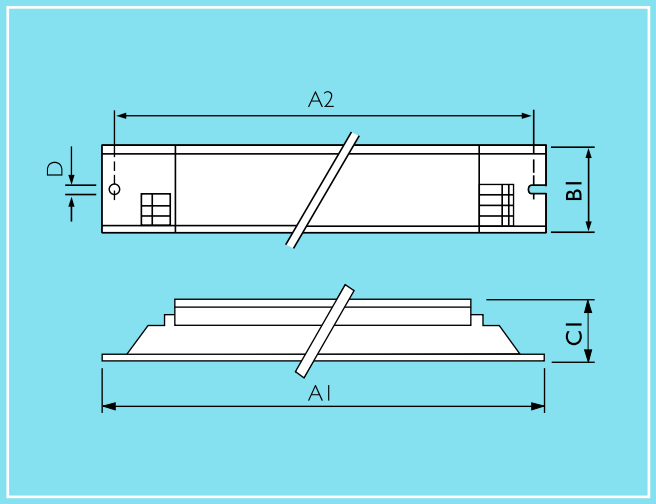
Electronics : TL/TL5 & PLL Lamps

EBP



Dimensions in mm

Dimension Data

Type	L1	L2	W	H
EBP136	258	244	30	29
EBP236	258	244	30	29
EBP336	258	244	40	29
EBP128	258	244	40	29
EBP228	258	244	30	29
EBP414	258	244	40	29
EBP254	258	244	30	29

EB-Performer Ballast with APFC

Slim, light weight, HF electronic ballast for TLD/PLL/TL5 lamps with constant light output irrespective of mains voltage fluctuation.

Features and Benefits

- Smart power: constant light output from lamp irrespective of mains voltage fluctuation
- Programmed start gives more than 15 lamp switching
- Up to 25% reduction in energy consumption at similar luminous flux compared to conventional gear
- Power factor of 0.99 with Active Power Factor Correction (APFC)
- End of lamp life protection circuit.

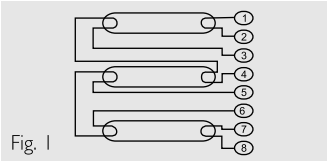
Applications

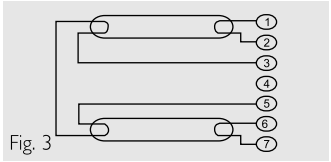
- High end office buildings
- Departmental stores, supermarkets
- Airports
- Hospitals
- Hotels
- Industrial premises.

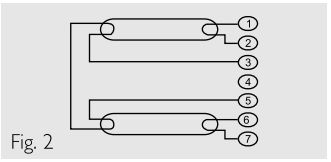
The constant light output and the warm start feature of the product allows it to be used in areas where a good lighting ambience and longer lamp life is required.

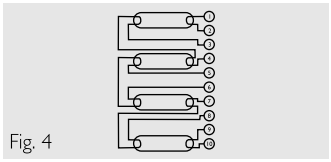
Dimensional

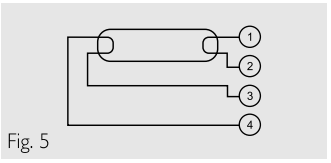
Drawing











Compliances and Approvals

RFI <30 MHz	EN 55015
RFI >30 MHz	EN 55022
Harmonics	EN 61000-3-2
Immunity	EN 61547
Safety	EN 61347-2-3
Performance	EN 60929
Vibration and bump tests	IEC 68-2-6 Fc
	IEC 68-2-9 Eb
Approval marks	Safety mark
	CE marking

PHILIPS

Technical Data

Ballast	Qty. of Lamps Nos.	Lamp Type	System Power Watts	Max t_{case} (t_c) Degree centigrade	Lamp Power Watts
EBP 136	1	36W TL-D/PLL	36	75	32
EBP 236	2	36W TL-D/PLL	74	75	66
EBP 336	3	36W TL-D/PLL	112	75	99
EBP 128	1	28W TL5	32	75	28
EBP 228	2	28W TL5	64	75	56
EBP 414	4	14W TL5	70	75	56
EBP 254	2	54W TL5	120	75	108

