Temperature switch / controller
TS 550 FC

Replaces all previous types TS334F and TS334FS regardless switch point etc.

Electronic temperature switch with 2 set points and 2 PNP/24 Volts power outputs.

Build-in controller for automatic water separator on steam strings.
Large energy savings by steam sterilization process pipes etc.

Clamp-on temperature measurement / controller. Measure on pipes from DN4 and upwards. From DN4 to DN8 a special centering and insolating adaptor ADPT-04 should be used

Can both be used as a thermostat with 2 set points and 2 outputs, or as water separator controller, where output 2 control the water separator valve and output 1 indicates that the value is ≥ the temperature to be maintained .
Set point 1 (SPt1) will then be sterilization temperature (e.g. 121°C) and set point 2 (SPt2) will be the action temperature (is there steam on the string or not?, e.g. 80°C)

Quick setup with simple windows software by connecting the PC USB port directly to the device´s M12 connector (4 pole).

Technical data:

Supply voltage	: 24VDC ± 15% (but can operate down to 12 VDC)
2 PNP outputs	: 24VDC max 500 mA (short-circuit safe) Free choise of direct or inverted function
Measuring range °C	: -40°C til 180°C, configuration resolution = 0.1°C (IEC 751)
Ambient temperature coefficient	: ≤ ± 0.002 % F.S. / °C (from -30 to +80 °C)
Hysteresis from on to off	: Free configurable by 0.1°C resolution. Symmetrical around set point´s value, minimum value = 0,2°C
Temperature sensor	: PT100, 1/3 din B curve (accuracy in °C better than ± (0,1+(measured temperature x 0,0017))
Accuracy on electronic	: Better than ± 0.1 °C, according to the IEC 751 standard
Calibration facilities	: With PC connected, Off set and Gain can be adjusted (with Off set = 0,00 °C and Gain = 1,0000 the IEC 751 standard is followed).
Measuring error due to thermal loss	: Measured value -0,35%
(Adjusted with advantage during setup of the sensor, Sensor factor (Jtf) = 1.0035)	
2 color LED indication	: LED(green/red) in the side of the house indicates the device phases during operation.
Physical dimensions mm	: B x H x L / 22 x 30 x 38
Protection Class	: IP 68

Connection:

4 pole M12 connector (male) in house.

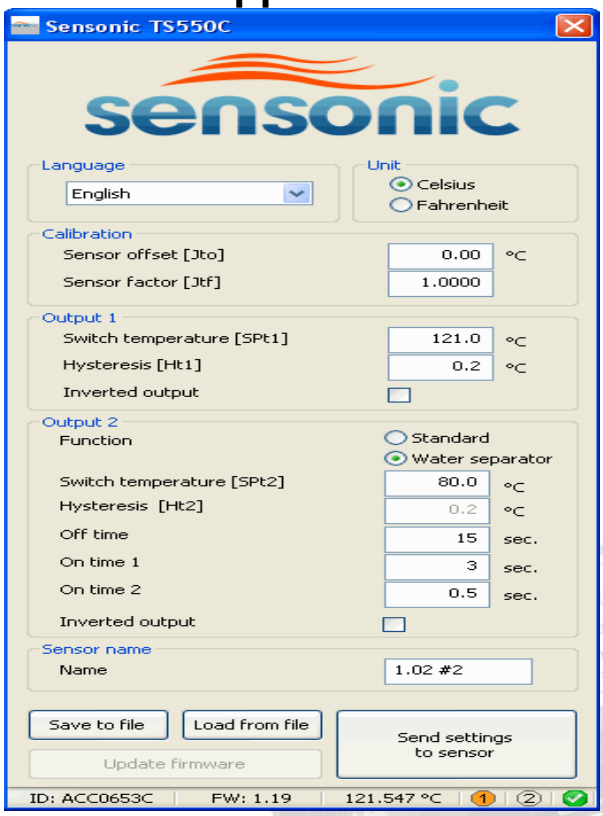
Pin 1	24VDC
Pin 2	PNP out 1 (max 500mA)
Pin 3	0 V
Pin 4	PNP out 2 (max 500mA)

Flip →

SenSonic ApS, Storkevang 10, 3450 Alleroed, Denmark e-mail: info@sensonic.dk | www.sensonic.dk

