Product Data Sheet
00813-0100-4799, Rev DA
March 2003

Model 3244MV MultiVariable™ Temperature Transmitter with Profibus-PA

- *Easy integration to a Profibus DP network*
- *5-year stability reduces maintenance costs*
- *Dual-compartment housing provides the highest reliability in harsh industrial environments*
- *18-bit analog-to-digital converter with ambient temperature compensation enhances performance and process quality*
- *Transmitter-Sensor Matching feature improves measurement accuracy by 75%*

Content

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The Ultimate Temperature Transmitter for Control and Safety Applications

The Model 3244MV MultiVariable™ Temperature Transmitter with Profibus-PA communications provides superior accuracy, stability, and reliability, making it the industry–leading temperature transmitter used in control and safety applications.

The Model 3244MV with Profibus-PA has a dual-sensor input capability that allows the transmitter to accept simultaneous input from two independent sensors. You can use this transmitter for measuring differential temperatures, averaging temperature, or redundant temperature measurement.

BEST IN CLASS RELIABILITY

Provides industry-leading five year stability, which reduces maintenance costs. The Transmitter-Sensor Matching feature eliminates interchangeability error, which improves accuracy by 75%.

SUPERIOR HOUSING DESIGN

Designed with dual-compartment housing that provides the highest reliability in harsh environments. The dual-compartment housing provides isolation between the electronics and terminal compartments.

LOCAL INDICATION

The LCD meter provides local indication of temperature measurement, status, and diagnostics.

OUTPUT PROTOCOL FLEXIBILITY

Communicates digitally using Profibus-PA, which can be integrated to a Profibus DP network.

EXCELLENT AMBIENT TEMPERATURE COMPENSATION

It is virtually immune to ambient temperature fluctuations, due to individual transmitter characterizations at the factory. It maintains excellent accuracy in dynamic industrial environments.

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 248 Temperature Assembly
Head mount DIN form B transmitter available with HART protocol.

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

Specifications

FUNCTIONAL

Inputs

User-selectable. See “Accuracy” on page 4
(Sensor terminals are rated to 42.4 V dc.)

Outputs

Manchester-encoded digital signal that conforms to IEC 1158-2 and ISA 50.02

Isolation

Input/output isolation tested to 500 V rms (707 V dc)

Power Supply

External power supply is required. Transmitter operation is between 9.0 and 32.0 V dc, 17.5 mA maximum. (Transmitter power terminals are rated to 42.4 V dc.)

Profibus-PA

.

TABLE 1. Block Information

Block	Execution Time (milliseconds)	Slot Number
Physical (PB)	—	2
Transducer (TB)	—	3, 4, 5,
Transducer (TB)	—	3, 4, 5,
Transducer (TB)	—	3, 4, 5,
Analog Input 1 (AI1)	50	6
Analog Input 2 (AI2)	50	7
Analog Input 3 (AI3)	50	8

Temperature Limits

Description	Operating Limit	Storage Limit
Without LCD Meter	–40 to 185 °F –40 to 85 °C	–60 to 250 °F –50 to 120 °C
With LCD Meter	–4 to 185 °F –20 to 85 °C	–50 to 185 °F –45 to 85 °C

Transient Protection Option (available at a later date)

The transient protector helps to prevent damage to the transmitter from transients induced on the loop wiring by lightning, welding, heavy electrical equipment, or switch gears. The transient protection electronics are contained in an add-on assembly that attaches to the standard transmitter terminal block. The transient protector is tested per the following standard:

ANSI/IEEE C62.41-1991 (IEEE 587), Location Categories A2, B3.
1kV peak (10 × 1000 μS Wave)
6kV / 3kA peak (1.2 × 50 μS Wave 8 × 20 μS Combination Wave)
6kV / 0.5kA peak (100 kHz Ring Wave)
4kV peak EFT (5 × 50 nS Electrical Fast Transient)

Nominal clamping voltages:

- 77 V (normal mode)
- 90 V (common mode)

Alarms

The AI block allows the user to configure the alarm to HI-HI, HI, LO, or LO-LO, with a variety of priority levels and hysteresis

Status

If self-diagnostics detect a sensor burnout or a transmitter failure, the status of the measurement will be updated accordingly.

Humidity Limits

0–100% relative humidity.

Turn-on Time

Performance within specifications is achieved less than 10.0 seconds after power is applied to the transmitter.

Update Time

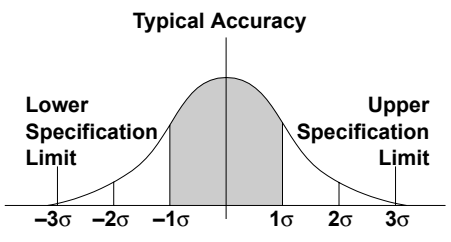
Approximately 0.5 seconds for a single sensor (1.0 second for two sensors).

