

CC ComfortLine NFC



COMFORTLINE NFC S-MIDNIGHT IP

186884, 186885, 186886, 186887

Typical Applications

Built-in in compact luminaires

- Street lighting
- Industrial lighting



ComfortLine NFC S-MidNight IP

- **DEGREE OF PROTECTION: IP67**
- **SELECTABLE OUTPUT CURRENT VIA NFC**
- **MIDNIGHT FUNCTION**
- **VERY LOW RIPPLE CURRENT: < 5%**
- **SURGE PROTECTION: UP TO 6 KV**
- **PREASSEMBLED CONNECTION LEADS**
- **LONG SERVICE LIFE:
UP TO 100,000 HRS.**
- **PRODUCT GUARANTEE: 5 YEARS**



ComfortLine NFC S-MidNight IP

Product features

- Compact casing shape

Functions

- Selectable current output via NFC
- Programmable via NFC interface (contactless)
 - MidNight function
 - Constant Lumen Output (CLO)

Electrical features

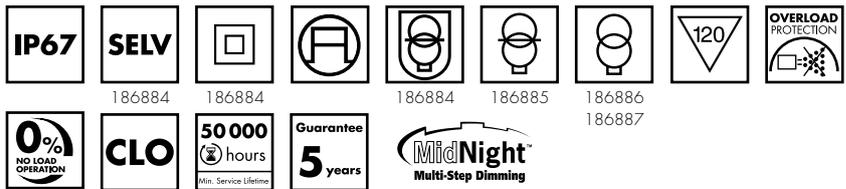
- Mains voltage: 220–240 V ±10%
- Mains frequency: 50/60 Hz
- Pre-assembled connection leads:
 - primary and secondary: 3x1 mm² (17 AWG), length: 300 mm
- Power factor at full load:
 - 186884, 186886: > 0.97
 - 186885: > 0.95; 186887: > 0.98
- Open circuit voltage (U_{max.}): 110 V (186884)
- Max. working voltage (U_{OUT}): 220 V (186885), 280 V (186886) or 350 V (186887)
- Secondary side switching of LED modules is not allowed.

Safety features

- Protection against transient main peaks up to 6 kV (between L and N and L/N and PE)
- Electronic short-circuit protection
- Overload protection
- Overtemperature protection
- Protection against "no load" operation
- Degree of protection: IP67
- Protection class I (186885, 186886, 186887)
- Protection class II (186884)
- SELV (only for 186884)

Packaging units

Ref. No.	Packaging unit		
	Pieces per box	Boxes per pallet	Weight g
186884	20	720	510
186885	10	640	742
186886	10	480	942
186887	10	480	1022



Applied standards

- EN 61000-3-2
- EN 61347-1
- EN 61347-2-13
- EN 61547
- EN 62384
- EN 55015



Dimensions

Ref. No.	Casing	Length mm	Width mm	Height mm
186884	K73	138	82,4	38
186885	M69	172,6	68,5	38,6
186886	M70	212,6	68,5	38,6
186887	M71	227,6	68,5	38,6

Current adjustment



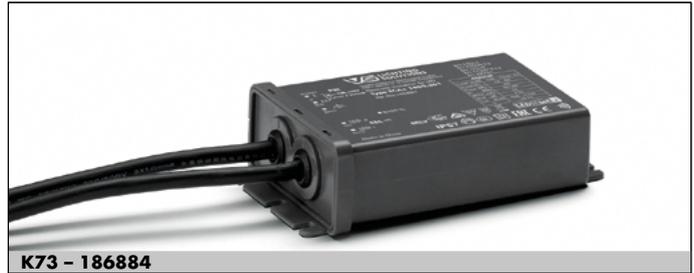
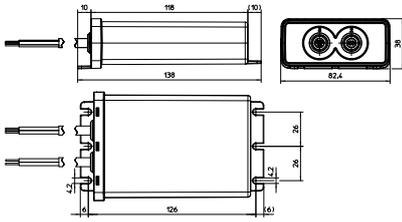
Product guarantee

- 5 years
- The conditions for the Product Guarantee of the Vossloh-Schwabe Group shall apply as published on our homepage (www.vossloh-schwabe.com). We will be happy to send you these conditions upon request.

