

BARTON®

# 3920 Electronic RTD Temperature Transmitter & Series 20 RTD

## User Manual





# SAFETY/CUSTOMER SERVICE NOTICE

The warranty applicable to this product is stated at the beginning of this manual.

Should any problem arise after-delivery, please contact the Cameron's Measurement Systems HelpDesk at 1-877-805-7226 or the Customer Service department during normal business hours at (403) 291-4814.

Before installing the instrument, become familiar with the installation instructions.

Also, be aware of the following important notice that appears in the manual:

-  **WARNING** notes indicate the presence of a hazard that **can cause** severe personal injury, death or substantial property damage if the warning is ignored.
-  **CAUTION** notes indicate the presence of a hazard, which will **or** can cause minor personal injury or property damage if the warning is ignored.

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# Introduction

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## General

This manual contains installation, operational and technical information for two separate products, the Barton® 3920 RTD Temperature Transmitter and the Series 20 RTD Sensor. Read all sections of this manual before installing or operating these units.

## Product Description

The Model 3920 uses a 2 or 3-wire resistive temperature detector to provide a proportional 4-20 mA analog current output. The 3920 boards are enclosed in an oval extruded aluminum protective housing.

The Barton Model 3920 is available in four configurations for application flexibility:

<b>EM Version</b>	“Electronics module” consisting of a circuit assembly (two printed circuit boards) enclosed in a protective cast aluminum housing with external controls for span and zero adjustments.
<b>WL Version</b>	“Wall-mount” version of the EM module; two metal flanges for wall or surface mounting.
<b>Hazardous Location</b>	Two-piece cast aluminum alloy explosionproof enclosure (available in indicating and blind versions). The EM module is held in place within the enclosure by a spring clip.
<b>RF Unit Option</b>	Additional protection for Radio Frequency (RF) interference is offered as an option on the EM or WL modules. This is not normally offered on a hazardous location model since the aluminum shell of the Hazardous Location enclosure offers inherent RF shielding. On the EM module, the standard input connector is replaced by an alternate input connector that contains a printed circuit board and the filter. Dimensionally, a RF equipped module is approximately 10 mm (3/8”) taller.

The Series 20 is a 3-wire RTD normally supplied with an integral hazardous location housing. It is a subset of the 3920 and may be supplied with or without a 3920. When it is supplied with the 3920, it serves as a remote sensor to the electronics module. When the Series 20 is supplied by itself, it is used to provide a RTD sensor resistance to some other electronic system. The Series 20 is physically identical to the blind 3920 except that the electronics module is replaced by a simple terminal strip.

## Model Identification

Each instrument has a label mounted on the back of the housing with the model number and serial number that identifies its type, functional characteristics, parameters, and the options ordered. On 3920 Hazardous Location models, there is a second label on the back of the electronics module.



# Chapter 1: Installation

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## Unpacking

The Barton Model 3920 Electronic RTD Temperature Transmitter was inspected and tested during manufacture and prior to shipment. However, an inspection should be performed at the time of unpacking to detect any damage that may have occurred during shipment.

The following items are included in each shipment:

- Model 3920 Electronic RTD Temperature Transmitter and/or Series 20 RTD Sensor, with all options as specified
- Installation and Operation Manual

## Mounting

Consideration should be given to ensure that the temperature of the electronics module does not exceed 85°C (180°F). Although the modules do not generate measurable amounts of heat on their own, hazardous location housings can trap heat that is absorbed through conduction or radiation from the process. Where excessively high temperatures are expected, the Series 20 RTD, with an appropriate temperature-rated terminal block, should be selected.

When mounting, also consider the ease of access for calibration, maintenance purposes and the regular viewing of the optional display. In situations where this would be a problem, the Series 20 Remote RTD may provide a solution since it has no parts that require access. When the Series 20 is used, it should be mounted so that the cable length is as short as possible. **It is not recommended that the interconnecting cable length exceed 150 m (500 ft.).**

## Electrical Installation

All electrical connections are made to the integral terminal strip on the unit. To avoid transients and stray electrical noises, it is recommended that twisted conductors with an overall shield be used.

The distance that a 3920 can transmit its signal is a function of the cable resistance and the power supply voltage. Units are designed to operate directly from a DC power source. Connect power leads to +PS and – PS terminals. Observe the proper polarity.

It is not recommended that the cable length linking the Series 20 RTD to the receiving electronics exceed 150 m (500 ft.). The interconnecting cable should be a twisted “triad” constructed of minimum 18 AWG copper wire. The three conductors should have an overall shield.

### ***Intrinsically Safe Installation***

When installed as per drawing 3920-9000-0 (page 4) and local electrical code requirements, the 3920 is CSA listed as Intrinsically Safe.

The Series 20, being CSA approved and a simple device, may be installed as Intrinsically Safe by protecting the RTD with any appropriate CSA approved I.S. barrier. At an additional cost, Cameron will supply an appropriate I.S. barrier.

An I.S. barrier is not required between a 3920 and a Series 20 remote RTD when the 3920 is protected by a barrier.

### ***Explosionproof Installation***

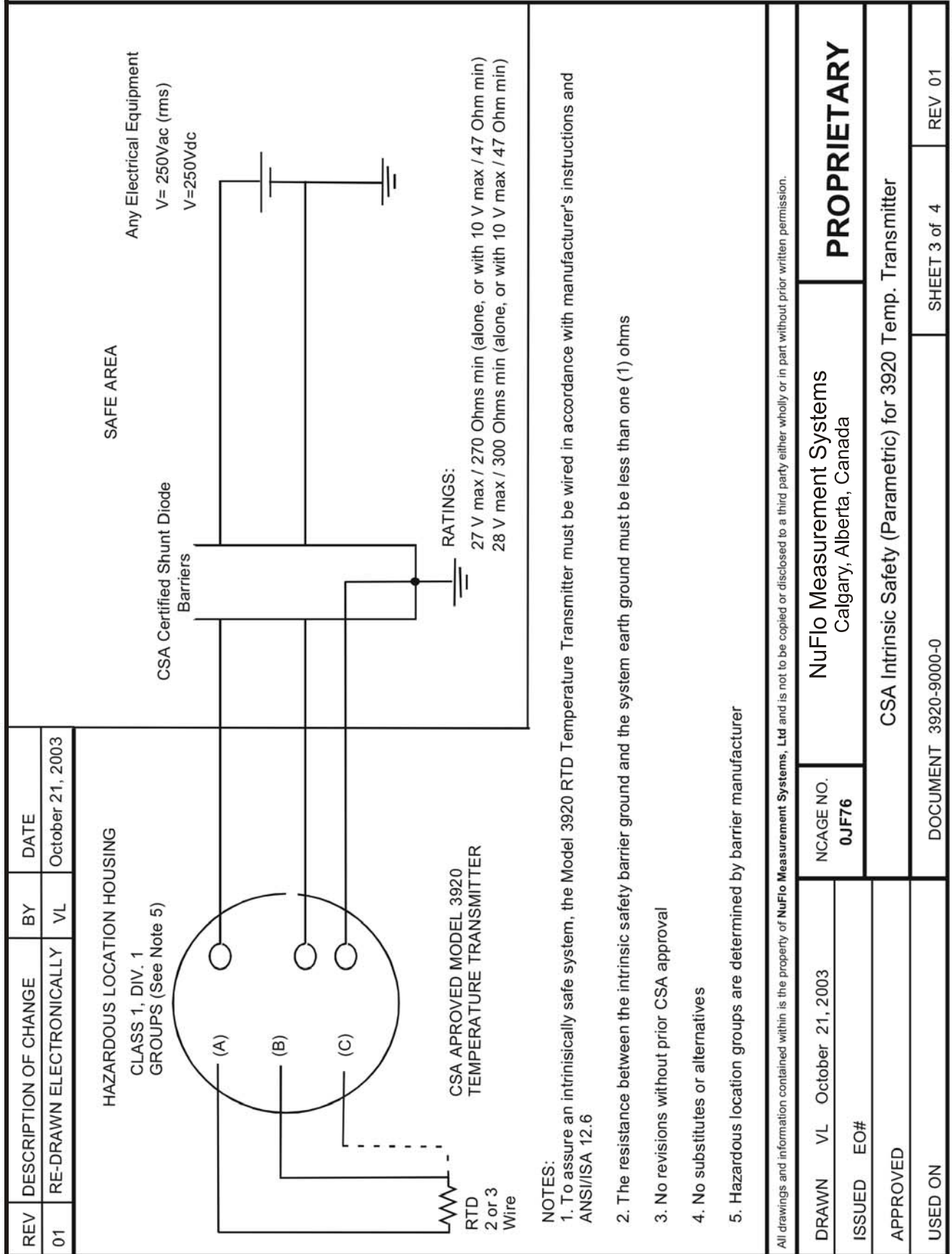
When equipped with Hazardous Location housing, the cover is in place and installation is carried out as per local code requirements. The entire assembly is CSA approved.



