GP
Datasheet

Noncontact Temperature Measurement for Industrial Applications

Raytek®
A Fluke Company

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, SX, and Marathon Series sensors.

Measurement Specifications

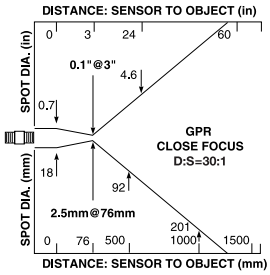
Monitor with Sensing Head

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

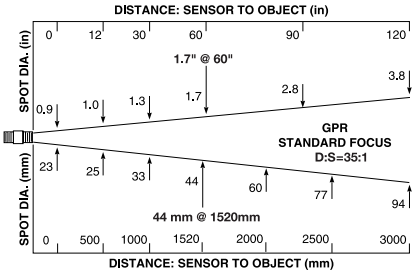
Nominal Optical Specifications

GPR Sensing Head Optical Charts

RAYGPRCF

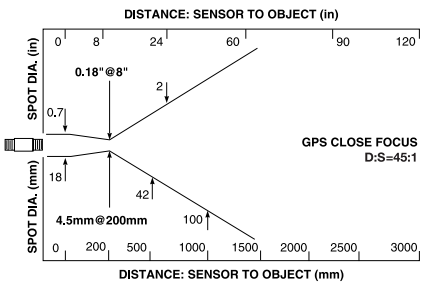


RAYGPRSF

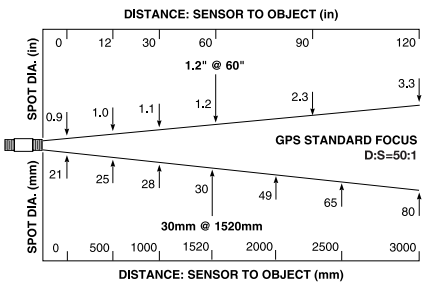


GPS Sensing Head Optical Charts

RAYGPSCFL



RAYGPSSFL



(NOTE: nominal spotsize based on 90% energy)

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

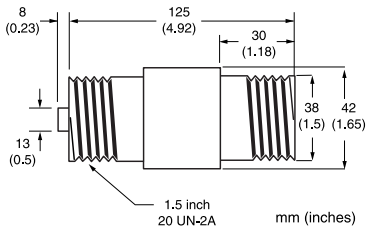
Environmental Rating:	
GP monitor front panel	IP 54 (IEC 529); NEMA-12
GPR/GPS sensing head	IP 65 (IEC 529); NEMA-4*
** GPR/GPS rated with adapter and compression fitting*	
Ambient Temperature Range:	
GP monitor	0°C to 50°C (32°F to 120°F)
GPR/GPS sensing head	0°C to 65°C (32°F to 150°F)
GPS laser shuts 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)

GP Highlights

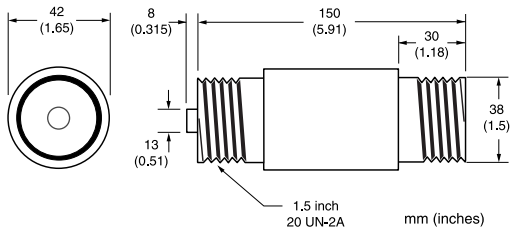
- **Temperature range from -18°C to 538°C (0°F to 1000°F)**
- **Compact 1/8 DIN digital monitor with large 4-digit display**
- **Monitor and sensor functions configured on front panel**
- **Signal processing capabilities typically found on much larger systems**
- **Adjustable emissivity and t-ambient 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**
- **Standard and close focus optics available**
- **Accessories for cooling and air purging**
- **Field interchangeable sensing heads**
- **GPS Laser Sighted Head**

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 177ºC (350ºF)
- Optional NIST traceable calibration certificate

The GPS Laser Sighted Sensor

The newest addition to the Compact Series GP infrared monitoring system is the GPS sensor with laser sighting. Laser sighting provides for alignment in hard-to-reach locations, or to the small or distant targets that the GPS is capable of measuring (as small as 4.5 mm at 200 mm, 0.18 in @ 8 in, for the close focus version of the sensor).

The GPS targets temperatures from -18ºC to 540ºC (0ºF to 1000ºF) with 1% accuracy, and has a standard optical D:S ratio of 50:1.

The GPS integrated co-axial Class 2 laser is connected to the remote activation switch box via a 4 m (13 ft) cable included. An additional 8 m (26 ft) of cable is also included to connect the switch box to the GP monitor.

Raytek Automation Products: Noncontact Temperature Measurement for Industrial Applications

Raytek Corporation
Worldwide Headquarters
1201 Shaffer Rd. PO Box 1820
Santa Cruz, CA 95061-1820 USA
Tel: 1 800 866 5478
1 831 458 1110
Fax: 1 831 425 4561
solutions@raytek.com

www.raytek.com
for up-to-the-minute features

To find a Raytek office near you please visit www.raytek.com

Worldwide Service
Raytek offers services including emergency repairs and calibration.
For more information, contact your local office or e-mail: support@raytek.com

Raytek is an ISO 9001 certified company

© 2004 Raytek Corporation (2-1502 Rev. F) 8/2004
Raytek and the Raytek logo are registered trademarks, and Compact Series, Marthon Series, and GP are trademarks of Raytek Corporation.
Specifications subject to change without notice.