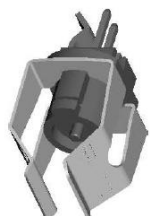


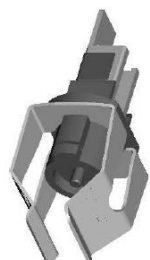
CONTACT TEMPERATURE PROBE TYPE ST11



ST11



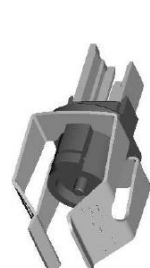
ST11 L



ST11 M/1



ST11 F



APPLICATION

This temperature probe is suitable to equip temperature adjustment systems installed in hot water generators for heating and domestic use, such as:

- Wall-hung boilers;
- Floor-standing boilers;
- Water heaters;
- Instantaneous water heaters;

FEATURES

It is called a "contact probe" simply because it is placed in contact with the pipe or the container of the fluid to be controlled.

The probe type ST11 is provided with the following features:

- The reaction time of a contact probe is comparable to the time of an immersion probe (see technical data);
- Easiness of installation..

TECHNICAL DATA

- Class III (rif. EN 60730-1)
- Operating temperature -20°C ÷ +105°C
- Reaction time < 2 seconds
- Average reaction time 1,5 seconds (approx.)
(The reaction time is reduced of about 30% if conductive silicone paste is placed in the contact area between the probe and the pipe)
- Sensor NTC thermistor
- Resistance value at 25°C (R₂₅) 10 kΩ ± 1%
- β coefficient (25°C-85°C) (*) 3435k ± 1%
3977k ± 1 opt Z
- Insulation voltage 500 V

(*)Possible versions with different NTC upon request.

FORMULAS

The following formulas allow to calculate the resistance value of the NTC sensor at a T temperature expressed in Kelvin degrees:

NTC β (25°C-85°C) 3435K ± 1%

$$R_T = R_{25} \cdot e^{[\beta(\frac{1}{T} - \frac{1}{T_{25}})]}$$

Example: calculation of the probe resistance value at a temperature of 60°C:

$$R_{60} = 10000 \cdot e^{[3435(\frac{1}{(60+273.15)} - \frac{1}{(25+273.15)})]} = 2980\Omega$$

CONSTRUCTION

The probe is made of a copper body placed in direct contact with the pipe; the thermistor is perfectly fixed to the metal body by means of an epoxy resin with high thermal conductivity.

Thanks to two fast-on terminals, protected by a thermoplastic cylindrical body or a cable, it is possible to obtain a resistance value which is inversely proportional to the measured temperature.

CONNECTIONS

The ST11 probe can be supplied in different versions. The available connections are the following:

- Molex connector code 09-65-2028 (model ST11, see Fig.1);
- Lumberg connector type MSF p.2,5 (model ST11 L, see Fig.2);
- AMP MODU1 connector P.3,96 (model ST11 M/1, see Fig.3)
- Fast-on terminals 2,8x0,5mm (model ST11 F, see Fig. 4);
- Cable and Rubber protection as accessory for ST11 F (see Fig. 6 and Fig. 7).

OVERALL DIMENSIONS

ST11

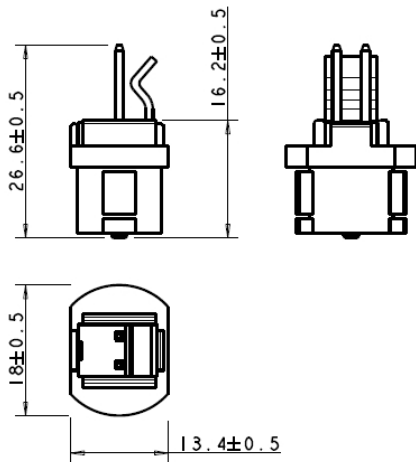


Fig. 1

ASSEMBLY

ST11 can be fixed to pipes having a diameter of 12mm, 14mm, 16mm, 18mm or 20mm by means of a fixing clip as shown in Fig.5. This clip is available in two versions: for tubes from 12-14mm and 16-18mm, it's easily removable and, according to the pipe on which it is to be mounted, is inserted in the first or second position of the probe (see Fig. 5). In order to improve the thermal contact, conductive paste can be placed between the probe and the pipe.

