User manual ALFA(NET) 35
Cool/Defrost Thermostat.
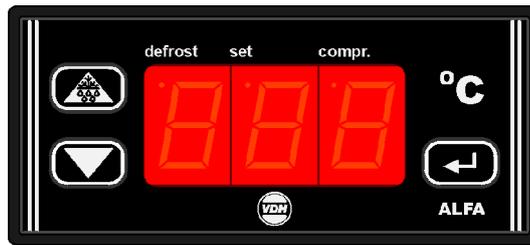
VDH doc. 053812	**Version: v1.4**	**Date: 10-11-2009**
Software: ALFA(NET) 35	**File: Do053812.wpd**	**Range: -50/+50˚C per 1˚C**

* Function.

The **ALFA(NET) 35** is a digital thermostat for panel mounting. The thermostat controls the cooling and defrost. Defrost will be done by temporarily switching off the cooling (natural defrost). The defrost starts on intervals or on compressor runtime. The defrost stops on time.

The **ALFA*NET* 35** has a RS 485 network connection so it can be read out and adjusted on the Alfanet.

* Installation.

On the topside op the **ALFA(NET) 35** you can see how the sensor, power supply and relay have to be connected.

After connecting the **ALFA(NET) 35** to the power supply, a self test function is started. As this test is finished the measured temperature appears in the display.

When the relay is activated, the led 'on' will light-up in the display.

* Control.

The **ALFA(NET) 35** thermostat can be controlled by three pushbuttons on the front. These keys are:

    ⏎ **SET**   - view / change the setpoint.
    ▲ **UP**   - increase the setpoint.
    ▼ **DOWN** - decrease the setpoint.

* Viewing setpoint.

By pushing the **SET** key the setpoint appears in the display. The led 'set' starts blinking. A few seconds after releasing the **SET** key the setpoint disappears and the measured temperature is shown in the display.

* Changing setpoint.

Push the **SET** key and the setpoint appears in the display. Release the **SET** key. Now push the **SET** key again and together with the **UP** or **DOWN** keys the setpoint can be changed. A few seconds after releasing the keys the measured temperature is show in the display.

* Starting/stopping defrost.

The defrost cycle is automatically started and stopped. Programming by the internal parameters. During defrost the led 'defrost' will light-up.

If there is a defrost cycle, the defrost can be stopped by hand, pushing the **UP** key and then the **SET** key, while the **UP** key is held.

If there is no defrost cycle, the defrost can be started by hand, pushing the **UP** key and then the **SET** key, while the **UP** key is held.

* <u>Setting internal parameters.</u>

Next to the adjustment of the setpoint, some internal settings are possible like differential, sensor-offset, setpoint range and the defrost function.

By pushing the **DOWN** key for more than 10 seconds, you enter the 'internal programming menu'. In the left display the upper and lower segments are blinking. With 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** or **DOWN** keys allows you to change the value of this parameter.

If no key is pushed for 20 seconds, the **ALFA(NET) 35** changes to it's normal operation mode.

* <u>Adjustment sensor.</u>

The sensor can be adjusted by using the 'Sensor Offset' (parameter 04). Indicates the **ALFA(NET) 35** e.g. 2˚C too much, the Sensor Offset has to be decreased by 2˚C.

* <u>Error messages.</u>

In the display of the **ALFA(NET) 35** the following error messages can appear:

    Er   - Sensor broken. Solution:
          - Check if the sensor is connected correctly.
          - Check the sensor (1000Ω at 25˚C).
          - Replace the sensor.
    EE   - Settings are lost. Solution:
          - Reprogram the settings.

* <u>Technical details.</u>

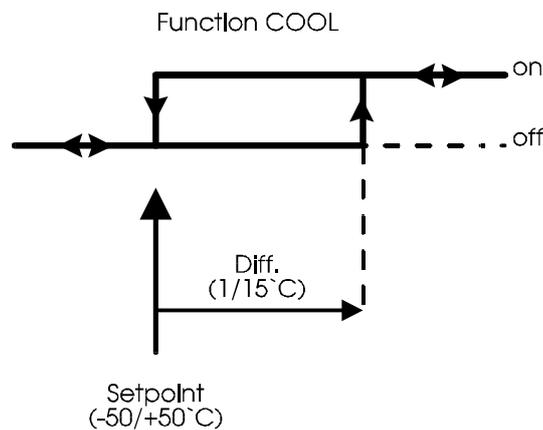|	
Model	: ALFA(NET) 35 Cool/Defrost Thermostat
Range	: -50/+50˚C, readout per 1˚C
Supply	: 230Vac 50/60Hz (or else see product sticker), max. 3VA
Relay	: SPDT 250V/16A(C-NO), 8A(C-NC) (cos phi=1)
Control	: by pushbuttons on the front.
Communication	: RS 485 Network (2xtwisted pair shielded) only at ALFANET model.
Front	: Polycarbonate IP65
Sensor	: SM 811/2m (1000Ω at 25˚C)
Sizes	: 35 x 77 x 71,5mm (hwd)
Panel hole	: 28 x 70mm (hw)

