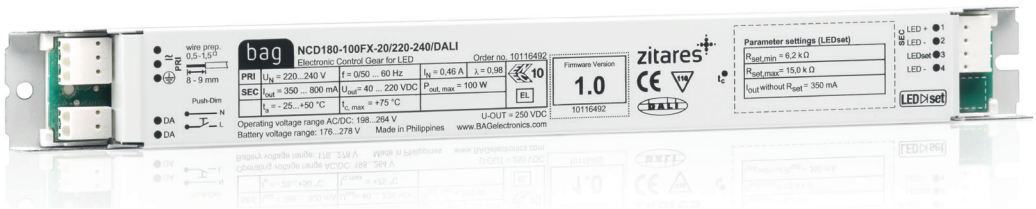
ZITARES NCD 2nd Generation

Non-SELV, constant current control gear, 1-channel, dimmable



Sample Image:
Original product may differ!

zitares360 DALI-Dim 5 YEARS warranty

ECG versions

Model	Order no.	Output currents [1]	Output power
NCD140-70FX-20/220-240/DALI	**10116488**	120 ... 400 mA	5 ... 70 W
NCD180-100FX-20/220-240/DALI	**10116492**	350 ... 800 mA	14 ... 100 W

[1] Adjustable by means of zitares360 software or resistor.

Performance characteristics

- Dimmable 1-channel ECG for constant current operation of LED modules
- Adjustable output currents by plug-in of resistors (LEDset) or digital programming *
- Non-SELV output voltage
- Very high efficiency of up to 94 % (100 % load)
- Softstart and low output current ripple
- For use in luminaires of protection class I
- ECG extensively protected against abnormal operating conditions at the output e.g. short-circuit, open circuit or overload
- Suitable for direct current operation and application in combination with central battery installations
- Overvoltage protection of the DALI interface up to 264 VAC
- Push-Dim function of DALI interface: switching and dimming via push-button
- Dimming range: 1 ... 100 % luminous flux
- Identical dimensions for dimmable and non-dimmable versions
- Conformance with international regulations, regarding safety and operation, electromagnetic compatibility and immunity to interference
- Nominal service life: 50,000 h with failure rate ≤ 10 % and operation at $t_c = t_{c,max}$

* Programming via software zitares360

Applications

- Office
- Shop
- Industrial

Markings

zitares

ZITARES NCD 2nd Generation

Non-SELV, constant current control gear, 1-channel, dimmable

General technical data

Mains voltage supply	
Rated voltage range	220 ... 240 V
Max. permanent voltage range (continuous)	198 ... 264 V
Rated frequency	0 / 50 ... 60 Hz
Battery operation	
Voltage range for continuous operation	198 ... 278 VDC
Lowest limiting value for temporary operation	176 VDC / 0.5 h
Mains overvoltage	
Overvoltage protection	350 VAC / 2 h
Automatic switch-off of the LEDs at	appr. 320 VAC
Protection against voltage peaks	
Voltage peaks L - N	1 kV
Voltage peaks L/N -PE	2 kV
Starting time	
Time to 100% luminous flux	< 0.5 s
Total harmonic distortion (THD)	
At 100% load to ECG-output	< 10 %
Output data	
Tolerance of output current	+/- 5 %
Max. ripple of output current	+/- 10 % (< +/- 1 % for 100Hz)
Max. output voltage (U-OUT) under abnormal operation funktion	NCD140: 270 V NCD180: 250 V
Max. wire length to LED module	2 m
Galvanic separation to mains input	no
Protection functions output side	
Overload operation	yes; limitation of output voltage and reduction of output current
Short-circuit operation	yes; limiting the output current
Open-circuit operation	yes; ECG switch-off, restart after mains interruption
Dimming operation and interface	
Overvoltage protection of interface	264 VAC
Galvanic separation to output side	no
Stand-by power losses	≤ 0.3 W
Dimming range for luminous flux	1 ... 100 %
Dimming technology	Mixed Mode [2)]
Max. number of ECG for Push-Dim control	25
LEDset interface	
Galvanic separation for mains voltage	no
Voltage range	5 V +/- 5%
Range of resistance detection NCD140-70FX	12.5 ... 43 kΩ
Range of resistance detection NCD180-100FX	6.2 ... 15 kΩ
Connection terminals	
Type	Plug-in terminal with release hole[1)]
Wire cross section	0.5 mm² - 1.5 mm²
Wire stripping length	8 mm - 9 mm
Thermal protected device	
Max. sureface temperature acc. to EN 61347-1/C5e	+ 110° C
Degree of protection	
Degree of protection of ECG housing	IP 20

