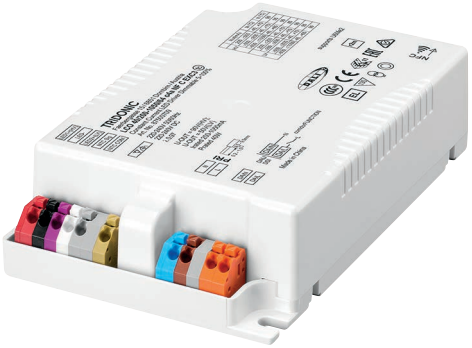
TRIDONIC

LED Driver
Compact dimming outdoor

Driver LCO 40W 200–1050mA 64V one4all NF C EXC3
EXCITE Outdoor series

Product description
- Dimmable built-in constant current LED Driver
- Output current adjustable between 200 – 1,050 mA via NFC, DALI or ready2mains™ Programmer®
- Max. output power 40 W
- Power input on stand-by < 0.16 W
- Up to 91 % efficiency
- Dimming range 5 – 100 % (min. 10 mA)
- For luminaires of protection class I and protection class II
- Temperature protection as per EN 61347-2-13 C5e
- Nominal life-time of 100,000 h and 8-year guarantee



Interfaces
- Near field communication (NFC)®
- one4all (DALI-2 DT 6, DSI, switchDIM, corridorFUNCTION V2)
- ready2mains™ (configuration via mains)
- U6Me2 (configuration of chronoSTEP 2 via mains)
- Terminal blocks: 45° push terminals

Functions
- Adjustable output current (NFC, DALI, ready2mains™)®
- Programmable chronoSTEP: times and levels (NFC, DALI, U6Me2, ready2mains™)®
- Dimming through mains voltage (inputDIM)
- Enhanced constant light output function (CLO)
- Protective features (overtemperature, short-circuit, overload, no-load, input voltage range, reduced surge amplification)
- Configurable external temperature management (ETM)
- Configurable internal temperature management (ITM)
- Input voltage regulation (IVG)
- Suitable for emergency escape lighting systems acc. to EN 50172

Benefits
- Application-oriented operating window for maximum compatibility
- Best energy savings due to low stand-by losses and high efficiency
- Flexible configuration via NFC, DALI, ready2mains™ and U6Me2®
- In-field programming possible after installation with NFC interface and ready2mains®
- High overvoltage protection: up to 10 kV (3 pulses) asymmetric (protection class I and II)

Typical applications
- Road, street and industry

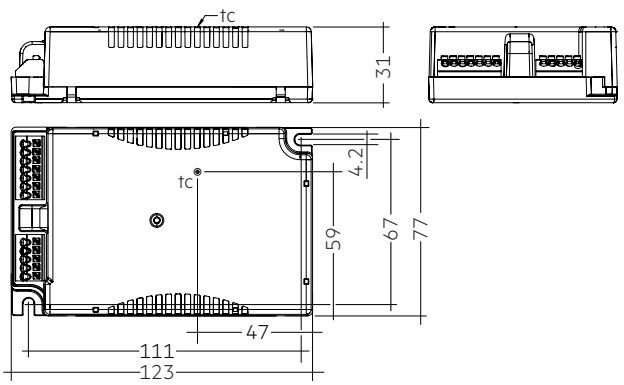
IP20 RoHS

Driver LCO 40W 200–1050mA 64V one4all NF C EXC3

EXCITE Outdoor series

Technical data

Rated supply voltage	220 – 240 V
AC voltage range	198 – 264 V
inputDIM voltage range	170 – 250 V
DC voltage range	176 – 280 V
Mains frequency	0 / 50 / 60 Hz
Overvoltage protection	320 V AC, 48 h
Typ. current (at 230 V, 50 Hz, full load)[1] [2]	56 – 200 mA
Typ. current (220 V, 0 Hz, full load, 15 % dimming level)[2]	10 – 35 mA
Leakage current (at 230 V, 50 Hz, full load)[1] [2]	< 325 µA
Max. input power	46 W
Typ. efficiency (at 230 V / 50 Hz / full load)[2] [7]	91 %
λ (at 230 V, 50 Hz, full load)[1]	0.97
Typ. power input on stand-by[3]	< 0.16 W
In-rush current (peak / duration)	24.88 A / 236 µs
THD (at 230 V, 50 Hz, full load)[1]	< 8 %
Time to light (at 230 V, 50 Hz, full load)[1]	< 750 ms
Time to light (DC mode)	< 800 ms
Switchover time (AC/DC)	< 300 ms
Turn off time (at 230 V, 50 Hz, full load)	< 500 ms
Output current tolerance[1] [6]	± 3 %
Max. peak output current (non-repetitive)	≤ output current + 15 %
Output LF current ripple (< 120 Hz)	± 3.3 %
Max. output voltage (HV)	90 V
Max. output voltage (LV)	50 V
Dimming range	5 – 100 % (min. 10 mA)
Mains surge capability (between L – N)[5]	6 kV / 3 kA
Mains surge capability (between L/N – PE)	6 kV
Mains surge capability up to (between L/N – PE) without DALI connection	8 kV (10 kV at 3 pulses)
Burst protection[4]	6 kV
Surge voltage at output side (against PE)	< 1 kV
Dimensions L x W x H	123 x 77 x 31 mm



Ordering data

Type	Article number[8]	Packaging carton	Packaging pallet	Weight per pc.
LCO 40/200-1050/64 o4a NF C EXC3	**87500709**	20 pc(s).	1,200 pc(s).	0.211 kg

