

### PC COMBO, 220 – 240 V 50/60 Hz Linear fluorescent lamps

#### Product description

- Combination of electronic ballast and emergency lighting unit
- For T5 and T8 fluorescent lamps
- For manual testing of the emergency lighting function

#### Properties

- Lightweight one-part emergency lighting unit
- For 1, 2, 3 or 4-lamp luminaires
- Simple wiring
- No compatibility problems
- 1 or 3 h rated duration
- Lamp warm start in normal operation
- IDC (insulation displacement connection)
- Green charge status display LED
- Checking the emergency lighting function by interrupting the unswitched phase
- Optional test switch
- Electronically controlled battery charging
- Deep discharge protection
- Short-circuit-proof battery connection
- Polarity reversal protection for battery

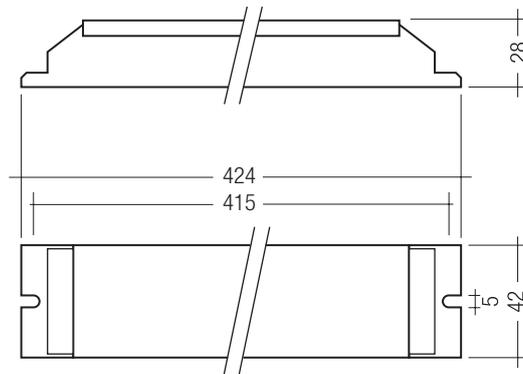
#### Batteries

- High-temperature cells
- NiCd or NiMH batteries
- D or Cs cells
- Blade terminals for simple connection



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#### 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.	70 °C
Ambient temperature $t_a$	0 ... 50 °C
Operating frequency	> 30 kHz
Battery charging time	24 h
Charge current	210 mA
Discharge current 1 h	2.4 A
Discharge current 3 h	1.1 A
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.
<b>Rated operating time 3 h</b>					
PC 1x36-33 COMBO	89805250	3	25 pieces	700 pieces	0.440 kg
PC 2x36-33 COMBO	89805268	3	25 pieces	700 pieces	0.440 kg
PC 1x58-34 COMBO	89805270	4	25 pieces	700 pieces	0.440 kg
PC 2 x 58-34 COMBO	89805272	4	25 pieces	700 pieces	0.440 kg
PC 3/4x18-33 COMBO	89818236	3	25 pieces	350 pieces	0.445 kg
PC 3/4x14-33 T5 COMBO	89800002	3	25 pieces	700 pieces	0.445 kg
PC 3/4x24-34 T5 COMBO	89899878	4	25 pieces	475 pieces	0.430 kg
<b>Rated operating time 1 h</b>					
PC 3/4x14-13 T5 COMBO	89800003	3	25 pieces	700 pieces	0.445 kg

### Specific technical data

Lamp type	Lamp wattage	Type	Article number	Dimensions L x W x H	Hole spacing D	Lamp power	Circuit power	Mains current	$\lambda$	Normal operation BLF	Emergency operation BLF	Emergency operation EBLF <sup>①</sup>	Rated duration
<b>Rated operating time 3 h</b>													
T8	1 x 36 W	PC 1x36-33 COMBO	89805250	424 x 42 x 28 mm	415 mm	32.0 W	39 W	0.18 A	0.93	1	0.060	0.055	3 h
T8	2 x 36 W	PC 2x36-33 COMBO	89805268	424 x 42 x 28 mm	415 mm	64.0 W	75 W	0.35 A	0.96	1	0.060	0.055	3 h
T8	1 x 58 W	PC 1x58-34 COMBO	89805270	424 x 42 x 28 mm	415 mm	50.0 W	60 W	0.27 A	0.95	1	0.065	0.060	3 h
T8	2 x 58 W	PC 2 x 58-34 COMBO	89805272	424 x 42 x 28 mm	415 mm	100.0 W	115 W	0.51 A	0.96	1	0.065	0.060	3 h
T8	3 x 18 W	PC 3/4x18-33 COMBO	89818236	424 x 42 x 28 mm	415 mm	48.0 W	60 W	0.27 A	0.97	1	0.160	0.145	3 h
T8	4 x 18 W	PC 3/4x18-33 COMBO	89818236	424 x 42 x 28 mm	415 mm	72.0 W	79 W	0.35 A	0.97	1	0.160	0.145	3 h
T5	3 x 14 W	PC 3/4x14-33 T5 COMBO	89800002	424 x 42 x 28 mm	415 mm	42.0 W	52 W	0.23 A	0.97	1	0.170	0.160	3 h
T5	4 x 14 W	PC 3/4x14-33 T5 COMBO	89800002	424 x 42 x 28 mm	415 mm	56.0 W	67 W	0.30 A	0.98	1	0.170	0.160	3 h
T5	3 x 24 W	PC 3/4x24-34 T5 COMBO	89899878	424 x 42 x 28 mm	415 mm	67.5 W	75 W	0.34 A	0.97	1	0.160	0.140	3 h
T5	4 x 24 W	PC 3/4x24-34 T5 COMBO	89899878	424 x 42 x 28 mm	415 mm	90.0 W	100 W	0.45 A	0.97	1	0.160	0.140	3 h
<b>Rated operating time 1 h</b>													
T5	3 x 14 W	PC 3/4x14-13 T5 COMBO	89800003	424 x 42 x 28 mm	415 mm	42.0 W	52 W	0.23 A	0.97	1	0.280	0.250	1 h
T5	4 x 14 W	PC 3/4x14-13 T5 COMBO	89800003	424 x 42 x 28 mm	415 mm	56.0 W	67 W	0.30 A	0.98	1	0.280	0.250	1 h

