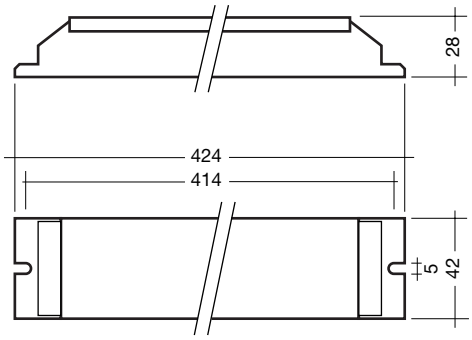
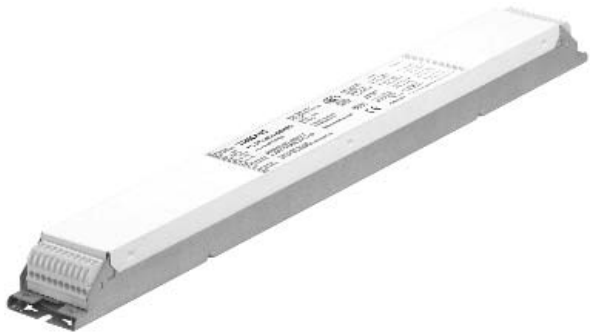
PC COMBO 220–240 V 50/60 Hz





Description:
Warm start, single, twin, triple and four lamp fixed output, combined electronic high frequency ballasts and emergency lighting modules for linear fluorescent lamps.

Optional test switch to allow push button testing of emergency operation.

Features:

Operation
- Pre-heat start in normal operation
- Deep discharge protection
- Optional test switch
- Regulated electronic charging circuit

Easy to Use
- Lightweight one piece unit
- Simplified wiring
- No compatibility issues
- Combined push wire and IDC terminals
- Emergency testing by isolating only the unswitched supply

Safe and Reliable
- Automated manufacture using SMD and radial insertion
- Designed and manufactured to ISO 9001
- Complies with European Standards:
  EN 55015: 2006 + A1: 2007
  EN 60925
  EN 60929
  in accordance with EN 60598-2-22
  EN 61000-3-2
  EN 61347-2-3
  EN 61347-2-7
  EN 61547
  in accordance with EN 50172
- ENEC and BSI approved. CE marked

3 h duration - Nicd 4.0 Ah D cells

Lamp			Ballast										
type	wattage	length	type	article number	length	fixing centres	weight	circuit power	lamp power	supply current	power factor (approx.)	temperature range	battery
	W	mm			mm	mm	kg	W	W	A		°C	
T8	36	1200	**PC 1x36/33 COMBO** 220-240 V 50/60 Hz	89805250	424	415	0.44	39	32	0.18	0.97	+0 → +50	Accu Ni-Cd 3A
T8	2x36	1200	**PC 2x36/33 COMBO** 220-240 V 50/60 Hz	89805268	424	415	0.46	75	2x32	0.35	0.98	+0 → +50	Accu Ni-Cd 3A
T8	58	1500	**PC 1x58/34 COMBO** 220-240 V 50/60 Hz	89805270	424	415	0.44	60	50	0.27	0.97	+0 → +50	Accu Ni-Cd 4A
T8	2x58	1500	**PC 2x58/34 COMBO** 220-240 V 50/60 Hz	89805272	424	415	0.46	115	2x50	0.51	0.98	+0 → +50	Accu Ni-Cd 4A
T8	3x18	590	**PC 3/4x18/33 COMBO** 220-240 V 50/60 Hz	89818236	424	415	0.45	60	3x16	0.27	0.97	+0 → +50	Accu Ni-Cd 3A
T8	4x18	590	**PC 3/4x18/33 COMBO** 220-240 V 50/60 Hz	89818236	424	415	0.45	79	4x16	0.35	0.97	+0 → +50	Accu Ni-Cd 3A
T5	3x14	549	**PC 3/4x14/33 T5 COMBO** 220-240 V 50/60 Hz	89800002	424	415	0.45	52	3x14	0.23	0.97	+0 → +50	Accu Ni-Cd 3A
T5	4x14	549	**PC 3/4x14/33 T5 COMBO** 220-240 V 50/60 Hz	89800002	424	415	0.45	67	4x14	0.30	0.98	+0 → +50	Accu Ni-Cd 3A

