SAUTER equiflex®

Electronic heating controller

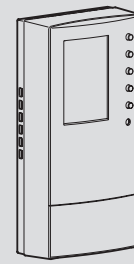**en** Quick reference

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Contents:
1. General
2. Putting into service (by a technician)
4. How to operate (user)

B11438

1 General

1.1 Key to symbols and abbreviations

🔒	Factory setting	T_A	Outside temperature
⌐	Please note	T_F	Supply temperature
PROG / 8	When value flashes in the display:- - it refers to a particular status or - it denotes a value that can be	T_R	Room temperature
		T_{RF}	Return temperature
		MOD	Control model

1.2 Keypad

B11439
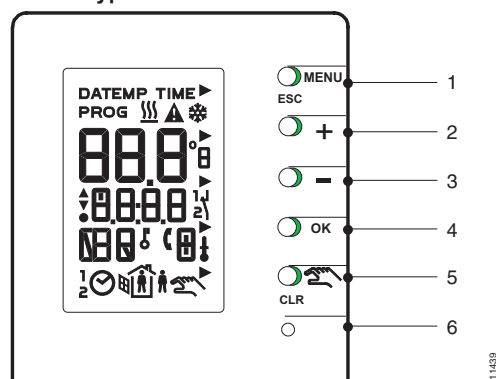
Access to menu levels (date, time, switching programmes, temperature levels, manual operating).

|	
1	Exit menu and SERVice level(s) (ESC).
2	Show setpoint for room temperature. Increase the flashing value.
3	Show setpoint for room temperature. Decrease the flashing value.
4	Confirm the flashing value. Access to service level.
5	(Un)limited temperature change. Manual mode. Delete switching com'd (CLR).
6	Reset (see 3.7).

1.3 Display

►	Button operation active
﹋	Heating mode
❄	Anti-frost facility active
⚠	Warning/fault notice or MOD 0 chosen (see B3, P06)
88.8℉	Actual value or setpoint for room temperature in °C or °F
▲ ▼	Triac opens or closes the valve
●	Relay contacts for pump closed
88.88	Time in hours and minutes
🔑	Keypad lock active
¹⌐	PROG input active
²⌐	F_Limit input active
8↕	Temperature levels, System Off, System Standby
🔲🔲🔲	Day of week (abbreviated), duration in hours (h:) or days (d:). E: change operating mode via remote control
¹⌚²	Automatic mode as per weekly (1) or calendar (2) switching programme
✍	(Un)limited temperature change or manual mode

2 Putting into service (by technician)

2.1 Make basic setting

After having switched the power on for the very first time, you have two minutes in which to enter the language, the time and the date.
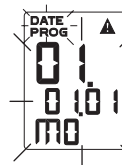
2.1.1 Choose language

D = German, F = French, E = English, I = Italian, SP = Spanish, CS = Czech; 1-7 for others (1 = Monday, 2 = Tuesday, ..., 7 = Sunday)
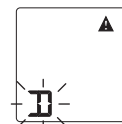
⭕ +, ⭕ -	Choose language
⭕ OK	Confirm and save the selected language

2.1.2 Enter time & date

⭕ +, ⭕ -	Set the time
⭕ OK	Confirm the time
⭕ +, ⭕ -	Set the date
⭕ OK	Confirm the date
⭕ ESC	Screen for automatic mode

2.1.3 Select control model

Choose the control model in SERVice mode (see 2.2). Adapt the SERVice parameter P06.

2.2 SERVice mode

Start at the screen for automatic mode:-
Measured room temperature: 20.3°C
Time: 09:00 hrs
Day of week: Wednesday

2.2.1 Access to SERVice mode

⭕ OK >4s	(Press button for more than 4 seconds)
⭕ ✍	
⭕ OK	

2.2.2 View/change SERVice parameters

⭕ +, ⭕ -	View parameters (- - - denotes unrequired parameters)
	List of parameters (B3)
⭕ OK	Choose SERVice parameters
⭕ +, ⭕ -	Change flashing value
⭕ OK	Accept value (or press ESC to abort)

