

PC CFL COMBO, 220 – 240 V 50/60 Hz

## Compact fluorescent lamps

### Product description

- Combination of electronic ballast and emergency lighting unit
- For compact fluorescent lamps
- For manual testing of the emergency lighting function

## Properties

- Lightweight one-part emergency lighting unit
- Simple wiring
- No compatibility problems
- 3 h rated duration for TC-DD lamp variants
- 1 and 3 h rated duration for TC-D/T lamp variants
- Selectable operating time (jumper)
- Lamp warm start in normal operation
- Filament heating in emergency operation for TC-D/T lamps
- AC operation of all lamps
- Automatic restart after relamping in normal operation
- Green charge status display LED
- Intelligent Voltage Guard (overvoltage indication and undervoltage shutdown)
- Optional test switch
- Checking the emergency lighting function by interrupting the unswitched phase
- Small dimensions
- IDC (insulation displacement connection)
- Electronically controlled battery charging
- Deep discharge protection
- Short-circuit-proof battery connection
- Polarity reversal protection for battery

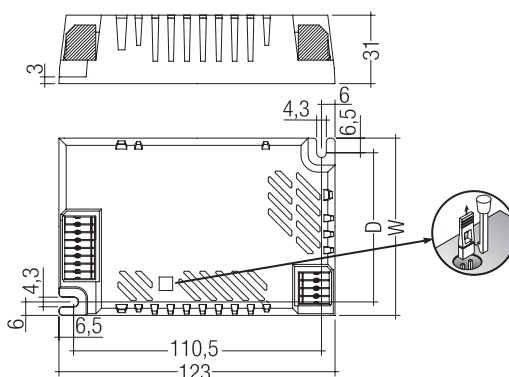
## Batteries

- Separate battery pack
- High-temperature cells
- NiCd or NiMH batteries
- D or Cs cells



Standards, page 8

**For wiring diagrams and installation examples, page 11**



## Technical data

Rated supply voltage	220 – 240 V
Mains frequency	50 / 60 Hz
Mains voltage changeover threshold	according to EN 60598-2-22
tc point max.	75 °C
Ambient temperature ta	0 ... 55 °C
Operating frequency (normal operation)	> 42 kHz
Operating frequency (emergency mode)	typ. 17 kHz
Overvoltage protection	320 V (for 1 h)
Battery charging time	24 h
Leakage current (PE)	< 0.5 mA
Min. lamp starting temperature (normal operation)	-15 °C
Min. lamp starting temperature (emergency mode)	0 °C
Type of protection	IP20

## Ordering data

Type	Article number	Number of cells	Packaging, carton	Packaging, pallet	Weight per pcs.
Rated operating time 3 / 1 h					
PC 1x18-3 TC COMBO	89899990	3	25 pieces	700 pieces	0.220 kg
PC 1x18-4 TC COMBO	89899927	4	25 pieces	700 pieces	0.220 kg
PC 2x18-3 TC COMBO	89899982	3	25 pieces	450 pieces	0.245 kg
PC 2x18-4 TC COMBO	89899928	4	25 pieces	450 pieces	0.245 kg
PC 1x26-3 TC COMBO	89899983	3	25 pieces	700 pieces	0.220 kg
PC 1x26-4 TC COMBO	89899976	4	25 pieces	700 pieces	0.220 kg
PC 1x26/32-5 TC COMBO	89899929	5	25 pieces	700 pieces	0.220 kg
PC 1x26/32/42-6 TC COMBO	89899931	6	25 pieces	700 pieces	0.220 kg
PC 2x26-3 TC COMBO	89899984	3	25 pieces	450 pieces	0.245 kg
PC 2x26-4 TC COMBO	89899930	4	25 pieces	450 pieces	0.245 kg
PC 2x26/32-5 TC COMBO	89899998	5	25 pieces	450 pieces	0.245 kg
PC 2x26/32/42-6 TC COMBO	89899989	6	25 pieces	450 pieces	0.245 kg

## Ordering data

Type	Article number	Number of cells	Packaging, carton	Packaging, pallet	Weight per pcs.
<b>Rated operating time 3 h, Low Output BLF</b>					
PC 1x28-33 LO DD COMBO	89899943	3	25 pieces	700 pieces	0.220 kg
PC 1x28-34 LO DD COMBO	89899955	4	25 pieces	700 pieces	0.220 kg
PC 1x38-34 LO DD COMBO	89899981	4	25 pieces	700 pieces	0.220 kg
<b>Rated operating time 3 h, High Output BLF</b>					
PC 1x16-33 HO DD COMBO	89899926	3	25 pieces	700 pieces	0.220 kg
PC 1x28-33 HO DD COMBO	89899957	3	25 pieces	700 pieces	0.220 kg
PC 1x28-34 HO DD COMBO	89899958	4	25 pieces	700 pieces	0.220 kg
PC 1x38-34 HO DD COMBO	89899933	4	25 pieces	700 pieces	0.220 kg
PC 1x38-35 HO DD COMBO	89899975	5	25 pieces	700 pieces	0.220 kg

