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MODEL 4150 GENERAL PURPOSE PROBE

This probe is available with a broad selection of sensors, fittings, and special application options. Drawings of various options and charts indicating certain performance characteristics and limits follow the options list.

Model 4150 Probe Part Number Format

Model Number 4150
Sheath Diameter (1/8", 3/16", 1/4") 1/4
Sheath Length in inches 12
Cable Length in inches 36
Sensor Part Number PT138P
Options (from options list below) ( )

Options List

AF armor fitting	An adjustable bayonet fitting with 1/8" NPT male adaptor is installed on the B option armor and may be moved to provide adjustable loading of the probe. Not compatible with options BL, F, G, J, R, SL.
AMP microphone connector	4-contact male (Switchcraft A4M or equal).
AMP-1 microphone connector	4-contact female (mates with AMP).
B flexible armor	Stainless steel, 0.2" diameter. Specify length in inches. We suggest cable length less 6" except when specifying a connector. Not compatible with option R.
BL bent sheath	Specify BL1, BL2, bend angle. Refer to option drawing.
C compression fitting	316SS male fitting supplied loose. Specify 1/8", 1/4" or 1/2" NPT (C1/8, C1/4, C1/2). When C1/2 is specified for a 1/8" or 3/16" probe diameter, a reducing bushing will be furnished. Not compatible with options F, J, SL.
D reduced tip diameter	Specify 1/8" or 3/16" reduced diameter by length in inches (D1/8 x 4.0). Refer to option drawing. Not compatible with options DU, QR, VI.

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DU dual sensor	Two electrically isolated, identical sensors in a 3/16" or 1/4" diameter probe. 8-conductor, TFE insulated and jacketed cable. Not compatible with options D, H, HS, K, QR.
EAL, ECI, EN, EX heads	Connection heads. Normally used with C1/2, G1/2 or J1/2 fittings. Refer to option drawings and connection head section. Not compatible with options AF, AMP, AMP-1, B, MC, MC-1, MS, MS-1, R, SL.
F fixed fitting forward	316SS male fitting. Specify 1/8", 1/4" or 1/2" NPT (F1/8, F1/4, F1/2). Refer to option drawing.
G fixed fitting rearward	316SS male fitting. Specify 1/8", 1/4" or 1/2" NPT (G1/8, G1/4, G1/2). Refer to option drawing.
H high-temperature probe	Nickel 600 probe rated to 650°C, fiberglass-insulated cable rated to 350°C. Not compatible with options DU, HS, K, VI.
HS high-temperature sheath	Nickel 600 probe rated to 650°C, PFA-insulated cable rated to 250°C. Not compatible with options DU, H, K, VI.
J fixed fitting double	316SS male fitting. Specify threads for both ends (front thread first). Specify 1/8", 1/4" or 1/2" NPT (J1/2-1/2, for instance). Refer to option drawing.
K hermetic seal	Sealed for moisture protection below ambient dew point. Temperature span -200 to +250°C. Refer to option drawing. Not compatible with thermocouple sensor (TC) or with options DU, H, HS, VI.
MC thermocouple connector	3-contact male, uncompensated for platinum sensor (PT). 2-contact male, compensated for thermocouple sensor (TC). Not compatible with thermistor sensor (TH).
MC-1 thermocouple connector	3-contact (PT) or 2-contact (TC) female. Mates with MC.
MS military connector	4-contact male, MS3101A-14S-2P. Not compatible with thermocouple sensor (TC).
MS-1 military connector	4-contact female, MS3106A-14S-2S. Mates with MS. Not compatible with thermocouple sensor (TC).

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OX oxidized sheath	Pre-oxidation of H or HS option sheath assembly.
PSN serial number	Unique serial number assigned to a probe.
QR quick response	Grooved tip on 1/4" diameter probe to improve thermal response. Not compatible with options D, DU.
R strain relief spring	A spring is installed at the rear of the probe to prevent sharp cable bends. Not compatible with option B.
SL spring load fitting	A fixed bayonet fitting with male NPT adaptor is installed on the probe to provide spring loading of the probe into a cavity. Specify 1/8" or 1/4" NPT, cavity depth (CD) and adaptor length if not standard. Refer to option drawing. Not compatible with options C, D, F, J.
SP spade lugs	#6 insulated lugs. Not compatibe with thermocouple sensor (TC).
SPL spade lugs	#8 compensated lugs for thermocouple sensor (TC). Not compatible with platinum (PT) or thermistor (TH) sensor.
SST probe tag	1" diameter stainless steel tag with wire. Stamped with specified numerical sequence.
VI ruggedized	The platinum sensor (PT) is encapsulated in epoxy for improved resistance to shock and vibration. Probe is rated to 250°C. Not compatible with thermocouple (TC) or thermistor (TH) sensor.

Service Temperatures

316SS Sheath: up to 500°C.
Inconel Sheath (HS Option): up to 660°C.
316SS Sheath (K Option): -200 to +250°C.
Ruggedized (VI Option): up to 250°C.

These temperature limits are for internal probe protection and measurement stability. For chemical/corrosion effects on the sheath materials consult the appropriate materials handbook.

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Ad Dimension	7/8"	1-1/4"
NPT	1/8"	1/4"
Sheath Diameter	3/16"	1/4"

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Temperature Sensors

The 4100 Series and 41000 Series Temperature Probes are available with platinum, thermocouple, or thermistor sensors. Part numbers and performance data for platinum and thermocouple sensors are indicated below and on the following pages.

Thermistor Sensors

Because thermistors are available with many characteristics, we do not stock these devices in quantity. We recommend, and can readily offer pricing and availability on, probes using thermistors manufactured by YSI Incorporated, Yellow Springs, Ohio. Please contact our sales department for assistance. TH is the prefix for any thermistor part number.

Platinum Sensors

We manufacture our sensors using controlled or high-purity platinum wire. The following table indicates the part numbers and performance criteria for our standard sensors. We can also offer probes using film or other classes of sensors. Please let us know your requirements.

Part Number	R 0°C	0-100°C Temperature Coefficient	Temperature At 0°C	Tolerance Slope	Recommended Maximum Temperature
PT138P	100	0.00385 Ω/Ω/°C	± 0.1°C	.002°C/°C	500°C
PT538P	500	Same	Same	Same	Same
PT139P	100	0.00392 Ω/Ω/°C	Same	Same	650°C
PT539P	500	Same	Same	Same	Same
PT138W	100	0.00385 Ω/Ω/°C	± 0.25°C	.003°C/°C	500°C
PT538W	500	Same	Same	Same	Same
PT139W	100	0.00392 Ω/Ω/°C	Same	Same	650°C
PT539W	500	Same	Same	Same	Same

Thermocouple Sensors

Our standard sensors conform to ANSI standard accuracy and are solid conductor, #20AWG (4100 Series) or #24 AWG (41000 Series), with fiberglass insulation. The following table lists part numbers for grounded/ungrounded sensors and some performance criteria. We can offer thermocouple sensors with different insulations or with different calibrations. Please contact our sales department.

Part Number	Materials	Positive Color	Negative Color	Recommended Maximum Temperature
TCEG/TCEU	Chromel/Constantan	Purple	Red	480°C
TCJG/TCJU	Iron/Constantan	White	Red	480°C
TCKG/TCKU	Chromel/Alumel	Yellow	Red	480°C
TCTG/TCTU	Copper/Constantan	Blue	Red	480°C