Ordering Data

Ballast	Ordering No.	Single unit dimension l x w x h mm	Wiring Diagram	Net Weight kg.	Carton unit Qty pcs.	Box dimension l x w x h cm	Volume m3	Weight (Gross) kg.
EBP 136	121100558	258X30X29	Fig 5	0.210	10	29.0X21.0X6.0	0.003	2.3
EBP 236	121108245	258X30X29	Fig 2	0.245	10	26.6X15.9X6.2	0.003	2.6
EBP 336	121104245	258X40X29	Fig 1	0.270	10	28.8X21.0X6.2	0.003	2.8
EBP 128	121100559	258X30X29	Fig 5	0.210	10	26.6X15.9X6.2	0.003	2.3
EBP 228	121100556	258X30X29	Fig 2	0.245	10	26.6X15.9X6.2	0.003	2.6
EBP 414	121107345	258X40X29	Fig 4	0.270	10	28.8X21.0X6.2	0.003	2.8
EBP 254	121105245	258X30X29	Fig 3	0.250	10	26.6X15.9X6.2	0.003	2.5

EB Performer
Technical Data for Installation

Mains operation

Rated mains voltage	220 - 240 V
With tolerances of performance: +6% - 8	202 - 254 V
With tolerances for safety: +/-10%	198 - 264 V
Mains frequency	50/60 Hz
Operating frequency	>42 KHz (45 KHz)
Power factor	0.99
Total Harmonic Distortion	<10%
DC voltage operation during emergency back-up	
Required battery voltage for guaranteed ignition	198 - 254 V
Required battery voltage for burning lamps	176 - 254 V

Nominal light output is available at DC Voltage

Notes:

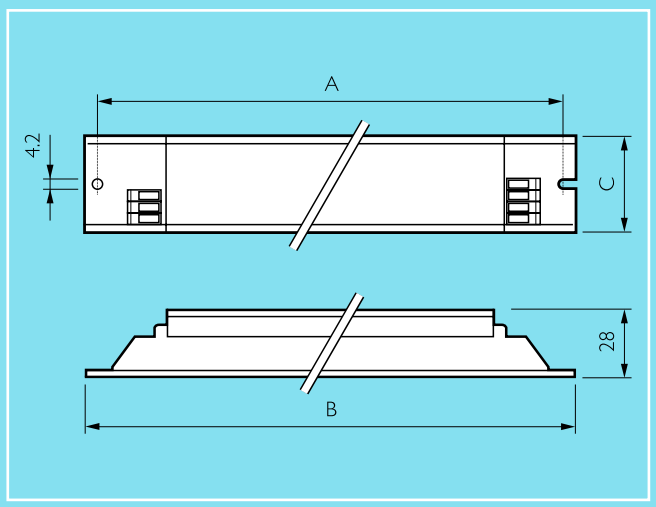
1. For a continuous DC operation an external fuse should be used in the luminaire.
2. Continuous low DC voltages (<198V) can influence the lifetime of the ballast.

Earth leakage current	TBD
Ignition time	1.5 sec
Constant light operation	In case of mains voltage fluctuations within 202 - 254 V the luminous flux changes by maximum of ±2%
Overvoltage protection	48 hrs. at 320 V 2 hrs. at 350 V
Dual fixture; master-slave operation	
Cable capacity	150pF
Automatic restart after replacement or voltage dip	Yes: tested with a dip down to 30% with a duration of 10 mains cycles
Insulation resistance test	500 V DC from line/neutral to earth (not between Line and Neutral)

Note : Ensure that the neutral is reconnected again after the above mentioned test is carried out and before the installation is put into operation.

Electronics : TL-D Lamps

HF-P // TL-D EII



Dimensions in mm

Dimension Data			
Type	A	B	C
HF-P 118/136/TL-DEII	265	280	30
HF-P 218/236/TL-DEII	265	280	30
HF-P 3/418/TL-DEII	265	280	39

HF-PERFORMER EII

Slim, light weight, high frequency electronic ballast for TL-D fluorescent lamps.

