Polaris PS09 / PI16

Infrared Temperature Switch (Hot Metal Detector)

Infrared temperature switch for non-contact detection of hot metal parts or overheating, thereby triggering switching operations which are used for sorting or activating a cooling or similar.

FEATURES

- **2 models with different wavelength ranges for temperature ranges from 250°C to 1800°C**
- **2 transistor switching contacts
  with adjustable switching temperatures as well as switching hysteresis**
- **Full digital signal processing with low uncertainty**
- **Fast data acquisition with a response time of only 4 ms**
- **3 optics available for different measuring distances,
  spot size diameter from 1.3 mm**
- **Laser target marking for precise alignment to the measuring object**
- **3 status LEDs for operational readiness and active switching outputs**
- **Simple switching point parameterization via interface and supplied software**

Just Switch

The infrared temperature switches Polaris are mainly used for non-contact detection of hot metal parts and triggering a switching operation. They are equipped with 2 switching contacts with adjustable switching temperatures.

Polaris temperature switches measure in the short wave spectral range and are therefore mainly used for measuring of metals, ceramics, graphite, etc.

The devices are **configured** via the PC software *SensorTools* or via interface commands. For this purpose, the connection to a PC via serial interface is necessary, e.g. via USB interface converter.

The alignment to the detection object is carried out by the **laser targeting light**. It shows a red laser point, which indicates the center of the spot size. In the focus point, the laser point is smallest so that the distance can be easily determined at the smallest spot size diameter.
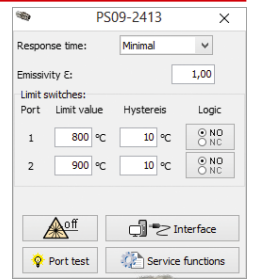
Technical Data

Model	PS09	PI16
Temperature ranges	550 – 1400°C 650 – 1800°C	250 – 1000°C 300 – 1300°C 350 – 1800°C
Switching temperatures	Can be set within the limits of the temperature range	
Spectral range	0.7–1.1 µm (silicon detector)	1.45–1.8 µm (InGaAs detector)
Signal processing	Digital	
Uncertainty	±1% of adjusted switching point temperature (T_A=23°C, ε=1, t_{90}=1 s)	
Repeatability	0.5% of adjusted switching point temperature (T_A=23°C, ε=1, t_{90}=1 s)	
Response time t_{90}	4 ms, adjustable to 10 s	
Emissivity ε	20–100%	
Power supply	24 V DC (12–30 V DC); power consumption max. 0.5 VA (without switching output current)	
Switching outputs	2 transistor outputs, switches the positive supply voltage to the output, max. current 30 mA	
Digital interface	RS232 or RS485 (addressable), baud rate 1.2–57.6 kBd, galvanically isolated	
Parameters	Switching temperatures, emissivity, response time, address, baud rate, reading device temperature	
Laser targeting light	Laser class 2, max. output power 1 mW, 635 nm)	
Status indication	Operation: Green LED; Switch state: 2 yellow LEDs	
Weight	300 g	
Protection class	IP65 (according to DIN 40 050) with mounted connection cables	
Ambient temperature	Operation: 0–70°C, storage temperature -20–70°C	
Rel. humidity	No condensing conditions	
CE label	According to EU directives for electromagnetic immunity	

Optics

Optics	Measuring distance a [mm]	Spot size M [mm]	
		250–1000°C	All other ranges
OP09-A0	170	1.7	1.3
	200	1.9	1.4
	245	2	1.5
OP09-B0	260	2.1	1.6
	400	3.3	2.5
	500	4.3	3.2
OP09-C0	480	4	3
	1000	8	6
	2000	14.5	11
Aperture Ø D: 14 mm			

The optics can be adjusted continuously in the specified measuring distance limits and achieve the specified smallest possible spot size diameter in the case of correct focusing. Intermediate measurement distances must be determined by interpolation.

The measuring object size should be at least as large as the spot size diameter. In front of or behind the focused distance, the spot size diameter is usually larger. The aperture is the spot size directly on the lens.

Recommended Accessories

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AK32-02 / -05	Connection cable 2 m / 5 m			
AK31-02 / -05	Interface cable with Sub-D-connector 2 m / 5 m	HA11-00	Adjustable mounting bracket
DK4000 / 3000	Interface converter RS485⇔USB / RS232⇔USB, 1.7 m cable, Sub-D-connector	BL11-00	Air purge attachment
		KG60-00	Water cooling jacket (for amb. temp up to 140°C)
NG12-00	Din-rail power supply 24 V DC, 1.6 A	HA10-10	Adjustable mounting angle for KG60
NG15-00	Desktop power supply 24 V DC, 2.5 A	HA21-00	Ball and socket swivel mount for KG60

Reference Numbers

PS09; PI16: Specify with temperature range, serial interface RS23 or RS485 and optics A0, B0 or C0

Note: *SensorTools* software is included in scope of delivery, connection cables are not included in scope of delivery and have to be ordered separately.

Dimensions

Dimensions in mm
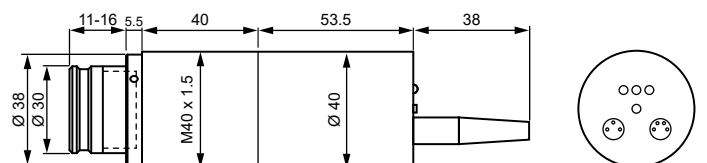
Process Sensors reserves the right to make changes in scope of technical progress or further developments.

Datasheet_Polaris_PS09_PI16 (01/0/24)