



HFXE T5

COMBINED ELECTRONIC BALLAST AND EMERGENCY INVERTER FOR EX-ENVIRONMENT

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TECHNICAL PRODUCT INFORMATION

1 Applications

The HFXE-T5 is a series of combined electronic ballasts and emergency light inverter for T5 High Efficient fluorescent lamps used in EX-environments. The units are approved only to be installed in Ex e enclosures.

The HFXE-range will be suitable for use in explosive gas atmospheres like :

- Oil Industry Off- & On-shore Installations, Gas Stations, Fuel Reservoirs, Oil Tankers
- Mining Industry Mines, Plants, Mills
- Chemical Industry Production Plants

2 Approvals HFXE series

Approvals :

- Ex protection Code Ex mb eb IIC
 Ex mb e II
- IECEx Certificate : ITS09.0016U
- ATEX no. ITS09ATEX86258U
-

Reference standards :

- IEC 60079-0 2007-10
- IEC 60079-7 2006-07
- IEC 60079-18 2004-03

In accordance with

- IEC 61347-2-3 2000+A1:2004
- EN50028
- EN60928

3 HFXE Technical data

3.1 Product range **HFXE**

All version meets the CELMA Class: EEI A2.

Powerfactor measured at frequency of 50Hz.

Model		Electronic Ballast :				EMERGENCY Inverter :				
	230V	Voltage 0-60Hz	Rated current	Ta / Tc Ta min -25C	Lamps	Battery Voltage	Battery capacity	Duration	discharge current	Light Output
Art.No.	Type	+/- 10%	A	°C	W	Vdc	Ah	hours	A	%
11214	HFXE T5 214 E1003	220 - 250V	0.15-0.13	60 / 87	2 x 14	4.8	4	1- 1.5	1,7	22
						8.4	4	1-1.5	1,6	35
						8.4	4	3	1,1	25
11314	HFXE T5 314 E1003	230 - 250V	0.22 - 0.20	60/ 87	3x14	4.8	4	1- 1.5	1,7	22
						8.4	4	1-1.5	1,6	35
						8.4	4	3	1,1	25
11228	HFXE T5 228 E1003	230 - 250V	0.29 - 0.26	60 / 87	2x28	8.4	4	1- 1.5	1,8	22
						8.4	4	3	1,1	16
115V										
15214	HFXE T5 214 E1004	110-127V			2 x 14	4.8	4	1- 1.5	1,7	22
						8.4	4	1-1.5	1,6	35
						8.4	4	3	1,1	25
15314	HFXE T5 314 E1004	110-127V			3x14	4.8	4	1- 1.5	1,7	22
						8.4	4	1-1.5	1,6	35
						8.4	4	3	1,1	25
15228	HFXE T5 228 E1004	110-127V			2x28	8.4	4	1- 1.5	1,8	22
						8.4	4	3	1,1	16

EEI=A2

I_e max. 1500A

Barel reserves the right to change technical specifications without further notice

3.2 Mechanical data HFXE-series :

- Plastic housing fastened with 2 screws.
- Up to 20 screw connectors
- Electronics moulded in polyurethane compound inside housing.

