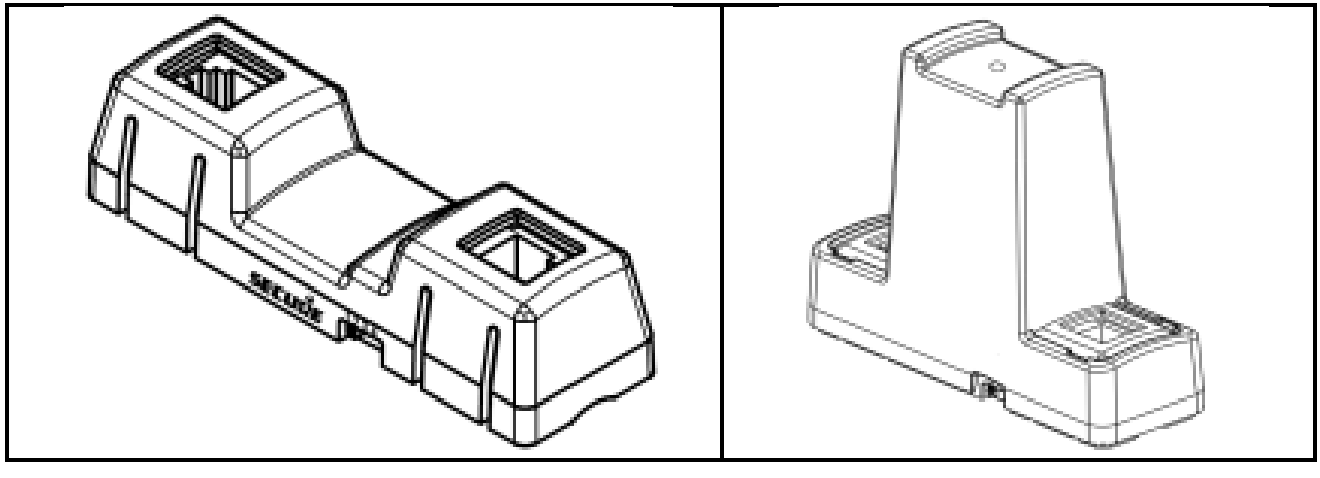
# SES 002

Pipe/ Tank Temperature Sensor with
1-metre long cable

# SES 003

Pipe/ Tank Temperature Sensor with
4-metre long cable



# User and Installation Instructions

BGX501-953-01

# SES 002 and SES 003

SES 002 and SES 003 are wired temperature sensors designed to measure surface temperatures of hot water flow pipes and hot water tanks in central heating applications. They are used with an SES 302 or SES 303 in a Z-Wave network.

