

**Driver LCAI 20 W 500 mA one4all**  
ECO series

**Product description**

- Constant current LED control gear
- 1 addressable output channel
- 500 mA PWM output signal
- Short-circuit protection with automatic restart
- No-load safe with automatic restart
- Intelligent Temperature Guard (protection against thermal damage)
- Connecting cable, cable cross-section 0,5 – 2,5 mm<sup>2</sup>
- Power input on stand-by < 1 W
- Output power 20 W
- Strain relief
- Plastic casing white



**Properties**

- Dimming range 1 to 100 %
- Dimming curve adapted to the sensitivity of the eye
- Noise-free precise control via DSI signal, switchDIM or DALI
- switchDIM (with memory function)
- corridorFUNCTION
- Powerless switching via a digital interface  
(no need for switching via mains)
- Fault reporting and programmable operating parameters in DALI mode
- SELV

IP20 SELV            RoHS

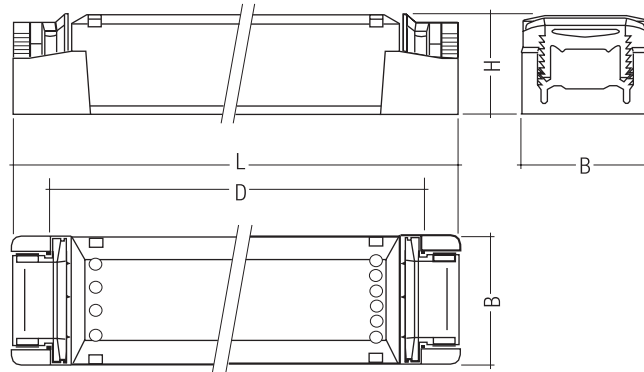
## Driver LCAI 20 W 500 mA one4all ECO series

### Technical data

Rated supply voltage	220 – 240 V
AC voltage range	198 – 264 V
DC voltage range <sup>①</sup>	170 – 240 V
Mains frequency	0 / 50 / 60 Hz
Rated current (at 230 V 50 Hz)	0.11 A
Typ. current (220 V, 0 Hz, full load, 15 % dimming level)	22 mA
Max. input power	25 W
Efficiency	> 85 %
$\lambda$ (at 230 V 50 Hz)	0.95
Control input dimming	DSI, DALI, switchDIM
Dimming range	1 – 100 %
PWM frequency	400 Hz
Stand-by power	< 1 W
Output current	500 mA
Output current tolerance	$\pm$ 7.5 %
Typ. current ripple (at 230 V, 50 Hz, full load)	$\pm$ 15 %
Max. repetitive output peak current	$\leq$ output current + 23 %
Max. non-repetitive output peak current	$\leq$ output current + 23 %
Output voltage range	9 – 42.5 V
Max. output voltage <sup>②</sup>	60 V
Output power	20 W
Set up time at 230 V (acc. to the DALI standard)	< 600 ms
Time to light (at 230 V, 50 Hz, full load, acc. to DALI)	< 0.8 s
Time to light (DC mode)	< 0.5 s
Switchover time (AC/DC)	< 0.5 s
Burst / surge peaks output side against PE	4 kV
Ambient temperature $t_a$ (at life-time 50,000 h)	-25 ... 55 °C
Max. casing temperature $t_c$	93 °C
Dimensions LxWxH	207 x 42 x 31 mm
Hole spacing D	183 – 188 mm

<sup>①</sup> On DC operation dimmlevel is always set to 15 % default.  
This can be adjusted to any level in masterCONFIGURATOR.

<sup>②</sup> In non-load operation.



### Ordering data

Type	Article number	Packaging carton	Packaging pallet	Weight per pc.
LCAI 020/0500 A120 one4all	28000737	25 pc(s).	750 pc(s).	0.173 kg

### Standards

EN 55015  
EN 61000-3-2  
EN 61000-3-3  
EN 61347-1  
EN 61347-2-13  
EN 61547  
EN 62384  
EN 62386-101  
EN 62386-102  
EN 62386-207 (DALI Device Type 6)

### Control input (DA/D1, DA/D2)

Digital DALI/DSI signal or switchDIM can be wired on the same terminals (DA/D1 and DA/D2).

