



# 3037-6-A09-00-TS-X07

## Rock Wool Production Line Thermoresistance for equipment temperature conditioning Plant - Technical Specification

Rev	Description	Edited	Check	Iss'd	Appr'd	Date
00	Revision 0	ZER	BER	Exec	MLG	30/04/18
01						
02						
03						
04						
05						



**INDEX**

- 1. Premise and reference documents ..... 3
- 2. List of Thermoresistance (by Client) ..... 4
- 3. Data sheets Thermoresistance - Transmitters (by Client) ..... 5



## 1. Premise and reference documents

This document shows the data and technical specifications of the Thermoresistance to be installed in the cooling water plant.

References documents:

- **3037-6-A09-00-PD-901** Equipment temperature conditioning plant process flow diagram.

## 2. List of Thermoresistance (by Client)

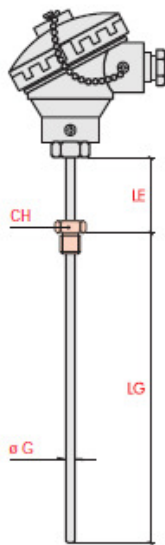
TAG	LOOP	ND	CLASS	UBICATION (N° PIPE LINE)
TE	30	Ø ½" - Gas	A01	TK-S91 Chilled water Tank - CHILLED WATER - Temperature
TE	40	Ø ½" - Gas	A01	TK-S92 Hot water Tank - HOT WATER - Temperature
TE	60	Ø ½" - Gas	A01	TK-S93 Hot water Boiler Tank - HOT WATER - Temperature

- Thermoresistance PT100 single element 3 wires
- Sheath AISI316 diam. 6mm L200mm
- Head standard IP65 with transmitter 4-20ma/0-100°C
- Sliding connection AISI316 Ø ½" - Gas
- Head transmitter Signal converter - IN: PT100 / OUT: 4-20mA

### 3. Data sheets Thermoresistance - Transmitters (by Client)

**ELSI** Certificata ISO 9002  
 Centro taratura SIT

ELSI S.r.l. - via Milano, 11 - 20020 Lathale (MI)  
 Tel.: (02) 9370868 / 9373042 - Fax: (02) 9371724  
 Home page: www.elsi.it • e-mail: info@elsi.it



**Electrical connection**

2/3/4 wire sing. el.    2x2 w. dual el.    2x3 w. dual el.

**Mounting Fittings**  
 (For models without fixed attaching device only)

Suggested adjustable compression fittings:

Material	ø1	L	CH	øG	Model
ANSI 316	1/8" NPT	10.5	12	5	Z1 RFS-B/E060
	1/8" NPT	10.5	12	5	Z1 RFS-B/M050
	1/4" G	12	17	6	Z1 RFS-B/F060
	1/2" G	14	24	6	Z1 RFS-B/I060
	1/4" G	12	17	8	Z1 RFS-B/F080
Treated brass	1/2" G	14	24	6	Z1 RFS-B/I080
	1/4" G	12	17	6	Z1 RFS-O/F060
	1/4" G	12	17	8	Z1 RFS-O/F080
	1/2" G	14	24	8	Z1 RFS-O/I080
	1/2" G	14	24	8	Z1 RFS-O/I080

**Flanges**

Model	ø1	ø2
ZZ FLS-A/A060	6	60
ZZ FLS-A/A080	8	60

**Low pressure sensors with connection head**

**F1** Straight RTD,  
 5 to 8mm sheath o.d.,  
 optional fixed attaching device



Connection head	Diameter ø G mm	Base code	Value in [ohm] at 0°C	Element N° and limits	Type of RTD	Sheath material	Sheath LG mm	Type of thread	Extension LE mm
Cylindrical IP54	5	F1 C50	P Pt100 DIN - IEC	0 3-wire single el. Cl. B (1 DIN)	0 Ceramic 750 °C max	B ANSI 316	0100	S Without	00 Without
	6	F1 C60							
	8	F1 C80							
Mini-IP67	5	F1 M50	X Pt500 DIN - IEC	1 3-wire single el. Cl. A (1/2 DIN)	1 Thin film 250 °C max		0150	D M10 x 1.5 - L13 CH - 14 (for ø5 and ø6)	05 50
	6	F1 M60							
	8	F1 M80							
Standard IP67, optional transmitter	5	F1 S50	Y Pt1000 DIN - IEC	2 3-wire single el. 1/3 DIN			0200	E 1/8" Gas - L12 CH - 14 (for ø5 and ø6)	08 80
	6	F1 S60							
	8	F1 S80							
	5 + I	F1 T50							
	6 + I	F1 T60							
	8 + I	F1 T80							
Nylon IP65, optional transmitter	5	F1 N50	Z Ni100 DIN - IEC	3 4-wire single el. Cl. A (1/2 DIN)			0250	F 1/4" Gas - L13 CH - 17	10 100
	6	F1 N60							
	8	F1 N80							
	5 + I	F1 Y50							
	6 + I	F1 Y60							
	8 + I	F1 Y80							
Ex d IIB IP65, optional transmitter	6	F1 X60							
	8	F1 X80							
	6 + I	F1 U60							
	8 + I	F1 U80							

Note: \* transmitter for single element only

Note: other lengths on request for LG and LE. Code ex.: LG = 135mm Code 0135 / LE = 60mm Code 06

Reference model:  
 Straight RTD, standard head, 6mm sheath o.d., 3-wire Pt100 single elem., class B (1 DIN), ceramic element, ANSI 316 sheath, 100mm length, no extension, no fixed attaching device.

