

GP
Datasheet

Noncontact Temperature Measurement for Industrial Applications



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GP Highlights

- Temperature range from -18°C to 538°C (0°F to 1000°F)
- Compact 1/8 DIN digital monitor with large 4-digit display
- Monitor and sensor functions configured on front panel
- Signal processing capabilities typically found on much larger systems
- Adjustable emissivity and T-ambient parameters
- Universal 110–220 VAC power included
- User-defined 4–20 mA or thermocouple output (J, K, E, N, R, S, T)
- Adjustable dual setpoints, deadband alarm outputs and optional mechanical relays
- Choice of sensing head to match application requirements
- Field interchangeable sensing heads
- Standard and close focus optics available
- Accessories for cooling and air purging
- GPS Laser Sighted Head w/ 50:1 optical resolution

The GP Series is a versatile, two-piece temperature monitoring system that combines a compact, value-priced monitor with an infrared sensing head. The heart of the system is the 1/8 DIN GP monitor which provides advanced infrared processing capabilities including peak and valley hold, averaging, and a user-adjustable offset. The rugged Thermalert GPR sensor is available with standard or close focus optics, and provides target temperature readings with 1% accuracy.

Along with its large 4-digit LED display, the monitor provides a user-defined 4–20mA or thermocouple output. Two adjustable setpoints/deadbands control 5V alarm outputs or optional 3A mechanical relays. The GP monitor accepts universal 110–220 VAC power, and provides a 24 VDC/50 mA excitation voltage for loop power to external sensors. All monitor functions are configured via the front panel, including °C/°F switching.

The GP monitor provides adjustable emissivity and ambient compensation when used with the GPR/GPS infrared sensors. These high performance, 8–14 micron sensors, combine current loop driven signals with high resolution optics.

The GP monitor also works with other Raytek infrared sensors, including the CI, TX, MI and Marathon Series sensors.

Measurement Specifications

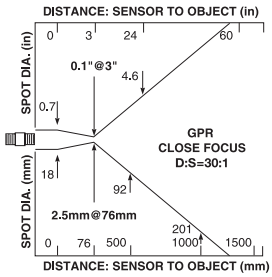
Monitor with Sensing Head

Spectral Response GPR/GPS	8 to 14 microns
Temperature Range GPR/GPS	-18°C to 538°C (0°F to 1000°F)
System Accuracy *(mA output)*	±1% of measured value or ±1°C (2°F), whichever is greater, @ 23°C ±5°C (73°F ±9°F)
System Repeatability	±0.5% of measured value or ±1°C (2°F) whichever is greater
Response Time (95%) GPR/GPS	300 mSec
Emissivity	0.1 to 1.09 digitally adjustable increments of .01
Signal Processing	Peak and valley hold (up to 998 sec, 999=infinite hold with external reset). Variable averaging filter (up to 60 seconds). T-ambient: fixed background ambient temperature compensation

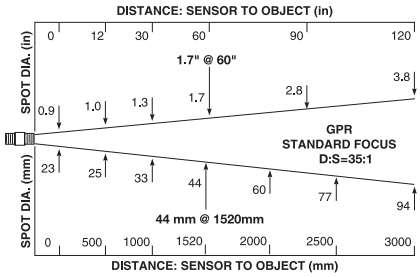
Nominal Optical Specifications

GPR Sensing Head Optical Charts

RAYGPRCF

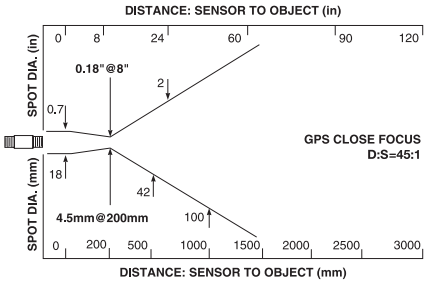


RAYGPRSF

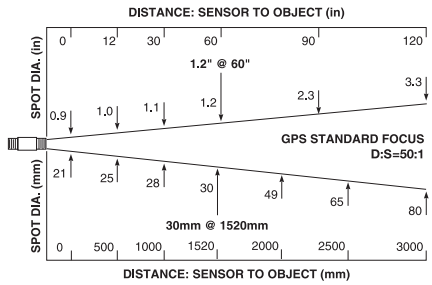


GPS Sensing Head Optical Charts

RAYGPSCFL



RAYGPSSFL



(NOTE: nominal spotsize based on 90% energy)

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Electrical Specifications

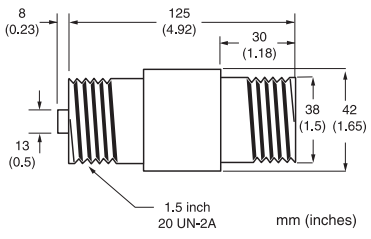
Power Supply	110/220 VAC, ±20%, 50–60 Hz
Inputs	User configurable inputs for GPR, GPS, any 0-5 V or 4-20 mA sensor, or thermocouple (J, K, E, N, R, S, T) External reset input to reset peak/valley hold
Outputs	4-digit, 7 segment LED display, °C/°F selectable User configurable 4-20 mA current or thermocouple output (J, K, E, N, R, S, T) Two adjustable setpoints with deadbands controlling +5 V alarm outputs or optional 3A mechanical relays 24 VDC/50 mA excitation voltage