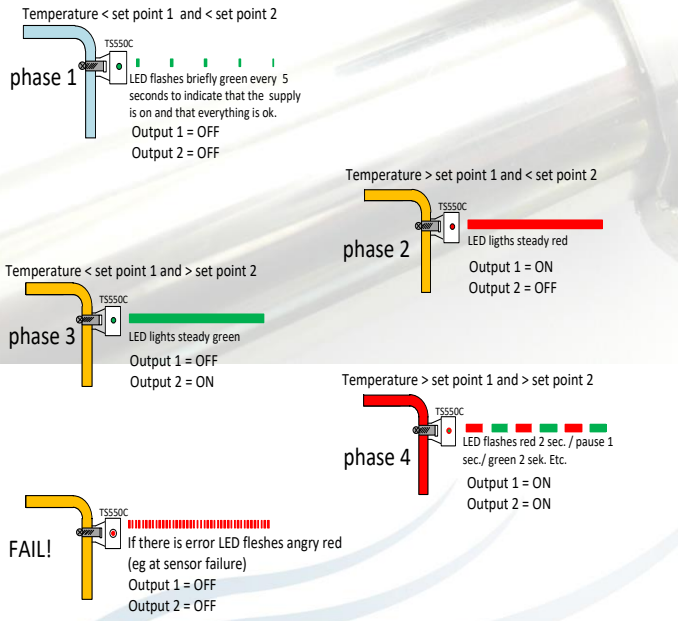
Tlf: +45 2011 6915

Windows Application

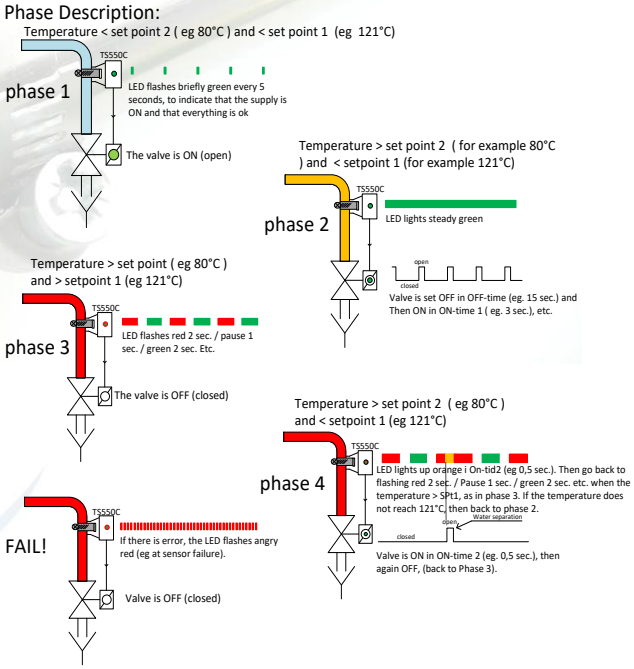


Unit

Phase Description standard function (invertet output not activatet)



Phase Description water separator function (invertet output not activatet)



Flip →

SenSonic ApS, Storkevang 10, 3450 Alleroed, Denmark e-mail: info@sensonic.dk | www.sensonic.dk

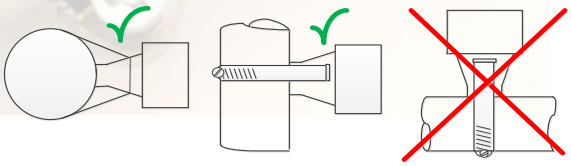
Tlf: +45 2011 6915

Confuguring the TS550FC

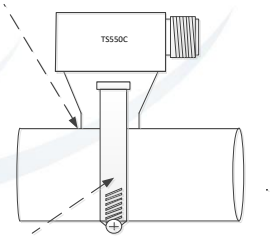
1. Go to Sensonic´s webside www.sensonic.dk
2. Click on the picture of TS550FC - and look at the bottom left of the page.
3. Click on Download PC application to TS550C (zip) or Download PC application to TS550C (exe)
4. Connect the programming cable to your PC USB port and M12 connector to TS550C.
5. TS550FC ´s data is now automatically uploaded to the PC application. In the status bar in the bottom, you can read the devices´s ID no. (ID) , Firmware version (FW), Temperature and status for the 2 PNP outputs 1 and 2 (orange when ON)
6. Now you can enter new setpoint values in the various fields. Hysteresis values (Ht1 and Ht2) is symmetrical around the set points (SPt1 and SPt2). The newly entered values are first sent to TS550FC when clicked the send settings to sensor.
7. **Invertet output:** With invertet output selected (checkbox set), the output is off when the temperature is > selected Switch temperature (Spt1 or Spt2). when inverteret output is not selected (checkbox not set), the output is on, when the temperature er > selected Switch temperature (Spt1 eller Spt2).
8. **Calibration:** Usually, it will not be necessary to perform a calibration, if the Sensor factor (Jtf) is set to 1.0035.
   If you decide to perform a calibration, follow the method below.
   With the Sensor offset (Jto) standing at 0,00°C and Sensor factor (Jtf) standing at 1,0000 is the IEC751 standard followed, and these values should be the basis values for the calibration.
9. **Calibration:** Mount the TS550FC on a known surface temperature in the lower part of the measuring range eg 0,00 °C, (or it could be ice water under stirring). If the the display in the status bar for examble shows + 0,18 °C, then enter -0,18°C in the Sensor offset field (Jto) and click send settings to the sensor. Then mount the TS550FC on a known temperature in the upper part of the measuring area eg 100,00 °C. If the the display in the status bar for examble shows + 99,70 °C, then enter 100 / 99,70 = 1,0030 in the Sensor faktor field (Jtf) and click send settings to the sensor.
10. **Water separator funktion:** When the water separator funktion is selected under output 2, hysteresis (Ht2) is not to be changed, but is fixed at 0,2°C. In addition the SPt2 should be < than Spt1. Now Off time 1, On time 1 and On time 2 is active and may be changed as desired. Finishing by click send settings to the sensor.
11. Your programming data, sensor name, such as TAG. No. (max 10 characters) can be saved to file and also retrieved from file to TS550FC. When a file is retrieved it must subsequently be send to the sensor send settings to sensor.