Rosemount Conformance to Specifications

A Rosemount product not only meets its published specifications, but most likely exceeds them. Advanced manufacturing techniques and the use of Statistical Process Control provide specification conformance to at least ± 3σ(1). Our commitment to continual improvement ensures that product design, reliability, and performance will improve annually.

For example, the Reference Accuracy distribution for the Model 3244MV is shown to the right. Our Specification Limits are ± 0.10 °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 higher percentage of units that are barely within advertised specification limits.



Accuracy distribution shown is for the Model 3244MV, Pt 100 RTD sensor, Range 0 to 100 °C

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

PERFORMANCE

The Model 3244MV with Profibus-PA maintains a specification conformance of at least 3σ.

Accuracy

Sensor Options	Input Ranges		Accuracy(1)	
2-, 3-, 4-Wire RTDs	°C	°F	°C	°F
Pt 100 (α = 0.00385)(2)	200 to 850	–328 to 1562	± 0.10	± 0.18
Pt 100 (α = 0.003916)(3)	200 to 645	–328 to 1193	± 0.10	0.18±
Pt 200(2)	200 to 850	–328 to 1562	± 0.22	± 0.40
Pt 500(2)	200 to 850	–328 to 1562	0.14	± 0.25
Pt 1000(2)	200 to 300	–328 to 572	± 0.08	± 0.14
Ni 120(4)	200 to 300	–94 to 572	± 0.08	± 0.14
Cu 10(5)	200 to 250	–58 to 482	± 1.00	± 1.80
Thermocouples	°C	°F	°C	°F
NIST Type B(6) (7) (8)	212 to 3308	100 to 1820	± 0.75	± 1.35
NIST Type E(5) (8)	–58 to 1832	–50 to 1000	± 0.20	± 0.36
NIST Type J(6) (8)	–292 to 1400	–180 to 760	± 0.25	± 0.45
NIST Type K(6) (8)	–292 to 2502	–180 to 1372	± 0.50	± 0.90
NIST Type N(6) (8)	32 to 2372	0 to 1300	± 0.40	± 0.72
NIST Type R(6) (8)	32 to 3214	0 to 1768	± 0.60	± 1.08
NIST Type S(6) (8)	32 to 3214	0 to 1768	± 0.50	± 0.90
NIST Type T(6) (8)	–328 to 752	–200 to 400	± 0.25	± 0.45
Millivolt Input(9)	–10 to 100 mV		± 0.015 mV	
2-, 3-, 4-Wire Ohm Input	0 to 2000 Ωs		±0.35 ohm	

(1) The transmitter's accuracy is valid for the entire input range of the sensor.

(2) IEC 751; α = 0.00385, 1995.

(3) JIS 1604, 1981.

(4) Edison Curve No. 7.

(5) Edison Copper Winding No. 15.

(6) NIST Monograph 175.

(7) Accuracy for NIST Type B T/C is ±3.0 °C (5.4 °F) from 100 to 300 °C (212 to 572°F).

(8) Total accuracy for thermocouple only: sum of accuracy +0.25 °C (cold junction accuracy).

(9) Millivolt inputs are not approved for use with CSA option code I6.

Stability

- ±0.1% of reading or 0.1 °C, whichever is greater, for 24 months for RTDs.
- ±0.1% of reading or 0.1 °C, whichever is greater, for 12 months for thermocouples.

5 Year Stability

- ±0.25% of reading or 0.25 °C, whichever is greater, for 5 years for RTDs
- ±0.5% of reading or 0.5 °C, whichever is greater, for 5 years for thermocouples.

Sensor Lead Wire Resistance Effect

RTD Input

When using a 4-wire RTD, the effect of lead resistance is eliminated and has no impact on accuracy. However, a 3-wire sensor will not fully cancel lead resistance error because it cannot compensate for imbalances in resistance between the lead wires. A 2-wire sensor will produce the largest error because it directly adds the lead wire resistance to the sensor resistance. For 2- and 3-wire RTDs, an additional lead wire resistance error is induced with ambient temperature variations. The "Accuracy" table and the examples shown below help quantify these errors.

TABLE 2. RTD Sensor Input Approximate Basic Error

Sensor Input	Approximate Basic Error
4-wire RTD	None (independent of lead wire resistance)
3-wire RTD	± 1.0 Ω in reading per ohm of unbalanced lead wire resistance(1)
2-wire RTD	1.0 Ω in reading per ohm of lead wire resistance

(1) Unbalanced lead wire resistance = maximum imbalance between any two leads.

