

Installation and Operating Instructions
for
Series ExH-2/22/XXW
Control Cabinet Heaters

Version 1.1

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General Information / Technical specifications

Manufacturer

Lm-therm Elektrotechnik AG, Sulzbachstraße. 15, 94501 Aldersbach, Deutschland

Type

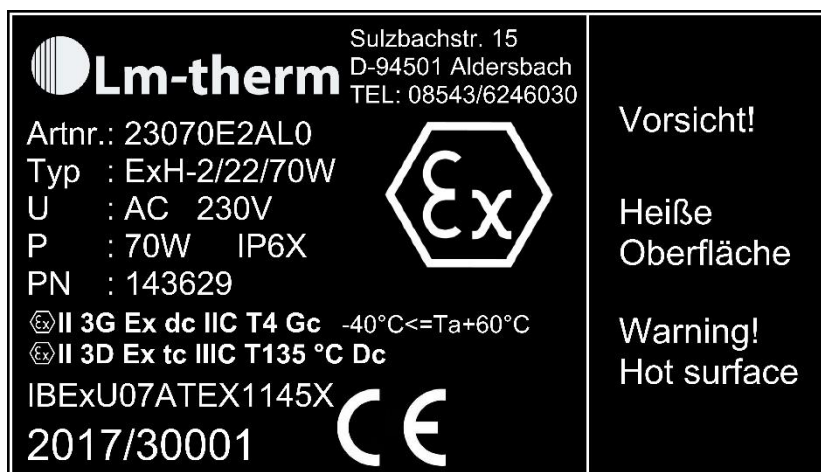
Series ExH-2/22/25W up to 400W

Applied standards

Standards DIN EN 60079-0:2012 + A11:2013, DIN EN 60079-1:2014, DIN EN 60079-31:2014

Type plate (exemplary 70W)

part 1: type plate with ATEX-relevant information



Series ExH1/21/XXW

Type	Voltage / power rating	Standard 1	Specs Label Standard 1	Standard 2	Specs Label Standard 2
ExH-2/22/25W	230V/25W	EN60079-0/-1	{Ex} II 3G Ex dc IIC T5 Gc -40°C ≤ Ta ≤ +60°C	EN60079-31	{Ex} II 3D Ex tc IIIC T 100°C Dc -40°C ≤ Ta ≤ +60°C
ExH-2/22/25W	115V/25W	EN60079-0/-1	{Ex} II 3G Ex dc IIC T5 Gc -40°C ≤ Ta ≤ +60°C	EN60079-31	{Ex} II 3D Ex tc IIIC T 100°C Dc -40°C ≤ Ta ≤ +60°C
ExH-2/22/70W	230V/70W	EN60079-0/-1	{Ex} II 3G Ex dc IIC T4 Gc -40°C ≤ Ta ≤ +60°C	EN60079-31	{Ex} II 3D Ex tc IIIC T 135°C Dc -40°C ≤ Ta ≤ +60°C
ExH-2/22/70W	115V/70W	EN60079-0/-1	{Ex} II 3G Ex dc IIC T4 Gc -40°C ≤ Ta ≤ +60°C	EN60079-31	{Ex} II 3D Ex tc IIIC T 135°C Dc -40°C ≤ Ta ≤ +60°C
ExH-2/22/100W	230V/100W	EN60079-0/-1	{Ex} II 3G Ex dc IIC T4 Gc -40°C ≤ Ta ≤ +60°C	EN60079-31	{Ex} II 3D Ex tc IIIC T 135°C Dc -40°C ≤ Ta ≤ +60°C
ExH-2/22/100W	115V/100W	EN60079-0/-1	{Ex} II 3G Ex dc IIC T4 Gc -40°C ≤ Ta ≤ +60°C	EN60079-31	{Ex} II 3D Ex tc IIIC T 135°C Dc -40°C ≤ Ta ≤ +60°C
ExH-2/22/200W	230V/200W	EN60079-0/-1	{Ex} II 3G Ex dc IIC T3 Gc -40°C ≤ Ta ≤ +60°C	EN60079-31	{Ex} II 3D Ex tc IIIC T 200°C Dc -40°C ≤ Ta ≤ +60°C
ExH-2/22/200W	115V/200W	EN60079-0/-1	{Ex} II 3G Ex dc IIC T3 Gc -40°C ≤ Ta ≤ +60°C	EN60079-31	{Ex} II 3D Ex tc IIIC T 200°C Dc -40°C ≤ Ta ≤ +60°C
ExH-2/22/300W	230V/315W	EN60079-0/-1	{Ex} II 3G Ex dc IIC T3 Gc -50°C ≤ Ta ≤ +60°C	EN60079-31	{Ex} II 3D Ex tc IIIC T 200°C Dc -40°C ≤ Ta ≤ +60°C
ExH-2/22/300W	115V/312,5W	EN60079-0/-1	{Ex} II 3G Ex dc IIC T3 Gc -40°C ≤ Ta ≤ +60°C	EN60079-31	{Ex} II 3D Ex tc IIIC T 200°C Dc -40°C ≤ Ta ≤ +60°C
ExH-2/22/400W	230V/400W	EN60079-0/-1	{Ex} II 3G Ex dc IIC T3 Gc -40°C ≤ Ta ≤ +60°C	EN60079-31	{Ex} II 3D Ex tc IIIC T 200°C Dc -40°C ≤ Ta ≤ +60°C
ExH-2/22/400W	115V/400W	EN60079-0/-1	{Ex} II 3G Ex dc IIC T3 Gc -40°C ≤ Ta ≤ +60°C	EN60079-31	{Ex} II 3D Ex tc IIIC T 200°C Dc -40°C ≤ Ta ≤ +60°C

