

Models 244EH and 244ER PC-Programmable Temperature Transmitter

- Provide an installation-ready solution using Complete Point Solutions™ (CPS)
- Accept a wide variety of 2-, 3-, and 4-wire RTDs and thermocouple sensor types
- Configure using the Model 244EC Configuration Interface and a standard PC
- Provide 500 VAC input to output isolation
- Mount in remote and integral applications using the universal head



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Models 244EH and 244ER

The Model 244E PC-Programmable Temperature Transmitter

The Rosemount® Model 244E is a cost-efficient solution for non-critical temperature monitoring applications. Compared to wiring direct, the Model 244E will save money in cabling and installation costs while delivering accurate and reliable measurement.

INSTALLATION READY SOLUTIONS

The Model 244E is part of the Rosemount Complete Point Solutions (CPS) program. CPS guarantees that the transmitter, sensor, extension, and thermowell will be shipped from the factory as an installation ready assembly to save on installation costs.

FLEXIBILITY

The Model 244E allows for great flexibility in selecting a sensor type that is appropriate for the process being measured. The Model 244E accepts inputs from a wide variety of 2-, 3-, and 4-wire RTDs as well as thermocouples, millivolt, and ohm sensor types.

ISOLATION

The Model 244E is designed with 500 VAC input to output isolation. This isolation helps to ensure the integrity of the temperature measurement in industrial environments and not damage sensitive system electronics.

PROGRAMMABLE

The Model 244EC Configuration Interface consists of a programmer, cables, and configuration software. The Model 244EE configuration software, when used in conjunction with the interface, provides the tools necessary to select the sensor type, sensor range, and sensor error action in addition to many other options.

UNIVERSAL HEAD

The Model 244EH head mount transmitter offers different configurations for mounting. Using the Rosemount Universal Head, the Model 244EH may be mounted either integrally or remotely to fit the needs of the specific temperature monitoring application.

Rosemount Temperature Solutions

Model 3144P Temperature Transmitter

Field mount style available with HART® protocol.

Model 3244MV Temperature Transmitter

Field mount style available with FOUNDATION™ fieldbus and Profibus-PA protocols.

Model 644 Smart Temperature Transmitter

Head or rail mount styles available with HART protocol.

Model 848T Eight Input Temperature Transmitter

Eight input transmitter available with FOUNDATION fieldbus protocol.

Model 244E Temperature Transmitters

Head or rail mount styles that are PC-programmable.

Model 144H Temperature Transmitters

PC-programmable head mount style for 2- and 3-wire RTD sensor inputs.

Rosemount sensors, thermowells, and extensions

Rosemount has a broad offering of RTD and thermocouples that are designed to meet plant requirements.

Specifications

FUNCTIONAL SPECIFICATIONS

Inputs

User-selectable using the Model 244EC Configuration Interface and the Model 244EC Configuration Software. Sensor terminals are rated to 42.4 V dc. See "Accuracy".

Output

2-wire 4–20 mA, linear with temperature for RTDs and thermocouples and linear with input for millivolts and ohms.

Isolation

Input/output isolation tested to 500 V ac rms (707 V dc) at 50/60 Hz

Power Supply

An external power supply is required. The transmitter operates on 12.0 to 42.4 V dc. Transmitter power terminals are rated to 42.4 V dc.

Failure Mode

The Model 244E features software driven alarm diagnostics and an independent circuit. These features are designed to provide backup alarm outputs in case the microprocessor, electronics, hardware, or software fails. The alarm levels are user-selectable using the failure mode switch. In case of alarm, the position of the jumper determines the direction in which the output is driven (HI or LO). The jumper switch feeds into the digital-to-analog (D/A) converter, which drives the proper alarm output even if the microprocessor fails. The values that the transmitter drives its output in failure mode depends on whether it is factory configured to standard or NAMUR compliant operation. The values for standard and NAMUR-compliant operation are as follows.

TABLE 1. Standard vs. NAMUR-compliant specifications

	Standard ⁽¹⁾	NAMUR- Compliant ⁽¹⁾
Linear Output:	$3.9 \leq I \leq 20.5$	$3.8 \leq I \leq 20.5$
Fail High:	$21 \leq I \leq 23$ (default)	$21 \leq I \leq 23$ (default)
Fail Low:	$I \leq 3.75$	$I \leq 3.6$

(1) Measured in milliamperes

Humidity Limits

0–99% relative humidity, non-condensing

Transient Protection

The Model 470 prevents transmitter damage from transients induced by lightning, welding, heavy electrical equipment, or switch gears. Refer to the Model 470 Product Data Sheet (document number 00813-0100-4191) for more information.