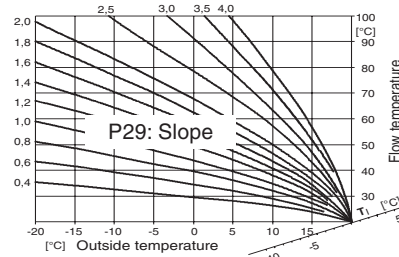#### 2.2.3 Return to automatic mode

⭕ ESC	Return to automatic mode

2.3 Extract from list of SERVice parameters

For detailed description, see document 7 000974

No.	🛠	Explanation
P01	0Y.xx	View software version
P02	0	View device status (0=OK, >0=fault has occurred)
P03	0	Not used
P04	0	Software reset (0=function not active)
P05	0	Manual mode (0=not enabled; >0=enabled for % valve position)
P06	0	Control model (0=regulation not active, contacts open 1=weather-compensating PI supply-temperature controller 2=room-temperature-led PI room controller 3=room-temperature-led P+PI supply-temperature controller)
P07	0	Language (0=German, 1=French, 2=English, 3=Italian, 4=Spanish, 5=Czech, 6=1...7)
P08	0	Unit for the temperature displayed (0=°C, 1=°F)
P09	0	Display of actual value for temp. (0=room, 1=outside, 2=supply, 3=return)
P10	8	8° minimum limitation, setting range Room-temperature setpoint
P11	38	38° maximum limitation, setting range Room-temperature setpoint
P12	0	Measurement of room and return temperatures: 0 = measurement of room temperature using internal NTC sensor; 1 = measurement of room temperature using external Ni1000 sensor; 2 = internal NTC and external Ni1000 measurement of; room temp. with averaging; 3 = measurement of return temperature using external Ni1000 sensor for maximum limitation of the return temperature and binary input FLim for minimum flow limitation; 4 = limitation of the return temperature by external Ni1000 sensor for minimum limitation of the return temperature to protect a boiler; 5 = limitation of the return temperature by external Ni1000 sensor for minimum limitation of the return temperature to protect a heating surface; 6 = Connection for EGS 52/15 or EGT 333 remote-control unit
P13	0.0	Influence of wall on room temperature with NTC sensor
P14	0.0	Influence of wall on room temperature with Ni1000
P15	0	Measurement of outside temp. (0=Ni1000, 1=0...10V); also transpose jumper (see MV505760 or MV505761)
P16	3	Levels of damping the outside temperature (0=without, ..., 10=time constant 24 h)
P17	0	Function of PROG input (see diagram)
P18	0	Direction of operation of PROG input (0=active closed, 1=active open)
P19	2.0	2K proportional band of the P controller (MOD 3)
P20	40	40K proportional band of the PI controller
P21	240	240 seconds integral action time for the PI controller
P22	120	120 seconds valve running time
P23	5	5°C minimum limitation of supply temperature
P24	75	75°C maximum limitation of supply temperature
P25	90	90°C limitation of return temperature
P26	2	2K/K level of intervention on reaching the return-temperature limit in MOD 1, 3
P27	60	60°C setpoint for supply temperature with fixed-value control (see P17)
P28	0	Inclusion of room temperature (0=not active, 1=active if actual value is too high, 2=active if actual value is too low, 3=always active)
P29	1.4	1.4 slope of heating characteristic
P30	1	Frost protection (0=not active, 1=active)
P31	1	Function of relay output (0=no function, 1=pump for heating, 2=pump for fixed-value control, 3=pilot timer)
P32	0	Anti-jamming function for valves and pumps (0=not active, 1=active for valve, 2=active for pump, 3=active for valve and pump)
P33	120	120 min pump off at start of a reduction in room temperature
P34	0	View total duration of closed relay
P35	0	Calendar program (0=not active, 1=active)
P36	10.25	25th October summer/winter time-change
P37	03.25	25th March winter/summer time-change
P38	66.3	View actual value of supply temperature
P39	69.7	View setpoint of supply temperature
P40	16.0	View measured value of the damped outside temperature
P41	33.4	View actual value for return temperature
P60	0	Floor-drying function (0=not active, 1=active, 9 (read only)=successfully completed)