Operating conditions

Heaters ExH-2/22/XXW: Gas zone 2 (DIN EN 60079-0/-1) / dust zone 22 (DIN EN 60079-31)

- Voltage range: nominal voltage maximum +10%
- Storage temperature range: -40°C bis +60°C
- Operating temperature range: -40°C bis +60°C
- Tightness: IP6x (IP66 and IP67) achieved by cable gland, which is durably connected with the heat sink profile by Loctite 620 and mechanically detachable by exertion of great force only.

Information on the minimum cabinet volume and over-temperature protection

Type / Power	Minimum Control Cabinet Volume	Temperature Range
ExH-2/22/25W	10 dm ³	T5 < 100°C
ExH-2/22/70W	50 dm ³	T4 < 135°C
ExH-2/22/100W	150 dm ³	T4 < 135°C
ExH-2/22/200W	300 dm ³	T3 < 200°C
ExH-2/22/300W	400 dm ³	T3 < 200°C
ExH-2/22/400W	650 dm ³	T3 < 200°C

Application

- Prevention of condensation water formation and avoidance of temperature fluctuations (protection of built-in components) inside control cabinets.
- Ambience: ExH2/22/XXW → Gas zone 2 (DIN EN60079-0/-1) / dust zone 22 (DIN EN60079-31)

Installation

Requirement

- Ambient conditions: Gas zone 2, dust zone 22 (see operating condition)
- Supply voltage: on 115V: max. 126V including voltage tolerance
- Storage temperature: -40°C bis +60°C
- Operating temperature: -40°C bis +60°C

Minimum control cabinet volume see operating condition.

Connecting cable

- Connection of the free end of leads must either be made outside of the explosion area or inside an explosion-protected equipment approved for the respective category of devices.
- An equipotential bonding conductor can be connected to the exterior ground terminal when required, minimum cross section 4mm² (standard section 15). The equipotential bonding conductor must contact at the specified crimp cable lug. The cable lug must be secured against loosening and twisting using the enclosed serrated and plain washers when secured on.
- An appropriate strain relief for connecting leads must be ensured by the operator of the device. These devices are approved for fixed installation only.
- The standard connecting cable must not be shorted. Minimum Length 1,0m!

The heaters must only be installed by professional electricians in accordance with the existing regulations and directives.

Mounting

- Always install device in the lower third of the housing, vertical with the cable connection pointing to the bottom (better heat distribution).
- Combustible and / or flammable objects must be kept away.
- Minimum distance to other components and wires is 50mm.
- The Heater must not be covered, sufficient air circulation within the control cabinet, particularly in the area around the heater must be assured.
- Installation must ensure protection against accidental contact and compliance with statutory protective measures.
- Danger of burns exists due to the hot heater surface after putting in operation.
- Connecting leads must not come in contact with the heat sink.
- Cable must not be shortened to less than 1,0m.

Electrical connection

- Always adhere to the specifications given on the type plate.
- Heaters should be fused separately.
- Heaters must not be operated in series connection.

Type	ExH-2/22/ 25W 230V	ExH-2/22/ 70W 230V	ExH-2/22/ 100W 230V	ExH2/22/ 200W 230V	ExH-2/22/ 300W 230V	ExH-2/22/ 400W 230V
Rated current consumption (I_{Nenn})	0,11 A	0,31 A	0,44 A	0,87 A	1,37 A	1,75 A
Inrush current consumption	max. $10 * I_{Nenn}$	max. $10 * I_{Nenn}$	0,44 A	0,87 A	1,37 A	1,75 A

Typ	ExH-2/22/ 25W 115V	ExH-2/22/ 70W 115V	ExH-2/22/ 100W 115V	ExH-2/22/ 200W 115V	ExH-2/22/ 300W 115V	ExH-2/22/ 400W 115V
Rated current consumption (I_{Nenn})	0,22 A	0,62 A	0,88 A	1,75 A	2,7 A	3,5 A
Inrush current consumption	max. $10 * I_{Nenn}$	max. $10 * I_{Nenn}$	0,88 A	1,75 A	2,7 A	3,5 A

In both types of heaters, ExH-2/22/XXW and 70W, a PTC element is used for the heat source. The inrush current behavior of such elements is nonlinear. For that reason a very high inrush current results, which then drops to a value below the rated current.


Putting in operation

- Visual inspection
- Functional test

Adjustment

These heaters do not require any adjustment.

Equipment

Equipment, for example thermostats are to be used only with approval of zone 2/22 and the approval mark .

Suitable accessories can be found in the current catalogs and brochures of Lm-therm Elektrotechnik AG.

Maintenance

- Keep surface free of dust and dirt to ensure constant heat transmission.
- The heater itself is maintenance-free.
- In case of repair or technical changes warranty claims are forfeited.