

# TEMPERATURE SENSORS

ARaymond temperature sensors **take efficient thermal management of electric vehicles to the next level.**



**COMPACT**  
for any tight space



**LIGHTWEIGHT**  
plastic enclosure



**LOW PRESSURE DROP**  
for optimized flow



Choice of  
**SUSTAINABLE** materials<sup>1</sup>



Benefits of **ASSEMBLED**  
or **FULLY INTEGRATED** options:

- All-in-one solutions<sup>2</sup> compatible with multiple ARaymond QC families
- Fewer fluid interfaces
- Proven reliability<sup>3</sup>



**ASSEMBLED**  
into one of our QCs







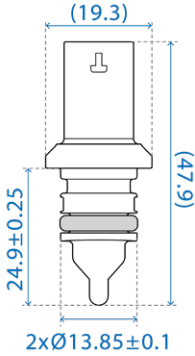
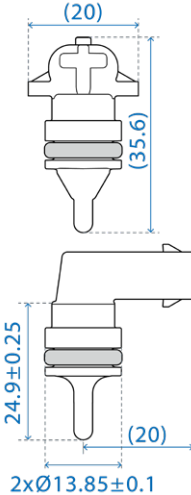
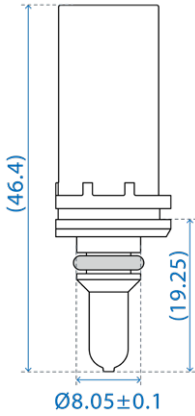
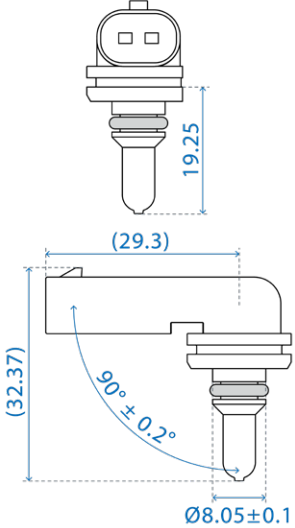
**FULLY INTEGRATED**  
into one of our QCs

<sup>1</sup>PA610 or other materials can be selected depending on availability.

<sup>2</sup>Full warranty included.

<sup>3</sup>Tested and validated for automotive applications.

# PRODUCT SPECIFICATIONS

| CATALOG CODE                  | TS1S   | TS1E   | TS2S  | TS2E   |
|-------------------------------|--|--|---|--|
| SENSOR MODEL                  |   |   |  |   |
| DIMENSIONS (mm)               |  |  |  |  |
| WEIGHT (without retainer)     | ~6g  |  | ~6g   |  |
| OPERATING TEMPERATURE RANGE   | -40°C to +125°C <sup>1</sup>   |  | -40°C to +125°C   |  |
| RESPONSE TIME (stirred water) | T63% < 5s  |  | T63% < 10s  |  |
| TYPICAL CONNECTOR INTERFACE   | MLK – 1.2 Keying A or B<br>According to USCAR 120-S-002-1-Z02                      |  | MLK – 1.2 Keying A or B<br>According to USCAR 120-S-002-1-Z02                       |  |
| PIN COATING                   | Silver <sup>2</sup>  |  | Tin   |  |
| RESISTANCE VALUE <sup>3</sup> | 10KΩ @ 25°C  |  | 10KΩ @ 25°C or 2,1KΩ @ 25°C   |  |
| BETA 25/85 <sup>3</sup>       | 3974K  |  | 3977K   |  |
| BODY MATERIAL                 | PA610 GF30   |  | PPS GF40  |  |
| SENSOR FIXING                 | Metallic retainer  |  |   |  |
| PROTECTION                    | IP69K  |  |   |  |

<sup>1</sup>Possible to operate at a higher temperature depending on the QC temperature range. | <sup>2</sup>Tin coating on demand.

<sup>3</sup>Other nominal resistance, beta value, and operating points are possible on demand. The tolerance range is defined per the customer's request.

[www.araymond-automotive.com](http://www.araymond-automotive.com)