

MC 885

4-stage thermostat (3x relay and 1x analogue output)



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Range: -50/+100°C per 1°C

* Working principle

The following items are involved in the operation of the controller:

- 2 sensors, Pt100 3-wire with range of -50..+100 degrees Celsius
- 3 setpoints, can be adjusted at the front panel
- 1 digital input with various functions
- 3 thermostats (consisting of a control part and an output part)
- 3 relays (1x SPST, 2x SPDT)
- 1 analogue output (0..10V DC or 0..5V DC)
- 1 buzzer
- optional RS485 network connection

Parameters can be used to link these items together in various ways (see figure 1). Each thermostat (that is in use) must be linked to 1 of the 3 setpoints and to 1 or 2 sensors.

A thermostat can be linked to 1 single sensor, to the average value of the sensors present, or to the difference between sensor 1(+) and sensor 2() (differential thermostat).

If desired, the control-sensor selection can be made on the front of the controller.

The stages of the controller are created by the relays (3x) and the analogue output (1x). These output stages can be assigned in whatever way you want to one of the three thermostats. This is done by selecting a function and a thermostat number, for the relays and the analogue output. These selections define the functioning and the number of stages of the thermostats.

Function diagram:

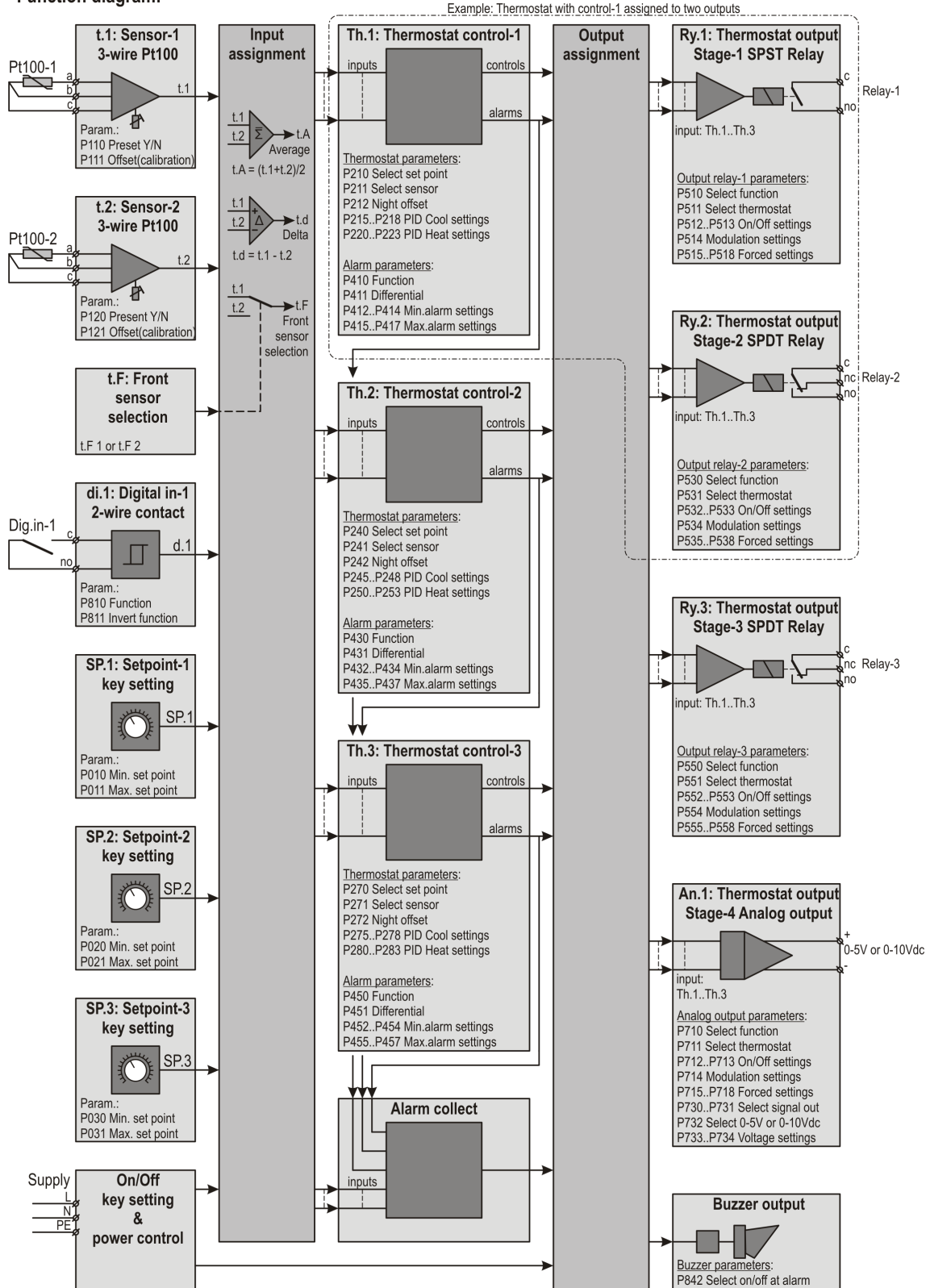


Figure-1

The controller has three thermostats that can be used to control, each thermostat can use the following sensor- and setpoint values:

- sensor-1 (Pt100)
- sensor-2 (Pt100)
- average value of sensor-1 and sensor-2
- difference between values of sensor-1(+) and sensor-2(-)
- sensor-1 or sensor-2, with selection on front
- setpoint-1 (can be set using the buttons)
- setpoint-2 (can be set using the buttons)
- setpoint-3 (can be set using the buttons)

