

Infrared Temperature Switch

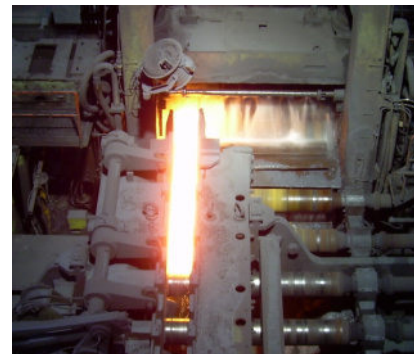
CellaSwitch PKS 20



For quick, non-wearing, non-contact detection of hot objects

Features

- Temperature range 250 – 1250 °C / 482 – 2282 °F
- 2 independent switching outputs, individually configurable as normally open or closed contacts or to monitor temperature spans
- Switching thresholds exactly adjustable via display panel
- Shows temperature readings as a percentage
- Excellent optical resolution due to high-precision tempered lens
- All parameters are adjustable via control keys
- Diagnostics feature activated by control keys or a control signal
- M30 connector for easy installation



Model

PKS 20 AF 1

Description

The CellaSwitch PKS 20 Infrared Temperature Switch detects infrared energy radiated by objects and converts this to an electric signal.

A switch command will be triggered when a hot object, present within the sensor's field of view, exceeds a configured threshold. LEDs indicate the switching status.

CellaSwitch PKS 20 features two independent relay switching outputs. These relays can be operated either as normally open (NC) or normally closed (NO) contacts, enabling various monitoring options such as limit temperatures or temperature spans.

The switch points and the desired function of the outputs can be configured directly using the control keys.

The display panel indicates the set threshold values. This makes precise configuration easy, without requiring a hot object. If numerous infrared temperature switches are installed at a plant, they can all be precisely configured with the exact same threshold values.

While in use, the display panel will show the measurement value as a percentage. This gives the operator an indication of how close the object's temperature is to the configured threshold.

The display is based on the latest LED technology and is easy to read from a distance of several meters. It is brightly lit but nevertheless energy efficient.

Field of application

CellaSwitch PKS 20 is used to recognize the presence, position or number of hot objects in the sensor's sight path from a safe distance.

Typical industrial applications include graphite and ceramics, or metalworking such as forging, sintering, rolling, and heat treating.

Outputs

2 independent switching outputs

- PNP open collectors active by positive supply voltage
- Switch function: NO/NC
- Current carrying capacity 150 mA per output
- Safety shutdown to protect against overcurrent (≥ 250 mA)
- Polarity protection for the supply voltage
- Short-circuit proof

Inputs

Test input 10 — 34 V DC

Indicators

LED Display

- 7-segment, red
- Digit height 8 mm
- Shows measurement as a percentage during running operations

2 yellow LEDs

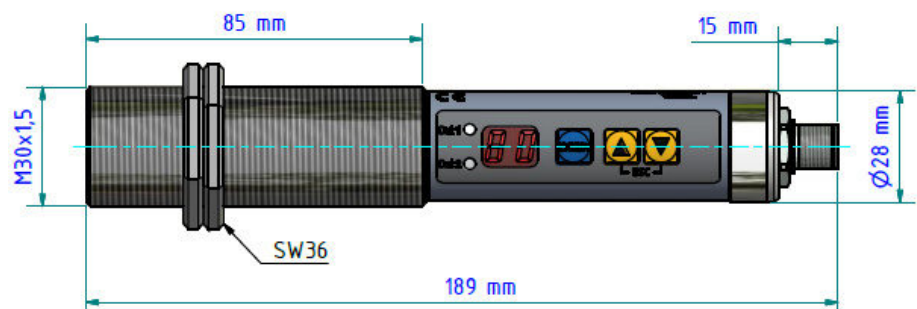
- Indicate switching status
- Flash to indicate overcurrent
- Both flash to indicate faulty connection of supply voltage

Optics

The optics of the CellaSwitch PKS 20 features a high-quality glass lens with a tempered antireflective coating. The lens is robust, easy to clean and suitable for harsh industrial environments.

Due to the superior imaging properties of the high-precision lens, the instrument is insusceptible to the effects of stray light. Even when the size of the hot object fluctuates or the measuring distance varies, the switch point remains highly accurate.