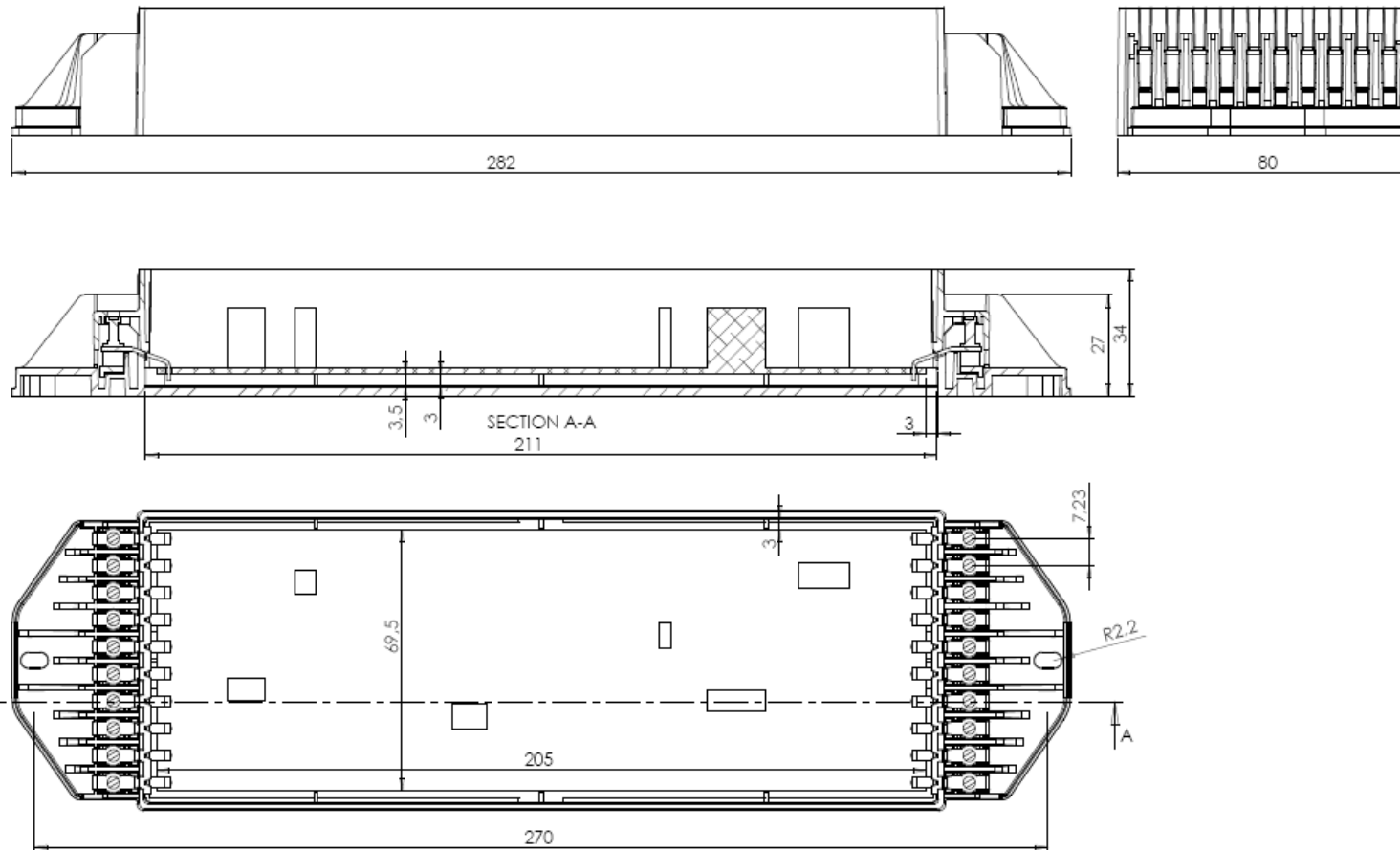


Fig. 1 Physical dimensions HFXE

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4 Installations of HFXE ballasts

HFXE unit must be protected from light when installed inside luminaire.

Tc point value must not be exceeded in final installation.

Metal conductor temperatures should be measured in final installation to ensure that no adverse heating effects from neighbouring components (125°C max).

This component does not cause harm or injury when used as specified in these instructions. If this equipment is not utilised in a manner specified by the manufacturer, the protection by the equipment may be impaired. Battery packs are to be assessed with final certification of luminaire.

4.1 Electrical connection

Electrical connections of the ballast must be done with mains power supply off, and disconnected. The mains supply must be disconnected by an external 2-pole switch (both phases must be off).

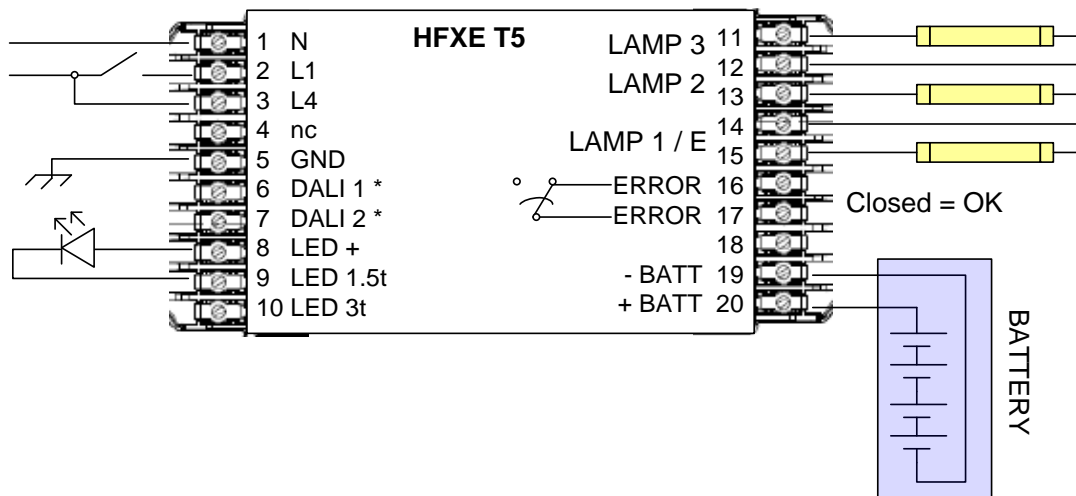


Fig. 2 Alternative connection diagrams for HFXE T5. The ballasts will have different connection diagrams as referred to on the label of the ballast.

*DALI and Error Relay are optional. Please specify when placing order.



TECHNICAL PRODUCT INFORMATION

4.2 Operation

Setting of 1h, 1.5h and 3h operation is selected by connection of Charging Indicator (LED) to terminals 8, 9 and 10 as described in table below.