2.3.1 Heating curve

P29: Slope

Recommended slopes for heating characteristic:
1,4 for hot-water radiator heating systems (🛠)
1,0 for low-temperature heating systems
0,6 for floor heating systems

2.3.2 Function of PROG input

	Param.: Value	Function of the switch input	Display when contacts active
🛠	P17:000	Unoccupied	🏠 ⌐
	P17:001	Occupied	🏢 ⌐
	P17:002	Window contacts	🪟 ⌐
	P17:003	Remote switching	(⌐
	P17:004	Fault signal	⚠ ⌐
	P17:005	Keypad disabled	⚿ ⌐
	P17:006	Fixed-value control	☀ ⌐

When the contacts are active, they generally interrupt the automatic mode if the SERVice parameter has a value of 0, 1, 2 or 3.

2.4 Manual mode ✍

Firstly, enable manual mode in SERVice mode (see 2.2). In manual mode, no regulation takes place. The pump is switched on or off. The opening of the valve is fixed.

2.4.1 Access to manual mode

⭘ MENU — Call up the menu
⭘ – (1 x) — Browse through the menu
⭘ OK — Select the ‚Manual mode' menu item

2.4.2 Set the status of the pump (ON/OFF) for manual mode

⭘ OK — Select the ‚Pump relay' menu item
⭘ +, ⭘ – — Change the flashing value „ı"(pump on) or „0"(pump off)
⭘ OK — and confirm

2.4.3 Set the valve position

⭘ + — Browse through the sub-menu
⭘ OK — Choose the ‚Valve opening' menu item
⭘ +, ⭘ – — Change the flashing value for valve opening (in %)
⭘ OK — and confirm

2.4.4 (De-)activate manual mode

⭘ + — Browse through the ‚Manual mode'menu
⭘ OK — Select the ‚ (De)activate manual mode' menu item
⭘ +, ⭘ – — Change the flashing value „ON" (manual mode on) or „OFF" (manual mode off)
⭘ OK — and confirm

2.4.5 Return to automatic/manual mode

⭘ (2 x) ESC — Return to manual or automatic mode

2.5 Floor-drying function

SERVice parameter P60 (see 2.2) can be used to invoke a floor-drying function as per DIN 4725/4. When the function is finished, the plant is regulated in the 'unlimited temperature change' mode with temperature level T1 (see 3.3).

2.6 Technical details

Dimensions	76x152x36mm	Storage temperature	-25...65°C
Power supply	F031 230V~ F041 24V~	Ambient humidity	0...95 r.F.
Tolerance	+/- 15%; 50...60Hz	Conformity	EN12098 and CE
Power consumption	<1,5VA	Degree of protection	IP30 (EN60529)
Outputs	1 relay, 2 triac	Protection class	II (IEC536)
Switch rating	triac 0,3 [0,5] A relay 5 (2) A	EMC irradiation	EN50081-1
Inputs	1binary, 3 analogue	EMC immunity	EN50082-2
Time-switch	running capacity > 6h	Radio suppression	EN55014 und EN55022
Parameters	non-volatile	Safety	EN60730-1
Ambient temp.	0...50 °C		

2.7 How to match the controller to the application

2.7.1 Application

Radiator heating: We recommend the following settings for the main SERVice parameters:-

Slope of heating curve P29:1.4 (🏠)
Limitation of supply temperature to 75°C P24:75(🏠)

The recommended values have been tried and tested, but are not necessarily the best solution for every plant.

Underfloor heating: We recommend the following settings for the main SERVice parameters:-

Slope of heating curve P29:0,6
Limitation of supply temperature to 50°C P24:50

The application requires additional safety thermostats. The recommended values have been tried and tested, but are not necessarily the best solution for every plant.
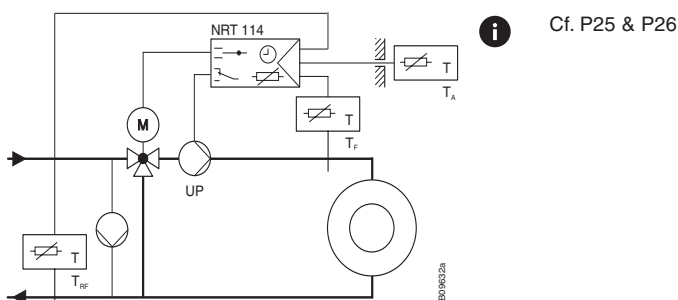
2.7.2 Examples for MOD1