Examples of Approximate Basic Error Calculation:

Given:

- Total cable length = 150 m
- Unbalance of the lead wires at 20 °C = 0.5 Ω
- Resistance/length (18 AWG Cu) = 0.025 Ω/m
- Temperature Coefficient (Cu) = 0.0039 Ω/Ω/ °C
- Approximate Pt 100 resistance variation with temperature = 0.39 Ω/ °C

Pt 100 3-wire RTD:

- Lead wire resistance seen by the transmitter = 0.5 Ω
- Basic error = 0.5 Ω/(0.39 Ω/ °C) = 1.3 °C
- Error due to an ambient temperature variation of ± 25 °C = ± 0.13 °C

Pt 100 2-wire RTD:

- Lead wire resistance seen by the transmitter = 150 m × 2 wires × 0.025 Ω/m = 7.5 Ω
- Basic error = 7.5 Ω/(0.39 Ω/°C) = 19.2 °C
- Error due to an ambient temperature variation of ± 25 °C = ± 1.9 °C

Thermocouple and Millivolt Input

- dc input impedance > 10M ohms.

Example of Approximate Error Calculation:

$$\text{Approx. Error} = \left(\frac{\text{Total Sensor Lead Resistance}}{\text{10M ohms}}\right) \times \text{Absolute Value of Reading in mV}$$

RFI Effect

Worst case RFI Effect is equivalent to the transmitter's nominal accuracy specification per "Accuracy" on page 4 when tested in accordance with EN 61000-4-3, 10 V/m, 80 to 1000 MHz, and 30 V/m, 26-500 MHz (Increased NAMUR), with twisted shielded cables (Type A Profibus type).

Ambient Temperature Effect

Transmitters may be installed in locations where the ambient temperature is between –40 and 85 °C. Each transmitter is individually characterized over this ambient temperature range at the factory in order to maintain excellent accuracy performance in dynamic industrial environments. This special manufacturing technique is accomplished through extreme hot and cold temperature profiling with individual adjustment factors programmed into each transmitter. Transmitters automatically adjust for component drift caused by changing environmental conditions.

Sensor Options	Accuracy per 1.0 °C (1.8 °F) Change in Ambient[1]
2-, 3-, 4-Wire RTDs	
Pt 100 (α = 0.00385)	0.0015 °C
Pt 100 (α = 0.003916)	0.0015 °C
Pt 500	0.0023 °C
Pt 200	0.0015 °C
Pt 1000	0.0015°C
Ni 120	0.0010 °C
Cu 10	0.015 °C
Thermocouples	
NIST Type B	0.014 °C if reading ≥ 1000 °C 0.029 °C – 0.0021% of (reading–300) if 300 °C ≤ reading < 1000 °C 0.046 °C – 0.0086% of (reading–100) if 100 °C ≤ reading < 300 °C
NIST Type E	0.004 °C + 0.00043% of reading
NIST Type J	0.004 °C + 0.00029% of reading if reading ≥ 0 °C 0.004 °C + 0.0020% of abs. val. reading if reading < 0 °C
NIST Type K	0.005 °C + 0.00054% of reading if reading ≥ 0 °C 0.005 °C + 0.0020% of abs. val. reading if reading < 0 °C
NIST Type N	0.005 °C + 0.00036% of reading
NIST Type R	0.015 °C if reading ≥ 200 °C 0.021 °C – 0.0032% of reading if reading < 200 °C
NIST Type S	0.015 °C if reading ≥ 200 °C 0.021 °C – 0.0032% of reading if reading < 200 °C
NIST Type T	0.005 °C if reading ≥ 0 °C 0.005 °C + 0.0036% of abs. val. reading if reading < 0 °C
Millivolt Input	0.00025 mV
2-, 3-, 4-Wire Ohm	0.007 Ω

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

Temperature Effects Example

When using a PT 100 (α = 0.00385) sensor input with a 30 °C ambient temperature, the:

- Temp Effects would be: 0.0015 °C x {3930 – 20)} = 0.015 °C.
- Worst Case Error: Sensor Accuracy + Temperature Effects = 0.10 °C + 0.015 °C = 0.115 °C
- Total Probably Error $= (\sqrt{0.10^2 + 0.015^2} = 0.101° C)$

Vibration Effect

Transmitters tested to the following specifications with no effect on performance:

FrequencyAcceleration
10–60 Hz0.21 mm peak displacement
60–2000 Hz3 g's

Self Calibration

The transmitter's analog-to-digital circuitry automatically self-calibrates for each temperature update by comparing the dynamic measurement to extremely stable and accurate internal reference elements.

PHYSICAL

Conduit Connections

The standard field mount housing has ½–14 NPT conduit entries. Additional conduit entry type are available, including PG13.5 (PG11), M20 X 1.5 (CM20), or JIS G ½. When an of these additional entry types are ordered, adapters are placed in the standard field housing so these alternative conduit types fit correctly. See "Dimensional Drawings" for increased dimensions.

Materials of Construction

Electronics housing

- Low-copper aluminum or CF-8M (cast version of 316 Stainless Steel).

Paint

- Polyurethane.

Cover o-rings

- Buna-N.

