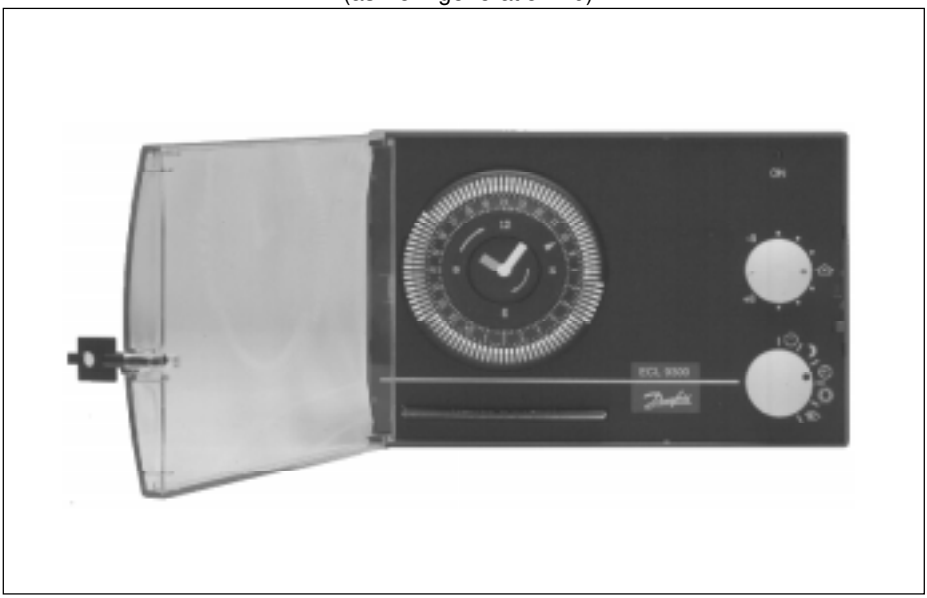
Instruction
ECL 3310
(as from generation 20)

087R9384



087R9384

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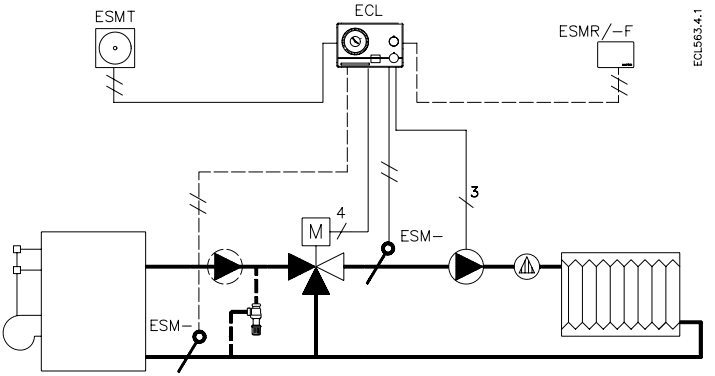
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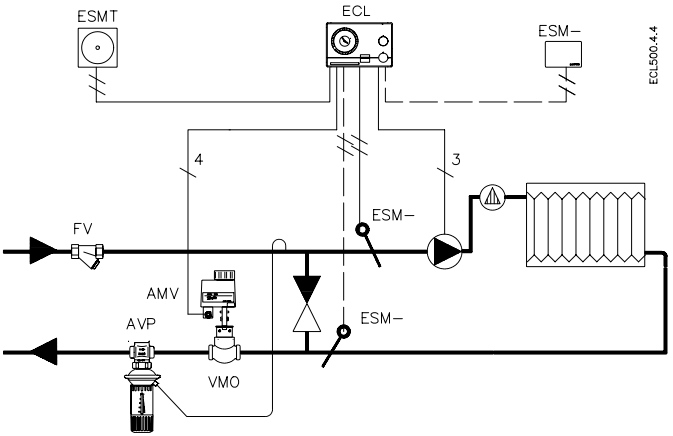
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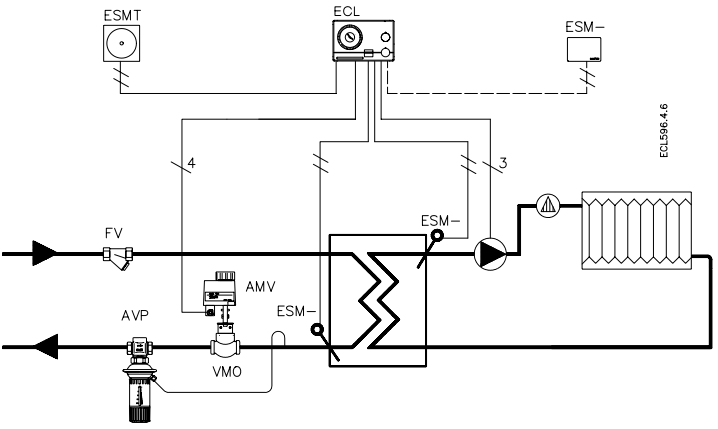
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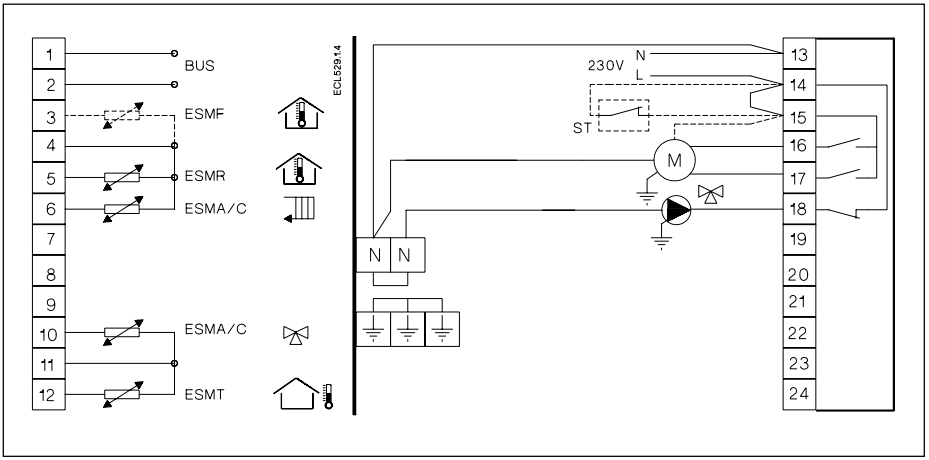
1. Boiler system with mixing circuit