Weather-compensating supply-temperature control with internal/external room-temperature sensor
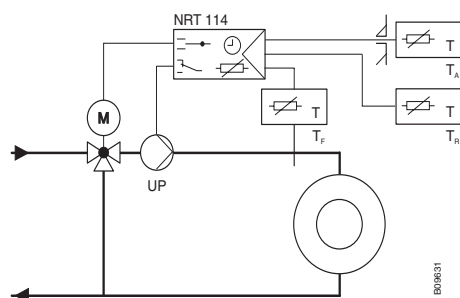
Weather-compensating supply-temperature control with limitation of the primary return temp. (max.)
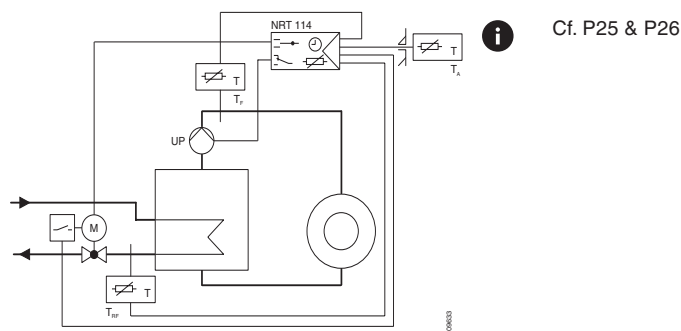
Cf. P25 & P26

Weather-compensating supply-temperature control with limitation of the return temperature (min.)

Cf. P25 & P26

Notes on how to set P12 and P28 with MOD1

	P12	P28
No inclusion of room temperature 🏠	0	0
Inclusion of room temperature	0	3
Inclusion of room temperature and measurement of room temperature with Ni1000 (extern.)	1	3
No inclusion of room temperature and no measurement of room temperature	3	0
Inclusion of room temperature and measurement of room temperature	3	3

2.7.3 Example for MOD2

How to set	P12
Internal measurement of room temp. (NTC sensor) 🏠	0
External measurement of room temp. (Ni1000 sensor)	1

Room-temperature control
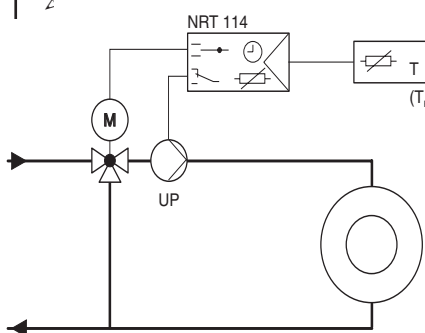
We recommend the following settings for the main SERVice parameters:-

Proportional band for PI control P20:2
Integral action time for PI control P21:900

The recommended values have been tried and tested, but are not necessarily the optimum solution for every plant.

2.7.4 Example for MOD3

| How to set	P12
Internal measurement of room temp. (NTC sensor) 🏠	0
External measurement of room temp. (Ni1000 sensor)	1

Room-temperature-led supply-temperature control
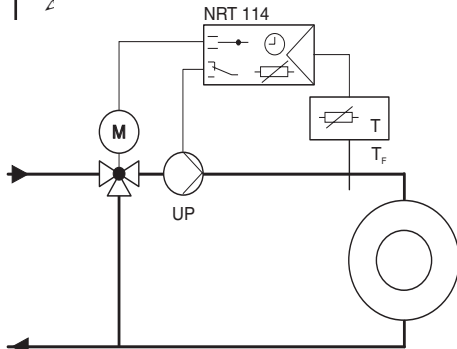
The measurement of the return temperature can be parameterised in SERVice mode.

Setting for measurement of return temp. P12:3. The measurement of room temperature is done with an internal NTC.
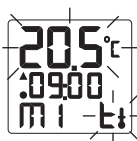
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3 How to operate (by user)

All the entries described below assume that the controller is in automatic mode (¹⏲).

