

## **EC-Type Examination Certificate**

### **Measuring Instrument Directive**

**Certificate number: DK-0200-MI004-002**

Issued by FORCE Certification A/S, Denmark  
EC-notified body number 0200

In accordance with The Danish Safety Technology Authority's statutory order no. 436 of 16<sup>th</sup> May 2006 with later amendments which implements the Directive 2004/22/EC of the European Parliament and Council of March 31<sup>st</sup>, 2004 on measuring instruments (MID) and later amendments.

**Issued to:** **Kamstrup A/S**  
**Industrivej 28, Stilling**  
**DK-8660 Skanderborg**

Reference No.: 113-21029.0004.0001

Type of instrument: Temperature sensor pair

Type designation: Pt500 DS-cable, Pt500 PL-cable with pockets,  
Pt500 PL with pockets (with connecting head)

Valid until: 2017-02-20

Number of pages: 6, including appendix

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Revision No.: 1 - 2013

Approved by



Lars Poder  
Certification Manager

Processed by



Michael Møller Nielsen  
Examiner

The conformity markings may only be affixed to the above type approved equipment. The manufacturer's Declaration of Conformity may only be issued and the notified body identification number may only be affixed on the instrument when the production/product assessment module (D or F) of the Directive is fully complied with and controlled by a written inspection agreement with a notified body.  
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## Appendix to

### EC-Type Examination Certificate Measuring Instrument Directive

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Revision 1 – 2013: New text added to section "Description". Temperature range added.  
Sealing updated.

#### **Applied standards and documents:**

EN1434: 2007

The instruments/measuring systems shall correspond with the following specifications:

#### **Type designation:**

Pt500 temperature sensor pair type DS-cable

Pt500 temperature sensor pair type PL-cable with pockets

Pt500 temperature sensor pair type PL with pockets (with connecting head)

#### **Description:**

Pt500 temperature sensor pair type DS-cable

The sensor pair consists of two physically Pt500 sensors with fixed cable and identical series numbers. The sensor body has a total length of 27.5 mm incl. flange to sealing ring and an outside diameter of nominal 4 mm at the bottom. The fixed cable is a 2-wire silicone cable. The cable is terminated with clip bushings. The return sensor is equipped with a blue type sign, the forward sensor with a red one. The sensor is intended for direct mounting.

Pt500 temperature sensor pair type PL-cable with pockets

The sensor pair consists of two physically Pt500 sensors with fixed cable.

The sensor body has a total length of 47 mm and an outside diameter of 5.8 mm/+0.03/- 0.05 at the bottom. The fixed cable is the silicone type with two conductors. The cable is terminated with clip bushings. The sensors are marked red or blue for forward and return sensor respectively.

The corresponding submersible pockets are of stainless steel.

All types have R½ or G1 thread. The length can vary between 65 and 140 mm.

Pt500 temperature sensor pair type PL with pockets (with connecting head)

The temperature sensor pair consists of Pt500 temperature sensor pair type PL with connecting terminals (insert) and temperature sensor pockets with connection head.

The sensor insert is a PL-cable mounted with 4 connection terminals. The two-wire sensor pair type PL-cable which is connected to the part with four terminals has been shortened to nominal 370 mm. This sensor insert is placed, in a sensor pocket with connection head with the possibility of 2 or 4-wire connection. On the sensor pocket there is welded a R $\frac{1}{2}$ , NV22 nipple. The sensor pocket is available in 90, 140 or 180 mm. The connection head in plastic is mounted on the top of the sensor pocket tube.

The sensor insert is fastened in the head with a snap. The sensor cable is lead through the lower site of the head in a PG-bushing. The sensor head is terminated at the top by a sealable cover. Types with 3 sensors consist of a sensor pair with red / blue type sign and an extra sensor with grey type sign.

Integrated functions that are not under the Measuring Instruments Directive:

The temperature sensors are also type tested as a cooling and as combined Heating/Cooling sensors according to EN 1434:2007, and can therefore be used as so, under the nominal operating temperatures as described in Technical data in this Certificate.

#### **Technical documentation:**

FORCE Certification A/S File no. 80.970.6-005C/06 and reference no. 113-21029.0004.0001.