#### **WARNING**

**SPRING-LOADED RTD PROBES AS USED ON SERIES 20 RTDs AND 3920 TEMPERATURE TRANSMITTERS ARE EXPLOSIONPROOF ONLY WHEN INSTALLED IN A CAMERON-SUPPLIED THERMOWELL. DE-ENERGIZE CIRCUITS OR OTHERWISE RENDER THE AREA SAFE BEFORE REMOVING THE RTD FROM THE THERMOWELL.**





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DRAWN	VL	October 21, 2003	NCAGE NO.	0JF76
ISSUED	EO#		<b>NuFlo Measurement Systems</b> Calgary, Alberta, Canada	
APPROVED			<b>PROPRIETARY</b>	
USED ON			CSA Intrinsic Safety (Parametric) for 3920 Temp. Transmitter	
			DOCUMENT 3920-9000-0	SHEET 3 of 4
			REV 01	REV 01



## Chapter 2: Calibration

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### Introduction

All Model 3920 transmitters are accurately adjusted at the factory before shipment. Unless otherwise specified, the factory calibration is performed using a decade resistance box in place of the RTD. Series 20 models and other RTDs are not factory checked for conformance, as no adjustments are possible.



#### CAUTION

DO NOT CHECK OR ADJUST ANY UNIT UNLESS PROPER TOOLS AND TEST SETUP WITH CURRENT PROCEDURES ARE AVAILABLE AND UNDERSTOOD.

### Controls Description and Location

The external controls consist of zero and span adjustments located on the EM's top cover. Each control is a multiturn potentiometer that is adjusted with a blade screwdriver.



#### CAUTION

USE A BLADE SCREWDRIVER THAT IS NO MORE THAN 0.1 IN (2.54mm) WIDE. A WIDER BLADE MAY PERMANENTLY DAMAGE THE POTENTIOMETER MOUNTING. A SCREWDRIVER WITH A PLASTIC SHANK MUST BE USED TO ADJUST A RF-OPTION UNIT; A METAL SHANK TOOL CAN CIRCUMVENT THE RF IMMUNITY AND COMPROMISE ADJUSTMENTS.

The zero and span pots usually require 22 turns of the shaft to move the wiper from one end of its range to the other. The pot is equipped with a slip clutch at either end of its travel to prevent damage if it is turned beyond the wiper stop. Slightly more torque is required to turn the shaft when the clutch is slipping. If this torque cannot be observed, either end of the pot can be reached by 22 turns of the shaft in the direction desired:

- **CLOCKWISE** on the control to **INCREASE** the quantity (make it more positive)
- **COUNTERCLOCKWISE** to **DECREASE** the quantity (make it more negative)

### Required Equipment and Tools

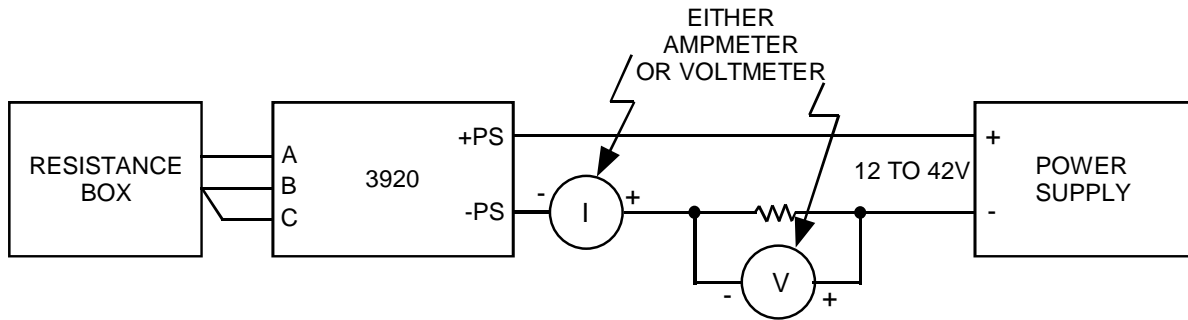
All equipment listed below must be procured by the user before calibration:

Equipment/Tool	Characteristic	Purpose
Screwdriver Blade	Blade not wider than 0.1" (2.54mm)	Adjust zero or span
RTD or Resistance Decade Box	Accuracy $\pm 0.05\%$ or better	Simulate RTD input
DC Voltmeter or Multimeter	Accuracy $\pm 0.05\%$ or better	Monitor output signal

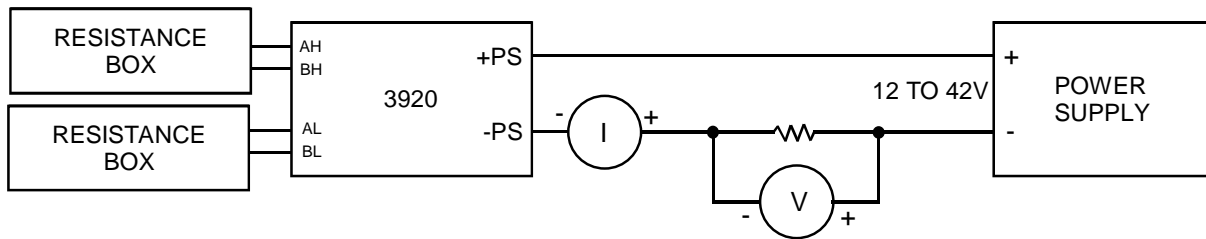
### **Calibration Setup**

The general setup necessary to calibrate all configuration of the Model 3920 is shown below. This also depicts the general setup for various sensor configurations.

**Note:** The protective housing must be opened to expose the connection block in the hazardous location configuration.



**a. Standard Unit**



**b. Units With DT Option**

### **Calibration Procedure**

1. Connect the unit and test equipment as shown in the previous section.
2. Apply power to the unit.

**Note:** Use the model identification number to obtain specified input and output minimums and maximums.

3. Adjust the resistance box to a value corresponding to the minimum temperature the RTD will measure in actual operation (see model identification number).
4. Adjust the zero potentiometer to obtain 0% output (4 mA) with the minimum resistance connected to the sensor terminals.
5. Adjust the resistance box to a value corresponding to the maximum temperature the RTD will measure in actual operation (see model identification number).
6. Adjust the span potentiometer to obtain 100% output with the maximum resistance applied as in **Step 5**.
7. Repeat **Steps 3** through **6** until no further adjustment of zero or span potentiometer is required.
8. Subtract the minimum temperature in **Step 3** from the maximum temperature used in **Step 5**. Calculate 25%, 50% and 75% of this difference. Convert these temperatures to their equivalent RTD resistances. Add these calculated percentages of resistance range to input used in **Step 3**. Adjust the resistance box to each of these values. Check that the output is linearly proportional (within  $\pm 0.1\%$  of the output span).
9. After **Step 8** is successfully completed, turn the power to the unit **OFF**. Disconnect test equipment.
10. Reinstall sensor and power wiring.
11. For hazardous location units, replace cover and reapply power.