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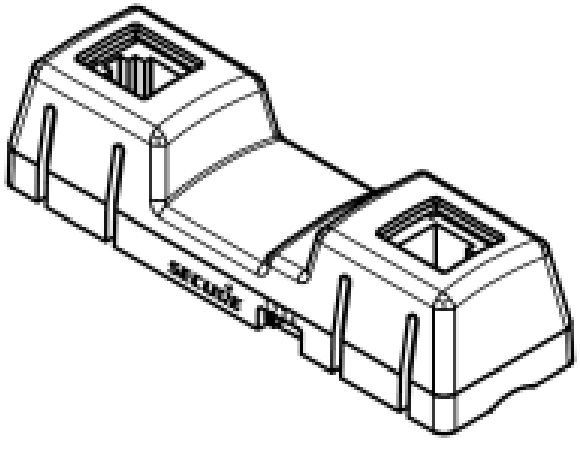
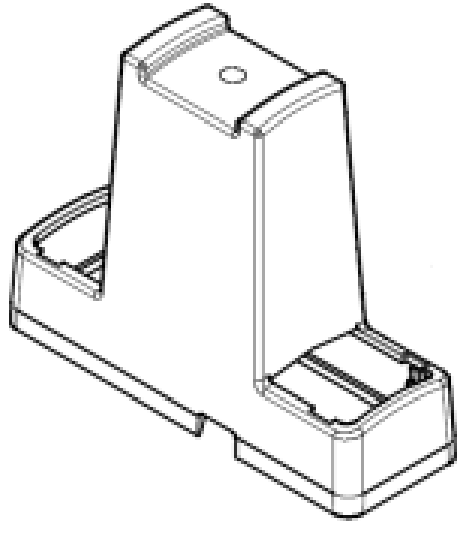
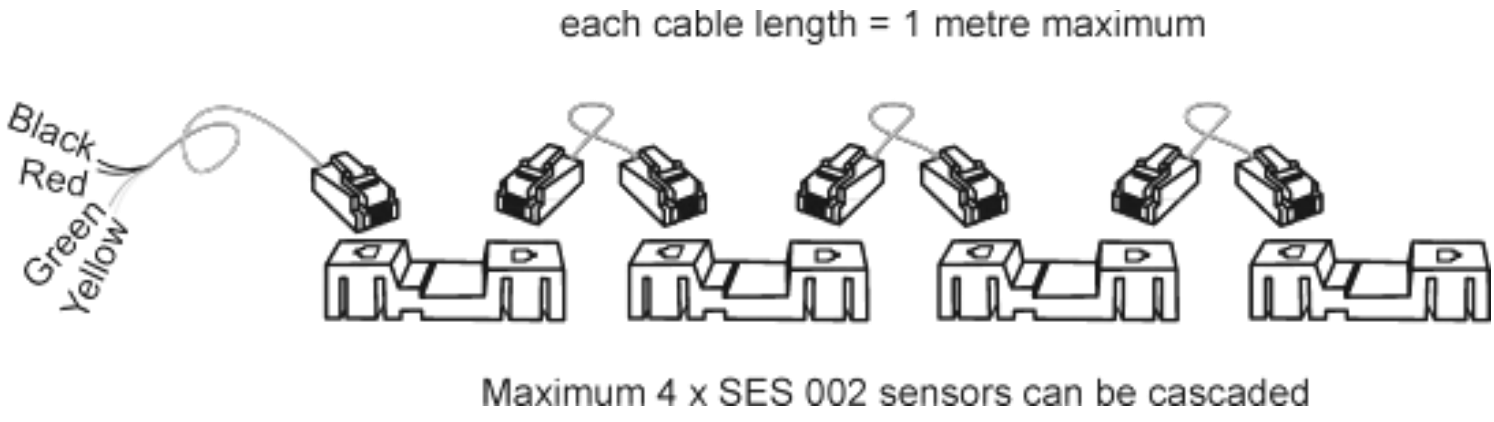
|  |  |
| Pipe Sensor | Tank Sensor Housing |

The supplied tank sensor housing is used over the pipe sensor housing for water tank temperature measurement applications.

The SES 002 is supplied with a 1-metre long cable and the SES 003 is supplied with a 4-metre long cable. The cables have an RJ10 male connector at one end and stripped wires at other end. The SES 002 and SES 003 are identical except for the length of the cables.

The SES 302/SES 303 can support up to four cascaded (daisy-chained) SES 002 sensors. Only use the supplied 1-metre cable with the RJ10 male connectors at each end.

The SES 003 does not support cascading hence it is not supplied with a RJ10 to RJ10 cable. Only one SES 003 can be connected with the SES 302/SES 303.




Note:

1. Either SES 001 or SES 002 or SES 003 can be connected with SES 302/SES 303 at a time. Combinations are not permitted.

2. In SES 002 sensor’s chain length cannot exceed four metres.

# Installation

We recommend that the installation and connection should be carried out by a suitably qualified person.

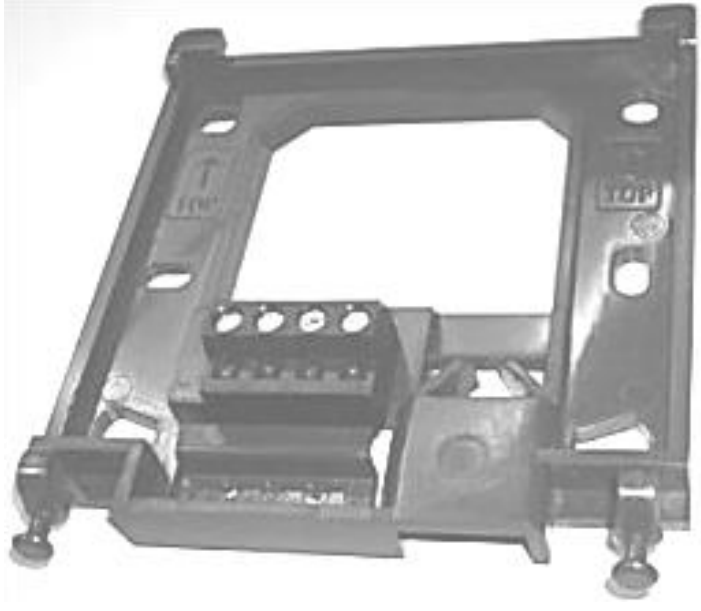
If the SES 302 or SES 303 is already fixed to a wall, you will need to remove it from its back plate. This is done by simultaneously pressing the two black push buttons on the bottom of the back plate. Use a small tool to release the SES 302/SES 303 and ease out from the bottom. Now unscrew the back plate from the wall.