Update Time

Approximately 0.5 seconds

Temperature Limits

Operating Limit	Storage Limit
–40 to 85 °C (–40 to 185 °F)	–50 to 120 °C (–58 to 248 °F)

Turn-on Time

Performance within specifications is less than 5.0 seconds after power is applied to transmitter when damping value is set to zero seconds

PHYSICAL SPECIFICATIONS

Electrical Connections

Model	Power and Sensor Terminals	Communication Terminals
Model 244EH	Compression screws permanently fixed to terminal block	Clips permanently fixed to terminal block
Model 244ER	Compression screw permanently fixed to front panel	Clips permanently fixed to front panel

WAGO® spring clamp terminals are optional (option code G5)

Models 244EH and 244ER

Materials of Construction

Electronics Housing and Terminal Block Construction Material

Model 244EH	Noryl® glass reinforced
Model 244ER	Lexan® polycarbonate

Mounting

The Model 244ER attaches directly to a wall or a DIN rail. The Model 244EH installs in a connection head or universal head mounted directly on a sensor assembly, apart from a sensor assembly using a universal head, or to a DIN rail using an optional mounting clip. (See page Temperature-83 for more information.)

Weight

Code	Options	Add ⁽¹⁾
Model 244EH	Head Mount	78 (2.75)
J5, J6	Universal Head	520 (18.43)
Model 244ER	Rail Mount	173 (6.10)

(1) All weights are in grams (ounces).

Enclosure Ratings (Model 244EH)

Option codes J5 and J6 are NEMA 4X, IP66, and IP68. Option code J6 is CSA Enclosure Type 4X

PERFORMANCE SPECIFICATIONS

The Models 244EH and 244ER maintain a specification conformance of at least 3σ.

Stability

RTDs and thermocouples have a stability of ±0.1% of reading or 0.1 °C (whichever is greater) for twelve months.

Power Supply Effect

Less than ±0.005% of span per volt

Vibration Effect

The Model 244EH and Model 244ER are tested to the following specifications with no effect on performance:

Frequency	Vibration
10 to 60 Hz	0.21 displacement
60 to 2000 Hz	3 g peak acceleration

CE Electromagnetic Compatibility Compliance Testing

The Models 244EH and 244ER meet all requirements listed under IEC 61326: Amendment 1, 1998.

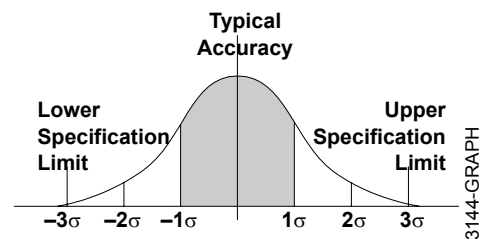
Rosemount Conformance to Specifications

You can be confident that a Rosemount product not only meets its published specifications, but most likely exceeds them. Our advanced manufacturing techniques and use of Statistical Process Control provide specification conformance to at least ±3σ⁽¹⁾. In addition, our commitment to continual improvement ensures that product design, reliability, and performance will improve every year.

For example, the Reference Accuracy distribution for the Model 244E Temperature Transmitter is shown to the right. Our Specification Limits are ±0.2 °C, but, as the shaded area shows, approximately 68% of the units perform three times better than the limits. Therefore, it is very likely that you will receive a device that performs much better than our published specifications.

Conversely, a vendor who “grades” product without using Process Control, or who is not committed to ±3σ performance, will ship a much higher percentage of units that are barely within (or even outside of) advertised specification limits.

(1) Sigma (σ) is a statistical symbol to designate the standard deviation from the mean value of a normal distribution.



Note: Accuracy distribution shown is for Model 244E, Pt 100 RTD sensor, range 0 to 100 °C.

Product Data Sheet

00813-0100-4737, Rev FA
Catalog 2002 – 2003

Models 244EH and 244ER

Accuracy

TABLE 2. Accuracy/Input Options

Sensor Options	Sensor Reference	Input Ranges		Recommended Min. Span ⁽¹⁾		Accuracy (whichever is greater)
		°C	°F	°C	°F	
2-, 3-, 4-wire RTDs						
Pt 100	IEC 751, 1995 ($\alpha = 0.00385$)	-200 to 850	-328 to 1562	10	18	0.05% of span + 0.15 °C or 0.2 °C
Pt 100	JIS 1604, 1981 ($\alpha = 0.003916$)	-200 to 645	-328 to 1093	10	18	0.05% of span + 0.15 °C or 0.2 °C
Pt 200	IEC 751, 1995 ($\alpha = 0.00385$)	-200 to 850	-328 to 1562	10	18	0.01% of span or 0.4 °C
Pt 500	IEC 751, 1995 ($\alpha = 0.00385$)	-200 to 850	-328 to 1562	10	18	0.01% of span or 0.3 °C
Pt 1000	IEC 751, 1995 ($\alpha = 0.00385$)	-200 to 300	-328 to 572	10	18	0.01% of span or 0.3 °C
Ni 120	Edison Curve No. 7	-70 to 300	-94 to 572	10	18	0.01% of span or 0.2 °C
Cu 10	Edison Copper Winding No. 1	-50 to 250	-58 to 482	10	18	0.5% of span or 1.5 °C
Thermocouples⁽²⁾						
Type B ⁽³⁾	NIST Monograph 175, IEC 584	100 to 1820	212 to 3308	25	40	0.2% of span or 1.0 °C
Type E	NIST Monograph 175, IEC 584	-50 to 1000	-58 to 1832	25	40	0.1% of span or 0.5 °C
Type J	NIST Monograph 175, IEC 584	-180 to 760	-292 to 1400	25	40	0.1% of span or 0.5 °C
Type K	NIST Monograph 175, IEC 584	-180 to 1372	-292 to 2502	25	40	0.1% of span or 1.0 °C
Type N	NIST Monograph 175, IEC 584	-200 to 1300	-328 to 2372	25	40	0.1% of span or 1.0 °C
Type R	NIST Monograph 175, IEC 584	0 to 1768	32 to 3214	25	40	0.1% of span or 1.0 °C
Type S	NIST Monograph 175, IEC 584	0 to 1768	32 to 3214	25	40	0.1% of span or 1.0 °C
Type T	NIST Monograph 175, IEC 584	-200 to 400	-328 to 752	25	40	0.1% of span or 0.5 °C
DIN Type L	DIN 43710	-200 to 900	-328 to 1652	25	40	0.1% of span or 0.5 °C
DIN Type U	DIN 43710	-200 to 600	-328 to 1112	25	40	0.1% of span or 0.5 °C
Type W5Re/W26Re	ASTME 988-96	0 to 2000	32 to 3632	25	40	0.1% of span or 1.0 °C
Millivolt Input		-10 to 100 mV		3 mV		0.025 mV + 0.003% of span
2-, 3-, 4-wire Ohm Input		0 to 2000 ohms		20 ohm		0.75 Ω + 0.03% of span