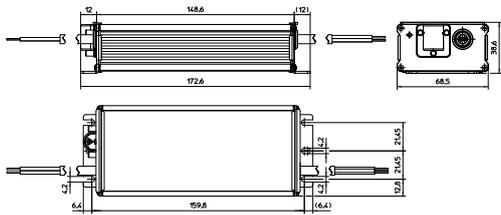
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Product drawings and photos

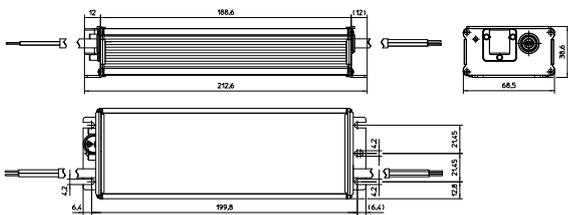
K73



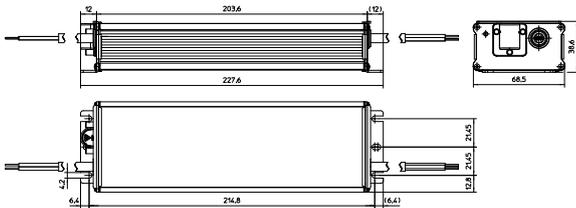
M69



M70



M71



LED Drivers – ComfortLine NFC S-MidNight IP

Electrical characteristics

Max. output W	Type	Ref. No.	Voltage 50–60 Hz V ±10%	Mains current mA	Inrush current A / μs	Current output DC mA (± 5%)	Factory settings mA	Voltage output DC (V)	THD at full load % (230 V)	Efficiency at full load % (230 V)	Ripple 100 Hz %
60	ECXe 1400.361	186884	220–240	320	50 / 220	700–1400	700	43–86	10	88	< 5
100	ECXe 1400.362	186885	220–240	520	52 / 250	700–1400	700	72–144	10	90.5	< 5
150	ECXe 1400.363	186886	220–240	830	120 / 250	700–1400	700	107–214	10	92	< 5
200	ECXe 1400.364	186887	220–240	1100	128 / 300	700–1400	700	143–286	10	93	< 5

Maximum ratings

Exceeding the maximum ratings can lead to reduction of service life or destruction of the drivers.

Ref. No.	Ambient temperature range		Operation humidity range		Storage temperature range		Storage humidity range		Max. operation temperature at t_c point °C	Degree of protection
	°C min.	°C max.	% min.	% max.	°C min.	°C max.	% min.	% max.		
186884	-40	+55	5	95	-25	+85	5	95	+85	IP67
186885										
186886										
186887								+90		

Expected service life time

at operation temperatures at t_c point

Operation current	Ref. No.		186887	
	186884, 186885, 186886	186887		
All	75 °C	85 °C	80 °C	90 °C
hrs.	100,000	50,000	100,000	50,000

Product labels

Vossloh-Schwabe Deutschland GmbH
Stuttgarter Straße 61/1, 73614 Schorndorf
EN 55015, EN 61000-3-2, EN 61547, EN 61347-2-13, EN 62384

Type ECXe 1400.361
Ref.-No. 186884
Made in China

OUTPUT

Irated (mA)	700...1400
Urated (V)	43...86mm
Prated (W)	60
Thmax (°C)	55
Uout (V)	110
Iout (mA)	400...1400

Vossloh-Schwabe Deutschland GmbH
Stuttgarter Straße 61/1, 73614 Schorndorf
EN 55015, EN 61000-3-2, EN 61547, EN 61347-2-13, EN 62384

Type ECXe 1400.362
Ref.-No. 186885
Made in China

OUTPUT

Irated (mA)	700...1400
Urated (V)	72...144mm
Prated (W)	100
Thmax (°C)	55
Uout (V)	220
Iout (mA)	400...1400

Vossloh-Schwabe Deutschland GmbH
Stuttgarter Straße 61/1, 73614 Schorndorf
EN 55015, EN 61000-3-2, EN 61547, EN 61347-2-13, EN 62384

Type ECXe 1400.363
Ref.-No. 186886
Made in China

OUTPUT

Irated (mA)	700...1400
Urated (V)	107...214mm
Prated (W)	150
Thmax (°C)	55
Uout (V)	280
Iout (mA)	400...1400

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Stuttgarter Straße 61/1, 73614 Schorndorf
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Type ECXe 1400.364
Ref.-No. 186887
Made in China