1 h duration - Nicd 4.0 Ah D cells

Lamp			Ballast										
type	wattage	length	type	article number	length	fixing centres	weight	circuit power	lamp power	supply current	power factor (approx.)	temperature range	battery
	W	mm			mm	mm	kg	W	W	A		°C	
T8	3x18	590	**PC 3/4x18/13 COMBO** 220-240 V 50/60 Hz	89818358	424	415	0.45	60	3x16	0.27	0.97	+0 → +50	Accu Ni-Cd 3A
T8	4x18	590	**PC 3/4x18/13 COMBO** 220-240 V 50/60 Hz	89818358	424	415	0.45	79	4x16	0.35	0.97	+0 → +50	Accu Ni-Cd 3A
T5	3x14	549	**PC 3/4x14/13 T5 COMBO** 220-240 V 50/60 Hz	89800003	424	415	0.45	52	3x14	0.23	0.97	+0 → +50	Accu Ni-Cd 3A
T5	4x14	549	**PC 3/4x14/13 T5 COMBO** 220-240 V 50/60 Hz	89800003	424	415	0.45	67	4x14	0.30	0.98	+0 → +50	Accu Ni-Cd 3A

Accu Nicd 4.0 Ah D cells

type	type	number of cells	article number
Accu Ni-Cd 3A	stick	3	89895960
Accu Ni-Cd 4A	stick	4	89895961

other Accu-versions on request

Type	article number
LED EM green (supplied separately)	89899605

Type	article number
Test Switch EM (supplied separately)	89805277

Technical data:
Ambient temperature range 0 °C to +50 °C

Maximum case temperature (measured on geometric centre of side) +70 °C

Ingress Protection IP20
Vibration test IEC 60068-2-64 Fh
Bump test IEC 60068-2-29 Eb
Humidity IEC 60068-2-30
Flash Testing not recommended

High Voltage Insulation Testing (no flashover or breakdown must occur):
Up to 500 V DC between the phase and neutral conductors connected together and the earth.

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
Average lamp life (according to IEC 60081; 50 % survival): 13,000 to 15,000 hours

Normal operation:

Rated mains supply voltage	220 – 240 V
Mains frequency	50/60 Hz
Earth leakage current	< 0.5 mA
Minimum lamp starting temperature	-15 °C
Lamp operating frequency	> 30 kHz
100 Hz light output modulation	< 5 %
Light output variation over rated voltage range	± 2 %
Recharge period	24 hours
Nominal charge current	210 mA

Can be used with high brightness charge indicators (LEDs)

Emergency operation:

Battery design voltage	1.2 V per cell
Nominal discharge current (1 Hr. unit)	2.4 A
Nominal discharge current (3 Hr. unit)	1.1 A
Minimum lamp starting temperature	0 °C

Batteries:

Case temperature range (to ensure 4 years life)	0 °C to +55 °C
Storage life (in temperate conditions)	4 years

Emergency light output factors:

Ballast	BLF
PC 1x36/33 COMBO 220-240 V 50/60 Hz	8
PC 2x36/33 COMBO 220-240 V 50/60 Hz	8
PC 1x58/34 COMBO 220-240 V 50/60 Hz	7
PC 2x58/34 COMBO 220-240 V 50/60 Hz	7
PC 3/4x18/33 COMBO 220-240 V 50/60 Hz	12
PC 3/4x18/13 COMBO 220-240 V 50/60 Hz	20
PC 3/4x14/33 T5 COMBO 220-240 V 50/60 Hz	16
PC 3/4x14/13 T5 COMBO 220-240 V 50/60 Hz	34

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)

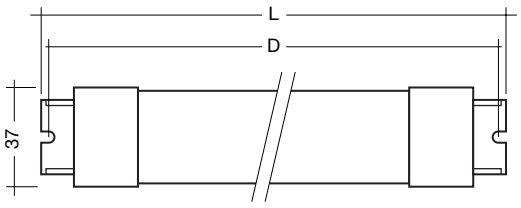
Test switch
- Mounting hole 7 mm dia
- Length of test switch lead 550 mm

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

Batteries (stick):



Type	length L (mm)	fixing centres D (mm)	weight (gms)
Accu Ni-Cd 3A	218	201	400
Accu Ni-Cd 4A	277	263	530

other Accu-versions on request

Service life:
Service life at maximum case temperature: 50,000 hours
A reduction in the case temperature of 10 °C will double the service life.