The following functions can be selected for the relays and the analogue outputs:

- cooling on/off
- heating on/off
- modulating P(ID) cooling
- modulating P(ID) heating
- day/night mode indicator
- on/off mode indicator
- various alarm reports

The analogue output also supports the following functions:

- P(ID) cooling
- P(ID) heating
- representation of sensor values
- representation of setpoint values

The digital input can be set to one of the following functions:

- external day/night switching
- external alarm input
- reset alarm externally
- external on/off switching
- external blocking control-functions

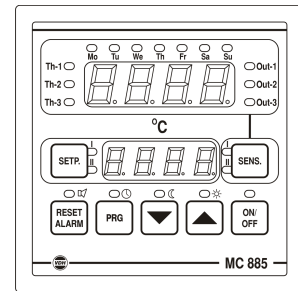
The parameter settings allow simple but also more complex control functions to be implemented, varying from a simple 1-stage thermostat e.g. for cooling only through to a 4-stage double differential thermostat for both cooling and heating (even with modulating output) and analogue PID output.

If so desired, the operation and the adjustment of the parameters can be protected with various passwords. The controller also has an RS485 network connection for connecting it up to a PC or other controllers via e.g. Alfanet or Modbus.

* Operation/display

The **MC885 4-stage** thermostat is operated using seven buttons on the front:

- | | |
|--------------------|-------------------------------------------------------------|
| ON/OFF | • switching the controller on and off (with LED indication) |
| SETP. | • view / change the setpoint value |
| SENS. | • view the values from the individual temperature sensors |
| PRG | • acces to the internal parameters |
| UP | • increase value being set |
| DOWN | • decrease value being set |
| RESET ALARM | • reset button for resetting alarms |



Switching on/off

The LED above the **ON/OFF** button shows whether the controller is on or off.

Pressing the **ON/OFF** button (for at least 1 second) switches the controller on or off. If a controller delay after a power interruption (power failure) is active, then the time remaining is shown in the lower display (blinking).

Changing the thermostat selection (for display)

One of the three thermostats is selected as the default for the display representation by using parameter P830. The chosen thermostat is indicated by the Th-1, Th-2 or Th-3 LED.

The control sensor value for that thermostat is shown on the upper display and the control setpoint on the lower display.

The **UP** and **DOWN** buttons can be used to change the thermostat selection (to be displayed). If no buttons are pressed for a given time interval (P860), the default thermostat will be displayed again.

Day/night mode

The LED's above the **DOWN** and **UP** buttons show whether the controller operates in day- or night mode. Pressing the **PRG** and **UP** buttons at the same time lets you switch between the day and night modes.

There are various menus. For all the menus, the normal operation will be resumed if no buttons are pressed for a given time interval (P860). Returning to the normal operation can also be done using the **ON/OFF** button.

View/modify setpoints

The lower display normally shows the control setpoint (with a night offset if applicable) of the selected thermostat. The LED's next to the **SETP.** button indicate which setpoint is being displayed:

- | | |
|--|--------------------------------|
| | • Setpoint-1 = LED I on |
| | • Setpoint-2 = LED II on |
| | • Setpoint-3 = LED I and II on |

The **SENS.** button can be used to activate the setpoint menu.

The individual setpoints used (without the night offset) can be shown and adjusted in the setpoint menu.

The upper display indicates which setpoint is being displayed: SP.<number>.

The lower display shows the setpoint.

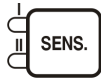
LEDs Th-1, Th-2 and Th-3 indicate which thermostats are using the shown setpoint.

The **UP** and **DOWN** buttons can be used to switch the shown setpoint.

Pressing the **SETP.** button at the same time as the **UP** or **DOWN** buttons can be used to adjust the shown setpoint.

Viewing the sensor value

The upper display normally shows the control sensor of the selected thermostat. The LED's next to the **SENS.** button show which sensors are used:



- Sensor-1 = LED I on
- Sensor-2 = LED II on

A blinking LED shows that the sensor in question cannot be used for the selected thermostat, as a result of a fault with that sensor (or the other sensor, in the case of differential thermostat operation).

The **SENS.** button can be used to activate the sensor menu.

The individual sensor values can be shown in the sensor menu.

The upper display shows the measured sensor value.

The lower display indicates which sensor value is being displayed:

- t.A = mean (average) of the sensors present (and not showing a fault)
- t.1 = sensor-1
- t.2 = sensor-2
- t.d = difference (delta) of sensor-1 minus sensor-2
- t.F <x> = control sensor selection on front

LED's Th-1, Th-2 and Th-3 indicate which thermostats are using the shown sensor value.

The **UP** and **DOWN** buttons can be used to switch the shown sensor value.

Control sensor selection via front:

At control sensor selection via front (t.F <x>), the shown control sensor is indicated by a number behind the indication t.F.

The value of the other (not selected) sensor can be displayed by pushing the **SENS.** button again. The lower display will start blinking, to indicate that the sensor value of the non-selected sensor is being displayed.

With the **SENS.** button you can switch between displaying the selected control sensor and the (blinking) non-selected control sensor.

By pressing the **SETP.** button the shown sensor is selected as the control sensor (for the thermostats with the parameters set for "Control sensor selection via front").

Status menu

Pressing the **PRG** and **SENS.** buttons at the same time activates the status menu.

Several status values can be shown in the status menu.

In the upper display the status value is shown.

