

# **FACTORY CALIBRATION**

N° FC2069-04

Rev 1

No. of page: Date of issue:

1 of 1 08/06/04

Customer:

Order No.:

Endress + Hauser S.A. 39/48662625/39179327

Order confermation No.:

48662625-0040

Resistance thermometer model:

TR45-BB5A1S2HJRH00

S.N.:

FC2069-04

Class:

Tag

TIC 03251

Transmitter model:

TMT182-A (Pt100 - 3 wires)

IEC 751

Range:

0 / 100°C

S.N.:

6403B3 04125

Procedures No.:

QPA9805

Reference thermometer:

TF8163-9540 validated by certificate of calibration SIT 04-009

78-00054 validated by certificate of calibration SIT 04-007

Immersion depth:

120mm

The temperature values are according to the ITS-90.

All the measurements between -20°C < t < 250°C were made in a liquid stirred bath by comparison and at 0°C, at the melting ice-point.

The measurement between 250°C < t < 650°C were made in electric furnace by comparison.

Nominal calibration point	Standard reference temperature	Measured output	Temperature value	Deviation	Tolerance
(°C)	(°C)	(mA)	(°C)	(°C)	(±°C)
0	0.000	3.997	-0.02	-0.02	0.35
30	29.621	8.719	29.50	-0.13	0.41
60	59.654	13.546	59.66	0.01	0.47
100	99.862	19.985	99.90	0.04	0.55
					No.

The measurements have been made on the inset without thermowell

The total measurements uncertainty, evaluated at twice the standard deviation, is:

From -20°C to 250°C less than:

0,2°C

From 250°C to 500°C less than:

\*\*\*

From 500°C to 650°C less than:

\*\*\*

All measurements have been made in ambient controlled at 23°C ± 2°C and R.U. 50% ±10%

Thermolab inspector

C.Bini

Endress+Hauser Sicestherm S.r.l. Via M. Luther King, 7 I-20060 Pessano con Bornago (MI)

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# FACTORY CALIBRATION

N° FC2070-04

Rev 1

No. of page: Date of issue:

1 of 1 08/06/04

Customer:

Endress + Hauser S.A.

Order No.:

39/48662625/39179327

Order confermation No.:

48662625-0070

Resistance thermometer model:

TR10-AJA1CDSXR3000

S.N.:

FC2070-04

Class:

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**IEC 751** 

Tag

TI 03252

Transmitter model:

TMT182-A (Pt100 - 4 wires)

Range:

0 / 150°C

S.N.:

6502C9 04125

Procedures No.:

QPA9805

Reference thermometer:

78-00055 validated by certificate of calibration SIT 04-011

78-00054 validated by certificate of calibration SIT 04-007

Immersion depth:

180mm

The temperature values are according to the ITS-90.

All the measurements between -20°C < t < 250°C were made in a liquid stirred bath by comparison and at 0°C, at the melting ice-point.

The measurement between 250°C < t < 650°C were made in electric furnace by comparison.

Nominal	Standard	Measured	Temperature	Deviation	Tolerance
calibration	reference	output	value		
point	temperature				
(°C)	(°C)	(mA)	(°C)	(°C)	(±°C)
0	0.000	3.997	-0.02	-0.02	0.35
55	54.768	9.843	54.78	0.01	0.46
110	110.107	15.737	110.03	-0.08	0.57
150	149.543	19.939	149.43	-0.11	0.65
		1			

The measurements have been made on the inset without thermowell

The total measurements uncertainty, evaluated at twice the standard deviation, is:

From -20°C to 250°C less than:

0,2°C

From 250°C to 500°C less than:

.....

From 500°C to 650°C less than:

\*\*\*

All measurements have been made in ambient controlled at 23°C ± 2°C and R.U. 50% ±10%

Thermolab inspector

C.Bini

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### **FACTORY CALIBRATION**

N° FC2071-04

Rev 1

No. of page: Date of issue:

1 of 1 08/06/04

Customer:

Endress + Hauser S.A.

