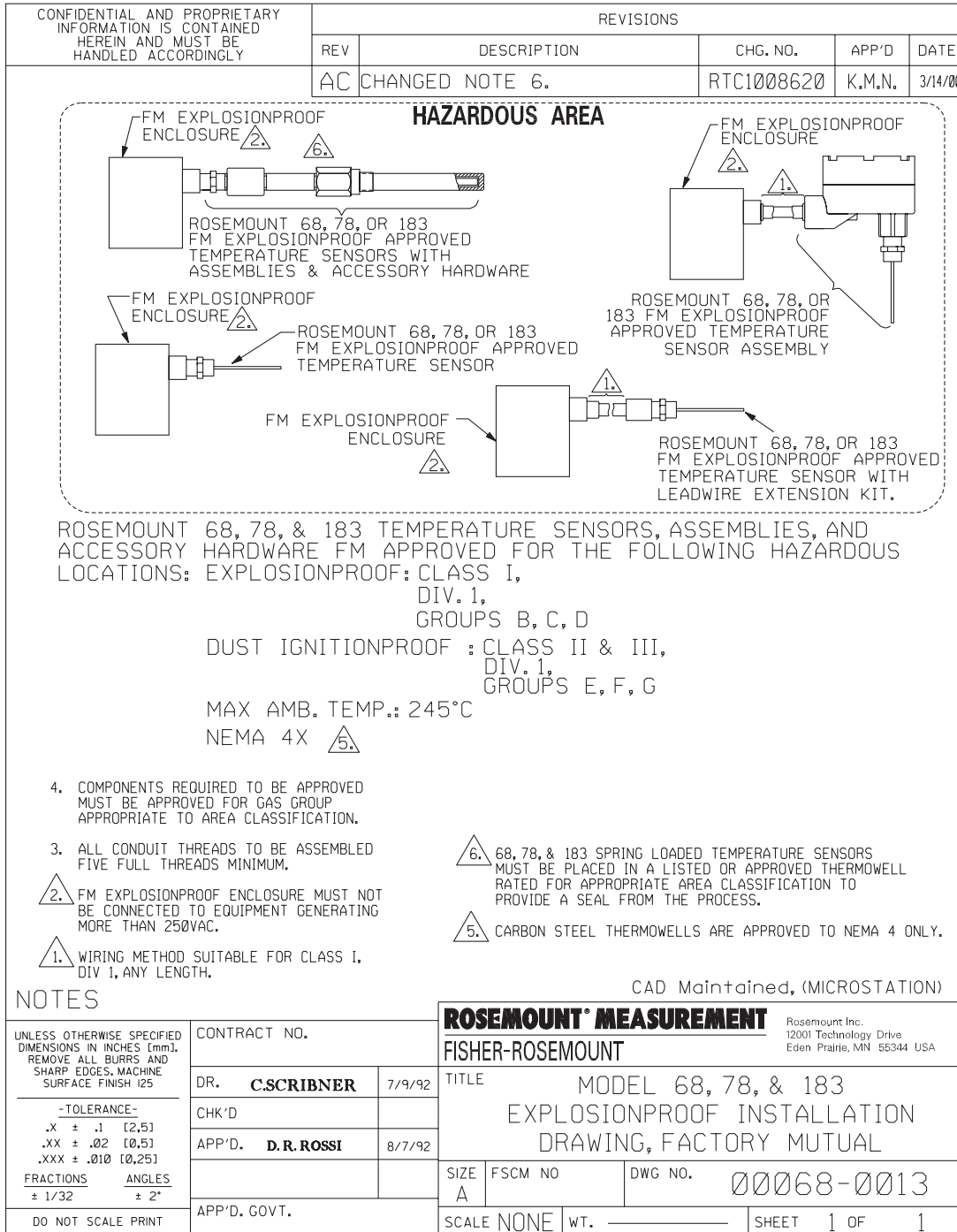
**APPROVAL DRAWINGS
 FOR HAZARDOUS
 LOCATION
 INSTALLATION**

Rosemount Series 68, 78, and 183 Temperature Sensors can be ordered with Factory Mutual (FM) and Canadian Standards Association (CSA) Explosion-proof approvals. Install in accordance with applicable approval drawings to maintain certified ratings.

