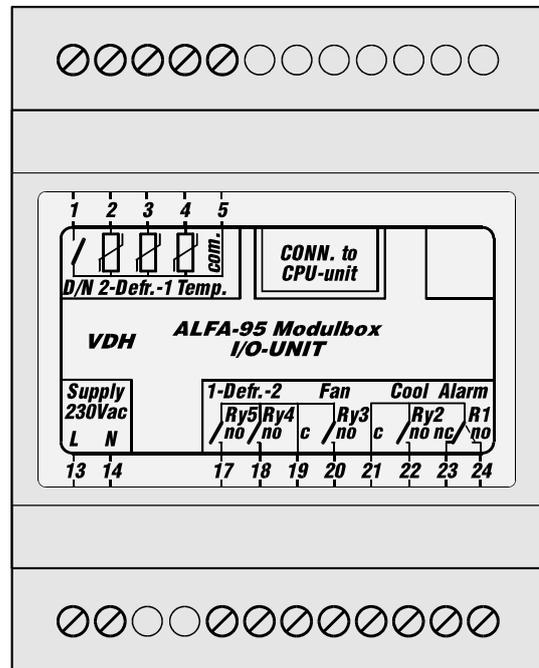


User manual ALFANET 95

with door contact



VDH doc. 080643

Version: v1.1

Date: 12-04-2011

Softw.: 011506_ALFANET 95 RTDF-DK

File: Do080643.wpd

Range: -50,0/+50,0°C

* Description.

The **ALFANET 95** is a cooling/heating thermostat with various automatic defrost and fan drive facilities. It can be programmed through the **ALFANET PC-INTERFACE** on the PC.

* Installation.

On the connection diagram of the **ALFANET 95** is shown how the sensor, power supply and relays should be connected. After the **ALFANET 95** has been connected to the power supply a self-test function will take place, after which the measured temperature will appear in the display.

* Operation.

The **ALFANET 95** thermostat can be operated by means of four pushbuttons on the front. These pushbuttons are:

- SET** - view / change the set point.
- UP** - raise the set point.
- DOWN** - lower the set point.
- °C** - hidden key under the °C text.

* Normal operation status.

During normal operation the temperature of the control sensor is shown in the display.

* Viewing the set point.

By pressing the **SET** key the set point becomes visible. At the same time the decimal point of the right-hand display will blink, as an indication that the set point is being read. A few seconds after the **SET** key has been released, the set point will disappear and the measured value will be visible again.

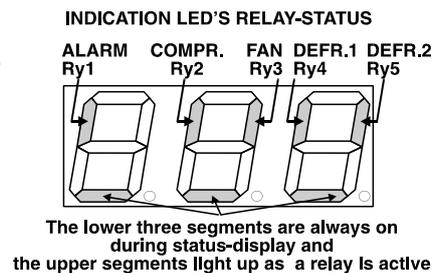


* **Changing the set point.**

Press the **SET** key. The set point appears on the display. Release the **SET** key. Press the **SET** key again. Now the set point can be adjusted with the **UP** or **DOWN** keys, the set point can be adjusted. A few seconds after the keys have been released, the measured value will again appear in the display.

* **Status of the Relays.**

Press the **°C** key. The three lower segments light up and the upper vertical segments show the status of the five relays (see diagram). Relay is active when the segment lights up.



* **Start/stop defrost cycle.**

The defrost cycle will stop and start automatically by internal parameters. Defrosting can also be done manually;

Stop: If defrosting is taking place, defrosting can be stopped manually by pressing the **DOWN** and **UP** keys simultaneously.

Start: If defrosting is not taking place, then defrosting can be started manually by pressing the **DOWN** and **UP** keys simultaneously.

* **Setting internal parameters.**

In addition to adjusting the set point a number of internal adjustments can be made, including the differentials, sensor-offsets, set point range, compressor settings, fan settings and the defrosting settings.