Specific technical data

Type	Output current[6]	Min. forward voltage	Max. forward voltage	Max. output power	Typ. power consumption (at 230 V, 50 Hz, full load)	Typ. current consumption (at 230 V, 50 Hz, full load)	Max. casing temperature tc	Ambient temperature ta max.
High voltage output (HV)								
LCO 40/200-1050/64 o4a NF C EXC3	200 mA	32.0 V	64.0 V	12.8 W	15.8 W	76 mA	90 °C	-40 … +70 °C
	250 mA	30.0 V	64.0 V	16.0 W	19.1 W	88 mA	90 °C	-40 … +70 °C
	300 mA	30.0 V	64.0 V	19.2 W	22.4 W	101 mA	90 °C	-40 … +70 °C
	350 mA	30.0 V	64.0 V	22.4 W	25.7 W	116 mA	90 °C	-40 … +70 °C
	400 mA	30.0 V	64.0 V	25.6 W	30.5 W	130 mA	90 °C	-40 … +70 °C
	450 mA	30.0 V	64.0 V	28.8 W	32.5 W	148 mA	90 °C	-40 … +70 °C
	500 mA	30.0 V	64.0 V	32.0 W	35.9 W	160 mA	90 °C	-40 … +70 °C
	550 mA	30.0 V	64.0 V	35.2 W	39.5 W	174 mA	95 °C	-40 … +70 °C
	600 mA	30.0 V	64.0 V	38.4 W	42.8 W	191 mA	95 °C	-40 … +70 °C
	650 mA	30.0 V	61.5 V	40.0 W	44.3 W	195 mA	95 °C	-40 … +70 °C
	700 mA	30.0 V	57.1 V	40.0 W	44.2 W	196 mA	95 °C	-40 … +70 °C
	750 mA	30.0 V	53.3 V	40.0 W	44.0 W	195 mA	95 °C	-40 … +70 °C
	800 mA	30.0 V	50.0 V	40.0 W	44.0 W	195 mA	95 °C	-40 … +70 °C
	850 mA	30.0 V	47.1 V	40.0 W	44.1 W	195 mA	90 °C	-40 … +65 °C
	900 mA	30.0 V	44.4 V	40.0 W	44.0 W	195 mA	90 °C	-40 … +65 °C
	950 mA	30.0 V	42.1 V	40.0 W	44.2 W	195 mA	90 °C	-40 … +65 °C
	1,000 mA	30.0 V	40.0 V	40.0 W	43.9 W	194 mA	90 °C	-40 … +65 °C
	1,050 mA	30.0 V	38.1 V	40.0 W	44.0 W	195 mA	90 °C	-40 … +65 °C
Low voltage output (LV)								
LCO 40/200-1050/64 o4a NF C EXC3	200 mA	32.0 V	38.0 V	7.6 W	10.7 W	56 mA	85 °C	-40 … +70 °C
	250 mA	25.6 V	38.0 V	9.5 W	12.8 W	64 mA	85 °C	-40 … +70 °C
	300 mA	21.3 V	38.0 V	11.4 W	14.7 W	71 mA	90 °C	-40 … +70 °C
	350 mA	18.3 V	38.0 V	13.3 W	16.8 W	79 mA	90 °C	-40 … +70 °C
	400 mA	18.0 V	38.0 V	15.2 W	18.7 W	87 mA	90 °C	-40 … +70 °C
	450 mA	18.0 V	38.0 V	17.1 W	21.0 W	95 mA	90 °C	-40 … +70 °C
	500 mA	18.0 V	38.0 V	19.0 W	22.7 W	104 mA	90 °C	-40 … +70 °C
	550 mA	18.0 V	38.0 V	20.9 W	24.8 W	112 mA	90 °C	-40 … +70 °C
	600 mA	18.0 V	38.0 V	22.8 W	26.8 W	121 mA	90 °C	-40 … +70 °C
	650 mA	18.0 V	38.0 V	24.7 W	29.0 W	130 mA	90 °C	-40 … +70 °C
	700 mA	18.0 V	38.0 V	26.6 W	31.0 W	138 mA	95 °C	-40 … +70 °C
	750 mA	18.0 V	38.0 V	28.5 W	33.0 W	147 mA	95 °C	-40 … +70 °C
	800 mA	18.0 V	38.0 V	30.4 W	34.8 W	155 mA	95 °C	-40 … +70 °C
	850 mA	18.0 V	38.0 V	32.3 W	37.0 W	163 mA	90 °C	-40 … +65 °C
	900 mA	18.0 V	38.0 V	34.2 W	39.0 W	173 mA	90 °C	-40 … +65 °C
	950 mA	18.0 V	38.0 V	36.1 W	41.0 W	181 mA	90 °C	-40 … +65 °C
	1,000 mA	18.0 V	38.0 V	38.0 W	42.9 W	190 mA	90 °C	-40 … +65 °C
	1,050 mA	18.0 V	38.0 V	39.9 W	45.0 W	200 mA	90 °C	-40 … +65 °C

① Valid at 100 % dimming level.

② Depending on the selected output current.

③ Depending on the DALI traffic at the interface.

④ Also applies to corridorFUNCTION.

⑤ L-N acc. to EN 61000-4-5. 2 Ohm, 1.2/50 µs, 8/20 µs.

⑥ Output current is mean value.

⑦ Tolerance range ±5 %.

⑧ NFC function available at 4th quarter 2018.