The lower display indicates which status value is being displayed:

- di.1 = Digital input-1 status (On = closed, Off = open input)
- An.1 = Analog output-1 with the output value in Volt.
- Pc.<x> = P(ID) percentage for cooling for thermostat <x>
- Ph.<x> = P(ID) percentage for heating for thermostat <x>

The **UP** and **DOWN** buttons can be used to switch the selected status value to be shown.

The last shown status value is hold for showing the next time the status menu is entered.

Relay status

The LED's Out-1, Out-2 and Out-2 show respectively the relays (Ry.1, Ry.2 and Ry.3) that are activated, as a status indication.

Digital input for switching on/off

The digital input can be set for an on/off switch function (P810). A manual operation overrules the digital input until the digital input changes. If the controller is on because of a manual override, the LED above the **ON/OFF** button will be blinking.

After a power interruption, the manual override will be released and the external input will take precedence again.

Digital input for switching day/night mode

The digital input can be set for a day/night switch function (P810). A manual operation overrides the digital input until the digital input changes. If the digital input is being overridden, the LED in question above the **UP** or **DOWN** button will be blinking.

Should there be a power interruption, the manual override will be released and the digital input will take precedence again.

Digital input for blocking control functions

The digital input can be set for blocking the control functions (P810). When blocking there are no control functions active, actual alarm are being reset and no new alarms are generated.

Sensor values, setpoints and parameters can still be viewed and modified, through.

During blocking 4 dashed (" - - - ") are shown in the lower display.

Control delay after power interruption

The controller supports a control delay after a power interruption. If set (P830), no control functions will be performed during the control delay after the controller is powered up (again). The sensor values, setpoints and parameters can be viewed and adjusted, though. During the control delay, the remaining time is shown blinking in the lower display.

* Alarms

If an alarm occurs, the LED above the **RESET ALARM** button lights up. The alarm message is shown in the upper display. Pressing the **RESET ALARM** button allows the alarms to be reset, one by one. Once all the alarms are reset, the LED above the **RESET ALARM** button goes out.

Pressing the **PRG** and **RESET ALARM** buttons at the same time allows all alarms to be reset in a single action.

Parameter settings can be used for each relay/analogue output to set what should be done for the various alarm conditions. An alarm condition is removed when the cause is eliminated and the alarm has been reset using the **RESET ALARM** button.

Alarm messages

The following alarm messages can occur in the upper display:

Lo.<x>	Minimum temperature alarm from thermostat <x>
Hi.<x>	Maximum temperature alarm from thermostat <x>
FE	External alarm
F.<x>	No (non-faulty) sensor value available for thermostat <x>
E.<x>	Sensor <x> error
A.1	All thermostats off (P201, P221 and P241)

Remarks about alarms:

1. If a stage (relay/analogue output) has been set for the watch- or control-alarm function, this applies to the alarms of all thermostats in use, i.e. not for each one individually.
2. If a sensor error occurs, an E.<x> alarm report is shown on the upper display. The LED of the sensor in question will also blink if the sensor is being used by the selected thermostat. The sensor with the fault will then no longer be used for control, until the cause of the fault has been eliminated and the alarm has been reset.
3. If sensor option 0 has been set for a thermostat (average of the non-faulty sensors present), the control function does not stop if 1 sensor has a fault, as long as another fault-free sensor is available. The LED for the sensor with the fault will blink; the LED for the other (non-faulty) sensor will be permanently illuminated.
4. If an F.<x> alarm is reported for a thermostat (no non-faulty sensor value available), then the stages that are linked to that thermostat (relays/analogue output) will be controlled in accordance with parameters P515, P535, P555 end P715 until the cause of the alarm has been eliminated and the F.<X> alarm has been reset.

* Parameter menu

Pressing the **PRG** and **DOWN** buttons at the same time for 5 seconds lets you activate the parameter menu. The parameter menu allows the parameters to be displayed and adjusted.

The upper display indicates which parameter has been selected: P<number>.
The lower display shows the value of the selected parameter.

When the parameter menu is activated, the parameter shown initially is the same one as the last time this menu was exited.

The **UP** and **DOWN** buttons can be used to select another parameter. Pressing the **SETP.** and **UP/DOWN** buttons at the same time allows the selected parameter to be adjusted.

Passwords

If an operator password has been set (P862), a four-digit password will first need to be given for operator actions that affect the control function. The text "Code" appears in the upper display, and " _ _ _ _ " in the lower display.

The **UP** and **DOWN** buttons can be used to input the first digit. The **ON/OFF** button can then be used to move on to the next digit.

After all 4 digits have been input correctly in this way, the operator action can be performed. The password remains in force until no buttons have been pressed for a given time interval (P861). After that, the password has to be entered once more before the controller can be operated again.

There is a parameter password for viewing and changing the parameters. If this has been set (P863), this password must be input in the same way as the operator password. The parameter password also enables the operator actions.

