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HF01
HIGH TEMPERATURE HEAT FLUX SENSOR

The HF01 high temperature heat flux sensor is used to perform measurement of heat fluxes and surface temperature at high temperatures. The same technology can be used to manufacture heat flux sensors for different applications.
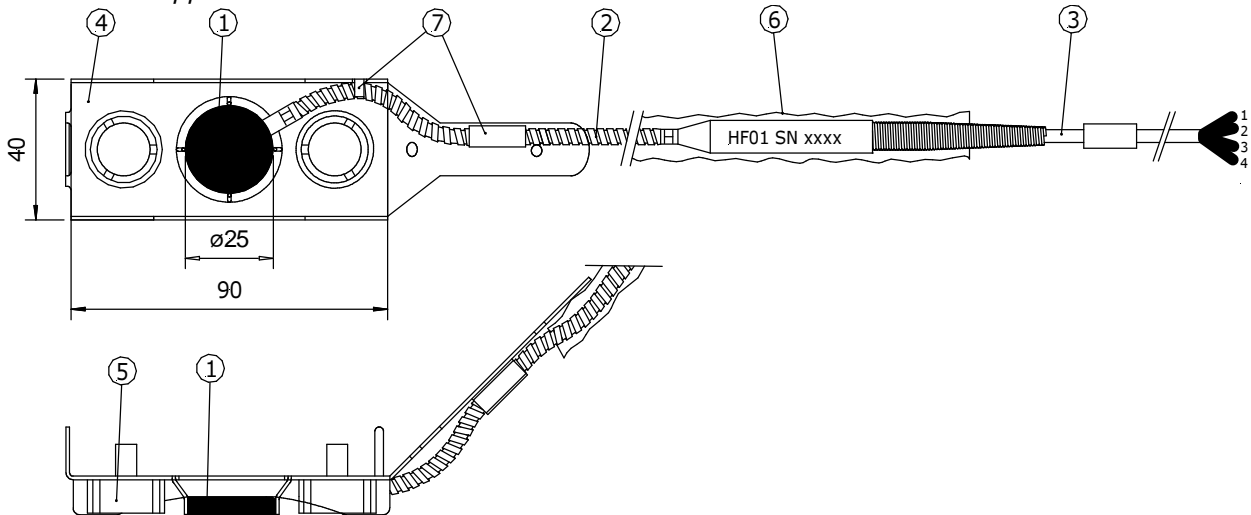

Figure 1 *HF01. The heat flux sensor (1), connected to a metal sheathed cable with flexible hose (2) and PTFE extension cable (3).The frame (4) with magnets (5) is an option which is intended for temporary mounting on iron furnace walls. The flexible hose is protected by the silicone sleeve (6) and the strain relief (7). Dimensions are in mm.*

INTRODUCTION

The HF01 has been designed for studies of the energy balance of industrial furnaces, boilers, fluidised beds, distillation colums and ovens.
The actual sensor is incorporated in a fully stainless steel housing.
The first part of the cabling is metal sheathed, with an additional metal protection hose. The sensor as well as the metal cable can withstand temperatures up to 800 degrees C.
The extension cable is made of PTFE. To avoid leakage of current, a silicon sleeve is placed over the metal sheathed cable.
The sensor output consists of a heat flux signal (microvolt analog signal) and a temperature signal (type K thermocouple). The thermocouple is used to measure surface temperature, and at the same time sensor temperature.
Advantages of HF01 relative to competing models are:

- robust, in particular at high temperatures
- fast response time, so reduced experiment time
- low thermal resistance; improved measurement accuracy

SUGGESTED USE

- Studies of aluminium melting furnaces

MORE INFORMATION / OPTIONS

Optional: extended cable, metal frame with magnets (MF01).

HF01 SPECIFICATIONS

Sensitivity heat flux (nominal):	$0.5 \ 10^{-3}$ mV/W.m^{-2} @ 90 deg C
Working range:	0.05 to 50 kW.m^{-2}
Temperature range sensor and metal sheathed cable:	-30 to +800 °C
Temperature range PTFE cable:	-30 to +240 °C
Optional items:	Metal frame with magnets (MF01) (to 550 °C only) cable extension
Protection sensor / cable:	IP 65
Metal cable length:	900 mm
PTFE cable length:	3500 mm
Silicon sheet	1000 mm (optional)