Series 58C, 68, 68Q, and 78 RTD

Factory Mutual (FM) Explosion-Proof

Figure 1-5. Installation Drawing 00068-0013, Rev. AC

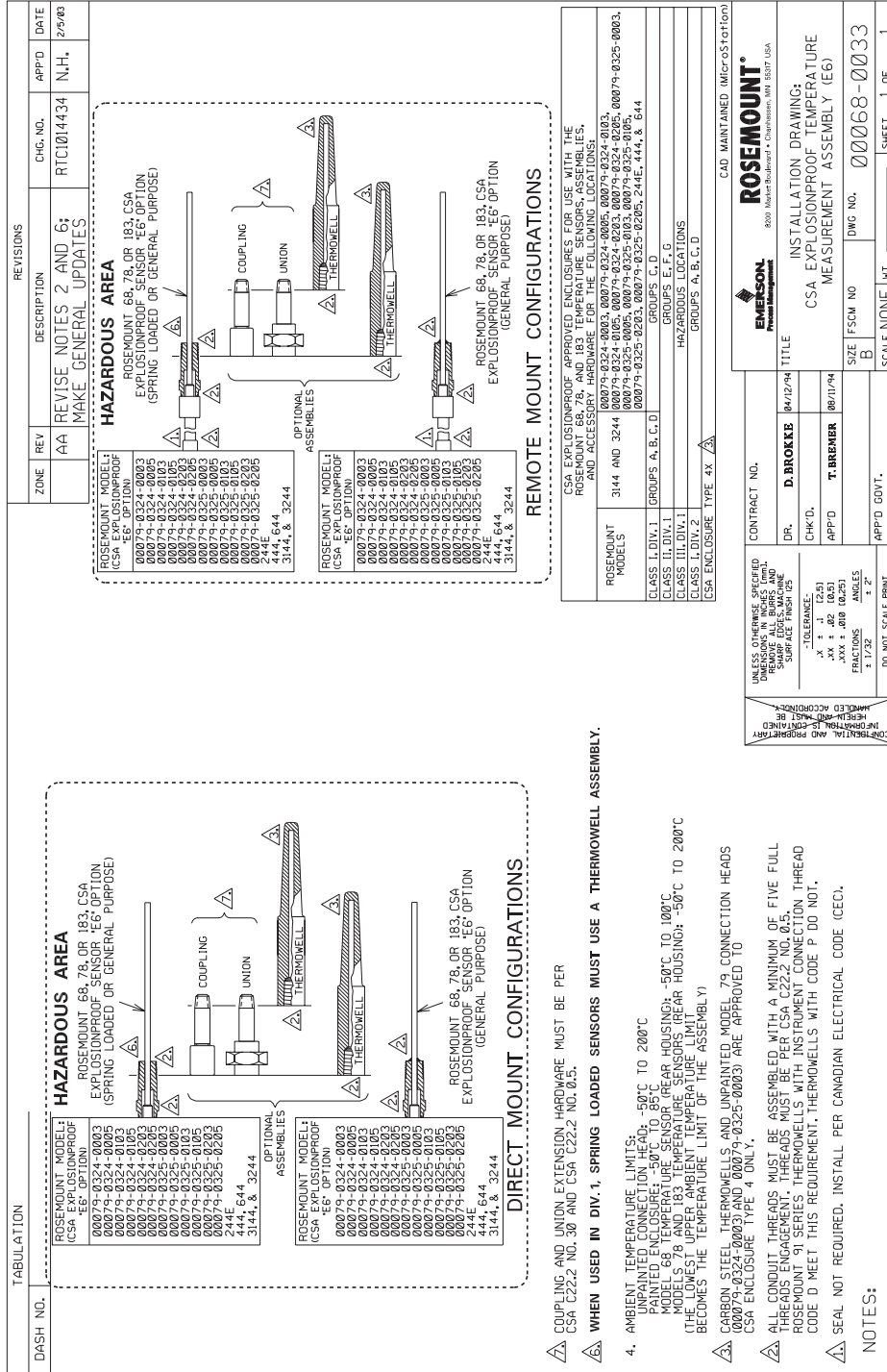


NOTE

For Hand-Tight Assembly Option XA: End-User (installer) must unscrew threaded joints, then reassemble and tighten all joints per installation drawing 00068-0013.

Canadian Standards Association (CSA) Explosion-Proof

Figure 1-6. Installation Drawing 00068-0033, Rev. AA

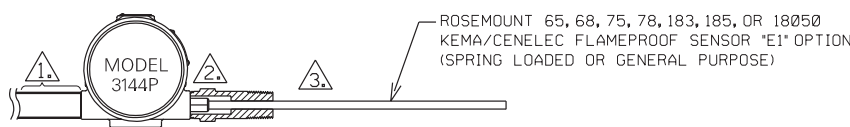
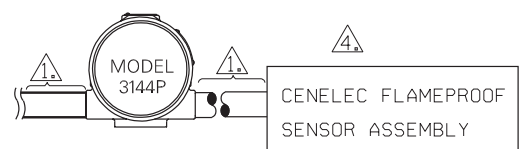



NOTE

For Hand-Tight Assembly Option XA: End-User (installer) must unscrew threaded joints, then reassemble and tighten all joints per installation drawing 00068-0033.