#### **Technical data:**

Instrument type: Temperature sensor set

##### Type numbers

Temperature sensor set type PL-Cable

65-00-0A0-XXX<sup>1)</sup>, Pt500 pocket temperature sensor set (2 pcs) with 1.5 m silicone cable  
65-00-0B0-XXX<sup>1)</sup>, Pt500 pocket temperature sensor set (2 pcs) with 3.0 m silicone cable  
65-00-0C0-XXX<sup>1)</sup>, Pt500 pocket temperature sensor set (2 pcs) with 5.0 m silicone cable  
65-00-0D0-XXX<sup>1)</sup>, Pt500 pocket temperature sensor set (2 pcs) with 10 m silicone cable  
65-00-0L0-XXX<sup>1)</sup>, Pt500 pocket temperature sensor set (3 pcs) with 1.5 m silicone cable  
65-00-0M0-XXX<sup>1)</sup>, Pt500 pocket temperature sensor set (3 pcs) with 3.0 m silicone cable  
65-00-0N0-XXX<sup>1)</sup>, Pt500 pocket temperature sensor set (3 pcs) with 5.0 m silicone cable  
65-00-0P0-XXX<sup>1)</sup>, Pt500 pocket temperature sensor set (3 pcs) with 10 m silicone cable

Temperature sensor type DS-Cable

66-00-0F0-XXX<sup>1)</sup>, Pt500 direct short, temperature sensor set (2 pcs) with 1.5 m silicone cable  
66-00-0G0-XXX<sup>1)</sup>, Pt500 direct short, temperature sensor set (2 pcs) with 3 m silicone cable  
66-00-0Q3-XXX<sup>1)</sup>, Pt500 direct short, temperature sensor set (3 pcs) with 1.5 m silicone cable  
66-00-0Q4-XXX<sup>1)</sup>, Pt500 direct short, temperature sensor set (3 pcs) with 3 m silicone cable

Sensor pockets PL-Cable

65-57-324, RF sensor pocket, 65 mm with R $\frac{1}{2}$  connection  
65-57-325, RF sensor pocket, 65 mm with G $\frac{1}{2}$  connection  
65-57-327, RF sensor pocket, 90 mm with R $\frac{1}{2}$  connection  
65-57-328, RF sensor pocket, 90 mm with G $\frac{1}{2}$  connection  
65-57-309, RF sensor pocket, 90 mm with R $\frac{1}{2}$  connection  
65-57-314, RF sensor pocket, 140 mm with R $\frac{1}{2}$  connection

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Insert temperature sensor type PL-Head

65-56-40-XXX<sup>1)</sup>, Pt500 sensor insert (2 pcs) for sensor pocket with connecting head.

Is used for sensor pockets PL-head with a length of 90, 140 and 180 mm.

Sensor pockets PL-Head

65-56-02-XXX<sup>1)</sup>, Sensor pocket with connection head, 90 mm with R1/2 connection

65-56-03-XXX<sup>1)</sup>, Sensor pocket with connection head, 140 mm with R1/2 connection

65-56-04-XXX<sup>1)</sup>, Sensor pocket with connection head, 180 mm with R1/2 connection

<sup>1)</sup> XXX = Delivery code. Temperature sensor set type PL and DS-Cable also available as type no. 67-0000-0YY-XXX. YY=A0/B0/C0/D0/L0/M0/N0/P0/F0/G0/Q3/Q4.

-Limits for temperature ranges and differential temperatures:

θ: 2...150°C, Δθ: 3...140K

θ: 10...150°C, Δθ: 3...140K

θ: 20...150°C, Δθ: 3...130K

- Maximum permissible working pressure:

Sensor pockets PN25

Short, direct sensor PN16

- Number of wires:

2 wire connection

Conductor cross section, cable type PL = 0.25 mm<sup>2</sup>

Conductor cross section, cable type DS = 0.25 mm<sup>2</sup>

Conductor cross section, insert PL-head = 0.25 mm<sup>2</sup> (2 or 4 wire connection in head)

- Sensor type:

Pt500, with five times resistance value of Pt100 according to EN60751

- Maximum sensor current:

0.1 mW RMS

-Durability specification:

12 years

-Installation demands:

According to EN1434-2:2007, temperature sensor type DS

-Minimum submersion depth:

Temperature sensor type PL-Cable

(Insert temperature sensor type PL-head) 25 mm

Temperature sensor type DS-Cable 17 mm

## Verification

Verification procedure

According to EN1434-5:2007 and EN1434-1:2007

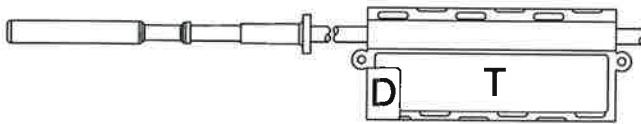
## Seals and markings

Temperature sensor pair

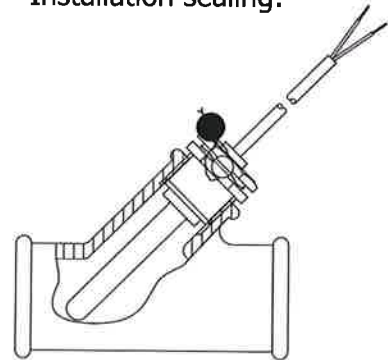
Seals and markings

- S** Security seals
- D** Security seals or module D/F label (Depending on type label)
- T** Type label