(1) No minimum or maximum span restrictions within the input ranges. Recommended minimum span will hold noise within accuracy specification with damping at zero seconds.

(2) Total digital accuracy for thermocouple measurement: sum of digital accuracy +0.5 °C (cold junction accuracy).

(3) Accuracy for NIST Type B thermocouple is ± 3.0 °C from 100 to 300 °C.

Accuracy Example

When using a Pt 100 ($\alpha = 0.00385$) sensor input with a 75 to 150 °C range, the accuracy will be ± 0.15 °C of span + 0.15 °C or 0.2 °C, whichever is greater. Sample Calculation: $[0.0005 (150-75)+0.15] = 0.19$ °C, whichever is less than 0.2 °C, so the accuracy equals 0.2.

Models 244EH and 244ER

Ambient Temperature Effect

Transmitters can be installed in locations where the ambient temperature is between –40 and 85 °C (–40 and 185 °F). To maintain excellent accuracy performance, each transmitter is individually characterized over this ambient temperature range at the factory. The transmitters automatically adjust for component temperature drift caused by changing environmental conditions.

TABLE 3. Ambient Temperature Effects

Sensor Options ⁽¹⁾	Fixed Value	% of reading		% of Span
		(if reading > 0)	(if reading is < 0)	
2-, 3-, 4-wire RTDs				
Pt 100 ($\alpha = 0.00385$)	0.003 °C	—	—	0.001% of span
Pt 100 ($\alpha = 0.003916$)	0.003 °C	—	—	0.001% of span
Pt 200	0.004 °C	—	—	0.001% of span
Pt 500	0.003 °C	—	—	0.001% of span
Pt 1000	0.003 °C	—	—	0.001% of span
Ni 120	0.003 °C	—	—	0.001% of span
Cu 10	0.03 °C	—	—	0.001% of span
Thermocouples				
Type B (100 °C ≤ reading < 300 °C)	0.064 °C	– 0.011	—	0.001% of span
(300 °C ≤ reading < 1000 °C)	0.040 °C	– 0.025	—	0.001% of span
(reading ≥ 1000 °C)	0.014 °C	—	—	0.001% of span
Type E	0.005 °C	– 0.00043	– 0.0043	0.001% of span
Type J, K, DIN L	0.006 °C	– 0.00054	– 0.0025	0.001% of span
Type N	0.007 °C	– 0.00036	—	0.001% of span
Type R, S (reading < 200 °C)	0.023 °C	– 0.0036	—	0.001% of span
(reading ≥ 200 °C)	0.016 °C	—	—	0.001% of span
Type T, DIN U	0.007 °C	—	– 0.043	0.001% of span
Type W5Re/W26Re	0.023 °C	– 0.0036	—	0.001% of span
	0.016 °C	—	—	
Millivolt Input	0.0005 mV	—	—	0.001% of span
2-, 3-, 4-wire Ohm	0.0084 Ω	—	—	0.001% of span

(1) Change in ambient is with reference to the calibration temperature of the transmitter 68 °F (20 °C) from factory.

Temperature Effects Example

Example 1:

When using a Type J thermocouple with a 50 °C to 600 °C temperature range at an ambient temperature of 60 °C and a reading of –25 °C, the ambient temperature effect according to °C is:

- [fixed value (a) + (% of reading (b) x reading) = (% of span (c) x span)] = [0.006 + (–0.000025 x (–25)) + (0.00001 x 650)] = 0.013 °C per °C.