If this is a new SES 302/SES 303, simply remove the back plate by simultaneously pressing the two black push buttons on the

bottom and easing it away from the SES 302/SES 303.

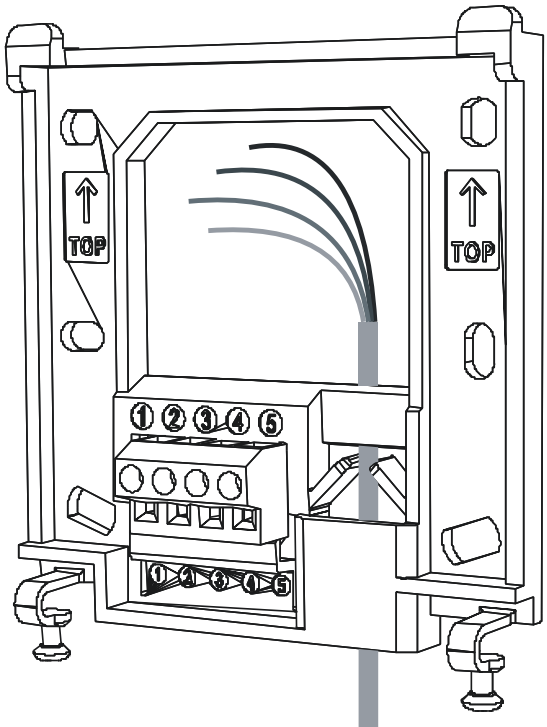
The back plate has a four-pin electrical connector. The connector block can be removed from the back plate by releasing the locks on the reverse side of the plate. A flat screwdriver will

help you tease the locks free. Be sure to keep the connector block in a safe place.

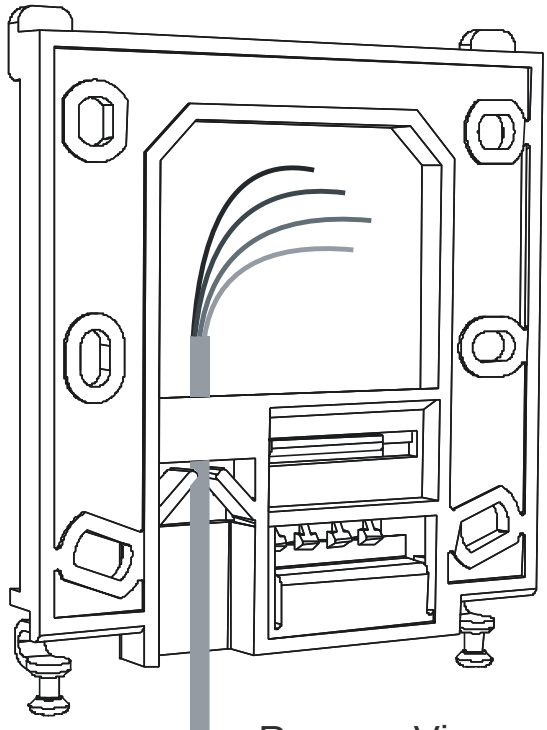
| | |
|---|---|
|  |  |
| Back plate with connector block | Back plate with connector removed |

Note that the electrical connections (2-5) are marked on the back plate.

Use the supplied RJ10 cable with an open end that is packed with the SES 002/SES 303.



