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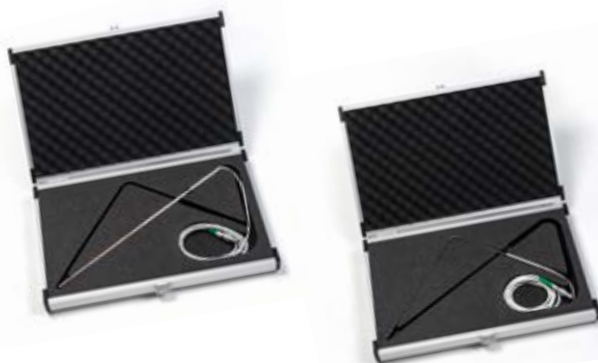
## RPRT high-accuracy reference sensor

The Beamex RPRT is a very accurate and extremely stable temperature sensor and is aimed to be used as a reference sensor in the most demanding temperature calibrations. It provides temperature ranges up to 660 °C (1220 °F) via four different models, and offers excellent stability up to  $\pm 0.007$  °C. The RPRT is available as a straight and as a 90° bent version. The sensor is provided with a LEMO connector compatible with Beamex MC6 family calibrators. With an adapter cable it can be used with any device with four banana contacts.

An accredited calibration certificate with correction coefficients is included in the standard delivery. The RPRT includes an integrated memory that stores sensor coefficients. The measurement capability of RPRT extends to  $-200$  °C but accuracy specification is valid only for the calibrated range. Additional calibration points to  $-80$  °C are available on request.

### MAIN FEATURES:

- excellent long-term stability up to  $\pm 0.007$  °C
- temperature ranges up to 660 °C (1220 °F) via four different models
- available as a straight (-300) or 90° bent (-230A) versions
- provided with a 6-pin LEMO connector compatible with Beamex MC6 family calibrators and Beamex dry blocks
- an accredited calibration certificate including sensor-specific ITS-90 and CvD correction coefficients is always included as standard



MODEL	DESCRIPTION
RPRT-420-300	Calibrated range $-45 \dots 420$ °C, length 305 mm, straight
RPRT-420-230A	Calibrated range $-45 \dots 420$ °C, length 230 mm (before angle), 90° angled
RPRT-660-300	Calibrated range $0 \dots 660$ °C, length 305 mm, straight
RPRT-660-230A	Calibrated range $0 \dots 660$ °C, length 230 mm (before angle), 90° angled

## SPECIFICATIONS

PARAMETER	RPRT-420-300 & RPRT-420-230A	RPRT-660-300 & RPRT-660-230A
Measurement capability	-200 ... 420 °C	-200 ... 660 °C
Calibrated temperature range	-45 ... 420 °C	0 ... 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 in x 12 in ±0.003 in)	6.35 mm ±0.08 mm x 305 mm ±0.08 mm (0.25 in ±0.003 in x 12 in ±0.003 in)
Short-term repeatability <sup>1)</sup>	±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 <sup>2)</sup>	±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 element length	30 mm ±5 mm (1.2 in ±0.2 in)	30 mm ±5 mm (1.2 in ±0.2 in)
Sensor element location	3 mm ±1 mm from tip (0.1 in ±0.04 in)	3 mm ±1 mm from tip (0.1 in ±0.04 in)
Sheath material	Inconel 600	Inconel 600
Maximum immersion depth (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 depth (<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 <sup>3)</sup>	-50 °C ... 200 °C	-50 °C ... 200 °C
Transition junction dimensions	71 mm x 12.5 mm (2.8 in x 0.5 in)	71 mm x 12.5 mm (2.8 in x 0.5 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, silver-plated copper	Teflon cable, Teflon insulated, 24 AWG stranded, silver-plated copper
Lead-wire length	1.8 m (5.9 ft)	1.8 m (5.9 ft)
Connector	6-pin LEMO connector, compatible with Beamex MC6 family calibrators and dry blocks	6-pin LEMO connector, compatible with Beamex MC6 family calibrators and dry blocks
Lead-wire temperature range	-50 °C ... 250 °C	-50 °C ... 250 °C

<sup>1)</sup> Three thermal cycles from min to max temp, includes hysteresis, 95% confidence.

<sup>2)</sup> After 100 hours at max temp, 95% confidence.

<sup>3)</sup> Temperatures outside this range will cause irreparable damage. For best performance, the transition junction should not be too hot to touch.