### **Gross Range Changes**

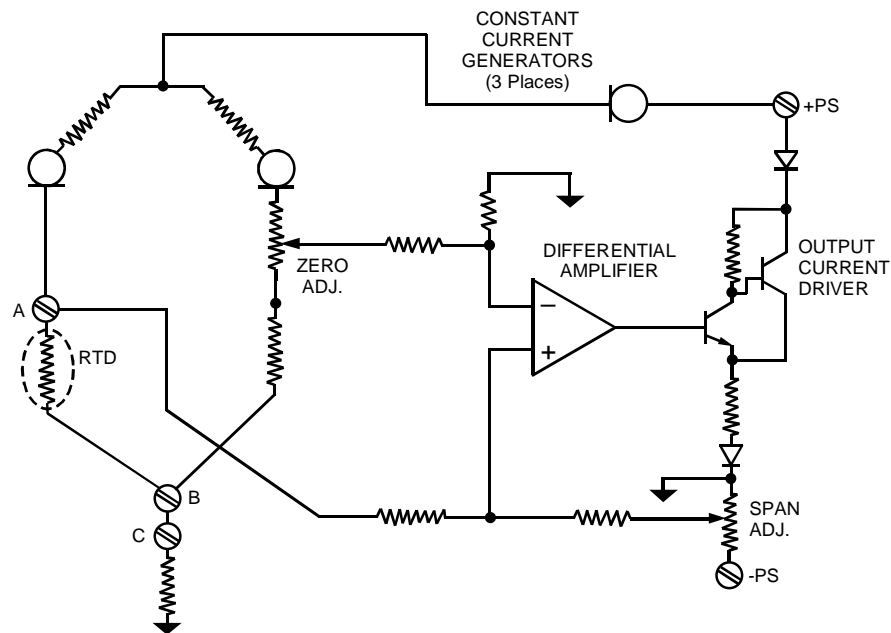
Occasionally, it may be desired to make a large change to the range of the 3920. This may involve a change to the zero, span or both. Typically, this occurs when the wrong range has been ordered for the application. While it is possible to make these changes in the field, it is recommended that the module be returned to Cameron's Measurement Systems Division for adjustment or a replacement module is ordered. To perform a gross range change in the field, resistors will have to be replaced on the circuit board, which will require the use of a soldering iron. Additionally, the circuit boards receive a conformal coating in the factory. Therefore, after any modification, this coating will have to be repaired if long-term integrity is to be preserved.

If this type of change is contemplated, please consult Cameron's Measurement Systems Division for the necessary parts and a component layout drawing. The existing model number, current calibrated range and proposed calibrated range are needed to determine the parts required.



## Chapter 3: Operation

### General Theory of Operation



The Model 3920 converts resistive input from an RTD into corresponding analog current output. The input signal at +PS / -PS is processed by a constant current circuit that develops a constant load across the power supply during a steady state condition. When the RTD increases in resistance, current drain from the power supply increases accordingly. The 3920 consists of constant current circuits, an input amplifier and output circuits.





## Chapter 4: Maintenance

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The electronics module of the Model 3920 is comprised of group selected components; therefore, maintenance of the unit is limited to preventative measures. It is recommended that any unit performing below specifications be returned to the factory for service.

If the urgency of repair does not allow time to send the unit back to the factory, it is recommended that the user purchases a spare unit.

### **Removal of EM-Module from Explosionproof Enclosures**

When replacement of the electronics module is required, use the following procedure:



#### **WARNING**

**SEVERE PROPERTY DAMAGE OR INJURY CAN RESULT IF THIS WARNING IS IGNORED.  
TURN OFF POWER AND INPUT SIGNAL TO THE INSTRUMENT BEFORE DISASSEMBLY OF UNIT.**

1. Remove the conduit cover.
2. Disconnect all wires from their terminals.

**Note:** Always identify wires before disconnecting them from their terminals.

3. Squeeze the two spring clips inward, and lift the entire electronics module out of the conduit.

### **Installation of EM Module in Explosionproof Housings**

When installing the EM module into the explosionproof conduit enclosure, ensure that one of the flat sides of the module is facing the hubs for the external wiring.

1. Install the electronics module into the conduit.
2. Connect all wires to their respective terminals.
3. Install the conduit cover.

### **Connector Cleaning**

A printed circuit board holds all electrical components. A small additional board provides contacts for the plug-in screw-clamp terminal block. Occasionally, modules that have been in service for an extended period may develop a resistive coating on the gold-plated contacts within the electronics module that link the plug-in boards. This coating may cause malfunction by decreasing the noise margin of the circuit.

This contamination is usually the result of careless handling and is composed of fingerprints, salts and oils deposited when the plug-in boards are handled by the gold-plated contacts. Contamination by these organic substances can be greatly reduced by careful handling.

Although the board connectors are the self-cleaning type, it may become necessary to clean the connectors to restore reliable operation. Organic materials may be removed by the use of a commercial electronics contact cleaner. Let the contacts air dry or wipe with a very fine non-abrasive material.



## Chapter 5: Specifications

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### General

Input	RTD platinum, 2 or 3-wire 1 mA maximum sensor current
Resistivity	0.00385 ohm/ohm/°C 100 Ω at 0°C (0.00214 ohm/ohm/°F 100 Ω at 32°F)
Temperature Range	-300°F to +1000°F (-200°C to +540°C) Any temperature range may be specified within the resistance limits. Available spans are as follows (delta ohms) 5-10 (Special applications only. Reduced accuracy, typical ±0.25%) 10-20 20-40 40-80 80-160 160-320 320-640

### Temperature Range Calculation

- Determine minimum temperature to be measured: TMin: \_\_\_\_\_ Deg. C  
Determine maximum temperature to be measured: TMax: \_\_\_\_\_ Deg. C
- From Resistance versus Temperature Table (next page), convert temperatures to their equivalent resistances.  
\_\_\_\_\_ Deg. C TMin = \_\_\_\_\_ R Min = Elevated Zero  
\_\_\_\_\_ Deg. C TMax = \_\_\_\_\_ R Max
- (R) Range = (R) Max – (R) Min = \_\_\_\_\_ OHMS
- Choose input range:

Spans (OHMS)  
10 – 20  
|  
|  
|  
|  
|  
|  
320 – 640

**Example:**

Requirements

TMin = 0 Deg. C;                    TMax = 100 Deg. C

From Lookup Tables

RMin = 100.00 and RMax = 138.50 (OHMS)

Range = RMax – RMin = 138.50 – 100.00 = 38.50 OHMS

RMin = 100.00

Range = 38.50

Hence, Span is 20 – 40 OHMS (see No. 4 above)

<b>RESISTANCE VERSUS TEMPERATURE TABLE</b>											
Values in Degrees Celsius											
<b>TEMP °C</b>	<b>0</b>	<b>-10</b>	<b>-20</b>	<b>-30</b>	<b>-40</b>	<b>-50</b>	<b>-60</b>	<b>-70</b>	<b>-80</b>	<b>-90</b>	<b>Ω/°C</b>
-200	18.386	–	–	–	–	–	–	–	–	–	–
-100	60.230	56.166	52.082	47.975	43.842	39.681	35.488	31.264	27.010	22.720	0.4177
0	100.000	96.083	92.154	88.213	84.259	80.291	76.309	72.313	68.302	64.275	0.3975
<b>TEMP °C</b>	<b>0</b>	<b>10</b>	<b>20</b>	<b>30</b>	<b>40</b>	<b>50</b>	<b>60</b>	<b>70</b>	<b>80</b>	<b>90</b>	<b>Ω/°C</b>
0	100.000	103.904	107.795	111.675	115.543	119.399	123.243	127.075	130.895	134.703	0.3850
100	138.500	142.285	146.058	149.820	153.570	157.308	161.035	164.750	168.454	172.146	0.3733
200	175.827	179.496	183.154	186.800	190.436	194.058	197.669	201.270	204.859	208.436	0.3617
300	212.002	215.556	219.099	222.631	226.151	229.659	233.156	236.642	240.116	243.578	0.3502
400	247.029	250.469	253.896	257.313	260.717	264.110	267.491	270.861	274.219	277.565	0.3387
500	280.899	284.222	287.533	290.832	294.119	297.394	300.657	303.908	307.148	310.375	0.3269
600	313.590	316.793	319.984	323.163	326.330	329.484	–	–	–	–	0.3148

