Simpson

- *Full 4-1/2 Digit, Bright Red 0.56" (14.2mm) Display*

- *User-Programmable T/C or RTD type (J, K, E, T, R, S, and Platinum 100 RTD)*

- *Jumper-Selectable Display Indicates ºC or ºF with 0.1º or 1º Display Resolution*

- *Linear mV Scale for Easy Calibration*

- *Short 2.94" (74.7mm) Deep, 1/8 DIN Case*

- *Screw Terminal Connector for Easy Installation*

- *Optional Isolated 9-32VDC Power Supply*

The Falcon Series temperature indicator is a high accuracy, microprocessor-based panel instrument designed to provide the maximum flexibility in temperature measurement. The Falcon automatically compensates for differences between unit temperature (room temperature) and ice point (0º), and provides the complete NIST range for six thermocouple types as well as Platinum 100 RTD. Input ranges are user-selectable and can be changed without recalibration.

The Falcon series features a standard 1/8 DIN case with a depth of less than 3″. Screw terminals are standard for easy installation.

Installation and Panel Cutout

Engineering Label
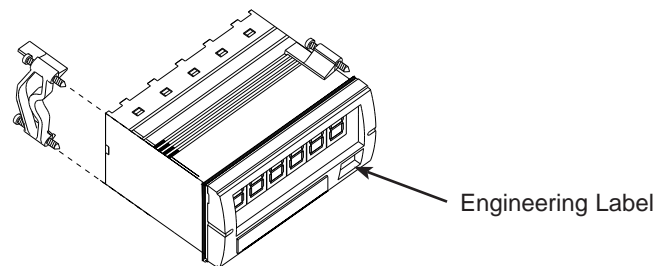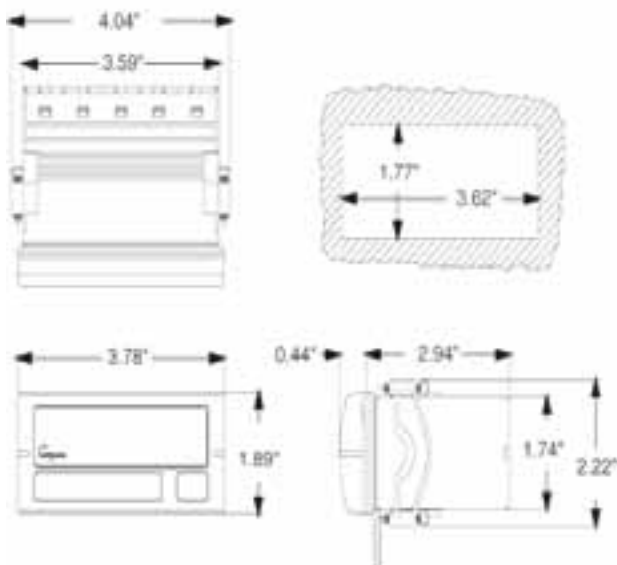
Mounting Requirements
The Falcon series 1/8 DIN indicators require a panel cutout of 1.77" (45mm) high by 3.62" (92mm) wide. To install the Falcon into a panel cut-out, remove the clips from the side of the meter. Slide the meter through your panel cutout, then slide the mounting clips back on the meter. Press evenly to ensure a proper fit.

Engineering Label Placement
If replacement of the engineering unit label is required, place the tip of a ball-point pen into the small hole at the base of the engineering label in the bezel. Slide the label up until it pops out. Grasp and remove. Slide the new label half the distance in, then use the ball-point pen to slide it down into place.

Specifications

DISPLAY
Type: 7-segment, red LED
Height: 0.56" (14.2mm)
Decimal Point: Jumper-selectable 2-position (corresponding to resolution desired)
Overrange indication: Most significant digit = "1"; other digits blank
Polarity: Automatic, with "-" indication, "+" indication implied

POWER REQUIREMENTS
AC Voltages: 120 or 220VAC, ±10% 50/60Hz
DC Voltages: 9-32VDC, ±1%
Power Consumption: 3VA

ENVIRONMENTAL
Operating Temperature: 0 to 55ºC
Storage Temperature: -10 to 60ºC
Relative Humidity: 0 to 85% non-condensing
Warm-up Time: Less than 20 minutes

MECHANICAL
Bezel: 3.78"x 1.89" x .44"
(96 x 48 x 11.2mm)
Depth: 2.94" (74.7mm)
Panel Cut-out: 3.62" X 1.77"
(91.9 x 45mm 1/8 DIN)
Case Material: 94V-1, UL rated Noryl®
**Weight:** 9.0oz (255.1g)

