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
- 5-year guarantee

Properties

- Lightweight one-part emergency lighting unit
- For 1, 2, 3 or 4-lamp luminaires
- Simple wiring
- No compatibility problems
- 1or 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 LA cells
- Blade terminals for simple connection
- 4-year design life
- 1-year guarantee
- For battery compatibility refer to chapter „Ballast-Lumen-Factor (BLF)“

Standards, page 5

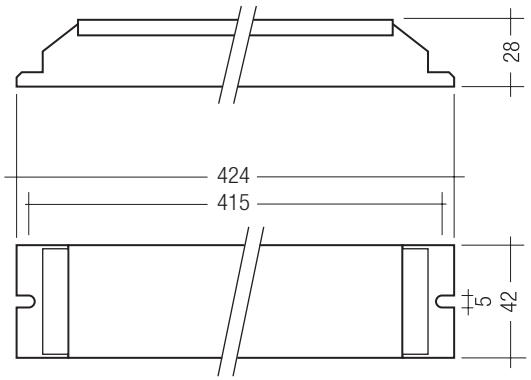
Wiring diagrams and installation examples, page 7

PC COMBO, 220 – 240 V 50/60 Hz

Linear fluorescent lamps

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 ta	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 pc.
Rated operating time 3 h					
PC 1x36-33 COMBO	**89805250**	3	25 pc(s).	700 pc(s).	0.440 kg
PC 2x36-33 COMBO	**89805268**	3	25 pc(s).	700 pc(s).	0.440 kg
PC 1x58-34 COMBO	**89805270**	4	25 pc(s).	700 pc(s).	0.440 kg
PC 2 x 58-34 COMBO	**89805272**	4	25 pc(s).	700 pc(s).	0.440 kg
PC 3/4x18-33 COMBO	**89818236**	3	25 pc(s).	350 pc(s).	0.445 kg
PC 3/4x14-33 T5 COMBO	**89800002**	3	25 pc(s).	700 pc(s).	0.445 kg
PC 3/4x24-34 T5 COMBO	**89899878**	4	25 pc(s).	475 pc(s).	0.430 kg
Rated operating time 1 h					
PC 3/4x14-13 T5 COMBO	**89800003**	3	25 pc(s).	700 pc(s).	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	λ	Normal operation BLF	Emergency operation BLF	Emergency operation EBLF①	Rated duration
Rated operating time 3 h													
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
Rated operating time 1 h													
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

① According to EN 61347-2-7: 2006.

RoHS

ACCES-SORIES

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 pc.
Test switch EM 2	**89805277**	25 pc(s).	600 pc(s).	0.011 kg

RoHS

ACCES-SORIES

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 pc.
LED EM green	**89899605**	25 pc(s).	200 pc(s).	0.011 kg
LED EM green, ultra high brightness	**89899756**	25 pc(s).	800 pc(s).	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
	Cells	**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**			•	•			•	
NiMH 4 Ah LA cells	Stick	3	**Accu-NiMH 4Ah 3A CON**	**89800441**	•	•			•	•		•
	Stick	4	**Accu-NiMH 4Ah 4A CON**	**89800442**			•	•			•	

Lamp current in emergency operation

Type	Wattage	**Type**	Article number	Lamp current
Rated operating time 3 h				
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
Rated operating time 1 h				
T5	3 x 14 W	**PC 3/4x14-13 T5 COMBO**	89800003	49 mA

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
- IEC 60068-2-64
- IEC 60068-2-29
- IEC 60068-2-30

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 precoated 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 mm² 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

Technical data batteries

Accu-NiCd
4.2 / 4.5 Ah

Battery voltage/cell	1.2 V
Cell type	D
Case temperature range to ensure 4 years design life	+5 °C to +55 °C
Max. short term temperature (reduced life-time)	70 °C
Max. number discharge cycles	4 cycles per year plus 4 cycles during comissioning
Max. storage time	6 months

Accu-NiMh
4.0 Ah

Battery voltage/cell	1.2 V
Cell type	LA
Case temperature range to ensure 4 years design life	+5 °C to +40 °C
Max. short term temperature (reduced life-time)	70 °C
Max. number discharge cycles	4 cycles per year plus 30 cycles during comissioning
Max. storage time	6 months

For further information refer to corresponding battery datasheet.

Storage, installation and commissioning
Relevant information about storage conditions, installation and commissioning are provided in the battery datasheets.

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 %.

	Number of electronic ballasts					
	Typ C MCB rating			Typ B MCB rating		
Type	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 mm² solid conductor
- Insulation displacement:
  0.5 mm² solid conductor

Wire strip length (push wire only):
7.5 to 8.5 mm

Keep all leads as short as possible

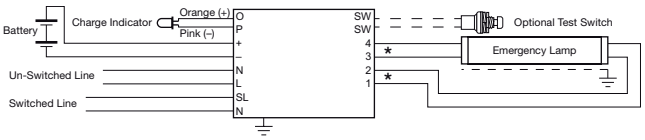
Master slave lamp operation not recommended

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.

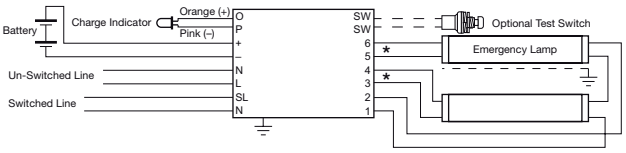
Maximum length of lamp leads	lamp terminals				
(mm)	1 & 2	3 & 4	5 & 6	7 & 8	9 & 10
PC 1x36/33 COMBO 220-240V 50/60Hz	1500	500	–	–	–
PC 2x36/33 COMBO 220-240V 50/60Hz	1500	1000	500	–	–
PC 1x58/34 COMBO 220-240V 50/60Hz	1500	500	–	–	–
PC 2x58/34 COMBO 220-240V 50/60Hz	1500	1000	500	–	–
PC 3/4x18/33 COMBO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

Wiring diagrams



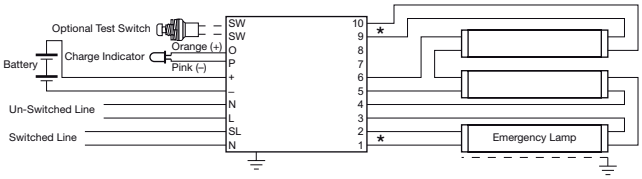
* Hot lead length to be kept as short as possible

Single lamp combined units



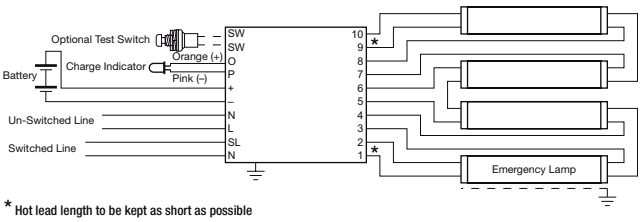
* Hot lead length to be kept as short as possible

Twin lamp combined units



* Hot lead length to be kept as short as possible

Multi lamp combined units



* Hot lead length to be kept as short as possible

Multi lamp combined units

Additional information

Additional technical information at www.tridonic.com → Technical Data

Guarantee conditions at www.tridonic.com → Services

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