<sup>①</sup> According to EN 61347-2-7: 2006.

RoHS

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### 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

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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 COMBO for T5 and T8 fluorescent lamps, 3 h or 1 h

	Duration	3 h								1 h
		3 cells	3 cells	4 cells	4 cells	3 cells	3 cells	4 cells	3 cells	
Type		PC 1x36-33 COMBO	PC 2x36-33 COMBO	PC 1x58-34 COMBO	PC 2x58-34 COMBO	PC 3/4x18-33 COMBO	PC 3/4x14-33 T5 COMBO	PC 3/4x24-34 T5 COMBO	PC 3/4x14-13 T5 COMBO	
Article no.		89805250	89805268	89805270	89805272	89818236	89800002	89899878	89800003	
Lamp type	Wattage	BLF in emergency lighting mode in % for rated operating time								
T5	14 W						17		28	
	24 W							16		
T8	18 W					16				
	36 W	6	6							
	58 W			6,5	6,5					

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			•	•			•	
NiCd 4 Ah Cs-cells <sup>®</sup>	Stick	3	Accu-NiMH 4 Ah C 3A	89899854	•	•			•	•		•
	Stick	4	Accu-NiMH 4 Ah C 4A	89899850			•	•			•	

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

<sup>®</sup> Maximum battery housing temperature 45 °C.

**Standards**

- according to EN 50172
- according to EN 60598-2-22
- EN 601347-2-3
- EN 601347-2-7
- EN 60929
- EN 55015
- EN 61000-3-2
- EN 61000-3-3
- EN 61547
- IEC 60068-2-64
- IEC 60068-2-29
- IEC 60068-2-30

**Lamp current in emergency operation**

Type	Wattage	Type	Article number	Lamp current
<b>Rated operating time 3 h</b>				
T8	1 x 36 W	PC 1x36-33 COMBO	89805250	14 mA
T8	2 x 36 W	PC 2x36-33 COMBO	89805268	14 mA
T8	1 x 58 W	PC 1x58-34 COMBO	89805270	18 mA
T8	2 x 58 W	PC 2x58-34 COMBO	89805272	18 mA
T8	4 x 18 W	PC 3/4x18/33 COMBO	89818236	28 mA
T5	3 x 14 W	PC 3/4x14/33 T5 COMBO	89800002	22 mA
T5	3 x 24 W	PC 3/4x24/34 T5 COMBO	89899878	34 mA
<b>Rated operating time 1 h</b>				
T5	3 x 14 W	PC 3/4x14-13 T5 COMBO	89800003	49 mA

**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.

**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.
- Triple/quad lamp combined units that do not restart automatically will do if the "emergency" lamp is removed and re-inserted.

**Lamp starting (normal operation)**

Type of start: Pre-heat

Starting time: 2 seconds

Number of starts: circa 20,000

**Mechanical details:**

Channel manufactured from 0.4 mm Galvatite galvanised steel.

Cover manufactured from 0.4 mm white pre-coated steel.

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

**Service life**

Service life at maximum case temperature: 50,000 hours

**Accu-NiCd 4.0 Ah**

case temperature range

0 °C to +55 °C

(to ensure 4 years design life)

battery voltage/cell

1.2 V

capacity D cells

4.2 / 4.5 Ah

max. short term temperature (reduced lifetime)

70 °C

packaging

5 pieces/carton

**Accu-NiMh 4.0 Ah**

case temperature range

0 °C to +45 °C

(to ensure 4 years design life)

battery voltage

1.2 V

capacity Cs cells

4.0 Ah

packaging

5 pieces/carton

**CE marking**

The combined 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.