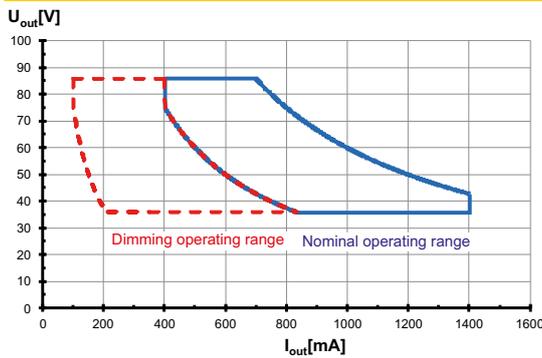
OUTPUT

Irated (mA)	700...1400
Urated (V)	143...286mm
Prated (W)	200
Thmax (°C)	55
Uout (V)	350
Iout (mA)	400...1400

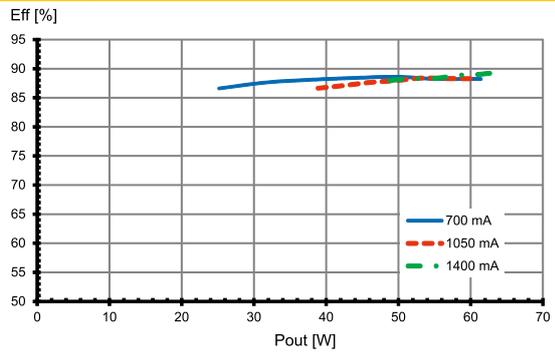
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Typ. performance graphs for 186884 / Type ECXe 1400.361

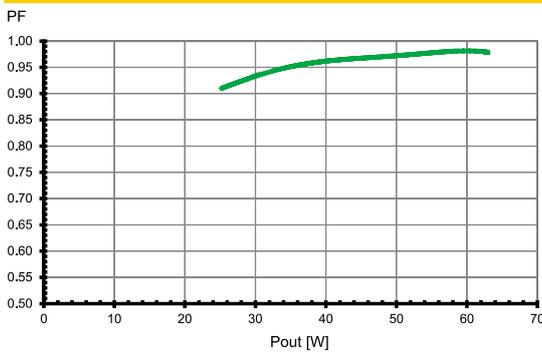
Working area



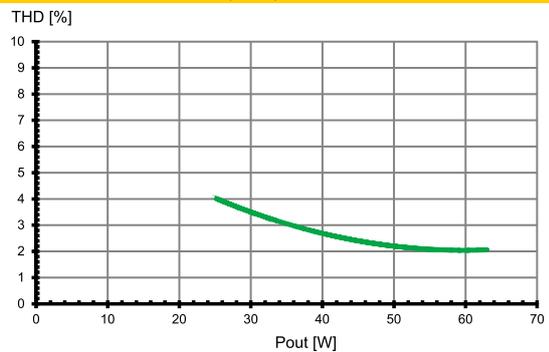
Efficiency



Power factor

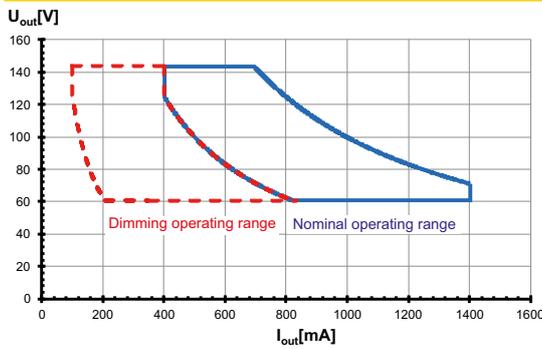


Total harmonic factor (THD)