1. Standards

EN 55015
EN 61000-3-2
EN 61000-3-3
EN 61000-4-4
EN 61000-4-5
EN 61347-1
EN 61347-2-13
EN 62384
EN 61547
EN 62386-101 (DALI-2)
EN 62386-102 (DALI-2)
EN 62386-207 (DALI-2)
According to EN 50172 for use in central battery systems
According to EN 60598-2-22 suitable for emergency luminaire

1.1 Glow wire test

according to EN 61347-1 with increased temperature of 850 °C passed.

2. Thermal details and life-time

2.1 Expected life-time

Expected life-time HV

Type	Output current	ta	40 °C	45 °C	50 °C	55 °C	60 °C	65 °C	70 °C
LCO 40/200-1050/64 o4a NF C EXC3	200 – 500 mA	tc	60 °C	65 °C	70 °C	75 °C	80 °C	85 °C	90 °C
		Life-time	> 100,000 h	> 100,000 h	> 100,000 h	> 100,000 h	100,000 h	65,000 h	45,000 h
	>500 – 800 mA	tc	65 °C	70 °C	75 °C	80 °C	85 °C	90 °C	95 °C
		Life-time	> 100,000 h	> 100,000 h	> 100,000 h	> 100,000 h	65,000 h	45,000 h	30,000 h
	>800 – 1,050 mA	tc	65 °C	70 °C	75 °C	80 °C	85 °C	90 °C	–
		Life-time	> 100,000 h	> 100,000 h	> 100,000 h	100,000 h	65,000 h	45,000 h	–

Expected life-time LV

Type	Output current	ta	40 °C	45 °C	50 °C	55 °C	60 °C	65 °C	70 °C
LCO 40/200-1050/64 o4a NF C EXC3	200 – 400 mA	tc	60 °C	65 °C	70 °C	75 °C	80 °C	85 °C	90 °C
		Life-time	> 100,000 h	> 100,000 h	> 100,000 h	> 100,000 h	85,000 h	55,000 h	40,000 h
	>400 – 800 mA	tc	65 °C	70 °C	75 °C	80 °C	85 °C	90 °C	95 °C
		Life-time	> 100,000 h	> 100,000 h	> 100,000 h	> 100,000 h	65,000 h	45,000 h	30,000 h
	>800 – 1,050 mA	tc	65 °C	70 °C	75 °C	80 °C	85 °C	90 °C	–
		Life-time	> 100,000 h	> 100,000 h	> 100,000 h	80,000 h	55,000 h	35,000 h	–

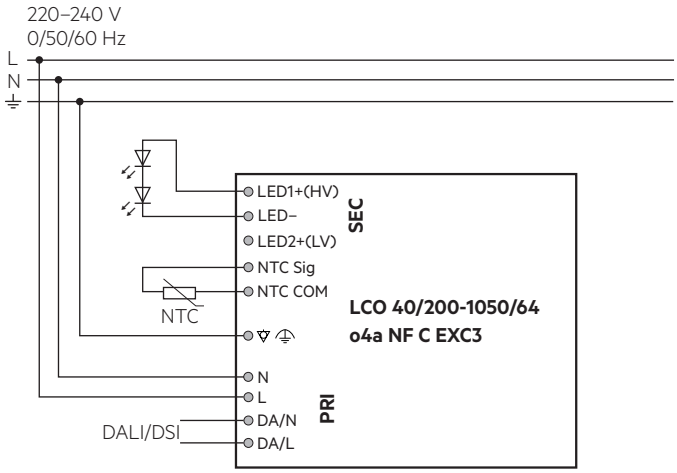
The LED Driver is designed for a life-time stated above under reference conditions and with a failure probability of less than 10 %.

The relation of tc to ta temperature depends also on the luminaire design.
If the measured tc temperature is approx. 5 K below tc max., ta temperature should be checked and eventually critical components (e.g. ELCAP) measured. Detailed information on request.

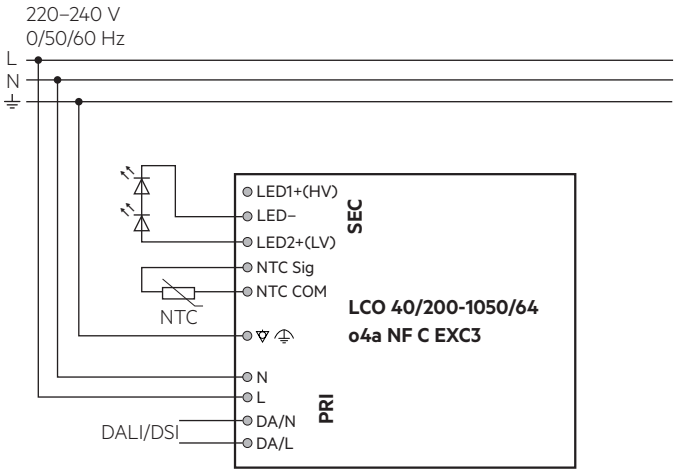
3. Installation / wiring

3.1 Circuit diagram

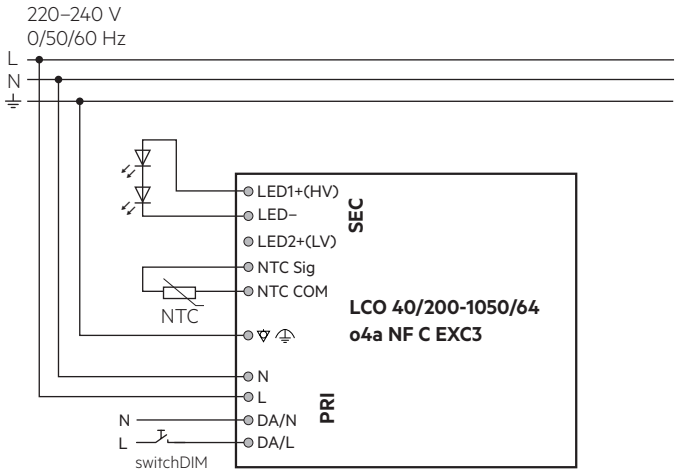
DALI with high voltage output (HV)