With the ambient temperature 40 °C above reference condition temperature, the total ambient temperature effect is:

- 40 x 0.013 = 0.52 °C

Example 2:

When using a Type J thermocouple with a – 50 °C to 600 °C temperature range at an ambient temperature of 60 °C and a reading of 525 °C, the ambient temperature effect according to °C is:

- [fixed value (a) + (% of reading (b) x reading) = (% of span (c) x span)] = [0.006 + (–0.0000054 x 525) + (0.00001 x 650)] = 0.015 °C per °C.

With the ambient temperature 40 °C above reference condition temperature, the total ambient temperature effect is:

- 40 x 0.015 = 0.6 °C

Example 3:

The worst case error would be:

- Reference Accuracy + CJC Accuracy + Temp Effects = 0.65 °C + 0.5 °C + 0.52 °C = 1.67 °C.

Total probably error:

$$65^2 + 0.5^2 + 0.52^2 = 0.97^\circ\text{C}$$

Hazardous Locations Certifications

Factory Mutual (FM) Approvals

E5 Explosion-Proof for Class I, Division 1, Groups B, C, and D. Dust-Ignition Proof for Class II, Division 1, Groups E, F, and G. Dust-Ignition Proof for Class III, Division 1 hazardous locations when installed in accordance with Rosemount Drawing 00644-1049. Non-Incendive for Class I, Division 2, Groups A, B, C, and D. Temperature Code T5 ($T_{amb} = 85\text{ }^{\circ}\text{C}$). Conduit seal not required for compliance with NEC 501-5a(1).

NOTE:

Approval E5 is only available with Model 244EH option codes J5 and J6.

I5 Intrinsically Safe for Class I, II, III, Division 1, Groups A, B, C, D, E, F, G; Non-incendive for Class I, Division 2, Groups A, B, C, D hazardous locations when installed in accordance with Rosemount Drawing 00644-0009. Temperature Code T5 ($T_{amb} = 80\text{ }^{\circ}\text{C}$) (T6 ($T_{amb} = 40\text{ }^{\circ}\text{C}$))

Special Conditions for Safe Use (X):

When the output of the associated apparatus does not exceed $P_o = 0.67$ Watts, the temperature code is T6 ($T_{amb} = 50\text{ }^{\circ}\text{C}$)

K5 Combination of E5 and I5

NOTE:

Approval K5 is only available with Model 244EH option codes J5 and J6.

Canadian Standards Association (CSA) Approvals

I6 Intrinsically safe for Class I, Division 1, Groups A, B, C, and D when connected in accordance with Rosemount drawing 00644-1064

C6 Combination of I6 and the following: Explosion-Proof for Class I, Division 1, Groups B, C, and D. Dust-ignition proof for Class II, Division 1, Groups E, F, and G. Dust-ignition proof for Class III, Division 1 hazardous locations when installed in accordance with Rosemount Drawing 00644-1059 factory sealed. Suitable for Class I, Division 2, Groups A, B, C, and D.

NOTE:

Approval C6 is only available with Model 244EH option code J6.

CENELEC/KEMA Approvals

ED ATEX Category II 2 G Certification number KEMA 99ATEX8715
 Flameproof (Zone 1) (Model 244EH only)
 EEx d IIC T6 ($T_{amb} = -40$ to $65\text{ }^{\circ}\text{C}$).
 Requires a connection head or Universal head.

CENELEC/British Approvals Service for Electrical Equipment in Flammable Atmospheres (BASEEFA) Approvals

I1 ATEX Category II 1 G, Certification number BAS00ATEX1033X
 Intrinsically Safe Operation (Zones 0)
 EEx ia IIC T6 ($T_{amb} = -60$ to $40\text{ }^{\circ}\text{C}$) $P_i = 0.67\text{W}$
 EEx ia IIC T5 ($T_{amb} = -60$ to $50\text{ }^{\circ}\text{C}$) $P_i = 0.67\text{W}$
 EEx ia IIC T5 ($T_{amb} = -60$ to $40\text{ }^{\circ}\text{C}$) $P_i = 1.0\text{W}$
 EEx ia IIC T5 ($T_{amb} = -60$ to $80\text{ }^{\circ}\text{C}$) $P_i = 1.0\text{W}$

TABLE 4. Entity Parameters

Power/Loop	Sensor
$U_i = 30\text{ V dc}$	$U_o = 13.6\text{ V}$
$I_i = 200\text{ mA}$	$I_o = 80\text{ mA}$
$P_i = 1.0\text{ W}$	$P_i = 80\text{ mW}$
$C_i = 10\text{ nF}$	$C_o = 0.73\text{ }\mu\text{F}$
	$L_o = 5.8\text{ mH}$
	$C_o = 5.12\text{ }\mu\text{F}$
	$L_o = 23.36\text{ mH}$
	$C_o = 18.52\text{ }\mu\text{F}$
	$L_o = 48.06\text{ mH}$

Special Conditions for Safe Use (X):

The apparatus must be installed in an enclosure which affords it a degree of protection of at least IP20. Non-metallic enclosures must have a surface resistance of less than $1\text{G}\Omega$, light alloy or zirconium enclosures must be protected from impact and friction when installed.