2. Direct connected district heating system

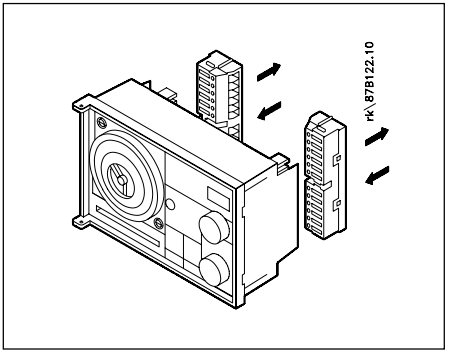


3. Indirect connected district heating system



Wiring
Terminal strips with screw fastening wires the controller.

Each terminal can wire up to 3×1.5 mm^2 or the like. The terminals are encoded, so units with supply voltage cannot be wired in the low voltage part.



Wiring with 220 V AC (terminal 13 -18)

	Terminal	Max. load
Phase (L)	14	-
Zero (N)	13	-
Circulating pump	18 - N	8 (2) A 230 V AC
Reversible gear motor AMB 123, AMV 123, AMV 523	close 16 - N	8 (2) A 230 V AC
	open 17 - N	8 (2) A 230 V AC
Thermomotor ABV-NO/NC	16	max 10 VA 230 V AC

Wire cross section: 0.75 -1.5 mm^2
Wire length: Maximum 50 meter

Temperature sensors and remote settings
ECL 3310 is to be connected to the below Pt 1000 sensors:

Sensor	Type	Terminal
Outdoor temperature sensor	ESMT	11 -12
Flow temperature sensor	ESMA/C/U	10 -11

ECL 3310 is then controlling the flow temperature according to the outdoor temperature.

In addition, below sensors or remote setting units can be connected:

Sensor	Type	Terminal
Return temperature sensor	ESMA/C/U	4 - 6
Room temperature sensor	ESMR	4 - 5
Remote setting unit with built-in room temp. sensor	ESMF-3 or ESMF-10	3 - 4
Remote control with clock, optimizer and room temperature sensor	ECA 9020	1 - 2

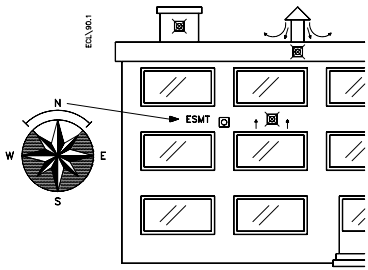
Wire cross section: 0.75 -1.5 mm^2
Wire length: Maximum 50 meter.

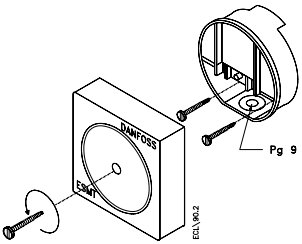
The measure result might deviate due to wire resistance. A resistance of 4 Ohm corresponds to a deviation of about 1 K.

Mounting of sensors and remote setting units are further described in the particular product instructions.

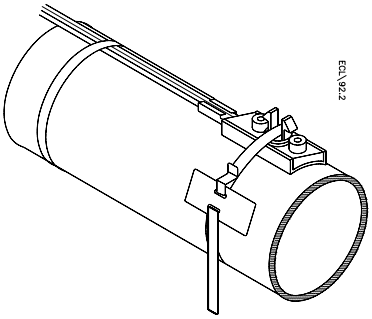
Master/slave units
ECL 3310 can control several slave units (the number of slave units depends on the control type). Further details are described in instruction on master/slave units.

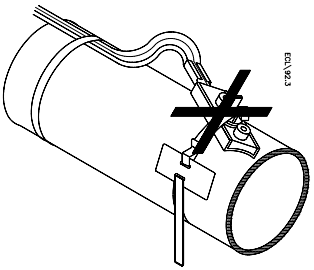
Temperature sensor mounting





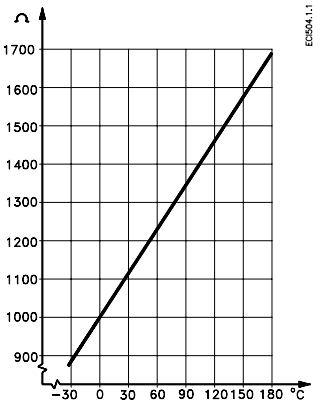
Outdoor temperature sensor ESMT mounted on a north facade. The sensor must not be located near a window that can be opened, nor chimneys or ventilation openings.





ESMC **ESMA**

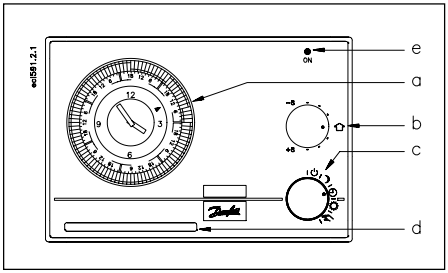
Temperature sensors ESMA or ESMC measure flow temperature and must be installed immediately after the mixing valve. All paint and dirt must be removed from the flow and return pipes.



