# User manual
# ALFANET 71 VS-PI

# Differential Thermostat
# 0-100˚C



| **VDH doc. 080703** | **Version: v1.0** | **Date: 23-05-2008** |
|---|---|---|
| Software: 030802_A(N)71 VS-PI 0-100   File: Do080703.wpd | | Range: 0/+99,9˚C |

## *   Installation.
On the upperside from the **ALFANET 71 VS-PI** is shown how the sensors, supply, network and both outputs should be connected.
After power up the a self test is running. If the self test is completed, the measured differential temperature is shown on the display.
The **ALFANET 71 VS-PI** can be read out and controlled on the PC.

## *   Control.
The **ALFANET 71 VS-PI** thermostat can be controlled by four push buttons on the front:
    **SET**     - view / change the adjusted value and reset alarm.
    **UP**      - raise the adjusted value.
    **DOWN**  - lower the adjusted value.
    **˚C**       - hidden key above the **SET** key.

## *   Viewing temperatures sensor-1 and sensor-2.
Push the **UP** and **DOWN** keys simultaneously. Release the keys and push the **UP** key for read out sensor-1 or the **DOWN** key for sensor-2. A few seconds after releasing the keys the measured differential temperature appears on the display again.

## *   Viewing delta set point.
By pushing the  **SET** key, the adjusted set point will be visible. A few seconds after releasing the **SET** key the measured differential temperature appears on the display again.

## *   Changing the delta set point.
Push the **SET** key. The delta set point appears on the display. Release the **SET** key. By pushing the **SET** key again the set point can be changed with the **UP** or **DOWN** keys. A few seconds after releasing the keys the measured differential temperature appears on the display again. The Delta set point is adjustable from -20,0 till +20,0˚C.

## *   Status from the outputs.
Push the hidden **˚C** key. The display shows PI. By pushing the **UP** key the output percentage from output 1 becomes visible from 0-100%.
If the **DOWN** key is pushed the output percentage from output 2 becomes visible from 0-100%.
A few seconds after releasing the keys the measured differential temperature appears on the display again.

* **Adjusting internal parameters.**

   Next to the adjustment of the set point, some internal settings can be made like P-band, I-time, sensor-adjustments and set point-range.

   By pushing the **DOWN** key for more than 10 seconds, you enter the 'internal programming menu'. On the left display the upper and the lower segments are flashing. Over the **UP** and **DOWN** keys the required parameter can be selected (see table for the parameters).

   If the required parameter is selected, the value can be read-out by pushing the **SET** key. Pushing the **UP** and **DOWN** keys allows you to change the value of this parameter.

   If no key is pushed for 20 seconds, the **ALFANET 71 VS-PI** changes to it's normal operation mode.


* ## Afregeling voeler.

   The sensors can be adjusted with the Sensor Offset (parameter 05(sensor-1) and parameter 06(sensor-2)). Indicates a sensor e.g. 2°C too much, the according Sensor-offset parameter has to be decreased with 2°C.


* ## Error codes.

   On the display from the **ALFANET 71 VS-PI** can appear the following error codes:

   **E1** - Sensor-1 (-) defect.      Solution E1, E2:
   **E2** - Sensor-2 (+) defect.      - Check if the sensor is connected well.
                                        - Check the sensor (1000Ω/25°C).
                                        - Replace the sensor.
   **L-L** - In case of a sensor short-circuit the display alternates between error-code **E..** and **L** (left for sensor-1 and right for sensor-2),
   **H-H** - In case of open-circuit sensor the display alternates between error-code **E..** en **H** (left for sensor-1 and right for sensor-2)
   **EEE** - Adjustments are lost.      Solution EEE:
                                        - Reprogram the adjustments.

   If an error code appears, it can be reset with the **SET** key.


* ## Technical details.

   | | |
   |---|---|
   | Type | : ALFANET 71 VS-PI Thermostat |
   | Range | : 0/+100,0°C  read out per 0,1°C |
   | Supply | : 12Vac 50/60Hz (-5/+10%) |
   | Read out | : 3-digit 7-segments display |
   | Communication | : RS485 network (2xTwisted-pair shielded min. 0,5mm$^2$) |
   | Control | : Through push buttons on the front. |
   | Front | : Polycarbonate IP65 |
   | Sensor | : SM 811/2m (PTC 1000Ω/25°C). |
   | Analogue outputs | : PI-1= Cooling 0...10Vdc PI output. |
   | | PI-2= Heating 0...10Vdc PI output. |
   | Dimension | : 35 x 77 x 71,5mm (h-w-d) |
   | Panel cut out | : 28 x 70mm (h-w) |
   | Accuracy | : ± 0,5% from the range. |

   - Provided with memory protection during power failure.
   - Equipped with self-test function and sensor-failure detection.
   - Connection with screw-terminals.
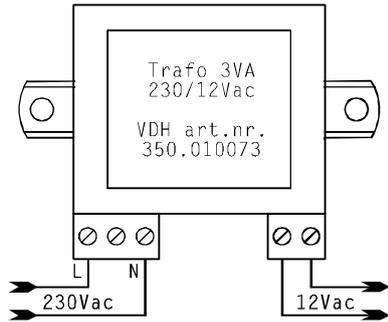   - Special version on request available.