- Provided with memory protection during power failure.
- Connection with screw terminals on the backside.
- Equipped with self test function and sensor failure detection.
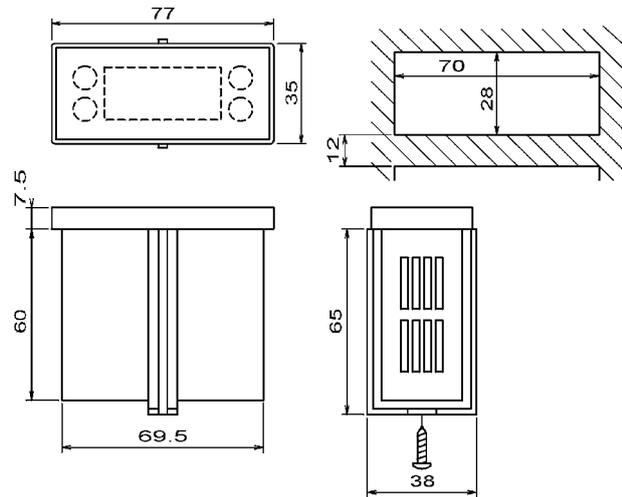- Special versions are available upon request.

* __Parameters ALFA(NET) 35.__

PARA-METER	DESCRIPTION PARAMETER	RANGE	STANDARD VALUE
01	Switching differential	1..15˚C	3
02	Minimum setpoint	-50..+50˚C	-50
03	Maximum setpoint	-50..+50˚C	+50
04	Offset temperature sensor	-15..+15˚C	0

05	Compressor start-up protection
	  0 = start-up delay in seconds
	  1 = start-up delay in minutes
	  2 = delay between switch off and
	     switch on minutes
	  3 = delay between switch on and
	     switch on minutes
		0..3	0

06	Compressor start-up time belonging to parameter 05	0..99	10
07	Defrost cycle time	1..99 hours	12
08	Defrost time	0..99 minutes	15
09	Defrost delay after power failure (if parameter 14 is 1)	0..99 minutes	0
10	Startup delay after power failure	0..99 minutes	0
11	Relay on at sensor failure	0 = no 1 = yes	0
12	Defrost cycle time based on compressor on time	0 = no 1 = yes	0
13	Temperature display locked during defrost cycle	0 = no 1 = yes	0
14	After power failure starting with defrost cycle	0 = no 1 = yes	0
15	Maximum time display locked after defrost (if parameter 13 = 1)	0..60 minutes	5
90	Network number	1..250	1
95	Software version	0..255	-
96	Production year	00..99	-
97	Production week	1..52	-
98	Serial number (x1000)	0..255	-
99	Serial number (units)	0..999	-

* Function diagram.

Function COOL

Diff.
(1/15`C)

Setpoint
(-50/+50`C)

* Dimensions.

* Connection diagram.