Features and Benefits

- Programmed start: warm start circuit preheating the lamp electrodes; this enables the lamps to be switched on and off without reducing useful life
- 50% longer lamp life than with conventional ballasts
- Up to 25% reduction in energy consumption at constant luminous flux compared with conventional gear
- Smart power: constant light independent of mains voltage fluctuations
- Unit is protected against excessive mains voltages and incorrect connections
- Automatic stop circuit is activated within five seconds in case of lamp failure (safety stop); once the lamp has been replaced, the ballast resets automatically.

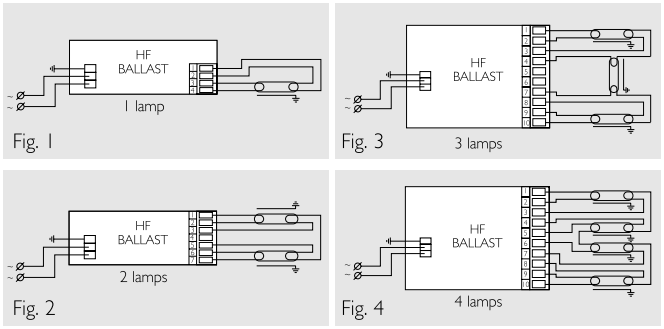
Applications

Typical areas of application include:

- Departmental stores, shops, supermarkets
- Suitable for use with infrared remote control systems
- Airports, railway stations
- Outdoor lighting
- Office buildings, for example, insurance companies, banks, government ministries
- Hospitals
- Hotels
- Industrial premises
- Emergency installations with VDE 0108 with re-ignition <0.5 s.

Installation

Circuit Diagram



Compliances and Approvals

RFI <30 MHz	EN 55015
RFI >30 MHz	EN 55022 B
Harmonics	EN 61000-3-2
Immunity	EN 61547
Safety	EN 61347-2-3
Performance	EN 60929
Vibration and bump tests	IEC 68-2-6 Fc IEC 68-2-29 Eb
Temperature declared thermally protected	IEC61347-1
CE marking	CE
ENEC	
VDE	
EMV	
CCC	
AS/NZS	

PHILIPS

Technical Data

Ballast	Qty. of Lamps	Lamp Type	System Power W	Input Current A	Lamp Power W	Ballast Losses W	EEI
HF-P 118 TL-D EII	1	TL-D 18 W	19	0.09	16.5	2.5	A2
HF-P 218 TL-D EII	2	TL-D 18 W	37	0.19	16.5	3.5	A2
HF-P 3/418 TL-D EII	3	TL-D 18 W	54	0.25	16.5	4.5	A2
HF-P 3/418 TL-D EII	4	TL-D 18 W	70	0.33	16.0	5.5	A2
HF-P 136 TL-D EII	1	TL-D 36 W	37	0.16	34.0	3.0	A2
HF-P 236 TL-D EII	2	TL-D 36 W	70	0.31	33.0	4.0	A2

Ordering Data

Ballast	Weight Net kg.	Qty. per Box	Box Dimensions l x w x h mm	Volume m^3	Weight Gross kg.
HF-P 118 TL-D EII	0.22	12	328 x 206 x 87	0.005	2.9
HF-P 218 TL-D EII	0.25	12	328 x 206 x 87	0.005	3.2
HF-P 3/418 TL-D EII	0.29	10	328 x 221 x 87	0.005	3.1
HF-P 136 TL-D EII	0.23	12	328 x 206 x 87	0.005	3.0
HF-P 236 TL-D EII	0.23	12	328 x 206 x 87	0.005	3.0

Technical Data for Installation

Mains operation	
Rated mains voltage	220 - 240 V
With tolerances for performance: +6% - 8%	202 - 254 V
With tolerances for safety: +/-10%	198 - 264 V
Mains frequency	50/60 Hz
Operating frequency (typical)	>42 kHz (45 kHz)
Power factor	>0.96
DC voltage operation during emergency back-up	
Yes for limited time (48 hrs.) only	
Required battery voltage for guaranteed ignition	198 - 254 V
Required battery voltage for burning lamps	176 - 254 V
Nominal light output is obtained at the DC voltage of	220 - 240 V

Notes:
1. For a continuous DC application, an external fuse should be used in the luminaire.
2. Continuous low DC voltages (<198 V) can influence the lifetime of the ballast.