### Digital signal DALI/DSI

The control input is non-polar and protected against accidental connection with a mains voltage up to 264 V. 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.

### Dimming

Dimming range 1% to 100 %  
Digital control with:

- DSI signal: 8 bit Manchester Code  
Speed 1% to 100 % in 1.4 s
- DALI signal: 16 bit Manchester Code  
Speed 1% to 100 % in 0.1 s  
Programmable parameter:  
Minimum dimming level  
Maximum dimming level  
Default minimum = 1%  
Programmable range  $1\% \leq \text{MIN} \leq 100\%$   
Default maximum = 100 %  
Programmable range  $100\% \geq \text{MAX} \geq 1\%$

Dimming curve is adapted to the eye sensitiveness.

### switchDIM

Integrated switchDIM function allows a direct connection of a push to make switch for dimming

and switching.

Brief push (< 0.6 s) switches LED control gear ON and OFF. The LED control gears switch-ON at light level set at switch-OFF.

When the push to make switch is held, LED modules are dimmed. After repush the LED modules are dimmed in the opposite direction. In installations with LED control gears with different dimming levels or opposite dimming directions (e.g. after a system extension), all LED control gears can be synchronized to 50 % dimming level by a 10 s push. Use of push to make switch with indicator lamp is not permitted.

switchDIM and corridorFUNCTION are very simple tools for controlling ballasts with conventional momentary-action switches 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 switchDIM and corridorFUNCTION.

### Programming

With the masterCONFIGURATOR different functions can be activated and various parameters can be configured.

### Thermal protection of the unit

The unit also has an ITG (Intelligent Temperature Guard). This protects it from overheating. If the unit is operated at too high a temperature the output is reduced to as little as 70 %.

### Storage conditions

Humidity: 5 % up to max. 85 %, not condensed (max. 56 days/year at 85 %)

Storage temperature: -40 °C up to max. +80 °C

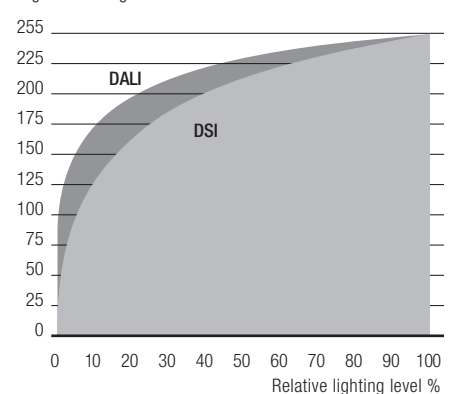
The devices have to be within the specified temperature range (ta) before they can be operated.

### Glow wire test according to EN 60695-2-11

960 °C passed.

### Dimming characteristics

Digital dimming value



Dimming characteristics as seen by the human eye

### Installation instructions

Please note that LCAI 020/0500 A120 complies with protection class II so special measures are needed if it is to be installed in protection class I applications / luminaires. Please note the requirements set out in the document LED\_Betriebsgeraete\_installations-hinweis.pdf (<http://www.tridonic.com/com/de/technische-doku.asp>).

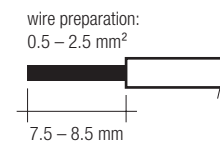
### Wiring type and cross section

The wiring can be in stranded wires with ferrules or solid. For perfect function of the screw terminals the strip length should be 6.5–7.5 mm for the input and output terminal. Double occupancy possible at max. 1.5 mm<sup>2</sup> cross section.

Max. torque at the clamping screw: 0.5 Nm.

The maximum secondary cable length at the terminals is 2 m. The LED wiring should be kept as short as possible to ensure good EMC.