## Specific technical data

Lamp type <sup>①</sup>	Lamp wattage	Type	Article number	Dimensions L x W x H	Hole spacing D	Lamp power	Circuit power	Mains current <sup>②</sup>	λ <sup>③</sup>	Normal operation BLF	Emergency operation BLF	Emergency operation EBLF <sup>④</sup>	Rated duration
<b>Rated operating time 3 / 1 h</b>													
TC-DEL	1 x 18 W	PC 1x18-3 TC COMBO	89899990	123 x 79 x 31 mm	66.5 mm	16.5 W	22 W	0.100 A	0.96	1.00	0.110	0.090	3 / 1 h
TC-TEL	1 x 18 W	PC 1x18-3 TC COMBO	89899990	123 x 79 x 31 mm	66.5 mm	16.5 W	22 W	0.100 A	0.96	1.00	0.090	0.080	3 / 1 h
TC-DEL	1 x 18 W	PC 1x18-4 TC COMBO	89899927	123 x 79 x 31 mm	66.5 mm	16.5 W	24 W	0.110 A	0.96	1.00	0.190	0.175	3 / 1 h
TC-TEL	1 x 18 W	PC 1x18-4 TC COMBO	89899927	123 x 79 x 31 mm	66.5 mm	16.5 W	24 W	0.110 A	0.96	1.00	0.150	0.150	3 / 1 h
TC-DEL	2 x 18 W	PC 2x18-3 TC COMBO	89899982	123 x 102 x 31 mm	89.5 mm	34.0 W	40 W	0.180 A	0.97	1.00	0.110	0.090	3 / 1 h
TC-TEL	2 x 18 W	PC 2x18-3 TC COMBO	89899982	123 x 102 x 31 mm	89.5 mm	34.0 W	40 W	0.180 A	0.97	1.00	0.090	0.080	3 / 1 h
TC-DEL	2 x 18 W	PC 2x18-4 TC COMBO	89899928	123 x 102 x 31 mm	89.5 mm	33.0 W	43 W	0.190 A	0.97	1.00	0.190	0.175	3 / 1 h
TC-TEL	2 x 18 W	PC 2x18-4 TC COMBO	89899928	123 x 102 x 31 mm	89.5 mm	33.0 W	43 W	0.190 A	0.97	1.00	0.150	0.150	3 / 1 h
TC-DEL	1 x 26 W	PC 1x26-3 TC COMBO	89899983	123 x 79 x 31 mm	66.5 mm	24.0 W	28 W	0.130 A	0.95	1.00	0.095	0.080	3 / 1 h
TC-TEL	1 x 26 W	PC 1x26-3 TC COMBO	89899983	123 x 79 x 31 mm	66.5 mm	24.0 W	28 W	0.130 A	0.95	1.00	0.065	0.055	3 / 1 h
TC-DEL	1 x 26 W	PC 1x26-4 TC COMBO	89899976	123 x 79 x 31 mm	66.5 mm	24.0 W	30 W	0.140 A	0.95	1.00	0.085	0.095	3 / 1 h
TC-TEL	1 x 26 W	PC 1x26-4 TC COMBO	89899976	123 x 79 x 31 mm	66.5 mm	24.0 W	30 W	0.140 A	0.95	1.00	0.085	0.085	3 / 1 h
TC-DEL	1 x 26 W	PC 1x26/32-5 TC COMBO	89899929	123 x 79 x 31 mm	66.5 mm	24.0 W	30 W	0.140 A	0.95	1.00	0.140	0.105	3 / 1 h
TC-TEL	1 x 26 W	PC 1x26/32-5 TC COMBO	89899929	123 x 79 x 31 mm	66.5 mm	24.0 W	30 W	0.140 A	0.95	1.00	0.120	0.075	3 / 1 h
TC-TEL	1 x 32 W	PC 1x26/32-5 TC COMBO	89899929	123 x 79 x 31 mm	66.5 mm	32.0 W	38 W	0.170 A	0.97	1.00	0.070	0.035	3 / 1 h
TC-DEL	1 x 26 W	PC 1x26/32/42-6 TC COMBO	89899931	123 x 79 x 31 mm	66.5 mm	24.0 W	30 W	0.140 A	0.95	1.00	0.110	0.095	3 / 1 h
TC-TEL	1 x 26 W	PC 1x26/32/42-6 TC COMBO	89899931	123 x 79 x 31 mm	66.5 mm	24.0 W	30 W	0.140 A	0.95	1.00	0.080	0.080	3 / 1 h
TC-TEL	1 x 32 W	PC 1x26/32/42-6 TC COMBO	89899931	123 x 79 x 31 mm	66.5 mm	32.0 W	40 W	0.180 A	0.95	1.00	0.090	0.085	3 / 1 h
TC-TEL	1 x 42 W	PC 1x26/32/42-6 TC COMBO	89899931	123 x 79 x 31 mm	66.5 mm	42.0 W	52 W	0.230 A	0.95	1.00	0.065	0.060	3 / 1 h
TC-DEL	2 x 26 W	PC 2x26-3 TC COMBO	89899984	123 x 102 x 31 mm	89.5 mm	48.0 W	52 W	0.230 A	0.95	1.00	0.095	0.080	3 / 1 h
TC-TEL	2 x 26 W	PC 2x26-3 TC COMBO	89899984	123 x 102 x 31 mm	89.5 mm	48.0 W	52 W	0.230 A	0.95	1.00	0.065	0.055	3 / 1 h
TC-DEL	2 x 26 W	PC 2x26-4 TC COMBO	89899930	123 x 102 x 31 mm	89.5 mm	48.0 W	56 W	0.250 A	0.95	1.00	0.085	0.095	3 / 1 h
TC-TEL	2 x 26 W	PC 2x26-4 TC COMBO	89899930	123 x 102 x 31 mm	89.5 mm	48.0 W	56 W	0.250 A	0.95	1.00	0.085	0.085	3 / 1 h
TC-DEL	2 x 26 W	PC 2x26/32-5 TC COMBO	89899998	123 x 102 x 31 mm	89.5 mm	48.0 W	56 W	0.260 A	0.97	1.00	0.140	0.105	3 / 1 h
TC-TEL	2 x 26 W	PC 2x26/32-5 TC COMBO	89899998	123 x 102 x 31 mm	89.5 mm	50.0 W	57 W	0.260 A	0.97	1.00	0.120	0.100	3 / 1 h
TC-TEL	2 x 32 W	PC 2x26/32-5 TC COMBO	89899998	123 x 102 x 31 mm	89.5 mm	62.0 W	71 W	0.330 A	0.98	1.00	0.100	0.085	3 / 1 h
TC-DEL	2 x 26 W	PC 2x26/32/42-6 TC COMBO	89899989	123 x 102 x 31 mm	89.5 mm	49.0 W	58 W	0.260 A	0.98	1.00	0.110	0.095	3 / 1 h
TC-TEL	2 x 26 W	PC 2x26/32/42-6 TC COMBO	89899989	123 x 102 x 31 mm	89.5 mm	49.0 W	58 W	0.260 A	0.98	1.00	0.080	0.080	3 / 1 h
TC-TEL	2 x 32 W	PC 2x26/32/42-6 TC COMBO	89899989	123 x 102 x 31 mm	89.5 mm	62.0 W	75 W	0.330 A	0.98	1.00	0.090	0.085	3 / 1 h
TC-TEL	2 x 42 W	PC 2x26/32/42-6 TC COMBO	89899989	123 x 102 x 31 mm	89.5 mm	82.0 W	98 W	0.440 A	0.98	1.00	0.065	0.060	3 / 1 h
<b>Rated operating time 3 h, Low Output BLF</b>													
TC-DD	1 x 28 W	PC 1x28-33 LO DD COMBO	89899943	123 x 79 x 31 mm	66.5 mm	17.0 W	24 W	0.110 A	0.96	0.75	0.110	0.100	3 h
TC-DD	1 x 28 W	PC 1x28-34 LO DD COMBO	89899955	123 x 79 x 31 mm	66.5 mm	17.0 W	24 W	0.110 A	0.96	0.75	0.150	0.115	3 h
TC-DD	1 x 38 W	PC 1x38-34 LO DD COMBO	89899981	123 x 79 x 31 mm	66.5 mm	26.0 W	35 W	0.160 A	0.96	0.85	0.060	0.055	3 h
<b>Rated operating time 3 h, High Output BLF</b>													
TC-DD	1 x 16 W	PC 1x16-33 HO DD COMBO	89899926	123 x 79 x 31 mm	66.5 mm	13.0 W	18 W	0.084 A	0.95	1.00	0.090	0.085	3 h
TC-DD	1 x 28 W	PC 1x28-33 HO DD COMBO	89899957	123 x 79 x 31 mm	66.5 mm	25.0 W	31 W	0.140 A	0.96	1.00	0.110	0.100	3 h
TC-DD	1 x 28 W	PC 1x28-34 HO DD COMBO	89899958	123 x 79 x 31 mm	66.5 mm	25.0 W	31 W	0.140 A	0.96	1.00	0.150	0.115	3 h
TC-DD	1 x 38 W	PC 1x38-34 HO DD COMBO	89899933	123 x 79 x 31 mm	66.5 mm	34.0 W	41 W	0.180 A	0.96	1.00	0.060	0.055	3 h
TC-DD	1 x 38 W	PC 1x38-35 HO DD COMBO	89899975	123 x 79 x 31 mm	66.5 mm	34.0 W	41 W	0.180 A	0.96	1.00	0.100	0.085	3 h