Earth leakage current	<0.5 mA per ballast
Ignition time	<0.5 s
Constant light operation	In case of mains voltage fluctuations within 202 - 254 V, the luminous flux changes by a maximum of ±2%
Overvoltage protection	48 hrs. at 320 V AC 2 hrs. at 350 V AC
Dual fixture; master-slave operation	Possible, in general a maximum of 3 m of lamp wires between ballast and lamp is allowed
Cable capacity	Max. 200 pF between lamp wires and earth EMI precautions have to be taken
Automatic restart after lamp replacement or voltage dip	Yes: tested with a dip down to 30% with a duration of 10 mains cycles
Insulation resistance test	500 V DC from both mains inputs to Earth (not between Line and Neutral)

Technical Data for Design and Mounting HF Ballasts in Fixtures

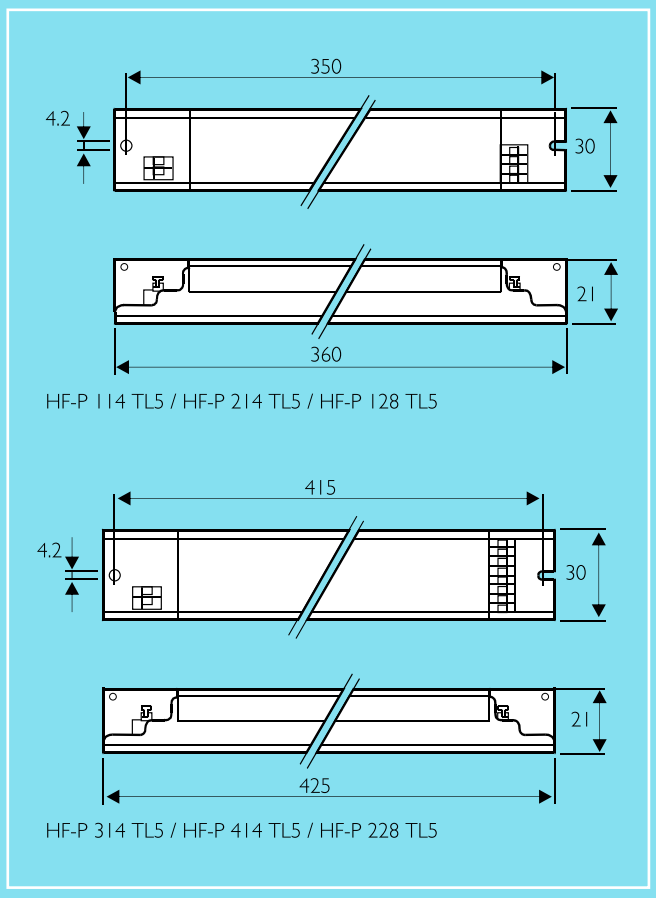
Temperatures	
Temperature range to ignite lamp with ignition aid	-25° to +50°C
Max. t_{case}	75°C

Lifetime of a ballast depends on the temperature of the ballast. This means there is a relation between the Tc point on the ballast and its lifetime.

Hum and noise level	Inaudible

Permitted humidity is tested according to EN61347-1 par. 11.
Note that no moisture or condensation may enter the ballast.
The ballasts that are thermally protected use a protective method of another type providing equivalent thermal protection.

HF-P (Flat) TL5 EII



Dimensions in mm

HF-PERFORMER (Flat) TL5 EII

Light weight, high frequency electronic ballasts for TL5 fluorescent lamps.

Features and Benefits

- The combination of HF-PERFORMER and TL5 lamps offers opportunities for miniaturisation and reduces cost of ownership, thanks to the limited dimensions and high system efficacy
- Warm start circuit enables the lamps to be switched on and off without reducing useful life
- Low energy consumption
- Unit is protected against excessive mains voltages and incorrect connections with uniform light independent of mains voltage fluctuations
- Automatic stop circuit is activated within five seconds in case of lamp failure (safety stop); once the lamp has been replaced, the ballast resets automatically.

Applications

- Departmental stores, shops, supermarkets
- Suitable for use with infrared remote control systems
- Airports, railway stations
- Office buildings, hospitals, hotels
- Emergency installations with VDE 0108 with re-ignition <0.5s
- Suitable for use with infrared remote control systems.