Order No.:

39/48662625/39179327

Order confermation No.:

48662625-0070

Resistance thermometer model: S.N.:

TR10-AJA1CDSXR3000

Class:

FC2071-04

**IEC 751** 

Tag

TI 03253

Transmitter model:

TMT182-A (Pt100 - 4 wires)

Range:

0 / 150°C

S.N.:

6502D4 04125

Procedures No.:

QPA9805

Reference thermometer:

78-00055 validated by certificate of calibration SIT 04-011 78-00054 validated by certificate of calibration SIT 04-007

Immersion depth:

180mm

The temperature values are according to the ITS-90.

All the measurements between -20°C < t < 250°C were made in a liquid stirred bath by comparison and at 0°C, at the melting ice-point.

The measurement between 250°C < t < 650°C were made in electric furnace by comparison.

Nominal	Standard	Measured	Temperature	Deviation	Tolerance
calibration	reference	output	value		
point	temperature				
(°C)	(°C)	(mA)	(°C)	(°C)	(±°C)
0	0.000	3.983	-0.16	-0.16	0.35
55	54.768	9.830	54.66	-0.11	0.46
110	110.107	15.726	109.93	-0.18	0.57
150	149.543	19.922	149.27	-0.27	0.65

The measurements have been made on the inset without thermowell

The total measurements uncertainty, evaluated at twice the standard deviation, is:

From -20°C to 250°C less than:

0,2°C

From 250°C to 500°C less than:

\*\*\*

From 500°C to 650°C less than:

\*\*\*

All measurements have been made in ambient controlled at 23°C ± 2°C and R.U. 50% ±10%

Thermolab inspector

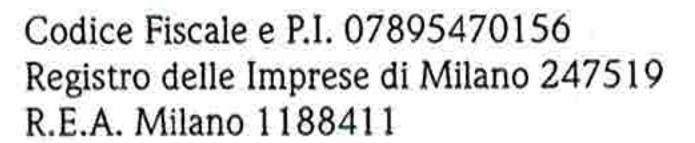
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### **FACTORY CALIBRATION**

N° FC2072-04

Rev 1

No. of page: Date of issue:

1 of 1 08/06/04

Customer:

Endress + Hauser S.A.

39/48662625/39179327

Order No.:
Order confermation No.:

48662625-0100

Resistance thermometer model:

TR10-AJA1CDSXR3000

S.N.:

FC2072-04

Class:

Δ

**IEC 751** 

Tag

TI 13201

Transmitter model:

TMT182-A (Pt100 - 4 wires)

Range:

-20 / 40°C

S.N.:

6502CA 04125

Procedures No.:

QPA9805

Reference thermometer:

ST306-01 validated by certificate of calibration SIT 03-107

78-00054 validated by certificate of calibration SIT 04-007

Immersion depth:

180mm

The temperature values are according to the ITS-90.

All the measurements between -20°C < t < 250°C were made in a liquid stirred bath by comparison and at 0°C, at the melting ice-point.

The measurement between 250°C < t < 650°C were made in electric furnace by comparison.

Nominal calibration	Standard reference	Measured output	Temperature value	Deviation	Tolerance
point	temperature				
(°C)	(°C)	(mA)	(°C)	(°C)	(±°C)
-20	-19.661	4.050	-19.81	-0.15	0.39
0	0.000	9.310	-0.09	-0.09	0.35
40	39.715	19.890	39.59	-0.13	0.43
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The measurements have been made on the inset without thermowell

The total measurements uncertainty, evaluated at twice the standard deviation, is:

From -20°C to 250°C less than:

0,2°C

From 250°C to 500°C less than:

\*\*\*

From 500°C to 650°C less than:

\*\*\*

All measurements have been made in ambient controlled at 23°C ± 2°C and R.U. 50% ±10%

Thermolab inspector

C.Bini

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UNI EN ISO 9001 Certificate No. 9115 ENDR



### FACTORY CALIBRATION

N° FC2073-04

Rev 1

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No. of page: Date of issue:

1 of 1 08/06/04

Customer:

Endress + Hauser S.A.

