Driver LC 48V 100W DC-STR UNV FO lp

Fixed output

Product description

- Fixed output DC-String constant voltage built-in LED Driver
- Compatible with other DC-String components
- Max. output power 100 W
- Up to 94 % efficiency
- FCC 15 Class A + B
- Nominal life-time up to 50,000 h
- 5-year guarantee

Housing properties

- Low profile metal casing with white cover
- Type of protection IP20
- Dry and damp location

Functions

- DC-String compatible
- Intelligent Temperature Guard (overtemperature protection)
- Short-circuit protection
- Overload protection

Standards, page 3

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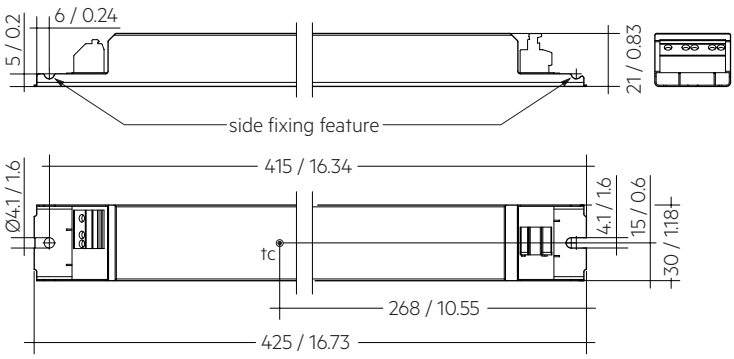
Fixed output

Technical data

Rated supply voltage	120 – 277 V
AC voltage range	108 – 305 V
Mains frequency	50 / 60 Hz
Typ. current (at 120 V, 60 Hz, full load)	886 mA
Typ. current (at 277 V, 60 Hz, full load)	383 mA
Leakage current (at 120 V, 60 Hz, full load)	< 500 µA
Leakage current (at 277 V, 60 Hz, full load)	< 500 µA
Max. input power (at 120 V, 60 Hz, full load)	106 W
Max. input power (at 277 V, 60 Hz, full load)	103 W
Typ. efficiency (at 120 V, 60 Hz, full load)	91.0 %
Typ. efficiency (at 277 V, 60 Hz, full load)	93.6 %
λ (at 120 V, 60 Hz, full load)	0.99
λ (at 277 V, 60 Hz, full load)	0.97
Typ. input current in no-load operation (at 120 V, 60 Hz, full load)	34.8 mA
Typ. input current in no-load operation (at 277 V, 60 Hz, full load)	48.4 mA
Typ. input power in no-load operation (at 120 V, 60 Hz, full load)	2.6 W
Typ. input power in no-load operation (at 277 V, 60 Hz, full load)	2.3 W
THD (at 120 V, 60 Hz, full load)	< 10 %
THD (at 277 V, 60 Hz, full load)	< 15 %
Output voltage tolerance	-2.1 … +8.4 %
Output LF current ripple (< 120 Hz)	± 1 %
Max. output voltage (no-load voltage)	52 V
Max. cable length secondary	See section 3.5
Mains surge capability (between L - N)	1 kV
Mains surge capability (between L/N - PE)	2 kV
Surge voltage at output side (against PE)	2 kV
Ambient temperature ta	-4 … +122 °F
Max. casing temperature tc	185 °F
Dimensions L x W x H	16.73 x 1.18 x 0.83 inch



Dimensions in mm / inch

Ordering data

Type	Article number	Packaging carton	Packaging pallet	Weight per pc.
LC 48V 100W DC-STR UNV FO lp	**28001983**	15 pc(s).	540 pc(s).	0.756 lbs

We recommend using following LMI LED Drivers together with this LCU DC power supply:

Type	Article number	Packaging box	Packaging carton (contains 10 boxes)	Packaging pallet	Weight per pc.
LMI G2 48V 350-700mA 3-20V FO Slim	**28000730**	5 pc(s).	50 pc(s).	3,000 pc(s).	0.029 lbs
LMI G2 48V 700-1050mA 3-20V FO Slim	**28001582**	5 pc(s).	50 pc(s).	3,000 pc(s).	0.035 lbs
LMI 48V 350-700mA 20-42V FO Regular	**28000728**	5 pc(s).	50 pc(s).	3,000 pc(s).	0.013 lbs
LMI 48V 350-700mA 20-42V FO Slim	**28000947**	5 pc(s).	50 pc(s).	3,000 pc(s).	0.016 lbs

