

GP



Noncontact Temperature Measurement for Industrial Applications



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

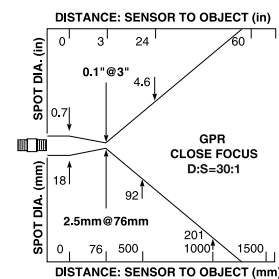
| | |
|-----------------------------|---|
| Spectral Response GPR/GPS | 8 to 14 microns |
| Temperature Range GPR/GPS | -18°C to 538°C (0°F to 1000°F) |
| System Accuracy (mA output) | ±1% of measured value or ±1°C (2°F), whichever is greater * |
| System Repeatability | ±0.5% of measured value or ±1°C (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 |

* (@ 23°C ±5°C (73°F ±9°F))

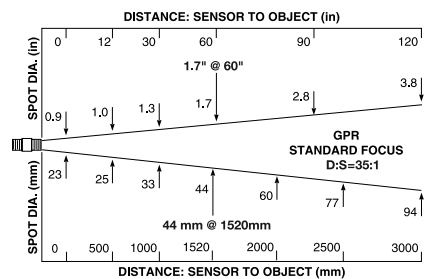
Nominal Optical Specifications

GPR Sensing Head Optical Charts

RAYGPRCF

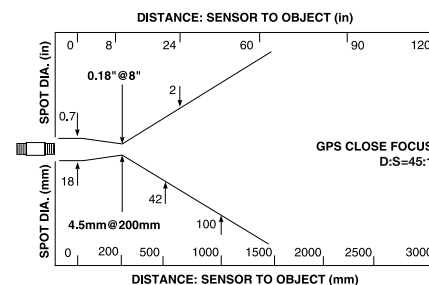


RAYGPRSF

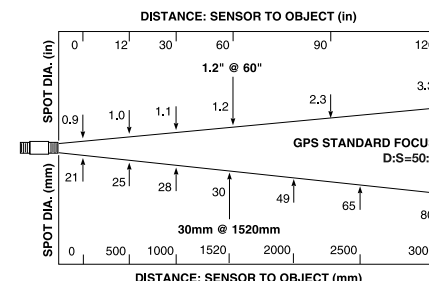


GPS Sensing Head Optical Charts

RAYGPSCFL



RAYGPSSFL



(NOTE: nominal spotsize based on 90% energy)

Electrical Specifications

| | |
|--------------|---|
| Power Supply | 110/220 VAC, $\pm 20\%$, 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, $^{\circ}\text{C}/^{\circ}\text{F}$ 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:

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|------------------------|--------------------------|
| 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:

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|--|------------------------------|
| 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) |
| <i>GPS laser shuts off automatically at 50°C (120°F)</i> | |
| <i>with optional water cooling</i> | 0°C to 177°C (32°F to 350°F) |
| <i>with optional air cooling</i> | 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) |
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| | |
|-------------------|-----------------|
| GP Monitor Weight | 320 g (0.7 lbs) |
|-------------------|-----------------|

Physical Ratings

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|-------------------|--|
| 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 |



Accessories Options

GP Monitor

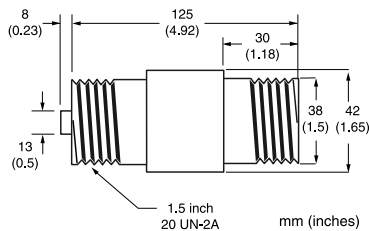
- Accessory mounting bracket for sub-panel installation (XXXGPACFB)
- Accessory solid state relays, 10 Amp AC (XXXGPSSRAC)
- Optional 3A mechanical relays (RAYGPCM must be specified at time of order)

GPR/GPS Sensors

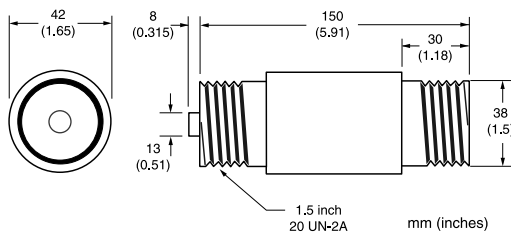
- Accessory air purge collar to keep lens clean (XXXTXACAP)
- Accessory conduit adapter, adapts sensor threads to .5 in. NPT (XXXTXACCA)
- Accessory pipe adapter, adapts sensor threads to 1.5 in. NPT (XXXTXACPA)
- Accessory right angle mirror, provides perpendicular view of target in tight installations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

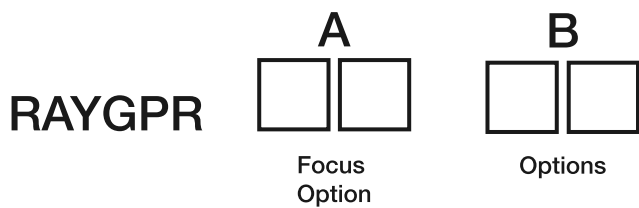
Sensor Dimensions

GPR Sensing Head

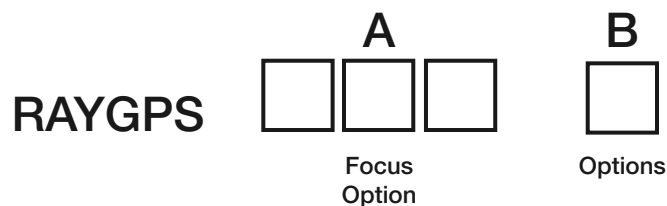


GPS/GPR Sensing Head





| 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 |



| 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 |