INPUTS
Thermocouple: J, K, E, T, R, and S
RTD: Platinum 100
Millivolt: ±84mV reading of uncompensated mV
Cold Junction Compensation Error: 0.1ºC/ºC
Input Impedance: 10MΩ (typical)
Lead Resistance Effect: 4.0µV/100Ω
Conversion Rate: 2-1/2 times per second
Open Thermocouple Detection: -1 on display, -40nA bias on thermocouple

Sensor Type	Temperature Range	Conformance Error	Resolution
E	-200 to 1000ºC -328 to 1832ºF	±0.1% of rdg ±0.1ºC ±0.1% of rdg ±0.2ºF	0.1º or 1º User-Selectable
J	-200 to 1200ºC -328 to 2192ºF	±0.1% of rdg ±0.1ºC ±0.1% of rdg ±0.2ºF	0.1º or 1º User-Selectable
K	-200 to 1372ºC -328 to 2501ºF	±0.1% of rdg ±0.1ºC ±0.1% of rdg ±0.2ºF	0.1º or 1º User-Selectable
T	-200 to 400ºC -328 to 752ºF	±0.1% of rdg ±0.1ºC ±0.1% of rdg ±0.2ºF	0.1º or 1º User-Selectable
R	-50 to 1768ºC -58 to 3214ºF	±0.1% of rdg ±0.2ºC ±0.1% of rdg ±0.4ºF	1º Automatic
S	-50 to 1768ºC -58 to 3214ºF	±0.1% of rdg ±0.2ºC ±0.1% of rdg ±0.4ºF	1º Automatic
mV	-19.999 to +4.000 mV	±0.02% of rdg* ±0.002 mV	0.001 or 0.01 mV* User-Selectable
RTD Pt 100	-200 to 850ºC -328 to 1562ºF	±0.06% of rdg ±0.1ºC ±0.06% of rdg ±0.2ºF	0.1º or 1º User-Selectable

* Usable resolution of 0.002mV. Conformance is to NIST Monograph 175.
Temperature-Electromotive Force Reference Functions for the Letter-Designated Thermocouple types based on the ITS-90.

Wiring Diagram

Thermocouple Inputs
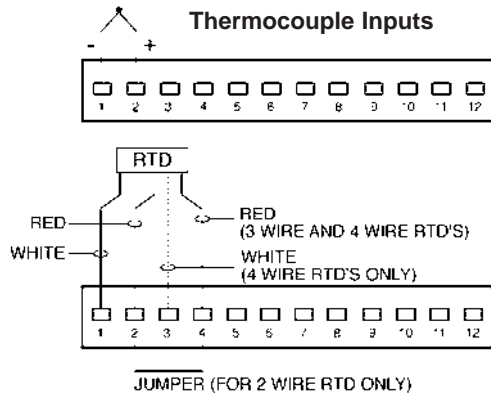
Input Signal: Connect the thermocouple to terminals #1 and #2. RTD inputs are wired per the RTD diagram. See chart below for color codes.

Thermocouple Data

Sensor Type	Connection Information and Lead Color				U.S. ANSI 96.1 Standard Color Code	
	IN- (J101 Pin 1)	IN+ (J101 Pin 2)	RTD- (J101 Pin 3)	RTD+ (J101 Pin 4)	Wire Color Code	Sheath Color Code (1)
E	Red	Purple	N/C	N/C	+Purple -Red	E
J	Red	White	N/C	N/C	+White -Red	J
K	Red	Yellow	N/C	N/C	+Yellow -Red	K
R	Red	Black	N/C	N/C	+Black -Red	R
S	Red	Black	N/C	N/C	+Black -Red	S
T	Red	Blue	N/C	N/C	+Blue -Red	T

(1) Non-Metallic thermocouple sheaths may be a single color, or striped with the second color.

Power Supply Connections

Power Supply: Connect the power supply to terminals #11 and #12. #11 is for AC neutral and -DC, and terminal #12 is for AC Hot and +DC.

* Before making any electrical connections, make sure all power is off.
* Do not touch leads, circuit, or the instrument while power is applied.
* Make sure the hook-up wire is capable of carrying the current required and is well insulated, with no cracks or exposed wiring.

Before switching instrument on, make sure the supply voltage matches the power source required as indicated on model identification label affixed to the top of the meter.