Installation

- Connection wiring is greatly simplified by the use of insert contacts.

Circuit Diagram

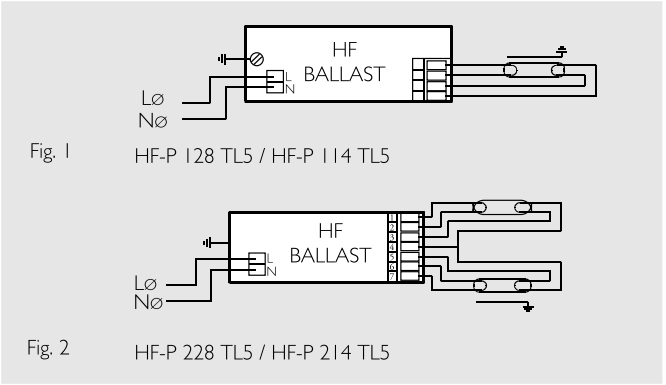


Fig. 1 HF-P 128 TL5 / HF-P 114 TL5

Fig. 2 HF-P 228 TL5 / HF-P 214 TL5

Compliances and Approvals

RFI <30 Mhz	EN 55015
RFI >30MHz	EN 55022 A
Harmonics	EN 61000-3-2
Immunity	EN 61547
Safety	EN 61 347-2-3
Performance	EN 60 929-IE
Vibration and bump tests	IEC 68-2-6 FC IEC 68-2-29 Eb
Quality standard	ISO 9000-2000
Environmental standard	ISO 14001
Approval marks	ENEC VDE-EMV
CE marking	
Temperature declared thermally protected	IEC 61347-1

PHILIPS

Fluorescent Electronic Ballasts
HF-PERFORMER (Flat)

Technical Data

Ballast	Qty. of Lamps	Lamp Type	System Power W	Input Current A	Lamp Power W	Ballast Losses	Power Factor W	EEI
HF-P 1 14-35 TL5 HE EII	1	TL5 HE 14 W	18	0.08	15	2.6	0.91	A2
HF-P 2 14-35 TL5 HE EII	2	TL5 HE 14 W	32	0.15	15	2.8	0.95	A2
HF-P 1 14-35 TL5 HE EII	1	TL5 HE 28 W	33	0.15	30	3.5	0.98	A2
HF-P 2 14-35 TL5 HE EII	2	TL5 HE 28 W	62	0.27	29	5.0	0.99	A2

Ordering Data

Ballast	Weight Net kg.	Qty. per Box	Dimensions l x w x h mm	Volume m^3	Weight Gross kg.
HF-P 1 14-35 TL5 HE EII	0.25	12	408 x 208 x 87	0.0074	3.3
HF-P 2 14-35 TL5 HE EII	0.31	12	462 x 208 x 87	0.0090	4.0