① PC 1x28-33 HO DD COMBO, PC 1x38-34 HO DD COMBO, PC 1x28-33 LO DD COMBO and PC 1x38-34 LO DD COMBO only for Biax non-amalgam lamps.

② For 230 V, 50 Hz.

③ According to EN 61347-2-7: 2006.

RoHS

ACCES-  
SERIES

## Test switch EM2

### Product description

- For connection to the emergency lighting unit
- For checking the device function



### Ordering data

Type	Article number	Packaging, bag	Packaging, carton	Weight per pcs.
Test switch EM 2	89805277	25 pieces	200 pieces	0.013 kg

RoHS

ACCES-  
SERIES

## Status indication green LED

### Product description

- A green LED indicates that charging current is flowing into the battery



### Ordering data

Type	Article number	Packaging, bag	Packaging, carton	Weight per pcs.
LED EM green	89899605	25 pieces	200 pieces	0.017 kg
LED EM green, ultra high brightness	89899756	25 pieces	200 pieces	0.012 kg

Ballast lumen factor (BLF) in %

PC CFL COMBO for TC-DEL and TC-TEL fluorescent lamps, 3 / 1 h

	Duration	3 / 1 h							
	Cells	3 cells	3 cells	4 cells	4 cells	3 cells	4 cells	5 cells	6 cells
	Type	PC 1x18-3 TC COMBO	PC 2x18-3 TC COMBO	PC 1x18-4 TC COMBO	PC 2x18-4 TC COMBO	PC 1x26-3 TC COMBO	PC 1x26-4 T5 COMBO	PC 1x26/32-5 TC COMBO	PC 1x26/32/42-6 TC COMBO
	Article no.	89899990	89899982	89899927	89899928	89899983	89899976	89899929	89899931
Lamp type	Wattage	BLF in emergency lighting mode in % for rated operating time							
TC-DEL	18 W	0.11 / 0.09	0.11 / 0.09	0.19 / 0.15	0.19 / 0.15				
	26 W					0.095 / 0.065	0.085	0.14 / 0.12	0.11 / 0.08
TC-TEL	18 W	0.11 / 0.09	0.11 / 0.09	0.19 / 0.15	0.19 / 0.15				
	26 W					0.095 / 0.065	0.085	0.14 / 0.12	0.11 / 0.08
	32 W							0.07	0.09
	42 W								0.065