Sensor characteristic

Note
Wire resistance can give incorrect measurement. A resistance of 4 Ohms corresponds to a deviation of 1 degree.

Controller settings



User settings
a) Program clock
b) Temperature setting
c) Function switch
d) User guide
e) Indication light

a) Program clock
The program clock is set in the required normal and reduced temperature periods by pushing riders for reduced temperature setting towards the center of the clock

Set the actual time (24-hour clock) or day (week clock) opposite the arrow

b) Temperature setting

Parallel displacement
- switch 4 OFF
The flow temperature of the heating circuit can be increased or reduced by turning the temperature setting knob. Turn the knob to the right for increasing the room temperature. The factory setting is 0.

Max. setting ±8 corresponds to an approx. 8 °C room temperature rise.

Room temperature is limited at 22 °C when ESMR/F is connected. ESMF can displace this limit with ±3 and ±10 °C, respectively.

Min. flow temperatures and radiator thermostats provide optimal heat economy.

Reference room control
- switch 4 ON
The room temperature is set by turning the temperature setting knob. Turn the knob to the right for increasing the room temperature. The center position corresponds to 20 °C room temperature. The setting range is 12 - 28 °C.

c) Function switch

⏻ The valve closes and the circulating pump stops. The system is protected against frost damages.

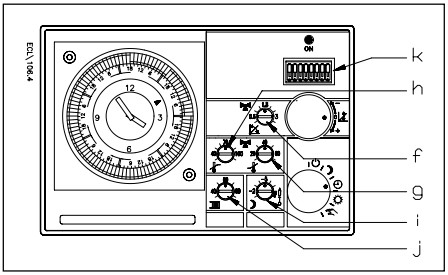
☽ The program is overriden, i.e. constant reduced temperature

🕘 Automatic change between normal and reduced temperature as set on the clock

☼ The time program is overriden, i.e. constant normal temperature

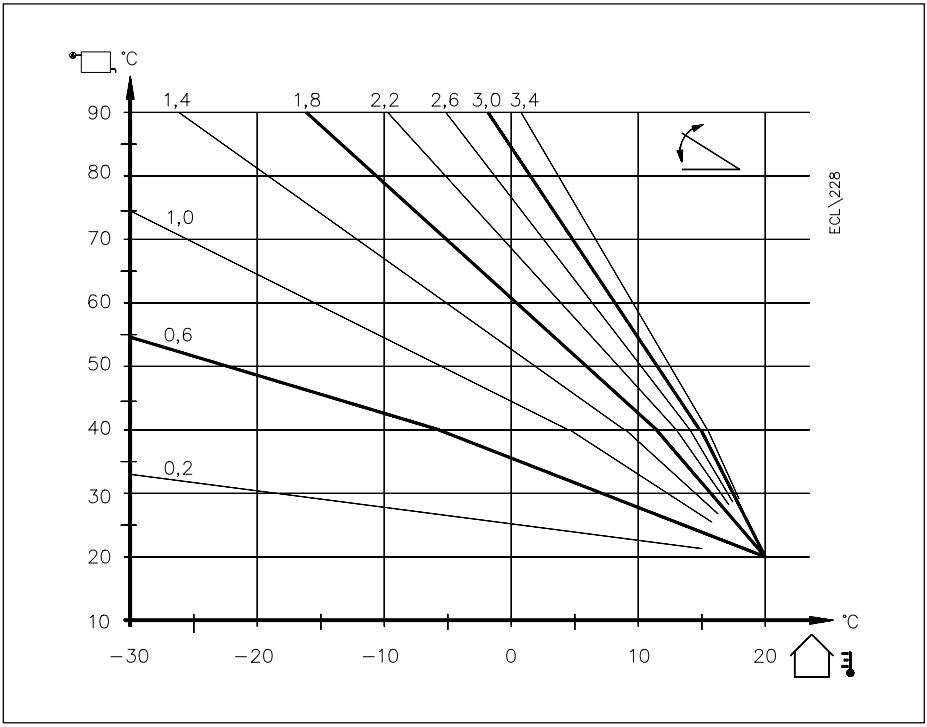
Manual setting.
All control functions are cancelled, the valve is not active and the circulating pump is constantly in operation. The valve can be operated manually. Test of controller and sensors.

e) Indication light
The indication light shows:
- The controller is in operation
- The valve is opening or closing
- Possible faults (test result)



Installer settings

f) Heat curve slope of the heating circuit
g) Minimum flow temperature
h) Maximum flow temperature
i) Reduced temperature
j) Return temperature limiter
k) Mini-switches



f) Setting the heat curve slope

The heat curve can be set within 0.25 - 3.4. Ex factory the heat curve is set at 1.8.

If the room temperature is not comfortable when the outdoor temperature is below +5 °C, the slope is increased. At outdoor temperatures above +5 °C the heat curve is displaced in parallel, as described in b) page 5.

Heat curve settings - examples

Outdoor * temperature	Radiator (80 °C)	Floor heating (55 °C)
–25 °C	1.2	0.7
–15 °C	1.6	0.9
–10 °C	1.8	1.0

* Dimensioned outdoor temperature - normally the lowest outdoor temperature of the heating season.

g) Minimum flow temperature
The flow temperature in the heating circuit can be set within a range of 10 - 70 °C. The factory setting is 10 °C.

h) Maximum flow temperature
The flow temperature in the heating circuit can be set within a range of 30 -110 °C. The factory setting is 90 °C.