3.1 Change date and time
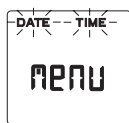
◯ MENU	Call up the menu
◯ OK	Choose the ‚Date Time‘ menu item
◯ +, ◯ -	Change the flashing value Time and confirm
◯ OK	
◯ +, ◯ -	Change the flashing value Date
◯ OK	and confirm
◯ ESC	Exit the menu

3.2 Temporary temperature change ⬆❚

◯ +, ◯ -	Change the temperature
◯ OK	and confirm

ℹ Use ESC to abort the temperature change and return to operation as per the switching programme.

3.3 (Un)limited temperature change ✍

|	
◯ ✍	Call up the function
◯ +, ◯ -	Choose the temperature level and
◯ OK	confirm
◯ +, ◯ -	Enter the duration of the change from time-limited (19 days [d] to 3 hours [h]) or time-unlimited (-d) or temporary (t) until the next switching point (minimum 2 h) and
◯ OK	confirm

ℹ Use ESC to abort the temperature change and return to operation as per the switching programme.

3.4 Temperaturstufen ändern

The 3 temperatue levels T1 (❚❚) to T3 (∃❚) can be changed individually.

◯ MENU	Call up the menu
◯ + (1 x)	Browse through the menu
◯ OK	Choose the ‚TEMP‘ menu item
◯ +, ◯ -	Browse through the temp. levels
◯ OK	Choose temperature level
◯ +, ◯ -	Change the flashing Temperature
◯ OK	and confirm
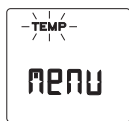
N.B.:-

❑❚ denotes heating off, possibly frost protection; enable the PROG input function

🔒 denotes plant off, possibly frost protection

Factory setting for temperature levels T1 (❚❚) to T3 (∃❚)

❚❚ = 17 °C: reduced temperature

❷❚ = 20 °C: normal temperature

∃❚ = 21 °C: 'comfort' temperature

3.5 Weekly switching programme ¹⏲

The weekly switching programme repeats itself every week. It comprises up to 42 switching commands with their associated levels (see 3.4). These commands are captive.

◯ MENU	Call up the menu
◯ + (2 x)	Browse through the menu
◯ OK	Choose the ¹⏲ menu item and view the first switching command.
◯ +, ◯ -	View next (+) or previous (-) switching command (a spare command is shown as _ _ : _ _)
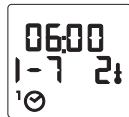
3.5.1 Delete switching command

◯ CLR	Delete switching command (To erase all switching commands, press button for > 10 seconds)

3.5.2 Change switching command

◯ OK	Change the displayed command or enter a fresh one.
◯ +, ◯ -	Enter the flashing Day value or change
◯ OK	and confirm.
◯ +, ◯ -	Enter the flashing Time value or change
◯ OK	and confirm.
◯ +, ◯ -	Enter the flashing Temp. level value or change (see 3.3)
◯ OK	and confirm and return to viewing the switching commands

3.5.3 Return to automatic mode

◯ ESC	Return to the ¹⏲ menu item
◯ ESC	Return to automatic mode

Notes on the weekly switching programme
1. A switching command can apply daily (1-7) or on a certain day (Mon, Tue etc.).
2. If there is a switching command on a certain weekday (Mon, Tue etc.), the daily command does not apply (1-7) on that day.
3. ‚End‘ denotes that the memory is full.

3.5.4 Factory setting for the weekly switching programme

MonThu	from 06:00h: ❷❚	from 15:00h: ∃❚	from 22:00h: ❚❚
Fri	from 06:00h: ❷❚	from 15:00h: ∃❚	from 22:30h: ❚❚
Sat	from 07:00h: ❷❚	from 15:00h: ∃❚	from 23:00h: ❚❚
Sun	from 07:00h: ❷❚	from 15:00h: ∃❚	from 22:00h: ❚❚

3.6 Keypad lock

Lock the keypad by pressing the following sequence of buttons:-

Use the same sequence of buttons to unlock the keys.

◯ OK
◯ +
◯ -
◯ ✍

3.7 Reset

The controller can be reset by pressing the reset button (see 1.2). Then re-enter the time and date. The SERVice parameters and the switching programme are unaffected.