Dimensions



Technical data

Temperature range

250 — 1250 °C / 482 — 2282 °F
(ref. to emissivity = 1)

Increments of switching threshold

1 % of temperature range
(10 °C / 18 °F)

Resolution

Switching output 10 K (1%)
Display 10 K (1%)

Switching point uncertainty

1 % of end of range
(at $\epsilon = 1$ and $T_a = 23$ °C)

Spectral sensitivity

1.0 — 1.7 μ m

Focusing distance

1500 mm

Spot size

\varnothing 16 mm at focusing distance

Response time

≤ 2 ms (for $T \geq 600$ °C)

Power requirement

10 — 34 V DC
Ripple ≤ 200 mV

Current consumption

≤ 30 mA at 24 V DC
without load current

Ambient operating temperature

0 — 65 °C

Storage temperature

-20 — +80 °C

Permissible Humidity

95 % r.H. max.
(non-condensing)

Protection

IP65 according to DIN 40050

Weight

0.235 kg

Material

Stainless steel housing
Tempered optical glass lens

Connectivity

M12 plug connector 5-pin

Operating controls

3 control keys

Adjustable parameters

- Switch point in increments of 1% of temperature range
- Switch function: NO/NC
- Switching delay 0 – 9.9 sec. in increments of 0.1 sec

Diagnostic feature

Diagnostics can be performed during installation or running operations.

A functional check can be activated using the keys on the operator control panel or an external control signal.

The test simulates a hot object in the field of view and triggers a switch command. This feature serves to check the infrared temperature switch as well as downstream signal processing.

Vibration / Shock resistance

- DIN EN 60068-2-6
5 g (10 — 2000 Hz)
- DIN EN 60068-2-27
30 g (11 ms)

EMC standard

- DIN EN 61000-4-2/ -3 / -4 / -6
- EN 55011

Error diagnostics

- Capacity overload at the outputs
- Excess internal temperature
- Violation of upper or lower limit of measuring range
- Faulty connection of supply voltage

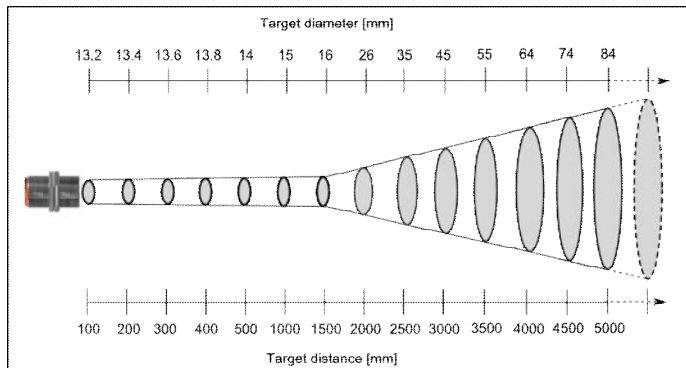
Shipment includes

- CellaSwitch PKS 20
- Instruction manual
- 2 mounting nuts

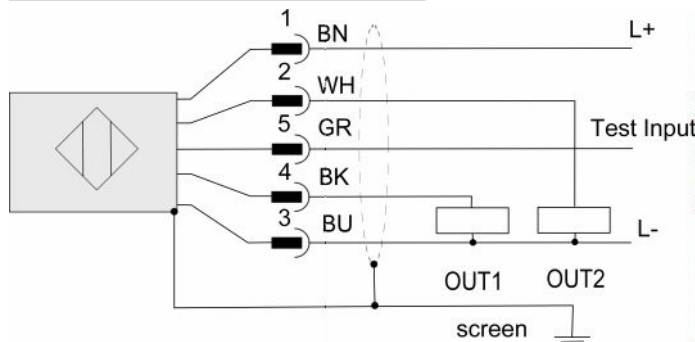


The VK 02/L connection cable must be ordered separately in the desired length.

Field of view diagram



Pin assignment



You must use a shielded cable.

Accessories



Shielded cable
VK 02/L AF 1: 5 m
VK 02/L AF 2: 10 m



Air purge
PA 01A



Cooling jacket
PS 01/B



Quartz window
adapter PS 01/I AF 2



90 ° Deflection mirror
PS 11/W



Adjustable mounting
bracket PS 11/U



Mounting bracket
PS 11/P



Supplementary tube
ZA 01/Q-35



Thermal insulating
tube PS 01/K



Laser pointer
PS 01/M AF 3



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