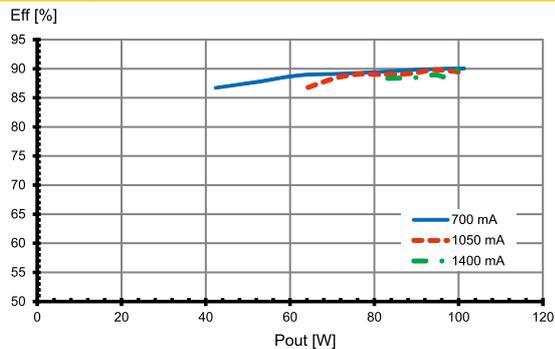


Typ. performance graphs for 186885 / Type ECXe 1400.362

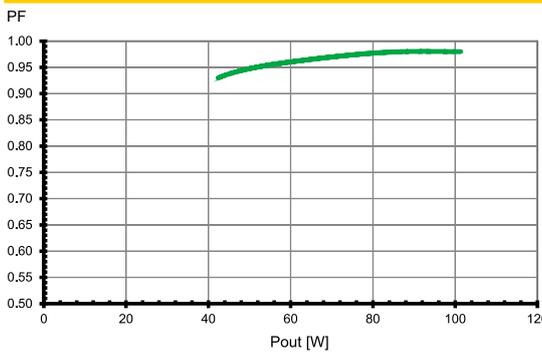
Working area



Efficiency



Power factor



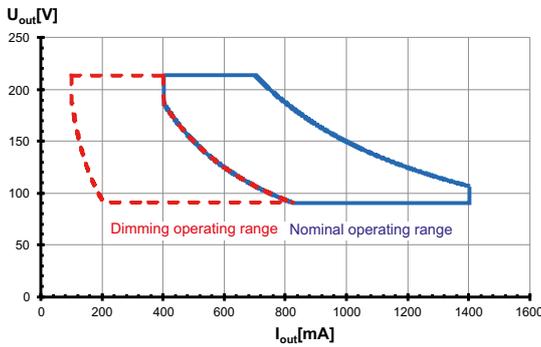
Total harmonic factor (THD)



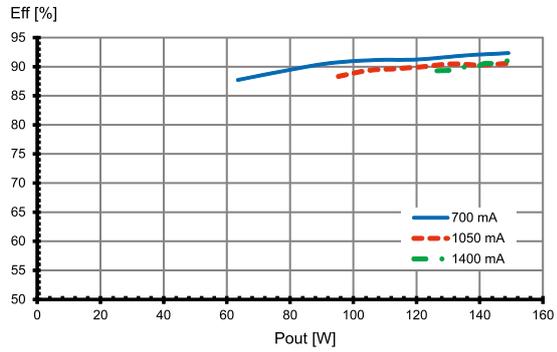
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Typ. performance graphs for 186886 / Type ECXe 1400.363

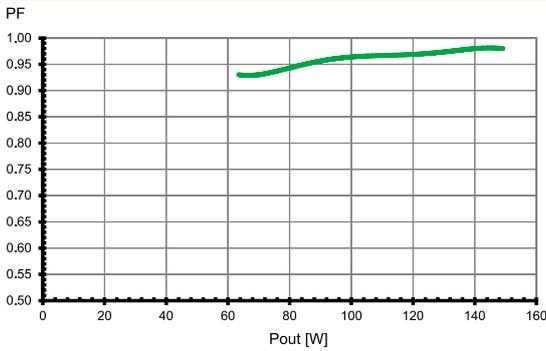
Working area



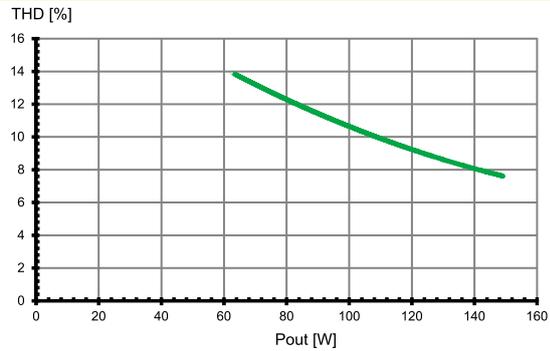
Efficiency



Power factor

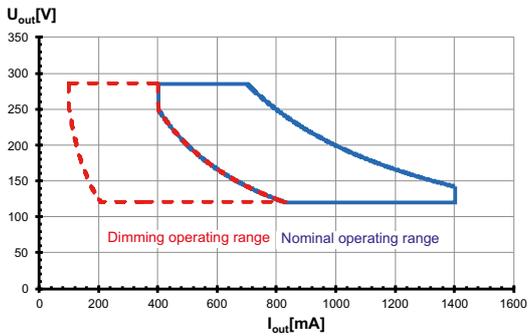


Total harmonic factor (THD)