Ω/°C = Value at center of 100°C span

**Note:** Temperature spans less than 100°F (55°C) require use of 1000Ω RTD.

- Power Input                                    12 Vdc (minimum) to 42 Vdc (maximum), measured at input terminals (limit imposed by CSA)
- Overvoltage:                                60 Vdc (maximum) without damage
- Loop Load Effect:                        ±0.002% of span/volt change, measured at input terminals
- Adjustments                                Twenty-two turn potentiometers
- Span                                            Adjustable across 2:1 ratio of full scale span
- Zero                                            Nominal ±10% of selected span centered around the factory ordered zero

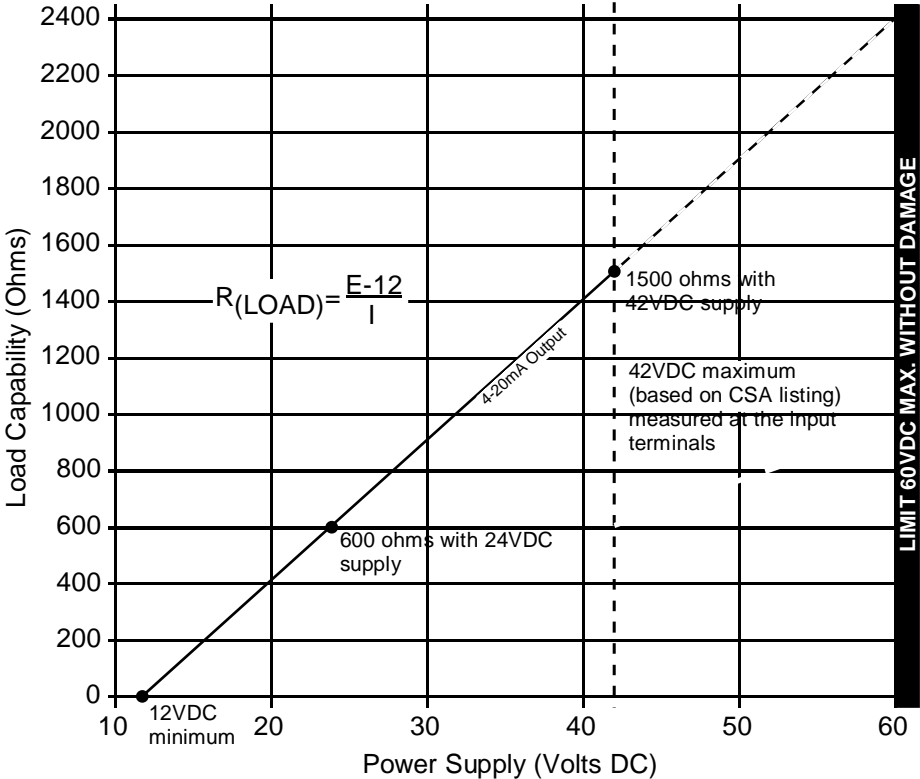
**Note:** Span is field adjustable over a 2:1 turndown ratio. Zero is determined at the factory based on minimum temperature specified by customer.

Performance

- Accuracy                    ±0.1% of span (linearity and hysteresis)
- Ambient Temperature    -40°F to +180°F (-40°C to +82°C)
- Temperature Effect       ±0.01% of span/°F (±0.02% of span/°C)

Output                        4-20 mA (limited to 30 mA maximum)

Load Capability



Weight

<i>Item</i>	<i>Net Weight, lb (kg)</i>	<i>Shipping, lb (kg)</i>
Electronic Module	0.28 (0.13)	1 (0.45)
Blind Condulet	1.75 (0.79)	3 (1.4)
Indicating Condulet	4 (1.81)	5 (2.3)

**Options**

Analog Indicator

Scale	0-100% of output current standard; others available
Size	1 5/8" diameter
Accuracy	1.5% F.S.

Hazardous Location

Standard	Class I, Division 1, Groups C and D; Class I, Division 2, Groups E, F and G; Class III; Enclosure 4
II and GB options	Class I, Division 1, Groups B, C and D; Class I, Division 2, Groups E, F and G; Class III; Enclosure 4

RFI Immunity Module

RFI	1 to 455 MHz at 50 V/m
Error in Output	Less than $\pm 0.1\%$ of span

**Note:** For process media above +250°F (+120°C), the conduit housing with temperature electronics should be separated from the temperature sensor and installed at a distance which ensures ambient temperature for electronics between -40°F (-40°C) and +180°F (+82°C). For remote mounted units, specify 3-wire option.

**Order Code (Model 3920)**

<b>MODEL 3920</b> _____ to _____ DEG C Min.      Max.      F <sup>1</sup>							
<b>1 STANDARD UNIT INCLUDES:</b>	2W, 4-20 mA, output linear with temperature, 100 ohm RTD, blind hazardous location housing.						
<b>2 INPUT TYPE</b>		2W					
2-wire		3W					
3-wire							
<b>3 TRANSMITTER OUTPUT</b>			20				
4-20 milliamperes							
<b>4 OUTPUT TYPES</b>				LN			
Linear with temperature				DT			
Differential temperature				RO			
Reverse Output				UC			
Linear with resistance							
<b>5 HOUSINGS</b>						EM	
None, Electronic Module Only, Aluminum (No probe supplied) <sup>2</sup>						WL	
None, Electronic Module Only, Wall Mountable (No probe supplied) <sup>2</sup>						IB	
Integral, Hazardous Location, blind <sup>3</sup> (4 with GB)						II	
Integral, Hazardous Location, 0-100% Indicating <sup>4</sup>						RB	
Remote, Hazardous Location, Blind <sup>3</sup>						WB	
Remote, Hazardous Location, Blind Wall Mountable <sup>3</sup> (4 with NP)						RI	
Remote, Hazardous Location, 0-100% Indicating, Wall Mountable <sup>3</sup> (4 with NP)						PB	
Remote, Hazardous Location, Blind, 2" Pipe Mount <sup>3</sup> (4 with NP)						PI	
Remote, Hazardous Location, 0-100% Indicating, 2" Pipe Mount <sup>3</sup> (4 with NP)							

<sup>1</sup> Select a remote transmitter (RB) for temperatures exceeding 120°C (250°F)

<sup>2</sup> CSA General Purpose approved

<sup>3</sup> CSA Explosionproof, Class I, Div. 1, Groups C, D; Class II, Groups E, F, G; Class III; CSA Enclosure 4

<sup>4</sup> CSA Explosionproof, Class I, Div. 1, Groups B, C, D; Class II, Groups E, F, G; Class III, CSA Enclosure 4