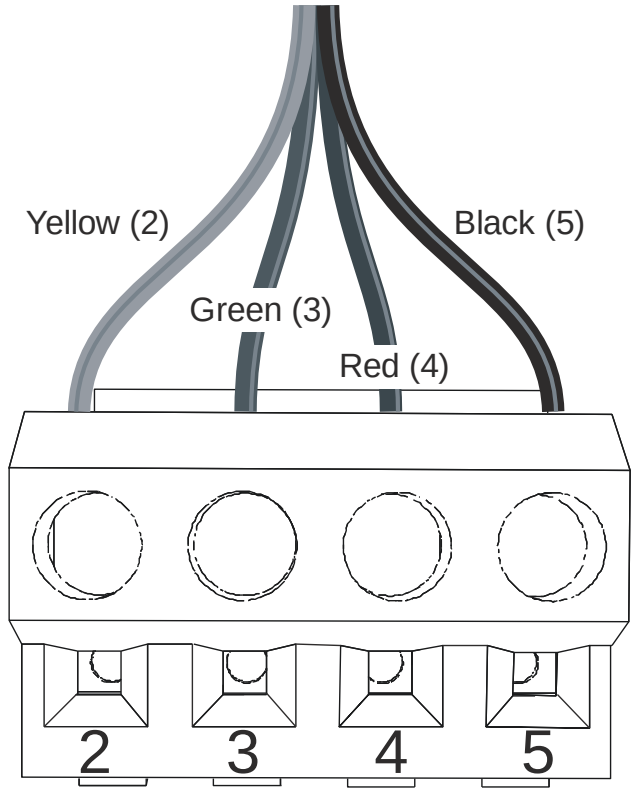
Front View


Reverse View

Refer to the diagrams above. Feed the stripped end of the RJ10 cable through the cable guide (see reverse view). Pull through a sufficient working length of cable.

The RJ10 telephone cable should now be threaded into the back plate in a safe and secure manner and will not be crushed when the back plate is screwed against the wall.

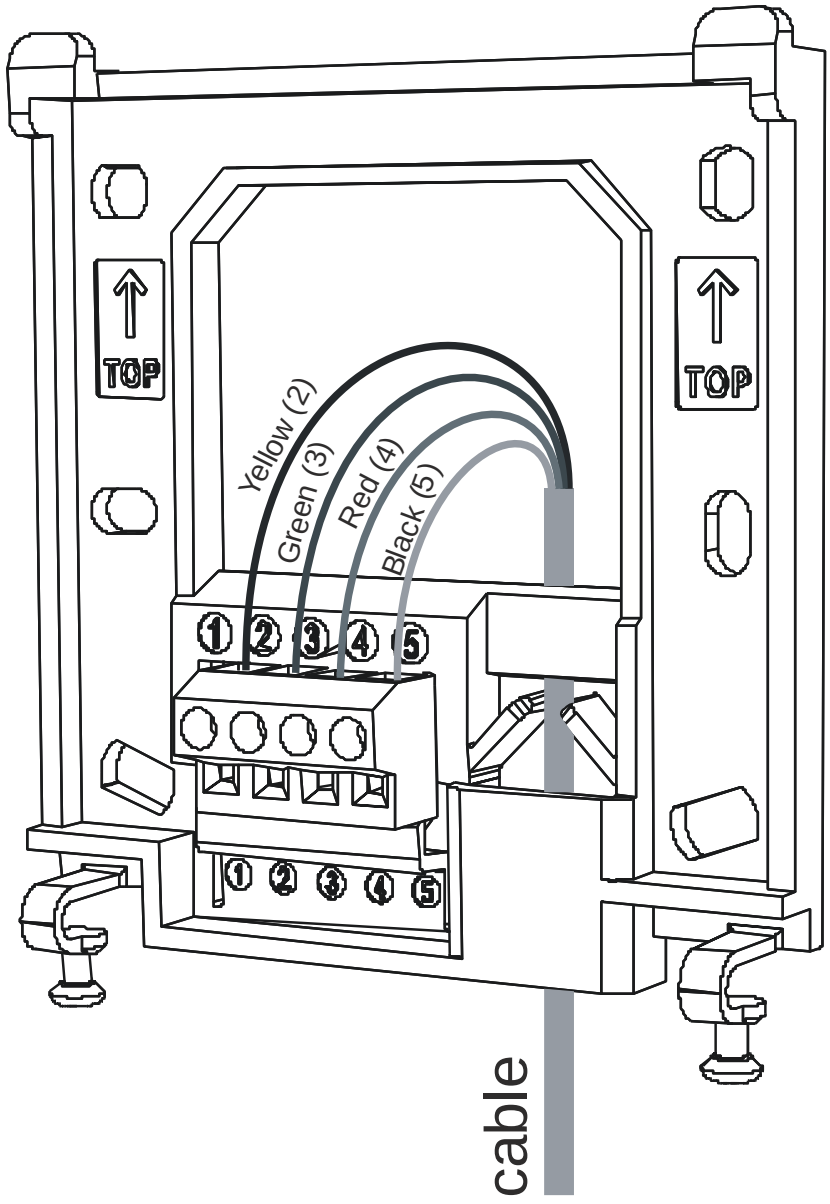
Now insert the stripped copper ends of the RJ10 telephone cable into the connector block. Be careful not to over tighten the screws as this can damage the connector block and the cable. Refer to the picture and connection table.