Technology and capacity	Design	Number of cells	Type	Article number	Assignable batteries							
NiCd 1.6 Ah Cs-cells	Stick	3	Accu-NiCd C 3A	89899743	•	•			•			
	Stick	4	Accu-NiCd C 4A	89899692			•	•		•		
	Stick	5	Accu-NiCd C 5A	89899695							•	
	Stick	6	Accu-NiCd C 6A	89899698								•
	Stick + Stick	3 + 3	Accu-NiCd C 6C	89899699								•
NiCd 4 Ah D-cells	Stick	3	Accu-NiCd 3A	89895960	•	•			•			
	Stick	4	Accu-NiCd 4A 55	89800089			•	•		•		
	Stick	5	Accu-NiCd 5A	89895973							•	
	Stick + Stick	3 + 2	Accu-NiCd 5C 55	89800090							•	
	Stick + Stick	3 + 3	Accu-NiCd 6C	89895963								•
NiMH 2 Ah Cs-Cells	Stick	3	Accu-NiMH C 3A	89899744	•	•			•			
	Stick	4	Accu-NiMH C 4A	89899700			•	•		•		
	Stick	5	Accu-NiMH C 5A	89899703							•	
	Stick	6	Accu-NiMH C 6A	89899706								•
	Stick + Stick	3 + 2	Accu-NiMH C 4C	89899702			•	•		•		
	Stick + Stick	3 + 2	Accu-NiMH C 5C	89899705							•	
	Stick + Stick	3 + 3	Accu-NiMH C 6C	89899707								•
NiMH 4 Ah Cs-Cells ①	Stick	3	Accu-NiMH 4 Ah C 3A	89899854	•	•			•			
	Stick	4	Accu-NiMH 4 Ah C 4A	89899850			•	•		•		
	Stick	5	Accu-NiMH 4 Ah C 5A	89899851							•	
	Stick	6	Accu-NiMH 4 Ah C 6A	89899852								•
	Stick + Stick	3 + 3	Accu-NiMH 4 Ah C 6C	89899853								•
NiCd 1.6 Ah Accupack		3	Pack-NiCd 3C	89899676	•	•			•			
		4	Pack-NiCd 4C	89899677			•	•		•		
		5	Pack-NiCd 5C	89899678							•	
		6	Pack-NiCd 6C	89899679								•
NiCd 4 Ah Accupack		3	Pack-NiCd 3D	89899672	•	•			•			
		4	Pack-NiCd 4D	89899673			•	•		•		
		5	Pack-NiCd 5D	89899674							•	
		6	Pack-NiCd 6D	89899675								•

Note: 50°C batteries also available (see separate datasheet at [www.tridonic.com](http://www.tridonic.com))

For 3-hour operation: 4 Ah D-cells NiCd or 4 Ah Cs-cells NiMH.

For 1-hour operation: 1.6 Ah Cs-cells NiCd or 2 Ah Cs-cells NiMH.

① Maximum battery housing temperature 45 °C.

Ballast lumen factor (BLF) in %

PC CFL COMBO for TC-DEL and TC-TEL fluorescent lamps, 3 / 1 h

	Duration	3 / 1 h			
		3 cells	4 cells	5 cells	6 cells
Type		PC 2x26-3 TC COMBO	PC 2x26-4 TC COMBO	PC 2x26/32-5 TC COMBO	PC 2x26/32/42-6 TC COMBO
Article no.		89899984	89899930	89899998	89899989
Lamp type	Wattage	BLF in emergency lighting mode in % for rated operating time			
TC-DEL	26 W	0.095 / 0.065	0.085	0.14 / 0.12	0.11 / 0.08
TC-TEL	26 W	0.095 / 0.065	0.085	0.14 / 0.12	0.11 / 0.08
	32 W			0.1	0.09
	42 W				0.065

Technology and capacity	Design	Number of cells	Type	Article number	Assignable batteries			
NiCd 1.6 Ah Cs-cells	Stick	3	Accu-NiCd C 3A	89899743	•			
	Stick	4	Accu-NiCd C 4A	89899692		•		
	Stick	5	Accu-NiCd C 5A	89899695			•	
	Stick	6	Accu-NiCd C 6A	89899698				•
	Stick + Stick	3 + 3	Accu-NiCd C 6C	89899699				•
NiCd 4 Ah D-cells	Stick	3	Accu-NiCd 3A	89895960	•			
	Stick	4	Accu-NiCd 4A 55	89800089		•		
	Stick	5	Accu-NiCd 5A	89895973			•	
	Stick + Stick	3 + 2	Accu-NiCd 5C 55	89800090			•	
	Stick + Stick	3 + 3	Accu-NiCd 6C	89895963				•
NiMH 2 Ah Cs-Cells	Stick	3	Accu-NiMH C 3A	89899744	•			
	Stick	4	Accu-NiMH C 4A	89899700		•		
	Stick	5	Accu-NiMH C 5A	89899703			•	
	Stick	6	Accu-NiMH C 6A	89899706				•
	Stick + Stick	3 + 2	Accu-NiMH C 4C	89899702		•		
	Stick + Stick	3 + 2	Accu-NiMH C 5C	89899705			•	
	Stick + Stick	3 + 3	Accu-NiMH C 6C	89899707				•
NiMH 4 Ah Cs-Cells ①	Stick	3	Accu-NiMH 4 Ah C 3A	89899854	•			
	Stick	4	Accu-NiMH 4 Ah C 4A	89899850		•		
	Stick	5	Accu-NiMH 4 Ah C 5A	89899851			•	
	Stick	6	Accu-NiMH 4 Ah C 6A	89899852				•
	Stick + Stick	3 + 3	Accu-NiMH 4 Ah C 6C	89899853				•
NiCd 1.6 Ah Accupack		3	Pack-NiCd 3C	89899676	•			
		4	Pack-NiCd 4C	89899677		•		
		5	Pack-NiCd 5C	89899678			•	
		6	Pack-NiCd 6C	89899679				•
NiCd 4 Ah Accupack		3	Pack-NiCd 3D	89899672	•			
		4	Pack-NiCd 4D	89899673		•		
		5	Pack-NiCd 5D	89899674			•	
		6	Pack-NiCd 6D	89899675				•

Note: 50°C batteries also available (see separate datasheet at [www.tridonic.com](http://www.tridonic.com))

For 3-hour operation: 4 Ah D-cells NiCd or 4 Ah Cs-cells NiMH.