N1 ATEX Category II 3 G Certification number BAS00ATEX3145
 Type 'nL' Operation Non-Incendive Approval (Zone 2 only)
 EEx nL IIC T5 ($T_{amb} = -40$ to $70\text{ }^{\circ}\text{C}$)
 (Type 'nL' certification is only available as a complete assembly with the Rosemount universal head, thermometer, and thermowell.)

Standard Australia Quality Assurance Service (SAA)

NOTE:

Consult factory for SAA availability.

- I7** Intrinsic Safety,
Ex ia IIC
- N7** Type n Approval,
Ex n IIC
- E7** Flameproof Approval (Model 244EH only)
Ex d IIC T6 ($T_{amb} = 65\text{ }^{\circ}\text{C}$)

Special Conditions for Safe Use (X):

It is a condition of safe use that a thermowell must be utilized on installations incorporating a DIN style or a sprint loaded sensor assembly, with all threaded connections sealed with sealing tape to maintain the IP rating of IP66 /IP68 (at 3 meters).

It is a condition of safe use that when a thermowell is utilized on installation, this gland must be Standard Australia certified and must be capable of maintaining the IP rating. This also requires the use of thread sealing tape on all gland entries.

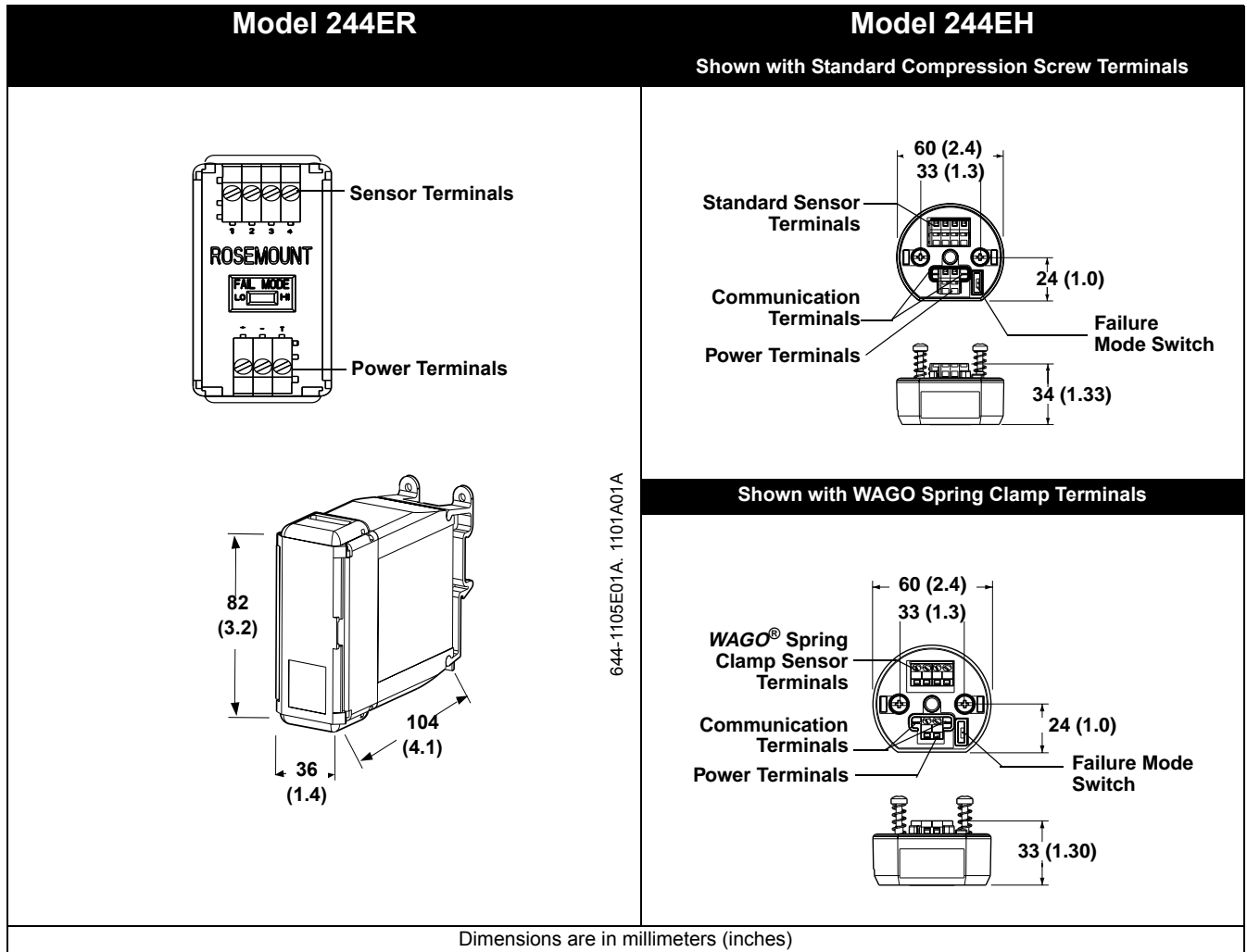
NOTE:

Flameproof certification is only available as a complete assembly with Rosemount universal head – option codes J5 or J6.

