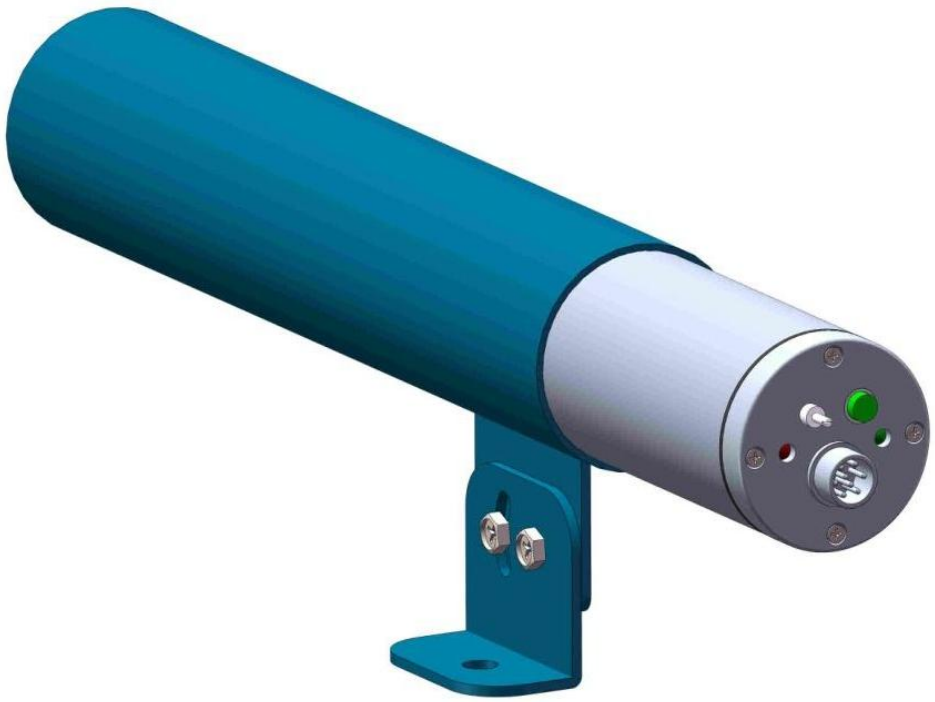
热金属检测仪

HMD5-030



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产品特点

热金属检测器 HMD5-030 主要用于冶金等工业系统中，通过在其视野范围内测量热产品（钢、铜、黄铜、合金等）的光学特征产生信号，并将该信号通过多种方式进行输出。

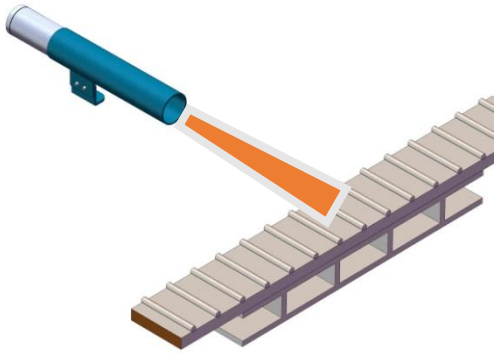
热金属探测器 HMD5-030 主要由扫描测量传感器组成，能够检测最低温度≥400℃（低温型）热产品发出的红外辐射信号。

主要特点：

- 高灵敏度：400°C。
- 红外光谱：0.8-1.3μm 。
- 没有光学调整。
- 安装方便，易于调试和维护。
- 选用高灵敏的红外光电组件，并且光电电路封装在重型外壳（IP66）中，可稳定工作于钢铁工业等恶劣环境。
- 采用带金属保护编织层的连接器和电缆，能够长时可靠运行。

应用

垂直扫描



水平扫描

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工作原理：红外扫描

通过仪器的光学系统扫描被检测区域，图像传感器根据热产品的红外辐射特征形成相应影像，由 CPU 分析处理该影像信息后，再经过放大电路输出相应信号。
由于具有独特的光学扫描原理，HMD5-030 具有以下优点：

