



BU 090

OPERATING MANUAL


for the

**Drum Heater ELFH-2600-Ex with insulated Cover
for 200 l Drums and 230 V Input Voltage**

Part No.: 0720021



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	Revision 2	05.03.2020

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Revision 2	05.03.2020	


1. Technical Data

Drum heater type ELFH-2600-Ex

Part No. 0720021

Area Classification II 2G Ex 60079-30-1 db eb IIB T4Gb
II 2D Ex 60079-30-1 tb IIIC T135°C Db

Inner diameter: 650 mm
Outer diameter: 780 mm
Overall height (with cover): 1140 mm
Voltage: 230 VAC
Power: approx. 2600 W
Current: approx. 11,3 A
Protection: IP 65
Ambient temperature range: -25°C to 50°C
Thermal safety
acc. to EN 60519-2: class 1
Thermal insulation: 60 mm mineral wool
Material of drum heater: S235JR
Paint finish: gentian blue RAL 5010
Feeder: 3 m H07RNF 5G1.5
Controller type: Capillary thermostat
Adjustment range controller: 30-85°C
Adjustment range limiter: 100°C locked (for T4)
Hysteresis: 2.5% of max. scale value

BU 090 Part No. 008TCWD	User Manual Drum Heater ELFH-2600 Ex with insulated Cover for 200 l Drums and 230 V Input Voltage	
Revision 2	05.03.2020	

2. Operation manual

2.1 General

Drum heaters of the type ELFH are designed for the heating of standing 200 l drums. The robust construction (inner and outer metal sheet) guarantees a safe protection of the heating – even in case of frequent drum-exchange. The heater is equipped with 4 rolls for easy positioning.



The temperature is controlled by an integrated controller / limiter assembly (capillary thermostats).

2.2 Receipt of equipment

Verify upon receipt of the equipment that the delivered heaters match the information on the delivery note and that the equipment have not been damaged during transport.

Identification label printing ELFH-2600-Ex:

eltherm GmbH Burbach ELFH-2600-Ex <order number>


 II 2G Ex 60079-30-1 db eb IIB T4 Gb II 2D Ex 60079-30-1 tb IIIC T135°C Db
 Ta -25°C...+50°C 230V / 11,3A I <Lot No.: ...>  0637

2.3 Transport and Storage of the Drum Heater

Store in clean and dry areas with ambient temperatures -25°C to 50°C. Do not drop or stack heaters. After assembly of the rolls the drum heater can easily be moved by hand or by forklift.

2.4 Electrical Connection

For electrical connection, a rubber sheathed supply lead H07 RNF 5G1.5 is provided. Connection is to be made to the voltage stipulated on the name plate only. The free cable end is to be connected either outside the Hazardous Area or to a connection box which is approved according to a standardised type of protection. A RCD rated 30mA needs to be connected in series with each drum heater.

BU 090 Part No. 008TCWD	User Manual Drum Heater ELFH-2600 Ex with insulated Cover for 200 l Drums and 230 V Input Voltage	
Revision 2	05.03.2020	

2.5 Operation

Choose the installation site carefully with respect to the permitted ambient temperature range. It is recommended that the equipment be protected against direct sunlight and weather. Ambient temperature must not exceed 50°C.

The approved operation requirements according to chapter 1 „Technical Data“ (voltage, current, operation temperature, max. ambient temp., degree of protection) are to be followed. Also make sure that The connected cables are secured.


The drum heater is operating on as soon as it is connected to power and then automatically controls temperatures according to the chosen setpoints for the controller.

Possible controller settings are 30 – 80 °C (as the limiter is preset to 100°C, temperature settings higher than 80°C may cause the limiter to cut the circuit off. Limiter setting is with a 35°C safety margin to the effective T-Class due to temperatures of the internal heating).

As the temperature measured by the controller is not identical with the temperature inside the drum, optimal settings and / or heat up times should be empirically determined for each application.