Parameter table

No.	Description	Range	Per	Unit	Default 1
Setpoints group (3x)					
P010	Minimum temperature setting setpoint-1	-100..+150	0,1	°C	-50
P011	Maximum temperature setting setpoint-1	-100..+150	0,1	°C	+100
P020	Minimum temperature setting setpoint-2	-100..+150	0,1	°C	-50
P021	Maximum temperature setting setpoint-2	-100..+150	0,1	°C	+100
P030	Minimum temperature setting setpoint-3	-100..+150	0,1	°C	-50
P031	Maximum temperature setting setpoint-3	-100..+150	0,1	°C	+100
Sensor group (2x)					
P110	Sensor-1 present (0 = no, 1 = yes)	0..1	-	-	1
P111	Sensor-1 offset	-15..+15	0,1	°C	0
P120	Sensor-2 present (0 = no, 1 = yes)	0..1	-	-	0
P121	Sensor-2 offset	-15..+15	0,1	°C	0

No.	Description	Range	Per	Unit	Default 1
Thermostats group (3x)					
Th-1: Thermostat control-1					
P210	Setpoint 0 = none (0 = thermostat off) 1 = setpoint-1 [SP.1] 2 = setpoint-2 [SP.2] 3 = setpoint-3 [SP.3]	0..3	-	-	1
P211	Sensor 0 = mean value (average) of the non-faulty sensors present (t.A = (t.1 + t.2)/2) [t.A] 1 = sensor-1 [t.1] 2 = sensor-2 [t.2] 3 = differential (delta) temperature (t.d = t.1 - t.2) [t.d] 4 = control sensor selection via front (t.F 1 or t.F 2) [t.F]	0..4	-	-	0
P212	Night offset	-25..+25	0,1	°C	0
P215	Proportional band for cooling	0,1..25	0,1	°C	1
P216	Offset proportional band for cooling	-25..+25	0,1	°C	0
P217	Integration time for cooling (999 = no I-action)	1..999	1	min.	999
P218	Differential action percentage for cooling (0 = no D-action)	0..100	1	%	0
P220	Proportional band for heating	0,1..25	0,1	°C	1
P221	Offset proportional band for heating	-25..+25	0,1	°C	0
P222	Integration time for heating (999 = no I-action)	1..999	1	min.	999
P223	Differential action percentage for heating (0 = no D-actie)	0..100	1	%	0
Th-2: Thermostat control-2 (same as Thermostat control-1)					
P240	Setpoint (same as P210)	0..3	-	-	0
P241	Sensor (same as P211)	0..4	-	-	0
P242	Night offset	-25..+25	0,1	°C	0
P245	Proportional band for cooling	0,1..25	0,1	°C	1
P246	Offset proportional band for cooling	-25..+25	0,1	°C	0
P247	Integration time for cooling (999 = no I-action)	1..999	1	min.	999
P248	Differential action percentage for cooling (0 = no D-action)	0..100	1	%	0
P250	Proportional band for heating	0,1..25	0,1	°C	1
P251	Offset proportional band for heating	-25..+25	0,1	°C	0
P252	Integration time for heating (999 = no I-action)	1..999	1	min.	999
P253	Differential action percentage for heating (0 = no D-actie)	0..100	1	%	0
Th-3: Thermostat control-3 (same as Thermostat control-1)					
P270	Setpoint (same as P210)	0..3	-	-	0
P271	Sensor (same as P211)	0..4	-	-	0
P272	Night offset	-25..+25	0,1	°C	0
P275	Proportional band for cooling	0,1..25	0,1	°C	1
P276	Offset proportional band for cooling	-25..+25	0,1	°C	0
P277	Integration time for cooling (999 = no I-action)	1..999	1	min.	999
P278	Differential action percentage for cooling (0 = no D-action)	0..100	1	%	0
P280	Proportional band for heating	0,1..25	0,1	°C	1
P281	Offset proportional band for heating	-25..+25	0,1	°C	0
P282	Integration time for heating (999 = no I-action)	1..999	1	min.	999
P283	Differential action percentage for heating (0 = no D-actie)	0..100	1	%	0

No.	Description	Range	Per	Unit	Default 1
Thermostat alarms group (3x)					
Th-1: Thermostat 1					
P410	Alarm function 0 = none 1 = absolute 2 = relative (compared to setpoint)	0..2	-	-	0
P411	Switching differential for alarm function	0,1..25	0,1	°C	0,1
P412	Minimum alarm temperature	-100..+150	0,1	°C	-50
P413	Minimum alarm delay time	0..99	1	min.	0
P414	Automatic reset on minimum alarm (0=no, 1=yes)	0..1	-	-	0
P415	Maximum alarm temperature	-100..+150	0,1	°C	+100
P416	Maximum alarm delay time	0..99	1	min.	0
P417	Automatic reset on maximum alarm (0=no, 1=yes)	0..1	-	-	0
Th-2: Thermostat 2 (same as Thermostat-1)					
P430	Alarm function (same as P410)	0..2	-	-	0
P431	Switching differential for alarm function	0,1..25	0,1	°C	0,1
P432	Minimum alarm temperature	-100..+150	0,1	°C	-50
P433	Minimum alarm delay time	0..99	1	min.	0
P434	Automatic reset on minimum alarm (0=no, 1=yes)	0..1	-	-	0
P435	Maximum alarm temperature	-100..+150	0,1	°C	+100
P436	Maximum alarm delay time	0..99	1	min.	0
P437	Automatic reset on maximum alarm (0=no, 1=yes)	0..1	-	-	0
Th-3: Thermostat 3 (same as Thermostat-1)					
P450	Alarm function (same as P410)	0..2	-	-	0
P451	Switching differential for alarm function	0,1..25	0,1	°C	0,1
P452	Minimum alarm temperature	-100..+150	0,1	°C	-50
P453	Minimum alarm delay time	0..99	1	min.	0
P454	Automatic reset on minimum alarm (0=no, 1=yes)	0..1	-	-	0
P455	Maximum alarm temperature	-100..+150	0,1	°C	+100
P456	Maximum alarm delay time	0..99	1	min.	0
P457	Automatic reset on maximum alarm (0=no, 1=yes)	0..1	-	-	0