For 1-hour operation: 1.6 Ah Cs-cells NiCd or 2 Ah Cs-cells NiMH.

① Maximum battery housing temperature 45 °C.

Ballast lumen factor (BLF) in %

PC CFL COMBO for TC-DEL and TC-TEL fluorescent lamps, 3 h

	Duration	3 h							
		3 cells	3 cells	4 cells	4 cells	5 cells	3 cells	4 cells	4 cells
Type		PC 1x16-33 HO DD COMBO	PC 1x28-33 HO DD COMBO	PC 1x28-34 HO DD COMBO	PC 1x38-34 HO DD COMBO	PC 1x38-35 HO DD COMBO	PC 1x28-33 LO DD COMBO	PC 1x28-34 LO DD COMBO	PC 1x38-34 LO DD COMBO
Article no.		89899926	89899957	89899958	89899933	89899975	89899943	89899955	89899981
Lamp type	Wattage	High Output BLF in emergency lighting mode in % for rated operating time					Low Output BLF in emergency lighting mode in % for rated operating time		
TC-DD	16 W	0.09							
	28 W		0.11	0.15			0.11	0.15	
	38 W				0.06	0.10			0.06

Technology and capacity	Design	Number of cells	Type	Article number	Assignable batteries						
NiCd 4 Ah D-cells	Stick	3	Accu-NiCd 3A	89895960	•	•			•		
	Stick	4	Accu-NiCd 4A 55	89800089			•	•		•	•
	Stick	5	Accu-NiCd 5A	89895973					•		
	Stick + Stick	3 + 2	Accu-NiCd 5C 55	89800090					•		
	Stick + Stick	3 + 3	Accu-NiCd 6C	89895963							
NiMH 4 Ah Cs-cells ①	Stick	3	Accu-NiMH 4 Ah C3A	89899854	•	•			•		
	Stick	4	Accu-NiMH 4 Ah C4A	89899850			•	•		•	•
	Stick	5	Accu-NiMH 4 Ah C5A	89899851					•		
	Stick	6	Accu-NiMH 4 Ah C6A	89899852							
	Stick + Stick	3 + 3	Accu-NiMH 4 Ah C6C	89899853							
NiCd 4 Ah Accupack		3	Pack-NiCd 3D	89899672	•	•			•		
		4	Pack-NiCd 4D	89899673			•	•		•	•
		5	Pack-NiCd 5D	89899674					•		
		6	Pack-NiCd 6D	89899675							

Note: 50°C batteries also available (see separate datasheet at [www.tridonic.com](http://www.tridonic.com))

For 3-hour operation: 4 Ah D-cells NiCd or 4 Ah Cs-cells NiMH.

① Maximum battery housing temperature 45 °C.

### Emergency ballast lumen factor (EBLF) in %

PC CFL COMBO for TC-DEL and TC-TEL fluorescent lamps, 3 / 1 h

	Duration	3 / 1 h							
	Cells	3 cells	3 cells	4 cells	4 cells	3 cells	4 cells	5 cells	6 cells
Type	PC 1x18-3 TC COMBO	PC 2x18-3 TC COMBO	PC 1x18-4 TC COMBO	PC 2x18-4 TC COMBO	PC 1x26-3 TC COMBO	PC 1x26-4 T5 COMBO	PC 1x26/32-5 TC COMBO	PC 1x26/32/42-6 TC COMBO	
Article no.	89899990	89899982	89899927	89899928	89899983	89899976	89899929	89899931	
Lamp type	WattageEBLF in emergency lighting mode in % for rated operating time								
TC-DEL	18 W	0.09 / 0.08	0.09 / 0.08	0.175 / 0.15	0.175 / 0.15				
	26 W					0.08 / 0.55	0.095 / 0.085	0.105 / 0.075	0.095 / 0.08
TC-TEL	18 W	0.09 / 0.08	0.09 / 0.08	0.175 / 0.15	0.175 / 0.15				
	26 W					0.08 / 0.55	0.095 / 0.085	0.105 / 0.075	0.095 / 0.08
	32 W							0.035	0.085
	42 W								0.06

PC CFL COMBO for TC-DEL and TC-TEL fluorescent lamps, 3 / 1 h

	Duration	3 / 1 h			
	Cells	3 cells	4 cells	5 cells	6 cells
Type		PC 2x26-3 TC COMBO	PC 2x26-4 TC COMBO	PC 2x26/32-5 TC COMBO	PC 2x26/32/42-6 TC COMBO
Article no.		89899984	89899930	89899998	89899989
Lamp type	Wattage	EBLF in emergency lighting mode in % for rated operating time			
TC-DEL	26 W	0.08 / 0.055	0.095 / 0.085	0.105 / 0.1	0.095 / 0.08
TC-TEL	26 W	0.08 / 0.055	0.095 / 0.085	0.105 / 0.1	0.095 / 0.08
	32 W			0.85	0.85
	42 W				0.06