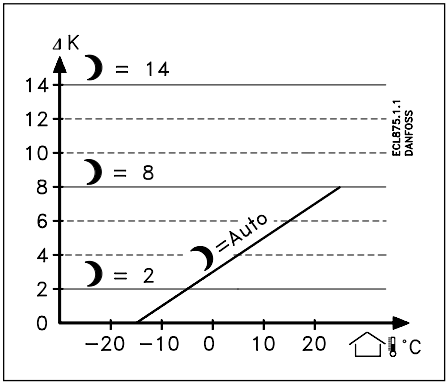
i) Reduced temperature setting (as from generation 20 with new scale)
Reduced temperature is set in three different ways:
1. Heating system is totally cut-out "⏻" i.e. valve closes and pump stops. The system is frost-protected.
2. Fixed temperature reduction (1 -14K)
3. AUTO-setting, i.e.outdoor temperature dependent temperature reduction

For fixed and AUTO-settings applies that the level of the reduced temperature depends on whether or not a room sensor ESMR/ESMF is connected.

ESMR / ESMF not connected
The flow temperature is lowered (parallel displaced) to obtain the required temperature in the room

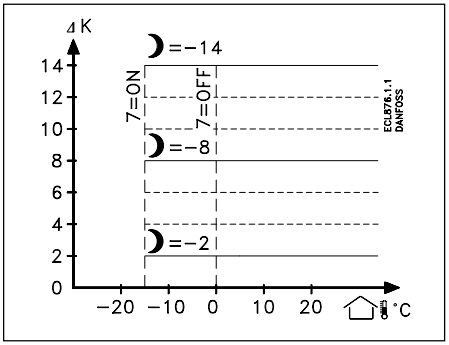
ESMR / ESMF connected
Boiler system (miniswitch 6 = OFF)

Setting 1 -14 and AUTO:

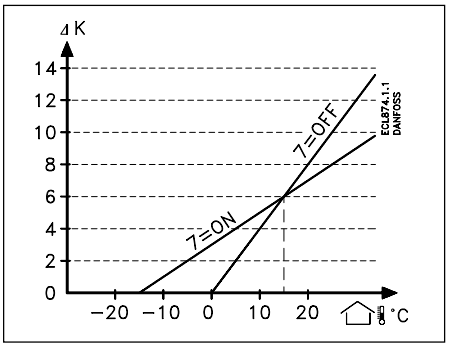


District heating system
(Miniswitch 6 = ON)

Setting: 1 -14



Setting: AUTO

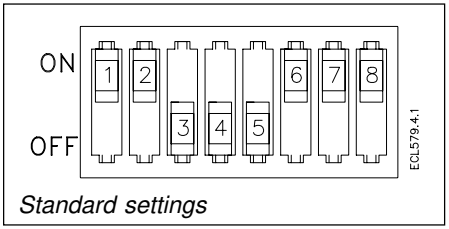


j) Return temperature limiter
Heating-circuit return-temperature can be limited. The limiting function is set on switch 6 (see special settings).

District heating systems use max. limit, whereas boiler systems use min. limit.

Setting range is 30 - 90 °C. Factory setting is 60 °C (maximum).

Special settings
ECL 3310 has eight mini-switches placed behind a small cover when tipping out the inside cover. The switches are used for adapting the controller to the heating system.



Standard settings

Switch 1 and 2
Choose at which outdoor temperature you want to cancel the room heating (summer cut-out)

Switches 1	2	Cancelling temperatures
OFF	OFF	No cancellation
OFF	ON	15 °C
ON	OFF	18 °C
ON	ON	21 °C

Switch 3
Choose whether you want boost (flow temperature increase) after reduced temperature.

Switch 3	Function
OFF	No boost
ON	20 % boost for one hour

Switch 4
Choose limit function or adaptive reference room control

Switch 4	Function
OFF	Limit function When ESMR/ESMF is connected, the flow temperature is reduced in case the room temperature exceeds 22°C Note: When ESMF is connected the max. limit value can be displaced in parallel to 22 °C: - ESMF-3 by ±3 °C - ESMF-10 by ±10 °C
ON	Adaptive/reference room control When ESMR/ESMF is connected the flow temperature can be automatically adapted to to heat demand. The room temperature is set by the knob for parallel displacement (± - knob). The center position corresponds to 20 °C room temperature. The range being 12 - 28 °C.

Switch 5
Always in position OFF.

Switch 6
Choose type of heating system

Switch 6	Type of heating system
OFF	Boiler system with mixing circuit (min.return limiter)
ON	District heating system (max. return limiter)

Switch 7
Choose at which outdoor temperature you want to cancel temperature reduction.

Switch 7	Outdoor temperature
OFF	0 °C (only when miniswitch 6 is ON)
ON	–15°C

Switch 8
Choose whether or not the valve is to close at hot-water-service demand in the main controller (hot-water priority)
The function can only be activated when the controller is a slave controller

Switch 8	Function
OFF	Valve closes at hot-water-service demand in the main controller
ON	Valve does not close

Function test
The indicator light shows whether ECL 3310 is in operation or not. Moreover the indication shows the control status and faults when testing sensors and controller.

Control status
At normal operation with function switch in position ⏻ ,🕘, ☼ or ☽ the indication light will be on.

Reversible gear motor
Constant light:
The flow temperature is in the neutral zone and the motor does not receive signals. The valve is not activated.
Constant light with two interruptions:
The flow temperature is below the neutral zone. The motor opens the valve.

Constant light with three interruptions:
The flow temperature is above the neutral zone. The motor closes the valve.

Note that the indication does not follow the signals.

Test of controller and sensors
ECL 3310 can test both the controller and the sensors. Turn the function switch in position ☜
After about five seconds the lamp will flash and show the test result. The result is shown about every third second.

No light:
The controller is defect or the flow temperature sensor is not mounted.

Constant light with 1, 2, 3 or 4 intervals:
The number of intervals must correspond to the number of connected sensors. If the number is not correct, one or several sensors might be short-circuited or disconnected.

