

## Air heater D3LC Wiring Manual

### Electrical Wiring instructions

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### Air heater for petrol and diesel fuel, operating independently of the engine

Heater	Order number	Heater	Order number
B 3 L C, 12 V	20 1717 05 00 00	D 3 L C, 12 V	25 1867 05 00 00
		D 3 L C, 24 V	25 1844 05 00 00



**Please give this manual to the customer  
after installation of the heater.**

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### Control and safety devices

- If the heater does not ignite within 90 seconds after starting the fuel pump, the start is repeated. If the heater still does not ignite after another 90 seconds of pumping fuel, the heater is switched off, i.e. the fuel supply is off and the fan runs on for approx. 3 minutes. After an unacceptable number of failed start attempts, the controller is locked.
- If the flame goes off by itself during operation, the heater is restarted. If the heater does not ignite within 90 seconds after the fuel pump has started, or ignites and goes off again within 15 minutes, the heater is switched off, i.e. the fuel supply is off and the fan runs on for approx. 3 minutes. This status can be remedied by briefly switching off and on again. Do not repeat the switching off / on routine more than twice.
- In the case of overheating, the combined sensor (flame sensor / overheating sensor) triggers, the fuel supply is interrupted and the heater switched off. Once the cause of the overheating has been eliminated, the heater can be re-started by switching off and on again. After an unacceptable number of failed start attempts, the controller is locked.
- If the lower or upper voltage limit is reached, the heater is switched off after 20 seconds.
- The heater does not start up when the glow plug is defect or when the electric lead to the dosing pump is interrupted.
- When the heater is switched off, the glow plug is switched on for 20 seconds (after glowing) while the fan runs on to clean off any combustion residues.

**Please note!**

Do not repeat the switching off / on routine more than twice.

### Forced shut-down for ADR / ADR99 operation

In vehicles for the transport of dangerous goods (e.g. tanker trucks), the heater must be switched off before the truck drives into a danger area (refinery, fuel service station, etc.)

Failure to comply results in the heater switching off automatically when:

- The vehicle engine is switched off.
- An additional unit is started up (e.g. auxiliary drive for unloading pump etc.).
- A vehicle door is opened (ADR99 regulation, only in France).

The fan then runs on for max. 40 seconds.

### Emergency shutdown – EMERGENCY OFF

If an emergency shutdown – EMERGENCY OFF – is necessary during operation, proceed as follows:

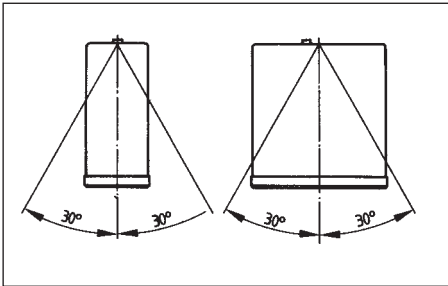
- Switch the heater off at the control element or
- pull the fuse out or
- disconnect the heater from the battery.



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### Mounting the controller

Mount the controller in a splash-proof position. The controller must not be mounted outside. The best installation position is inside the vehicle, with the connectors of the controller pointing downwards.



### Heater wiring



#### Caution!

#### Safety instructions!

The heater must be electrically connected in accordance with the manufacturer's instructions. Incorrect wiring can lead to faults, for this reason the following notes must always be followed:

- Ensure that the insulation of electrical cables is not damaged. Avoid: chafing, kinking, jamming or exposure to heat.
- In waterproof connectors, seal any connector chambers not in use with filler plugs to ensure they are dirt-proof and water-proof.
- Electrical connections and ground connections must be free of corrosion and firmly connected.
- Lubricate connections and ground connections outside the heater interior with contact grease.

#### Please note!

Comply with the following when wiring the heater and the control element:

- Electrical leads, switchgear and controllers must be arranged in the vehicle so that they can function perfectly under normal operating conditions (e. g. heat exposure, moisture etc.)
- The following cable cross sections are to be used between the battery and heater. This ensures that the max. tolerable voltage loss in the cable does not exceed 0.5 V for 12 V or 1 V for 24 V rated voltage. Cable cross sections for a cable length of (pluscable + minuscable):
  - up to 5 m = cable cross section 4 mm<sup>2</sup>
  - from 5 m to 8 m = cable cross section 6 mm<sup>2</sup>
- If the plus cable is to be connected to the fuse box (e. g. terminal 30), the vehicle cable from the battery to the fuse box must be included in the calculation for the total cable length and re-dimensioned if necessary.
- Insulate unused cable ends.

