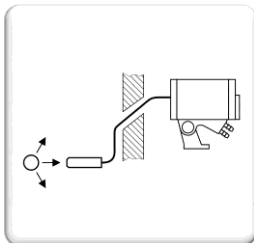


# Stato-Sonde

## Z56



**High sensitivity : 300 °C**

**High temperature optic**

**Metallic sheath to protect the fibre**

**Different fibre lengths / optics**



**Presentation and operating principle**

The **Stato-Sonde Z56** is a Hot Metal Detector for material at temperatures over 300 °C.

Thanks to its optical fibre, it is able to detect products even in areas with high ambient temperature or in difficult areas due to physical obstructions, limited space, steam etc... Its rugged design enables the Stato-Sonde Z56 to withstand the very severe environmental conditions of the steel industry or rolling mills or continuous casting machine.

The infrared radiation emitted by the hot product is collected by the optic, transmitted through the optical fibre and send to the photosensitive element. The signal is processed by the electronic circuit which outputs the detection signal.

**Features**

The Stato-Sonde Z56 is composed of three major elements:

- **Sensor head**
  - 3 different detection angles: **4°** or **12°** or **Spot** 10 mm at 0.5 m (very small precise detection point).
  - standard optic type **N** or optic with water cooling type **C** or optic with water cooling and air purging and additional hood/glass type **CA**.
  - an **external diaphragm** is available for applications with very hot product and background
- **Optical fibre:**
  - Fibre optic bundle with flexible stainless steel protection, length from 2 to 25 m
  - Available with additional protective sheath. Air can be supplied at the electronic unit. The air flow through the sheath and optics keeps the optical fibre and lens assembly at lower temperature.
- **Electronic Unit**
  - Sensitivity adjustment potentiometer
  - Multicolour LED indicator: Product Presence, low detection margin, alarm
  - **Test function**

**Specifications of Optic**

| Optic  | Z56-...-.../.../S   | Z56-...-.../.../4 | Z56-...-.../.../12 |
|--|---|-------------------|--------------------|
| Detection field                                      |   |                   |                    |
| Operating temperature                                | -20 °C to 250 °C (0 °F to 480 °F)<br>up to 400 °C (752 °F) with fibre with metallic sheath type G, air purging 40 l/min at 1 bar<br>up to 500 °C (930 °F) with water-cooling, water at about 25 °C (77 °F), 1-2 bar and 1-2 l/min |                   |                    |
| Air purging with G fibre<br>Ait purging with F fibre | About 40 l/min @ 1 bar (1,5scfm @ 14 psi), instrument air (clean, dry, no oil) or nitrogen<br>About 10 l/min @ 0.1 bar (0,3scfm @ 2psi), instrument air (clean, dry, no oil) or nitrogen  |                   |                    |

| Detection temperature<br>(1) °C [°F] | % (2) | Fibre Length (Z56-...-.../.../...) |            |            |            |            |            |            |
|--------------------------------------|-------|------------------------------------|------------|------------|------------|------------|------------|------------|
|                                      |       | 2 m                                | 3 m        | 5 m        | 9 m        | 12 m       | 15 m       | 25 m       |
| 4 and 12°<br>without diaphragm       | 100%  | 300 [580]                          | 310 [590]  | 320 [610]  | 340 [640]  | 350 [660]  | 360 [680]  | 370 [700]  |
|                                      | 20%   | 360 [680]                          | 370 [690]  | 380 [720]  | 400 [760]  | 420 [780]  | 430 [810]  | 440 [830]  |
|                                      | 5%    | 420 [790]                          | 430 [810]  | 440 [830]  | 470 [880]  | 490 [910]  | 500 [940]  | 520 [970]  |
| Spot                                 | 100%  | 430 [800]                          | 440 [820]  | 450 [850]  | 480 [900]  | 500 [930]  | 510 [950]  | 530 [990]  |
|                                      | 20%   | 520 [960]                          | 530 [980]  | 550 [1010] | 580 [1080] | 600 [1110] | 620 [1150] | 640 [1190] |
|                                      | 5%    | 610 [1120]                         | 620 [1150] | 640 [1190] | 680 [1260] | 710 [1310] | 730 [1350] | 760 [1400] |

(1): at sensitivity max 7 and product emissivity > 0.9  
(2): percentage of field of view filled by hot product

For applications with very hot product and background, a diaphragm is provided and can be inserted in front of the optic to reduce the sensitivity by about 100°C.