If the temperature control should accidentally fail and the heater temperature exceed 100°C, the limiter will switch off the heating continuously. This limiter can be reset manually after the cause of the failure has been resolved and normal operating conditions for the heating have been achieved again.

The safety remarks (paragraph 2.8) need to be observed.

BU 090 Part No. 008TCWD	User Manual Drum Heater ELFH-2600 Ex with insulated Cover for 200 l Drums and 230 V Input Voltage	
Revision 2	05.03.2020	

2.6 Adjustment of the Temperature Settings

Location of controller and limiter is shown in the drawing (chapter 4 of this documentation)

To adjust operating temperature:

- de-energise the heater
- open controller lid (allen wrench size 2 required to loosen hex socket grub screw attached to lid)
- adjust temperature setting by means of screw driver (see annex 1 “EL-CTB controller”)
- tightly close controller lid and secure by tightening the hex socket grub screw


Attention: After all adjustments, make sure that lids are properly closed before re-energizing the heater!

2.7 Reset of limiter

Location of limiter is shown in the drawing (chapter 4 of this documentation)

- de-energise the heater
- resolve conditions that caused the limiter to cut off the heating
- allow for sufficient cool down
- open limiter lid (allen wrench size 2 required to loosen hex socket grub screw attached to lid)
- push reset button (see Annex 1 “EL-CTB limiter”)
- tightly close limiter lid and secure by tightening the hex socket grub screw

Attention: After all adjustments, make sure that lids are properly closed before re-energizing the heater!

BU 090 Part No. 008TCWD	User Manual Drum Heater ELFH-2600 Ex with insulated Cover for 200 l Drums and 230 V Input Voltage	
Revision 2	05.03.2020	

2.8 Safety Remarks

The device meets the requirements acc. to EN 60519-1, -2 and IEC 519-2.

In case of operation or maintenance, please follow these documents:

- operating manual
- EN 60519-1 “Safety in electro-heating plants, part 1: General Requirements“
- EN 60519-2 “Safety in electro-heating plants part 2: special requirements for devices with resistance heating“
- effective local standards and codes

Protective measurements against dangerous leakage currents have to be taken by means of an appropriate RCD (30mA).


Operation only:

- by instructed persons
- with the voltage given on the name plate
- with media designed for the given temperature range
- in areas compliant with the Ex.marking
- with all openings on thermostats and junction boxes properly closed
- under observation of EN 60079-14 and all other effective codes and regulations

Faulty or damaged devices must not be operated, e.g. if the device or its equipment:

- have visible damages
- do not operate or operate incorrect
- are overstressed

Connection, maintenance and operation shall only be carried out by adequately trained personnel.

BU 090 Part No. 008TCWD	User Manual Drum Heater ELFH-2600 Ex with insulated Cover for 200 l Drums and 230 V Input Voltage	
Revision 2	05.03.2020	

2.9 Maintenance

Drum heaters are generally maintenance-free. Nevertheless, the regulations and specifications of the standards listed under 2.8 “Safety Remarks” have to be observed.

The operation of the temperature control shall be checked after a longer stand-still, at least once a year.


Device and connection cables shall be checked with regard to damages in regular intervals.

Attention: Do not open the thermostat (this includes the cable entries!) while energized.

Attention: Damaged heaters must not be operated!

