innovative
Sensor
Technology



SPACE APPLICATIONS

Next generation ESCC qualified sensor solutions
for aerospace applications

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ESCC qualified







physical · chemical · biological

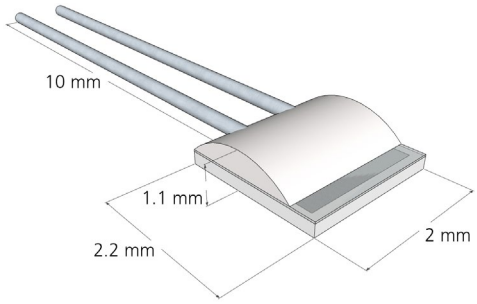
SPACE APPLICATIONS



Hi-Rel temperature thin-film sensors

Your benefits compared to a wire-wound sensor:

- Resistant against thermal cycles
- Vibration-resistant
- Small dimensions (W x L x H: 2.0 x 2.2 x 1.1 mm ± 0.2 mm)
- Light weight
- No movable parts
- 10 mm platinum wires
- EM versions available



The platinum wires are designed so they can later be processed, e.g. brazing, resistance-welding, laser-welding, crimping and TIN-soldering (elaborately).

ESCC QPL qualified part list (sensor only)

Variant Number	Based on Type (Former order code)	Main Reference (Order code)	Nominal Rz (Ω) at 0°C	Operating Temperature Range Top (°C)	Maximum Operating Current (mA)	Maximum Rated Current (mA)
01	P0K1.232.7W (010.02991)	101410	100	- 50 to +150	1	4
02	P0K1.232.7W (010.02992)	101411	100	-200 to +200	1	4
03	P0K2.232.7W (010.02993)	150026	200	- 50 to +150	0.7	2.8
04	P0K2.232.7W (010.02994)	101412	200	-200 to +200	0.7	2.8
05	P0K5.232.7W (010.02995)	101413	500	- 50 to +150	0.45	1.3
06	P0K5.232.7W (010.02996)	101414	500	-200 to +200	0.45	1.3
07	P1K0.232.7W (010.02997)	101415	1000	- 50 to +150	0.3	1.3
08	P1K0.232.7W (010.02998)	101416	1000	-200 to +200	0.3	1.3
09	P2K0.232.7W (010.02999)	101417	2000	- 50 to +150	0.2	0.9
10	P2K0.232.7W (010.03000)	101418	2000	-200 to +200	0.2	0.9

Order information

ESCC Qualified Hi-Rel temperature sensor with qualified extended wires

Nomenclature according to ESA Detail Specification 4006/015

	4006015	**XX**	**XX**	**XXXX**	
E.g.	4006015	07	01	0300	(same sensor without wires = 40060150700)

Characteristic Code

0100 to 9999	Extension cable/wires nominal total length [mm]
left blank	Sensor with platinum leads only

Characteristic Code: Termination Type

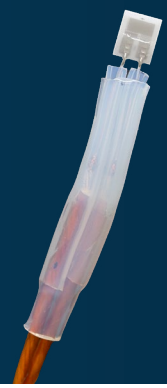
00	Sensor with platinum leads only	
01	Twisted 2-core extension cable (no shield)	ESCC Component 390101910B
02	Twisted 4-core extension cable (no shield)	ESCC Component 390101926B
03	Twisted 2-core extension cable with shield and jacket	ESCC Component 390101957B
04	Twisted 4-core extension cable with shield and jacket	ESCC Component 390101973B
05	2-wire extension (single extension wires)	ESCC Component 390101902B

ESCC Component Type Variant Number, Sensor Element

01	P0K1	Temperature range from -50 °C to +150 °C
02	P0K1	Temperature range from -200 °C to +200 °C
03	P0K2	Temperature range from -50 °C to +150 °C
04	P0K2	Temperature range from -200 °C to +200 °C
05	P0K5	Temperaturer ange from -50 °C to +150 °C
06	P0K5	Temperature range from -200 °C to +200 °C
07	P1K0	Temperature range from -50 °C to +150 °C
08	P1K0	Temperature range from -200 °C to +200 °C
09	P2K0	Temperature range from -50 °C to +150 °C
10	P2K0	Temperature range from -200 °C to +200 °C

Detail specification reference: 4006/015

Nomenclature according to iST Reference



	QP	XXX.	232.	X	LXX.	B.	XXX
E.g.	QP	1KO.	232.	1	L10.	B	300

Material identification

Q	Qualified Flight Model (QP for qualified extended version)
P	Engineering Model (P for engineering extended version)

