

EU-Type Examination Certificate

- [2] COMPONENT INTENDED FOR USE ON/IN AN 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 5
- [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 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: 2015 and EN 60079-18: 2015
- [10] The sign “U” is placed after the certificate number. It indicates that this certificate must not be mistaken for a certificate intended for an equipment or protective system. This partial certification may be used as a basis for certification of an equipment or protective system
- [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



Date of issue:
2018-09-26



Asle Kaastad
For DNV GL Presafe AS
The Certificate has been digitally signed.
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This certificate may only be reproduced in its entirety and without any change, schedule included.

[13]

Schedule

[14]

EU-TYPE EXAMINATION CERTIFICATE No.:

Presafe 14 ATEX 5355U

Issue 5 Issue 5

[15]

Description of Product

This certificate covers electronic ballasts for fluorescent and LED lamps which are manufactured by Barel AS. The electronic ballasts are built-in modules and therefore are certified as Ex components. Two models exist, HFX and HFXE. Both models used the same parts except for this difference. HFXE has Emergency Inverter for connection to 4, 6 or 7 Ni-Cd cells, with respective voltages 4.8V, 7.2V or 8.4V, 4Ah.

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

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

The circuit is encapsulated in accordance to requirements in IEC 60079-18, type of protection "Ex mb". The external connection terminals comply with requirements in IEC 60079-7, type of protection "Ex eb". The investigated modules are built-in device and the connection terminals are considered as factory connections. No field wiring is allowed.

The alternative terminal is Körner type OK201/x NY-LP and has same specs as the previously used type.
(x = 7 or 3)

Type designation and electrical data

Model (Art. No.)	Specs	Input Voltage AC (50/60Hz) or DC	Input Current	PF	Tc	Operating range (°C)	Battery pack *)
HFX 18 T8 (12918)	1-2x18W T8	110-254VAC or 220-250VDC	0,07 - 0,32A	0,95	+85°C	-30 to +70°C	
HFX 36 T8 (12936)	1-2x36W T8	110-254VAC or 220-250VDC	0,13 - 0,59A	0,98	+85°C	-30 to +70°C	
HFX 58 T8 (12958)	1-2x58W T8	220-254VAC or 220-250VDC	0,22 - 0,53A	0,98	+85°C	-30 to +65°C	
HFX LED (12949)	LED 25-50W, 370mA	110-254VAC or 220-250VDC	0,11 - 0,55A	0,92-0,96	+80°C	-42 to +65°C	
HFX LED (12949-XXX*)	LED 12,5-50W, *200-370mA	110-254VAC or 220-250VDC	0,05 - 0,55A	0,92-0,96	+80°C	-42 to +65°C	
HFX LED (12951)	LED 12,5-25W, 200mA	110-254VAC or 220-250VDC	0,05 - 0,27A	0,9-0,95	+80°C	-42 to +65°C	
HFXE 18 T8 (11918)	1-2x18W T8	110-254VAC or 220-250VDC	0,08-0,34A	0,93	+85°C	-30 to +65°C	1 or 2
HFXE 36 T8 (11936)	1-2x36W T8	110-254VAC or 220-250VDC	0,14-0,59A	0,95	+85°C	-30 to +65°C	1 or 2
HFXE 58 T8 (11958)	1-2x58W T8	220-254VAC or 220-250VDC	0,23-0,55A	0,96	+85°C	-30 to +65°C	2
HFXE LED (11949)	LED 25-50W, 370mA	110-254VAC or 220-250VDC	0,12-0,57A	0,90-0,95	+80°C	-52 to +65°C	1
HFXE LED (11949-XXX*)	LED 12,5-50W, *200-370mA	110-254VAC or 220-250VDC	0,06-0,57A	0,90-0,95	+80°C	-52 to +65°C	3
HFXE LED (11951)	LED 12,5-25W, 200mA	110-254VAC or 220-250VDC	0,06-0,29A	0,85-0,90	+80°C	-52 to +65°C	1
Supplementary information:							
*) Battery pack 1: 4Ah, 4,8V (4 x NiCd), Battery pack 2: 4Ah, 8,4V (7 x NiCd), Battery pack 3: 4Ah, 7.2V (6 x NiCd)							

Degrees of protection (IP Code)

(Built-in modules)

Temperature range

(See Type designation and electrical data)

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.: D0000992-05

[17] Schedule of Limitations

- The temperature of the Tc point must not be exceeded in normal operation
- The operating temperature range for each model is listed in 'Type designation and electrical data'
- 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 Bareil 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 (Metaluk 217) and 0.9Nm (Körner OK201) and capacity on the screw side of one conductor with dimensions 1.0 - 2.5mm² rigid or flex.
- Use of ferrule at wire's end shall be stated in manual
- The measured asymmetric power (End of Life) does not exceeded 8W. End-luminaires where these modules could be part of, shall not have max rated ambient exceeding 60°C.

[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

Title	Number	Rev.	Date
Sch HFX 227 –HFXE 231	SCH 227-231D	E	2016-11-11
* BoM 227 T8 LED	BoM 227 T8 LED	14	2018-09-25
* BoM 231 T8-LED	BoM 231 T8-LED	18	2018-09-25
PCB HFXE	231	D	2015-08-04
PCB HFX	227	E	2016-11-09
PCB HFXE	231	E	2016-11-09
HFX ASSY	BRL19420-226	0	2013-09-24
HFXE ASSY	BRL19120-230	0	2013-09-24
Assembly and potting HFX_E	I_U184	3	2015-01-28
Label HFX/E T8 LED	Label 227-231	13	2017-01-26
* E-STK HFXE	250022	1	2018-04-24
* E-STK HFX	250023	1	2018-04-24
HFXE kasse 70mm	BRL19120	0	2012-01-24
HFX_profil_5	BRL19420	A	2012-12-18
Note: An * is included before the title of documents that are new or revised.			

[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 HFXE T8 from 87°C to 85°C. The certificate was also updated to latest IEC 60079-18:2014 standard.	2015-04-24	D0000992 Rev 1
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
5	- Alternative terminal type used - Update to requirements of the standard EN60079-7: 2015 (5th ed)	2018-09-26	D0000992-05 (rev 5)

END OF CERTIFICATE