No.	Description	Range	Per	Unit	Default 1
Relays group (3x)					
Ry.1: Relay 1					
P510	Function for thermostat output stage-1 SPST = relay Ry.1 0 = none 1 = on/off cooling (uses P511, P512, P513) 2 = on/off heating (uses P511, P512, P513) 3 = modulating P(ID) cooling (uses P511) 4 = modulating P(ID) heating (uses P511) 5 = watch alarm (deactivates at alarm) 6 = control alarm (activates at alarm) 7 = day mode indicator (active at day mode) 8 = night mode indicator (active at night mode) 9 = controller on indication (active as controller is on) 10 = controller off indication (active as controller is off)	0..10	-	-	1
P511	Assign relay-1 to thermostat number (at P510 = 1, 2, 3 or 4)	1..3	-	-	1
P512	Switching differential for on/off control (at P510 = 1 or 2)	0,1..25	0,1	°C	0,5
P513	Offset for on/off control (at P510 = 1 or 2)	-25..+25	0,1	°C	0
P514	Cycle-time for modulating control (at P510 = 3 or 4)	5..240	1	sec.	60
P515	Forced control function (activate relay), if no (non-faulty) sensor is available for control [F.<x> alarm] ¹ (0=no, 1=yes)	0..1	-	-	0
P516	Stop control function at minimum alarm ¹ (0=no, 1=yes)	0..1	-	-	1
P517	Stop control function at maximum alarm ¹ (0=no, 1=yes)	0..1	-	-	1
P518	Stop control function at external alarm (0=no, 1=yes)	0..1	-	-	1
Ry.2: Relay 2 (same as Relay 1)					
P530	Function for thermostat output stage-2 SPDT = relay Ry.2 (same as P510)	0..10	-	-	2
P531	Assign relay-2 to thermostat number (at P530 = 1, 2, 3 or 4)	1..3	-	-	1
P532	Switching differential for on/off control (at P530 = 1 or 2)	0,1..25	0,1	°C	0,5
P533	Offset for on/off control (at P530 = 1 or 2)	-25..+25	0,1	°C	0
P534	Cycle-time for modulating control (at P530 = 3 or 4)	5..240	1	sec.	60
P535	Forced control function (activate relay), if no (non-faulty) sensor is available for control [F.<x> alarm] ¹ (0=no, 1=yes)	0..1	-	-	0
P536	Stop control function at minimum alarm ¹ (0=no, 1=yes)	0..1	-	-	1
P537	Stop control function at maximum alarm ¹ (0=no, 1=yes)	0..1	-	-	1
P538	Stop control function at external alarm (0=no, 1=yes)	0..1	-	-	1
Ry.3: Relay 3 (same as Relay 1)					
P550	Function for thermostat output stage-3 SPDT = relay Ry.3 (same as P510)	0..10	-	-	5
P551	Assign relay-3 to thermostat number (at P550 = 1, 2, 3 or 4)	1..3	-	-	1
P552	Switching differential for on/off control (at P550 = 1 or 2)	0,1..25	0,1	°C	0,5
P553	Offset for on/off control (at P550 = 1 or 2)	-25..+25	0,1	°C	0
P554	Cycle-time for modulating control (at P550 = 3 or 4)	5..240	1	sec.	60
P555	Forced control function (activate relay), if no (non-faulty) sensor is available for control [F.<x> alarm] ¹ (0=no, 1=yes)	0..1	-	-	0
P556	Stop control function at minimum alarm ¹ (0=no, 1=yes)	0..1	-	-	1
P557	Stop control function at maximum alarm ¹ (0=no, 1=yes)	0..1	-	-	1
P558	Stop control function at external alarm (0=no, 1=yes)	0..1	-	-	1

1) for/from assigned thermostat

No.	Description	Range	Per	Unit	Default 1
Analogue outputs (1x)					
An.1: Analogue output 1					
P710	Function analogue output (max. value see P732) 0 = none (Analogue output not active) <u>On/off functions (semi-relay en status outputs)</u> Where the output = off (0 Vdc) or on (max. value) 1 = on/off cooling (uses P711, P712, P713) 2 = on/off heating (uses P711, P712, P713) 3 = modulating P(ID) cooling (uses P711) 4 = modulating P(ID) heating (uses P711) 5 = watch alarm (0 Vdc at alarm) 6 = control alarm (max. value at alarm) 7 = day mode (max. value at day mode) 8 = night mode (max. value at night mode) 9 = controller on (max. value as controller is on) 10 = controller off (max. value as controller is off) <u>PID functions (control output)</u> Where the output = analogue P(ID) percentage between 0 Vdc (= 0%) en max. value (= 100%) 20 = P(ID) cooling (from thermostat at P711) 21 = P(ID) heating (from thermostat at P711) <u>Temperature output functions (recorder output)</u> Where the output is a temperature signal with a range determined by P733 and P734 30 = control setpoint value from thermostat set in P711 31 = control sensor value from thermostat set in P711 32 = setpoint value from setpoint number P730 33 = sensor value from sensor selection P731	0..10, 20..21, 30..33	-	-	0
P711	Assign output to thermostat no. (at P710 = 1..4, 20..21, 30..31)	1..3	-	-	1
P712	Switching differential for on/off control (if P710 = 1 or 2)	0,1..25	0,1	°C	0,5
P713	Offset for on/off control (if P710 = 1 or 2)	-25..+25	0,1	°C	0
P714	Cycle time for modulating control (if P710 = 3 or 4)	5..240	1	sec.	60
P715	Forced control function (output at max. value (see P732)) if no sensor value (not faulty) is available (F.<x> alarm) ² (0=no, 1=yes)	0..1	-	-	0
P716	Stop control function at minimum alarm ² (0=no, 1=yes)	0..1	-	-	1
P717	Stop control function at maximum alarm ² (0=no, 1=yes)	0..1	-	-	1
P718	Stop control function at external alarm (0=no, 1=yes)	0..1	-	-	1

