Thermo-Sensor

FT S 10 Food-E-5.15

RÜEGER
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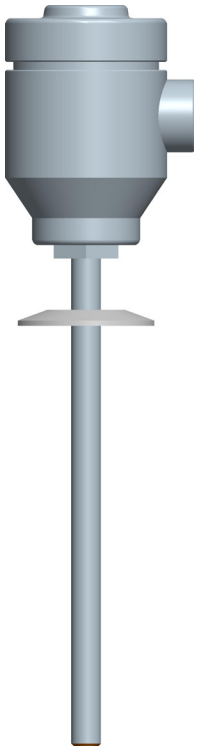
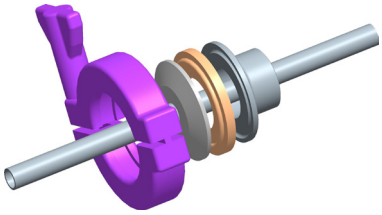
Food, pharmaceutical industries, breweries and dairies. Stem polished, material of inset / thermowell AISI 316 /AISI 316Ti / AISI 316L with stainless steel connection head.

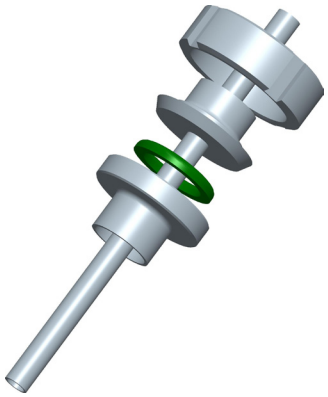
Type **S 10 Food**



Process connection:

- DIN 11851
- DIN 32676
- Stainless steel sliding connection





Applications

- Food, pharmaceutical and cosmetics industries, breweries
- Processing in sterile environments
- Special versions for hazardous areas
- Very short response time
- Special executions for explosive environments certified.

User Industries

Dairies products
Breweries
Grease production
Sterilization processes
Cheese production
Cosmetics production
Sterilization & breeding ovens

Description

This RÜEGER "Thermo-Sensor" type S10 Food may be fitted with one or two resistance temperature detectors (RTDs). For very short response time, it is possible to put the inset in direct contact with the product to be measured. The adequate rugosity surface treatment of Ra = 0.8 µm (RMS 32) of wetted part guarantees the required surface quality to meet the necessary conditions regarding hygiene. For other surfaces the average rugosity is Ra = 3.2 µm (RMS 125).

For application requiring high mechanical stability, the inset could be fitted in a thermowell. The lower part of the thermowell could be stepped to guaranty fast response times. With the thermowell, insets can be easily replaced without any process interruption. Mirror polish on request.

For explosive environments, executions meeting the requirements of EN / IEC 60079-0 "Electrical apparatus for potentially explosive atmospheres (general requirements)",
EN / IEC 60079-11 (intrinsic safety "i") are available.
EN 60079-7: «increased safety (e)».

Technical data

1. Limiting temperatures (°C) for insets:

Sensors	ø 1.5 to 3.18 mm	ø 4.5 to 12.7 mm	Exi, Exe, all dia.
Pt 100 *	- 200...+ 550	- 200...+ 600	- 200...+ 500
Pt 1000	- 40...+ 400	- 40...+ 600	–

** Pt100 -200+850°C, Class B as option*
Other sensors diameters on request

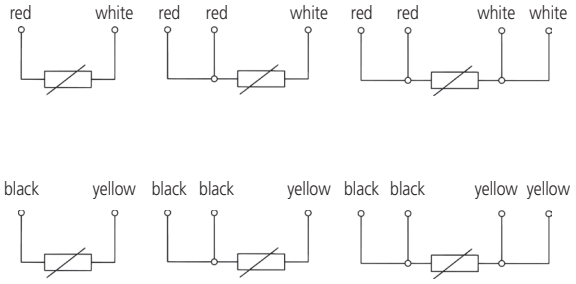
2. Precision classes:

RTD	according to IEC 60751
class A	+/- (0.15 + 0.002 Itl)
class B	+/- (0.3 + 0.005 Itl)
class AA	+/- (0.1 + 0.0017 Itl)

Itl = absolute value of measuring range

3. Identification of measurement circuits on terminal block and/or marking plate:
RTD:

(with color identification marking, according to IEC 60751)



Remark: "yellow" and "black" are used for double element.

4. Inset sheath:

The sensors (RTDs) within the insets are embedded in a compacted MgO powder of purity over 99% and protected by a metal sheath. This sheath is free of pores, and can be bent at limited curvature.
Avoid bending metal sheath less than 50 mm from the tip.

5. Ceramic terminal block:

Fixed to connection head by two M4 screws with springs, giving 8 to 10 mm travel. The diameter and spacing of the screws correspond to head types DIN A and DIN B.

6. Resistance of insulation at +15 to +35°C:

For RTD >100 M Ω with U = 250 VDC

7. Sensitive length of inset:

For RTDs: 7 to 40 mm max. for all diameters of inset sheath.

8. Response time:

The values given are for insets only. This is the time by which the reaction of the inset change in temperature;
t0,5 time to reach 50% of its total temperature value.
t0,9 time to reach 90% of its total temperature value.
The response times given below are indicative only.

Response time:

Inset	in water approx. 0.2 m/s		in air approx. 1 m/s	
	$t_{0.5}$	$t_{0.9}$	$t_{0.5}$	$t_{0.9}$
RTD 3 mm dia.	1.6 s	5.5 s	25 s	86 s
RTD 6 mm dia.	5 s	16 s	60 s	200 s

9. Minimum immersion length:

Recommended minimum immersion length:

Inset	in liquid	in gas/vapour
RTD 3 mm dia.	45 mm	55 mm
RTD 6 mm dia.	60 mm	75 mm

10. Connection heads in stainless steel:

Standard execution for ambient temperatures -40+85°C, -50°C on request.
Degree of protection: IP 54 to IP 68, according to execution.
Cable gland: to be chosen according to the cable entry.

11. Operating position:

Unrestricted, provided that the connection head is suitably remote from the heat source.

12. Recommendations for mounting:

The S10 are designed to fit inside thermowells. Before mounting, make sure that the bore of the thermowells is clean.

13. For transmitter options, please refer to transmitter's technical data sheet.

RÜEGER SA shall not be responsible for the consequences of any application not conforming to the regulations or recommendations concerning explosive environments.

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www.rueger.com www.instrugate.com

Manufacturer of Sensors and Gauges for Temperature & Pressure

RÜEGER SA
Ch. de Mongevon 9
P.O.Box 98
1023 CRISSIER 1
SWITZERLAND
Tel + 41 (0)21 637 32 32
Fax + 41 (0)21 637 32 00
E-mail info@rueger.ch

RÜEGER GmbH
Plieninger Strasse 58
70567 STUTTGART
GERMANY
Tel + 49 (0)711 16-163-0
Fax + 49 (0)711 16-16333
E-mail rgmbh@rueger.com

RÜEGER Sdn Bhd
No 22-5, Jalan Wangsa Delima 10
D'Wangsa, Wangsa Maju
53300 KUALA LUMPUR
MALAYSIA
Tel + 603 - 4142 3808
Fax + 603 - 4142 3909
E-mail sales@rueger.com.my

BEIJING RÜEGER PRECISION INSTRUMENT Co. Ltd
No. A135 Chengshousi Road
Nansanhuan, Chaoyang District
100164 BEIJING, P.R. CHINA
Tel + 86 10 8767 7502 / 3379
Fax + 86 10 8761 3727
E-mail sales@bjrueger.com