User manual
ALFA 75-MTT

MilkTankThermostat.

VDH doc. 080723	Version: v1.0	Date: 27-05-2008
Software: ALFA75-MTT	File: Do080723.WPD	Range: 0,0/+80,0˚C pro 0,1˚C

* Description.

The **ALFA 75-MTT** is a Milk tank thermostat with the next functions:
- Cooling: On adjusted set point (f.i. 4,0˚C).
- Stir: Continuos during cooling and on adjustable intervals when cooling is off.
                        Manuel stir after pushing the button on the front (with time limitation)
- Temperature alarm: An alarm will be given when the adjusted minimum and maximum temperature values
                        are exceed. The alarms are reported with an error code on the display, the buzzer will
                        be activated and the relay will be energized. A time delay can be adjusted for the alarms.
- Cooling time alarm: When the temperature doesn't reach the temperature set point within the adjusted time,
                        an alarm will be given (with buzzer and relay).
- Digital input: If the digital input is closed during cleaning than the control will stop and the display will
                        only show the cleaning temperature.

* Installation.

On the connection diagram from the **ALFA 75-MTT** is shown how the sensor, supply and relays should be connected. After power up a self test is started. If the self test is completed the display will show the measured temperature.

* Control.

The **ALFA 75-MTT** can be controlled by four push buttons on the front:

    (SET)   - viewing / changing from the adjusted value and alarm reset.
    (UP)   - raise the adjusted value.
    (DOWN) - lower the adjusted value.
    (STIR) - Start stir manual.

* Normal operation.

During normal operation will the temperature from the temperature sensor be shown. Range 0,0 till 80,0 ˚C.

* Viewing the set point.

By pushing the **SET** key the set point appears in the display. The ❄ led starts flashing to indicate this. A few seconds after releasing the **SET** key the set point disappears and the measured temperature is shown again.

* Changing the set point.

Push the **SET** key and the set point appears on the display. Release the **SET** key. Push the **SET** key again together with the **UP** or **DOWN** keys to change the set point. A few seconds after releasing the **SET** key the set point disappears and the measured temperature is shown again.

* Adjusting internal parameter.

Next to the adjustment of the set point, some internal settings can be made like differentials, sensor offset and stir functions.
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 **ALFA 75-MTT** changes to it's normal operation mode.

* Parameters ALFA 75-MTT.

Para-meter	Description Parameter	Range	Default value
01	Switching differential	0,1..15,0˚C	0,5
02	Minimum adjustable set point	0..+80˚C	0,0
03	Maximum adjustable set point	0..+80˚C	15,0
04	Offset temperature sensor	-15,0..+15,0˚C	0,0
10	Agitator interval time	0..60 Minutes	15
11	Agitator runtime	0..240 Seconds	120
12	Agitator delay time	0..900 Seconds	120
20	Minimum Alarm active	0=No, 1=Yes	1
21	Maximum Alarm active	0=No, 1=Yes	1
22	Minimum Alarm-set point	0..80,0˚C	0,5
23	Maximum Alarm-set point	0..80,0˚C	15,0
24	Delay time maximum alarm	0..99 Minutes	45
25	Delay time minimum alarm	0..99 Minutes	0
26	Cooling time alarm (See description)	90..240 Minutes	120
30	Control delay after power up	0..99 Minutes	15
31	Cooling on at sensor failure	0=No, 1=Yes	0
32	Cooling off at minimum alarm	0=No, 1=Yes	1

40	Function digital input cleaning
	    0 = Active when closed (NO)
	    1 = Active when opened (NC)
		0..1	0

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	-

* Sensor adjustment.

The temperature sensor can be adjusted by using the Offset control sensor (parameter 04).
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 **ALFA 75-MTT** can appear the following error codes:

E1 - Temperature sensor defect. Solution **E1** failure:
- Check if sensor is connected correctly.
- Check sensor (1000Ω/25˚C).
- Replace sensor..

EEE - Adjustments are lost Solution **EEE** failure:
- Re-program the adjustments.