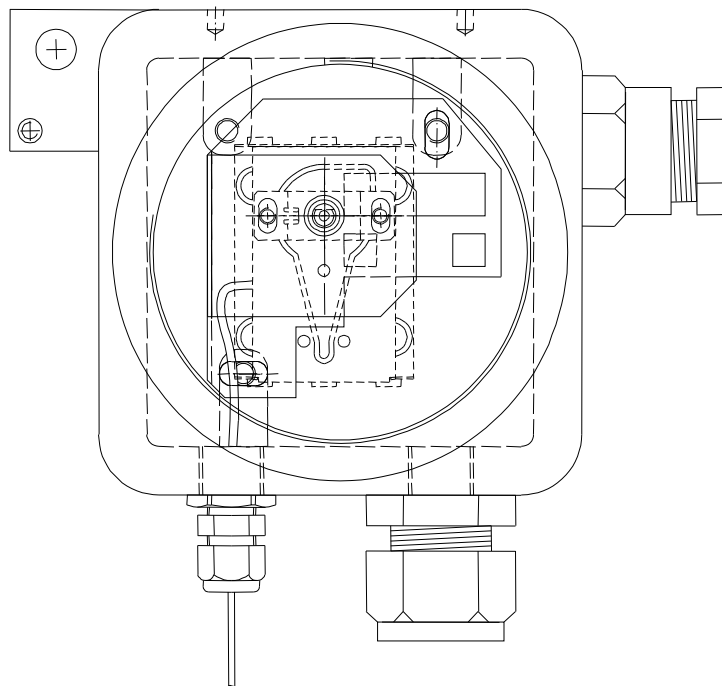
Keep the heated areas free from dirt to avoid overheating and to achieve an optimum heating.

If the limiter has cut off the heating, de-energize the heater and allow for cool down. Investigate the reason for the limiter to cut off before resetting. If the heater or the controller is obviously damaged or dysfunctional, do not put it back to operation, but call for eltherm assistance (see also paragraph 2.6 “Reset of limiter”).

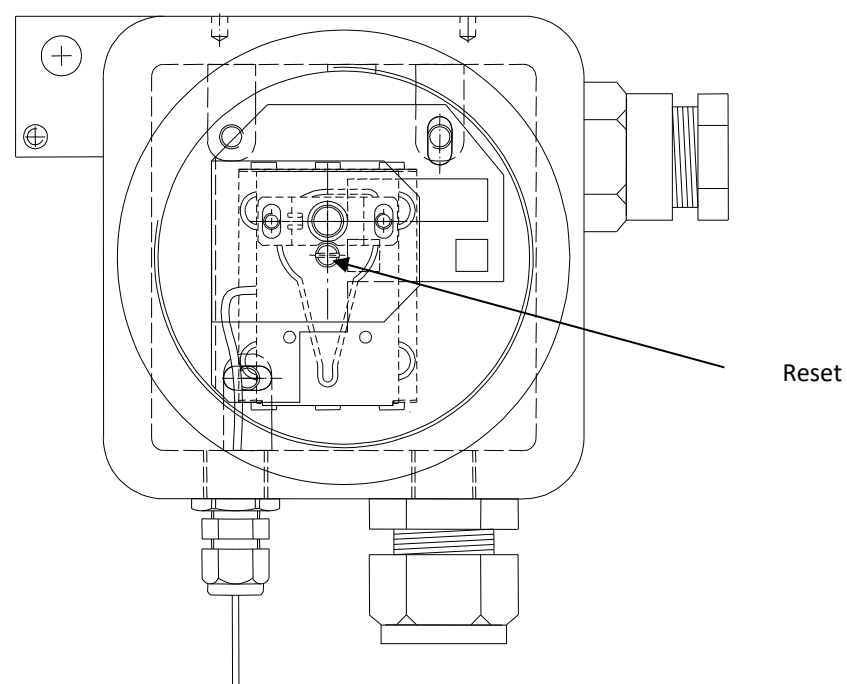
BU 090 Part No. 008TCWD	User Manual Drum Heater ELFH-2600 Ex with insulated Cover for 200 l Drums and 230 V Input Voltage	
Revision 2	05.03.2020	