[1)] Terminals and ECG construction are designed for an automatic wiring with robots

[2)] See page 7 "dimming methods“ for futher interformation

ZITARES NCD 2nd Generation

Non-SELV, constant current control gear, 1-channel, dimmable

Temperatures (operation)

Model	Ambient (t_a)	Case (t_c)
NCD140-70FX-20...	– 25 °C ... +50 °C	max. + 75 °C
NCD180-100FX-20...	– 25 °C ... +50 °C	max. + 75 °C

Lifetime

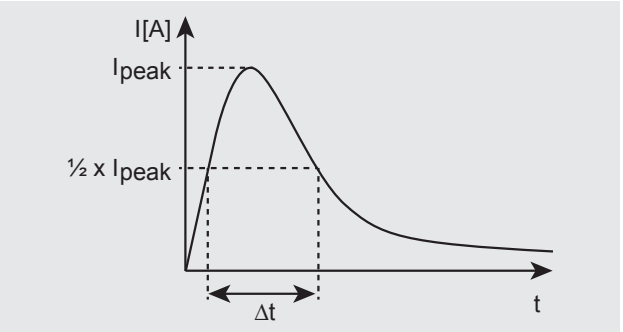
Lifetime [1]	
Operation at $t_C = t_{C,max}$	50,000 h; failure rate ≤ 10 %
Operation at $t_C = t_{C,max}$ - 10 K	100,000 h; failure rate ≤ 10 %

Circuit breaker / Inrush current

Model	typ. I_{peak} / Δt	Number of ECG at one single-pole circuit breaker (CB)				
		CB-Typ	10 A	16 A	20 A	25 A
NCD140-70FX-20....	38 A / 163 µs	B	12	19	23	29
		C	20	31	39	49
NCD180-100FX-20...	43 A / 203 µs	B	8	13	17	21
		C	14	22	28	35

- Data for U_{supply} = 230 VAC, mains impedance = 1 Ω
- In case of multi-polar CB the maximum number is reduced by 20 %
- The max. number may differ depending on CB manufacturer. Please consider the specifications of the manufacturer.
- Basically, CB with C-characteristics are recommended to be used in lighting groups.

Typical current - time profile when switching on



Operating data

Model	Input current [1] A	Input power [1] W	Power factor [1]	ECG efficiency [1] %	Output current [1] mA	Output voltage V	Total output power W
NCD140-70FX-20...	0,32	74	0,98	94	120 ... 400	40 ... 250	5 ... 70
NCD180-100FX-20...	0,44	108	0,98	94	350 ... 800	40 ... 220	14 ... 100

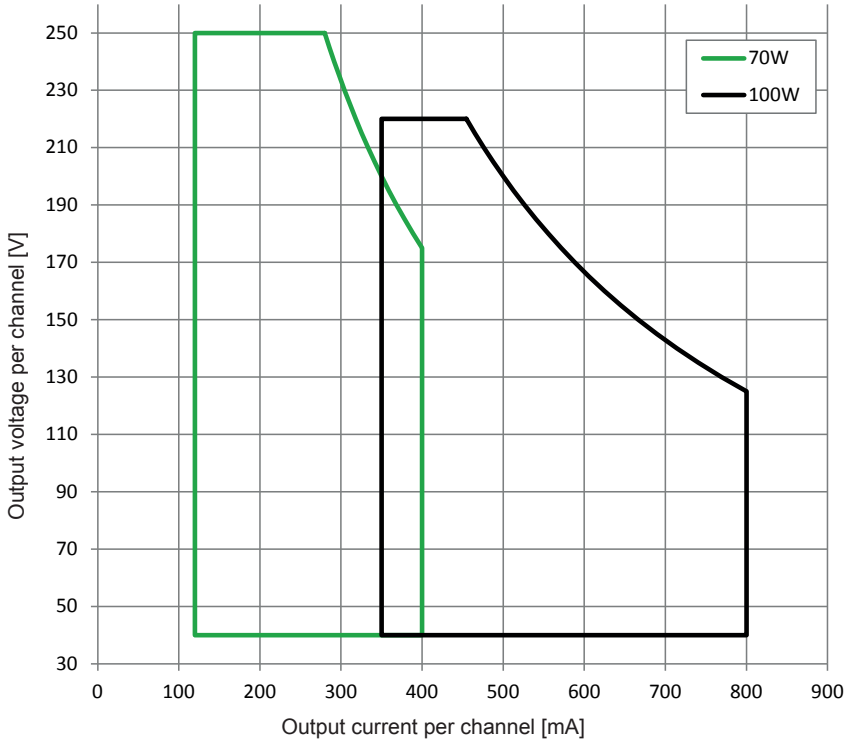
[1] All specifications with 230 VAC nominal operation and 100 %