## * Parameters ALFANET 71 VS-PI.

| Para-Meter | Description Parameter | Range | Default value |
|---|---|---|---|
| 01 | Function PI output-1   0 = Non<br>                         1 = PI Cooling<br>                         2 = PI Heating | 0..2 | 1 |
| 02 | Function PI output-2   (idem) | 0..2 | 2 |
| 05 | Offset temperature sensor 1 (+ sensor) | -15.0...+15.0˚C | 0 |
| 06 | Offset temperature sensor 2 (- sensor) | -15.0...+15.0˚C | 0 |
| 10 | Offset PI output-1 (zone) | -15...+15˚C | 0.0 |
| 11 | P-band output-1 | 0,1...50,0˚C | 5.0 |
| 12 | I-time output-1 | 0...99 Minutes | 0 (off) |
| 13 | Offset PI output-2 (zone) | -15...+15˚C | 0.0 |
| 14 | P-band output-2 | 0,1...50,0˚C | 5.0 |
| 15 | I-time output-2 | 0...99 Minutes | 0 (off) |
| 16 | Delay between cooling and heating | 0...60 Minutes | 5 |
| 20 | Minimum adjustable set point | 0.0...+99.9˚C | 0 |
| 21 | Maximum adjustable set point | 0.0...+99.9˚C | +99.9 |
| 22 | Read out above -10˚C on whole degrees | 0 = No, 1 = Yes | 0 |
| 40 | Control delay after power failure | 0..99 min. | 0 |
| 41 | Forced analogue outputs-function at sensor failure | 0 = No<br>1 = PI Cooling<br>2 = PI Heating | 0 |
| 42 | Forced percentage | 0..100% | 50 |
| 90 | Network number | 1..255 | 1 |
| 95 | Software version | - | - |
| 96 | Production year | - | - |
| 97 | Production week | - | - |
| 98 | Serial number (x1000) | - | - |
| 99 | Serial number (units) | - | - |

Remarks:          Alarm can only be report through the ALFANET.

## * Connections.

```
Trafo 3VA
230/12Vac

VDH art.nr.
350.010073
```

L   N
230Vac        12Vac

### ALFANET 71 VS-PI

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |

PI-1:Cool
PI-2:Heat
0Vm GND
Line-B
Line-A
Shield only at one side to earth.
12Vac inp.
12Vac inp.
Common 0V
Sensor-1 (-) br.   wh.
br.   wh. Sensor-2 (+)

```
2x PI
ANALOG        RS485 NETWORK      POWER      TEMP.SENSORS
OUTPUT        2xTwisted-pair     SUPPLY     1(-):Room
0-10Vdc       shielded 0,5mm²    12Vac      2(+):Ceiling
```
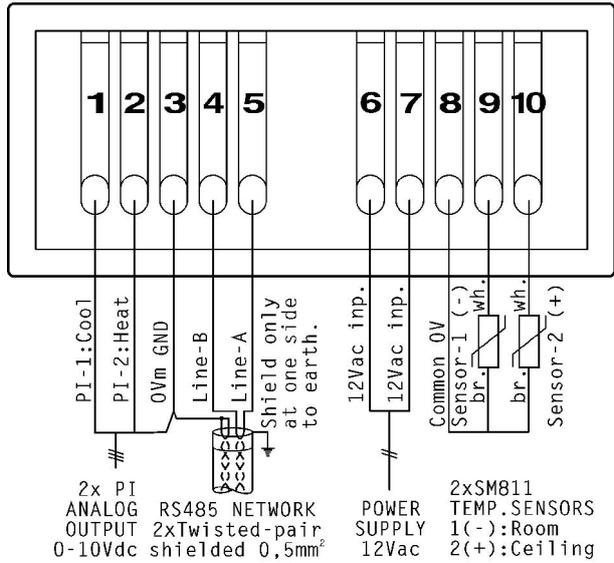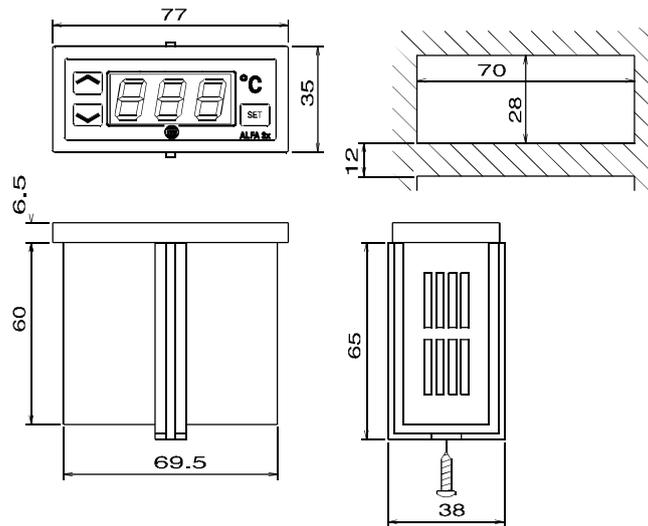
REMARK: Connect a 250 Ohm Resistor between
        Line-A and Line-B at both CABLE-ENDS
        of RS485-Network (2-wire with shield).

## * Dimensions.

77
35
°C
SET
ALFA sr.
70
28
12
6.5
60
69.5
65
38

## * Address.

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