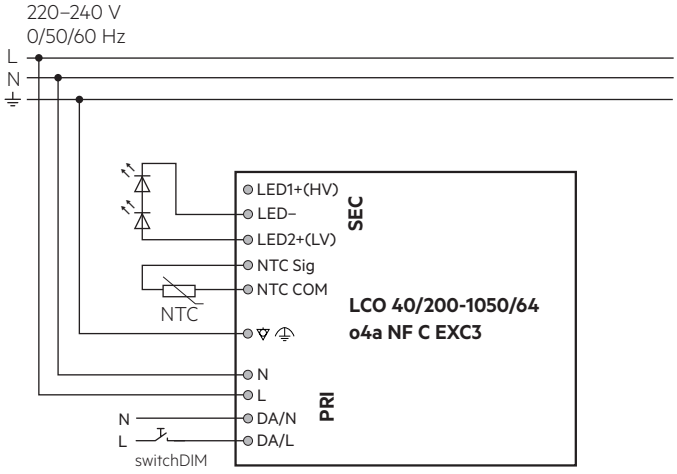
DALI with low voltage output (LV)



switchDIM with high voltage output (HV)



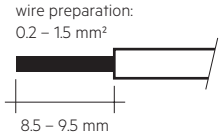
switchDIM with low voltage output (LV)



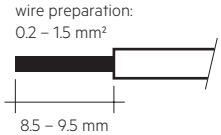
For wiring in dimming operation with ready2mains refer to the ready2mains Gateway data sheet.

3.2 Wiring type and cross section

Input side:
Solid wire with a cross section of 0.2 – 1.5 mm². Strip 8.5 – 9.5 mm of insulation from the cables to ensure perfect operation of terminals.



Output side:
Solid wire with a cross section of 0.2 – 1.5 mm². Strip 8.5 – 9.5 mm of insulation from the cables to ensure perfect operation of terminals.



3.3 Wiring guidelines

- The cables should be run separately from the mains connections and mains cables to ensure good EMC conditions.
- The LED wiring should be kept as short as possible to ensure good EMC. The max. secondary cable length is 2 m (4 m circuit).
- Secondary switching is not permitted.
- The LED Driver has no inverse-polarity protection on the secondary side. Wrong polarity can damage LED modules with no inverse-polarity protection.
- Wrong wiring of the LED Driver can lead to malfunction or irreparable damage.
- To avoid the damage of the Driver, the wiring must be protected against short circuits to earth (sharp edged metal parts, metal cable clips, louver, etc.).

3.4 Hot plug-in

Hot plug-in is not supported due to residual output voltage of > 0 V.
If a LED load is connected, the device has to be restarted before the output will be activated again.
This can be done via mains reset or via interface (DALI, DSI, ready2mains).

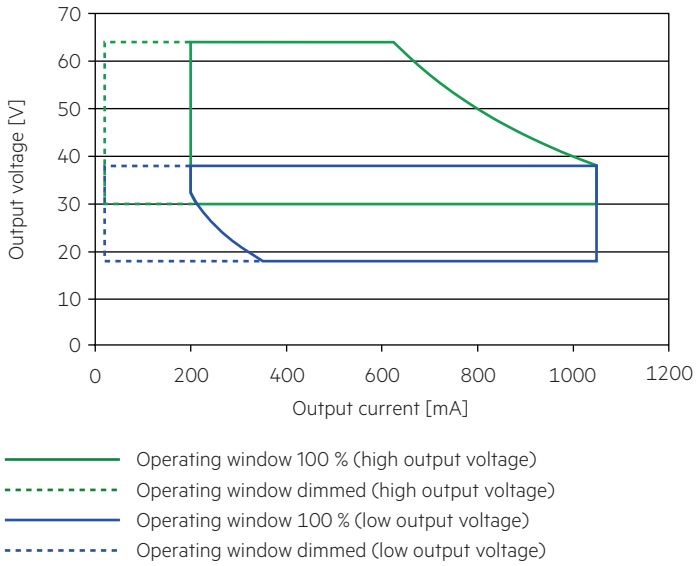
3.5 Earth connection

The earth connection is conducted as function earth (FE). There is no earth connection required for the functionality of the LED Driver. Earth connection is recommended to improve following behaviour:

- Electromagnetic interferences (EMI)
- LED glowing at standby
- Transmission of mains transients to the LED output