PC CFL COMBO for TC-DEL and TC-TEL fluorescent lamps, 3 h

	Duration	3 h							
	Cells	3 cells	3 cells	4 cells	4 cells	5 cells	3 cells	4 cells	4 cells
Type	PC 1x16-33 HO DD COMBO	PC 1x28-33 HO DD COMBO	PC 1x28-34 HO DD COMBO	PC 1x38-34 HO DD COMBO	PC 1x38-35 HO DD COMBO	PC 1x28-33 LO DD COMBO	PC 1x28-34 LO DD COMBO	PC 1x38-34 LO DD COMBO	
Article no.	89899926	89899957	89899958	89899933	89899975	89899943	89899955	89899981	
Lamp type	Wattage	High Output EBLF in emergency lighting mode in % for rated operating time				Low Output EBLF in emergency lighting mode in % for rated operating time			
TC-DD	16W	0.085							
	28W		0.1	0.115			0.1	0.115	
	38W				0.055	0.085		0.055	

### Standards

- according to EN 50172
- according to EN 60598-2-22
- EN 61347-2-3
- EN 61347-2-7
- EN 60929
- EN 55015
- EN 61000-3-2
- EN 61000-3-3
- EN 61547
- EN 60068-2-29
- EN 60068-2-30
- EN 60068-2-64
- Mains ballast complies with end of lamp life (EOL) test 2



#### Note:

The PC CFL COMBO is not intended to be used for high risk task area lighting.

### 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 VDC 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 1,500 VAC (or 1,414 x 1,500 VDC). To avoid damage to the electronic devices this test must not be conducted.

Basic insulation between supply and battery circuit

### Restarting after lamp replacement

Note: Before servicing luminaires the mains supply should always be disconnected.

If faulty lamps are changed with the mains connected they can be made to restart automatically provided an interval of 2 seconds is left after removal.

- Single lamp combined units always restart automatically.
- Twin lamp combined units that do not restart automatically will do so if the first lamp that was inserted is removed and re-inserted.

### Accu-NiCd

case temperature range	0 °C to +55 °C
(to ensure 4 years design life)	
battery voltage/cell	1.2 V
capacity D	4 Ah
capacity Cs	1.6 Ah
max. short term temperature (reduced lifetime)	70 °C
packaging	5 pieces/carton

### Accu-NiMH

case temperature range	
(to ensure 4 years design life)	
2 Ah Cs	0 °C to +55 °C
4 Ah Cs	0 °C to +45 °C
battery voltage	1.2 V
capacity Cs	2 Ah
	4 Ah
packaging	5 pieces/carton

### Akkupack-NiCd

case temperature range	0 °C to +55 °C
(to ensure a 4 years design life)	
battery voltage/cell	1.2 V
capacity	1.6 to 4.5 Ah
max. short term temperature (reduced lifetime)	70 °C
packaging	5 pieces/carton



Care should be taken to ensure batteries and emergency units don't exceed their maximum temperatures.

### Working Voltage (Uout), lamp current

Type	Lamp type	Wattage	Uout	Lamp current <sup>®</sup>
PC 1x18-3 TC COMBO	TC-DEL/TEL	18 W	250 V	0.025 / 0.030 A
PC 1x18-4 TC COMBO	TC-DEL/TEL	18 W	250 V	0.026 A
PC 2x18-3 TC COMBO	TC-DEL/TEL	2x18 W	250 V	0.025 / 0.030 A
PC 2x18-4 TC COMBO	TC-DEL/TEL	2x18 W	250 V	0.026 A
PC 1x26-3 TC COMBO	TC-DEL/TEL	1x26 W	250 V	0.024 A
PC 1x26-4 TC COMBO	TC-DEL/TEL	26 W	250 V	0.017 / 0.019 A
PC 1x26/32-5 TC COMBO	TC-DEL/TEL	26 / 32 W	250 V	0.023 A
PC 1x26/32/42-6 TC COMBO	TC-DEL/TEL	26 / 32 / 42W	250 V	0.018 A
PC 2x26-3 TC COMBO	TC-DEL/TEL	2x26 W	250 V	0.024 A
PC 2x26-4 TC COMBO	TC-DEL/TEL	2x26 W	250 V	0.022 / 0.024 A
PC 2x26/32-5 TC COMBO	TC-DEL/TEL	2x26 / 32 W	250 V	0.023 A
PC 2x26/32/42-6 TC COMBO	TC-DEL/TEL	2x26 / 32 / 42 W	250 V	0.018 A
PC 1x26/32/42-6 TC COMBO	TC-TEL	42 W	250 V	0.018 A
PC 1x16-33 HO DD COMBO	TC-TEL	1x16 W	250 V	0.015 A
PC 1x28-33 LO DD COMBO	TC-TEL	28 W	300 V	0.020 A
PC 1x28-33 HO DD COMBO	TC-TEL	28 W	250 V	0.020 A
PC 1x28-34 LO DD COMBO	TC-TEL	28 W	300 V	0.026 A
PC 1x28-34 HO DD COMBO	TC-TEL	28 W	250 V	0.026 A
PC 1x38-34 LO DD COMBO	TC-DD	38 W	250 V	0.013 A
PC 1x38-34 HO DD COMBO	TC-DD	38 W	250 V	0.013 A
PC 1x38-35 HO DD COMBO	TC-DD	38 W	250 V	0.020 A

<sup>®</sup> in emergency mode

### Intelligent Voltage Guard

Intelligent Voltage Guard is the name of the new electronic monitor from Tridonic. This innovative feature of the new PC COMBO family of combined electronic ballasts and emergency lighting modules from Tridonic immediately shows if the mains voltage rises above a certain threshold.