LO - Minimum alarm.
HI - Maximum alarm.
AL - Cooling time passed
-L- - In case of sensor short-circuit the display alternates between error-code **E..** and **-L-**, as indication for a short-circuit sensor.
-H- - In case of open-circuit sensor the display alternates between error-code **E..** and **-H-**, as indication for a open circuit sensor.

* Alarm operation.

If a failure or alarm occurs an error message is shown in the display. The **ALFA 75-MTT** remembers it's error message, although it is already solved. The error message can be reset with the **SET** key.
If after pressing the **SET** key (=reset alarm) the alarm still is not solved than the **ALFA 55-MTT** displays the temperature and the error message alternated, is the alarm solved, then the error message disappears and the temperature is displayed normally.

* Agitator control possibilities.

The **ALFA 75-MTT** has several possibilities to control the agitator.
Normally the agitator is on if the cooling is on. If the cooling switches off the agitator keeps running with the delay time from parameter 12.

Parameter 10   Agitator interval time:
If the cooling is off, the agitator runs every parameter 10 minutes for parameter 11 seconds.
Parameter 11   Agitatot runtime:
During the interval time the agitator runs for this time.
Parameter 12   Agitator delay time:
If the cooling switches off the agitator keeps running for this time to avoid ice grow on the tank wall. Adjustable from 0 till 15 Minutes.

It is also possible to start stir manual by pushing the agitator key. The agitator runs the time from parameter 12 once whereby the normal control continuos. During the stir time shows the controller remaining stir time on the display in seconds and the ⚇ LED flashes.

* Minimum-, maximum- and cool time alarm possibilities.

The **ALFA 75-MTT** has a minimum- and maximum temperature alarm and a cooling time alarm;

Parameter 20, 21   Minimum- und maximum alarm active:
With these parameter it is possible to activate the temperature alarm.
Parameter 22, 23   Minimum- and maximum alarm set point:
With these parameters it is possible to adjust the temperature alarm set points.
Parameter 24, 25   Time delay for the minimum- and maximum alarm:
Normally there is only a time delay for the maximum alarm and the minimum alarms works without a time delay. With these parameter it is possible to adjust a time delay for both alarms.
Parameter 26   Cool time alarm:
If the the temperature doesn't reach the set point within this time an acoustic alarm will be given and the alarm relay will be activated.
Parameter 30   Control delay after power up:
To avoid freezing from the first milk in the tank it is possible to adjust a time delay for controln after power up. The delay times from parameters 24 and 25 are running after the this delay time has ended!

The **ALFA 75-MTT** has the possibility to take action whan a failure or alarm occurs.

Parameter 31   Cooling on at sensor failure:
When a sensor failure occurs, the cooling will be activated.
Parameter 32   Cooling off during minimum alarm:
With this parameter it is possible to switch off the cooling at a minimum alarm. This is to avoid that the milk will freeze.

* Possibilities for cleaning.

The **ALFA 75-MTT** has a digital input contact which is programmed as a cleaning contact. With parameter 40 it is possible to adjust this contact as an opener or closer contact. When this contact is activated stops the control and the displays shows alternated the cleaning temperature and "SP" to indicate that this function is active.
If cleaning stops (Contact in normal mode) the controller will turn into "Stand-by Mode" (Display views "Stb") and the controller starts working again if the "SET-key" is pushed.

Parameter 40   Digital input contact function:
P40=0   Cleaning function active if input is closed (NO)
P40=1   Cleaning function active if input is opened (NC)

* Technical details.