zitares

ZITARES NCD 2nd Generation

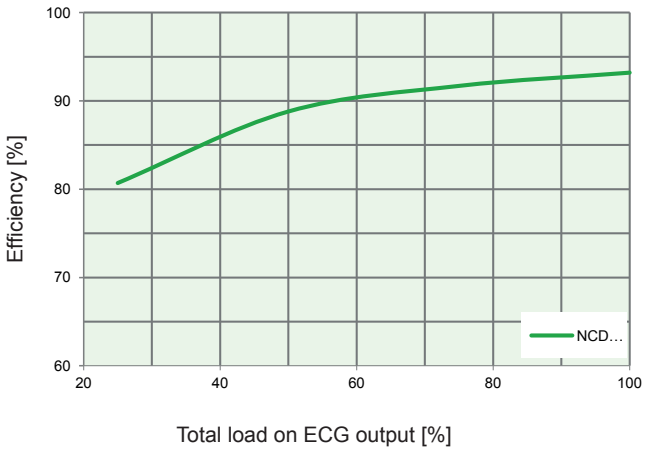
Non-SELV, constant current control gear, 1-channel, dimmable

Operating data

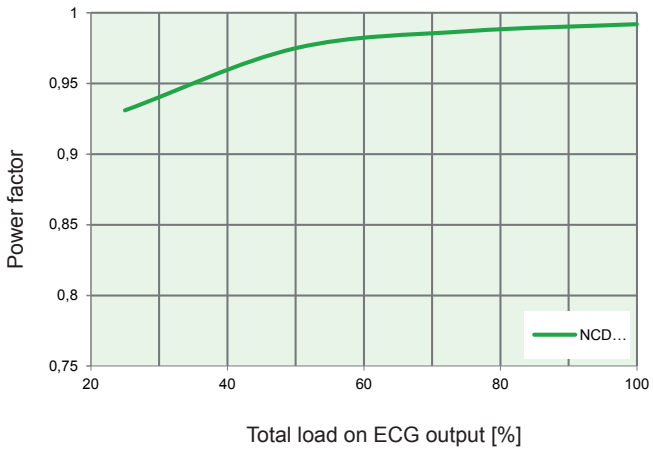


Efficiency and power factor

Efficiency vs. output load



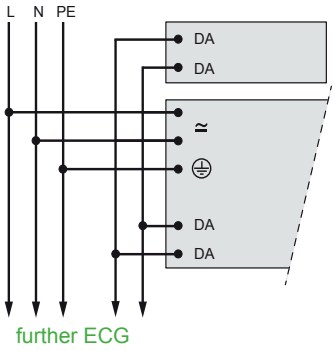
Power factor vs. output load



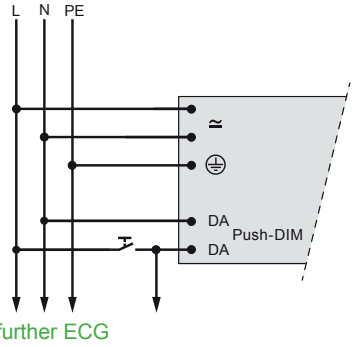
ZITARES NCD 2nd Generation
Non-SELV, constant current control gear, 1-channel, dimmable