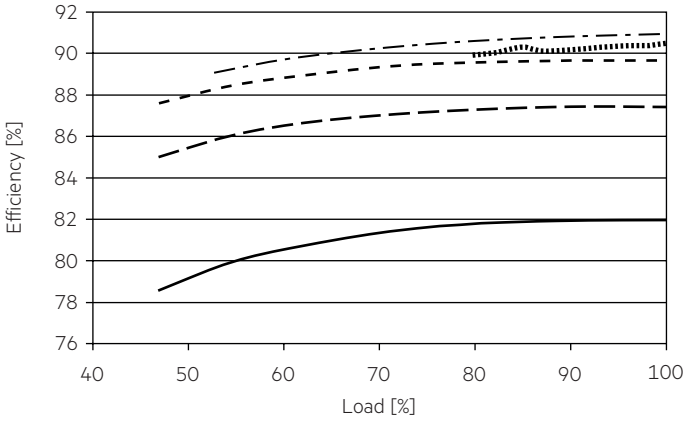
4. Electrical values

4.1 Operating window

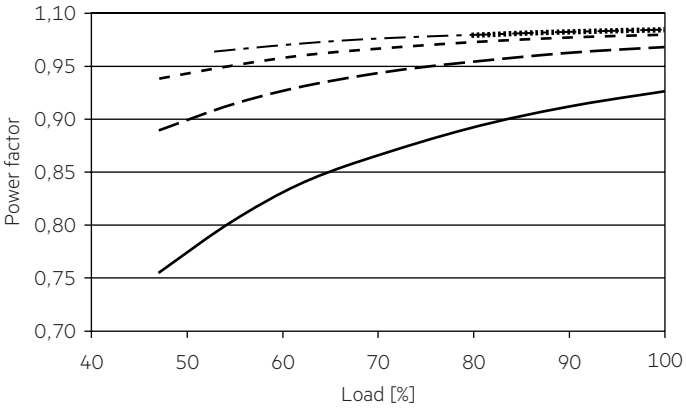


Make sure that the LED Driver is operated within the given window under all operating conditions. Special attention needs to be paid at dimming and DC emergency operation as the forward voltage of the connected LED modules varies with the dimming level, due to the implemented amplitude dimming technology. Coming below the specified minimum output voltage of the LED Driver may cause the device to shut-down.
See chapter “6.8 Light level in DC operation” for more information.

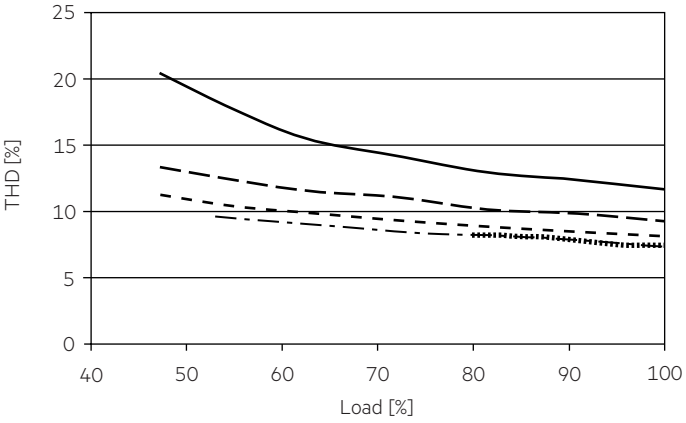
4.2 Efficiency vs load (HV)



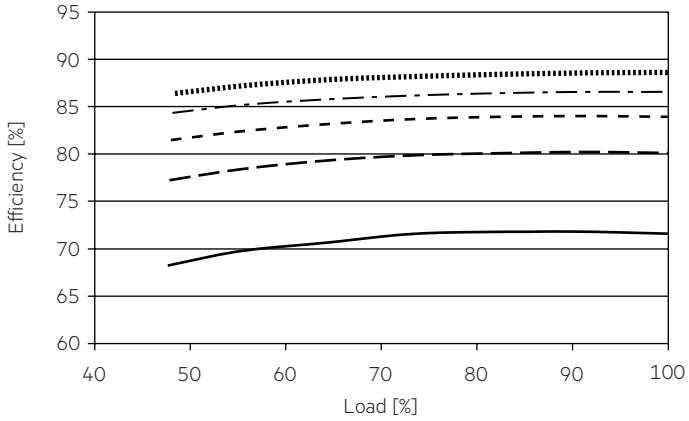
4.3 Power factor vs load (HV)



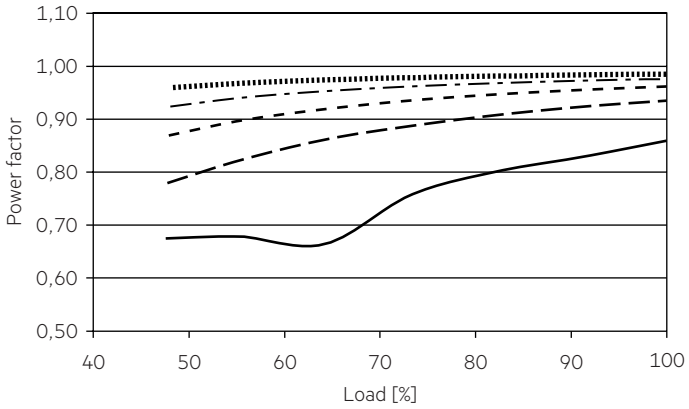
4.4 THD vs load (HV)



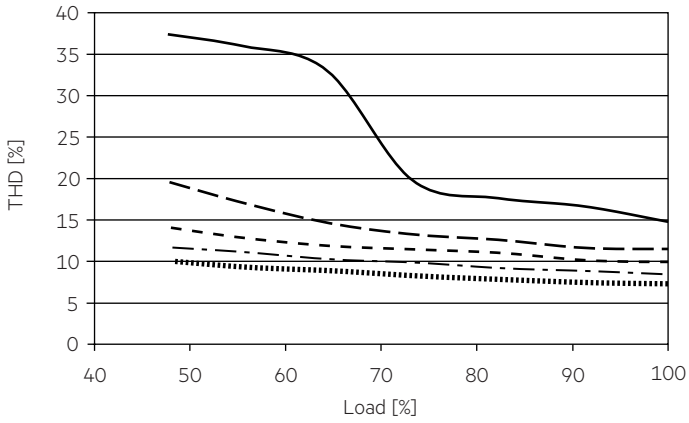
4.5 Efficiency vs load (LV)



4.6 Power factor vs load (LV)



4.7 THD vs load (LV)



200 mA
350 mA
500 mA
700 mA
1050 mA

100 % load corresponds to the max. output power (full load) according to the table on page 3.