Mounting

Transmitters may be attached directly to the sensor. Optional mounting brackets permit remote Mounting (see Figure 2-5 and Figure 2-6 on page 2-7).

Weight

Aluminum:2.5 lb (1.1 kg).
Stainless Steel:7.2 lb (3.3 kg).
Add 1.0 lb (0.5 kg) for bracket options.

Enclosure Ratings

NEMA 4X and CSA Enclosure Type 4X, IP66, IP68.

Product Certifications

NORTH AMERICAN APPROVALS

E5 FM Explosion-Proof and Non-incendive:
Explosion-Proof for Class I, Division 1, Groups A, B, C, and D. Dust Ignition Proof for Class II/III, Division 1, Groups E, F and G.
T5 (T_{amb} = -50 °C to 85 °C).
Non-incendive for Class 1, Division 2, Groups A, B, C, and D. T4A (T_{amb} = -50 °C to 85 °C). Indoor and outdoor use.
Explosion-Proof approval only when connected in accordance with Rosemount drawing 03144-0220. For Group A, seal all conduits within 18 inches of enclosure; otherwise, conduit seal not required for compliance with NEC 501-5a(1).

Canadian Standards Association (CSA) Approvals

I6 Intrinsically Safe for Class I, Division 1, Groups A, B, C, and D; Class II, Division 1, Groups E, F, and G; Class III, Division 1 hazardous locations when installed in accordance with Rosemount drawing 03144-0222.
Ambient temperature limit -50 °C to 85 °C.

E6 CSA Explosion-Proof, and Non-incendive.
Explosion-Proof for Class I, Division 1, Groups A, B, C, and D; Class II, Division 1, Groups E, F, and G; Class III, Division 1 hazardous locations. Suitable for Class I, Division 2, Groups A, B, C, and D. Conduit seal not required.
Ambient temperature limit -50 °C to 85 °C.

EUROPEAN APPROVALS

CENELEC Approvals

I1 CENELEC Intrinsic Safety
Certification Number: BAS98ATEX1357X
ATEX Marking: ⟨Ex⟩ II 1 G
CE 1180
EEx ia IIC T4 (-60 °C ≤T_{amb} ≤60 °C)

TABLE 3. Input Entity Parameters

Loop / Power	Sensor
U_i = 30 V	U_o = 24.3 V dc
I_i = 300 mA	I_o = 12 mA
P_i = 1.3 W	P_o = 0.06 W
C_i = 5 nF	C_o = 0.108 µF
L_i = 20 µH	L_o = 179 mH

Special Condition for Safe Use (X):

A transmitter fitted with the transient protection terminal block is not capable of withstanding the electrical strength test required by Clause 6.4.12 of EN 50020. This condition must be taken into account during installation.

IA CENELEC Fieldbus Intrinsically Safe Concept (FISCO)
Certification Number: BAS98ATEX1357X
ATEX Marking: ⟨Ex⟩ II 1 G
CE 1180
EEx ia IIC T4 (-60 °C ≤T_{amb} ≤60 °C)

TABLE 4. Input Entity Parameters

Loop / Power	Sensor
U_i = 15 V	U_o = 24.3 V dc
I_i = 215 mA (IIC) I_i = 500 mA (IIB)	I_o = 12 mA
P_i = 2 W (IIC) P_i = 5.32 W (IIB)	P_o = 0.06 W
C_i = 5 nF	C_o = 0.108 µF
L_i = 0 µH	L_o = 179 mH

Special Condition for Safe Use (X):

A transmitter fitted with the transient protection terminal block is not capable of withstanding the electrical strength test required by Clause 6.4.12 of EN 50020: 1994. This condition must be taken into account during installation.

N1 CENELEC Type n
Certification Number: BAS98ATEX3358X
ATEX Marking: ⟨Ex⟩ II 3 G
EEx nL IIC T5 (-40 °C ≤T_{amb} ≤70 °C)

Special Condition for Safe Use (X):

A transmitter fitted with the transient protection terminal block is not capable of withstanding the electrical strength test required by clause 9.1 of EN 50021: 1998. This condition must be taken into account during installation.

E9 CENELEC Flame-Proof Approval
Certification Number: KEMA01ATEX2181
ATEX Marking: ⟨Ex⟩ II 2 G
CE 1180
EEx d IIC T6 (-40 °C ≤T_{amb} ≤70 °C)
EEx d IIC T5 (-40 °C ≤T_{amb} ≤80 °C)
Maximum Supply Voltage = 55V

AUSTRALIAN APPROVALS

Standard Australia Quality Assurance Service (SAA) Approvals

I7 SAA Intrinsic Safety
Certification Number: AUSEx3826X
Ex ia IIC T4 (-60 °C ≤T_{amb} ≤60 °C)
IP66

TABLE 5. Input Entity Parameters

Loop / Power	Sensor
U_i = 30 V dc	U_o = 24.3 V dc
I_i = 300 mA	I_o = 12 mA
P_i = 1.3 W	P_o = 0.061 W
C_i = 0.005 µF	C_o = 0.108 µF
L_i = 20 µH	L_o = 179 mH

Special Condition for Safe Use (X):

For the label with more than one type of approval marking on it, on completion of installation of the apparatus, the irrelevant marking code(s) shall be permanently scribed off.

