Smart reference probes

The Beamex smart reference probe is a high-quality and extremely stable PRT probe with an integrated memory that stores the individual sensor coefficients. The sensor works as plug-and-play with Beamex FB series of temperature blocks (R model). The temperature block automatically reads the sensor coefficients from the sensor and makes the necessary adjustments. This eliminates the need to enter the coefficients manually. The sensor can also be used with the Beamex MB series of temperature blocks (R model). The sensor coefficients can be manually entered via the MB user interface. The sensor is available as a 300 mm straight version or a 90° bent version, making it an ideal reference sensor for the Beamex temperature block.

MAIN FEATURES:

- Temperature range –200 °C… 420 °C / 660 °C
- High stability, up to ±0.007 °C
- 300 mm straight and 90° bent versions
- Accredited calibration certificate with data and ITS-90 coefficients included as standard

MODEL	DESCRIPTION
RPRT-420-300	Reference PRT, max 420 °C, length 300 mm, straight
RPRT-420-230A	Reference PRT, max 420 °C, length 230 mm (before angle), 90° angled
RPRT-660-300	Reference PRT, max 660 °C, length 300 mm, straight
RPRT-660-230A	Reference PRT, max 660 °C, length 230 mm (before angle), 90° angled

SPECIFICATIONS

PARAMETER	RPRT-420-300 & RPRT-420-230A	RPRT-660-300 & RPRT-660-230A
Temperature range	–200 to 420 °C	– 200 to 660 °C
Nominal resistance at 0.010 °C	100 Ω ±0.5 Ω	100 Ω ±0.5 Ω
Temperature coefficient	0.003925 Ω/Ω/°C	0.0039250 Ω/Ω/°C
Sheath diameter x length	6.35 mm ±0.08 mm x 305 mm ±0.08 mm (0.25 in ±0.003 x 12 in ±0.13 in)	6.35 mm ±0.08 mm x 305 mm ±0.08 mm (0.25 in ±0.003 x 12 in ±0.13 in)
Short-term repeatability [1]	±0.007 °C at 0.010 °C ±0.013 °C at max temp	±0.007 °C at 0.010 °C ±0.013 °C at max temp
Drift [2]	±0.007 °C at 0.010 °C ±0.013 °C at max temp	±0.007 °C at 0.010 °C ±0.013 °C at max temp
Hysteresis	±0.010 °C maximum	±0.010 °C maximum
Sensor length	30 mm ±5 mm (1.2 in ±0.2 in)	30 mm ±5 mm (1.2 in ±0.2 in)
Sensor location	3 mm ±1 mm from tip (0.1 in ±0.1 in)	3 mm ±1 mm from tip (0.1 in ±0.1 in)
Sheath material	Inconel 600	Inconel 600
Maximum immersion (nominal)	Straight: 305 mm (12 in) Angled: 210 mm (8.3 in)	Straight: 305 mm (12 in) Angled: 210 mm (8.3 in)
Minimum immersion (<5 mK error)	100 mm (3.9 in)	100 mm (3.9 in)
Minimum insulation resistance	500 MΩ at 23 °C	500 MΩ at 23 °C, 10 MΩ at 670 °C
Transition junction temperature range [3]	–50 °C to 200 °C	–50 °C to 200 °C
Transition junction dimensions	71 mm x 12.5 mm (2.8 in x .42 in)	71 mm x 12.5 mm (2.8 in x .42 in)
Typical response time	12 seconds	12 seconds
Self heating (in 0 °C bath)	50 mW/°C	50 mW/°C
Lead-wire cable	Teflon cable, Teflon insulated, 24 AWG stranded, silverplated copper	Teflon cable, Teflon insulated, 24 AWG stranded, silver plated copper
Lead-wire length	1.8 m (6 ft)	1.8 m (6 ft)
Lead-wire temperature range	–50 °C to 250 °C	–50 °C to 250 °C
Warranty	Warranty 1 Year	Warranty 1 Year

1) Three thermal cycles from min to max temp, includes hysteresis, 95% confidence
2) After 100 hrs at max temp, 95% confidence
3) Temperatures outside this range will cause irreparable damage. For best performance, transition junction should not be too hot to touch.