² for/from assigned thermostat

No.	Description	Range	Per	Unit	Default 1
P730	Setpoint (if P710 = 32) 1 = setpoint-1 [SP.1] 2 = setpoint-2 [SP.2] 3 = setpoint-3 [SP.3]	1..3	-	-	1
P731	Sensor (if P710 = 33) 0 = mean value (average) of present (non faulty) sensor (t.A = (t.1 + t.2)/2) [t.A] 1 = sensor-1 [t.1] 2 = sensor-2 [t.2] 3 = differential (delta) temperature (t.d = t.1 - t.2) [t.d] 4 = control sensor selection via front (t.F 1 or t.F 2) [t.F]	0..4	-	-	0
P732	Maximum value analogue output 0 = 5 V DC (Range 0..5V DC) 1 = 10 V DC (Range 0..10V DC)	0..1	-	-	0
P733	Minimum voltage (0 Vdc) at temperature	-100..+150	0,1	°C	-50
P734	Maximum voltage (P732) at temperature	-100..+150	0,1	°C	+100
Digital inputs group (1x)					
di.1: Digital input 1					
P810	Function digital input 0 = none (0 = input not in use) 1 = switching day/night mode (closed = night) 2 = external alarm input (closed = alarm) 3 = reset alarm externally (closed = reset alarm) 4 = external on/off switching (closed = off) 5 = blocking control-functions (closed = blocking)	0..5	-		0
P811	Invert function digital input conform P810 (0 = no, 1 = yes)	0..1	-		0
Other settings group					
P830	Default thermostat selection 1 = Thermostat control-1 [Th-1] 2 = Thermostat control-2 [Th-2] 3 = Thermostat control-3 [Th-3]	1..3	-	-	1
P831	Readout in whole degrees (0=no, 1=yes)	0..1	-	-	0
P840	Control delay after power interruption	0..99	1	min.	0
P841	Reset alarm <u>relay</u> after alarm reset (0=no, 1=yes) (Without the cause of the alarm being removed)	0..1	-	-	0
P842	Buzzer on at alarm (0=no, 1=yes)	0..1	-	-	0
P850	Reset parameters to default values from column: Default <x> 0 = normal, reset completed 1 = values from column Default 1 (double thermostat with watch-alarm, cooling at Ry1, heating at Ry2, watch-alarm at Ry3) <u>Note:</u> Resetting is done after you leave the parameter menu. P850 is than set back to 0.	0..1	-	-	0
P860	Operating (menu) timeout	5..120	1	sec.	20
P861	Password timeout	60..600	1	sec.	120
P862	Operating password (0000 = not active)	0000..9999	1	-	0000
P863	Parameter password (0000 = equal to P862)	0000..9999	1	-	0000

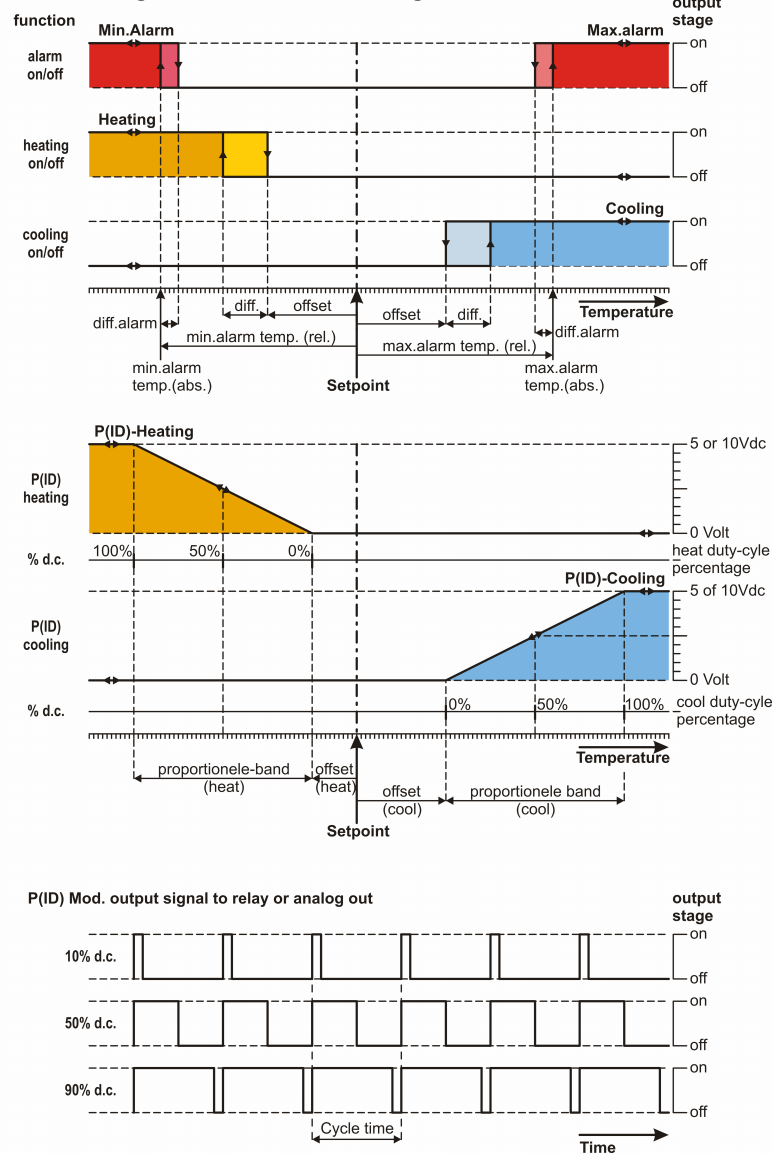
No.	Description	Range	Per	Unit	Default 1
Network group					
P990	Network number (must be unique in the network)	1..250	1	-	1
P991	Logging interval-time	1..120	1	min.	5
Production data group					
P995	Software version (read only)	-	-	-	-
P998	Serial number (read only)	-	-	-	-
P999	Production date (year.week) (read only)	-	-	-	-