- ❖ 由于具有大的垂直视场角，无论产品的横向位置如何，均可轻松对齐和可靠检测。
- ❖ 侧场窄，检测准确。
- ❖ 分析光束小，检测可靠。

由于 HMD5-030 具有以上特点和优势，可保证被检测区域内的热产品能够被准确可靠的检测。

传感器特性

光敏单元：

HMD5-030 配有特殊的光敏单元，该光敏单元是目前热产品检测的最优组件之一，可使热产品的最低检测温度达到 400℃（750℉）。

电子特点：

- ❖ 光电单元对红外辐射敏感度高，即使在低温和蒸汽等恶劣环境下也能进行优化检测。
- ❖ 控制面板，包括自检按钮、灵敏度调节电位器和信号提示发光二极管。
- ❖ 通过自检按钮，可以方便检测设备是否正常运行。

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光学参数

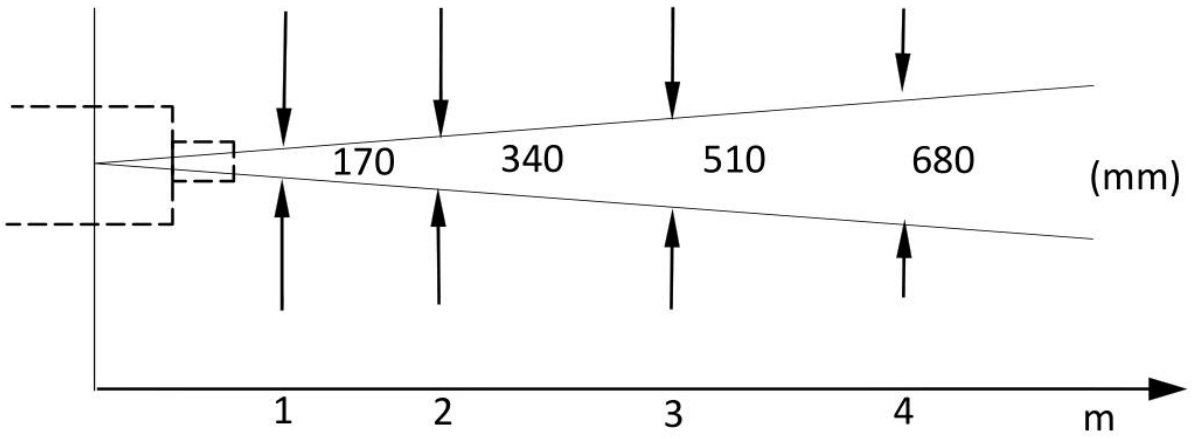
型号	HMD5-030-●	HMD5-040-●	HMD5-050-●
扫描角度	30°	40°	50°
响应时间	4ms		
横向角度	3°		
光谱范围	普通型号 0.7 to 1.3 μm,高灵敏度型号 1 to 3μm		
目标温度	普通型号：≥400°，高灵敏度型号：≥700°		

注意：当产品的温度预计持续超过 700°C 时，不建议使用高灵敏度型号，因为它可能会检测到氧化铁皮或反射频谱。对于铜、黄铜、合金等其他材料，温度范围取决于产品的红外发射率。有关这些产品，请咨询富工。