Gostandart

Tested and approved by the Russian Metrological Institute GOSTANDART.

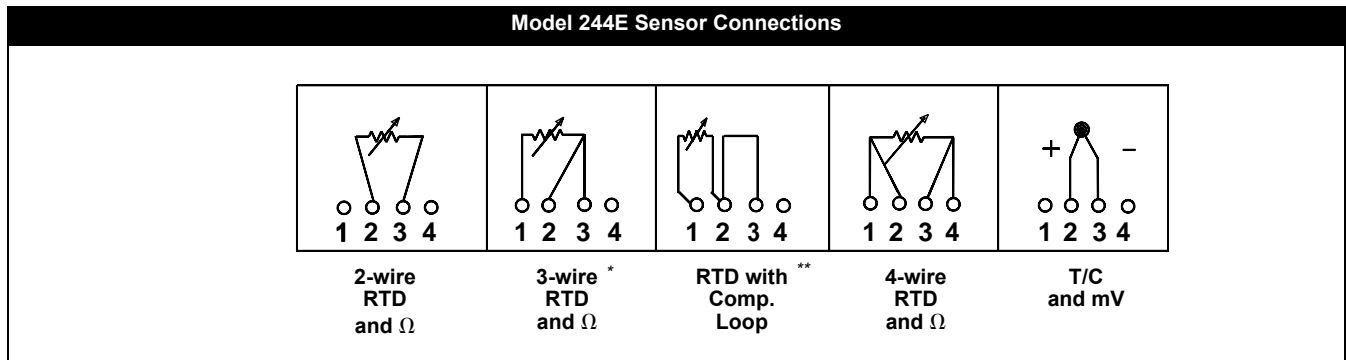
Dimensional Drawings



644-1360A02A

644-1105E01A, 1101A01A

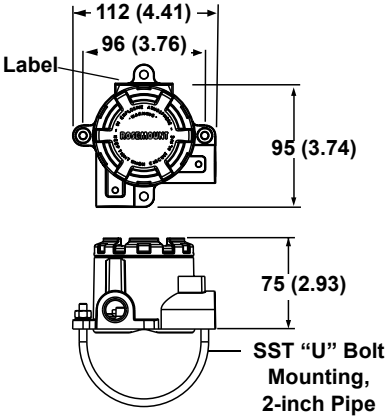
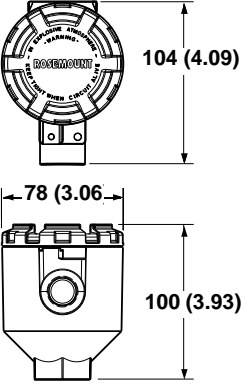
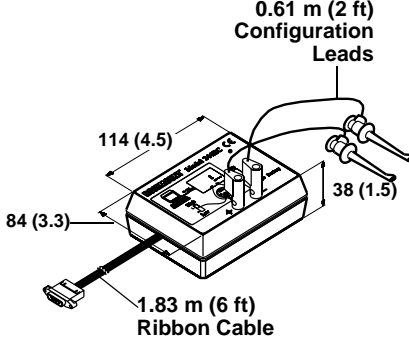
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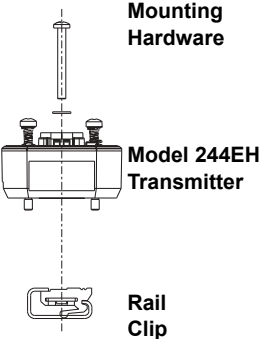
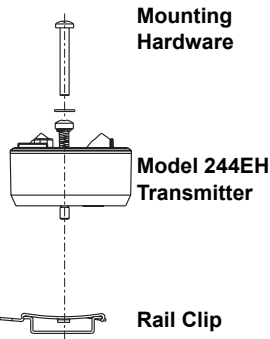
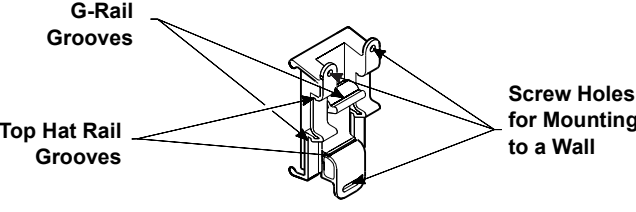
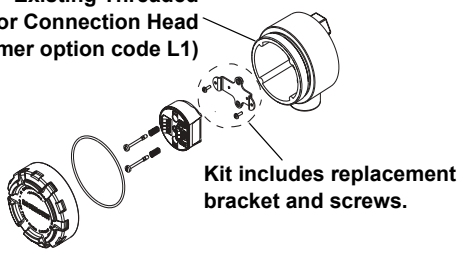
644-0000B01A

* Rosemount Inc. provides 4-wire sensors for all single element RTDs. You can use these RTDs in 3-wire configurations by leaving the unneeded leads disconnected and insulated with electrical tape.