N7 SAA Type n
Certification Number: AUSEx3826X
Ex n IIC T5 (-50 °C ≤T_{amb} ≤75 °C)
Ex n IIC T6 (-50 °C ≤T_{amb} ≤60 °C)
IP66

TABLE 6. Input Entity Parameters

Loop / Power
U_n = 55 V
P_n = 1.3 W

Special Condition for Safe Use (X):

For the label with more than one type of approval marking on it, on completion of installation of the apparatus, the irrelevant marking code(s) shall be permanently scribed off.

E7 SAA Explosion-Proof
Certification Number: AUS Ex 3271X
Ex d IIC T6 (-20 °C ≤T_{amb} ≤60 °C)
IP65

Special Condition for Safe Use (X):

Any temperature sensor utilized must be Standards Australia Certified and remotely mounted installations must be housed in suitably Standards Australia Certified Flame-Proof enclosures.

COMBINATION APPROVALS

C6 Combination of I6 and E6.

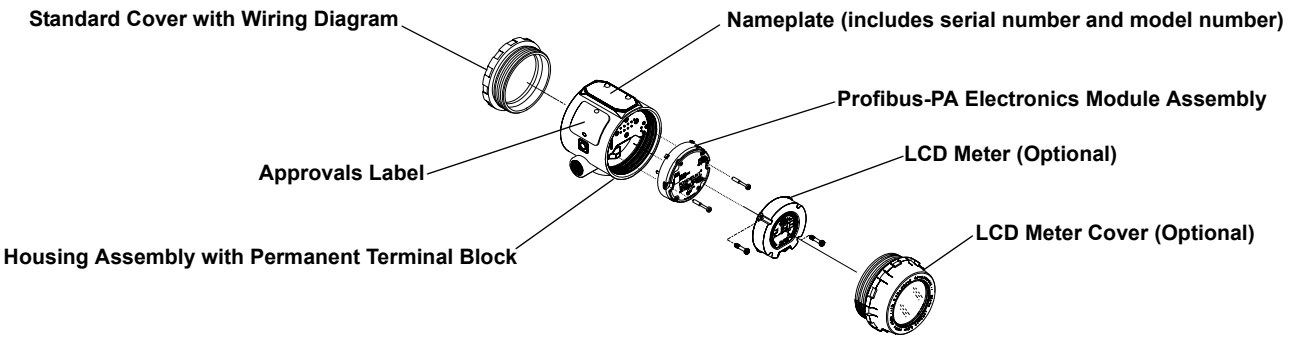
KA Combination of E5 and E6

KB Combination of K5 and C6.

K7 Combination of I7, N7 and E7.