3. Annex 1

Ex-Capillary Thermostat EL-CTB...Controller

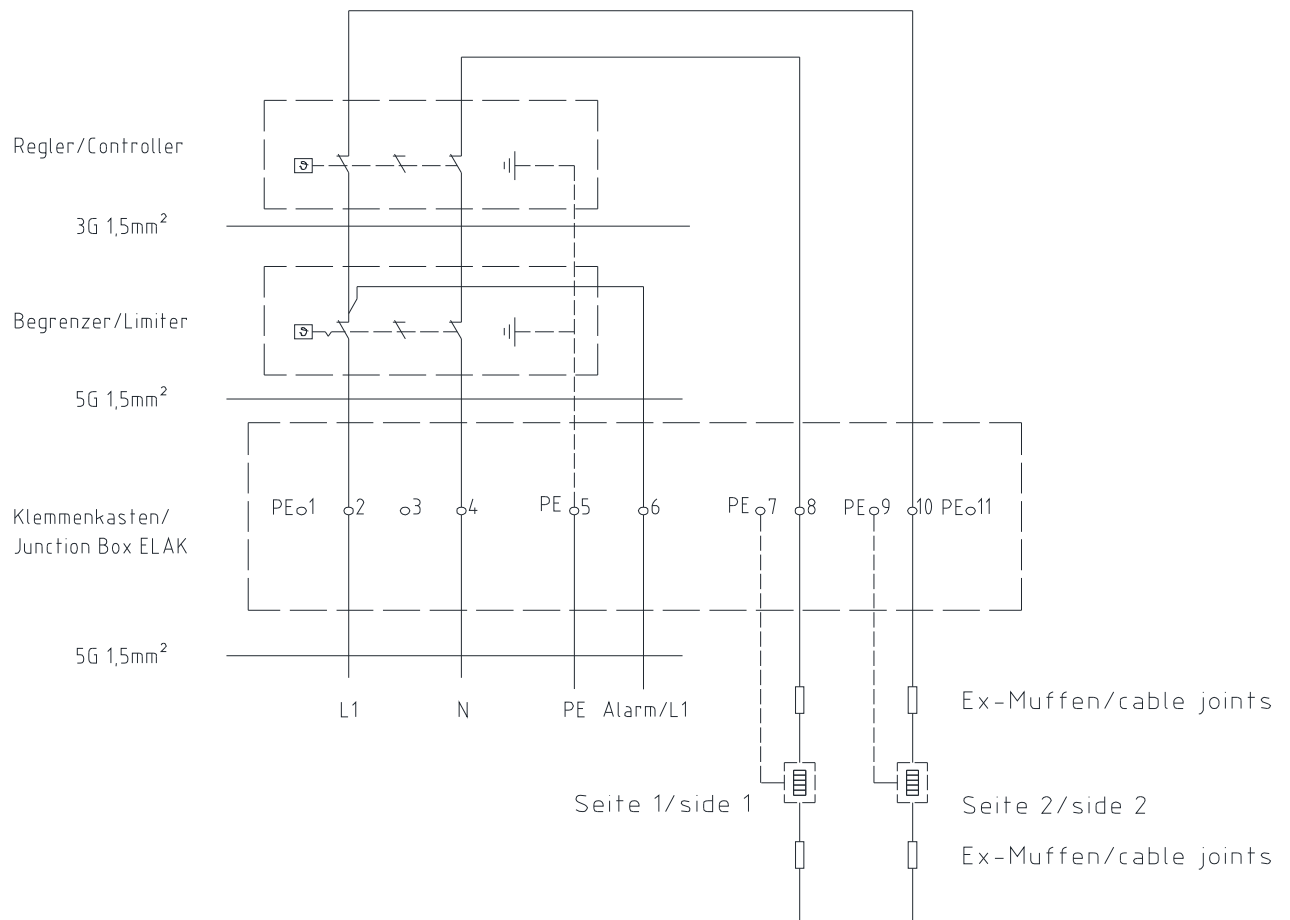



Ex-Capillary Thermostat EL-CTB...Limiter



BU 090 Part No. 008TCWD	User Manual Drum Heater ELFH-2600 Ex with insulated Cover for 200 l Drums and 230 V Input Voltage	
Revision 2	05.03.2020	

4. Circuit Diagram



BU 090 Part No. 008TCWD	User Manual Drum Heater ELFH-2600 Ex with insulated Cover for 200 l Drums and 230 V Input Voltage	
Revision 2	05.03.2020	

5. Drawing