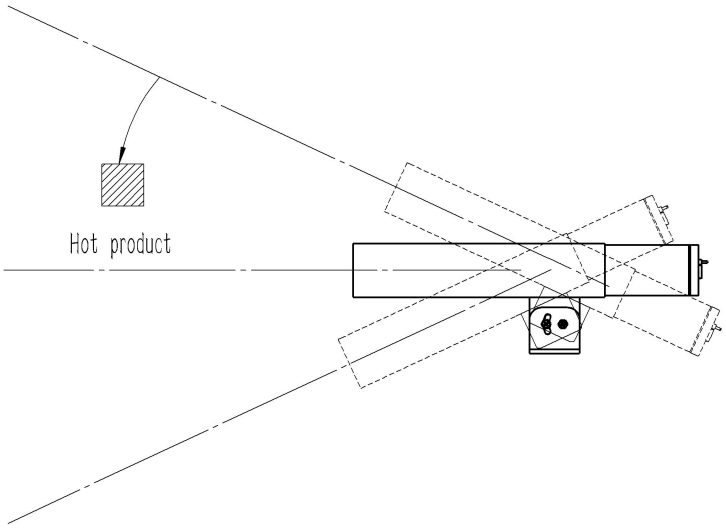
传感器与各种产品之间的最佳距离（与温度有关）：

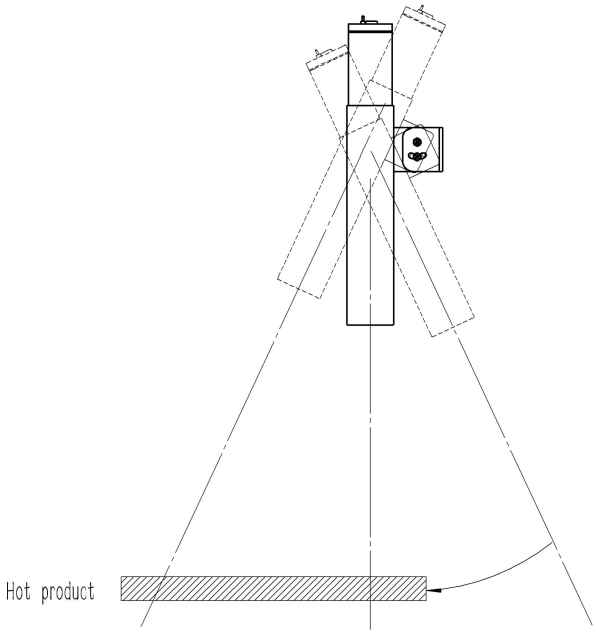
线材 5 to 12 mm	0.20 to 3 m	带钢	0.60 to 2 m
棒材 10 to 40 mm	0.20 to 4 m	薄板	1.00 to 6 m
钢坯	0.20 to 6 m	厚板	1.00 to 8 m
方坯	Over 2 m	板坯	Over 2 m

扫描角度根据所需检测的应用领域确定。



工件和 HMD5-030 之间的距离与测量范围两者间的函数关系





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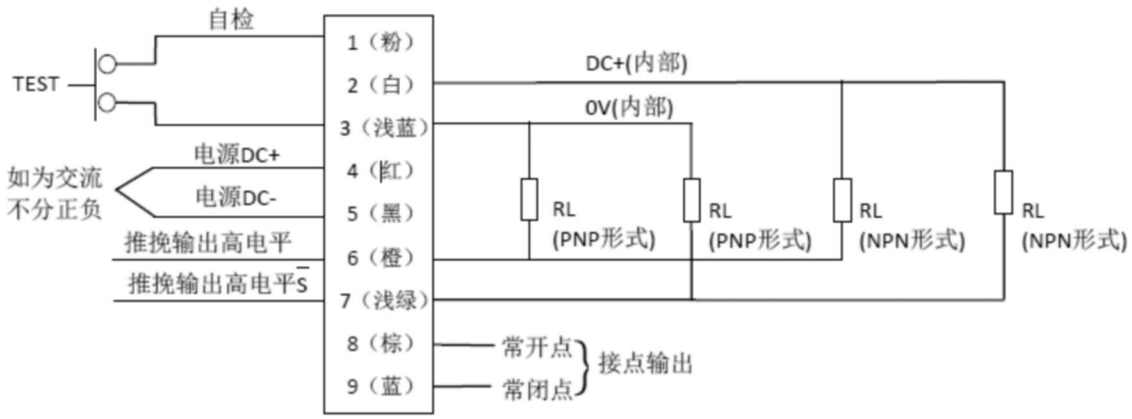
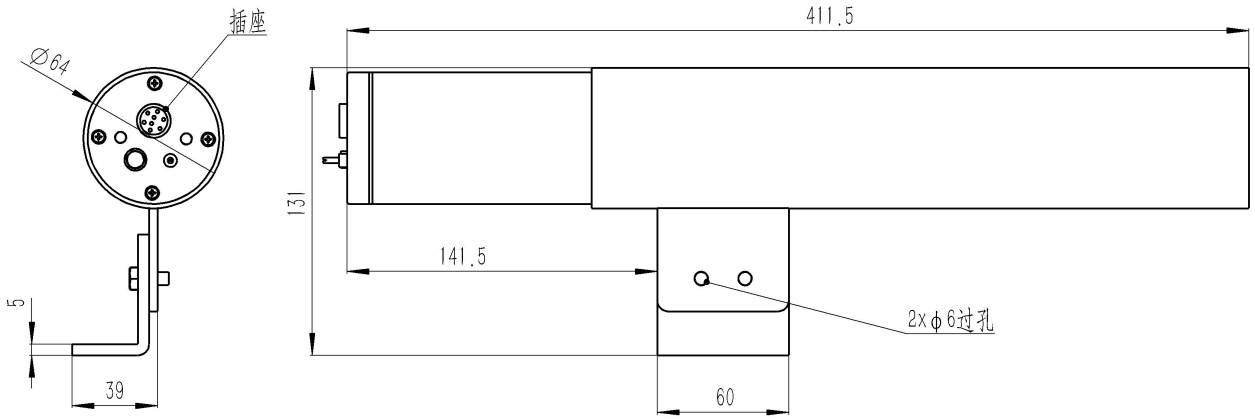
特点