RTD Data

Sensor Type	Connection Information and Lead Color				U.S. ANSI 96.1 Standard Color Code	
	IN- (J101 Pin 1)	IN+ (J101 Pin 2)	RTD- (J101 Pin 3)	RTD+ (J101 Pin 4)	Wire Color Code	Sheath Color Code (1)
2-Wire	White	Red w/jumper to J101 Pin 4	N/C	Jumper to J101 Pin 2	N/A	N/A
3-Wire	White	Red	N/C	Red	N/A	N/A
4-Wire	White	Red	White	Red	N/A	N/A

Basic Unit

| F45 |

| F45 |

4-1/2 Digit
Indicatior

Power Supply

1	120VAC
2	220VAC*
3	9-32VDC
4	120VAC*

*Meets CE EMI EN-50082-1, EN-55022, EN-6100-3-2, EN-6100-3-3

Function/Range

80	J
81	K
82	S
83	T
84	E
85	R
86	mV
90	RTD, Pt100
71	4-20mA **

Excitation

| 0 |

N/A
(RTD sensor
supply
included)

| C | °C |
| F | °F |

**For use with temperature transmitters shown below
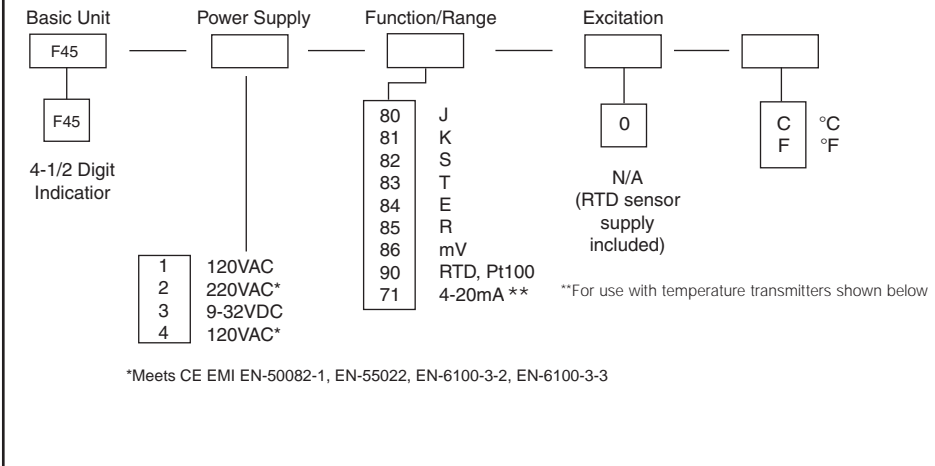
The WARNING sign denotes a hazard. It calls attention to a procedure, practice, or the like, which, if not correctly performed or adhered to, could result in personal injury.

The CAUTION sign denotes a hazard. It calls attention to an operating procedure, practice, or the like, which, if not correctly adhered to, could result in damage to or destruction of part or all the instrument.

Accessories

INSULATED THERMOCOUPLES

Soft-wire thermocouples are available in two insulation types. All soft-wire selections have beaded butt welded measurement junctions.

| Type | Temperature Rating | | Physical Properties | | |
	Continuous	Single Reading	Abrasion Resistance	Moisture Resistance	Chemical Resistance
Glass Braid	900°F (482°C)	1000°F (*583°C)	Fair	Good	Good
Teflon®	400°F (204°C)	500°F (260°C)	Excellent	Excellent	Excellent

ORDERING INFORMATION

Cat. No.	Description
THJ105	T/C J, 24 Gauge, Fiber Glass Braid, 5 foot
THJ1015	T/C J, 24 Gauge, Fiber Glass Braid, 15 foot
THK105	T/C K, 24 Gauge, Fiber Glass Braid, 5 foot
THK1015	T/C K, 24 Gauge, Fiber Glass Braid, 15 foot
THJ035	T/C J, 20 Gauge, FEP Teflon®, 5 foot
THJ315	T/C J, 20 Gauge, FEP Teflon®, 15 foot

QUICK DISCONNECT ASSEMBLIES

Type	ANSI Color Code	Max. Operating Temperature	Catalog Number
J	Black	1500°F	21238
K	Yellow	1600°F	21239

METAL TRANSITION ASSEMBLIES

Type	ANSI Color Code	Max. Operating Temperature	Catalog Number
J	Black	1500°F	21242
K	Yellow	1600°F	21243
RTD	White	1200°F	21244

Note: A 3/16" compression fitting is available separately for assemblies. Catalog Number 21253.

SPECIFICATIONS

316 Stainless Steel   Best corrosion resistance of the austenitic stainless steel grades. Good corrosion resistance in H2S. Subject to damaging carbide precipitation. 900°-1600°F (482°-871°C) range.

Ungrounded Junction   This type of thermocouple junction is fully insulated from the welded sheath end. The ungrounded junction is excellent for applications where stray EMFs would affect the reading and for frequent or rapid termperature cycling. Response time is 2.5 seconds.

Forming   The XACTPAK® sheath can be formed around a mandrel twice the sheath diameter.