| Connector Pin | RJ10 cable wire colour used for SES 002/ SES 003 |
|---|---|
| 2 | YELLOW |
| 3 | GREEN |
| 4 | RED |
| 5 | BLACK |

Note:

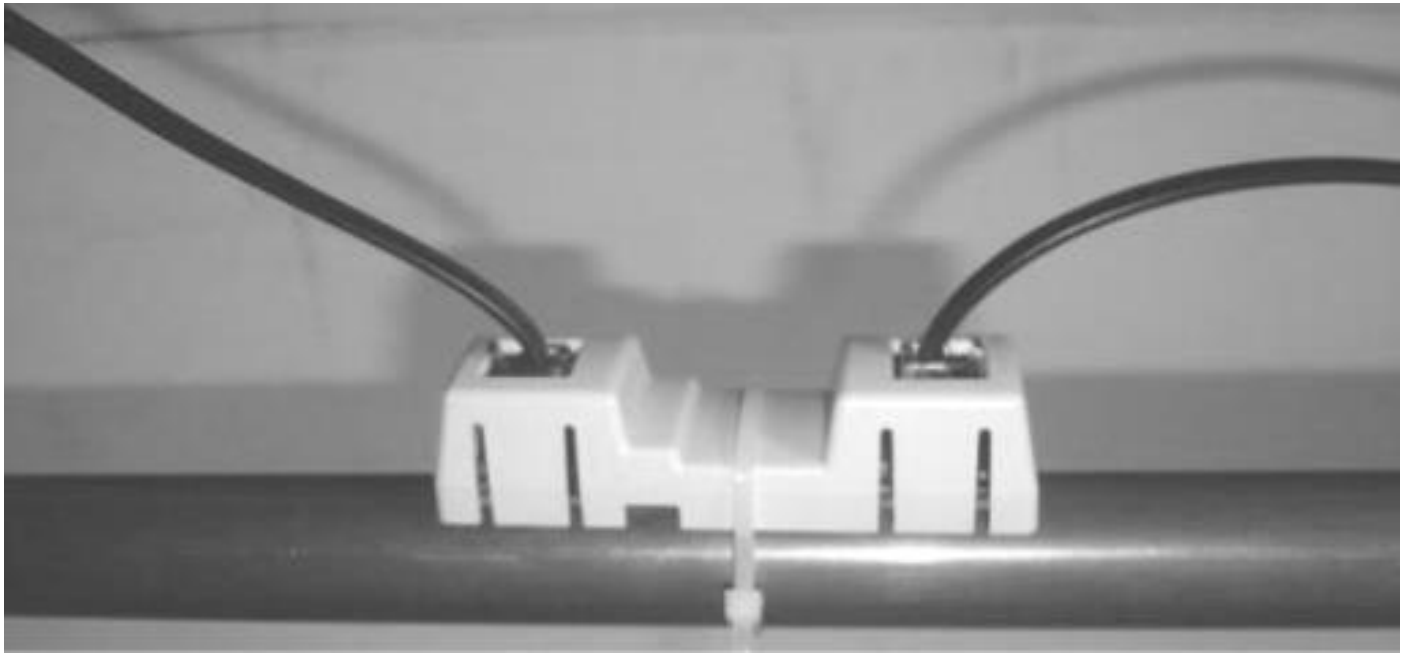
To connect external sensors (SES 002/SES003) with SES 302/SES 303 in Z-Wave network, first make sure that SES302/SES303 is excluded from Z-Wave network. If it is not excluded, then exclude it from Z-Wave network, and include SES302/SES303 (after connecting external temperature Sensors) in Z-Wave network.




After establishing good and reliable electrical connection of RJ10 telephone

cable with the four-pin black female connector, attach it to the four-pin metallic male connector which is provided on backside of SES 302/SES 303. Keep the RJ10 wire exit in the up direction. Fit the supplied batteries.