型号	HMD5-030 -H	HMD5-030- N
检测到工件-继电器输出	单极转换 触点容量: 550VA - 250 V - 5 A max 吸合时间: 7.5 ms; 释放时间: 3 ms	
检测到工件-电平输出	用于指示灯 : 24VDC – 2 W max	
工作电压	24 V DC (±10%)	
消耗功率	< 500 mA	
连接-电缆	连接器配有带不锈钢编织的硅胶电缆 电缆标准长度为 2m, 可根据需要订购其他长度的电缆(3m, 5m 或 8m)	
防护等级	IP 66 (压铸铝外壳)	
工作环境温度	-20°C至60°C（0°F至140°F）无需水冷。 超过60°C（140°F），传感器必须用大约25°C（77°F）、1-2bar和1-2l/min的工业水冷却。	
重量	2.4kg	

接线



外形尺寸



订货参考

热金属检测器 HMD5-●-●

扫描角度
030°扫描角
045°扫描角
050°扫描角

灵敏度
H：高灵敏度 (400°)
N：普通灵敏度(700°)

可选附件

- ❖ 带链接插头的电缆(3m)

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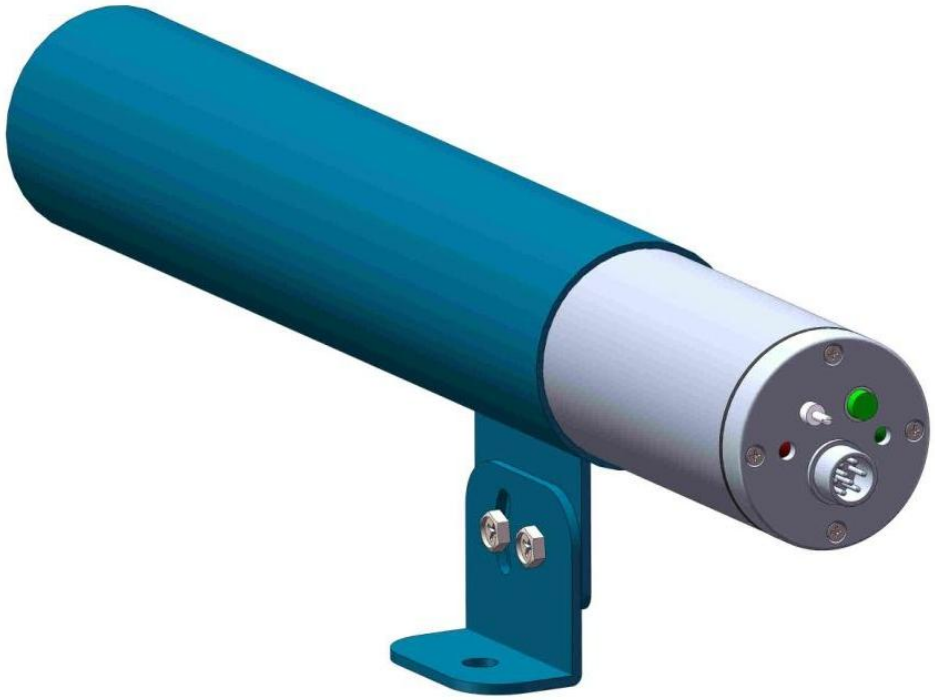
Hot Metal Detector

HMD5-030



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Features

The thermal metal detector HMD5-030 is mainly used in industrial systems such as metallurgy. By measuring the optical characteristics of thermal products (steel, copper, brass, alloy, etc.) within its field of view, a signal is generated and the signal is output in various ways.