4.8 Maximum loading of automatic circuit breakers

Automatic circuit breaker type	C10	C13	C16	C20	B10	B13	B16	B20	Inrush current	
Installation Ø	1.5 mm²	1.5 mm²	2.5 mm²	4 mm²	1.5 mm²	1.5 mm²	2.5 mm²	4 mm²	I_{max}	time
LCO 40/200-1050/64 o4a NF C EXC3	20	26	33	43	12	16	20	26	24.88 A	236 µs

Calculation uses typical values from ABB series S200 as a reference.
Actual values may differ due to used circuit breaker types and installation environment.

4.9 Harmonic distortion in the mains supply (at 230 V / 50 Hz and full load) in %

	THD	3.	5.	7.	9.	11.
LCO 40/200-1050/64 o4a NF C EXC3	< 8	< 7	< 4	< 4	< 3	< 3

4.10 Dimming

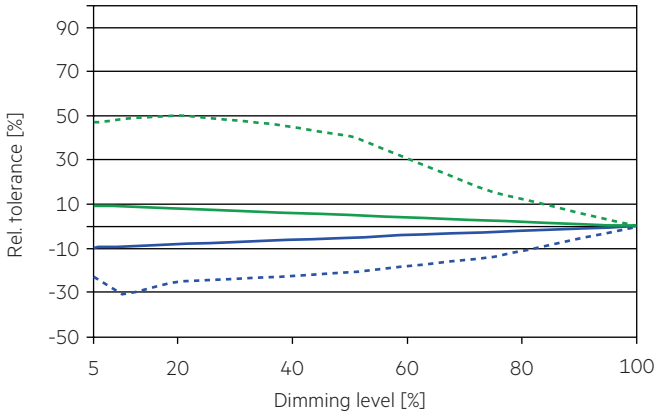
Dimming range 5 % to 100 %
Digital control with:

- DSI signal: 8 bit Manchester Code
  Speed 5 % to 100 % in 1.4 s
- DALI signal: 16 bit Manchester Code
  Speed 5 % to 100 % in 0.2 s
  Programmable parameter:
  Minimum dimming level
  Maximum dimming level
  Default minimum = 5 %
  Programmable range 5 % ≤ MIN ≤ 100 %
  Default maximum = 100 %
  Programmable range 100 % ≥ MAX ≥ 5 %

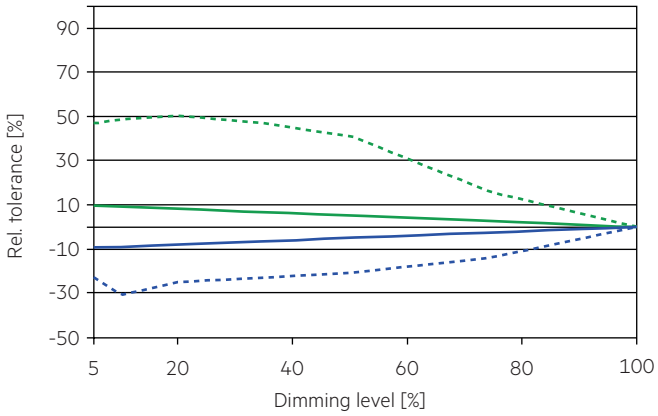
Dimming is realized by amplitude dimming.

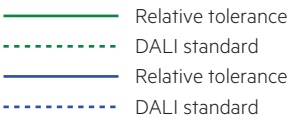
4.11 Dimming characteristics

At 200 mA output current:



At 1,050 mA output current:





5. Interfaces / communication

5.1 Nearfield communication (NFC)

NFC function available at 4th quarter 2018.

NFC is complied with ISO/IEC 15963 standard.

The NFC Interface allows wireless communication with the LED Driver.
This interface offers the option to write configuration and to read configuration, errors and events.
A correct communication between the LED Driver and the NFC Antenna can only be guaranteed if the Antenna is placed directly on the Driver.
Any material placed between the LED driver and the NFC Antenna can cause a deterioration of the communication quality.

5.2 Control input (DA/N, DA/L)

Digital DALI signal or corridorFUNCTION can be wired on the same terminals (DA/N and DA/L).

The control input is non-polar for digital control signals (DALI, DSI).
The control signal is not SELV. Control cable has to be installed in accordance to the requirements of low voltage installations.
Different functions depending on each module.

5.3 Control input ready2mains (L, N)

The digital ready2mains protocol is modulated onto the mains signal which is wired to the mains terminal (L and N).

5.4 ready2mains – configuration

The ready2mains interface enables the configuration of the mostly used parameters via the mains wiring.
In the case of PRE LED Driver, the following parameter can be configured via ready2mains, among others:

- LED output current
- optional lockbit
- DC level
- CLO

The configuration is done via the ready2mains Programmer, either directly at the Programmer itself or via a respective software tool. For details on the configuration via ready2mains see the technical information of the Programmer and its tools.