### Input / Output terminal



### Expected life-time

Type	ta	40 °C	50 °C	55 °C
	tc	78 °C	88 °C	93 °C
LCAI 020/0500 A120 one4all	Life-time	>100,000 h	75,000 h	50,000 h

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

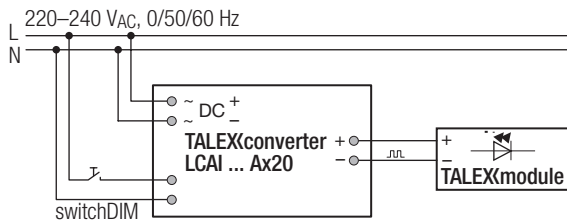
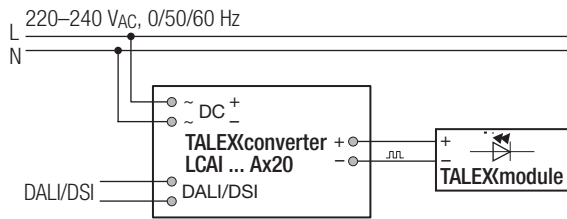
### Maximum loading of automatic circuit breakers

Automatic circuit breaker type	C10	C13	C16	C20	B10	B13	B16	B20	Inrush current
Installation Ø	1.5 mm <sup>2</sup>	1.5 mm <sup>2</sup>	1.5 mm <sup>2</sup>	2.5 mm <sup>2</sup>	1.5 mm <sup>2</sup>	1.5 mm <sup>2</sup>	1.5 mm <sup>2</sup>	2.5 mm <sup>2</sup>	I <sub>max</sub> time
LCAI 020/0500 A120 one4all	50	65	80	100	50	65	80	100	80 A 2 µs

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

Typ	THD	3	5	7	9	11
LCAI 020/0500 A120 one4all	13	10	6	5	3	2

## Wiring diagrams



### 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<sub>DC</sub> 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<sub>AC</sub> (or 1.414 x 1500 V<sub>DC</sub>). To avoid damage to the electronic devices this test must not be conducted.

### Additional information

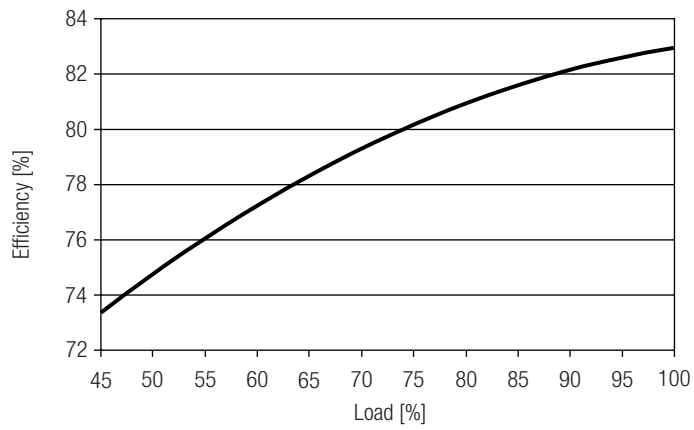
Additional technical information at  
[www.tridonic.com](http://www.tridonic.com) → Technical Data

Guarantee conditions at  
[www.tridonic.com](http://www.tridonic.com) → Services

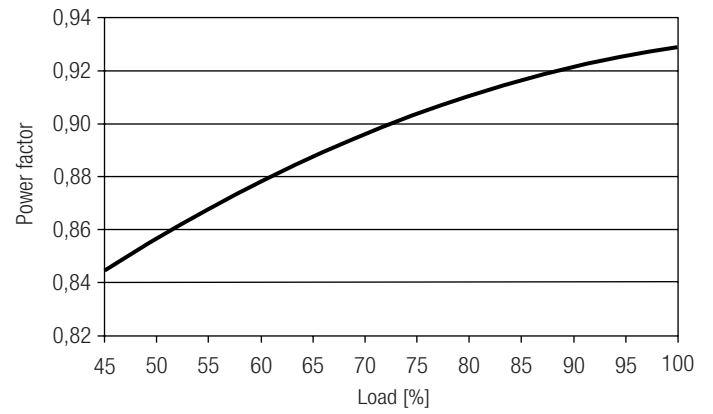
Life-time declarations are informative and represent no warranty claim.  
No warranty if device was opened.

Diagrams LCAI 020/0500 A120 one4all

Efficiency vs load



Power factor vs load



THD vs load