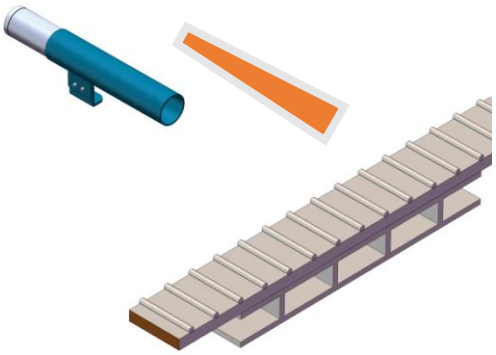
The thermal metal detector HMD5-030 is mainly composed of scanning measurement sensors, which can detect infrared radiation signals emitted by thermal products with a minimum temperature ≥ 400 ℃ (low temperature type).

Main features:

- ❖ High sensitivity: 400 ° C.
- ❖ Infrared spectrum: 0.8-1.3 μm.
- ❖ No optical adjustment.
- ❖ Easy to install, easy to debug and maintain.
- ❖ High-sensitivity infrared photoelectric components are selected, and the photoelectric circuit is packaged in a heavy-duty housing (IP66), which can stably work in harsh environments such as the iron and steel industry.
- ❖ Connectors and cables with metal protection braid can operate reliably for a long time.

Applications

Vertical loop



Horizontal loop

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Principle of operation: Infrared scanning

The optical system of the instrument scans the detected area, and the image sensor forms a corresponding image according to the infrared radiation characteristics of the thermal product. After the image information is analyzed and processed by the CPU, the corresponding signal is output through the amplification circuit.

Due to its unique optical scanning principle, HMD5-030 has the following advantages:

- Due to its large vertical field of view angle, it can be easily aligned and reliably detected regardless of the lateral position of the product.
- The side field is narrow and the detection is accurate.
- The analysis beam of light is small and the detection is reliable.

Because HMD5-030 has the above characteristics and advantages, it can ensure that the hot products in the tested area can be accurately and reliably detected.

Sensor features

Photosensitive unit:

The HMD5-030 is equipped with a special photosensitive unit, which is one of the best components for thermal product inspection at present, and can make the minimum detection temperature of thermal products reach 400 ° C (750 ° F).

Electronic features:

- The photoelectric unit is highly sensitive to infrared radiation and can be optimized for detection even in harsh environments such as low temperature and steam.
- Control Panel, including Self Test Button, Sensitivity Adjustment Potentiometer and Signal Prompt Light Emitting Diode.
- Through the self-check button, it is convenient to detect whether the equipment is operating normally.

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Optical parameters

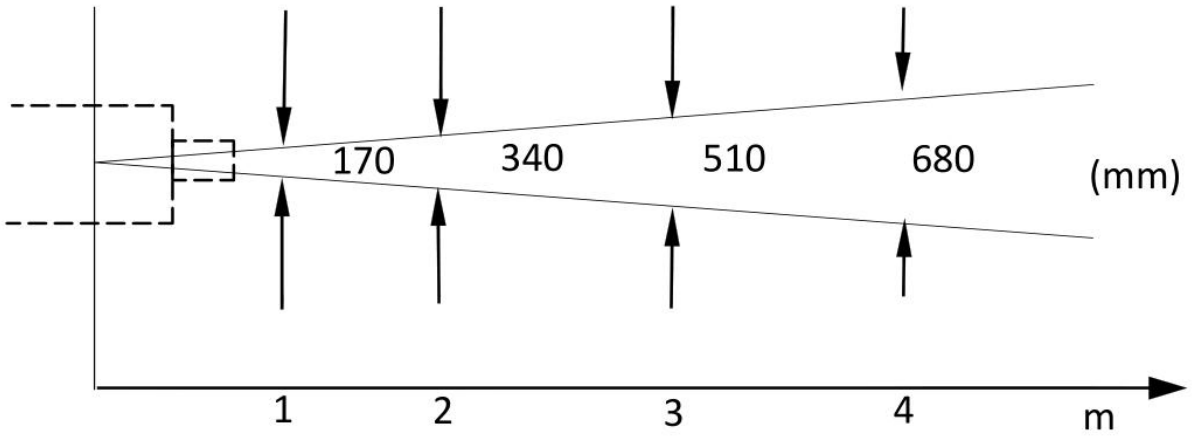
Model	HMD5-030-●	HMD5-040-●	HMD5-050-●
Scan angle	30°	40°	50°
Response time	4ms		
Lateral angle	3°		
Spectral range	Normal models 0.7 to 1.3 μm, high sensitivity models 1 to 3 μm		
Target temperature	Ordinary model: ⩾ 400 °, high sensitivity model: ⩾ 700 °		