Constant light:
The controller is defect.

Manual valve control
When testing or adjusting the limit switches of the gear motor, the valve can be manually controlled by turning the function switch in position ☜

Gear motor
Open the valve by turning the knob all the way to the right for parallel displacement. Close the valve by turning it to the left.

If the motor does not rotate in the correct direction, the wires are interchanged, i.e. terminals 16 and 17.

Thermomotor
Turn the parallel displacement knob all the way to the left (–8) to open the valve. The valve is closed in turning the knob back to mid-position.

Pump control
The circulating pump is activated under the following conditions:

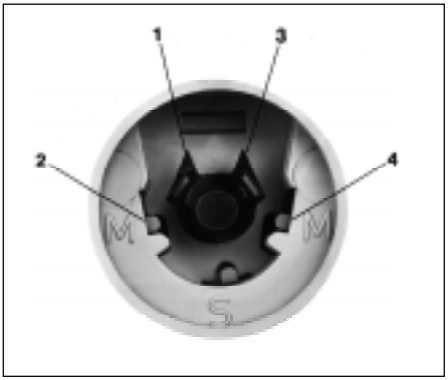
T_{ref} > 20° C (T_{ref} = calculated flow temperature)
T_{ute} < 2° C (frost protection)

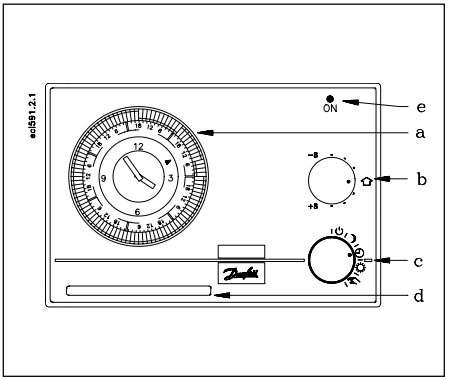
Pump stop has a 3 minute re-run.

Valve motion
The valve is activated every third day. The thermomotor is voltage connected for 10 minutes to ensure fully open valve. After 10 minutes the thermomotor is cut-out and the valve closes again. The circulating pump is always cut-out during valve motion.

Pump motion
To prevent the circulating pump from stalling during long periods of standstill the pump is activated for 1 minute when Tref has been < 20° C for three days.

External override function
Override to "☼ " or "☽" via the sensor inlets. ECA 9010 override module must be used to avoid contact resistance and can be connected to below terminals (see instruction for further information):
Terminal 3 - Room sensor
Terminal 6 - Return sensor
Terminal 7 - Hot-water-service sensor