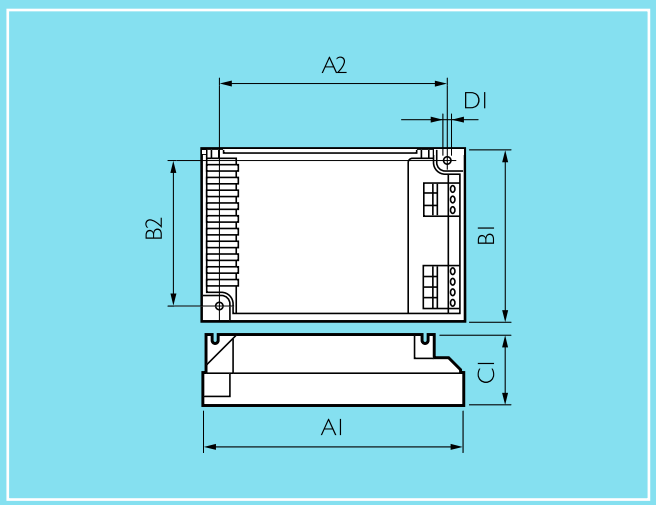
Technical Data for Installation

Mains operation	
Rated mains voltage	220 - 240 V (230 - 240 V)*
with tolerances for safety ±10%	198 - 264 V (207 - 264 V)*
with tolerances for performance +6% -8%	202 - 254 V (212 - 254 V)*
Mains frequency	50/60 Hz
Operating frequency	24 - 31 kHz (33 - 43 kHz)**
Power factor	0.93 typical (0.93 typical)**
DC voltage operation during emergency back-up	
Required battery voltage for guaranteed ignition	198 - 254 V
Required battery voltage for burning lamps	176 - 254 V
Earth leakage current	<0.5 mA per ballast
Ignition time	<2 s
Constant light operation	In case of mains voltage fluctuations within 202 - 254 V, the luminous flux changes by a maximum of ± 2% (not applicable to 2 x 14 W)
Dual fixture; master-slave operation	Not advisable
Lamp wiring for HF-P 128 TL5	It is advised to use 500 V rated Components with HF Performer TL5
Overvoltage protection	48 hrs. at 320 VAC 2 hrs. at 350 VAC (2 x 14 W: ballast switches off at 320 V without damages; higher voltages will damage the ballast)
Automatic restart after lamp replacement or voltage dip	Yes: tested with a dip down to 30% with a duration of 10 mains cycles
Insulation resistance test	500 V DC from Line/Neutral to Earth (not between Line and Neutral)

Note: Ensure that the Neutral is reconnected again after above-mentioned test is carried out and before the installation is put into operation.
*Values for 2 x 14 W

Electronics : PL-T/C Lamps

HF-P PL-T/C/Q



Dimensions in mm

	A1	A2	B1	B2	C1	D1
HF-P 113 PL-T/C	103	93.5	67	57.5	30	4.5
HF-P 118 PL-T/C	103	93.5	67	57.5	30	4.5
HF-P 126-42 PL-T/C	103	93.5	67	57.5	30	4.5
HF-P 213 PL-T/C	123	111	79	67	33	4.5
HF-P 218 PL-T/C	123	111	79	67	33	4.5
HF-P 2 26-42 PL-T/C	123	111	79	67	33	4.5

HF-PERFORMER PL-T/C

Compact, light weight, high frequency electronic standard ballasts for PL-T and PL-C compact fluorescent lamps.

Features and Benefits

- Flicker-free warm start, ideal for areas with high switching frequency
- Up to 50% longer lamp life than with conventional ballasts
- Up to 25% reduction in energy consumption at constant luminous flux compared with conventional gear
- Constant light independent of mains voltage fluctuations.

Applications

- Departmental stores, shops, supermarkets
- Installations with infrared remote control systems
- Airports, railway stations
- Office buildings
- Hospitals
- Hotels
- Outdoor lighting and downlighting.

Installation

- Connection wiring is greatly simplified by the use of insert contacts

Circuit Diagram

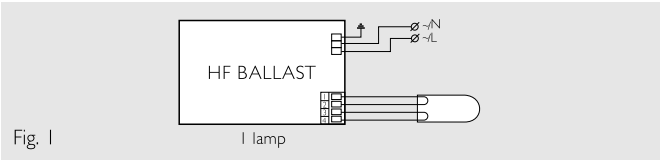


Fig. 1

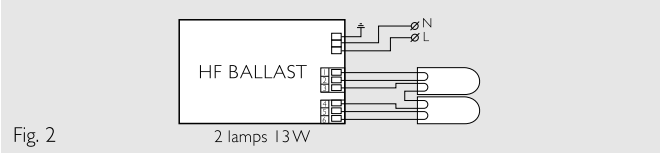


Fig. 2

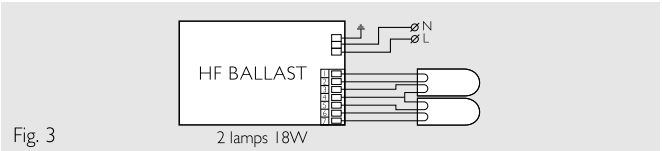


Fig. 3

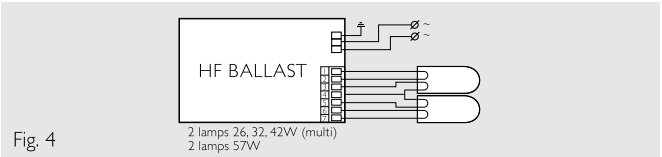


Fig. 4

Compliances and Approvals

RFI <30 MHz	EN 55015
Harmonics	EN 61000-3-2
Immunity	EN 61547
Safety	EN 61347-2-3
Performance	EN 60929-1E
Vibration and bump tests	IEC 68-2-6 FC IEC 68-2-29 Eb
Quality standard	ISO 9000-2000
Environmental standard	ISO 14001
Approval marks	ENEC
CE marking	
Temperature declared thermally protected	IEC 61347-1