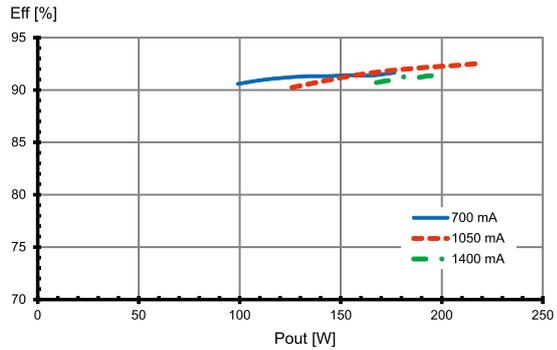


Typ. performance graphs for 186887 / Type ECXe 1400.364

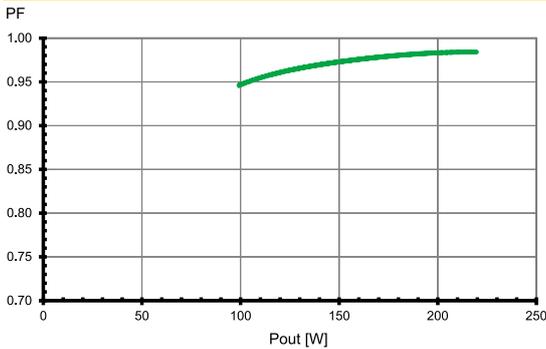
Working area



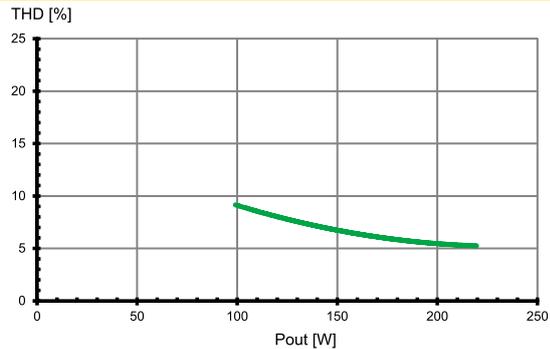
Efficiency



Power factor



Total harmonic factor (THD)



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Safety functions

- Transient mains peaks protection:
Values are in compliance with EN 61547 (interference immunity).
Surges between L-N and L/N-PE: up to 6 kV
- Short-circuit protection: The control gear is protected against permanent short-circuit with automatic restart function.
- Overload protection: The control gears have overload protection. In case of overload the control gear will reduce the output current.
- Overheating: The control gear has overheating protection. In case of overheating the control gear will reduce the output current and shut down.
- No load operation: The control gear is protected against no load operation (open load) and switches off when no load is connected.
- If any of the above mentioned safety functions will be triggered, disconnect the control gear from the power supply then find and eliminate the cause of the problem.

Output voltage (U_{OUT})

According to EN 61347-1, U_{OUT} indicates which voltage can occur at the output terminals directly or between the output terminals and the PE terminal of the LED driver. This value is given for non-insulated drivers. The used LED module must have an insulation voltage that is at least as high as the specified U_{OUT} voltage of the driver.

Leakage current

Leakage currents are present in all electronic converters or luminaires with PE connection and must be observed especially when using non-insulated LED drivers.

The PCB surfaces of LED modules form a capacitance with grounded LED aluminum circuit boards, heat sinks or mounting plates. This leads to capacitive leakage currents between the connection poles of the LED (+ and -) and the PE terminal. These capacitances should be kept as small as possible, since they are responsible for a possible glowing or flickering of the LEDs in standby mode. In extreme cases, the maximum permissible leakage current of the luminaire according to EN 60598 paragraph 10.3 may be exceeded. The leakage current is also relevant when using RCD circuit breakers.

MidNight function

Automatic dimming via an integrated timer (no real-time clock). Five independent dimming levels and zones can be set using the Tuner4Tronic software.

Constant lumen output (CLO)

The decrease in the luminous flux of an LED module can be compensated over its entire lifetime via a preprogrammed current curve. This not only ensures stable lighting but also saves energy and increases the lifetime of the LEDs.

System architecture

- You can program the NFC LED drivers contactless with the Feig Programmer.
- The LED driver is programmed via NFC in a de-energised state.
- The use of the NFC programmer is flexible in the production or already in the pre-assembly process. A complex commissioning is not required. The operation and parameterization is done in the simplest way. All operating parameters can be individually programmed and updated.
- The exact description of the programming can be found in the operation manual of the VS Tuner4Tronic software.



Feig Programmer, hand-held device
FEIGPRH101, FEIGCPR30

VS NFC LED drivers IP67

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Assembly and Safety Information

Installation must be carried out under observation of the relevant regulations and standards. Installation must be carried out in a voltage-free state (i.e. disconnection from the mains). The following advices must be observed; non-observance can result in the destruction of the LED drivers, fire and/or other hazards.