** The transmitters must be configured for a 3-wire RTD in order to recognize an RTD with a compensation loop.

Threaded-Sensor Universal Head (Option code J5 or J6)	Integral DIN Style Sensor Connection Head	Model 244EC Configuration Interface
 <p>Note: A "U" Bolt is shipped with each universal head unless assembly option X1, X2, or X3 is ordered. However, since the head can be integrally mounted to the sensor, it may not need to be used.</p>	 <p>Note: The DIN Style Integral sensor connection head is only available through Volume 2 of the Rosemount Temperature Sensors and Accessories Product Data Sheet (document number 00810-0101-2654).</p>	
Dimensions are in millimeters (inches)		

644-4420A02A, 4410A01A, 3300A01A

Mounting		
G-Rail (asymmetric)	Top Hat Rail (symmetric)	Universal Clip for Mounting the Model 244ER to a Wall or a Rail (part number 03044-4301-0001)
 <p>Note: Kit (part number 00644-5301-0010 includes mounting hardware and both types of rail kits.</p>		 <p style="text-align: center;">Model 244EH Retrofit Kit</p>  <p>Note: Kit (part number 00644-5321-0010) includes a new mounting bracket and the hardware necessary to facilitate the installation.</p>

3044-4001A01B, 644-5302B01A, D02A

3044-0000C01B, D01B, 644-1041B02B, G02B

Models 244EH and 244ER

Ordering Information

TABLE 5. Model 244EH and Model 244ER Ordering Table

• = Available
— = Not available

Model	Product Description	Head Mount	Rail Mount	
244EH	Head Mount Temperature Transmitter	•	—	
244ER	Rail Mount Temperature Transmitter	—	•	
Code	Hazardous Area Certifications	Enclosure Purchase Required?	Head Mount	Rail Mount
E5	FM explosion-proof approval	Yes	•	—
I5 ⁽¹⁾	FM intrinsic safety and non-incendive approval	No	•	•
K5	FM intrinsic safety, non-incendive, and explosion-proof approval combination	Yes	•	—
I6 ⁽¹⁾	CSA intrinsic safety and non-incendive approval	No	•	•
C6	CSA intrinsic safety, non-incendive, and explosion-proof approval combination	Yes	•	—
N1	CENELEC/BASEEFA type n approval	Yes	•	—
ED	CENELEC/KEMA flameproof approval	Yes	•	—
I1 ⁽¹⁾	CENELEC/BASEEFA intrinsic safety approval	No	•	•
E7	SAA flameproof approval. <i>Consult factory for availability.</i>	Yes	•	—
N7	SAA type n approval. <i>Consult factory for availability.</i>	Yes	•	—
I7 ⁽¹⁾	SAA intrinsic safety approval. <i>Consult factory for availability.</i>	No	•	•
NA ⁽¹⁾	No approval	No	•	•
Code	Options			
Assembly (Model 244EH Only)⁽²⁾				
X1	Assemble transmitter to a sensor assembly (hand tight, <i>Teflon</i> [®] (PTFE) tape where appropriate, fully wired)		•	—
X2	Assemble transmitter to a sensor assembly (hand tight, no <i>Teflon</i> (PTFE) tape, unwired)		•	—
X3	Assemble transmitter to a sensor assembly (wrench tight, <i>Teflon</i> (PTFE) where appropriate, fully wired)		•	—
Enclosure				
J5 ⁽³⁾	Universal Head (junction box with M20 entries), aluminum alloy with 50.8 (2-in.) SST pipe bracket		•	—
J6	Universal Head (junction box with 1/2–14 NPT entries), aluminum alloy with 50.8 (2-in.) SST pipe bracket		•	—
Configuration				
A1	Analog output levels compliant with NAMUR-recommendations NE 43:June 1997		•	•
CN	Analog output levels compliant with NAMUR-recommendations NE 43: June 1997: alarm configuration low		•	•
F6	60 Hz line voltage filter		•	•
Calibration				
C4	5-Point calibration. <i>Use Q4 option to generate a calibration certificate</i>		•	•
Q4	Calibration certificate. <i>3-point standard; use C4 with Q4 option for a 5-point calibration certificate.</i>		•	•
Accessory (Model 244EH only)				
G1	External ground screw (See “External Ground Screw Assembly” on page Temperature-85). <i>Only available with enclosure options J5 or J6.</i>		•	—
G2	Cable gland. <i>Only available with option code J5.</i>		•	—
G3	Cover chain. <i>Only available with enclosure options J5 or J6.</i>		•	—
G5	WAGO [®] Spring Clamp Terminals		•	—
Typical Model Number: 244EH I1 X1 J6				
Typical Model Number: 244ER I1				

(1) Transmitters with intrinsic safety approvals can be ordered without enclosures. However, to meet intrinsic safety requirements, the transmitter must be installed in an enclosure with IP20 or higher rating. Model 244EH transmitters ordered with enclosure options J5 or J6 meet this requirement.

(2) If ordering (X1), (X2), or (X3) options, specify the same code on the sensor model number. Option codes X1 and X3 are not available with CSA approval. (Hazardous Area Certifications C6 or I6.)