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					
	Type C MCB rating			Type B MCB rating		
Type	10 A	16 A	20 A	10 A	16 A	20 A
PC 1x36/33 COMBO 220-240 V 50/60 Hz	24	36	44	12	18	22
PC 2x36/33 COMBO 220-240 V 50/60 Hz	10	16	20	5	8	10
PC 1x58/34 COMBO 220-240 V 50/60 Hz	24	36	44	12	18	22
PC 2x58/34 COMBO 220-240 V 50/60 Hz	10	16	20	5	8	10
PC 3/4x18/33 COMBO 220-240 V 50/60 Hz	18	26	32	9	13	16
PC 3/4x18/13 COMBO 220-240 V 50/60 Hz	18	26	32	9	13	16
PC 3/4x14/33 T5 COMBO 220-240 V 50/60 Hz	18	26	32	9	13	16
PC 3/4x14/13 T5 COMBO 220-240 V 50/60 Hz	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, maximum length 1.5 m

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.

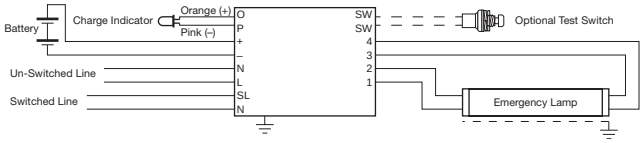
Packing quantities:

PC COMBO:
25 pieces/carton
28 cartons/pallet
700 pieces/pallet

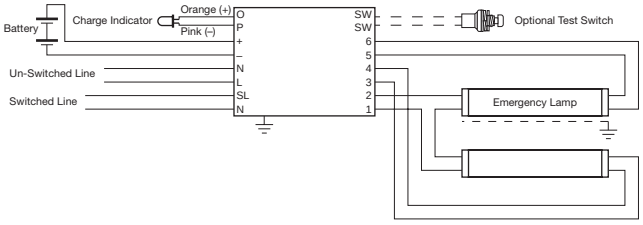
LED green:
25 pieces/bag
200 pieces/carton

Accu Ni-Cd:
25 pieces/carton

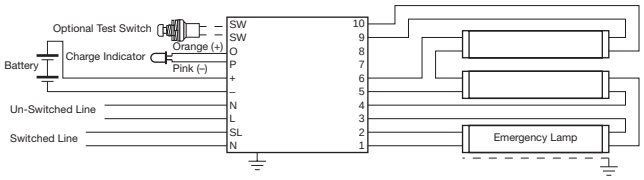
Maximum length	lamp terminals				
of lamp leads (mm)	1 & 2	3 & 4	5 & 6	7 & 8	9 & 10
PC 1x36/33 COMBO 220-240 V 50/60 Hz	1500	500	–	–	–
PC 2x36/33 COMBO 220-240 V 50/60 Hz	1500	1000	500	–	–
PC 1x58/34 COMBO 220-240 V 50/60 Hz	1500	500	–	–	–
PC 2x58/34 COMBO 220-240 V 50/60 Hz	1500	1000	500	–	–
PC 3/4x18/33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



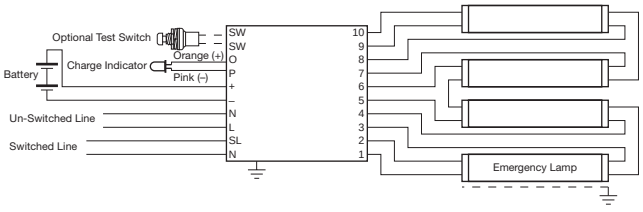
Single lamp combined units



Twin lamp combined units



Multi lamp combined units



Multi lamp combined units