By pressing the **DOWN** key for more than 10 seconds the 'internal programming menu' will be entered. On the left-hand display the upper and lower segment will blink.

With the **UP** and **DOWN** keys the required parameter can be selected (see the parameter table).

When the required parameter has been selected, the value of the parameter can be read out by pressing the **SET** key. The parameter value can be changed by pressing the **UP** and **DOWN** keys. If no key has been pressed for 20 seconds, the **ALFANET 95** will return to its normal operation mode.

* **Adjusting the sensor.**

The **control sensor** can be adjusted by means of the Offset control sensor (parameter 05).

The **defrost sensors** can be adjusted by means of the Offsets defrost sensors (parameters 08 and 11). For reading the temperatures of the defrost sensor choose parameters 07 and 10.

Should a sensor of the **ALFANET 95** indicates 2°C too much, for example. Then the according Sensor Offset must be lowered by 2°C.

* **Error messages.**

The following error messages may appear in the display of the **ALFANET 95**:

LO	- Minimum alarm.	<u>Solution E1/E2/E3:</u>
HI	- Maximum alarm.	- Check if sensor is properly connected.
E1	- Control sensor defect.	- Check sensor (1000Ω/25°C).
E2	- Defrost sensor-1 defect.	- Replace sensor.
E3	- Defrost sensor-2 defect.	<u>Solution EEE:</u>
EEE	- Settings have been lost.	- Program the settings again.

-L- - In case of a short-circuited sensor the error codes **E..** and **-L-** will alternate in the display, indicating a short-circuited sensor.

-H- - In case of a disconnected sensor the error codes **E..** and **-H-** will alternate in the display, indicating a disconnected sensor.



* **Alarm function**

When there is an error message or an alarm, an error code message appears in the display. The **ALFANET 95** remembers this failure message, even if the problem has already been solved. The failure message can be reset with the **SET** key. If, after pressing the **SET** key (=reset alarm) the alarm is not yet solved, then the **ALFANET 95** shows the temperature and error code alternately, if the alarm has been solved then the error code disappears and the temperature is shown again.

* **Fan control settings**

The **ALFANET 95** has various adjustment possibilities for the Fan. Normally, the fan is always running unless one of the parameters below is set at 1:

Parameter 20 = 1: Fan switch differential active.

The fan only active if the temperature of the defrost sensor is lower than the control sensor temperature minus the temperature of the switch differential fan (P21)
{Fan on if $T_{\text{defrost}} < (T_{\text{control}} - T_{\text{fandiff}})$ }.

Parameter 25,26: Fan switching on delay after defrosting.

After defrosting and draining of the humidifier, to prevent the fan from running immediately and thus blowing warm air into the cell, the following two conditions can be set, i.e.;

- a. The fan is blocked until the defrost-sensor measures a temperature that is lower than the set switching on temperature of the fan (P25).
- b. The fan is blocked until the switching on delay of the fan (P26) is over, when the defrost- sensor reaches the switching on temperature (P25) within the switching on delay, then the fan is unblocked.

Parameter 22 = 1: Fan is off, when the compressor is off.

The fan is turned off if the compressor is off. This happens with a delay of parameter 23.

* **Defrost control possibilities.**

The automatic defrost is started on a real-time (P60) base and stops after the maximal defrost time (P30), or earlier if the defrost sensor has reached the defrost end-temperature (P31). The **ALFANET 95** has a number of automatic defrost possibilities that can be set with the following parameters;

Parameter 24 Type of defrost:

The **ALFANET 95** has three possibilities for defrosting;

P24 = 0 For defrost only the relay FAN is switched on (natural defrosting).

P24 = 1 For defrosting only the relay DEFR. is switched on (hot gas / electrical defrosting).

P24 = 2 For defrosting both the DEFR. and the FAN relays are switched on (hot gas/electrical+fan defrosting).