Dimensional Drawings

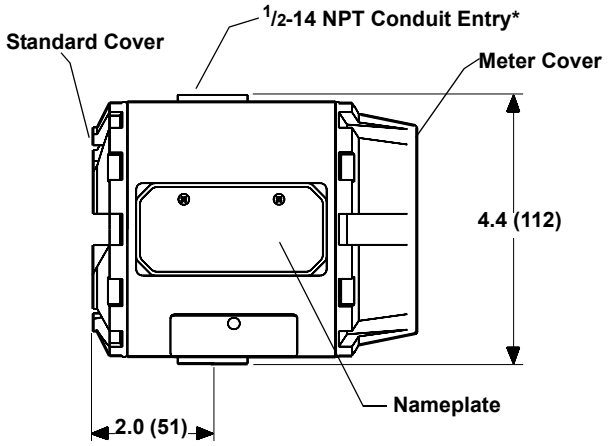
Exploded View



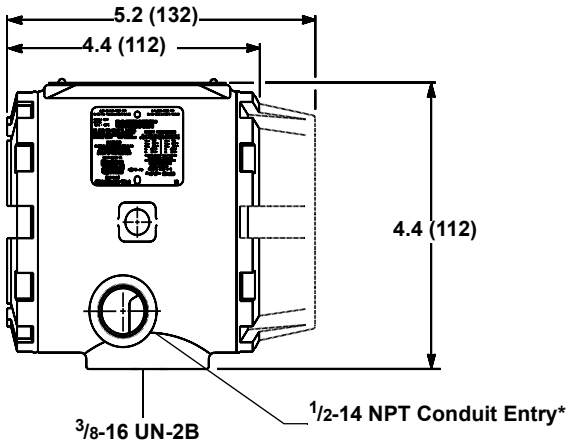
3244-000A03A

Transmitter Dimensional Drawings

Top View



Side View

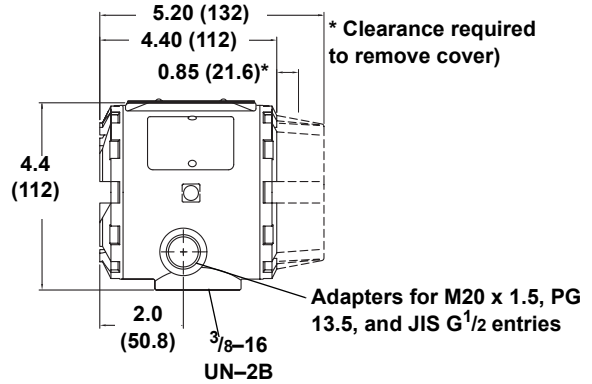


3144-0204B02A, 0000A07A

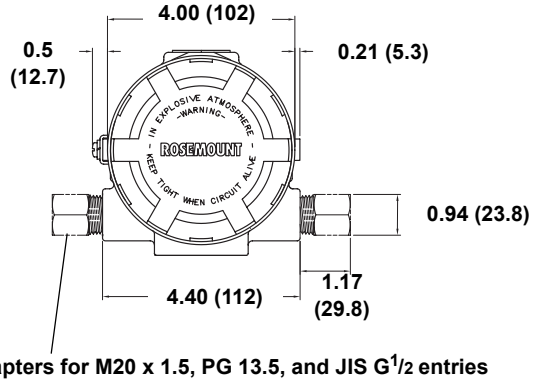
Dimensions are in inches (millimeters)

Transmitter Dimensional Drawing for Conduits with M20 x 1.5, PG 13.5, and JIS G1/2 Entries

Top View



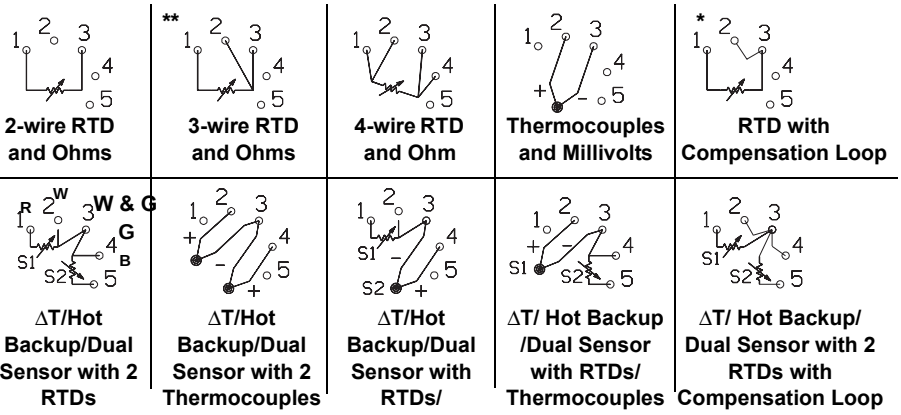
Front View



3144-3144A021A, A022A

Dimensions are in inches (millimeters)

Model 3244MV Sensor Connections Diagram



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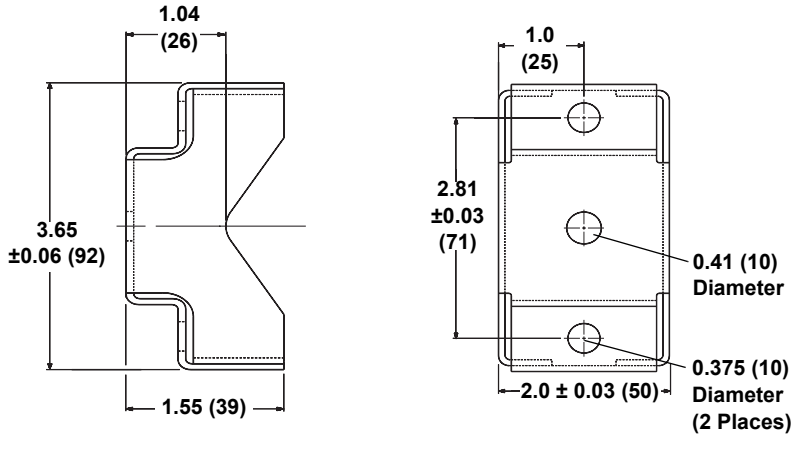
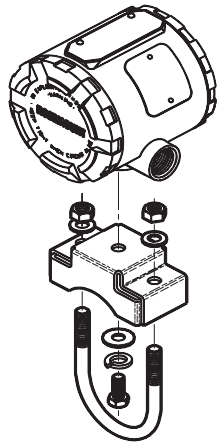
* *Transmitter must be configured for a 3-wire RTD in order to recognize an RTD with a compensation loop.*