For manual operation (no selftest) a single colour LED is used,

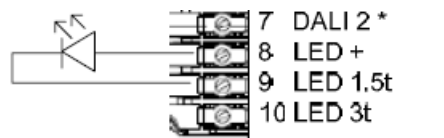


A = Anode,

C = Cathode

For a Selftest operation a bidirectional LED is used (RED / GREEN) connected such that OK = GREEN. For connection of the bicoulor LED the green coloured LED is refered to as Anode and Cathode

Operation Connection	1 hour	1.5 hours	3 hours
Anode	A= 9	A = 8	A = 8
Cathode	C= 10	C = 9	C = 10



Connection terminals 8 – 10 of HFXE

TEST :

NOTE : A full test should not be activated when the battery is empty or low capacity, because this could result in a wrong error-message.

A test is activated manually, as a selftest or by connection of a test-switch.

Manuel test:

By disconnecting the mains when the battery has been charged for a minimum of 24 hours. Status of the test must be observed manually.

Self test:

By using a Bipolar LED connected to the 2 of the 3 pins 8, 9 or 10 as shown above, then a self test will be performed. This test will automatically run a short Monthly test and one Full Annual test operating the Emergency Lamp (LAMP 1) from the battery.

The test sequence will follow the requirement given in the standard IEC62034 2006-05 “Automatic test systems for battery powered emergency escape lighting”.



TECHNICAL PRODUCT INFORMATION

ERROR REPORT

There are 4 different types of ERROR :

- Charging error Typically caused by disconnected or defective battery.
This ERROR-signal occur immediately whitout activating a test.
- Lamp error Typically caused by defective or disconnected lamp
- Battery Capacity error Typically defective battery or too short charging time before testing
- Not connected to any supply If the unit is not connected to the mains supply or to a battery source or when this battery source is discharged.

Error Indication on Bicolour LED :

- Charging error Contionous RED
- Lamp error Intermittent blinking red LED
- Battery Capacity error Contionous blinking red LED
- No Error = OK Green LED

Error Indication on signal relay :

During normal operation this output is monitored by an external device (f.ex. a Programmable Logic Interface). The ERROR signal is internally connected to a relay contact and is used to monitor the status of the Emergency Light inverter and its connected devices like battery and lamp.

The Relay signal state:

- OK = Closed Contact
- ERROR = Open Contact

MAX switching current = 1A / 230Vac

If an ERROR (Open Contact) occur in normal operation (no TEST is activated), then this indicates a Charging ERROR.

*The Error relay is optional. Please specify when ordering. Units with error relay have "E" attached to their part number, example: 11214 =unit without error relay, 11214E =unit with Error relay.

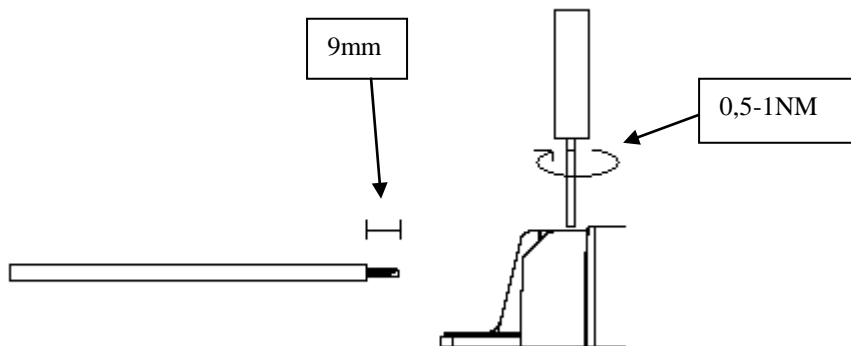
DALI:

DALI system must be connected, programmed and used as specified in instructions of DALI control-system.

TECHNICAL PRODUCT INFORMATION

4.2 Cable

Cross sectional area of the cable can be between 1.5 - 4 mm² (multi wire).
Terminal torque: 0,5-1NM.



Wire Isolation voltage should be minimum 660V.
For Aluminium cables; a bi metallic connector should be used to provide a copper connection.
Use only one conductor per terminal. Terminals are approved for factory wiring.

4.3 Earth connection

The ballast must be earthed by connection from the ground pin to an earthed chassis of the luminary or to a separate ground connection.
The ballast is referred to ground at Pin 5 GND.

5 What to do if...

- No light when first connected to the mains:
 - Check that the mains voltage is in the voltage range of the ballast.
 - Check that the screws at the connection terminal are tightened.
 - Check that correct light sources are connected and that these are ok.
- The lamp(s) lights up, but stop immediately after.
 - Change the tubes with new ones.
 - Check the wires, the contacts and the switches in both sides of the luminaire.
 - Check that the correct lamp type is used. Only HE = High Efficiency lamps can be used. Similar T5 lamps with the same length are also available with different wattages, so called HO = High Output lamps.

If problems with conducted emission during EMC measurements, contact Barel for assistance.

Important issues are:

- Keep all wires short.
- Separate lamp wires from mains supply wires
- Ground the ballast through a short wire connection

TECHNICAL PRODUCT INFORMATION

