

# EU-Type Examination Certificate

- [2] EQUIPMENT OR PROTECTIVE SYSTEM INTENDED FOR USE IN POTENTIALLY EXPLOSIVE ATMOSPHERES DIRECTIVE 2014/34/EU
- [3] EU-Type Examination Certificate Number: Presafe 14 ATEX 5355U Issue 4
- [4] Product: Electronic ballasts
- [5] Manufacturer: Barel AS
- [6] Address: Havneveien 8  
9917 kirkenes  
Norway
- [7] This product and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.
- [8] DNV GL Nemko Presafe AS, notified body number 2460, in accordance with Article 17 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of products intended for use in potentially explosive atmospheres given in Annex II to the Directive.  
The examination and test results are recorded in confidential reports listed in section 16.
- [9] Compliance with the Essential Health and Safety Requirements has been assured by compliance with: EN 60079-0:2012/A11:2013 and EN 60079-7: 2007 and EN 60079-18: 2015
- [10] If the sign "X" is placed after the certificate number, it indicates that the product is subject to the Specific Conditions of Use specified in the schedule to this certificate.
- [11] This EU - TYPE EXAMINATION CERTIFICATE relates only to the design and construction of the specified product. Further requirements of the Directive apply to the manufacturing process and supply of this product. These are not covered by this certificate.
- [12] The marking of the product shall include the following:

 II 2 G Ex eb mb IIC T4

  
Bjørn Spongsveen

For DNV GL Nemko Presafe AS

The Certificate has been digitally signed.

See [www.presafe.com/digital\\_signatures](http://www.presafe.com/digital_signatures) for more info



Date of issue: 2017-06-06

*This certificate may only be reproduced in its entirety and without any change, schedule included.*

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## Schedule

[14] EU-TYPE EXAMINATION CERTIFICATE No.: Presafe 14 ATEX 5355U

Issue 4

### [15] Description of Product

This certificate covers Barel AS electronic ballasts for fluorescent and LED lamps. It is certified as Ex components and includes two different versions, HFX and HFXE. HFX contains the electronic ballasts circuit and HFXE contains the same circuit as HFX but in addition includes Emergency Inverter for connection to 4, 6 or 7 Ni-Cd cells, 4.8V, 7.2V or 8.4V, 4Ah. The circuit is totally encapsulated and comply with the requirements in IEC 60079-18, "Ex mb". The electronic ballast comply with applicable requirements in IEC 60079-7, "Ex eb", 6.3.2 and the external connections comply with field and factory connections requirements of IEC 60079-7, "Ex eb", Cl. 4.2.

HFX: Encapsulated electronic ballast for fluorescent light and LED lamps.

HFXE: Encapsulated electronic ballast for fluorescent light and LED lamps with emergency inverter.

### Type Identification and electrical data

Model	Art	Lamp power	Input Voltage AC 50/60Hz	Input Voltage DC	Input Current	PF	TC
HFX 18 T8	12918	1-2x18W T8	110-254VAC	220-250VDC	0,07-0,32A	0,95	+85°C
HFX 36 T8	12936	1-2x36W T8	110-254VAC	220-250VDC	0,13-0,59A	0,98	+85°C
HFX 58 T8	12958	1-2x58W T8	220-254VAC	220-250VDC	0,22-0,53A	0,98	+85°C
HFX LED	12949	LED 25-50W, 370mA	110-254VAC	220-250VDC	0,11-0,55A	0,92- 0,96	+80°C
HFX LED	12949- XXX*	LED 12,5- 50W, *200- 370mA	110-254VAC	220-250VDC	0,05-0,55A	0,92- 0,96	+80°C
HFX LED	12951	LED 12,5- 25W, 200mA	110-254VAC	220-250VDC	0,05-0,27A	0,9- 0,95	+80°C

Model	Art	Lamp power	Input Voltage AC 50/60Hz	Input Voltage DC	Input Current	PF	TC	Battery
HFXE 18 T8	11918	1-2x18W T8	110- 254VAC	220-250VDC	0,08-0,34A	0,93	+85°C	4,8V or 8,4V, 4Ah, 4or7xNi- Cd.

HFXE 36 T8	11936	1-2x36W T8	110- 254VAC	220-250VDC	0,14-0,59A	0,95	+85°C	4,8V or 8,4V, 4Ah, 4or7xNi- Cd.
HFXE 58 T8	11958	1-2x58W T8	220- 254VAC	220-250VDC	0,23-0,55A	0,96	+85°C	8,4V, 4Ah, 7xNi-Cd.
HFXE LED	11949	LED 25- 50W, 370mA	110- 254VAC	220-250VDC	0,12-0,57A	0,90- 0,95	+80°C	4,8V, 4Ah, 4xNi-Cd.
HFXE LED	11949- XXX*	LED 12,5- 50W, 200- 370mA	110- 254VAC	220-250VDC	0,06-0,57A	0,90- 0,95	+80°C	7,2V, 4Ah, 6xNi-Cd.
HFXE LED	11951	LED 12,5- 25W, 200mA	110- 254VAC	220-250VDC	0,06-0,29A	0,85- 0,90	+80°C	4,8V, 4Ah, 4xNi-Cd.