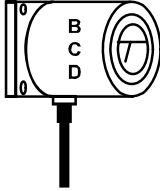
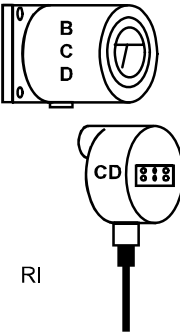
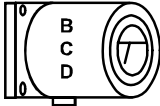
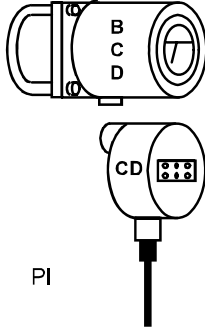
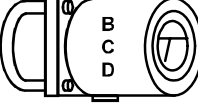
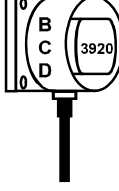
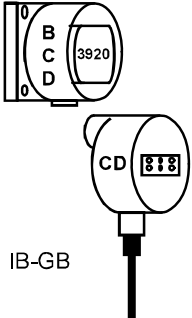
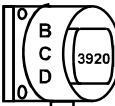
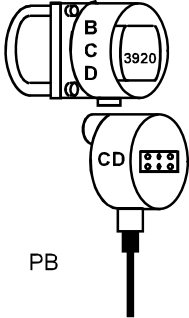
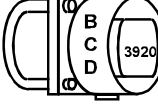
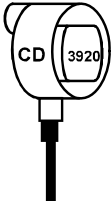
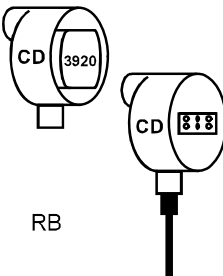
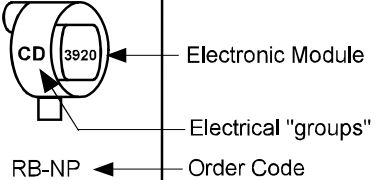
<b>6</b>	<b>SENSORS<sup>5</sup></b>	↓
	100 Ohm Fixed RTD	<b>FX</b>
	100 Ohm Spring Loaded RTD <sup>6</sup>	<b>SL</b>
	No Probe Supplied (For Integral Configurations IB, II)	<b>NP</b>
	No Probe Supplied (For Remote Configurations RB, WB, RI, PB, PI)	<b>NP</b>
<b>7</b>	<b>SPECIAL REQUIREMENTS</b>	↓
	Additional RFI Protection	<b>RF</b>
	CSA Group B Explosionproof Housing (Applicable to IB or RB Housings only)	<b>GB</b>
	CSA Parametric Intrinsically Safe Approval (Blind units only)	<b>IS</b>
	MC approval per CS04-191	<b>CA</b>
	Union Nipple 3"	<b>N3</b>
	Union Nipple 6"	<b>N6</b>
	Ceramic Terminal Block (over 290°F) RB, RI, PB, PI Housings only	<b>CB</b>
	Extra High Accuracy RTD	<b>HA</b>
	Long Length RTD (over 12 inches)	<b>LL</b>
	Special Scale (Specify II, RI and PI Housings only)	<b>SS</b>
	Other, Submit drawings and/or Specifications	<b>SR</b>
	Anti-fungus and Tropicalization	<b>TR</b>

<sup>5</sup> Probe length or Thermowell dimension must be specified; narrow temperature is required when span is less than 50°C or 100°F

<sup>6</sup> Spring loaded probes require thermowell for CSA approval



3920 Housing Configurations

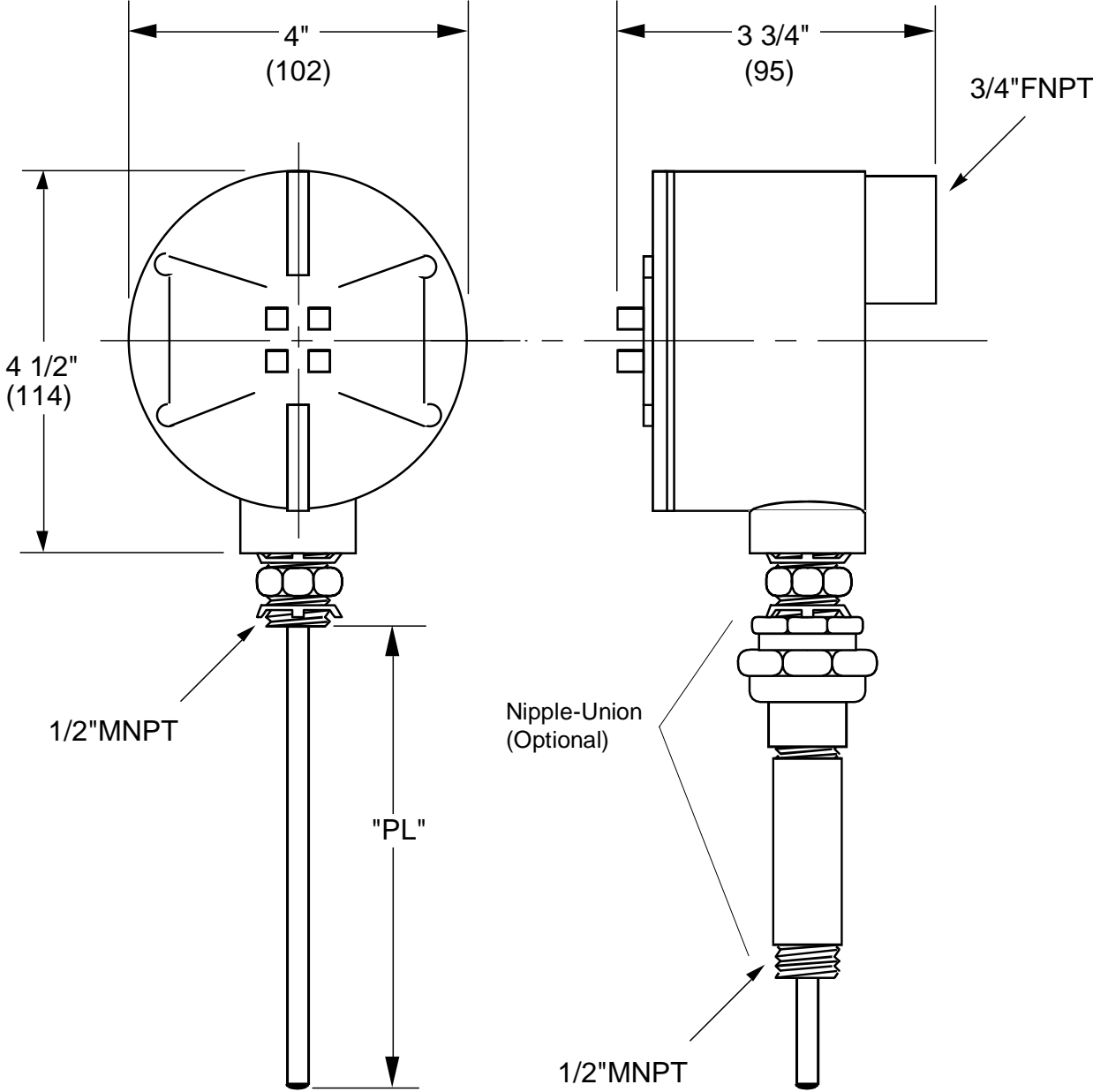
	INTEGRAL	REMOTE (RMT.)	RMT.- no probe	PIPE MOUNT (P.M.)	P.M. - no probe
INDICATING	 <p>II</p>	 <p>RI</p>	 <p>RI</p>	 <p>PI</p>	 <p>PI-NP</p>
BLIND - Group B	 <p>WB</p>	 <p>IB-GB</p>	 <p>WB-NP</p>	 <p>PB</p>	 <p>PB-NP</p>
BLIND	 <p>IB</p>	 <p>RB</p>	 <p>RB-NP</p> <ul style="list-style-type: none"> <li>← Electronic Module</li> <li>← Electrical "groups"</li> <li>← Order Code</li> </ul>	N/A	N/A