* Adjusting the temperature sensors

The sensors can be calibrated by the sensor offset parameters (P111 and P121).
If a temperature sensor shows e.g. 2.5°C too high, then the according sensor offset must be reduced by 2.5°C.

* Function flow diagram

MC 885 4-stage thermostat function diagram:



Explanation of minimum and maximum alarms

A minimum alarm is given by a thermostat if the control sensor value stays below the minimum alarm temperature for longer than the minimum alarm delay time.

The cause of the alarm is eliminated when the control sensor value again becomes higher than the minimum alarm temperature plus the switching differential.





A maximum alarm is given by a thermostat if the control sensor value stays above the maximum alarm temperature for longer than the maximum alarm delay time.

The cause of the alarm is eliminated when the control sensor value again becomes lower than the maximum alarm temperature minus the switching differential.

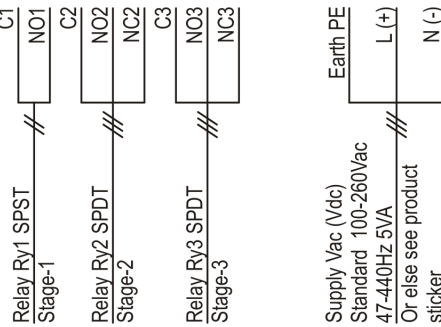
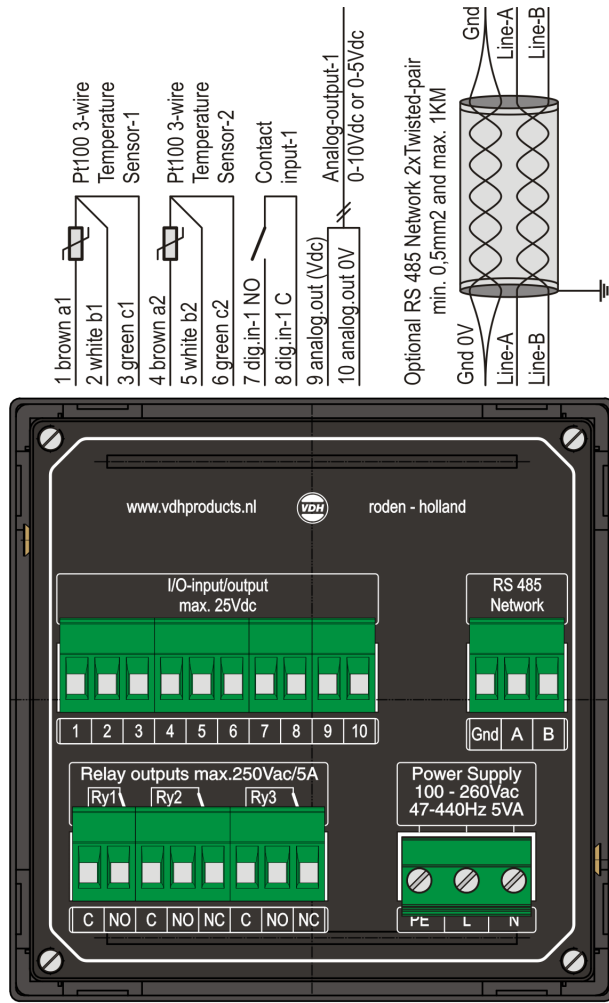
If the alarm function for a thermostat is set to relative, then the minimum and maximum alarm temperatures are applied with respect to the control setpoint (instead of the absolute control sensor value).

A minimum or maximum alarm must normally be reset manually or using the digital input (when P810 = 3). However, the parameters can also be set so that these alarms are reset automatically once the cause for the alarm has been eliminated.