For dimming applications we recommend using following LMI LED Drivers together with BRIDGE 0-10V PLC DC STR and LC 48V 100W DC-STR UNV FO lp:

Type	Article number	Packaging box	Packaging carton (contains 10 boxes)	Packaging pallet	Weight per pc.
LMI G2 48V 350-700mA 3-20V DIM slim	**28000731**	5 pc(s).	50 pc(s).	3,000 pc(s).	0.029 lbs
LMI G2 48V 350-700mA 20-42V DIM	**28001584**	5 pc(s).	50 pc(s).	3,000 pc(s).	0.026 lbs
LMI G2 48V 350-700mA 20-42V DIM slim	**28001585**	5 pc(s).	50 pc(s).	3,000 pc(s).	0.029 lbs
LMI G2 48V 700-1050mA 3-20V DIM slim	**28001583**	5 pc(s).	50 pc(s).	3,000 pc(s).	0.035 lbs

For dimming applications necessary

Type	Article number	Packaging carton	Weight per pc.
BRIDGE 0-10V PLC DC STR	**28002074**	10 pc(s).	0.037 kg / 0.082 lbs

1. Standards

UL 8750
CSA C22.2
FCC Part 15

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:
(1) this device may not cause harmful interference, and
(2) this device must accept any interference received, including interference that may cause undesired operation.

2. Thermal details and life-time

2.1 Expected life-time

Expected life-time 120 V

Type	ta	104 °F	122 °F
LC 48V 100W DC-STR UNV FO lp	tc	167 °F	185 °F
	Life-time	> 100,000 h	> 50,000 h

Expected life-time 277 V

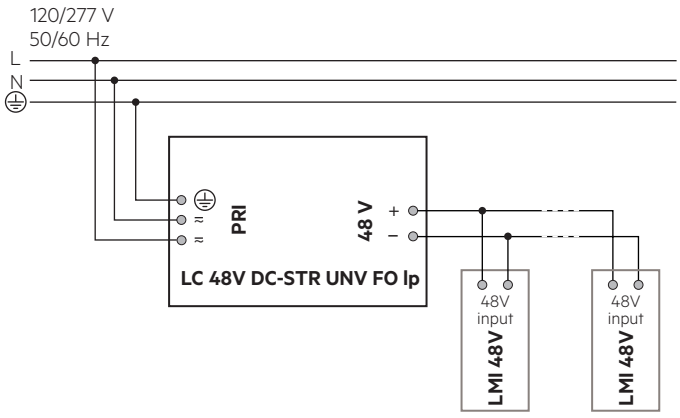
Type	ta	104 °F	122 °F
LC 48V 100W DC-STR UNV FO lp	tc	140 °F	158 °F
	Life-time	> 100,000 h	> 50,000 h

The DC power supply 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

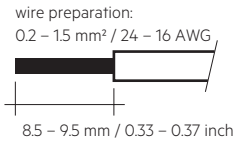


To the LC 48V DC-STR UNV FO lp there can be connected either LMI 48V fixed output version or LMI 48V dimmable version.
By using LC 48V DC-STR UNV FO lp together with LMI 48V dimmable version dimming is not possible.
To use dimming functionality additionally BRIDGE 0-10V PLC DC STR lp is needed.

3.2 Mains supply wiring

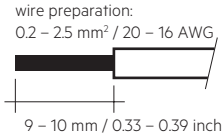
The wiring can be in stranded wires with ferrules or solid from 0.2 – 1.5 mm²/24 – 16 AWG. For perfect function of the push-wire terminals (WAGO 250) the strip length should be 8.5 – 9.5 mm/0.33 – 0.37 inch.

DC power supply



3.3 Output wiring (48 V bus)

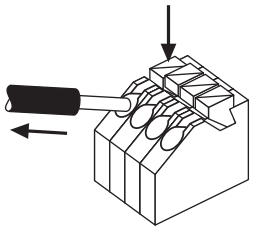
The output wiring can be done with a cross section of 0.2 – 2.5 mm²/20 – 16 AWG. Strip 9 – 10 mm/0.33 – 0.39 inch of insulation from the cables to ensure perfect operation of the push-wire terminals (WAGO 235).