Now insert RJ10 end of this telephone cable into the pipe/ tank sensor (either socket). The other socket can be used to connect with a second pipe/ tank sensor (daisy chain). The second telephone cable with RJ10 connectors at both ends is supplied for this purpose.



Up to four pipe or tank sensors can be daisy chained in this manner. Each sensor must have a unique logical address, set in an increasing order from hardware address 1 (e.g. if you have only 2 external sensors these must have address 1 and 2, not 3 & 4, 1 & 3, 2 & 3 or 1 & 4) otherwise the SES 302/ SES 303 will not detect them. The address is set by sliding the side button on each sensor.

Include SES 302/SES 303 in a Z-Wave network to detect SES 002/SES 003.

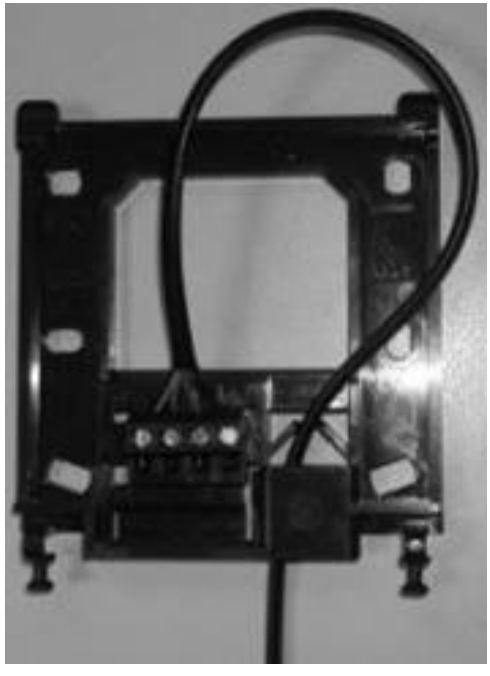
Note: If you wish to add a new sensor to an existing Z-Wave network, you will need to Exclude then Include the SES 302/SES 303.

This way the new sensor will be detected and included in the Z-Wave network.

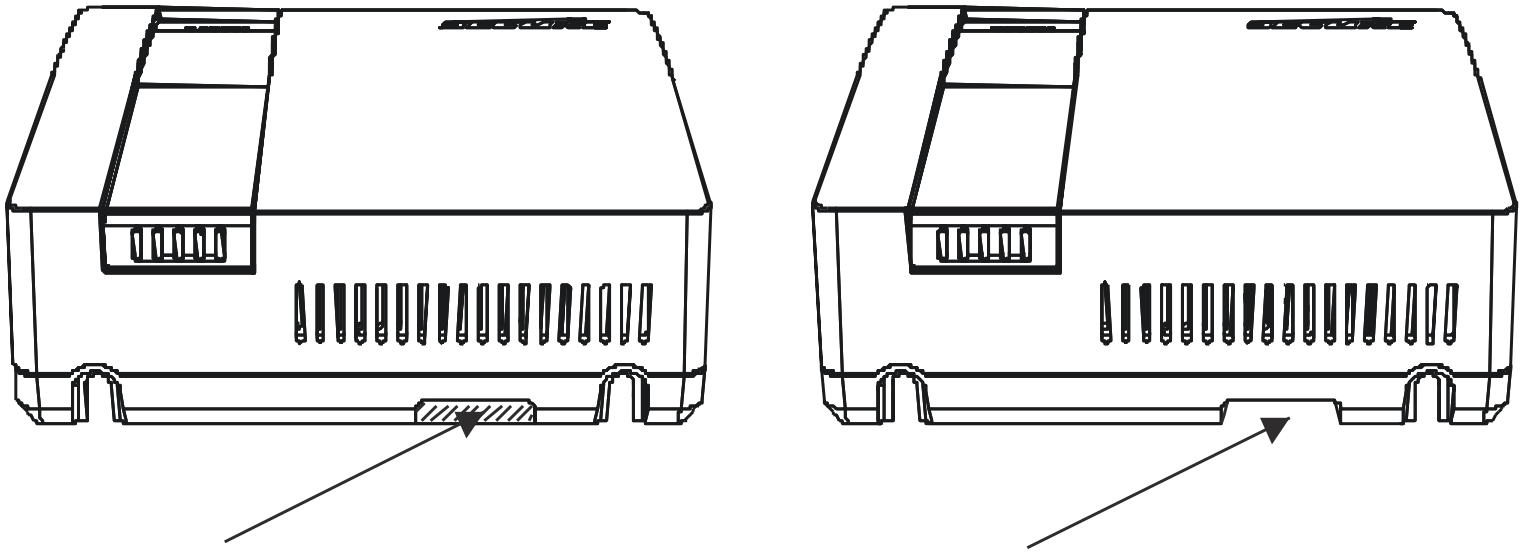
Refer SES 302/ SES 303 user's manual for include operation.