Measures can then be taken quickly to prevent damage to the control gear. If the mains voltage rises above 306 V the lamps start flashing on and off. This signal "demands" disconnection of the power supply to the lighting system.

### New PC COMBO with xitec processor

Is the very latest in lighting management design technology. The lamp friendly warm start is delivering maximum lamp life and enables high switching frequency applications. Smallest power loss and new freedom in the lamp design thanks to convincing thermal management.

### Energy class CELMA EEI = A2

PC CFL COMBO ignition technology (smart heating) optimises lamp start and ensures no energy is wasted. After the lamp has struck the filament heating is reduced automatically to a defined minimum value. This reduction in filament heating, saves energy, yet maintains the proper operating conditions for the lamp. The lamp is always operated within specification.

### Smart Heating (normal operation)

Innovative heating circuit. Reduced filament heating after lamp has struck.

### Ambient Temperature

The nominal  $t_a$  and  $t_c$  point are related to the ballast life duration. The relation of  $t_c$  to  $t_a$  temperature depends also on the luminaire design. If the measured  $t_c$  temperature is approx. 5 K below  $t_c$  max.,  $t_a$  temperature should be checked and eventually critical components (e.g. ELCAP) measured. Detailed information on request.

### Service life

PC CFL COMBO is designed for an average service life of 50,000 hours under reference conditions and with a failure probability of less than 10 %. This corresponds to an average failure rate of 0.2 % for every 1,000 hours of operation.

### CE marking

The PC CFL COMBO units are CE marked for compliance with the low voltage directive. Certificates of compliance are available to allow luminaires to be CE marked for compliance with the EMC directive.

### Mechanical details

#### Housing

Polycarbonat glow wire test according to EN60598-1 650 °C, 850 °C and 960 °C passed.

#### LED charge indicator

- Green
- Mounting hole 6.5 mm dia
- Length of LED lead 750 mm (Bezel supplied fitted to LED)
- Insulation temperature rating: 90 °C

#### Test switch

- Mounting hole 7 mm dia
- Length of test switch lead 550 mm

#### Battery leads

- Quantity: 1 red and 1 black
- Length: 1300 mm
- Wire type: 0.5 mm<sup>2</sup> solid conductor
- Insulation temperature rating: 90 °C

#### Termination 1

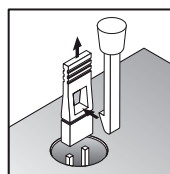
Push on 4.8 mm receptacle to suit battery spade fitted with insulating cover

#### Termination 2

9 mm stripped insulation

### Jumper selection

3 hours operation as supplied for use with 4 Ah NiCd D or 4 Ah NiMH Cs cells. Remove the jumper for 1 hour operation and use with Cs 1.5 Ah NiCd or 2.0 Ah NiMH cells.



### Electrical connections

In low temperature applications an starting aid is required for the emergency lamp which is referenced to the metal case of the unit. This starting aid does not need to be earthed.

The combined unit is intended to be earthed by the ⊕ marked terminal connection.

Two phases can be used as switched and unswitched line.

#### Note:

All electrical connections to the unit must be made when both permanent and switched mains supplies are disconnected.

### Miniature circuit breakers (MCBs)

The maximum number of these electronic ballasts that may be used with miniature circuit breakers (MCBs). These quantities are based on single pole MCBs. For multi-pole MCBs derate by 20 %.

Number of electronic ballasts

Type	Type C - MCB rating				Type B - MCB rating			
	10 A	13 A	16 A	20 A	10 A	13 A	16 A	20 A
PC 1x18-3 TC COMBO	42	60	72	102	21	30	36	51
PC 1x18-4 TC COMBO	42	60	72	102	21	30	36	51
PC 2x18-3 TC COMBO	34	48	58	70	17	24	29	35
PC 2x18-4 TC COMBO	34	48	58	70	17	24	29	35
PC 1x26-3 TC COMBO	36	50	60	72	18	25	30	36
PC 1x26-4 TC COMBO	36	50	60	72	18	25	30	36
PC 1x26/32-5 TC COMBO	36	50	60	72	18	25	30	36
PC 1x26/32/42-6 TC COMBO	34	46	58	70	17	23	29	35
PC 2x26-3 TC COMBO	30	42	56	68	15	21	28	34
PC 2x26-4 TC COMBO	30	42	56	68	15	21	28	34
PC 2x26/32-5 TC COMBO	8	14	18	20	4	7	9	10
PC 2x26/32/42-6 TC COMBO	8	14	18	20	4	7	9	10
PC 1x16-33 HO DD COMBO	40	70	74	94	20	35	37	47
PC 1x28-33 LO DD COMBO	42	74	78	98	21	37	39	49
PC 1x28-33 HO DD COMBO	40	70	74	94	20	35	37	47
PC 1x28-34 LO DD COMBO	42	74	78	98	21	37	39	49
PC 1x28-34 HO DD COMBO	38	68	72	92	19	34	36	46
PC 1x38-34 LO DD COMBO	34	50	60	70	17	25	30	35
PC 1x38-34 HO DD COMBO	34	50	60	70	17	25	30	35
PC 1x38-35 HO DD COMBO	34	50	60	70	17	25	30	35

### Batteries

Connection method: 4.8 x 0.5 mm spade welded to end of cell

For the stick batteries this connection is accessible after the battery end caps have been fitted.

To inhibit inverter operation, only disconnect the batteries by removing the connector from the battery spade tags.

### Note:

The battery charger of the PC CFL Combo is short circuit protected. After a battery short circuit the protection device will be reset after a short while.

Battery must not be connected to earth.