Mandatory regulations

- DIN VDE 0100
- EN 60598-1

Mechanical mounting

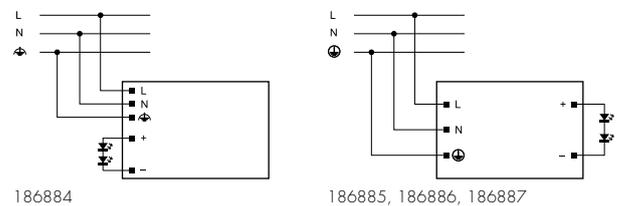
- Mounting position: Built-in: Any position inside a luminaire is allowed
- Mounting location: LED drivers are designed for integration into luminaires or comparable devices.
- Degree of protection: IP67
The driver operate normal under temporary immersion between 0,15 m and 1 m with the condition of the duration time is less than 30 min. and the water temperature does not differ from that of the driver by more than 5 K.
- Clearance: Min. 0.10 m from walls, ceilings and insulation
- Surface: Solid and plane surface for optimum heat dissipation required.
- Heat transfer: If the driver is destined for installation in a luminaire, sufficient heat transfer must be ensured between the driver and the luminaire casing.
LED drivers should be mounted with the greatest possible clearance to heat sources.
During operation, the temperature measure at the driver's t_c point must not exceed the specified maximum value.
- Fastening: Using M4 screws in the designated holes
- Tightening torque: 0.2 Nm

Electrical installation

- The wire connection should be installed by professional person, reinforced insulation between L/N terminal block and accessible part should be fulfilled.
- The external flexible cable or cord of the LED driver cannot be replaced; if the cord is damaged, the LED driver shall be destroyed.
- During and after installation the connection of input terminal and output terminal should be enclosed to far away from water source.
- Output connection shall be installed by professional person, at least basic insulation corresponding to its max. output voltage should be maintained between current-carrying part of LED modules output and accessible surface or mounting surface after installation.
186884: At least one pole of the conductive parts in the SELV circuit shall be insulated by insulation capable of withstanding a test voltage of 500 V r.m.s. for 1 min.
- Stripped length: 10 mm
- Terminal block not included. Installation must be performed by a qualified person.

- Wiring: The mains conductor within the luminaire must be kept short (to reduce the induction of interference). Mains and lamp conductors must be kept separate and if possible should not be laid in parallel to one another.
- Polarity: Please ensure the correct polarity of the leads prior to commissioning. Reversed polarity can destroy the modules.
- Through-wiring: Is not allowed.
- Secondary load: The sum of forward voltages of LED loads has to be within the tolerances which are mentioned in the table "Electrical Characteristics" in this data sheet.

- Wiring diagram:



Selection of automatic cut-outs for VS LED drivers

- Dimensioning automatic cut-outs
High transient currents occur when an LED driver is switched on because the capacitors have to load. Ignition of LED modules occurs almost simultaneously. This also causes a simultaneous high demand for power. These high currents when the system is switched on put a strain on the automatic conductor cut-outs, which must be selected and dimensioned to suit.
- Release reaction
The release reaction of the automatic conductor cut-outs comply with VDE 0641, part 11, for B, C characteristics. The values shown in the following tables are for guidance purposes only and are subject to system-dependent change.
- No. of LED drivers
The maximum number of VS LED drivers applies to cases where the devices are switched on simultaneously. Specifications apply to single-pole fuses. The number of permissible drivers must be reduced by 20% for multi-pole fuses. The considered circuit impedance equals 400 mΩ (approx. 20 m [2.5 mm²] of conductor from the power supply to the distributor and a further 15 m to the luminaire).

Type	Ref. No.	Automatic cut-out type and possible no. of VS drivers pcs.					
Automatic cut-out type		B 10 A	B 13 A	B 16 A	C 10 A	C 13 A	C 16 A
ECXe 1400.361	186884	7	9	11	12	16	19
ECXe 1400.362	186885	6	8	9	10	13	16
ECXe 1400.363	186886	2	3	4	4	5	7
ECXe 1400.364	186887	2	2	3	3	4	5

- To limit capacitive inrush currents the current carrying capacity of each circuit breaker (fuse) can be increased by a factor of 2.5 with the help of our ESB (Ref. No.: 149820, 149821, 149822) inrush current limiters.

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EU compliance information

Hereby, Vossloh-Schwabe Deutschland GmbH declares that the radio equipment type ComfortLine NFC S-MidNight IP is in compliance with Directive 2014/53/EU.

The full text of the EU declaration of conformity is available at the following internet address: www.vossloh-schwabe.com.