| Fibre    | Z56-...-.../.../F/...    | Z56-...-.../.../G/...                                 |
|----------|--------------------------|---|
| Type     | Fibre alone              | Fibre + stainless steel sheath protection–Air conduit |
| Diameter | 10 mm                    | 22 mm   |
| Length   | 2, 3, 5, 9, 12, 15, 25 m |   |

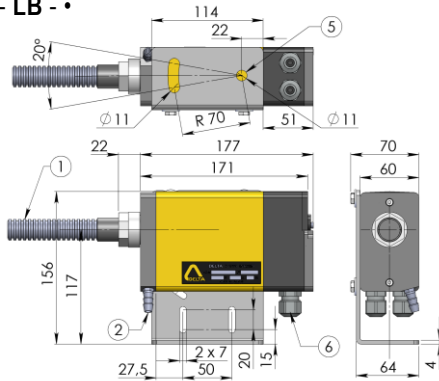


Specifications of Electronic Unit

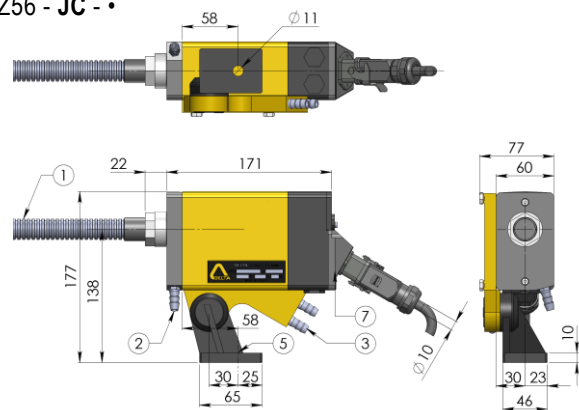
| Outputs / Models                      | Z56-...-SP/.../...<br>Static output   | Z56-...-SR/.../...<br>Static Relay output   | Z56-...-R/.../...<br>Relay output   |
|---------------------------------------|---|---|---|
| Electrical characteristics            | 2 complementary push-pull outputs, 0/24 VDC<br>short circuit protection,<br>Low impedance: 50 mA max.   | 2 Optocoupled complementary Solid State Relay: Impedance 50Ω,<br>switching capacity +/- 350 V peak<br>+/- 100 mA peak | Single pole changeover<br>Switching capacity :<br>230 V a.c. – 2.5 A a.c. |
| Response time                         | 0.2 ms  |   | Make time : 8 ms<br>Break time : 4 ms                                     |
| Test input                            | 0/24 V  |   |   |
| LED1                                  | Off: no detection   | Green: detection  | Orange: detection with low margin   |
| LED2                                  | Off: no power   | Blue: power on  | Red: alarm  |
| Operating voltage / Power consumption | VAC: 115 V (-15%) to 230 V (+10%)- 50 / 60 Hz / 5 VA<br>VDC: 10-30 VDC / 3 W  |   |   |
| Connection                            | Z56-•B: terminal block – 2 x PG9<br>Z56-•C: connector fitted with silicone cable, 2 m (other length 3, 5, 8m) with protective steel braid                       |   |   |
| Protecting rating                     | IP66 (cast aluminium case)  |   |   |
| Operating temperature                 | -10 to 75°C (14 to 170°F); up to 120°C (250°F) with water-cooling (Z56-J-.../.../...)<br>(industrial quality water at about 25°C (77°F), 1-2 bar and 1-2 l/min) |   |   |
| Weight                                | From 4.5 kg (Z56-LB/2F/•N) to 6 kg (Z56-JC/2G/•CA) – add 0.5 kg/m for F fibre and 1 kg/m for G Fibre  |   |   |