Note: When the temperature of the product is expected to continue to exceed 700 ° C, the high sensitivity model is not recommended because it may detect iron oxide scale or reflection spectrum. For other materials such as copper, brass, alloys, etc., the temperature range depends on the infrared emissivity of the product. For these products, please consult FULLCON.

The best distance between the sensor and various products (related to temperature):

Wire 5 to 12 mm	0.20 to 3 m	Strip	0.60 to 2 m
Bars 10 to 40 mm	0.20 to 4 m	Sheet	1.00 to 6 m
Billet and small beam	0.20 to 6 m	Heavy plate	1.00 to 8 m
Bloom	Over 2 m	Slab	Over 2 m

The scanning angle is determined according to the application field to be detected.



The effective measurement area is between the product and HMD5-030

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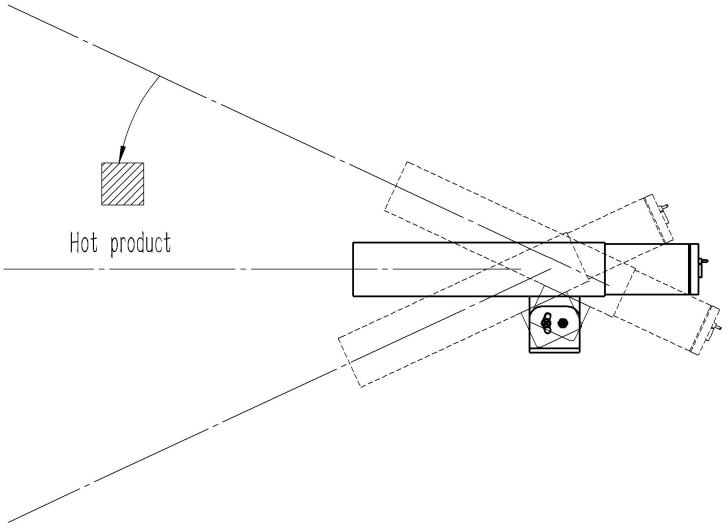