**Order Code (Series 20)**

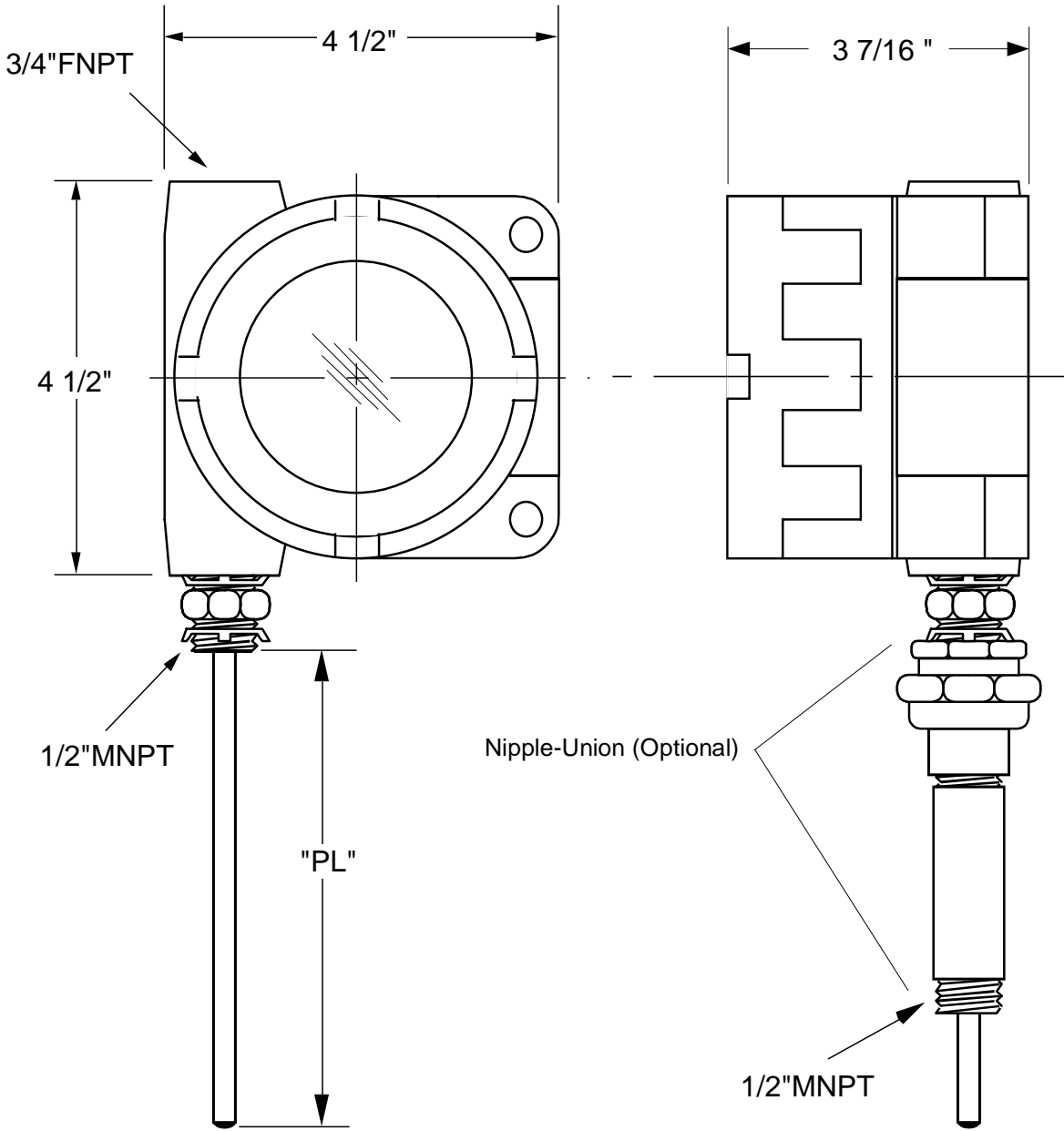
<b>RTD SERIES 20</b>						
<b>1</b>	<b>NUMBER OF LEADS</b>	↓				
	2-Wire		<b>2W</b>			
	3-Wire		<b>3W</b>			
<b>2</b>	<b>ELEMENT TYPE</b>		↓			
	Platinum – 0.00385 W/W/°C			<b>38</b>		
	Other (Please Specify)			<b>XX</b>		
<b>3</b>	<b>PROBE</b>			↓		
	Fixed				<b>FX</b>	
	Spring-Loaded				<b>SL</b>	
<b>4</b>	<b>LENGTH</b>				↓	
	Measured from bottom of spud to probe tip					<b>Specify</b>
	- Specify Units (inches, mm)					
<b>5</b>	<b>ENCLOSURE</b>					↓
	None					<b>00</b>
	Standard Terminal Housing					<b>TH</b>
<b>6</b>	<b>OPTIONS</b>					↓
	None					<b>00</b>
	Union Nipple – 3"					<b>N3</b>
	Union Nipple – 6"					<b>N6</b>
	Ceramic Terminal Block					<b>CB</b>
	Extra High Accuracy RTD					<b>HA</b>
	- (±0.01°C @ 0°C ±0.38°C @ 500°C)					
	Long Length RTD Over 12 inches					<b>LL</b>
	Other, Submit Drawings and/or Specifications					<b>SR</b>
	CSA Group "B" Explosionproof Terminal Housing					<b>GB</b>

Outline Dimension Drawings

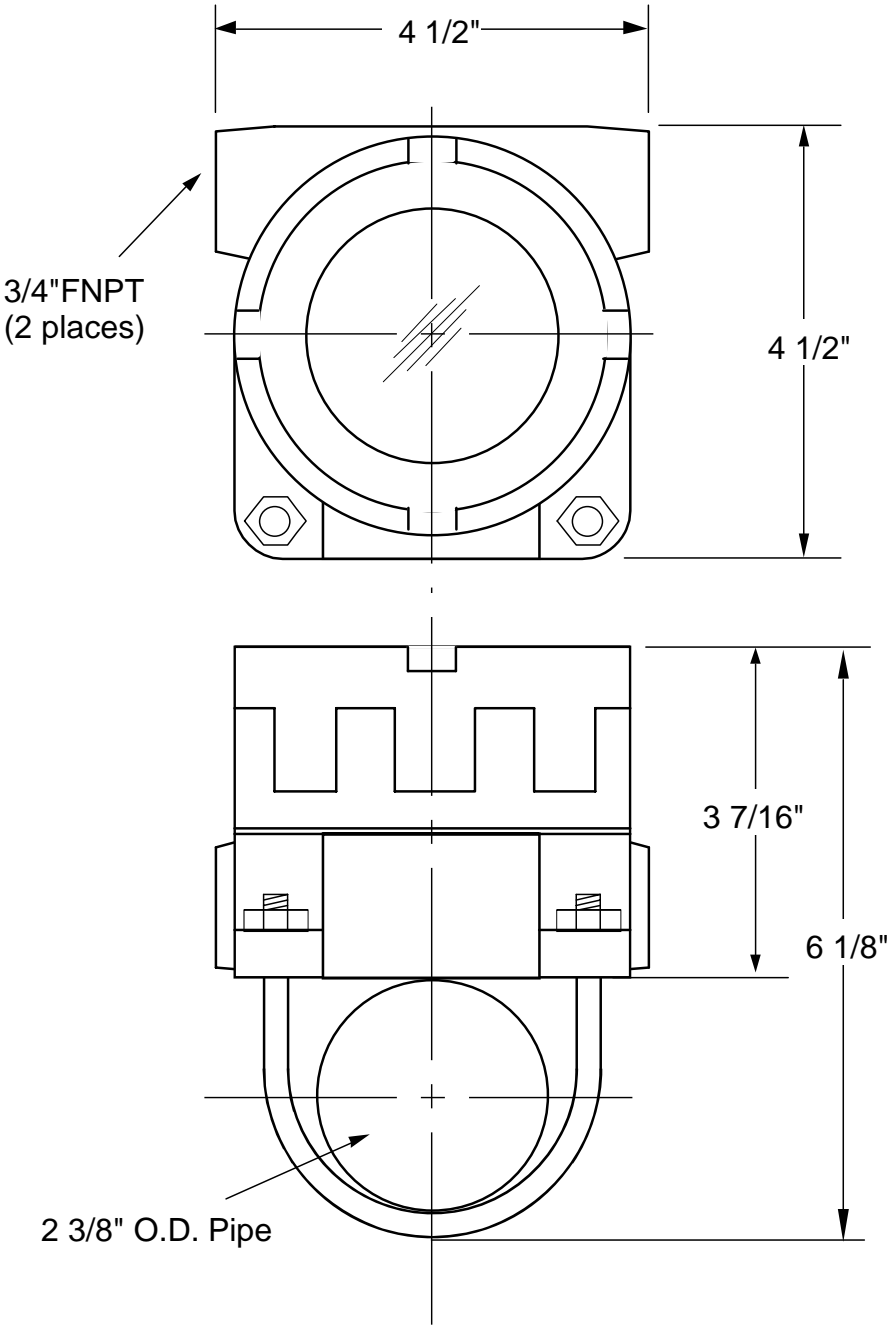
3920 Integral Blind Transmitter & Series 20 RTD with Terminal Housing