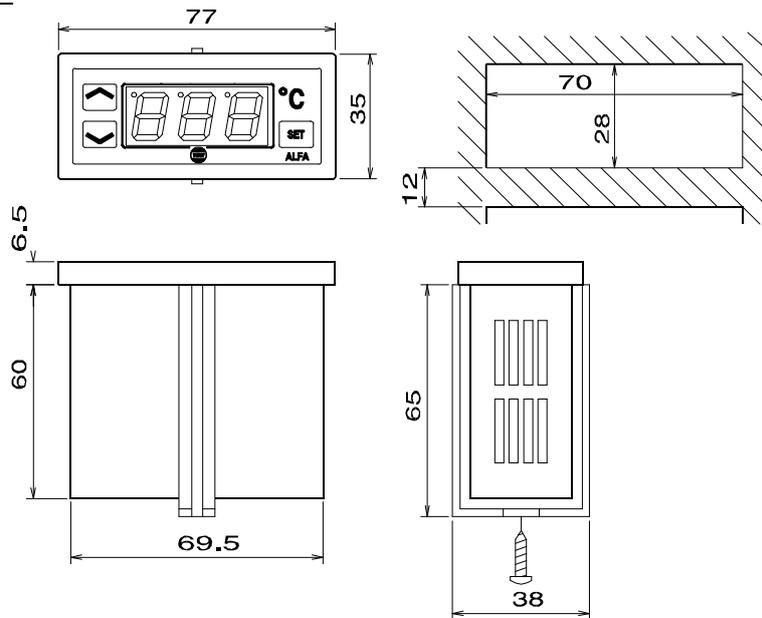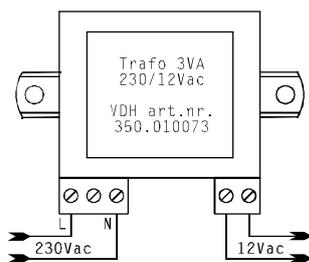|	
Type	: ALFA 75-MTT Cooling/Agitator Thermostat
Range	: 0,0/+80,0°C, read out per 0,1°C
Accuracy	: ± 0,5 % from the range.
Supply	: 12Vac/16,5Vdc (-5/+10%)
Relays (with one	: Ry-1 Cooling SPST (NO) 250V/8A (cos φ=1)
Common)	Ry-2 Agitator SPST (NO) 250V/8A (cos φ=1)
	Ry-3 Alarm SPDT (NO,NC) 250V/8A (cos φ=1)
Buzzer	: Built in Alarm buzzer
Control	: Through push buttons on the front.
Front	: Polycarbonate
Sensor	: SM 811/2m (PTC 1000Ω/25°C).
Digital input	: Contact input (Cleaning contact NO oder NC)
Dimensions	: 35 x 77 x 71,5mm (hwd)
Panel cut out	: 28 x 70mm (hw)

- Provided with memory protection during power failure.
- Equipped with self-test function and sensor-failure detection.
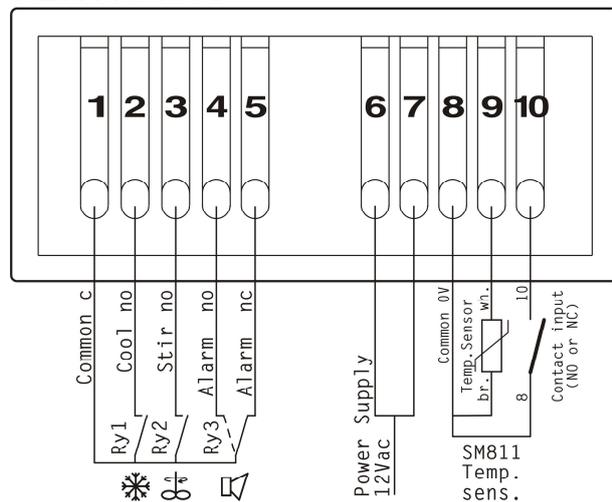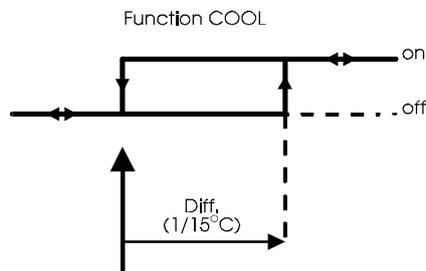- Connection with screw-terminals.

* Dimensions.

* Connections.

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Trafo 3VA
230/12Vac

VDH art.nr.
350.010073
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L N   12Vac
230Vac

ALFA 75-MTT

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

Common c — Ry1
Cool no — Ry2
Stir no — Ry3
Alarm no
Alarm nc

❄ ☀ 📢

Power Supply 12Vac
Common 0V
Temp.Sensor br. wn.
SM811 Temp. sens.
Contact input (NO or NC)

* Funktion diagram.

Function COOL

on
off

Diff.
(1/15°C)

* Addresse.

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4