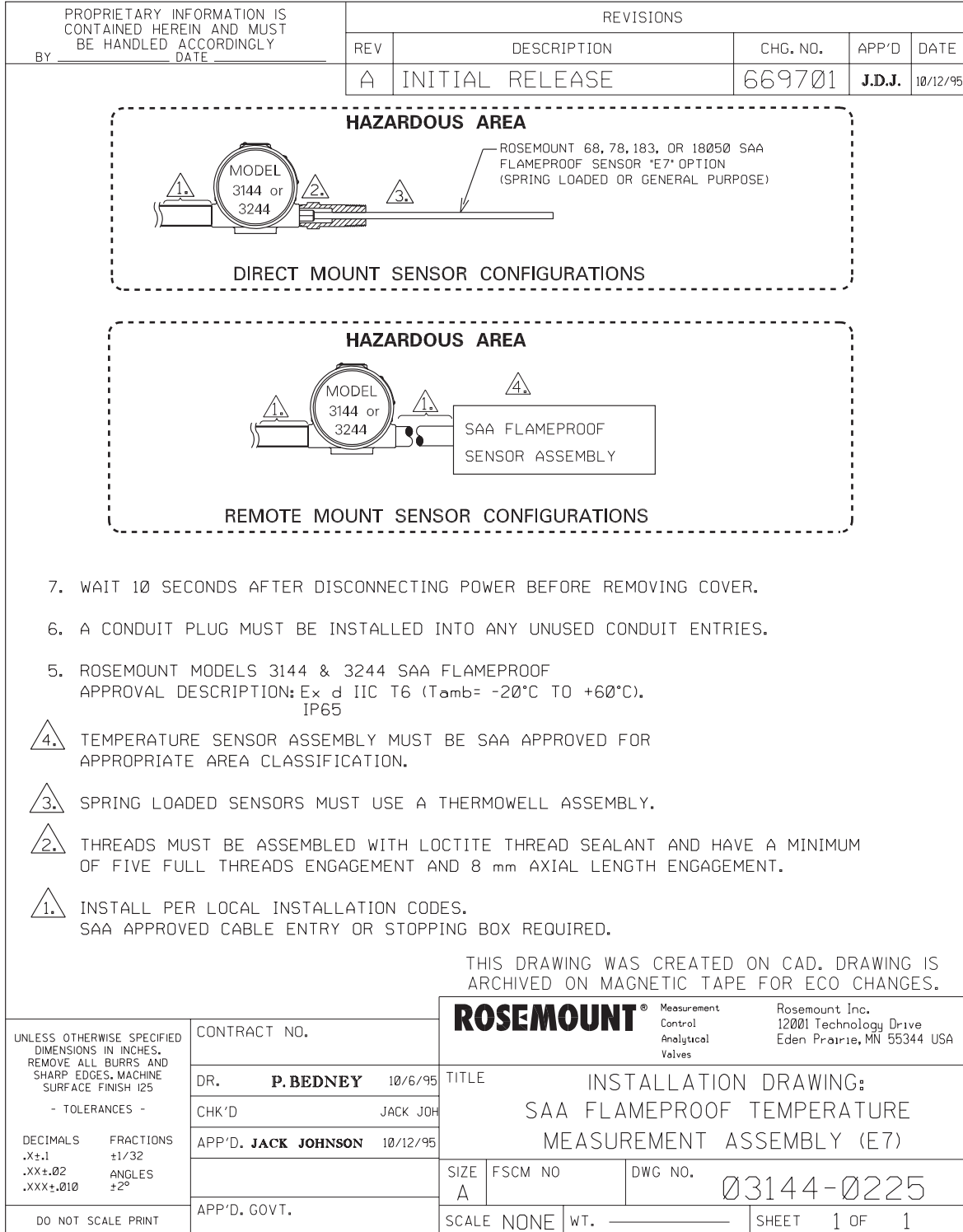
CENELEC Flameproof

Figure 1-7. Installation Drawing 03144-0324, Rev. AB

CONFIDENTIAL AND PROPRIETARY INFORMATION IS CONTAINED HEREIN AND MUST BE HANDLED ACCORDINGLY	REVISIONS															
	<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:10%;">REV</th> <th style="width:55%;">DESCRIPTION</th> <th style="width:15%;">CHG. NO.</th> <th style="width:10%;">APP'D</th> <th style="width:10%;">DATE</th> </tr> </thead> <tbody> <tr> <td>AA</td> <td>NEW RELEASE</td> <td>RTC1011243</td> <td>D.B.</td> <td>7/17/01</td> </tr> <tr> <td>AB</td> <td>CHANGE ISSEP REFERENCES TO KEMA</td> <td>RTC1011874</td> <td>D.B.</td> <td>11/26/01</td> </tr> </tbody> </table>	REV	DESCRIPTION	CHG. NO.	APP'D	DATE	AA	NEW RELEASE	RTC1011243	D.B.	7/17/01	AB	CHANGE ISSEP REFERENCES TO KEMA	RTC1011874	D.B.	11/26/01
REV	DESCRIPTION	CHG. NO.	APP'D	DATE												
AA	NEW RELEASE	RTC1011243	D.B.	7/17/01												
AB	CHANGE ISSEP REFERENCES TO KEMA	RTC1011874	D.B.	11/26/01												
<div style="border: 1px dashed black; padding: 10px; margin-bottom: 10px;"> <p style="text-align: center;">HAZARDOUS AREA</p>  <p style="text-align: center;">DIRECT MOUNT SENSOR CONFIGURATIONS</p> </div> <div style="border: 1px dashed black; padding: 10px;"> <p style="text-align: center;">HAZARDOUS AREA</p>  <p style="text-align: center;">REMOTE MOUNT SENSOR CONFIGURATIONS</p> </div>																
<p>7. WAIT 10 SECONDS AFTER DISCONNECTING POWER BEFORE REMOVING COVER.</p> <p>6. A CONDUIT PLUG MUST BE INSTALLED INTO ANY UNUSED CONDUIT ENTRIES.</p> <p>5. ROSEMOUNT MODELS 3144P KEMA/CENELEC FLAMEPROOF APPROVAL Ex II 2 G DESCRIPTION: EE x d IIC T6 (T_{amb}= -40°C TO +70°C) T5 (-40°C TO +80°C), IP66</p> <p>4. TEMPERATURE SENSOR ASSEMBLY MUST BE CENELEC APPROVED FOR APPROPRIATE AREA CLASSIFICATION.