

TEMPERATURE SENSOR INFRA RED – BRAKE TEMPERATURE



The infra-red sensor measures temperature at a distance without contacting the target. The integrated infra-red module senses the thermal radiation emitted by objects and converts this to an analogue voltage.

Electrical

- Supply voltage 7.5 to 16V
- Supply current 1.5mA (typ), 5mA (max)
- Capacitive load 1000 pF
- Resistive load 10kΩ
- Output resistance 50Ω
- Accuracy (based on emissivity of 0.98)
±53°C max (object temp 250°C to 850°C)
±118°C max (object temp 850°C to 1150°C)
- Typical output voltages at an ambient sensor temperature of 25°C for a target which fills the entire field of view and has an emissivity of 0.98 are shown below

| Target temp(° C) | Typical output (V) |
|------------------|--------------------|
| 200 | 1.405 |
| 300 | 1.621 |
| 350 | 1.726 |
| 400 | 1.837 |
| 450 | 1.956 |
| 500 | 2.084 |
| 550 | 2.220 |
| 600 | 2.362 |
| 700 | 2.645 |
| 800 | 2.920 |
| 900 | 3.210 |
| 1000 | 3.515 |
| 1100 | 3.744 |
| 1200 | 3.884 |

$$\text{Target temp} = (49.907095x^6 - 757.591078x^5 + 4691.379611x^4 - 15128.065163x^3 + 26684.745161x^2 - 23906.112709x + 8552.401105) * (1 + (0.98 - \epsilon))$$

Where

x = Output voltage

ε = Emissivity of customer target

0.98 = Emissivity of MESL black body reference

- Carbon emissivity = 0.75
- Steel emissivity = 0.52
- Response time after power up 30ms (typ), 1 sec (max)

Cable and Connection Definition

- 24AWG unshielded cable
- Cable length is shown on the order details but any length is available on request
- Various automotive and military standard connectors are available
- Connections:
Red Wire Supply
White Wire Signal
Green Wire Ground

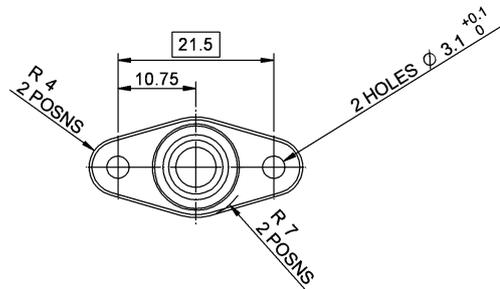
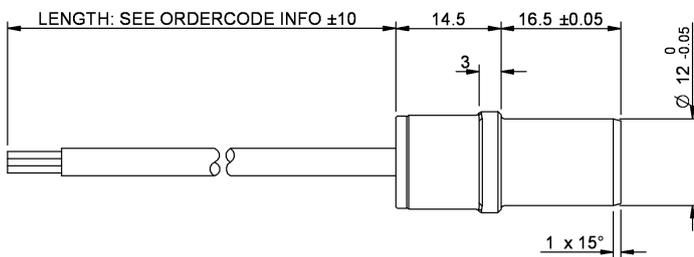
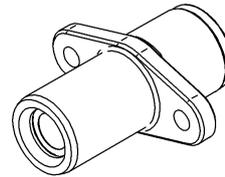
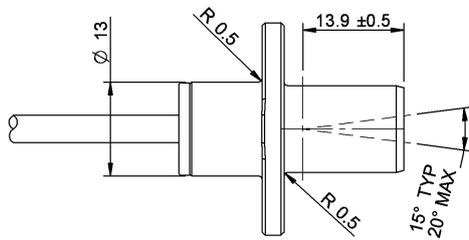
Mechanical

- Weight less than 40g
- Aluminium alloy body hard anodised and dyed black
- Field of view 15° typ, 20° max
- Optical axis ± 2° max
- Polyester boss for strain relief to the sensor body

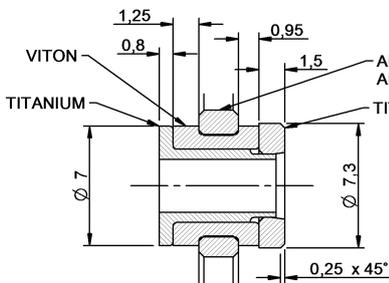
Environmental

- Resistant to oil, standard fuel, hydraulic fluid and water. Aggressive cleaning agents should not be used, for example freon or trichloroethylene. Pure ethanol or alcohol and a cotton swab can be used for cleaning the lens.
- The sensor reading will change if the lens becomes scratched or dirty
- Maximum humidity 100%
- Ambient operating temperature -25 to +105° C.
- Target temperature +200 to +1200° C.
- Storage temperature -40° to 125°C
- Viton jacketed cable (200° C)
- Vibration
500 to 2000 Hz, 20g peak acceleration, 5 mins in all directions
- Shock
1000g peak acceleration, 0.7ms pulse length, 6 directions.

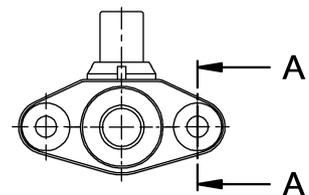
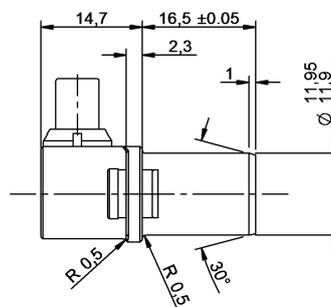
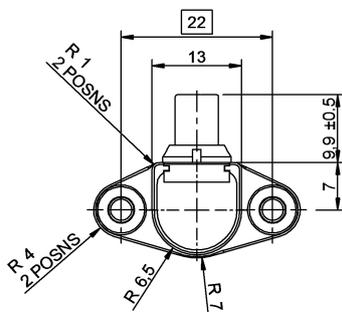
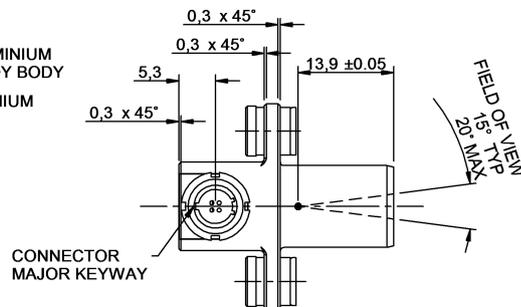
TEMPERATURE SENSOR INFRA RED – BRAKE TEMPERATURE



| | |
|-------------------------------|--|
| Cable Length 1000mm | Order Code O 030 300 030 021 |
|-------------------------------|--|



SECTION A-A
5:1



| | |
|-------------------------------|--|
| Cable Length 1000mm | Order Code O 030 300 030 043 |
|-------------------------------|--|