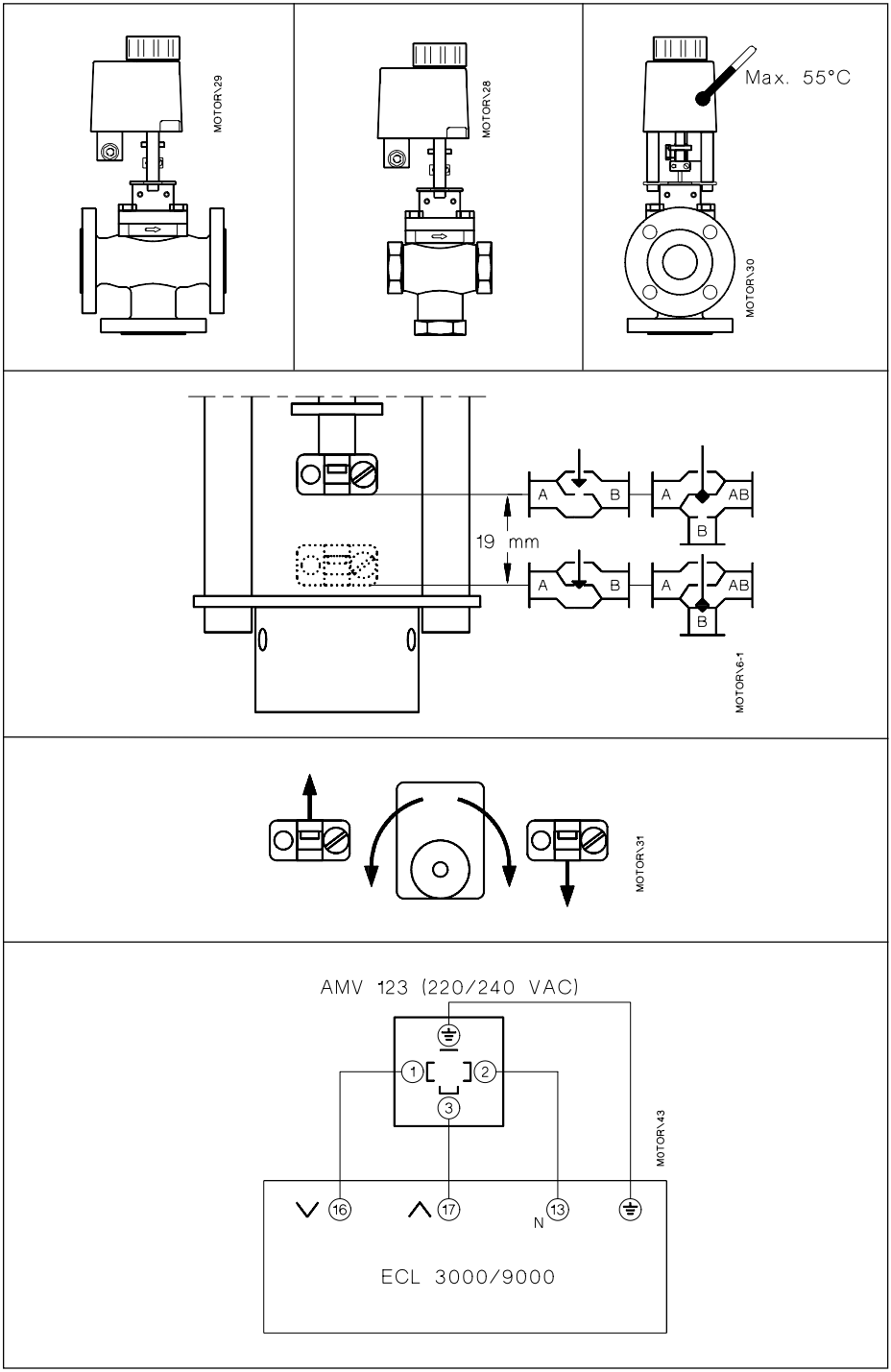
Setting gearmotor AMB 123

Open some of the radiator thermostats in the building to give a certain load on the heating system.

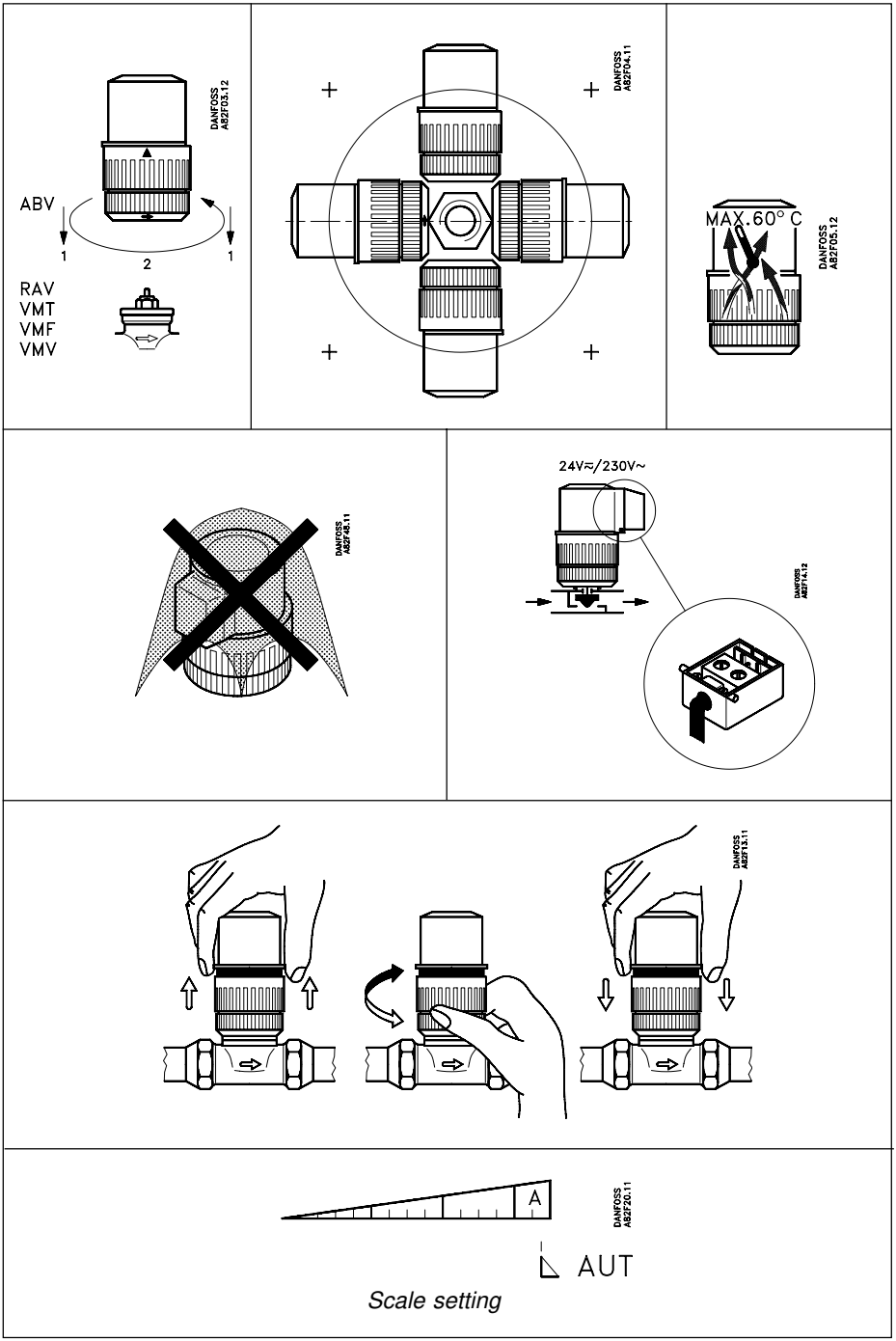
Adjustment of limit switches in AMB 123

1. Remove transparent gearmotor cover.
2. Set control function knob in position ☜.
3. Turn knob b) fully clockwise.
4. Connect voltage to the control system.
5. After about 5 seconds the lamp constantly lit will go out and light up again. The number of times it does this indicates the number of sensors in connection with the control .
6. AMB 123 should now drive the valve towards its open position.
7. Set the limit switch on AMB 123 so that the motor stops when the valve reaches its top position (1 or 3).
8. Turn knob b) fully counterclockwise.
9. AMB 123 should now drive the valve towards its closed position.
10. Set the other limit switch so that the motor stops when the valve is in its completely closed position (1 or 3).
11. Refit gearmotor cover.
12. Set function knob back in one of the four positions ⏻ , ☽ , 🕘 or ☼
13. Turn knob b) back to normal position (0).