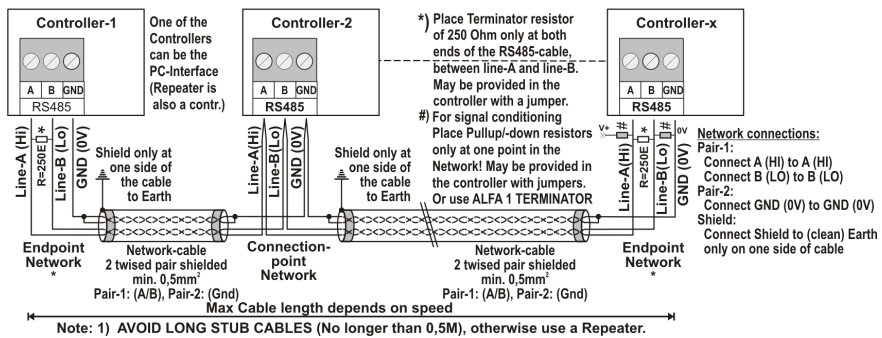
* Technical data

Type:	MC885 4-Stage Thermostat	
Measure range:	-50/+100°C, uitlezing per 0,1°C	
Control range:	-50/+100°C, uitlezing per 0,1°C	
Operation:	Via pushbuttons on the front	
Front:	Polycarbonate IP65	
Dimensions:	96 x 96 x 140mm (HxWxD)	
Panel cutout:	90 x 90mm (HxW)	
Accuracy:	± 0,5% of the range	
Power supply:	100 – 260 VAC, 47-440 Hz (or 120 – 370 VDC), max. 5 Watts Or otherwise, see product sticker	
Temp. sensor:	Pt100-1 Temperature sensor-1	a,b,c; 3-wire system
	Pt100-2 Temperature sensor-2	a,b,c; 3-wire system
Digital input:	Contact input-1, function see parameter P810	Potential-free connection
Relays:	Ry.1: Thermostat output stage-1	SPST C-NO contact
	Ry.2: Thermostat output stage-2	SPDT C-NO-NC contact
	Ry.3: Thermostat output stage-3	SPDT C-NO-NC contact
	For all relays:	Maximum 8A at 250 VAC with cos(phi)=1,0 Maximum 6A at 250 VAC with cos(phi)=0,4 or 5A at 30 VDC
Analogue output:	0-10 VDC of 0-5 VDC (via P732) function see P710	Load max. 1mA
Communication:	Optional RS485 for ALFANET 2xTwisted-pair shielded min. 0,5mm ² , maximum cable length 1KM	(Line-A, Line-B and Gnd) Refer to connection diagram for connection details
Buzzer:	On the processor PCB, used for alarms	(dependent on parameter P842)
Displays:	Upper: 4 digit 7-segment display, 13mm (red) for temperature readout Lower: 4 digit 7-segment display, 10mm (red) for setpoint readout	
Status LED's:	Th-1 <input type="checkbox"/>	LED thermostat-1 in display (meas. and setp. values)
	Th-2 <input type="checkbox"/>	LED thermostat-2 in display (meas. and setp. values)
	Th-3 <input type="checkbox"/>	LED thermostat-3 in display (meas. and setp. values)
	<input type="checkbox"/> Out-1	LED relay-1 active (thermostat output stage-1)
	<input type="checkbox"/> Out-2	LED relay-2 active (thermostat output stage-2)
	<input type="checkbox"/> Out-3	LED relay-3 active (thermostat output stage-3)
	<input type="checkbox"/> 	LED alarm
	<input type="checkbox"/> 	LED clock (not used)
	<input type="checkbox"/> 	LED night mode active
	<input type="checkbox"/> 	LED day mode active
	<input type="checkbox"/> Mo <input type="checkbox"/> Tu <input type="checkbox"/> We <input type="checkbox"/> Th <input type="checkbox"/> Fr <input type="checkbox"/> Sa <input type="checkbox"/> Su	Day LED's (not used)

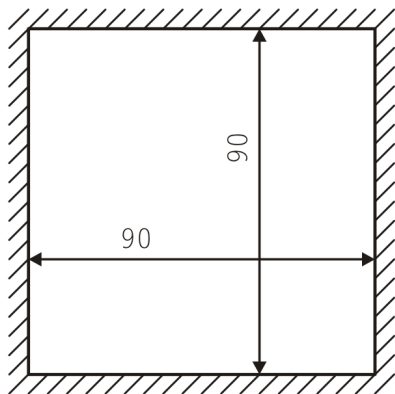
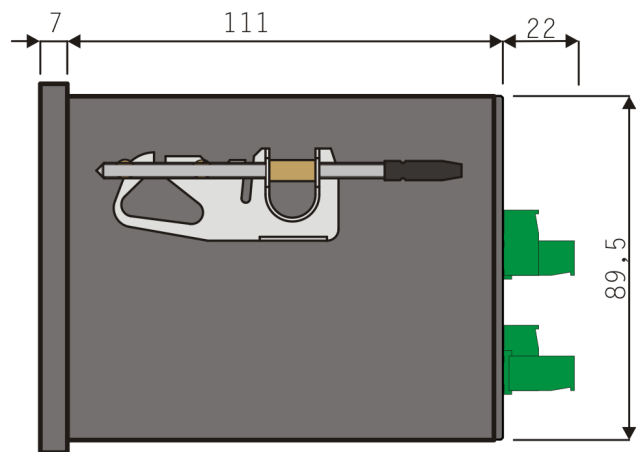
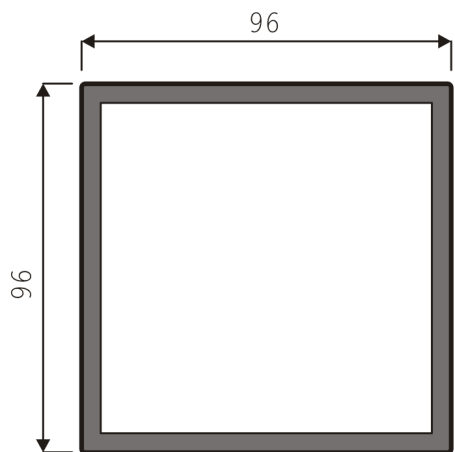
*** Connection diagram**



RS 485 NETWORK CONNECTIONS 2-twisted pair shielded cable:



*** Dimensions**



*** Address**

VDH Products BV
Produktieweg 1
9301 ZR Roden
Nederland

Tel: +31 (0)50 30 28 900
Fax: +31 (0)50 30 28 980
Email: info@vdhproducts.nl
Internet: www.vdhproducts.nl