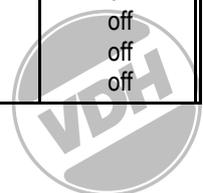
Parameter 60 = 1Defrosting on the real-time clock

Here, the defrosting is started at set times (P61 to P71).



* **Parameters ALFANET 95.**

Parameter	Description of Parameter	Range	Standard value
01	Switching differential	0,1..15,0°C	0,5
02	Minimum adjustable set point	-50..+50°C	-50
03	Maximum adjustable set point	-50..+50°C	+50
04	Readout above -10°C in whole degrees	0 = No, 1 = Yes	0
05	Offset control sensor	-15,0..+15,°C	0,0
06	Defrost sensor-1 present	0 = No, 1 = Yes	0
07	Readout defrost sensor-1	-	-
08	Offset defrost sensor-1	-15,0..+15,°C	0,0
09	Defrost sensor-2 present	0 = No, 1 = Yes	0
10	Readout defrost sensor-2	-	-
11	Offset defrost sensor-2	-15,0..+15,°C	0,0
15	Minimum off time cooling	0..99 Minutes	0
20	Fan switch differential active	0 = No, 1 = Yes	0
21	Switching differential fan	0..+50,0°C	2,0
22	Fan off if compressor is off	0 = No, 1 = Yes	0
23	Switching off delay fan	0..90 Minutes	0
24	Type of defrost 0=only fan-relay 1=only defr-relay 2=defr.+fan-relay	0 = Natural 1 = Hot gas/Elec. 2 = Hot gas/Elec. + Fan	0
25	Switch on temperature fan after defrost	-50..+50°C	2,0
26	Switch on delay fan after defrost	0..90 Minutes	0
27	Drip off time	0..90 Minutes	0
30	Maximum defrost time	0..99 Minutes	15
31	Defrost-ending temperature	-50..+50°C	2,0
32	Display fixed during defrost	0 = No, 1 = Yes	0
35	Day/night contact as door contact	0 = No, 1 = Yes	0
36	Cooling and fan off if door is open	0 = No, 1 = Yes	0
37	Max. time cooling and fan off when door is open	0..99 Minutes	30
40	Type of alarm	0 = None, 1 = Absolute 2 = Relative	1
41	Minimum alarm set point	-50..+50°C	-50
42	Maximum alarm set point	-50..+50°C	+50
43	Time delay maximum alarm	0..99 Minutes	0
44	Time delay minimum alarm	0..99 Minutes	0
45	Compressor on by failure control sensor	0 = No, 1 = Yes	0
46	Alarm off after manual reset	0 = No, 1 = Yes	0
47	Alarm off after alarm solved	0 = No, 1 = Yes	0
48	Function alarm relay	0 = Fail safe alarm, 1 = Control alarm	0
50	Current time (hours)	0..23 Hours	-
51	Current time (minutes)	0..59 Minutes	-
60	Real-time defrost active	0 = No, 1 = Yes	0
61	Defrost time-1 (hours)	0..23/off Hrs.	off
62	Defrost time-1 (minutes) per 10 min.	0..50/off Min.	off
63	Defrost time-2 (hours)	0..23/off Hrs.	off
64	Defrost time-2 (minutes) per 10 min.	0..50/off Min.	off
65	Defrost time-3 (hours)	0..23/off Hrs.	off
66	Defrost time-3 (minutes) per 10 min.	0..50/off Min.	off
67	Defrost time-4 (hours)	0..23/off Hrs.	off
68	Defrost time-4 (minutes) per 10 min.	0..50/off Min.	off
69	Defrost time-5 (hours)	0..23/off Hrs.	off
70	Defrost time-5 (minutes) per 10 min.	0..50/off Min.	off
71	Defrost time-6 (hours)	0..23/off Hrs.	off
72	Defrost time-6 (minutes) per 10 min.	0..50/off Min.	off



Parameter	Description of Parameter	Range	Standard value
80	Night shift (offset)	-10.0..+10.0	0,0
90	Network number	1..250	1
95	Software version	0..255	-
96	Production year	00..99	-
97	Production week	1..52	-
98	Series number (x1000)	0..255	-
99	Series number (units)	0..999	-