Installation and connection of AMV 123

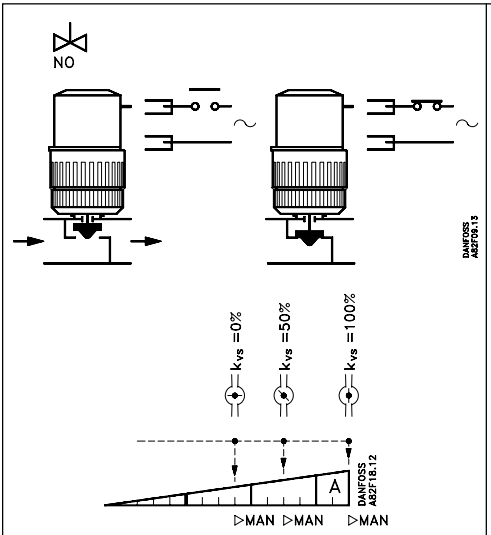


Installation and connection of ABV

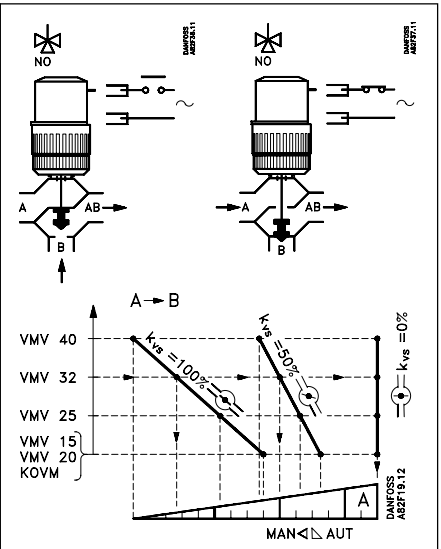


Scale setting

Setting of ABV-NO

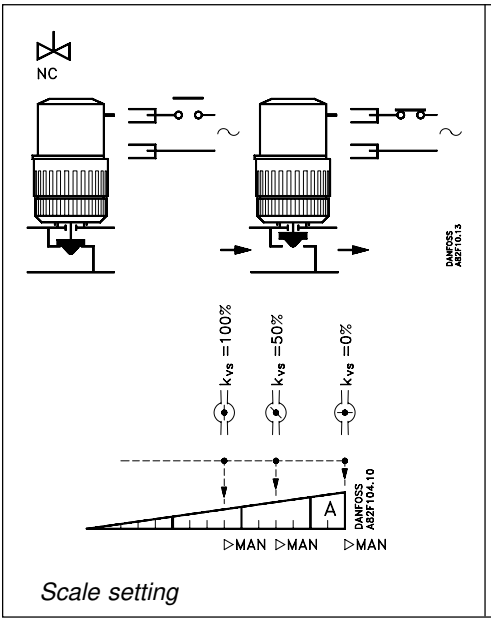


Scale setting

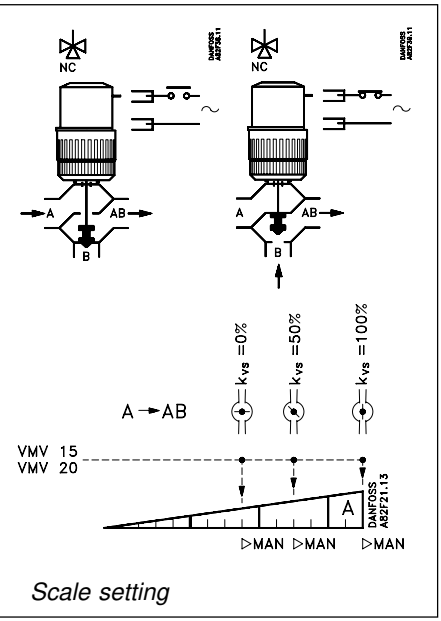


Scale setting

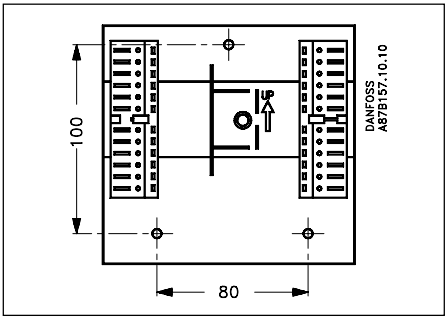
Setting of ABV-NC

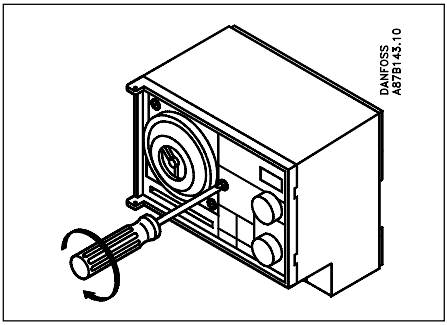


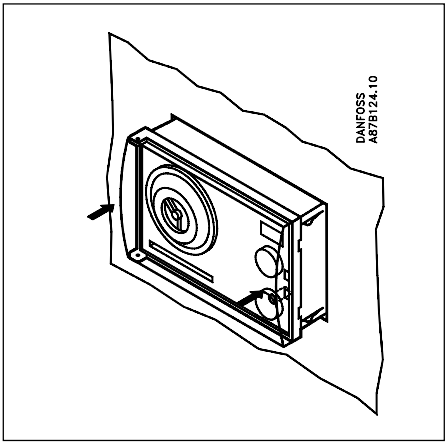
Scale setting

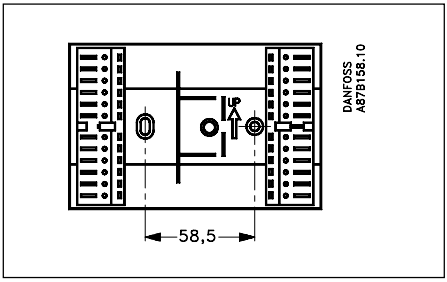


Scale setting









Mounting

On wall

Use a standard or a special base plate with wall case for mounting ECL 3310 on wall.