Optional Transmitter Mounting Brackets

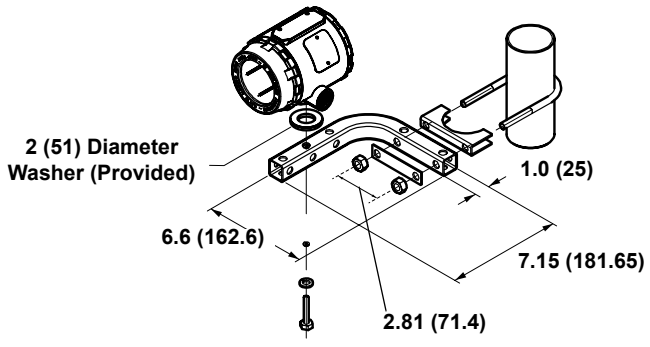
Option Code B4 Bracket





3044-2101A01A; B01B, 3144-3144A14A,

Option Code B5 Bracket



3144-1081A01A

Dimensions are in inches (millimeters)

Ordering Information

TABLE 7. Transmitter

Model	Product Description	
3244MVW	Temperature Transmitter with Dual Sensor Input and Profibus-PA Digital Signal	
Code	**Housing**	**Conduit Thread**
1	Aluminum	½–14 NPT
2	Aluminum	M20 × 1.5 (CM20)
3	Aluminum	PG 13.5 (PG 11)
4	Aluminum	JIS G ½
5	SST	½–14 NPT
6	SST	M20 × 1.5 (CM20)
7	SST	PG 13.5 (PG 11)
8	SST	JIS G ½
Code	**Product Certifications(1)**	
NA	No Approval Required	
E5	FM Explosion-Proof Approval	
I6	CSA Intrinsic Safety	
E6	CSA Explosion-Proof	
C6	CSA Intrinsic Safety, Explosion-Proof Combination	
E9	CENELEC ATEX Flame-Proof	
N1	CENELEC ATEX Type n	
I1	CENELEC ATEX Intrinsic Safety	
IA	CENELEC Fieldbus Intrinsically Safe Concept (FISCO)	
E7	SAA Explosion-Proof	
I7	SAA Intrinsic Safety	
N7	SAA Type n	
KB	FM and SCA Intrinsic Safety, Explosion-Proof Combination	
K7	SAA Intrinsic Safety, Explosion-Proof, Type n Combination	
KA	FM and CSA Explosion-Proof	
Code	**Options**	
Accessory		
B4	Universal Mounting Bracket for 2-inch Pipe Mounting and Panel Mounting—SST Bracket and Bolts	
B5	Universal “L” Mounting Bracket for 2-inch Pipe Mounting—SST Bracket and Bolts	
M5	LCD Meter	
G1	External Ground Lug Assembly	
T1	Transient Protector	
Custom Configuration		
U4	Two Independent Sensors	
U5	Differential Temperature	
C1	Factory Configuration of Date, Descriptor, and Message Fields–CDS required	
C2	Transmitter-Sensor Matching - Trim to Specific Rosemount RTD Calibration Schedule	
C4	5-Point Calibration (use option code Q4 to generate a Calibration Certificate)	
F5	50 Hz Line Voltage Filter	
Assembly		
X1(2)	Assemble Transmitter to a Sensor Assembly (hand tight, *Teflon*® (PTFE) tape where appropriate, fully wired)	
X2	Assemble Transmitter to a Sensor Assembly (hand tight, no *Teflon* (PTFE) tape, unwired)	
X3(2)	Assemble Transmitter to a Sensor Assembly (wrench tight, *Teflon* (PTFE) tape where appropriate, fully wired)	
Calibration Certification		
Q4	Calibration Certificate (3-Point standard; use C4 with Q4 option for a 5-Point Calibration Certificate)	
Typical Model Number: 3244MVW 1 NA B4 M5 X1		

(1) Additional approvals available or pending. Contact Rosemount Customer Central for more information.

(2) Option codes X1 and X3 are no available with CSA approvals

Hardware Tag

- no charge
- tagged in accordance with customer requirements
- stainless steel construction
- permanently attached to transmitter
- character height is 1/16-in. (1.6 mm)

Software Tag

- no charge
- transmitter can store up to 30 characters. If no such characters are specified, the first 30 characters of the hardware tag are used as the default.

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?
NA, E5	No–Order option code G1
E9, N1, I1, E7	Yes

Configuration

The transmitter is available with either standard or custom configuration options. Use the “Configuration Data Sheet” if any modifications are necessary. All configuration settings and block configuration can be changed in the field using a Profibus-PA Class 2-compliant host. Unless otherwise specified, the transmitter will be shipped as follows:

Standard Configuration Settings	
Sensor Type	4-wire Pt 100 (α = 0.00385 RTD)
Damping	2.0 seconds
Measurement Unit	°C
Line Voltage Filter(1)	60 Hz
Software Tag	See “Hardware Tag” and “Software Tag”
Function Block Tags:	
AI Blocks	AI1, AI2, AI3
Transducer Block	TB1, TB2, TB3
Physical Block	RB
Local Display(1) (when installed)	Engineering Units

(1) These configuration setting can only be changed using the Siemens Profibus-PA Class 2 host.

