Instrument Expert
Original factory packaging
www.dorgean.com

MODEL 41342
PLATINUM TEMPERATURE PROBE

INSTRUCTION SHEET 41342-90
REV: C111215

INTRODUCTION

The Model 41342 Platinum Temperature Probe is an accurate 1000 ohm Platinum temperature sensor mounted in a weatherproof junction box. The sensor output uses a 4 wire RTD configuration. The probe is designed for easy installation in YOUNG Multi-plate and Aspirated Radiation Shields.

INSTALLATION

For accurate measurements, the temperature probe should be installed in a protective radiation shield. Use of the probe without a radiation shield may result in large errors. YOUNG naturally ventilated or motor aspirated shields are recommended. For best performance, the probe and shield should be placed in a location with good air circulation clear of large masses (buildings, pavement, solar panels...), Exhaust vents, electrical machinery, motors, water fountains and sprinklers.

NOTE: The terminal marked "EARTH GND" should be connected to properly grounded tower, or grounding conductor, as close to the sensor as possible. Failure to do so may result in damage due to static discharge.

MAINTENANCE

The temperature probe is designed to offer years of service with minimal maintenance. If necessary, the probe may be periodically checked or recalibrated using normal bath calibration methods. NIST traceable calibration is available from YOUNG at nominal cost.

WARRANTY

This product is warranted to be free of defects in materials and construction for a period of 12 months from date of initial purchase. Liability is limited to repair or replacement of defective item. A copy of the warranty policy may be obtained from R. M. Young Company.

CE COMPLIANCE

This product has been tested and complies with European CE Requirements for the EMC Directive. Please note that shielded cable must be used.

EMC COMPLIANCE

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

This ISM device complies with Canadian ICES-001.
Cet appareil ISM est conforme à la norme NMB-001 du Canada.
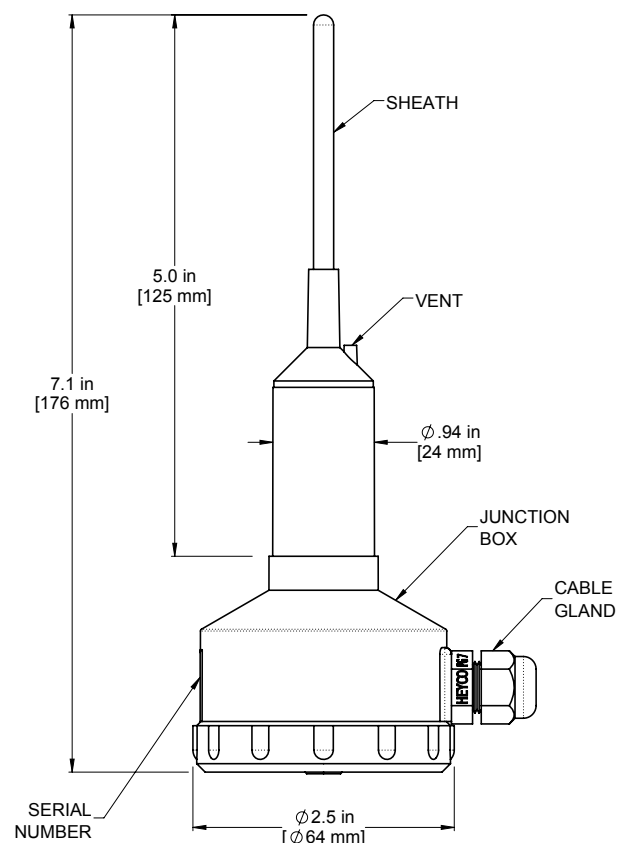
EN55011/CISPR 11, Group 1, Class B device.
Class B equipment is suitable for use in domestic establishments and in establishments directly connected to a low voltage power supply network which supplies buildings used for domestic purposes.

SPECIFICATIONS

Calibrated measuring range:	-50 to +50°C (suffix C)
	-50 to +150°F (suffix F)
Accuracy at 0°C:	±0.3°C
	±0.1°C (optional)
Time Constant:	42 seconds in 43502 shield.
Sensor type:	1000Ω Platinum RTD
Output signal:	4 wire RTD
Recommended Cable:	2 pair shielded
	22 AWG (#18723)

Recommended Radiation Shields:

Model 43502	Aspirated Radiation Shield
Model 41003P	Multi-Plate Radiation Shield

SHEATH

VENT

5.0 in [125 mm]

7.1 in [176 mm]

⌀.94 in [24 mm]

JUNCTION BOX

CABLE GLAND

SERIAL NUMBER

⌀2.5 in [⌀64 mm]

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WIRING INFORMATION
MODEL 41342 TEMPERATURE SENSOR
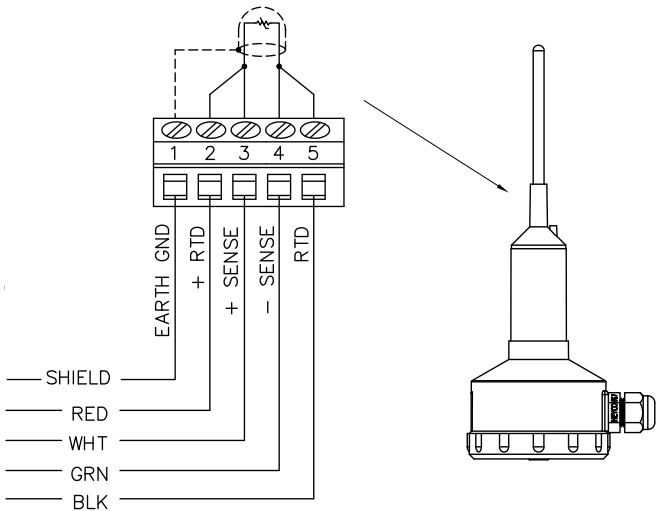
NOTE: The terminal marked "EARTH GND" should be connected to properly grounded tower, or grounding conductor, as close to the sensor as possible. Failure to do so may result in damage due to static discharge.

Terminals: 1 2 3 4 5

1 — EARTH GND
2 — + RTD
3 — + SENSE
4 — – SENSE
5 — RTD

SHIELD
RED
WHT
GRN
BLK

Resistance vs. Temperature for 1000 Ω nominal probe
Temperature Coefficient = 0.00375 Ω /Ω /°C

Resistance Ω	°F	°C	Resistance Ω
1226.445	140	60	1226.445
1205.659	130		
1184.837	120	50	1189.005
1163.978	110		
1143.081	100	40	1151.445
1122.148	90	30	1113.764
1101.177	80		
1080.169	70	20	1075.963
1059.124	60		
1038.042	50	10	1038.042
1016.922	40	0	1000.000
995.766	30		
974.572	20	-10	961.837
953.340	10		
932.069	0	-20	923.550
910.759	-10	-30	885.132
889.407	-20		
868.013	-30	-40	846.576
846.576	-40		
825.093	-50	-50	807.873

Transfer function calculated from manufacturer's data:
$C° = (1.1279 \times 10^{-5} \cdot R^2) + (2.3985 \times 10^{-1} \cdot R) - 251.1326$
$F° = (2.0302 \times 10^{-5} \cdot R^2) + (4.3174 \times 10^{-1} \cdot R) - 420.0387$