### Routine tests

Routine test that shall be carried out by the manufacturer on all units:

- Visual inspection according to clause 9.1 of EN 60079-18.
- Dielectric strength test according to clause 9.2 of EN 60079-18, at minimum 1608VAC r.m.s. for HFX and HFXE T8 and 1508VAC r.m.s. for HFX and HFXE LED.

[16] Report No.: D0000992 Rev 4

### [17] Schedule of Limitations

- The temperature of the TC point must not be exceeded
- The minimum operating temperature of the
  - o HFX and HFXE T8 ballasts is -30°C
  - o HFX LED ballast is -42°C
  - o HFXE LED ballast is -52°C
- The HFX and HFXE LED have an output rating of 50-130V and 200-370mA. The current is limited to 850mA and breaking capacity of 1500A and has been tested together with Barel ARC LED 600 and 1200, certified Presafe 15 ATEX 6296U and IECEx PRE 15.0014U.
- Charging current = 220mA, 80mA permanent for HFXE T8 and HFXE LED type 11949. 200mA for 11949-XXX and 11951.

- With one fault condition of the charging system, the charging power is limited to 2W by a transformer and the current is limited to 300mA for HFXE T8 and HFXE LED type 11949. 200mA for 11949-XXX and 11951.
- Discharge current = 0.5A - 1.75A.
- Discharge cut-off voltage = 1.0V/cell i.e. 4.0V for 4.8V battery, 6.0V for 7.2V and 7.2V for 8.4V battery.
- The fault current on the battery input is limited to 6.8A.
- HFX, HFXE T8 have an enhanced voltage according to Cl. 5.3.7.5 of IEC 60079-7, 304Vrms.
- The indicator LED outputs has the following nominal ratings: 3V, 14mA and is limited to 5.4V and 18.3mA.
- The ballast shall be mounted inside an Ex e luminaire and not directly exposed to light.
- The terminal has a rating of 450V, Torque 0.5Nm and capacity on the screw side of one conductor with dimensions 1.0 - 2.5mm<sup>2</sup> rigid or flex.

## [18] Essential Health and Safety Requirements

Essential Health and Safety Requirements (EHSRs) are covered by the standards listed at item 9

## [19] Drawings and documents

Number	Title	Rev.	Date
SCH 227-231D	Sch HFX 227 –HFXE 231	E	2016-11-11
BoM 227 T8 LED	BoM 227 T8 LED	12	2016-12-19
BoM 231 T8-LED	BoM 231 T8-LED	16	2016-12-19
231	PCB HFXE	D	2015-08-04
227	PCB HFX	E	2016-11-09
231	PCB HFXE	E	2016-11-09
BRL19420-226	HFX ASSY	0	2013-09-24
BRL19120-230	HFXE ASSY	0	2013-09-24
I_U184	Assembly and potting HFX_E	3	2015-01-28
Label 227-231	Label HFX/E T8 LED	13	2017-01-26
250022	E-STK HFXE	0	2013-09-24
250023	E-STK HFX	0	2013-09-24
BRL19120	HFXE kasse 70mm	0	2012-01-24
BRL19420	HFX_profil_5	A	2012-12-18

## [20] Certificate History

Issue	Description	Issue date	Report no.
0	Original issue	2014-10-29	D0000992
1	Added HFX and HFXE LED, voltage supply for HFX 18 T8, HFXE 18 T8 was changed from 110VDC to 220VDC on manufacturers request, Tc point changed on HFX and	2015-04-24	D0000992 Rev 1

	HFXE T8 from 87°C to 85°C. The certificate was also updated to latest IEC 60079-18:2014 standard.		
2	Added HFX and HFXE 1-2x58W T8 ballast and the ability to use the HFX and HFXE 18W and 36W T8 ballast towards 1 fluorescent tubular lamp as well as two, HFX 1-2x18W and 1-2x36W.	2015-10-26	D0000992 Rev 2
3	New version of HFX/HFXE LED with lower output current to the LED module, 200mA for 11951 and 12951 and 200-370mA for 11949-XXX and 12949-XXX. New circuit for lower and better control of charge current/voltage of HFXE 11951 and 11949-XXX.	2017-01-31	D0000992 Rev 3
4	Correction of electrical data	2017-06-06	D0000992 Rev 4

END OF CERTIFICATE