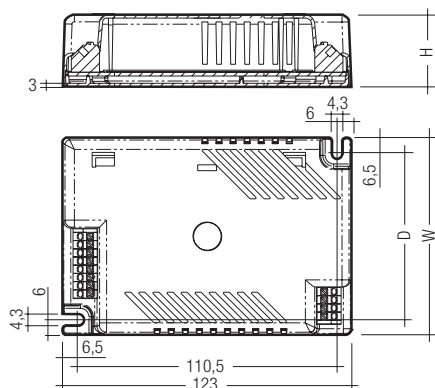


PC CFL E COMBO 230–240 V 50/60 Hz



**Description:**

Warm start fixed output, combined electronic high frequency ballasts and emergency lighting modules for TC-DD compact fluorescent lamps.

**Features:**

**Operation**

- Preheat start in normal operation
- AC operation of the lamp
- Automatic restart after lamp change in normal operation
- 3 hour duration
- NiCd battery
- Reverse battery polarity protected
- Battery short circuit protected
- Deep discharge protection

- Regulated electronic charging circuit

- Standard brightness and ultra high brightness (UHB) charge indicator LED available

**Easy to Use**

- Lightweight one piece unit
- Small size
- Simplified wiring
- No compatibility issues
- Push wire terminals
- Emergency testing by isolating only the unswitched supply
- Remote battery pack units

**Safe and Reliable**

- Automated manufacture
- Designed and manufactured to ISO 9001
- Complies with European Standards:
  - EN 55015: 2006 + A1: 2007 (EMC/Emitted RFI)
  - EN 61547 (EMC/Immunity)
  - EN 61000.3.2 (EMC/Supply Harmonics)
  - EN 61347-2-7 (Safety)
  - EN 61347-2-3 (Safety)
  - EN 60925 (Performance)
  - EN 60929 (Performance)
- in accordance with EN 60598-2-22
- in accordance with EN 50172
- Mains ballast complies with end of lamp life (EOL) test 2
- ENEC approved. CE marked

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

Lamp		Ballast															
type	watt- age W	type	article number	L x W x H mm	fixing centres D mm	weight kg	lamp power W	lamp current A ②	circuit power W	mains current A ③	power factor (ca.) ③	max. case temperature tc point °C	emergency operation BLF	emergency operation EBLF ①	normal operation BLF	dura- tion h	number of cells
TC-DD	28	PC 1x28-33 LO E DD COMBO	89899980	123x79x31	66.5	0.25	16	0.014	23.4	0.160	0.63	75	0.105	0.09	0.7	3	3
TC-DD	28	PC 1x28-34 LO E DD COMBO	89800028	123x79x31	66.5	0.25	16	0.014	25	0.170	0.64	75	0.145	0.135	0.7	3	4

**NOTE: Biax non amalgam only**

- ① According to EN 61347-2-7: 2006
- ② in emergency operation
- ③ at 230 V, 50 Hz

**Status indication**

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

type	article number
<b>LED EM green</b>	89899605
<b>LED EM green</b> , high brightness	89899756

**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.

Insulation testing (no flashover or breakdown must occur):

Up to 500 V DC between the phase and neutral conductors connected together and the earth.

High voltage insulation testing (1500 V AC) not recommended

Basic insulation between supply and battery circuit

**Technical data PC CFL E COMBO**

Ambient temperature range 0 °C to +55 °C  
 Maximum case temperature Tc see table on page 1  
 Ingress protection IP 20  
 Safety class Class 1  
 Vibration test IEC 60068-2-64 Fh  
 Bump test IEC 60068-2-29 Eb  
 Humidity IEC 60068-2-30

**Technical data for normal operation**

Rated mains supply voltage	230-240 V
Mains frequency	50/60 Hz
Earth leakage current	< 0.5 mA

**Lamp starting**

type of start	pre-heat
starting time	ca. 1.6 s
min. lamp starting temperature	-15°C
number of starts per lamp	ca. 20.000
average lamp life (acc. to IEC 60081)	13.000 to 15.000 h
Lamp operating frequency	> 42 kHz
Ballast lumen factor (BLF)	see table on page 1
Recharge period	24 h

**Nominal charge current**

NiCd 4 Ah D	200 mA
Mains change over voltage	in accordance with EN 60598-2-22

**Technical data for emergency operation**

Min. lamp starting temperature	0 °C
Emergency light output factor (BLF)	see table on page 1
Battery design voltage	1.2 V per cell
Nominal discharge current (3 h)	1.1 A
Lamp operating frequency	typ. 17 kHz

## Ambient Temperature

### PC CFL E COMBO

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.

### Mechanical details

#### PC CFL E COMBO:

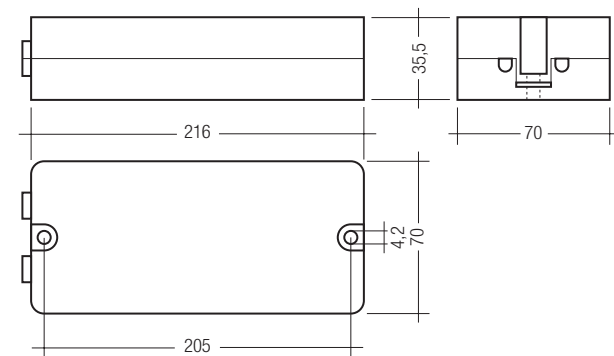
Case manufactured from polycarbonate.