Order No.:

39/48662625/39179327

Order confermation No.:

48662625-0100

Resistance thermometer model:

TR10-AJA1CDSXR3000

S.N.: Class:

FC2073-04

Α

IEC 751

Tag

TI 13202

Transmitter model:

TMT182-A (Pt100 - 4 wires)

Range:

-20 / 40°C

S.N.:

6502CE 04125

Procedures No.:

QPA9805

Reference thermometer:

ST306-01 validated by certificate of calibration SIT 03-107

78-00054 validated by certificate of calibration SIT 04-007

Immersion depth:

180mm

The temperature values are according to the ITS-90.

All the measurements between -20°C < t < 250°C were made in a liquid stirred bath by comparison and at 0°C, at the melting ice-point.

The measurement between 250°C < t < 650°C were made in electric furnace by comparison.

Nominal	Standard	Measured	Temperature	Deviation	Tolerance
calibration	reference	output	value		
point	temperature				
(°C)	(°C)	(mA)	(°C)	(°C)	(±°C)
-20	-19.661	4.076	-19.72	-0.06	0.39
0	0.000	9.331	-0.01	-0.01	0.35
40	39.715	19.936	39.76	0.05	0.43
				-	

The measurements have been made on the inset without thermowell

The total measurements uncertainty, evaluated at twice the standard deviation, is:

From -20°C to 250°C less than:

0,2°C

From 250°C to 500°C less than:

\*\*\*

From 500°C to 650°C less than:

\*\*\*

All measurements have been made in ambient controlled at 23°C ± 2°C and R.U. 50% ±10%

Thermolab inspector

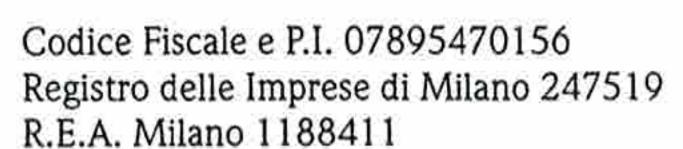
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### FACTORY CALIBRATION

N° FC2074-04

Rev 1

No. of page: Date of issue:

1 of 1 08/06/04

Customer:

Endress + Hauser S.A.

Order No.:

39/48662625/39179327

Order confermation No.:

48662625-0100

Resistance thermometer model:

TR10-AJA1CDSXR3000

S.N.:

FC2074-04

Class:

IEC 751

Tag

TI 13203

Transmitter model:

TMT182-A (Pt100 - 4 wires)

Range:

-20 / 40°C

S.N.:

6502D5 04125

Procedures No.:

QPA9805

Reference thermometer:

ST306-01 validated by certificate of calibration SIT 03-107

78-00054 validated by certificate of calibration SIT 04-007

Immersion depth:

180mm

The temperature values are according to the ITS-90.

All the measurements between -20°C < t < 250°C were made in a liquid stirred bath by comparison and at 0°C, at the melting ice-point.

The measurement between 250°C < t < 650°C were made in electric furnace by comparison.

Nominal	Standard	Measured	Temperature	Deviation	Tolerance
calibration	reference	output	value		
point	temperature				
(°C)	(°C)	(mA)	(°C)	(°C)	(±°C)
-20	-19.649	4.058	-19.78	-0.13	0.39
0	0.000	9.306	-0.10	-0.10	0.35
40	39.704	19.899	39.62	-0.08	0.43

The measurements have been made on the inset without thermowell

The total measurements uncertainty, evaluated at twice the standard deviation, is:

From -20°C to 250°C less than:

0,2°C

From 250°C to 500°C less than:

\*\*\*

From 500°C to 650°C less than:

\*\*\*

All measurements have been made in ambient controlled at 23°C ± 2°C and R.U. 50% ±10%

Thermolab inspector

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