5.5 switchDIM

Integrated switchDIM function allows a direct connection of a pushbutton for dimming and switching.
Brief push (< 0.6 s) switches LED Driver ON and OFF. The dimm level is saved at power-down and restored at power-up.
When the pushbutton is held, LED modules are dimmed. After repush the LED modules are dimmed in the opposite direction.
In installations with LED Drivers with different dimming levels or opposite dimming directions (e.g. after a system extension), all LED Drivers can be synchronized to 50 % dimming level by a 10 s push.
Use of pushbutton with indicator lamp is not permitted.

5.6 U6Me2

Settings of chronoSTEP function could be done via switching mains commands.
Detailed description for timings and intervals see product manual.

Key features:

- Auto-dimming with 8 sequences
- Every sequence can hold 8 parameter pairs
- Separate dim-level for each time parameter
- Various commands + parameter for extensions
- Output current setting for each channel individual

6. Functions

6.1 Function: adjustable current

The output current of the LED Driver can be adjusted in a certain range.
For adjustment there are two options available.

Option 1: DALI
Adjustment is done by masterCONFIGURATOR (see masterCONFIGURATOR documentation).

Option 2: ready2mains
Adjustment is done by the ready2mains programmer and the corresponding configuration software (see ready2mains documentation).

The priority for current adjustment methods is DALI (highest priority), ready2mains (lowest priority).

6.2 chronoSTEP 2 function (Virtual Midnight)

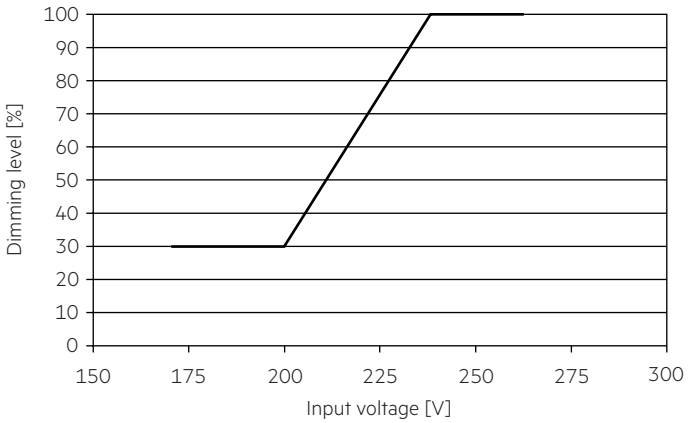
In the outdoor lighting and street lighting sector it often makes sense to dim the lighting level during night hours in order to save energy.
The chronoSTEP function is a tool that makes this easy to do.
The device automatically measures the switch-on and switch-off times of the lighting installation over the past three days.
The switch-on and switch-off times are typically the times at which the sun sets and rises. The midpoint of these two reference points is the time referred to as Virtual Midnight. The overall time interval between switch-on and switch-off points is called On Time. The Virtual Midnight could be deactivated with the coresponding plug (28001462).

Notice
When calculating the On-Time, only values between 4 and 24 hours are counted. Values less than 4 hours could indicate a power failure and are therefore not saved. For settings longer than 24 hours, 24 hours is saved as the maximum possible value.

6.3 inputDIM

Dimming with varation of mains voltage between 170 and 250 V AC.
With appropriate software the max. / min. dimming level can be set.
The associated voltage for the max. / min. dimming level can be set individually within the voltage range stated above.
Input voltage regulation (IVG) has higher priority than inputDIM.
If min. dimming level set by inputDIM function is higher than max. allowed dimming level of input voltage regulation (IVG) the value of IVG has priority.

Example:



6.4 Constant light output (CLO)

With this function the light output of the LED module can be kept equal over the life-time.
Enhanced CLO shall be achieved by limitation of the LED current at the commissioning of the LED Driver and providing a linear interpolation of the current over the time, depending on the data points given by the user. The user has to insert up to eight pairs of data (time, level). The output curve is the result of connecting the user data points linear. Detailed description for CLO see product manual.

6.5 Configurable external temperature management (ETM)

ETM protects the LED module against thermal overstress.
An external temperature sensor (NTC) detects the LED module temperature and the LED Driver will limit the output current according to this temperature:

If the temperature is between the limits T1 (normal condition) and T2 (overload), the LED output current will be decreased.
If the temperature exceeds the limit T3 (critical temperature), the device will switch to the shutdown level.
The shutdown level will be active until the module temperature decreases below T1 or until the LED Driver is restarted (switch off or mains reset).

The LED module's temperature is only measured if the output is active (lamp is on).

The allowed NTC resistor value is between 0 to 2 MΩ.
By default there are three predefined values that can be set via masterCONFIGURATOR, up to five individual values can be added.

6.6 corridorFUNCTION V2

The corridorFUNCTION can be programmed in two different ways.
To programm the corridorFUNCTION the software and a DALI-USB interface is needed in combination with a DALI PS. The software can be the masterCONFIGURATOR.
To activate the corridorFUNCTION without using software a voltage of 230 V has to be applied at the DA/N and DA/L connection.
The unit will then switch automatically to the corridorFUNCTION.

corridorFUNCTION is a very simple tool for controlling gears with conventional pushbuttons or motion sensors.
To ensure correct operation a sinusoidal mains voltage with a frequency of 50 Hz or 60 Hz is required at the control input.
Special attention must be paid to achieving clear zero crossings.
Serious mains faults may impair the operation of corridorFUNCTION.