</p> <p>3. SPRING LOADED SENSORS MUST USE A THERMOWELL ASSEMBLY.</p> <p>2. THREADS MUST BE ASSEMBLED WITH LOCTITE THREAD SEALANT AND HAVE A MINIMUM OF FIVE FULL THREADS ENGAGEMENT AND 8 mm AXIAL LENGTH ENGAGEMENT.</p> <p>1. INSTALL PER LOCAL INSTALLATION CODES. CENELEC APPROVED CABLE ENTRY OR STOPPING BOX REQUIRED.</p>																
CAD MAINTAINED (MicroStation)																
UNLESS OTHERWISE SPECIFIED DIMENSIONS IN INCHES [mm]. REMOVE ALL BURRS AND SHARP EDGES. MACHINE SURFACE FINISH 125	CONTRACT NO.															
-TOLERANCE- .X ± .1 [2,5] .XX ± .02 [0,5] .XXX ± .010 [0,25]	DR. NGA DOAN 6/29/01															
FRACTIONS ANGLES ± 1/32 ± 2°	APP'D. DIRK BAUSCHKE 7/17/01															
DO NOT SCALE PRINT	APP'D. GOVT.															
 ROSEMOUNT® <small>8200 Market Boulevard • Chanhassen, MN 55317 USA</small>																
TITLE INSTALLATION DRAWING: KEMA/CENELEC FLAMEPROOF TEMPERATURE MEASUREMENT ASSEMBLY (E1)																
SIZE A	FSCM NO. DWG NO. 03144-0324															
SCALE NONE	WT. _____ SHEET 1 OF 1															

Standard Association of Australia (SAA) Flameproof

Figure 1-8. Drawing 03144-0225, Rev. A



Series 58C, 68, 68Q, and 78 RTD

*Rosemount and the Rosemount logotype are registered trademarks of Rosemount Inc.
All other marks are the property of their respective owners.*

Emerson Process Management

Rosemount Inc.

8200 Market Boulevard
Chanhassen, MN 55317 USA
T (U.S.) 1-800-999-9307
T (International) (952) 906-8888
F (952) 949-7001

www.rosemount.com



Emerson Process Management Temperature GmbH

Frankenstrasse 21
63791 Karlstein
Germany
T 49 (6188) 992 0
F 49 (6188) 992 112

Emerson Process Management Asia Pacific Private Limited

1 Pandan Crescent
Singapore 128461
T (65) 6777 8211
F (65) 6777 0947
AP.RMT-Specialist@emersonprocess.com



EMERSON
Process Management