Resistance in Ohm at 0 °C

0K1	100 Ohm
0K2	200 Ohm
0K5	500 Ohm
1K0	1000 Ohm
2K0	2000 Ohm

Chip-Size

232	2.3 x 2.0 mm (LxW) (only qualified chip size)

Temperature range of sensor element

1	-50 °C to +150 °C	
2	-200 °C to +200 °C	

Wire / cable type

10	ESCC 3901 019 10B
26	ESCC 3901 019 26B
57	ESCC 3901 019 57B
73	ESCC 3901 019 73B
02	ESCC 3901 019 02B

Tolerance class

B	IEC 60751 F.03

Total length

from 100 mm up to 10‘000 mm

SPACE APPLICATIONS



We now not only offer the only Hi-Rel ESCC-certified thin-film platinum temperature sensors but also hold the ESCC qualification for the wire extensions.

The Hi-Rel Pt temperature sensors are available with a resistance of of 100 Ω to 2000 Ω, within temperature ranges of -50 °C to +150 °C or -200 °C to +200 °C, with platinum leads only, or with twisted 2-core, or 4-core extension cables beginning from 100 mm up to several meters in length, with or without shield and jacket.

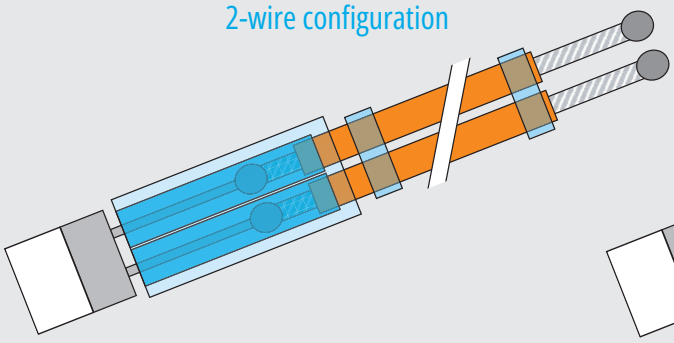
All sensors are available both as flight models (FM) and engineering models (EM) and are also suitable for other High Reliability (Hi-Rel) applications in the aerospace or automotive industries.

Space sensor configuration

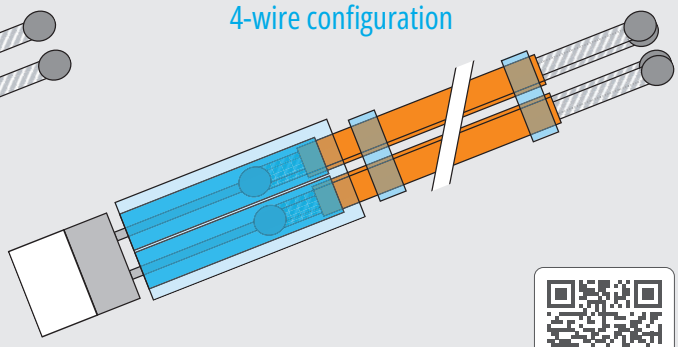
The sensors are now available with extension cables in desired lenghts up to 10 m with following configurations:

- With platinum leads only
- With twisted 2-core extension wires
- With twisted 4-core extension cables
- With our without shield and jacket

2-wire configuration



4-wire configuration



Visit our website

Space projects, missions and satellites with iST-sensors: Juice, Solar Orbiter, Euclid, LISA, MPCV, ARIEL, SPACE REACTION WHEELS; ERSA, EAGLE, IMAP, SABIAMAR, TITAN, ROSE-L, Comet Interceptor, SOLAR-C. Other launches with iST-sensors on board are already planned.

iST – Innovative Sensor Technology

Your manufacturer and partner for physical, chemical and biological sensors

With more than 30 years of experience Innovative Sensor Technology IST AG is one of the world's leading manufacturers of physical, chemical and biological sensors. We specialize in the development and manufacturing of temperature sensors, thermal mass flow sensors and modules, humidity sensors and modules, conductivity sensors and bio sensors.

In addition to our standard products, we offer sensor adaptions to individual, customer-specific application needs – right up to the joint development of new technologies. iST-sensors are characterized by their accuracy and consistency in various measurement conditions. They are used in measuring and monitoring instruments for numerous applications across all industries.

Out of our state-of-the-art-facilities we manufacture varying quantities from small order numbers to fully automated high-volume manufacturing.

iST is a company of the Endress+Hauser Group, headquartered in Reinach, Switzerland. Endress+Hauser is among the global leaders in measuring instruments, services and solutions for industrial process engineering.



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