Wiring diagrams ECG

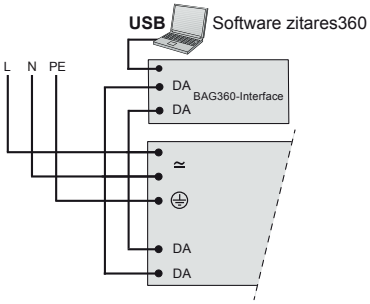
A Connection of ECG input side for DALI control



B Connection of ECG input side for control via push-button

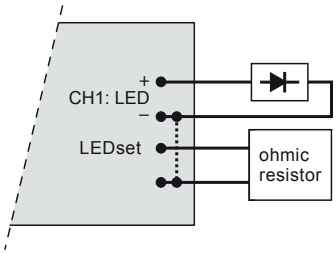


C Connection ECG-Programming Box for programming



Wiring diagrams ECG output

1 Connection of ECG output side



zitares

ZITARES NCD 2nd Generation

Non-SELV, constant current control gear, 1-channel, dimmable

Push-button operation / supplementary functions

Push-button operation

In addition to control via DALI control signals, the DALI interface can also be used for switching and dimming via a push-button.

Button press	Status: LEDs switched off, ECG in standby mode	Status: LEDs switched on
Short button press	Switching on of LEDs to the last dimming level (memory function)	Switching off of LEDs and saving of current dimming level; ECG in standby mode
Long button press	Switching on of LEDs to the last dimming level and then dimming up or dimming down	Dimming up or dimming down of LEDs; each release and repressing of the button reverses the dimming direction

Recovery function - behaviour after mains voltage interruption

The behaviour of the ECG after mains voltage interruption can be specified via the recovery function.

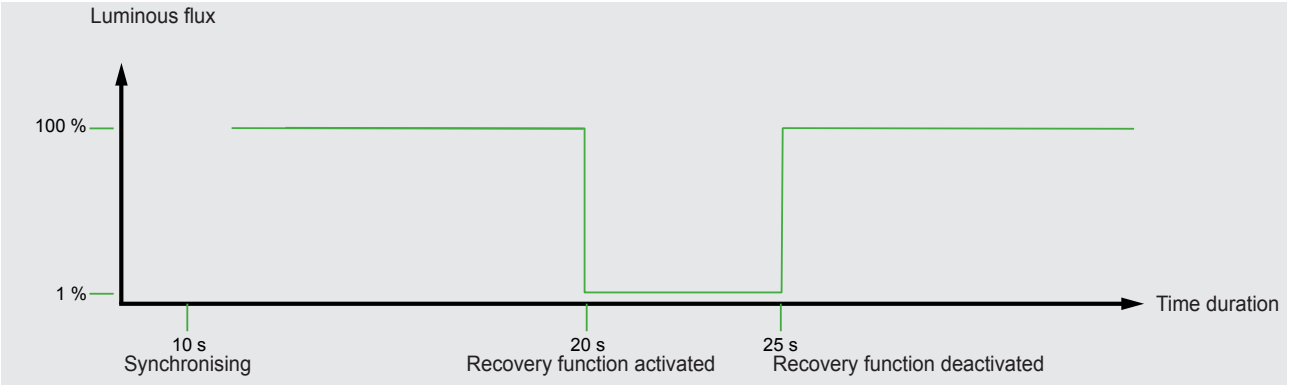
Recovery function activated:	After return of mains voltage the ECG returns to the operating mode before power interruption If the lighting system is switched on, the last set dimming level is called up.
Recovery function deactivated: (Factory setting)	After return of mains voltage the ECG switches the lighting to 100 % luminous flux.

Activation or deactivation of the recovery function is by pressing and holding the push-button connected to the DALI interface and with the lighting system switched on.

Activation of the recovery function:	Press and hold the push-button for approximately 20 s until the lighting is dimmed down to 1 % luminous flux. Once the push-button is then released the recovery function is activated.
Deactivation of the recovery function:	Press and hold the push-button for approximately 25 s until the lighting is increased to 100 % luminous flux. When the push-button is then released the recovery function is deactivated.

Synchronisation of the ECG

If synchronising the ECG is needed in an application, this can be implemented via a push-button connected to the DALI interface. When the lighting system is switched on the push-button must be pressed and held for approximately 10 s until the complete system is increased to 100 % luminous flux. All ECGs are then synchronised after releasing the push-button.