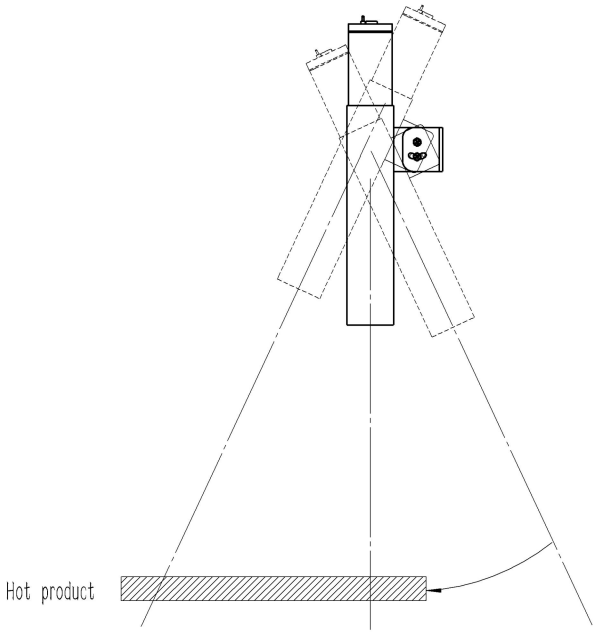

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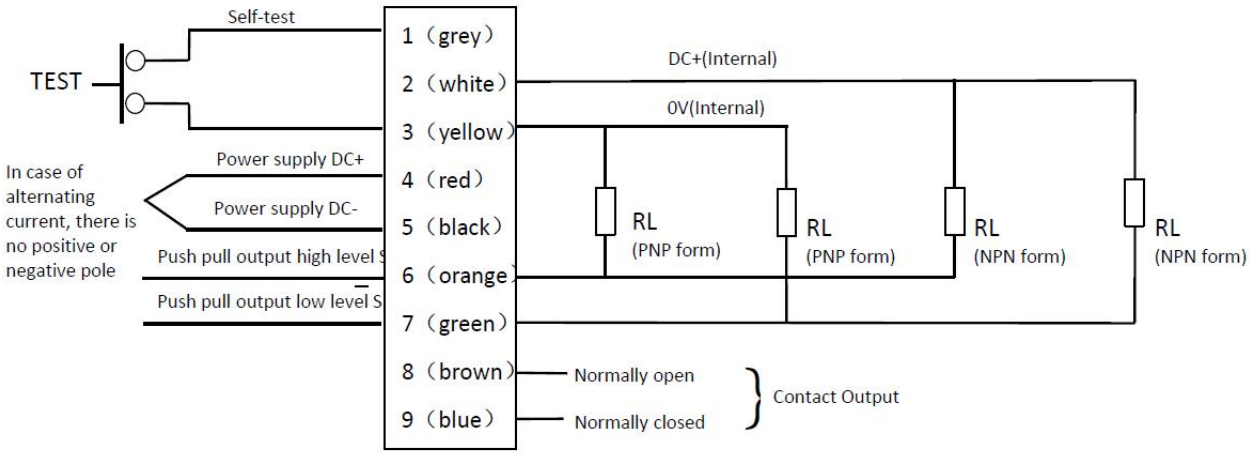
Characteristics

Modle	HMD5-030 -H	HMD5-030- N
Product presence - Relay output	Single pole changeover Switching capacity : 550VA - 250 V - 5 A max Closing time : 7.5 ms; Opening time : 3 ms	
Product presence –Static output	For indicating lamp : 24VDC – 2 W max	
Operating voltage	24 V DC (±10%)	
Power consumption	< 500 mA	
Connection - Cable	Connector fitted with silicone cable with protective steel braid Standard length of 2 m (other length: 3, 5 or 8 m)	
Protecting rating	IP 66 (cast aluminium case)	
Operating ambient temperature	-20 °C to 60 °C (0 °F to 140 °F) without water-cooling. Over 60 °C (140 °F), the sensor must be cooled with industrial quality water at about 25 °C (77 °F), 1-2 bar and 1-2 l/min	
Weight	2.4kg	

Connection



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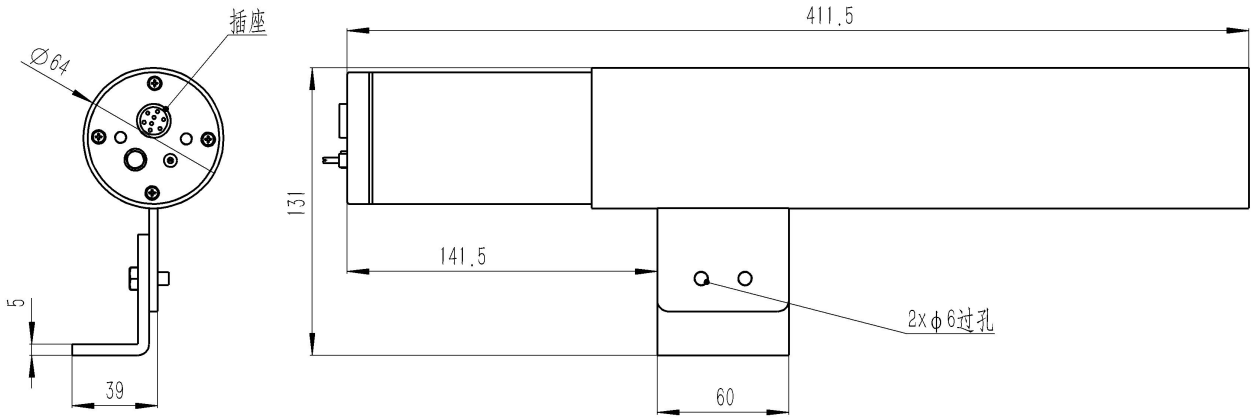
外形尺寸



Reference for order

Hot Metal Detector HMD5-●- ●

Field angle	Sensitivity
030°angle	H : High (400℃)
040°angle	N : Normal(700℃)
050°angle	

Accessories

- Cable with link plug(3m)

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