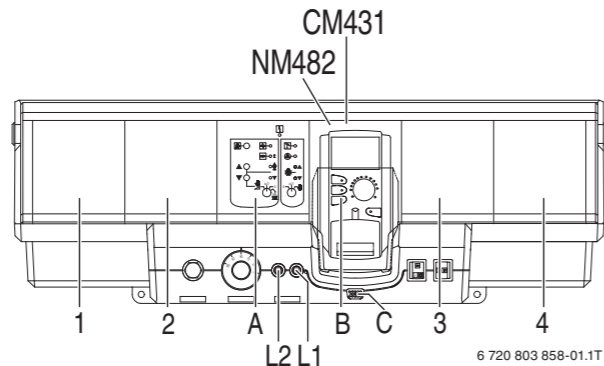


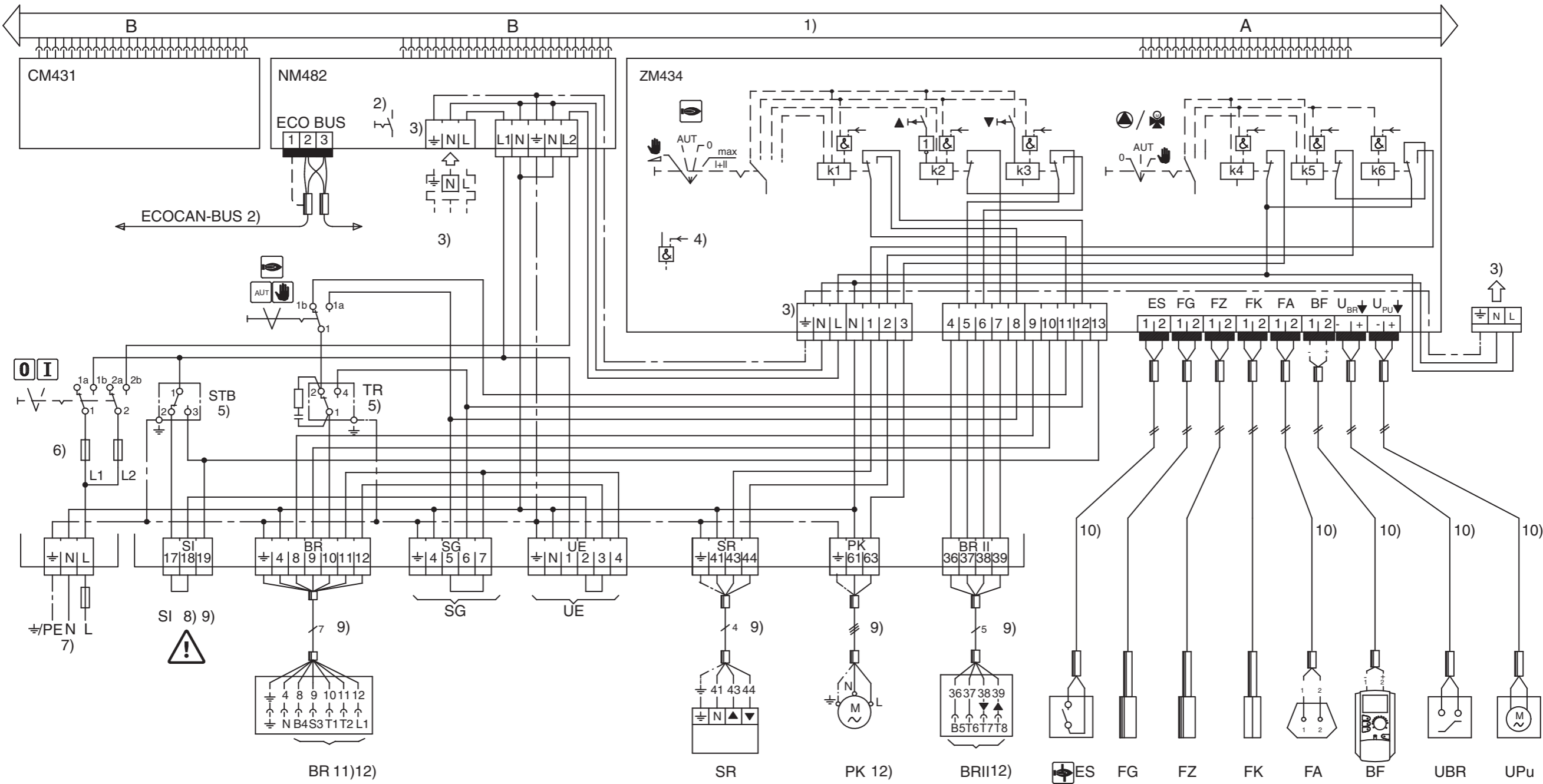
Switching states


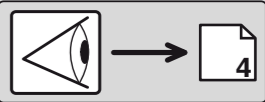


Switch position	Stage 1	Stage 2 / modulating	
	K1	K2	K3
		Pushbutton ▲ pressed 	Pushbutton ▼ pressed