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### Parts list for heater circuit diagrams

- 1.1 Burner engine
- 1.2 Glow plug
- 1.5 Overheating switch
- 1.7 Printed circuit board with control temperature sensor, speed governor, spark plug timer and distributor plug
- 1.12 Flame sensor
- 1.13 Temperature sensor
  
- 2.1 Controller
- 2.2 Dosing pump
- 2.7 Main fuse, 25 A
  
- 3.1.12 Fault code query (workshop)
  
- 5.1 Battery
  
- c) When connecting the temperature sensor, pull off the existing receptacle housing and push on the receptacle housing for the temperature sensor.
- d) Connection of control elements on heater

### Cable colours

- sw = black
- ws = white
- rt = red
- ge = yellow
- gn = green
- vi = violet
- br = brown
- gr = grey
- bl = blue
- li = purple

**Please note!**

- The circuit diagrams are printed at the end of this manual.
- Connectors and bush housings are shown from the cable inlet side.

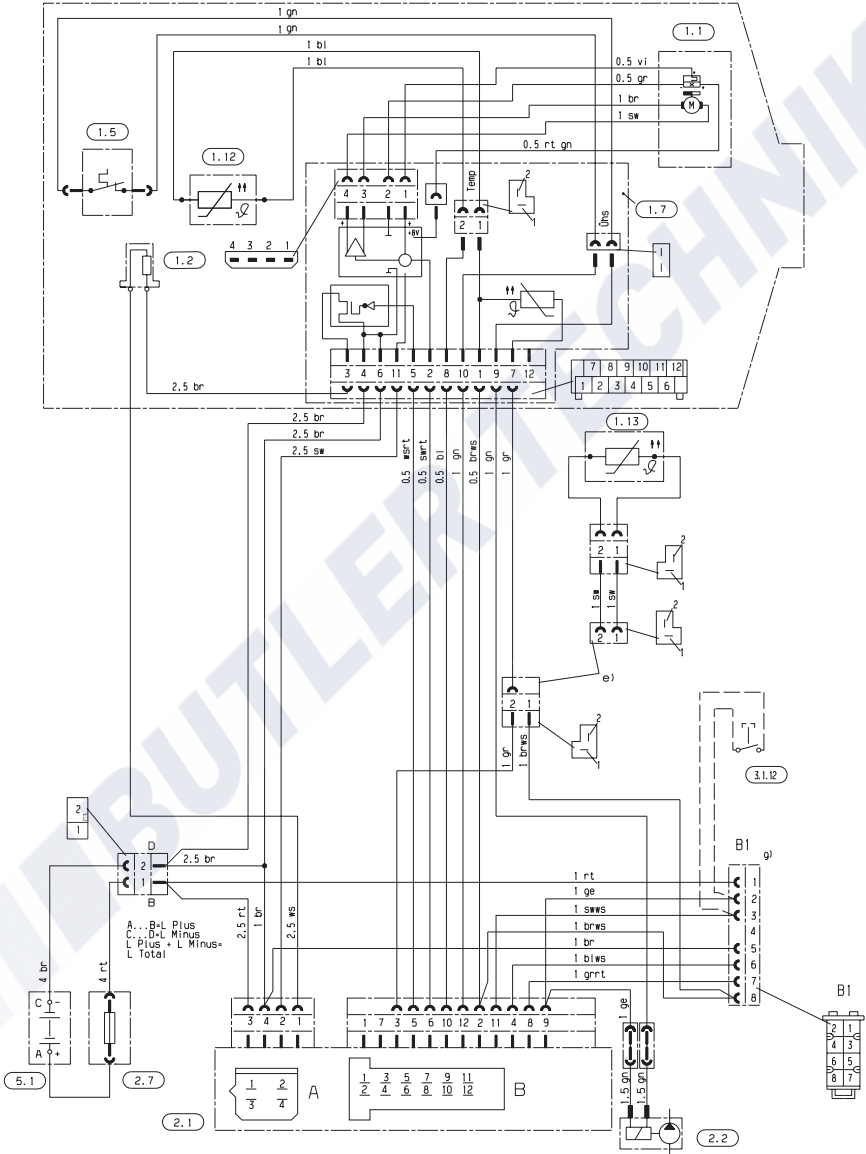
### Parts list for control element circuit diagrams