ST11 M/1

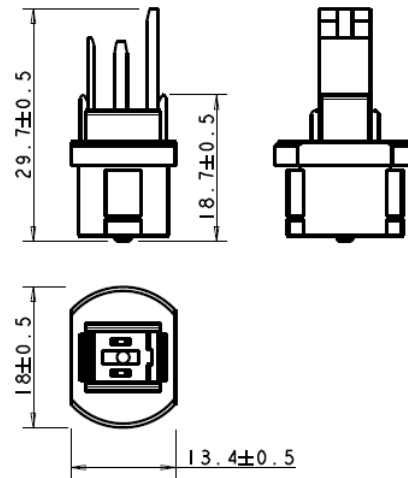


Fig. 3

ST11 L

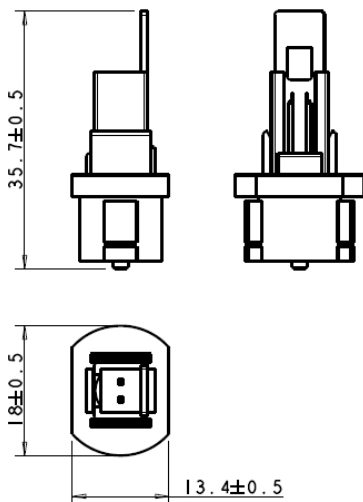


Fig. 2

ST11 F

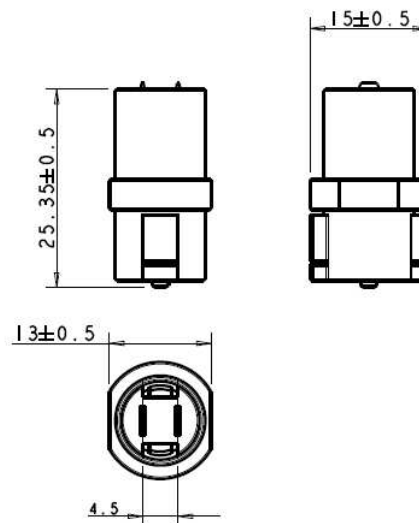


Fig. 4

ACCESSORIES

- Fixing clip (Fig. 5).

The clip for tubes from 12-14mm is mounted on the first position of the probe (left figure) while the clip for pipes from 16-18mm is mounted on the second position of the probe (right figure)

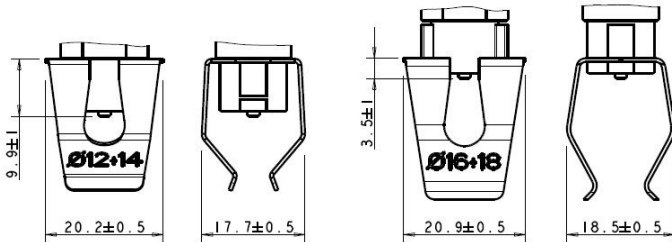


Fig. 5

- Connection cable (Fig. 6)

The connection cable for ST11 F has a standard length of 850mm and is designed to ensure a connection with IP54 protection. It's provided with plug black or blue, in order to distinguish the probe dedicated to the water for domestic use from the one dedicated to the water for heating.

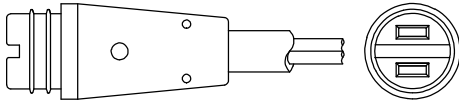


Fig. 6

- Rubber protection (Fig. 7)

The rubber combined with ST11 F allows for a degree of protection IP54 using any cable connection ST11.

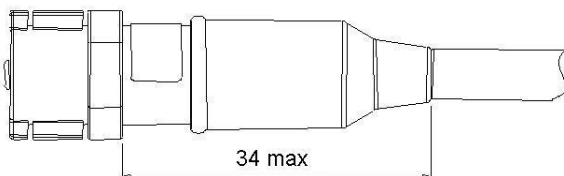


Fig. 7

PART REFERENCES

Sonda Temp. ST11	X₁	X₂	X₃	
				→ No letter: Without clip
				C14: Mounting Clip for pipes 12÷14mm
				C18: Mounting Clip for pipes 16÷18mm
				→ No letter: 2-POLE Molex connector CS 5273 (cod MOLEX 09-65-2028)
				L : Connector type Lumberg MSF p.2,5
				M/1: 2-POLE AMP MODU 1 connector P.3,96
				F : 2,8X0,5mm fast-on terminals
				CXXX: Cable connection, cable length XXX cm. including rubber protection
				→ No letter: NTC 10K β 3435
				Z: NTC 10K β 3977

Example:

- **SONDA TEMP.ST11 Z F C14**
SONDA TEMP.ST11 Temperature probe type ST11
Z With 10K NTC having β 3977
F Connection through 2,8x0,5mm fast-on terminals
C14 With mounting clips for pipes with a diameter of 12 to 14mm
- **SONDA TEMP.ST11 C100**
SONDA TEMP.ST11 Temperature probe type ST11
C100 With 10K NTC having β 3435
- Connection through 100cm cable
- Without clip

NOTE: All dimensions in this document are in mm

ATTENTION: Company Brahma S.p.A. takes no responsibility for any damage resulting from Customer's tampering with the device.

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