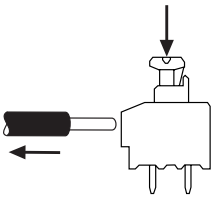
Use one wire for each terminal connector only.
Use each strain relief channel for one cable only.

3.4 Loose wiring

Input terminal



Output terminal



Release of the wiring
Press down the “push button” and remove the cable from front.

3.5 Wiring guidelines

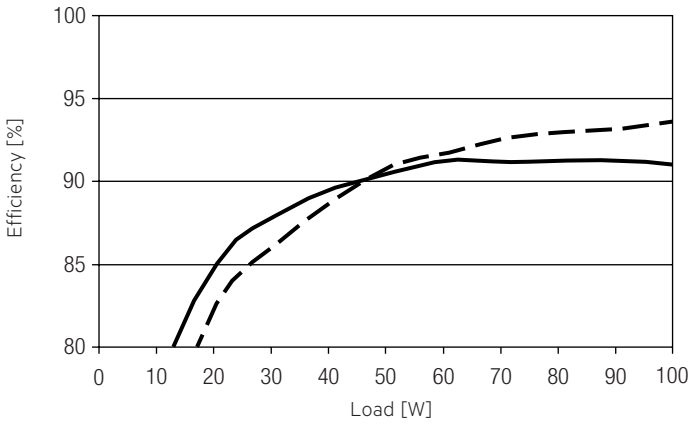
- The 48 V cables should be run separately from the mains connections and mains cables to ensure good EMC conditions.
- The 48 V DC output wiring should be kept as short as possible to ensure good EMC. The max. secondary cable length is 30 m / 98.43 feet (60 m / 196.85 feet circuit) till beginning of a grounded metal track light. If track light is not grounded or made of plastic, cable length including track light is 30 m / 98.43 feet. Inside the track light cable length is limited by voltage drop that last LMI 48V in the track light is still supplied with minimum 46 V.
- Secondary switching is not permitted.

3.6 Hot plug-in

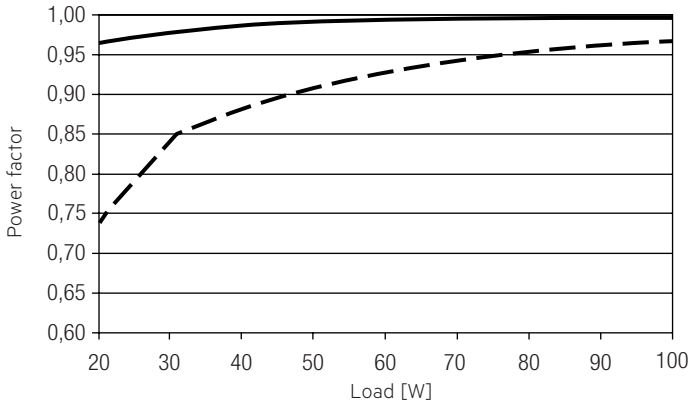
Hot plug-in is supported for one DC/DC-LED Driver.