Sensor Specifications

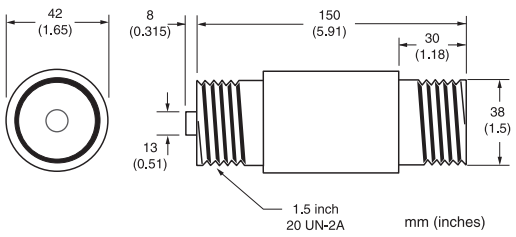
Environmental Rating:	
GP monitor front panel	IP 54 (IEC 529); NEMA-12
GPR/GPS sensing head	IP 65 (IEC 529); NEMA-4*
** GPR/GPS rated with adapter and compression fitting*	
Ambient Temperature Range:	
GP monitor	0°C to 50°C (32°F to 120°F)
GPR/GPS sensing head	0°C to 65°C (32°F to 150°F)
GPS laser shuts off automatically at 50°C (120°F)	
with optional water cooling	0°C to 177°C (32°F to 350°F)
with optional air cooling	0°C to 120°C (32°F to 250°F)
Storage Temperature	-30°C to 65°C (-22°F to 150°F)
Relative Humidity	10 to 95%, non-condensing
GP Monitor Dimensions	1/8 DIN x 120 mm (1.75 x 3.63 x 4.75 in)
GP Monitor Weight	320 g (0.7 lbs)
Physical Ratings	
GPR/GPS vibration	MIL-STD-8100, (IEC 68-2-6): 3 G's, 11 to 200Hz any axis
GPR/GPS shock	MIL-STD-8100, (IEC 68-2-27): 50 G's, 11 msec any axis

Sensor Dimensions

GPR Sensing Head



GPS/GPR Sensing Head





Accessories Options

GP Monitor

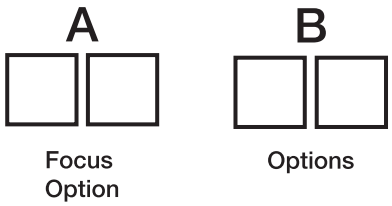
- Accessory mounting bracket for sub-panel installation (XXXGPACFB)
- Accessory solid state relays, 10 Amp AC (XXXGPSSRAC)
- Optional 3A mechanical relays (RAYGPCM must be specified at time of order)

GPR/GPS Sensors

- Accessory air purge collar to keep lens clean (XXXTXXACAP)
- Accessory conduit adapter, adapts sensor threads to .5 in. NPT (XXXTXXACCA)
- Accessory pipe adapter, adapts sensor threads to 1.5 in. NPT (XXXTXXACPA)
- Accessory right angle mirror, provides perpendicular view of target in tight installations (XXXTXXACRA)
- Optional air/water cooled housing for installation in environments up to 177°C (350°F)
- Optional NIST traceable calibration certificate

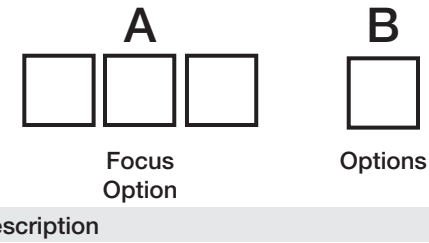
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RAYGPR



Model	Description
RAYGPR	Raytek Noncontact Temperature Sensor
Code A	**Focus Option**
SF	GPR standard focus sensing head with 8-14 micron spectral response and 35:1 optical resolution
CF	GPR close focus sensing head with 8-14 micron spectral response, 3 mm (.1") and 35:1 spot size at 76 mm (3") distance
Code B	**Options (must be specified at time of order)**
W	Air/Water coolable housing includes air purge collar
C	7-pin DIN connector instead of 5-pin bayonet connector

RAYGPS



Model	Description
RAYGPS	Raytek Noncontact Temperature Sensor
Code A	**Focus Option**
SFL	GPS standard focus sensing head with 8-14 micron spectral response and 50:1 optical resolution
CFL	GPS close focus sensing head with 8-14 micron spectral response, 4.5 mm (.18") and 35:1 spot size at 200 mm (8") distance
Code B	**Options (must be specified at time of order)**
W	Air/Water coolable housing includes air purge collar

Model	Description
RAYGPC	GPC panel mount meter with standard 5 VDC alarm outputs, 110/220 VAC power
RAYGPCM	GPC panel mount meter with 3A mechanical alarm relay outputs, fully isolated electrical inputs and outputs, 110/220 VAC power

Raytek Automation Products: Noncontact Temperature Measurement for Industrial Applications

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