- 2.15.9 Temperature sensor (external temperature)
  
- 3.1.11 Control device
- 3.1.12 Fault code query (workshop)
- 3.1.16 Button radio remote control
  
- 3.2.8 Module timer (ADR / ADR99 – potentiometer)
- 3.2.12 Timer, mini – 12 volt
- 3.2.14 Mini clock, 12 V, continuously lit
  
- 3.3.6 TP41 radio remote control
  
- 3.6.1 Cable harness for 3.1.11
- 3.6.5 Cable harness for 3.2.8
  
- 3.8.1 Relay timer 12 / 24 volt
  
- b) Terminal 15
- c) Lighting, terminal 58
- g) Connection, control element on heater
- i) Connection, radio module
- j) Connection, temperature sensor (external temperature)
- k) Connection of external button ON / OFF



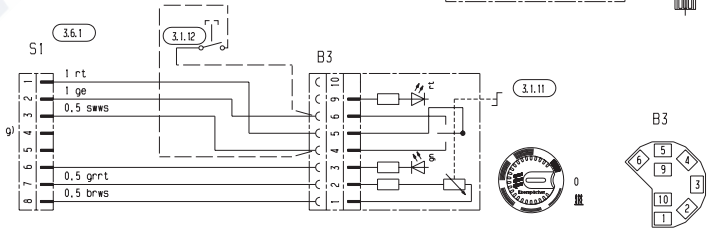
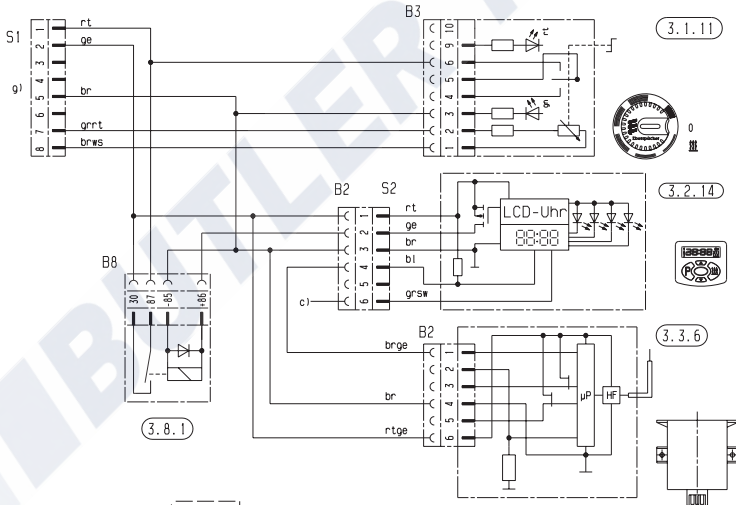
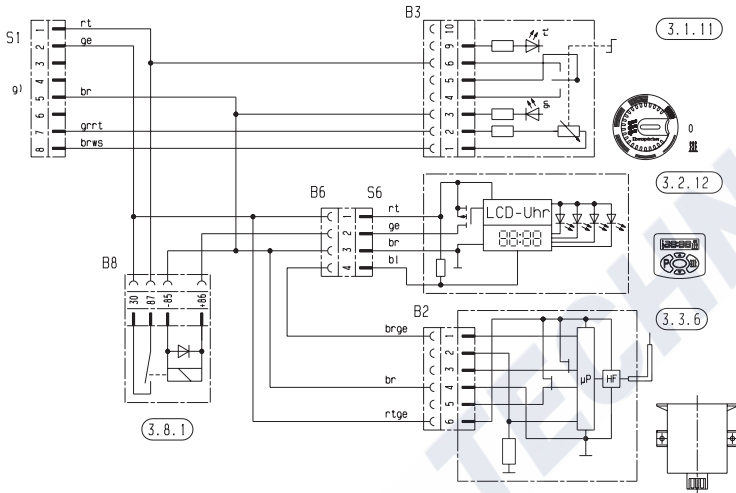
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Heater circuit diagram  
B 3 L C - 12 V / 24 V  
D 3 L C - 12 V / 24 V



# Air heater D3LC Wiring Manual

## Circuit diagram for control elements





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## Circuit diagram for control elements