PHILIPS

Technical Data

Ballast	Qty. of Lamps	Lamp Type	System Power W	Lamp Power W	Input Current A	Ballast Losses W	Power Factor	EEI
HF-P 113 PL-T/C	1	PL-T/C 13 W	14	12.0	0.06	2.0	0.96	A3
HF-P 213 PL-T/C	2	PL-T/C 13 W	28	12.0	0.12	4.0	0.97	A3
HF-P 118 PL-T/C	1	PL-T/C 18 W	18	16.5	0.09	1.5	0.93	A2
HF-P 218 PL-T/C	2	PL-T/C 18 W	38	16.5	0.18	3.0	0.96	A2
HF-P 1 26-42 PL-T/C	1	PL-T 26 W	26	24.0	0.13	2.0	0.95	A2
HF-P 226-42 PL-T/C	2	PL-T 26 W	54	25.5	0.22	3.0	0.96	A2
HF-P 1 26-42 PL-T/C	1	PL-T 32 W	35	32.0	0.17	3.0	0.95	A2
HF-P 2 26-42 PL-T/C	2	PL-T 32 W	70	33.0	0.30	4.0	0.97	A2
HF-P 1 26-42 PL-T/C	1	PL-T 42 W	46	43.0	0.22	3.0	0.95	A2
HF-P 2 26-42 PL-T/C	2	PL-T 42 W	92	43.0	0.45	6.0	0.98	A2
HF-P 113 PL-T/C	1	PL-C 10 W	12	9.5	0.05	2.0	0.96	A2
HF-P 213 PL-T/C	2	PL-C 10 W	23	9.5	0.11	4.0	0.95	A2

Ordering Data

Ballast	Weight Net kg.	Qty. per Box	Dimensions l x w x h mm	Volume m^3	Weight Gross kg.
HF-P 113 PL-T/C	0.15	36	215 x 210 x 215	0.01	5.5
HF-P 118 PL-T/C	0.13	12	221 x 217 x 88	0.01	1.8
HF-P 126-42 PL-T/C	0.13	12	221 x 217 x 88	0.01	1.8
HF-P 213 PL-T/C	0.22	36	224 x 224 x 220	0.01	7.9
HF-P 218 PL-T/C	0.19	36	255 x 245 x 225	0.01	6.8
HF-P 2 26-42 PL-T/C	0.22	12	255 x 245 x 82	0.01	2.9

Technical Data for Installation

Mains operation

Rated mains voltage	220 - 240 V
with tolerances for safety ±10%	198 - 264 V
with tolerances for performance +6% -8%	202 - 254 V
Mains frequency	50/60 Hz
Operating frequency	>42 kHz
Power factor	>0.96

Suitable for DC voltage operation during emergency back-up

Nominal light output is obtained at a voltage of	220 - 240 V DC

Notes:

1. For a continuous DC application, an external fuse should be used in the luminaire.
2. Continuous low DC voltages (<198 V) can influence the lifetime of the ballast.

Smart power:

Constant light operation	In case of mains voltage fluctuations within 202-254 V, the luminous flux changes by a maximum of ± 2 %
Earth leakage current	<0.5 mA per ballast
Ignition time	<1.2 s (< 2 s)
Overvoltage protection	48 hrs. at 320 V AC 2 hrs. at 350 V AC (2 hrs. at 320 V AC)
Dual fixture; master-slave operation	No
Automatic restart after lamp replacement or voltage dip	Yes: tested with a dip down to 30% with a duration of 10 mains cycles
Insulation resistance test	500 V DC from Line/Neutral to Earth (not between Line and Neutral) Ensure that the Neutral is reconnected again after above test is carried out and before operation