* **Technical data.**

Type : ALFANET 95 Cool/Defrosting Thermostat

CONTROL-UNIT:

Range : -50,0/+50,0°C
 Read-out : 3-digit 7-segments display
 Accuracy : ± 0,5 % of the range.
 Status LEDs : ALARM, COMPR., FAN, DEFR.1 and DEFR.2 (On display through °C key)
 Operation : through pushbuttons on the front.
 Front : Polycarbonate IP65
 Network : RS485-network (2xtwisted-pair shielded)
 Dimensions : 35 x 77 x 71,5mm (hwd)
 Panel cutout : 29 x 70mm (hw)

I/O-UNIT:

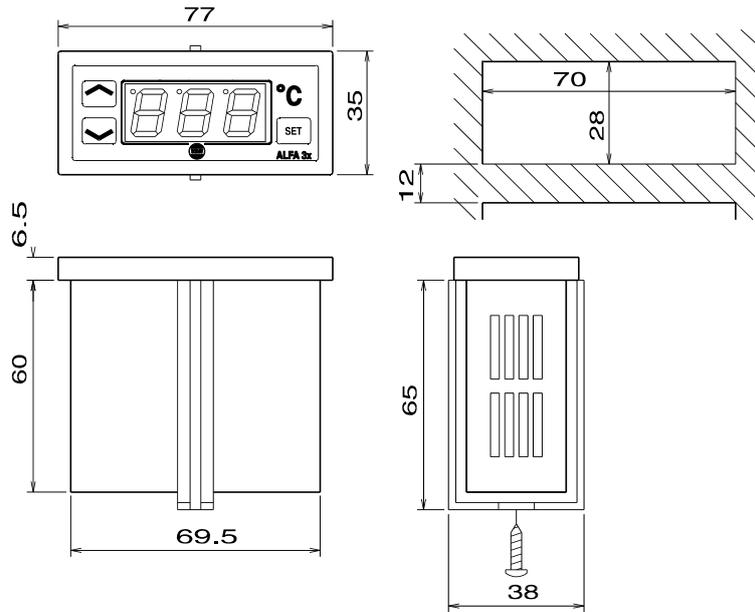
Supply : 230 Vac 50/60Hz (-5/+10%) Max. 3VA
 Relays : These two relays have one common;
 Ry-1 Alarm SPDT (NO,NC) 250V/8A (cos φ=1)
 Ry-2 Cool SPST (NO) 250V/8A (cos φ=1)
 These three relays have one common;
 Ry-3 Fan SPST (NO) 250V/8A (cos φ=1)
 Ry-4 Defrost-1 SPST (NO) 250V/8A (cos φ=1)
 Ry-4 Defrost-2 SPST (NO) 250V/8A (cos φ=1)
 Sensors : 3x SM 811 (PTC 1000Ω/25°C).
 Contact input : 1x Day/Night switch (open = night shift active) or
 Door contact (cooling and fan off when door is open)
 Dimensions : 90x71x58mm (hwd) for rail mounting

- Equipped with memory protection in case of power failure.
- Equipped with a self-testing function.
- Equipped with sensor failure detection.
- Connection through screw terminals on supply/relay module.
- Special models available on request.