4. Electrical values

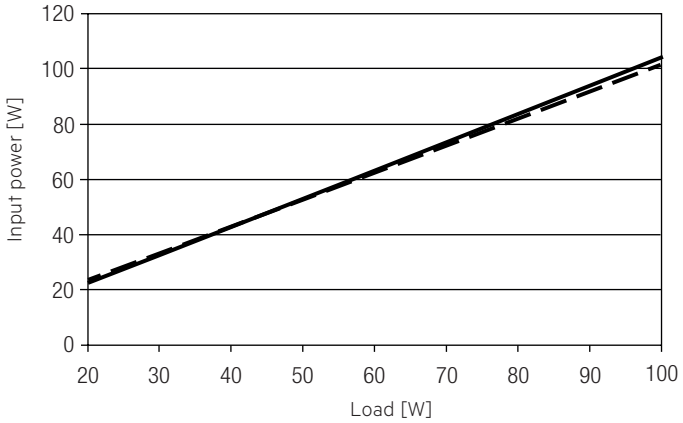
4.1 Efficiency vs. load



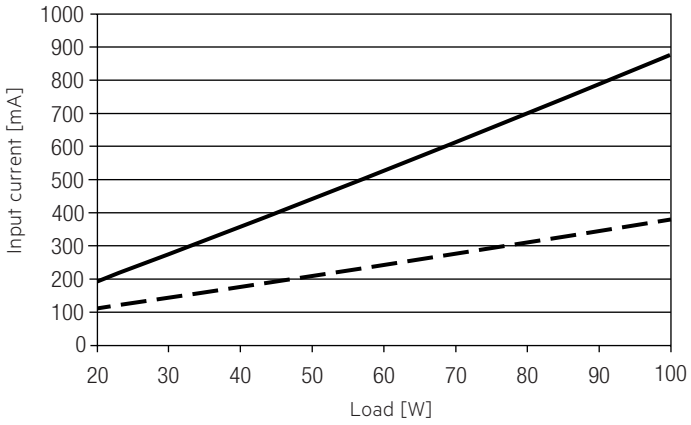
4.2 Power factor vs. Load



4.3 Input power vs. Load

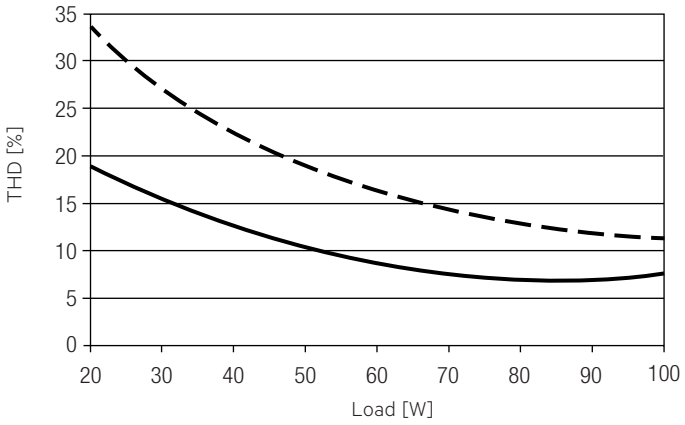


4.4 Input current vs. Load



120 V, 60 Hz
277 V, 60 Hz

4.5 THD vs. Load



4.6 Maximum loading of automatic circuit breakers

120 V, 60 Hz:

Automatic circuit breaker type	C10	C13	C16	C20	B10	B13	B16	B20	Inrush current	
									I_{max}	time
LC 48V 100W DC-STR UNV FO Ip	18	23	30	40	11	14	18	24	30 A	360 µs

277 V, 60 Hz:

Automatic circuit breaker type	C10	C13	C16	C20	B10	B13	B16	B20	Inrush current	
									I_{max}	time
LC 48V 100W DC-STR UNV FO Ip	6	10	11	15	4	6	7	9	70 A	350 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.

4.7 Harmonic distortion in the mains supply (full load) in %

120 V, 60 Hz:

	THD	3.	5.	7.	9.	11.
LC 48V 100W DC-STR UNV FO Ip	< 8	< 7	< 3	< 3	< 2	< 1

277 V, 60 Hz:

	THD	3.	5.	7.	9.	11.
LC 48V 100W DC-STR UNV FO Ip	< 11	< 10	< 3	< 3	< 2	< 1

Acc. to 61000-3-2. Harmonics < 5 mA or < 0.6 % (whatever is greater) of the input current are not considered for calculation of THD.

5. Functions

5.1 Short-circuit behaviour

In case of a short circuit at the device output terminals, the output is switched off and restarted again after approx. 500ms. If the short circuit is still detected, the device output is shut down with no restart. In this case the device can be only restarted via mains reset.

5.2 No-load operation

The DC power supply will not be damaged in no-load operation.

5.3 Overload protection

The device is calibrated during production and shut down if the active power exceeds 100 W. Subsequentially the device is once restarted after approx. 0,5 s. If the overload situation is still there, the device is shut down permanently and can only be restarted via mains reset.

5.4 Overtemperature protection

In case of an over temperature situation the device is shut down in order to cool down. The output is automatically activated again if the temperature falls 10 °C below the overtemperature detection point..

6. Miscellaneous

6.1 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 UL 8750 (informative only!) each luminaire should be submitted to an isolation test with 500 V DC. The dielectric withstand test equipment shall employ a transformer of 500-VA or lager capacity and have a variable output voltage that is essentially sinusoidal or continuous direct current. The applied potential is to be increased from zero at a substantially uniform rate until the required test level is reached, and is to be held at that level for 1 minute.

As an alternative, UL8750 (informative only!) describes a test of the electrical strength with 2V AC + 1000V (or 1.414 x V DC). To avoid damage to the electronic devices this test must not be conducted.

6.2 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.

6.3 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.