After successful inclusion of all SES 002/ 003 with SES 302/ SES 303 in the formed chain, detach the four-pin black, female connector carefully from the four-pin metallic

male connector of the SES 302/ SES 303. Keep the SES 302/ SES 303 in a safe place. Press fit the four-pin black-connector back onto the back plate. Carefully and gradually, pull the telephone cable through the back plate to take up the slack cable.



Make a communication cable entry path in back side of SES 302/ SES 303 by cutting thin plastic wall as shown below:




Screw the back plate onto the wall.

Double-check that the batteries are firmly inserted. Fit the SES 302/ SES 303 onto its back plate by inserting it onto the two black tabs at the top of the back plate and rotating into position. Push fit until you hear a click. Check to make sure it is secure.

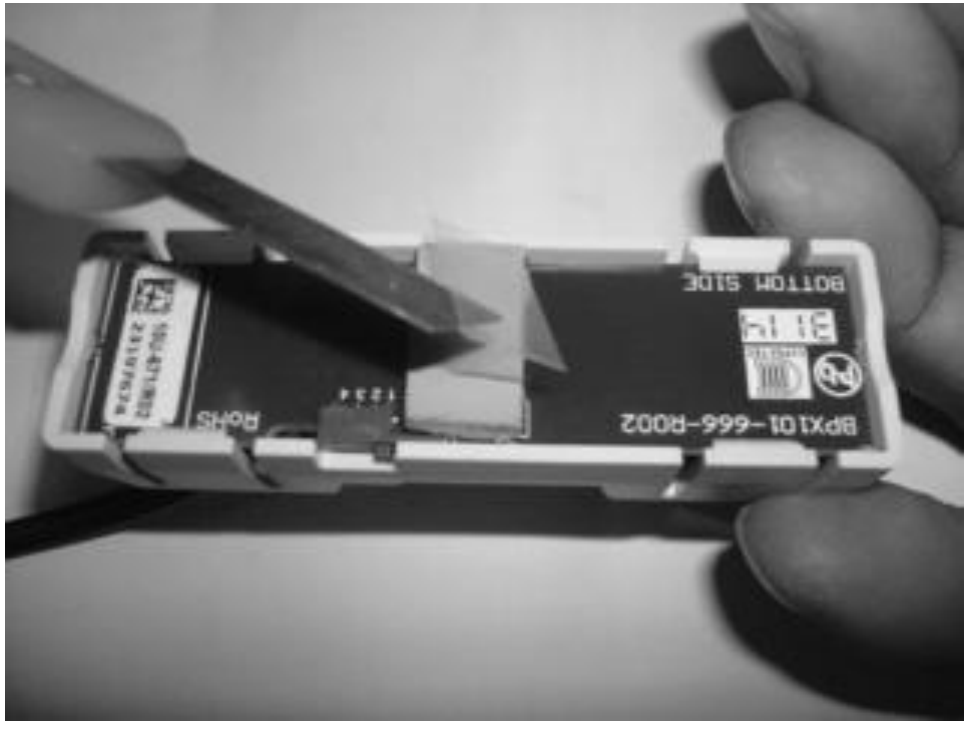
The tank temperature sensor is fitted directly against the metal tank wall. You will therefore need to remove a small section of the tank insulation.

Hold the tank sensor plastic housing against the insulation and mark an outline.

Remove the insulation from within your mark to expose the bare metal of the tank. Be careful not to damage the tank.

Rub and clean the metal surface of tank to establish good contact with the thermal pad provided at bottom of pipe/ tank sensor. More pieces of insulation

can be removed for chain installation of SES 002. Peel off thin plastic cover from the thermal conductive pad which is affixed at bottom side of pipe sensor. Now insert this pipe sensor housing into tank sensor housing to convert it into tank sensor.