### Storage

It is recommended to disconnect the battery before store or delivery. A long term storage in open circuit leads to battery self discharge and deactivation of chemical components. It could be required to charge and discharge the batteries a few times to recover the initial performance.

### RFI

Tridonic ballasts are RFI protected in accordance with EN 55015.

To operate the luminaire correctly and to minimise RFI we recommend the following instructions:

- Connection to the lamps of the "hot leads" must be kept as short as possible (marked with \*)
- Mains leads should be kept apart from lamp leads (ideally 5–10 cm distance)
- Do not run mains leads adjacent to the electronic ballast
- Twist the lamp leads
- Keep the distance of lamp leads from the metal work as large as possible
- Ballast should be earthed, over the terminal.
- Mains wiring to be twisted when through wiring
- Keep the mains leads inside the luminaire as short as possible

### Wiring advice

The lead length is dependant on the capacitance of the cable. Connection to earth reduces radio interference

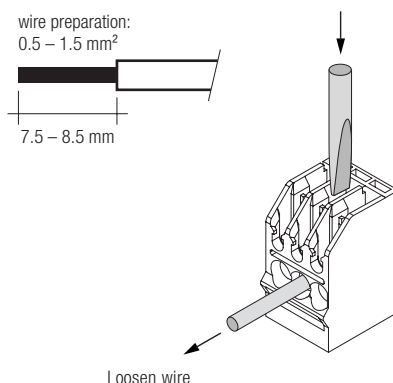
Ballast Type	Terminal		Maximum lead capacitance allowed	
	Cold	Hot	Cold	Hot
PC 1xx CFL COMBO	3, 4	1, 2	50 pF	50 pF
PC 2xx CFL COMBO	1, 2, 5, 6	3, 4	50 pF	50 pF

### IDC interface

- Solid wire with a cross section of 0.5 mm<sup>2</sup> according to the specification from WAGO

### Horizontal interface

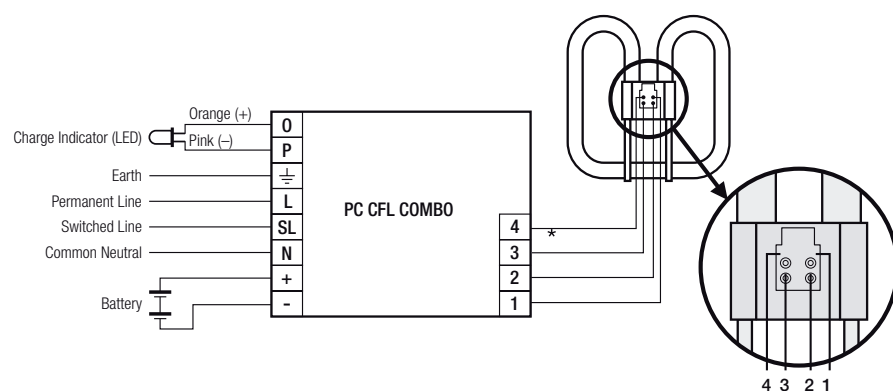
- Solid wire with a cross section of 0.5–1.5 mm<sup>2</sup> according to the specification from WAGO
- Strip 7.5 to 8.5 mm of insulation from the cables to ensure perfect operation of the terminals



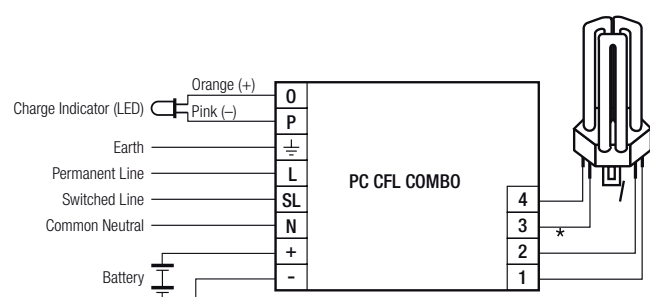
With standard solid wire 0.5/1.5 mm<sup>2</sup> the capacitance of the lead is 30–80 pF/m. This value is influenced by the way the wiring is made.

- keep lamp wires short
- lamp connection with multi-lamp ballasts should be made with symmetrical wiring
- for 1 and 2 lamp ballasts: hot leads and cold leads should be separated as much as possible
- The LED, test switch and battery wiring should be routed separately and kept as far away as possible from the high frequency lamp leads to IDC interface avoid coupling.

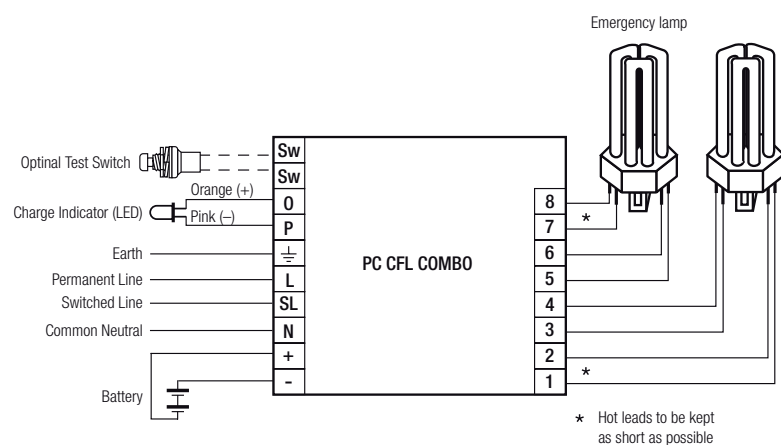
## PC CFL COMBO wiring diagrams



Circuit diagram PC CFL COMBO with single TC-DD lamp



Circuit diagram PC CFL COMBO with single TC-DE/TE lamp



Circuit diagram PC CFL COMBO with twin TC-DE/TE lamps