#### LED charge indicator:

- Green
- Mounting hole 6.5 mm dia
- Length of LED lead 750 mm (Bezel supplied fitted to LED)

## Batteries

### Accu NiCd Remote pack (High temperature)



#### Mechanical data Accu NiCd Remote pack:

- Polycarbonate case
- 1.0 m integral double insulated lead
- 1.0 mm<sup>2</sup> solid cable

To be connected to suitable strain relieved terminal block in luminaire or suitable polarised plug/socket for connection to luminaire.

#### Termination

9 mm semi-stripped insulation with protective tape.

Accu NiCd (Remote pack)	type	number of cells	article number	L x W x H mm	weight g
Pack-NiCd 3D	Remote pack 4.0 Ah	3	89899672	216 x 70 x 35.5	570
Pack-NiCd 4D	Remote pack 4.0 Ah	4	89899673	216 x 70 x 35.5	700

### Service life

PC CFL E 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 E 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.

### Accu NiCd (Remote pack):



#### Technical data Accu-NiCd Remote pack:

battery case temperature range (to ensure 4 years life)	0 °C → +55 °C
temperature range of Accu-NiCd Remote pack	0 °C → +40 °C at $t_c$ point
storage life in temperate conditions	4 years
battery voltage per cell	1.2 V
capacity D-NiCd	4.0 Ah

#### Note:

Care should be taken to ensure batteries and emergency units don't exceed their maximum temperatures (See table at page 1).



### Intelligent Voltage Guard

Intelligent Voltage Guard is the name of the new electronic monitor from TridonicAtco. This innovative feature of the new PC COMBO family of combined electronic ballasts and emergency lighting modules from TridonicAtco 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.

### Electrical connections:

A functional earth can be connected for improved EMC performance.

#### Note:

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

### Packing quantities:

PC CFL E COMBO:  
25 pieces/carton

#### LED green:

25 pieces/bag  
200 pieces/carton

#### Pack-NiCd:

10 pieces per carton

### 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 1x28-33 LO E DD COMBO	42	74	78	98	21	37	39	49
PC 1x28-34 LO E DD COMBO	42	74	78	98	21	37	39	49

### Working Voltage

type	lamp type	wattage W	U <sub>out</sub>
PC 1x28-33 LO E DD COMBO	TC-DD	28	300
PC 1x28-34 LO E DD COMBO	TC-DD	28	300

### Batteries:

Batteries must be disconnected for servicing. Facility must be provided in the luminaire.

It is recommended that battery leads are not cut as this could result in a hazardous condition due to short circuit batteries.

If shorter leads are required great care should be taken that no shorting occurs.

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.

### Wiring advice

The lead length is dependant on the capacitance of the cable.  
Earthing is not required for the device to operate. Connection to earth reduces radio interference.

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

With standard solid wire 0.5/0.75 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.

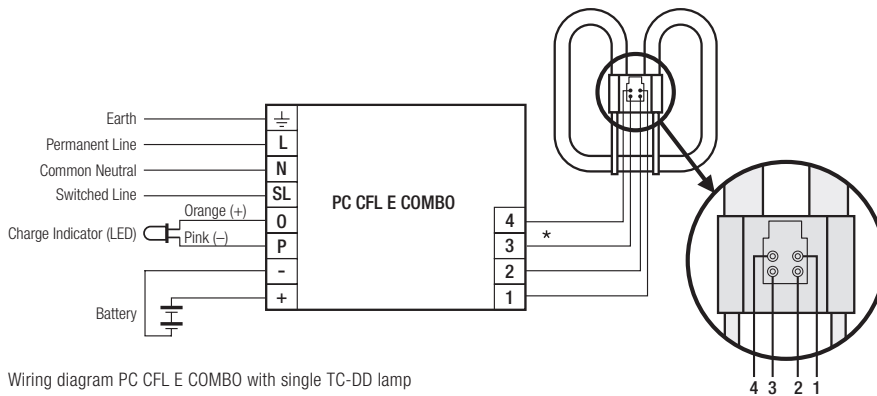
- Keep all leads as short as possible, maximum length 0.5 m
- lamp connection with multi-lamp ballasts should be made with symmetrical wiring
- for 1 and 2 lamp ballasts: hot leads and cold leads should be separated as much as possible
- The LED and battery wiring should be routed separately and kept as far away as possible from the high frequency lamp leads to avoid coupling.

### RFI

TridonicAtco ballasts are RFI protected in accordance with EN 55015: 2006 + A1: 2007.  
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.
- Mains wiring to be twisted when through wiring
- Keep the mains leads inside the luminaire as short as possible

### PC CFL E COMBO wiring diagrams:



Wiring diagram PC CFL E COMBO with single TC-DD lamp

① For further technical information please visit [www.tridonicatco.com](http://www.tridonicatco.com)