Note:
By using corridorFUNCTION V2 programming and monitoring via DALI is always possible.

6.7 Power-up/-down fading

The power-up/-down function offers the opportunity to modify the on-/off behavior. The time for fading on or off can be adjusted in a range of 0.2 to 16 seconds. According to this value, the device dims either from 0 % up to the power-on level or from the current set dim level down to 0 %.
This feature applies while operating via ready2mains and when switching the mains voltage on or off.
By factory default no fading time is set (= 0 seconds).

6.8 Light level in DC operation

The LED Driver is designed to operate on DC voltage and pulsed DC voltage. For a reliable operation, make sure that also in DC emergency operation the LED Driver is run within the specified conditions as stated in chapter "4.1 operating window".

Light output level in DC operation: programmable 5 – 100 % (EOF_i = 0.13).
Programming by DALI or ready2mains.
In DC operation dimming mode can be activated.

The voltage-dependent input current of Driver incl. LED module is depending on the used load.

The voltage-dependent no-load current of Driver (without or defect LED module) is for:
AC: < 17 mA
DC: < 5 mA

6.9 Software / programming

With appropriate software and an interface different functions can be activated and various parameters can be configured in the LED Driver. DALI-USB or ready2mains programmer and the software (masterCONFIGURATOR) are required.

6.10 masterCONFIGURATOR

From version 2.8:
For programming functions (CLO, power-up fading, corridorFUNCTION) and device settings (fade time, ePowerOnLevel, DC level, etc.). For further information see masterCONFIGURATOR manual.

6.11 deviceCONFIGURATOR

PC (windows) based software application to transfer parameters into our drivers.
Workflow optimised for the use in OEM production line.
For further information see deviceCONFIGURATOR manual.

7. Protective features

7.1 Overtemperature protection

The LED Driver is protected against temporary thermal overheating. If the temperature limit is exceeded the output current of the LED module(s) is reduced. The temperature protection is activated approx. +5 °C above tc max (see page 3). On DC operation this function is deactivated to fulfill emergency requirements.

7.2 Short-circuit behaviour

In case of a short-circuit at the LED output the LED output is switched off. After restart of the LED Driver the output will be activated again. The restart can either be done via mains reset or via interface (DALI, DSI, ready2mains).

7.3 No-load operation

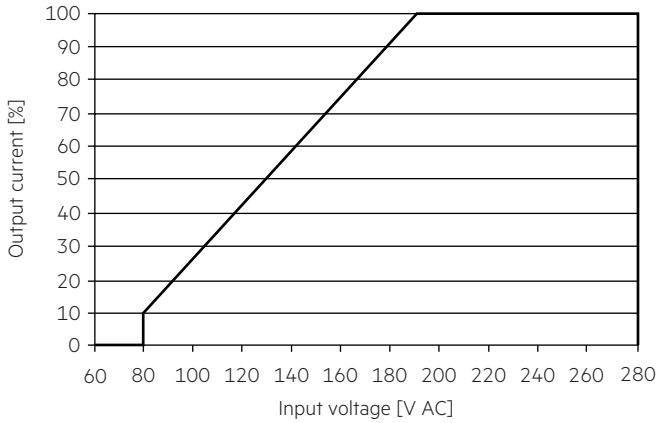
The LED Driver will not be damaged in no-load operation. The output will be deactivated and is therefore free of voltage. If a LED load is connected, the device has to be restarted before the output will be activated again.

7.4 Overload protection

If the output voltage range is exceeded, the LED Driver turns off the LED output. After restart of the LED Driver the output will be activated again. The restart can either be done via mains reset or via interface (DALI, DSI, ready2mains).

7.5 Input voltage regulation (IVG)

In some cases mains voltage is not stabilized and has some voltage peaks which are lower or higher than the nominal voltage range.
Between 192 V and 80 V input voltage, the LED Driver operates in under-voltage mode and dims the secondary side linearly down to 10 %.
Below 80 V input voltage, the LED Driver shuts down, restarts at 90 V (without a reset) and dims linearly up back to 100 %. Above 280 V input voltage, the LED Driver shuts down. If input voltage drops below 270 V, the LED Driver restarts (without a reset).
Input voltage regulation (IVG) has higher priority than inputDIM.



8. Miscellaneous

8.1 Isolation and electric strength testing of luminaires

Electronic devices can be damaged by high voltage. This has to be considered during the routine testing of the luminaires in production.

According to IEC 60598-1 Annex Q (informative only!) or ENEC 303-Annex A, each luminaire should be submitted to an isolation test with 500 V DC for 1 second. This test voltage should be connected between the interconnected phase and neutral terminals and the earth terminal.
The isolation resistance must be at least 2 MΩ.

As an alternative, IEC 60598-1 Annex Q describes a test of the electrical strength with 1500 V AC (or 1.414 x 1500 V DC). To avoid damage to the electronic devices this test must not be conducted.

The equipotential terminal is used to connect the heat sink and the LED Driver to reduce transients.

8.2 Conditions of use and storage

Humidity:	5 % up to max. 85 %, not condensed (max. 56 days/year at 85 %)
Storage temperature:	-40 °C up to max. +80 °C

The devices have to be acclimatised to the specified temperature range (ta) before they can be operated.

8.3 Additional information

Additional technical information at www.tridonic.com → Technical Data

Guarantee conditions at www.tridonic.com → Services

Life-time declarations are informative and represent no warranty claim.
No warranty if device was opened.