Attach the RJ10 cables and carefully insert tank sensor into uncovered space, which you prepared earlier. Keep the thermal conductive pad towards the copper pipe/ boiler tank and press gently and gradually until it appears stable over the installation surface.

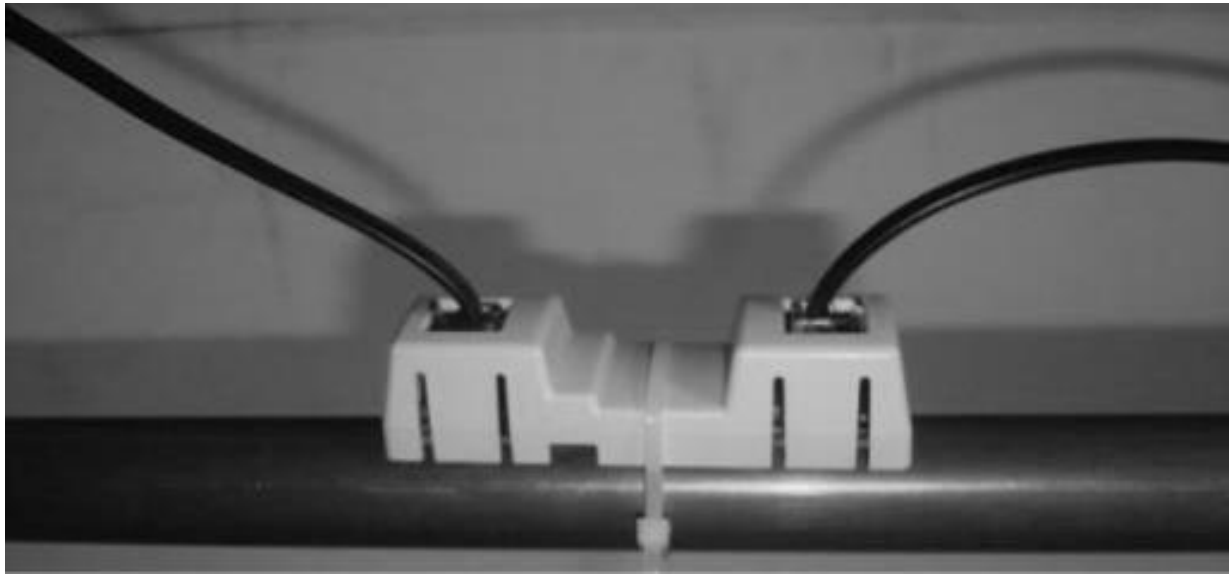
Pack the gaps with the leftover pieces of insulation and adhesive that you removed earlier. Use pull-string to hold tank temperature sensor on hot water tank to complete the installation.

For a daisy chain installation of pipe/ tank sensors, it is important that you do not disturb the slider button positions, otherwise none of any SES 002 sensors will communicate.

For pipe temperature sensor, the sensor must be fitted directly against the bare pipe. Remove any insulation from the covered pipe to allow the sensor direct contact. Rub and clean the metal surface to ensure good contact. Nothing is to be removed in case of uncovered pipes.

Peel off the thin plastic cover from the thermal conductive pad that is affixed at

bottom side of pipe sensor. Now carefully place pipe sensor at the uncovered surface of copper pipe. With the thermal conductive pad facing towards the copper pipe, press gently and gradually until it appears stable over the installation surface. Use the tie-wrap to hold the pipe temperature sensor permanently on the pipe. Attach the RJ10 cables.



Finally, check the temperature readings of the SES 002/ SES 003 on the ZW controller.

# Technical specifications

## Measurement

Temperature Accuracy:

SES 002/SES 003: ±0.5°C for 0°C to 65°C
±1°C for 66°C to 85°C

## Mechanical

Dimensions:

SES 002/SES 003:

Pipe Sensor - 20mm (H) x 79mm (W) x 24mm (D)
Tank Sensor - 69mm (H) x 83mm (W) x 28mm (D)

Case Material:

SES 002/SES 003: Thermoplastic, flame retardant

SES 002/SES 003 ball pressure test temperature: 75°C

Weight:

SES 002: 180 ±30g
SES 003: 200 ±30g

# Environmental

| | |
|---|---|
| Storage temperature: | -20°C to 85°C |
| Operating temperature: | 0°C to 85°C |
| Environmental humidity range: | 0%RH to 95%RH |
| Atmospheric Range: | 980 to 1035 hPa |

# Compliance

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