If applicable

Trafo 3VA
230/12Vac

VDH art.nr.
350.010073

L   N
230Vac   12Vac
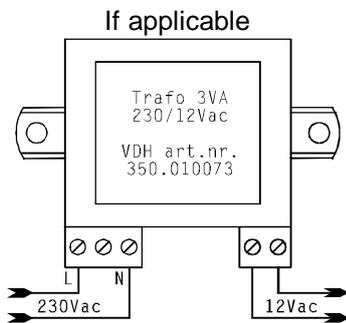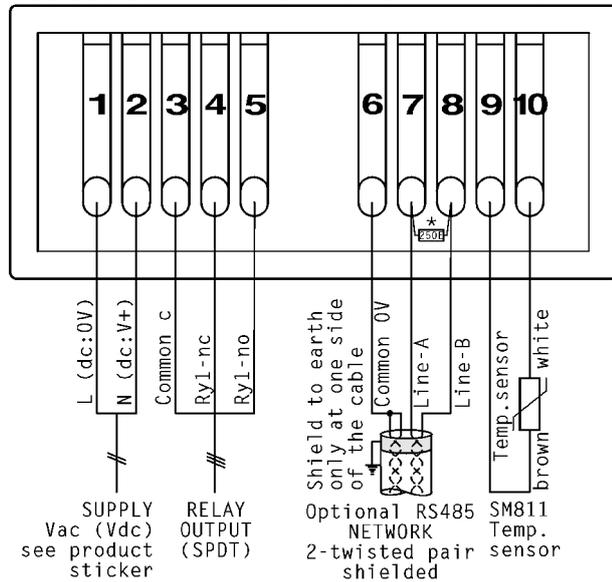
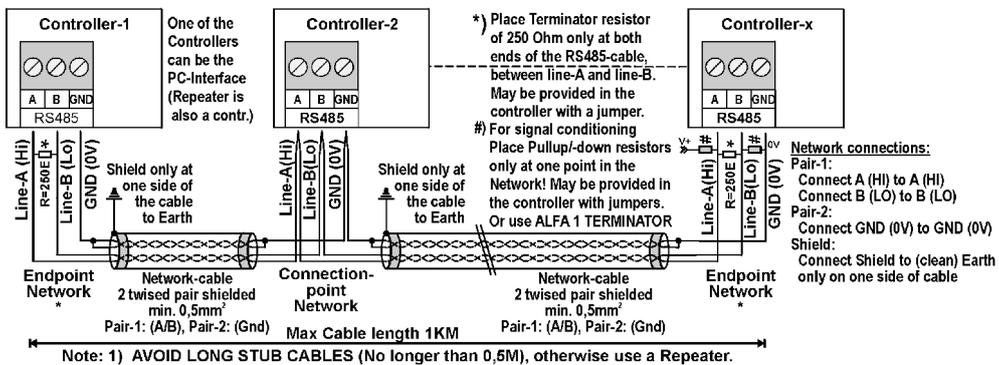## ALFA(NET) 3X-series

*)REMARK: To terminate RS485-Network
Connect a 250 Ohm resistor between
Line-A and Line-B at both cable-ends

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

L (dc:0V)
N (dc:V+)
Common c
Ry1-nc
Ry1-no
Shield to earth only at one side of the cable
Common 0V
Line-A
Line-B
Temp.sensor
brown   white

SUPPLY
Vac (Vdc)
see product
sticker

RELAY
OUTPUT
(SPDT)

Optional RS485
NETWORK
2-twisted pair
shielded

SM811
Temp.
sensor

RS 485 NETWORK CONNECTIONS 2-twisted pair shielded cable:

Controller-1

A | B | GND
RS485

One of the
Controllers
can be the
PC-Interface
(Repeater is
also a contr.)

Controller-2

A | B | GND
RS485

*) Place Terminator resistor
of 250 Ohm only at both
ends of the RS485-cable,
between line-A and line-B.
May be provided in the
controller with a jumper.
#) For signal conditioning
Place Pullup/-down resistors
only at one point in the
Network! May be provided in
the controller with jumpers.
Or use ALFA 1 TERMINATOR

Controller-x

A | B | GND
RS485

Network connections:
Pair-1:
    Connect A (HI) to A (HI)
    Connect B (LO) to B (LO)
Pair-2:
    Connect GND (0V) to GND (0V)
Shield:
    Connect Shield to (clean) Earth
    only on one side of cable

Line-A (Hi)
R=250E*
Line-B (Lo)
GND (0V)

Shield only at
one side of
the cable
to Earth

Line-A(Hi)
Line-B(Lo)
GND (0V)

Shield only at
one side of
the cable
to Earth

V+*
Line-A(Hi)
R=250E*
Line-B(Lo)
GND 0V

Endpoint
Network
*

Network-cable
2 twisted pair shielded
min. 0,5mm²
Pair-1: (A/B), Pair-2: (Gnd)

Connection-
point
Network

Network-cable
2 twisted pair shielded
min. 0,5mm²
Pair-1: (A/B), Pair-2: (Gnd)

Endpoint
Network
*

Max Cable length 1KM

Note: 1) AVOID LONG STUB CABLES (No longer than 0,5M), otherwise use a Repeater.

* Address.