AUT	Control mode	Hotter control mode	Colder control mode
0			
max I + II			

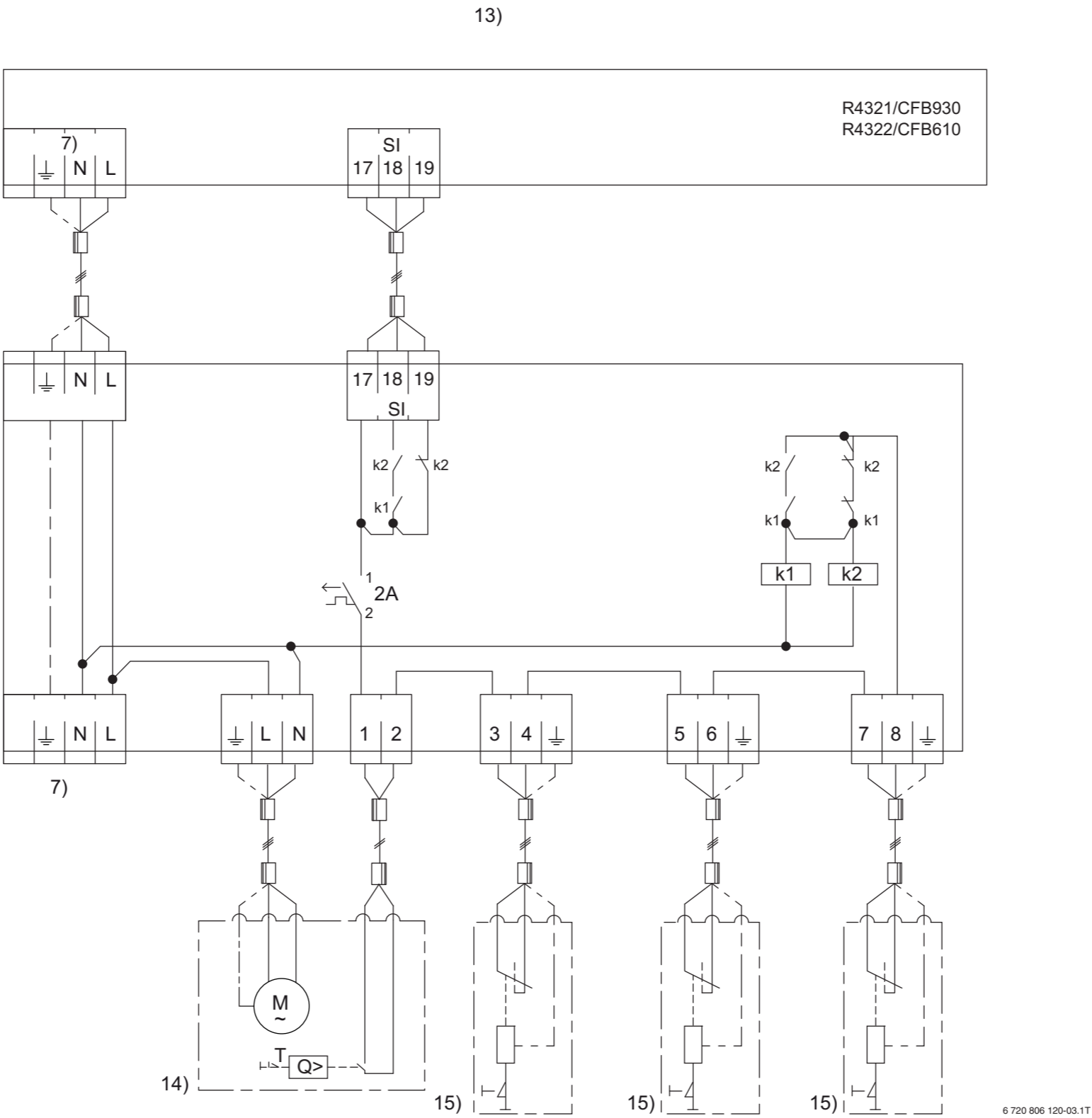
Switch position			
	(PK) K4	(SR) K5	(SR) K6
0			
AUT	Control mode	Control mode	Control mode