MOUNTING INSTRUKTIONS:

When mounting onto a pipe, where the temperature exeeds 120 °C, followe the instruktions on the drawing →
If the pipe is insulated, keep the electronic part outside the insulation.



Heat conducting paste, type HTSP (-50 – 200 °C) is applied to the sensor before mounting (0,01 ml.)



Fasten to the pipe with steel string band, tighten the string band so that the sensor is absolute fastened to the pipe Sensor Bracket type LHRS-345 is recommended (FDA), if the sensor regularly and quickly have to be mounted and dismounted, in exactly the same position. (see mounting accessories)

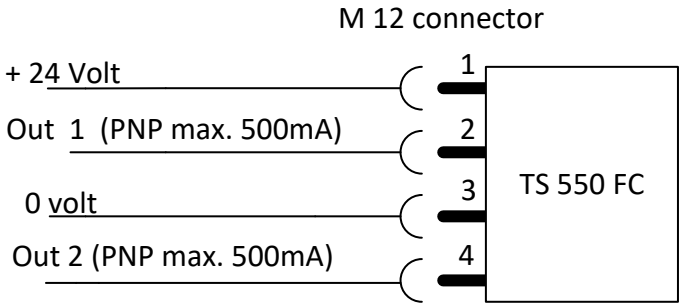
Flip →

SenSonic ApS, Storkevang 10, 3450 Alleroed, Denmark e-mail: info@sensonic.dk | www.sensonic.dk

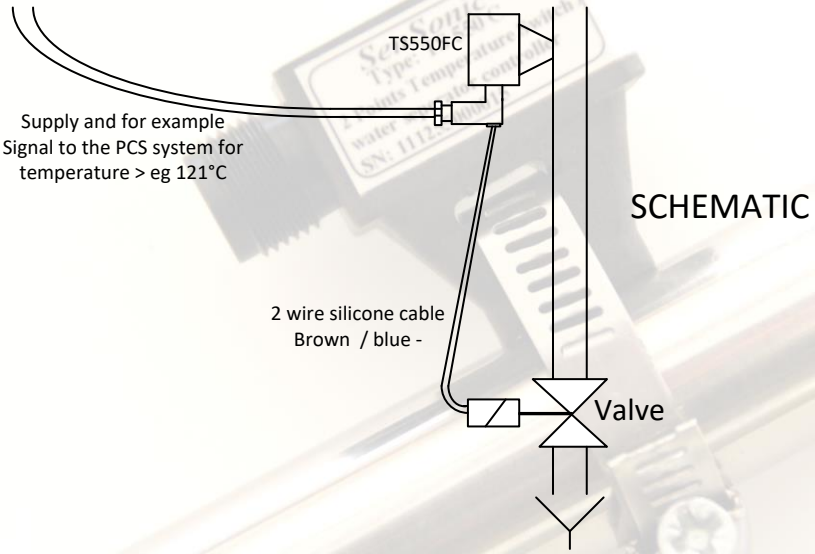
Tlf: +45 2011 6915

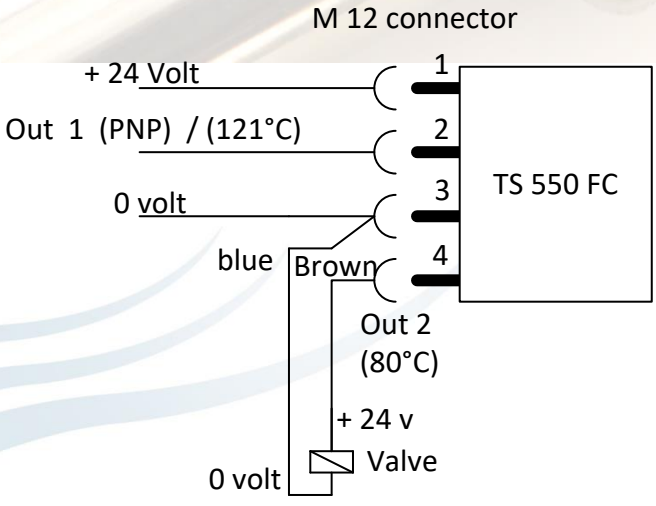
WIRING EXAMPLES

STANDARD FUNCTION



WATER SEPARATOR FUNCTION





SenSonic ApS, Storkevang 10, 3450 Alleroed, Denmark e-mail: info@sensonic.dk | www.sensonic.dk

Tlf: +45 2011 6915