(3) Remote mount only. Sensor assembly options X1, X2, and X3 are not available.

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Models 244EH and 244ER

TABLE 6. Model 244EC Configuration Interface Ordering Information

Model	Product Description		
		244EH	244ER
244EC	Model 244EC Configuration Interface Hardware and Software	•	•
Typical Model Number: 244EC			

• = Available
 — = Not available

TABLE 7. Transmitter Accessories

Part Description	Part Number
Aluminum alloy Universal Head, standard cover—M20 entries	00644-4420-0002
Aluminum alloy Universal Head, standard cover— ¹ / ₂ -14 NPT entries	00644-4420-0001
Ground Screw Assembly Kit	00644-4431-0001
Models 244EH and 244ER configuration software (Four 3.5" diskettes)	00244-3401-0003
Black <i>MINIGRABBER</i> [™] configuration lead	C539920001
Red <i>MINIGRABBER</i> configuration lead	C539920002
Universal clip for rail or wall mount (Model 244ER only)	03044-4103-0001
Kit, hardware for mounting a Model 244EH to a DIN rail (includes clips for symmetrical and asymmetrical rails)	00644-5301-0010
Kit, hardware for retrofitting a Model 244EH in an existing threaded sensor connection head (former option code L1)	00644-5321-0010
24 Inches of symmetric (Top Hat) rail	03044-4200-0001
24 Inches of asymmetric (G) rail	03044-4201-0001
Ground Clamp for symmetric or asymmetric rail	03044-4202-0001
End Clamp for symmetric or asymmetric rail	03044-4203-0001
Blank transmitter configuration labels (sheet of 48)	00644-5154-0001
Snap Rings Kit (used for assembly to DIN sensor)	00644-4432-0001

Hardware Tag

- No charge
- Tagged in accordance with customer requirements
- Tags are adhesive labels
- Permanently attached to transmitter
- Character height is ¹/₁₆-in (1.6 mm)

Software Tag

- The transmitter can store up to 8 characters in its memory
- Transmitter can be ordered with different software and hardware tags
- If the software tag characters are not specified, the software tag will default to the first 30 characters of the hardware tag.

Special Mounting Considerations

Special mounting hardware is available for:

- Mounting a Model 244EH to a DIN rail. See "Mounting".
- Retrofitting a new Model 244EH to replace an existing Model 244EH transmitter in an existing threaded sensor connection head. See "Mounting".

External Ground Screw Assembly

The external ground screw assembly can be ordered by specifying option code G1 when an enclosure is specified. However, some approvals include the ground screw assembly in the transmitter shipment, hence it is not necessary to order option code G1. See below to determine which approval options include the external ground screw assembly.

Approval Type	External Ground Screw Assembly Included
E5, K5, I5, I6, C6, NA	No—Order option code G1
N1, ED, E7, I7, N7, I7	Yes

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Configuration

Unless specified, the transmitter will be shipped as follows:

Sensor Type:	RTD, Pt 100 ($\alpha = 0.00385$, 4-wire)
4 mA Value:	0 °C
20 mA Value:	100 °C
Damping:	5 seconds
Failure Mode:	High/Upscale
Line Voltage Filter:	50 Hz
Tag	See "Hardware Tag" and "Software Tag"

Custom Configuration

The transmitter can be ordered with custom configuration. Use the following table to determine the requirements when specifying the custom configuration.

Option Code	Requirements/Specification
A1: NAMUR-compliant	See Table 1
CN: NAMUR-Compliant, Low Alarm	See Table 1
C4: Five Point Calibration	Will include five-point calibration at 0, 25, 50, 75, and 100% analog and digital output points. Use with Rosemount Calibration Certificate Q4.
F6: 60 Hz Line Filter	Calibrated to a 60 Hz line voltage filter instead of the standard 50 Hz filter

Configuration Software

The PC-based configuration software for the Models 244EH and 244ER allow comprehensive configuration of the transmitters. Used in conjunction with a Model 244EC Configuration Interface, the software provides the tools necessary to configure and view the process variable of a Model 244EH or Model 244ER. Using the software, the following parameters are available:

- Process Variable
- Sensor type
- Number of Wires
- 50/60 Hz selection
- Engineering Units
- Upper and lower range values
- Damping value
- Transmitter electronic tag

Software for the Model 244EC is available in English, French, German, Italian, Spanish, Chinese, Japanese, and Korean. A spreadsheet for printing labels and one sheet of labels are included with the software. The labels can be used when the transmitter configuration has been changed. The user can place a new label on the transmitter to reflect the new configuration parameter.

Model 244EC Configuration Interface

The Model 244EC Configuration interface is a portable, self-contained communication link between your PC and transmitter.

The Model 244EC connects to the serial port on your PC with a standard 9-pin interconnecting plug and to a transmitter using two MINIGRABBER™ clips. Power is provided by one replaceable 9-volt battery. The Model 244EC will also operate using a wall power adapter.

The Model 244EC is approved for Factory Mutual (FM) and Canadian Standards Association (CSA) Ordinary Locations.

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