► Please note the safety instructions and captions on page 4.

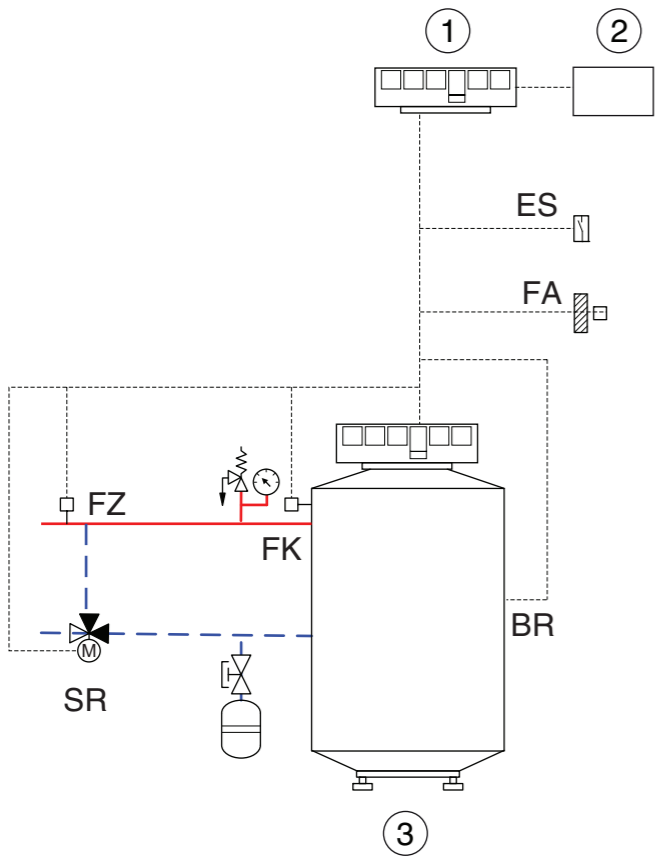


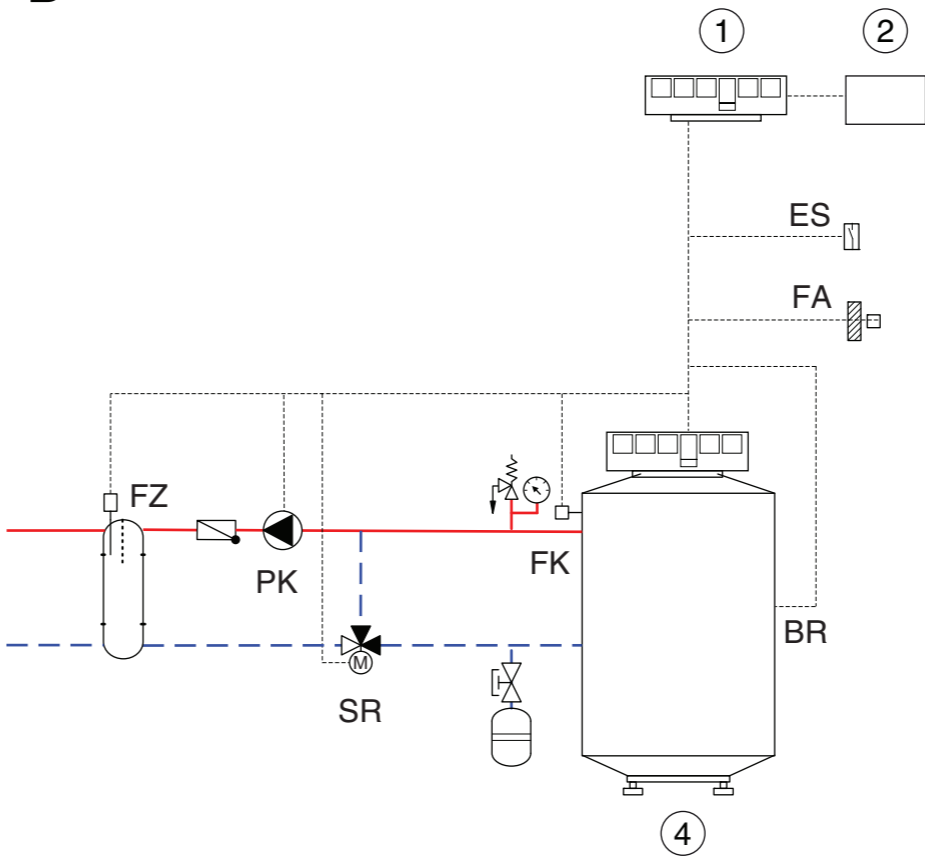
► Please note the safety instructions and captions on page 4.