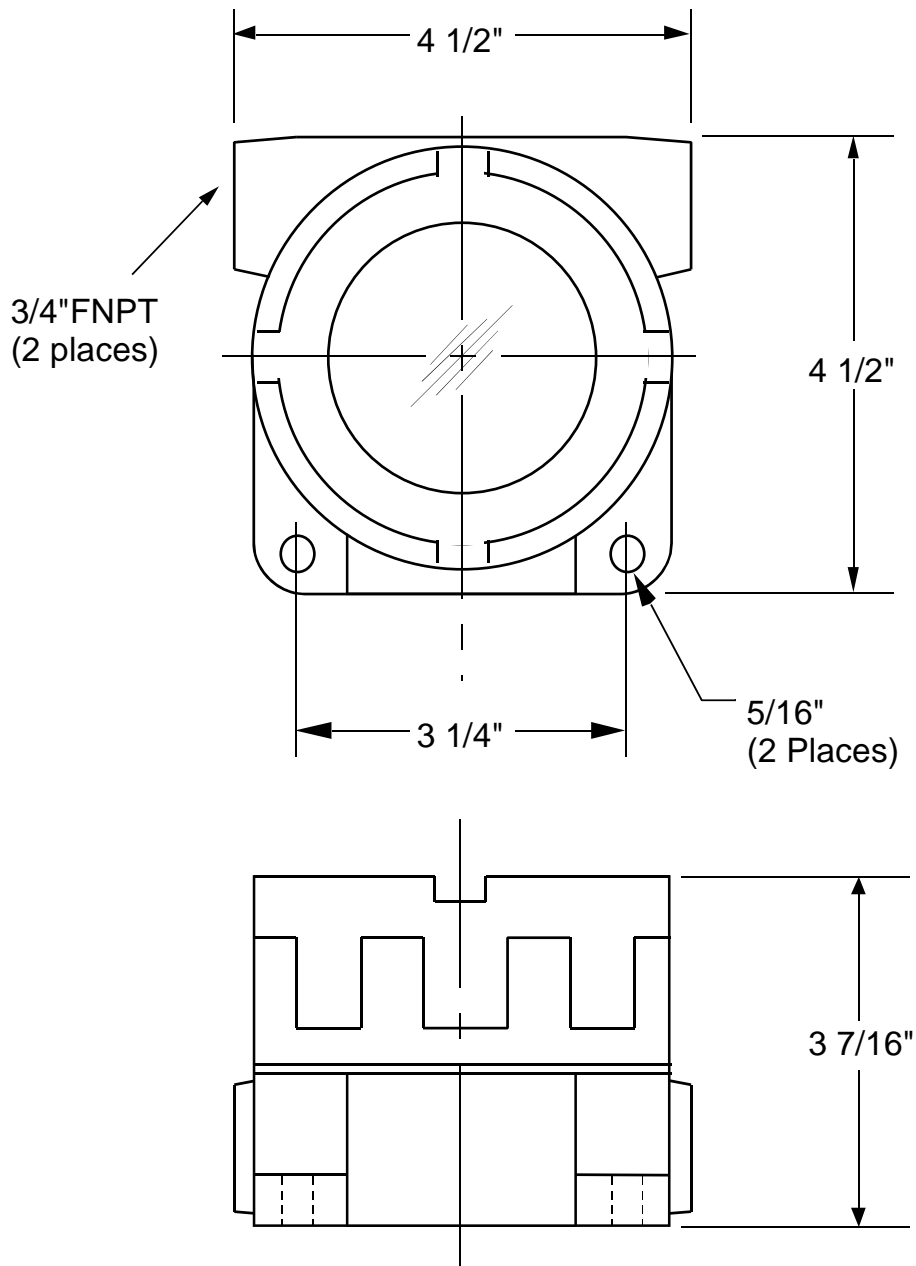
**3920 Integral Indicating Transmitter (and Blind Transmitters or Series 20 with "GB" Option)**



3920 Pipe Mount Transmitter (Indicating or Blind)



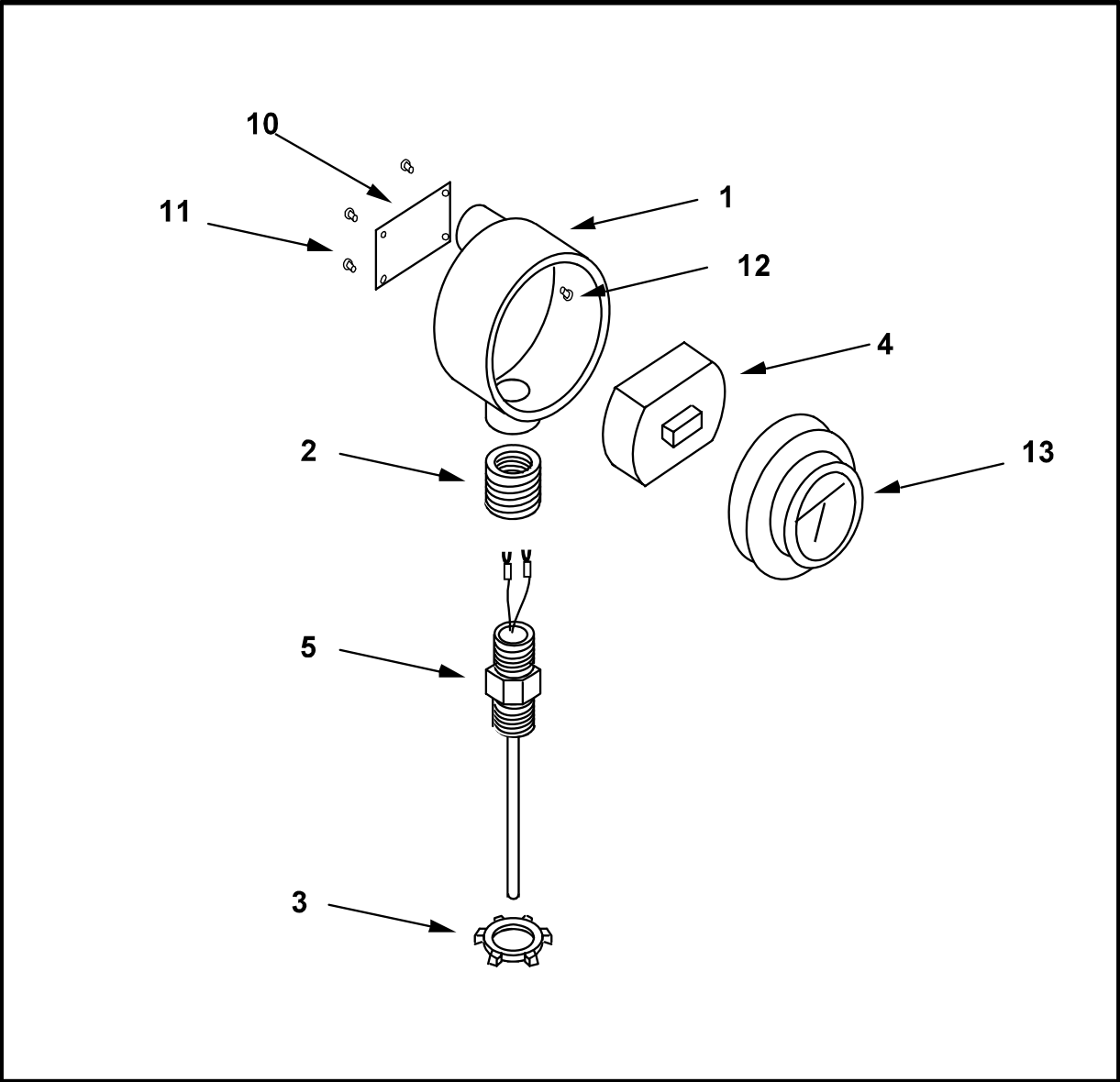
**3920 Remote Indicating Transmitter (and Blind Transmitters with "GB" Option)**