Dimensions

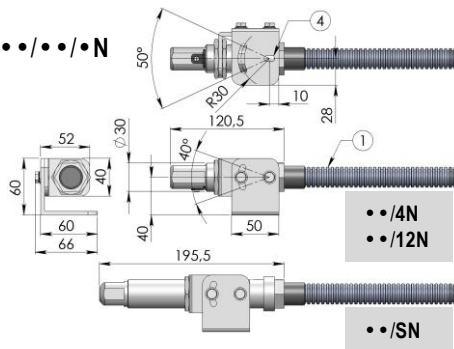
Z56 - LB - •



Z56 - JC - •



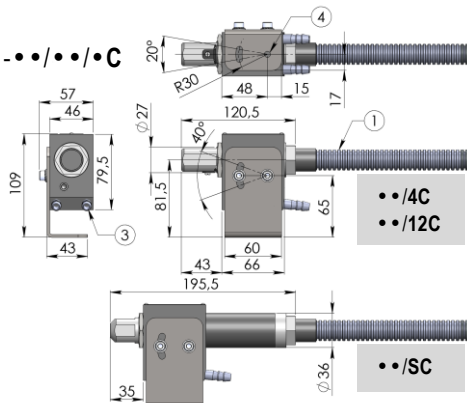
Z56 - •••••/••/•N



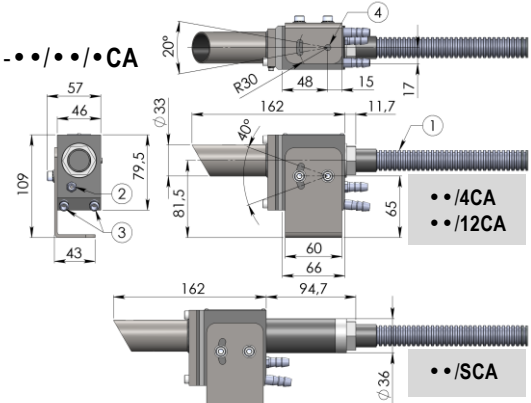
- ① Minimum radius of optical fibre :  
- for Z56-•••••/•F/•• : 80 mm  
- for Z56-•••••/•G/•• : 180 mm

- ② Air Supply Ø 10
- ③ Water Supplies Ø 10
- ④ Mounting with 2 screws M6
- ⑤ Mounting with screw M10
- ⑥ PG9 cable glands (2), for cable with diameter 7 – 10,5 mm
- ⑦ Connector clearance 120 mm

Z56 - •••••/••/•C



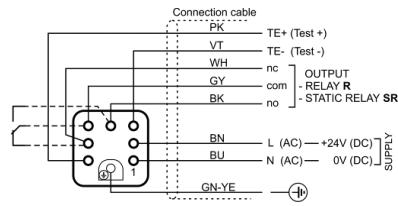
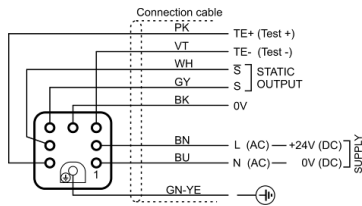
Z56 - •••••/••/•CA



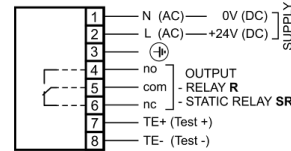
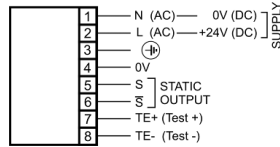


**Connection**

Z56-•C







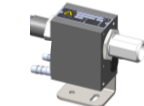







Z56-•B



**Reference for order**

Stato-Sonde Z56 - ••••• / ••••• / ••••• L=••

| Mounting   | Connection   | Output   | Fibre Length  | Fibre protection   | Detection angle                 | Optic   | Power input               | Cable length                     |
|--|--|--|---|--|---------------------------------|---|---------------------------|----------------------------------|
| <b>L</b><br><br>Bracket                          | <b>B</b><br><br>Terminal Block           | <b>SP</b><br><br>Static        | 2 2 m<br>3 3 m<br>5 5 m<br>9 9 m<br>12 12 m<br>15 15 m<br>25 25 m | <b>F</b> Fibre alone<br>   | <b>S</b> Spot<br>4 4°<br>12 12° | <b>N</b> Standard<br>                           | 115-230 VAC<br><br>24 VDC | 2 2 m<br>3 3 m<br>5 5 m<br>8 8 m |
|  |  | <b>SR</b><br><br>Static Relay |   |  |                                 | <b>C</b> Water cooling<br>                     |                           |                                  |
| <b>J</b><br><br>Mounting stand & cooling jacket | <b>C</b><br><br>Connector with 2m cable | <b>R</b><br><br>Relay         |   | <b>G</b> Fibre with stainless steel sheath protection and air conduit<br> |                                 | <b>CA</b> Water cooling + air + hood/glass<br> |                           |                                  |
|  |  |  |   |  |                                 |   |                           |                                  |
| <b>Electronic Unit</b>   |  |  | <b>Fibre</b>  |  | <b>Optic</b>                    |   |                           |                                  |

**Example:** Z56-JC-SR/5G/4CA 115-230V L=2: Z56 with mounting stand and cooling jacket, connector with 2m cable, Static Relay output, optical fibre length 5 m protected in metallic sheath, optic 4° in water cooling unit with air and additional hood/glass, power supply 115-230 VAC.

**Accessories**

- Battery powered radiant Bar **BR4000**



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