F1 S60 - P 0 0 - B 0100 - S 00

□ - □ □ □ - □ □ □ - □ □ □

ed.1  
 rev. 4/20

## TEMPERATURE TRANSMITTERS

### SEM203 P

- > SUITABLE FOR PT100 SENSORS
- > UNIQUE PUSH BUTTON CONFIGURATION WITHOUT PC
- > PUSH BUTTON SENSOR MATCHING
- > (4 to 20) mA OUTPUT
- > HIGH STABILITY
- > PROGRAMMABLE BURNOUT



### > INTRODUCTION

The SEM203/P is a low cost configurable in-head transmitter that accepts PT100 temperature sensors and converts sensor output over a configured range to a standard industrial (4 to 20) mA transmission signal.

A simple push button operation allows the user to not only select the desired range and burnout direction but also perform user trim at both (4 and 20) mA points.

The SEM203 in head transmitter incorporates the latest digital technology to ensure accurate drift free performance. If required the desired range can be specified at the time of order, removing the need for user configuration. If the range is not specified then the transmitter will be shipped with the default range of (0 to 100) °C set.

### > PUSH BUTTON CONFIGURATION

#### EQUIPMENT

Decade box or resistance of the equivalent value for the low and high temperature values for the desired range to be set.

#### METHOD

A single push button and LED indicator allows the user to navigate a three menus, allowing configuration of the transmitter. The menus are as follow:-

Menu 1	Configure range.
Menu 2	Configure burnout direction.
Menu 3	Trim output current @ either 4 mA or 20 mA.

### > SPECIFICATIONS @ 20 °C

#### INPUT

Sensor Type	PT100 100R @ 0°C 2 or 3 Wire
Sensor Range	(-195 to +845) °C (18 to 390) Ω
Sensor Connection	Screw terminal
Minimum span (*1)	25 °C
Linearisation	BS EN 60751 (IEC 751) standard / JISC 1604
Measurement Accuracy (*2)	0.2 °C ± 0.05% of Reading
Thermal Drift	±0.02 °C / °C
Excitation current	<200 uA
Lead Resistance effect	0.002 °C / Ohm
Maximum lead Resistance	20 Ohms per leg

#### OUTPUT

Output Type	2 wire (4 to 20) mA current loop
Output range	(4.0 to 20.0) mA
Output Connection	Screw Terminal
Maximum output	21.5mA (in high burnout condition)
Minimum output	<3.9 mA (in low burnout condition)
Accuracy	(mA output /2000) or 5 uA (Which ever is the greater)
Loop Voltage effect	0.2 uA / V
Thermal drift	±2 uA / °C
Maximum output load	[(Vsupply-10)/21]K Ohms (Example: 700 Ohms @ 24V)

#### GENERAL SPECIFICATION

Update time	500 ms
Response Time	1 second
Start up time	4 seconds ( 1 out < 4 mA during start up)
Warm-up time	1 minutes to full accuracy
Power Supply	(10 to 30) Volts dc

## TEMPERATURE TRANSMITTERS

### ENVIRONMENTAL

Ambient operating range (-40 to +85) °C [Full Accuracy only between (-30 to +75) °C]  
 Ambient storage temperature (-50 to +90) °C  
 Ambient humidity range (10 to 90) % RH non condensing

### PHYSICAL

Dimensions 43 mm diameter; 21 mm height  
 Weight 31 g (encapsulated)

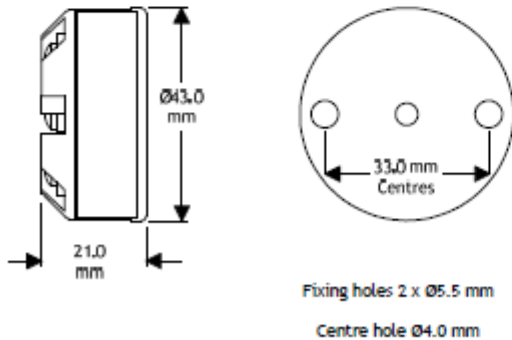
### APPROVALS

EMC - BS EN 61326 Electrical equipment for measurement control and laboratory use.  
 ANNEX A Immunity test requirements for equipment intended for use in industrial locations  
 ANNEX F Test configurations, operational conditions and performance criteria for transducers with integrated or remote signal conditioning.  
 IEC 61000-4-2 Electrostatic discharge  
 IEC 61000-4-3 EM Field  
 IEC 61000-4-4 Transient Burst (output)  
 IEC 61000-4-5 Surge (output)

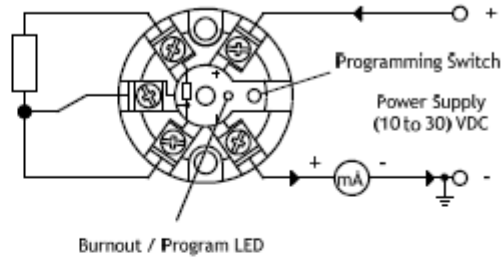
Note - Sensor input wires to be less than 3 metres to comply.

Note \*1 Any span may be selected, full accuracy is only guaranteed for spans greater than the minimum recommended  
 Note \*2 Basic measurement accuracy includes the effects of calibration, linearisation and repeatability

### MECHANICAL



### ELECTRICAL



### ORDER CODE



\*NOTES:  
 1) For special configuration, please contact the sales office.

Upscale burnout is standard, for downscale please contact the sales office