**Chapter 6: Parts List**

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**3920 Housing Assembly**



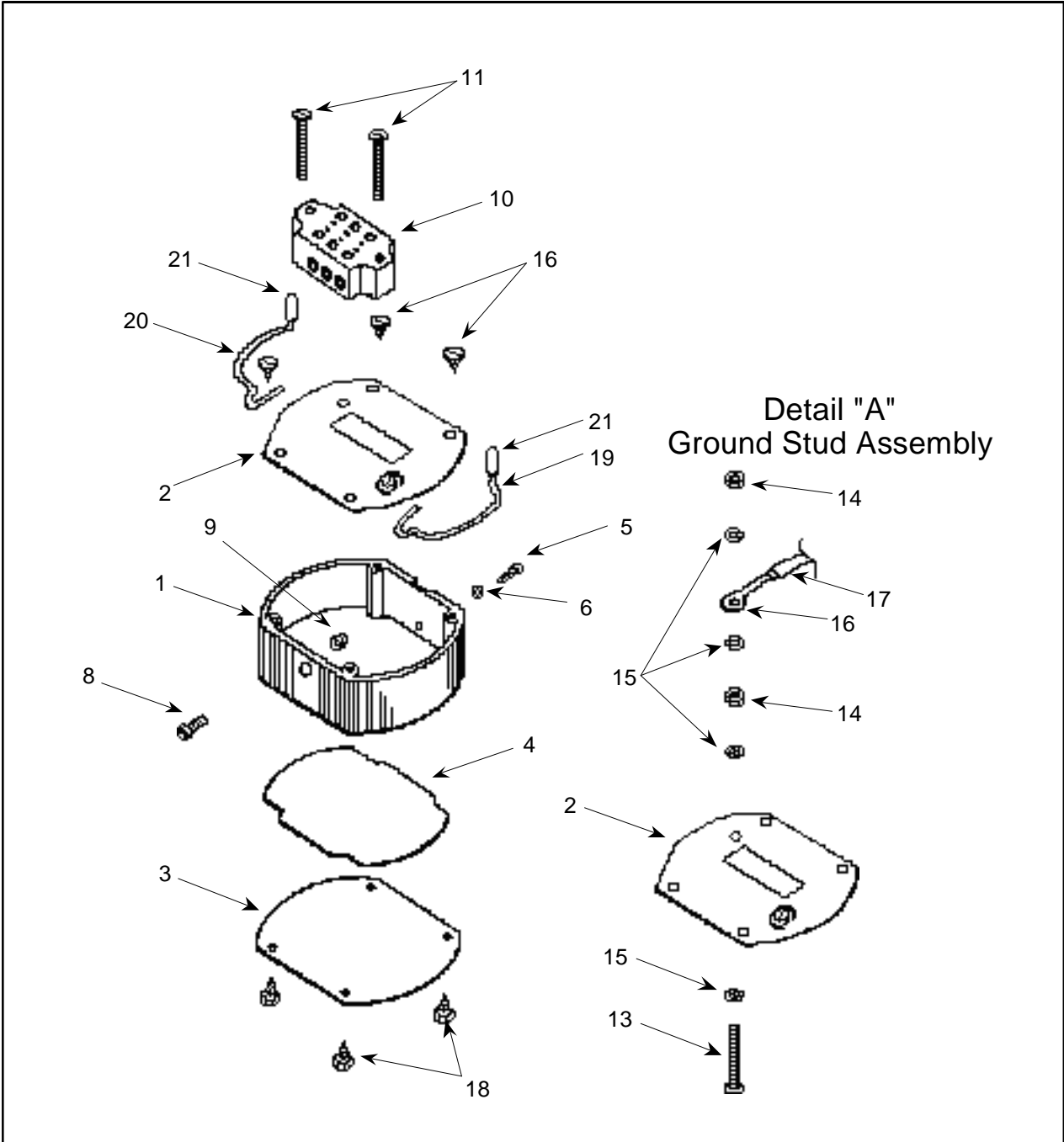
**Barton 3920 Electronic RTD Temperature Transmitter & Series 20 RTD**

ITEM	PART NUMBER	DESCRIPTION	QUANTITIES
1a	3900-0002B	Enclosure, Integral (as shown)	1
b	3900-0061B	Enclosure, GB or Pipemount Blind (not shown)	1
c	3900-0051B	Enclosure, Indicating (not shown)	1
2	1392-0005C	Reducer, 3/4"MNPT-1/2"FNPT	1
3	1392-0006C	Locknut, 1/2"NPT	1
4	3920-0030A-XX	Electronic Module (specify style and range)	1*
5	3920-0090B-XX	Probe Assembly, RTD (specify type & length)	1
6	3920-3423C	Union, 1/2" NPT, plated steel	1
	3920-3422C-03	3" Nipple, galvanized steel, 1/2" NPT	1
	3920-3422C-06	6" Nipple, galvanized steel, 1/2" NPT	1
		Nipple/Union option parts (Not Shown)	
7	3900-0009C	U-bolt, 2"	1
8	0500-0011J	Nut, 1/4"-18UNC, Steel ZP	2
9	0003-0013K	Washer, Split, 1/4", Steel ZP	2
		Pipemount U-bolt parts (Not Shown)	
10	3900-0001G	Nameplate, CSA (Not sold as a spare part)	1
11	0600-0001J	Rivet	1
12	0114-9002J	Screw, GND, Slot , Fillisterhead #8-32 x 1/4", SS	1
13	FCX2-A050T alternate FCX4-A050T	Indicator, Analog, 0-100% (Optional)	1*

\* Suggested Spare Parts for critical applications or where access to parts supply is difficult  
1 recommended for each 10 units in service



3920 Module Assembly



**Barton 3920 Electronic RTD Temperature Transmitter & Series 20 RTD**

ITEM	PART NUMBER	DESCRIPTION	QUANTITIES
1a	200-213-02	Housing, Extruded, Blind	1
b	3920-0044C	Housing, Extruded, Drilled, Indicating	
2a	3920-0042C	Cover, top, silkscreened	1
b	3920-0043C	Cover, top, drilled, indicating	
3	200-213-05	Cover, bottom	1
4	200-213-13	Insulator, bottom cover	1
5	800-896-21	Screw, Black Nylon, #2-56 x 3/16"	1
6	800-801-23	Washer, split, #2	1
7	3920-0046C	Insulator, transistor	1
8	800-104-21	Screw, Nylon, #4-40 x 5/16"	1
9	800-821-22	Nut, Nylon, #4-40	1
10a	210-252-06	Terminal Block, standard	1
b	200-297-00	Terminal Block, RFI option	1
11a	800-815-21	Screw, Std. Terminal Block, #4-40 x 3/4"	2
b	800-876-21	Screw, RF Terminal Block, #4-40 x 1"	
12	500-578-01B	Flex strip, RF option (not shown)	1
13	800-829-21	Screw, ground, #6-32 x 1/2", Zn PI	1
14	800-802-22	Nut, #6-32, Zn PI	1
15	800-803-23	Washer, Internal tooth, #6, Zn PI	2
16	800-101-27	Terminal Lug, #6	4
17	0012-1057T	Wire, ground, 18AWG, green (feet)	1
18	800-882-21	Screw, Hex Head, Slot, self-tapping, 7/16" ZnPI	1
19	200-293-04	Clip, Edge retainer, right	1
20	200-293-05	Clip, Edge retainer, left	1
21	800-880-24	Tip, CoverClip, Edge retainer	2
22	0062-0006TA	Crimp Lug	2
23	3900-0502T	Grommet, rubber	1
24	3920-0045J	Standoff, M3 x 0.5	2
25	0500-9001J	Nut, M3 x 0.5, C	1
26	3900-6600T	Mylar Tape	As required

Indicator  
option parts  
(Not Shown)

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