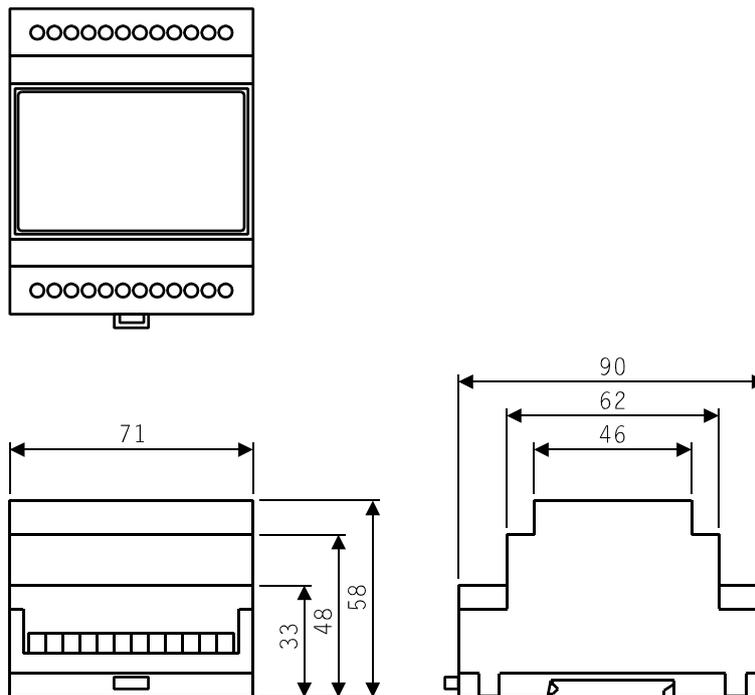


* **Dimensions of ALFANET 95.**

Control-unit

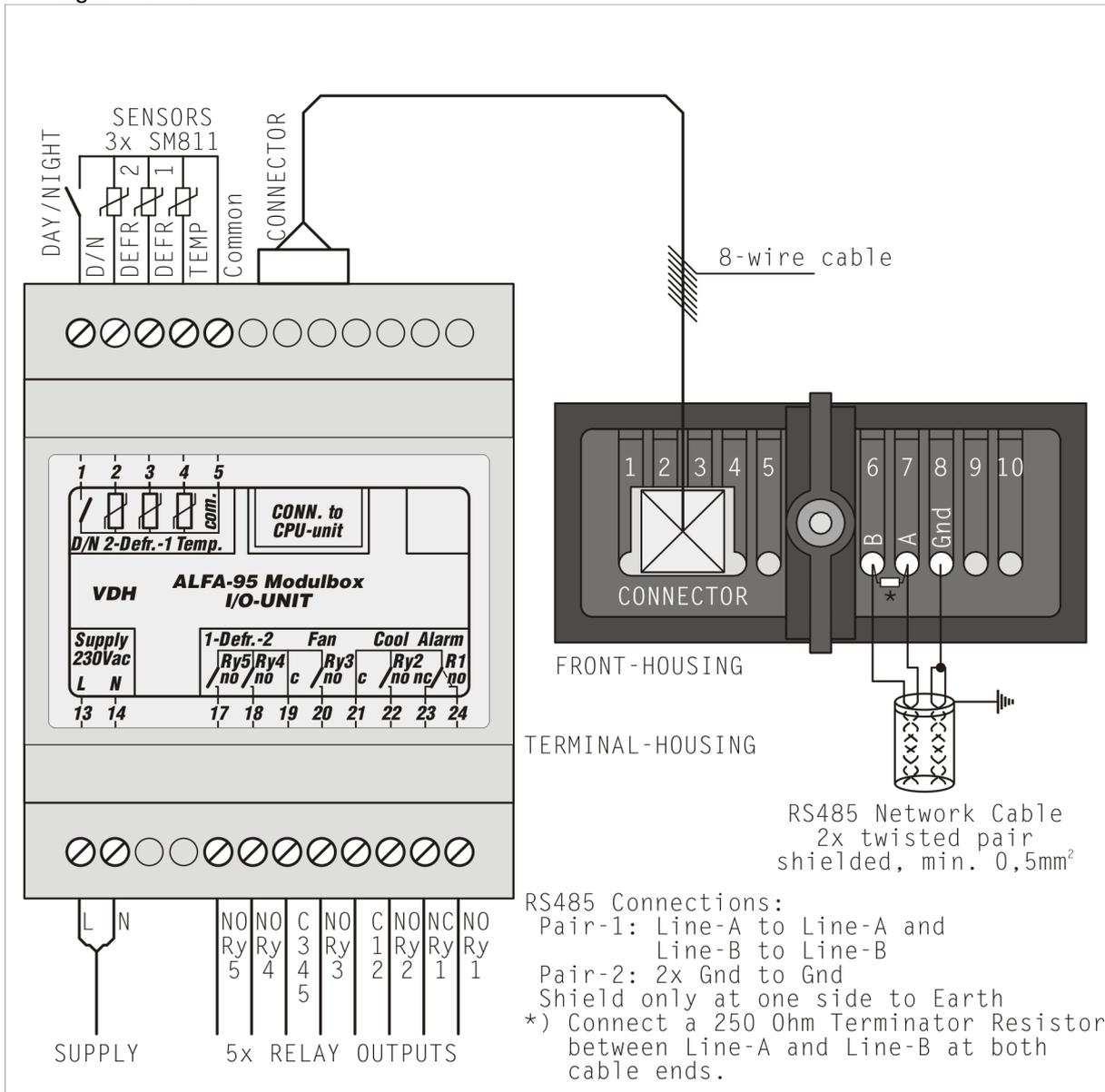


I/O-unit

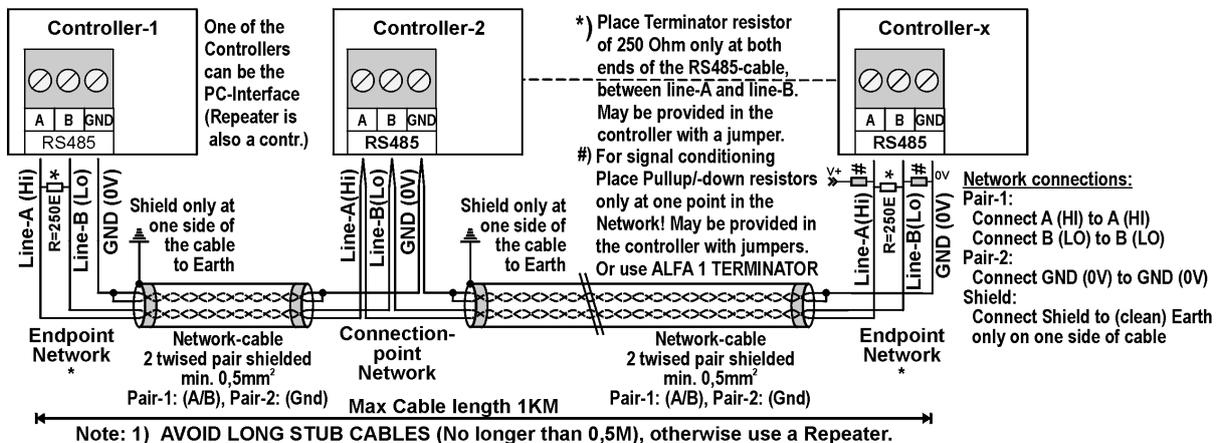


*** Connection data.**

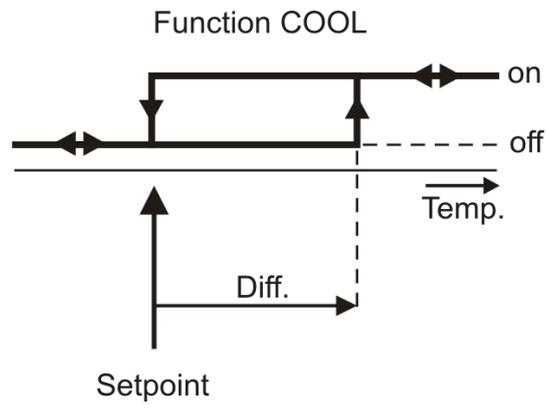
Diagram: 042527w2



RS 485 NETWORK CONNECTIONS 2-twisted pair shielded cable:



* **Function diagram.**



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