ZITARES NCD 2nd Generation
Non-SELV, constant current control gear, 1-channel, dimmable

LEDset interface

The LEDset interface principally enables the connection of ohmic or electronic resistas functioning as current sinks. The resistor value is evaluated by the ECG and can be utilised for active switching of the output currents.

Factory settings for output current (LEDset-interface open)

NCD140-70FX... = 120 mA
NCD180-100FX... = 350 mA

Resistance range LEDset-interface

NCD140-70FX...	NCD180-100FX...
Rset min. = 12,5 kΩ	Rset min. = 6,2 kΩ
Rset max. = 43 kΩ	Rset max. = 15 kΩ

Computation of the resistance value for the output current

$$I_{out}\,[A] = \frac{5\ V}{Rset\,[\Omega]} \times 1000$$

Rset resistance [E24 / E48] Ω	Output current A
42.200	0,120
33.200	0,150
24.900	0,200
20.000	0,250
16.900	0,300
14.000	0,350
12.700	0,400
11.000	0,450
10.000	0,500
9.090	0,550
8.250	0,600
7.500	0,650
7.150	0,700
6.800	0,750
6.200	0,800

Dimming methods

Mixed Mode - dimming:

The combination of amplitude and pulse width modulation (PWM)- dimming leads to an optimized dimming performance.
High dimming levels are realized by reduction of current amplitude. Light colour and light output ratio is stable in this case. The electromagnetic, -thermal and -acustic system load can be optimized by means of current reduction.
Below a defined amplitude threshold value down to a 1% dimming level the luminous flux is reduced by means of pulse width modulation with 500 Hz without any change in light colour.

Programming and software settings

zitares360

Programming of ECG is done via the DALI interface by using the BAG programming box (Order no. 10112596) and the Software zitares360. The connection of the ECG to the programming box is shown in figure „C“ in section „Wiring diagram ECG input“.
The software and programming documentation contains further information. This is can be requested or is available via the BAG website.

Factory settings

DALI address	1	
DC detection	deactivated	100% luminous flux during DC operation, EOF_I = 1
LEDset interface	activated	Minimum output current in case of resistance connected

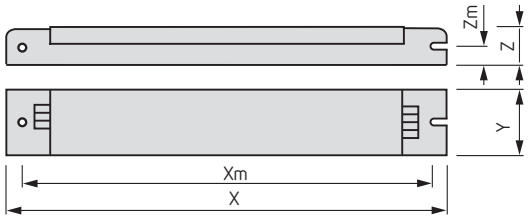
zitares

ZITARES NCD 2nd Generation

Non-SELV, constant current control gear, 1-channel, dimmable

ECG dimensions

Model	X	X_M	Y	Z	Z_M
	mm	mm	mm	mm	mm
NCD140-70FX...	280	270	30	21	9
NCD180-100FX...	280	270	30	21	9



Logistic data

Model	Order no.	EAN	Weight ECG kg	ECG PU [1] pcs.	Dimensions PU mm	Weight PU kg
NCD140-70FX...	10116488	4046189032872	0,260	66	345 x 285 x 182	18
NCD180-100FX...	10116492	4046189032889	0,260	66	345 x 285 x 182	18

[1] Packaging unit

Conformance with regulations

EN 61347-1	General and safety requirements
EN 61347-2-13	Particular requirements for d.c. or a.c. supplied electronic control gear for LED modules
EN 61347-2-13/J	
EN 62384	D.C. or A.C. supplied electronic control gear for LED modules - Performance requirements
EN 61547	Equipment for general lighting purposes - EMC immunity requirements
EN 55 015	Limits and methods of measurement of radio disturbance characteristics of electrical lighting and similar equipment
EN 62386-102	Digital addressable lighting interface - General requirements for control gear
EN 62386-207	Digital addressable lighting interface - Particular requirements for control gear - LED modules (device type 6)
IEC 60 068-2-6	Environmental testing: Tests – Test Fc: Vibration (sinusoidal)
IEC 60 068-2-27	Environmental testing: Tests – Test Ea and guidance: Shock

01/2016 – 160127