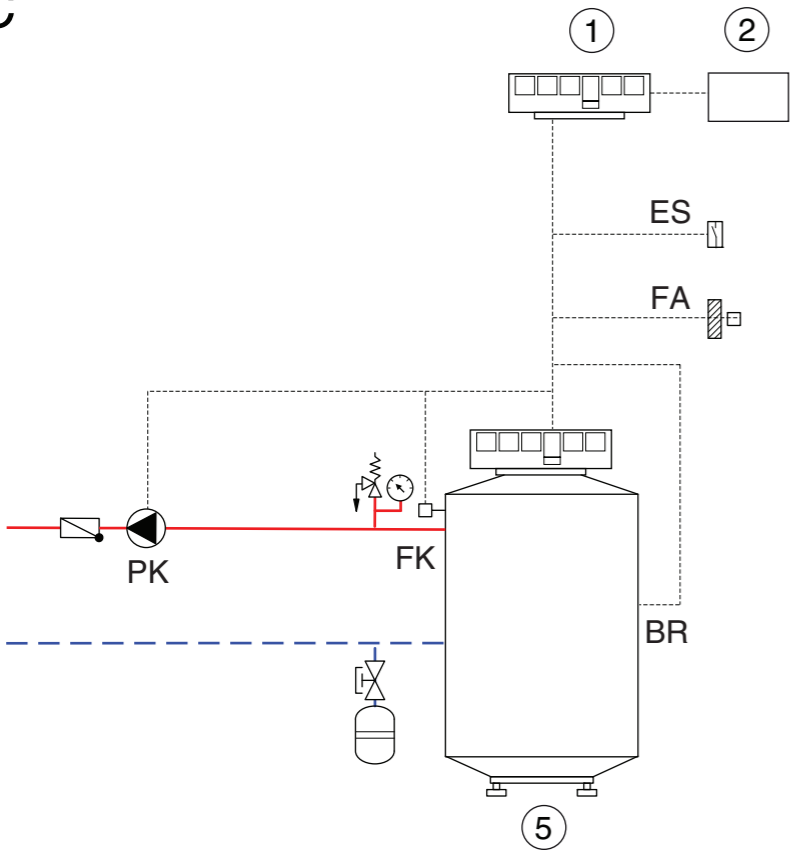
A



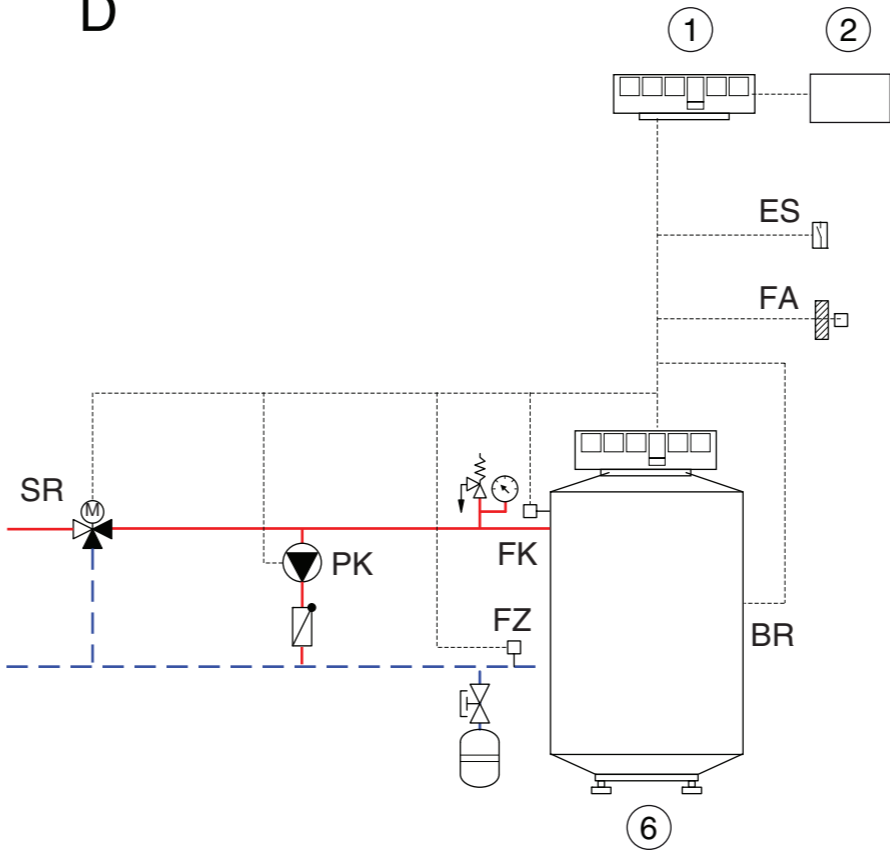
B





C





D





► Please note the safety instructions and captions on page 4.

- ▶ Electrical work may only be carried out by a qualified electrician.
- ▶ Carry out electrical work in accordance with the standards and local regulations which apply.
- ▶ Install mains connection so that it is fixed and in the correct polarity.
- ▶ Ensure that the total current does not exceed the value stated on the data plate.
- ▶ Ensure that a country-specific Emergency Stop device (boiler emergency stop) is present.
- ▶ In systems with devices that consume three-phase current, the emergency-off device must be integrated into the safety chain.
- ▶ Make sure that a circuit breaker which conforms to the EN 60335 standard is available to disconnect all poles in the electrical circuit. If there is no circuit breaker present, you must install one.
- ▶ Before opening the control unit, isolate all poles of the heating system via the circuit breaker. Secure against unintentional reconnection.
- ▶ Size cables according to how they are to be laid and environmental conditions. The cable cross-section for power outputs (pumps, mixing valves, etc.) must be at least 1.0 mm².
- ▶ Do not use the yellow/green earth lead as a control cable.
- ▶ Fasten the wires of each electrical cable to each other (e.g. with cable ties) or strip the cable sheath short, to prevent the risk of voltage flashes between 230 V and low voltage through unintentional loosening of a wire at the terminals.
- ▶ Observe the safety instructions in the documentation of the control unit and the modules used.
- ▶ If a neutralisation device is available, the contact for the over-fill safety device must be incorporated into the safety chain.

Page 1/2 caption

-  Control voltage 230 V~
AWG 14, max. 5 A
-  Low voltage
0.4 mm² - 0.75 mm² / AWG 18