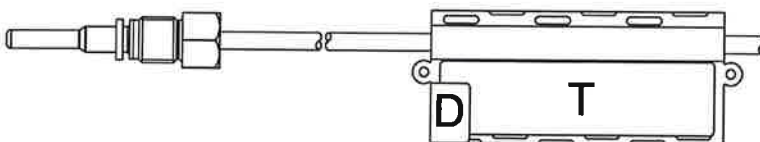
Temperature sensor, PL:



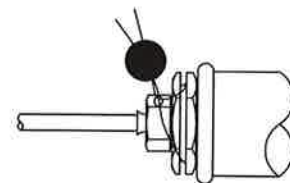
Installation sealing:



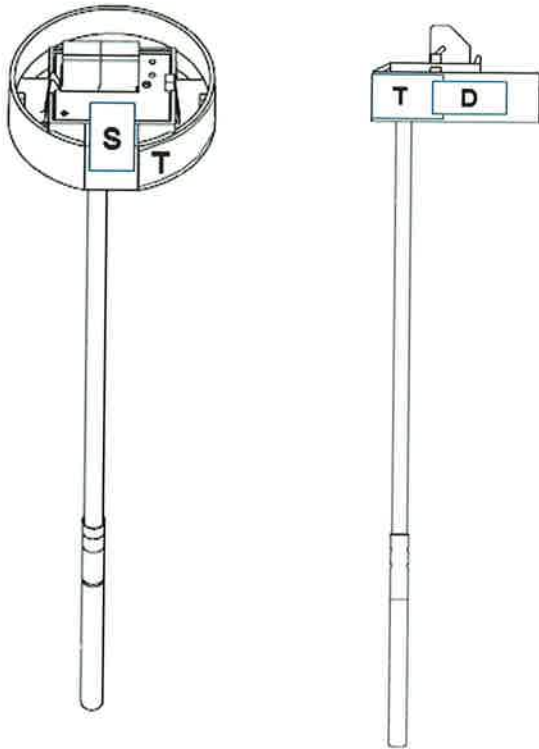
Temperature sensor, DS:



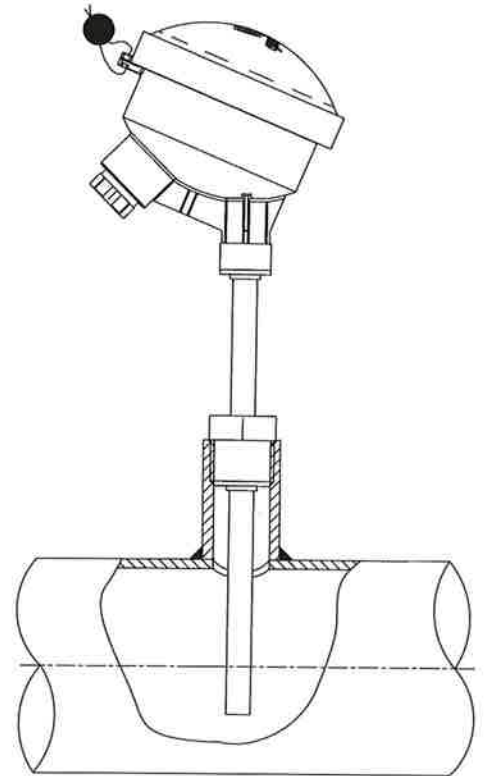
Installation sealing:



Temperature sensor with integral pocket:



Installation sealing:



## Labelling and inscriptions

### Type label

Examination certificate number

Manufacturer designation or logo

Type, production year and serial number

Temperature limits ( $\Theta_{\min}$  -  $\Theta_{\max}$ )

Differential temperature limits ( $\Delta\Theta_{\min}$  -  $\Delta\Theta_{\max}$ )

Temperature sensor type

Mounting in forward or return pipe

DS-cable and pockets with connecting head: Maximum working pressure (PN16 or PN25)

Pockets for pl-cable: I $\varnothing$ : 5.8

PL-cable: D: 5.8