

EC-Type Examination Certificate

- [2] COMPONENT INTENDED FOR USE IN POTENTIALLY EXPLOSIVE ATMOSPHERES DIRECTIVE 94/9/EC
- [3] EC-Type Examination Certificate Number: Presafe 14 ATEX 5355U Issue 1
- [4] Component: Electronic ballasts
- [5] Applicant – Manufacturer or Authorized representative: Barel AS
- [6] Address: Havneveien 8
9917 kirkenes
Norway
- [7] This component and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.
- [8] DNV Nemko Presafe AS, notified body number 2460 in accordance with Article 9 of Council Directive 94/9/EC of 23 March 1994, certifies that this component has been found to comply with the Essential Health and Safety requirements relating to the design and construction of equipment and protective systems 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 14.
- [9] Compliance with the Essential Health and Safety Requirements has been assured by compliance with: EN 60079-0: 2012 and EN 60079-7: 2007 and EN 60079-18: 2009 (IEC 60079-18:2014)
- [10] The sign 'U' placed after the certificate number 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 EC-TYPE EXAMINATION CERTIFICATE relates only to the design and construction of the specified component. If applicable, further requirements of this Directive apply to the manufacturer and supply of this component.
- [12] The marking of the equipment or protective system shall include the following:



II 2 G

Ex eb mb IIC T4

Date of issue: 2015-04-24

Bjørn Spongsveen
For DNV Nemko Presafe AS
Information on electronic signature www.presafe.com



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[13]

Schedule

[14] **EC-TYPE EXAMINATION CERTIFICATE No.:** Presafe 14 ATEX 5355U Issue 1

Certificate History

Issue	Description	Report no.	Issue date
0	Original issue	D0000992	2014-10-29
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.	D0000992 Rev 1	2015-04-24

[15] Description of Component

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 or 7 Ni-Cd cells, 4.8V 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	2x18W T8	110-254VAC	220-250VDC	0,13-0,32A	0,95	+85°C
HFX 36 T8	12936	2x36W T8	110-254VAC	220-250VDC	0,28-0,59A	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

Model	Art	Lamp power	Input Voltage AC 50/60Hz	Input Voltage DC	Input Current	PF	TC	Battery

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HFXE 18	11918	2x18W T8	110-254VAC	220-250VDC	0,13-0,32A	0,95	+85°C	4,8V or 8,4V, 4Ah, Ni-Cd.
HFXE 36	11936	2x36W T8	110-254VAC	220-250VDC	0,28-0,59A	0,95	+85°C	4,8V or 8,4V, 4Ah, Ni-Cd.
HFXE LED	11949	LED 25-50W, 370mA	110-254VAC	220-250VDC	0,12-0,56A	0,90-0,95	+80°C	4,8V, 4Ah, Ni-Cd.

[16] Project No.: D0000992 Rev 1

Descriptive Documents

Number	Title	Rev.	Date
SCH 227-231D	Sch HFX 227 –HFXE 231	D	2015-01-22
BoM 227 T8 LED	BoM 227 T8 LED	7	2015-04-13
BoM 231 T8-LED	BoM 231 T8-LED	10	2015-04-13
227	PCB HFX	D	2015-01-22
231	PCB HFXE	D	2015-01-22
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	9	2015-04-23
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

Routine Test:

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

[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

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- HFX LED ballast is -42°C
- HFXE LED ballast is -52°C
- The HFX and HFXE LED have an output rating of 60-130V and 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
- With one fault condition of the charging system, the charging power is limited to 2W by an transformer and the current is limited to 300mA
- Discharge current = 0.9A - 1.75A
- Discharge cut-off voltage = 4.0V for 4.8V battery 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 - 2.5mm² rigid or flex

[18] Essential Health and Safety Requirements

See part 9 of this certificate

END OF CERTIFICATE