**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 %.

Type	Number of electronic ballasts					
	Typ C MCB rating			Typ B MCB rating		
	10 A	16 A	20 A	10 A	16 A	20 A
PC 1x36/33 COMBO 220-240V 50/60Hz	24	36	44	12	18	22
PC 2x36/33 COMBO 220-240V 50/60Hz	10	16	20	5	8	10
PC 1x58/34 COMBO 220-240V 50/60Hz	24	36	44	12	18	22
PC 2x58/34 COMBO 220-240V 50/60Hz	10	16	20	5	8	10
PC 3/4x18/33 COMBO 220-240V 50/60Hz	18	26	32	9	13	16
PC 3/4x14/33 T5 COMBO 220-240V 50/60Hz	18	26	32	9	13	16
PC 3/4x24/34 T5 COMBO 220-240V 50/60Hz	10	16	20	5	8	10
PC 3/4x14/13 T5 COMBO 220-240V 50/60Hz	18	26	32	9	13	16

**Electrical connections**

An earthed starting aid is required for the emergency lamp.

The neutrals of the two mains supplies are not connected together inside the combined unit. The combined unit is intended to be earthed by the fixings used to attach it to the luminaire. It may also be earthed by a wire attached to the holes positioned in the sides at each end of the case channel.

Terminal block type:

Push wire and insulation displacement

Terminal block capacity

- Push wire:  
0.5 to 1.5 mm<sup>2</sup> solid conductor
- Insulation displacement:  
0.5 mm<sup>2</sup> solid conductor

Wire strip length (push wire only):

7.5 to 8.5 mm

Keep all leads as short as possible

Master slave lamp operation not recommended

Maximum length of lamp leads (mm)	lamp terminals				
	1 & 2	3 & 4	5 & 6	7 & 8	9 & 10
PC 1x36/33 COMBO 220-240V 50/60Hz	1500	500	–	–	–
PC 2x36/33 COMBO 220-240V 50/60Hz	1500	1000	500	–	–
PC 1x58/34 COMBO 220-240V 50/60Hz	1500	500	–	–	–
PC 2x58/34 COMBO 220-240V 50/60Hz	1500	1000	500	–	–
PC 3/4x18/33 COMBO 220-240V 50/60Hz	500	1000	1000	1000	1000
PC 3/4x14/33 T5 COMBO 220-240V 50/60Hz	500	1000	1000	1000	1000
PC 3/4x24/34 T5 COMBO 220-240V 50/60Hz	500	1000	1000	1000	1000
PC 3/4x14/13 T5 COMBO 220-240V 50/60Hz	500	1000	1000	1000	1000

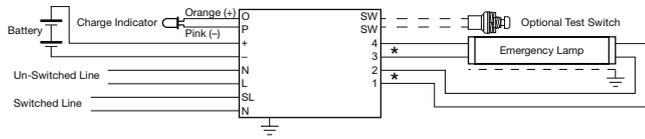
**Batteries**

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

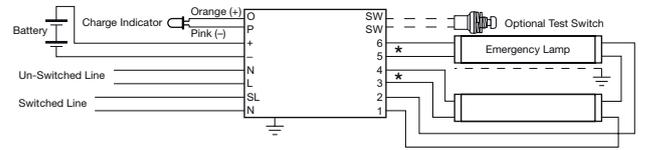
For the stick batteries this connection is accessible after the battery end caps have been fitted.

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

Wiring diagrams

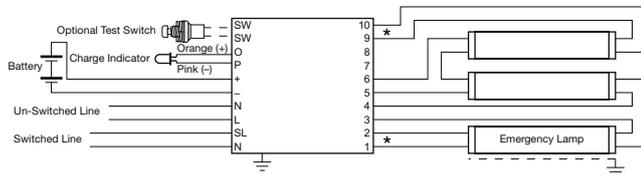


\* Hot lead length to be kept as short as possible



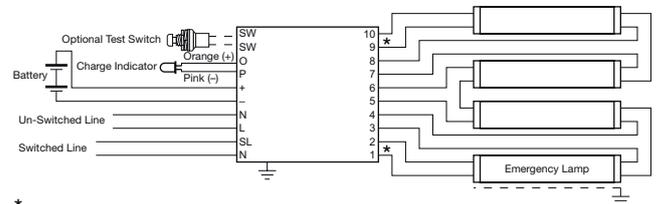
\* Hot lead length to be kept as short as possible

Single lamp combined units



\* Hot lead length to be kept as short as possible

Twin lamp combined units



\* Hot lead length to be kept as short as possible

Multi lamp combined units

Multi lamp combined units