Custom Configuration

To custom configured the Model 3244MV for one of the applications described below, indicate the appropriate option code in the model number. If you do not order one of these option codes, the transmitter will be shipped with its standard configuration.

Option Code C1

Option Code	Requirements/ Specification
C1: Factory Data(1)	Date: day/month/year Descriptor: 16 alphanumeric character Message: 32 alphanumeric character
C2: Transmitter Sensor Matching	The transmitters are designed to accept Callendar-van Dusen constants from a calibrated RTD schedule and generate a custom curve to match any specific sensor curve. Specify a Series 65, 65, or 78 RTD sensor on the order with a special characterization curve (V or X8Q4 option). These constants will be programmed into the transmitter with this option.
C4: Five Point Calibration	Transmitter is calibrated and verified at 0, 25, 50, 75, and 100% digital output points. Use with option codes Q4 to generate a 5-point calibration certificate.

(1) CDS required

Option Code U4 (Two Independent Sensors)

This configuration optimizes the transmitter for use in applications involving basic process monitoring. Two single-element sensors are used with this option.

When this option is ordered, the transmitter will be shipped with the standard configuration settings with the following changes/additions:

Option Code U4 Custom Configuration Settings	
Sensor Type	
Sensor 1	3-wire Pt 100 (α = 0.00385 RTD)
Sensor 2	3-wire Pt 100 (α = 0.00385 RTD)
Function Block Tags	
Analog Input Blocks	AI1, AI2, AI3
Transducer Block	TB1, TB2, TB3
Physical Block	RB

Option Code U5 (Differential Temperature)

This configuration is used to measure the differential between two process temperatures.

When this option is ordered, the transmitter will be shipped with the standard configuration settings with the following changes/additions:

Option Code U5 Custom Configuration Settings	
Sensor Type	
Sensor 1	3-wire Pt 100 (α = 0.00385 RTD)
Sensor 2	3-wire Pt 100 (α = 0.00385 RTD)
Function Block	
Analog Input Blocks	AI1, AI2, AI3
Transducer Block	TB1, TB2, TB3
Physical Block	RB

Product Data Sheet
00813-0100-4799, Rev DA
March 2003

Model 3244MV

Configuration Data Sheet

Customer Information

Customer _____ Model No. _____

P.O. No. _____ Line Item _____

Sensor Type

Sensor Type	Sensor 1	No. of Leads	Sensor 2	No. of Leads
	☐ **Pt 100 α = 0.00385 ★**	☐ 2-Wire	☐ Pt 100 α = 0.00385	☐ 2-Wire
	☐ Pt 200 α = 0.00385	☐ 3-Wire	☐ Pt 200 α = 0.00385	☐ 3-Wire
	☐ Pt 500 α = 0.00385	☐ **4-Wire ★**	☐ Pt 500 α = 0.00385	
	☐ Pt 1000 α = 0.00385		☐ Pt 1000 α = 0.00385	
	☐ Pt 100 α = 0.03916		☐ Pt 100 α = 0.03916	
	☐ Cu 10		☐ Cu 10	
	☐ Ni 120		☐ Ni 120	
	☐ Transmitter-Sensor Matching (C2 option)		☐ Transmitter Sensor Matching (C2 Option)	
	☐ Ohms		☐ Ohms	
	☐ NIST Type B T/C		☐ NIST Type B T/C	
	☐ NIST Type E T/C		☐ NIST Type E T/C	
	☐ NIST Type J T/C		☐ NIST Type J T/C	
	☐ NIST Type K T/C		☐ NIST Type K T/C	
	☐ NIST Type R T/C		☐ NIST Type R T/C	
	☐ NIST Type T T/C		☐ NIST Type T T/C	
	☐ NIST Type N T/C		☐ NIST Type N T/C	
	☐ mV		☐ mV	

Damping (AI blocks) ☐ **2 Seconds ★** ☐ Other _____(Value must be less than 32 seconds)

Units (all blocks) _____°**C ★** _____°F _____K _____°R _____mV _____ohm

Tagging

Hardware Tag |__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|
|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|
(2 Lines X 28 character max.)

Software Tag |__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|
(32 character max.)

Transmitter Information

Descriptor (C1 Option) |__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__| (16 characters max.)

Message (C1 Option) |__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|
|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__| (32 characters max.)

Date (C1 Option) Day ☐☐☐ (numeric) Month ☐☐☐ (alphabetic) Year ☐☐☐ (numeric)

Switch Selection

Write Project (Security) ☐ **Off ★** ☐ On

★ = Standard Configuration

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