- | | |
|-----|--|
| A | ZM 434 - boiler module |
| B | Programmer or boiler display |
| C | Connection socket for external service units |
| 1-4 | Plug-in position for modules |
-
- | | |
|-------|---|
| 1) | Internal BUS in the control unit |
| 2) | Maximum length of the bus cable: 1000 m.
Where several ECOCAN BUS components are connected:
Activate load resistance by closing the hook switches (NM482) of the two outermost ECOCAN BUS devices.
Use shielded cable LIY CY(TP).
Only connect the shield on one side. |
| 3) | Mains supply for further modules |
| 4) | Input for automatic control |
| 5) | Contact opens when the set temperature is exceeded |
| 6) | Circuit breakers, 10 AT
L2: Fuse protection of the modules in plug-in positions A (burner), 1 and 2
L1: Fuse protection of the modules in plug-in positions A (boiler circuit PK and SR), 3 and 4. The overall current for each phase (L1, L2) must not exceed 10 A. You must comply with this value. In order to avoid damage to the units, check the value when commissioning. |
| 7) | 230 V mains ~ 50 Hz max. permissible fuse protection 20 AT on site, at least 2.5 mm ² |
| 8) | Caution: If you are connecting additional safety equipment, remove the link.
Only locking safety equipment may be integrated into the safety chain. If you are using multiple items of safety equipment, they must be connected in series. If multiple items of safety equipment are present, connect the switching contacts in series. In this case, ensure the power supply is separate. See the figure entitled "Circuit diagram: External connection for neutralising system and safety equipment". |
| 9) | Minimum H05xx, 1.5 mm ² |
| 10) | Use shielded cable. |
| 11) | Maximum 8 A |
| 12) | In the case of devices that consume three-phase current (e.g. burners, boiler circuit pumps, etc.), appropriate on-site switching devices must be connected upstream to the devices and fuse-protected. |
| 13) | Example of on-site circuitry for multiple items of safety equipment and connecting the neutralising system. Document the actual circuitry on a circuit diagram created specifically for the system. |
| 14) | Neutralising system |
| 15) | Safety equipment items 1, 2, etc. |
| k1/k2 | Configure relays k1 and k2 as safety relays for various functions (leading normally open contact, lagging normally closed contact) and various appliances (different makes). |

Page 3 caption

System examples

- | | |
|---|---|
| A | Integration of Ecostream heating boilers or low temperature heating boilers with low end temperature (control via separate boiler circuit mixing valve (SR)). |
| B | Integration of Ecostream heating boilers. Control via boiler mixing valve. Terminal U _{PU} only required with modulating boiler circuit pump. |
| C | Integration of low temperature heating boilers or condensing boilers. With low temperature heating boilers, control of the operating conditions is required via heating boiler mixing valve, (if a depressurised distributor is used, a boiler circuit pump can be triggered as an option. Terminal U _{PU} only required with modulating boiler circuit pumps (0-10 V).) |
| D | Integration of low temperature heating boilers with return temperature control. Control via separate boiler circuit mixing valve (SR). Measuring point pump (PK). |

Components

- | | |
|---|--|
| 1 | R4321/CFB930 and R4322/CFB910 controller |
| 2 | Remote control programmer or TR25 |
| 3 | Ecostream heating boiler or low temperature heating boiler with base temperature |
| 4 | Ecostream boiler |
| 5 | Low temperature heating boiler or condensing boiler |
| 6 | Low temperature boiler with minimum return temperature |

General caption

- | | |
|-----------------|--|
| AUT | Control mode |
| BF | Remote control/TR25, MEC/programmer
Only one MEC/programmer may be assigned to each controller. The MEC/programmer can be inserted in the controller module or connected via the room installation set (extra equipment). |
| BR | Gas/oil burner
Burner connection stage 1
8 (B4) - hours run signal
9 (S3) - fault signal
10 (T1) - boiler temperature controller (TR)
11 (T2) - burner enabling
12 (L1) - lead via safety equipment |
| BR II | Burner connection stage 2 or connection for modulating burners
36 (B5) - hours run signal
37 (T6) - voltage output L1
38 (T7) - burner off
39 (T8) - burner on |
| CM431 | Control module |
| ES | External fault input (potential-free) or input for fuel changeover, dual-fuel burner, 5 V DC / 10 mA |
| FA | Outside temperature sensor |
| FG | Flue gas temperature sensor |
| FK | Boiler water temperature sensor |
| FZ | Auxiliary temperature sensor |
| NM482 | Mains module (behind control module) |
| PK | Boiler circuit pump, max. 5 A |
| SG | Terminals for flue gas damper |
| SI | Connection terminals for safety equipment |
| SR | Return temperature mixing valve, max. 5 A |
| STB | High limit safety cut-out |
| TR | Boiler temperature controller |
| U _{BR} | Voltage output 0/2 - 10 V burner
For burner control via 4-20 mA or three-level switching, an external signal converter is required (assuming the burner control unit being used does not have a voltage input). |
| UE | Connection terminals for flue gas monitor |
| U _{PU} | Voltage output 0 - 10 V, pump (if a low loss header is used, a boiler circuit pump can be triggered as an option.
Terminal U _{PU} only required with modulating boiler circuit pump (0-10 V).) |
| ZM 434 | Boiler module |