The plate is fixed on a flat surface with two 4 mm screws (standard) or three 4 mm screws (special). Be aware of the "UP"-arrow.

Then wire the ECL 3310 as described in the paragraph "Wiring".

The controller is mounted in the base plate (when using the special base plate, note that the controller is first of all to be fit into the wall case) and screw up the center screw behind the cover plate.

In the front plate

ECL 3310 can be built into a boiler front plate. The opening is to measure 92 × 138 mm and the plate is to be max. 3 mm thick.

Fix four retainer springs on the controller, push it gently into the opening and the springs will secure the controller in the opening. The retainer springs are delivered as accessories together with 2 terminal strips.

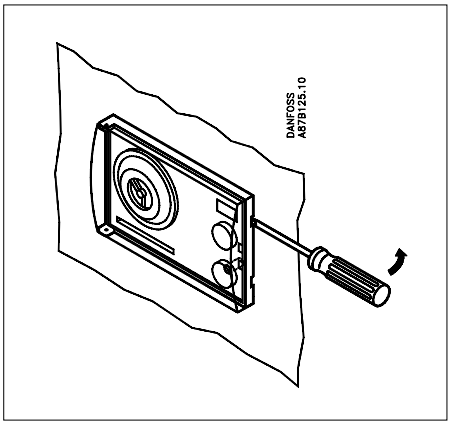
Wire the ECL 3310 to the two terminal strips and then mount them in the controller. The terminal strips are encoded to prevent exchange by mistake.

On a DIN-rail

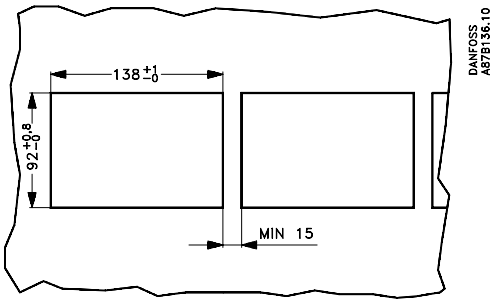
ECL 3310 can be mounted on a 35 mm DIN-rail. Fix a spring - delivered as accessory - on the base plate bottom and then mount the base plate on the DIN-rail.

Demounting
If the controller is mounted in a front plate, dismount it by pressing the retainer springs together and dismount the built-in controller.

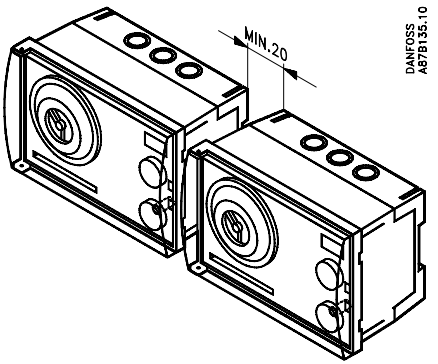
Tip out the controller when the retainer springs are not accessible.



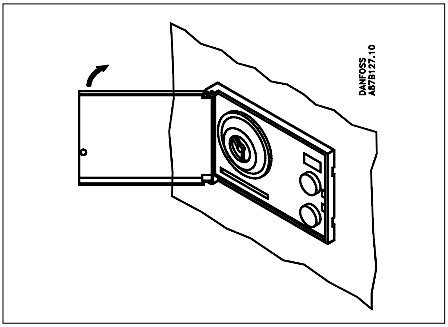
Several controllers in parallel



In boiler front plate



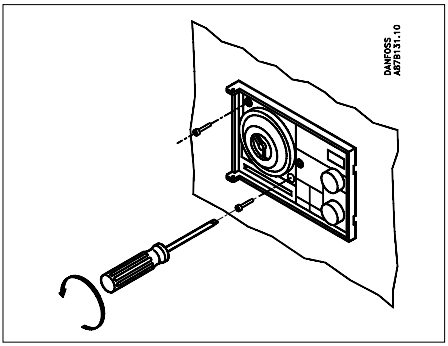
On wall or on DIN-rail

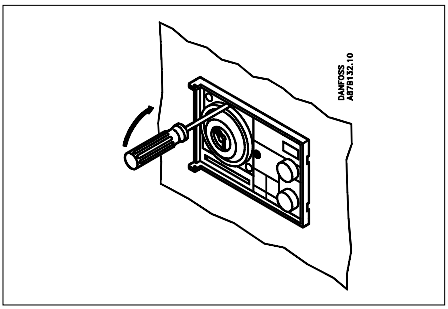


Clock
When the clock is not mounted remove the glass cover, the inside cover and the clock cover and then mount the clock:

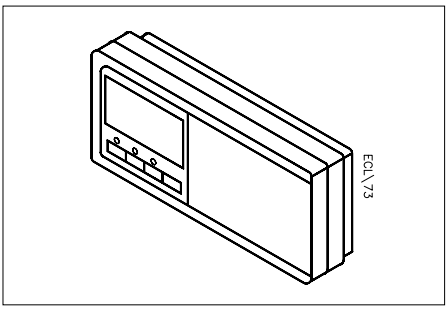
Open the glass cover all the way to the left - the taps will then slide out. The inside cover is tipped out and the clock cover is unscrewed.

Then the clock is placed in the center of the opening with the plugs downwards. Fasten the clock with the screws.





Clock dismounting
Remove the screws and dismount the clock by gently tipping it out.



External time control
An external control panel ECA 9020 can time control ECL 3310. ECA 9020 is connected to the bus terminals on the rear of the ECL controller (see wiring).