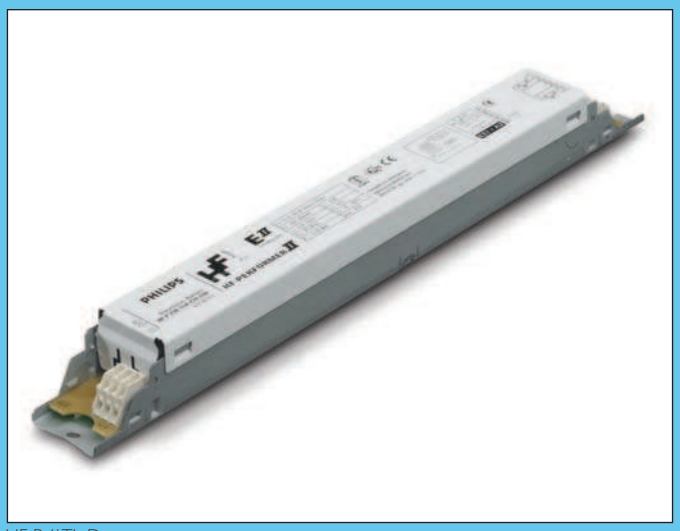
HF-Performer II TL-D



HF-P // TL-D

Product description

Slim, lightweight high-frequency electronic ballast for TL-D fluorescent lamps, based on *EII* technology.

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
- Equipped with connectors suitable for automatic wiring machines.

Applications

Typical areas of application include:

- Department 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.

Philips quality

This assures optimum quality regarding:

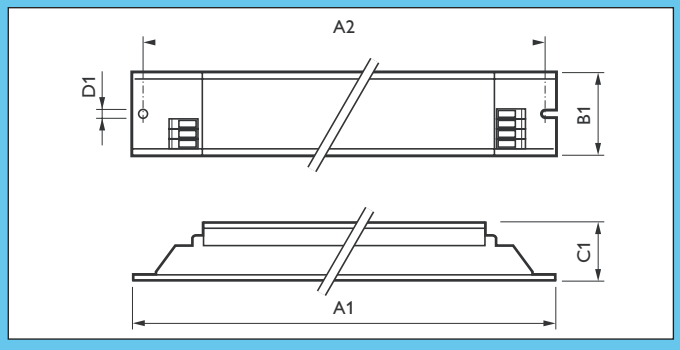
- System supplier
  As manufacturers of lamps and electronic control gear, Philips ensures that, from the earliest development stage, optimum lamp/ballast performance is maintained
- European standards
  Philips HF electronic ballast complies with all relevant international rules and regulations.

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 & 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	IEC61347-1

**HF-P 270 TL-D EII* — *EN 55022 A*

Dimensions in mm



Product ID	A1	A2	B1	C1	D1
118/136/158/170	280	265	30	28	4.2
218/236/258/270	280	265	30	28	4.2
3/418	280	265	39	28	4.2

Technical data: (all typical values at Vmains = 230V)

Lamp	Qty. of lamps	Ballast	System Power W	Lamp Power W	Ballast Losses W	NOMINAL Lamp Lumen lm	EEI
TL-D 18 W	1	HF-P 118 TL-D EII	19	16.5	2.5	1350	A2
TL-D 18 W	2	HF-P 218 TL-D EII	37	16.5	3.5	1350	A2
TL-D 18 W	3	HF-P 3/418 TL-D EII	54	16.5	4.5	1350	A2
TL-D 18 W	4	HF-P 3/418 TL-D EII	70	16.0	5.5	1350	A2
TL-D 36 W	1	HF-P 136 TL-D EII	37	34.0	3.0	3350	A2
TL-D 36 W	2	HF-P 236 TL-D EII	70	33.0	4.0	3350	A2
TL-D 58 W	1	HF-P 158 TL-D EII	56	51.5	4.5	5200	A2
TL-D 58 W	2	HF-P 258 TL-D EII	107	50.5	6.0	5200	A2
TL-D 70 W	1	HF-P 170 TL-D EII	68	63.0	5.0	6200	A2
TL-D 70 W	2	HF-P 270 TL-D EII	129	61.0	8.0	6200	A2

Technical data for installation

Mains operation

Rated mains voltage		220 – 240V
With tolerances for performance:	+6%-8	202 – 254V
With tolerances for safety	+/- 10%	198 – 264V
Mains frequency		50/60Hz
Operation frequency (typical)		> 42 kHz (45 kHz)
Power factor		> 0.96

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 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 350V AC
Dual fixture; master-slave operation	Possible, in general a maximum of 3m of lamp wires between ballast and lamp is allowed
Cable capacity	Max. 200 pF between lamp wires, 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)

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

Mains current at 230V

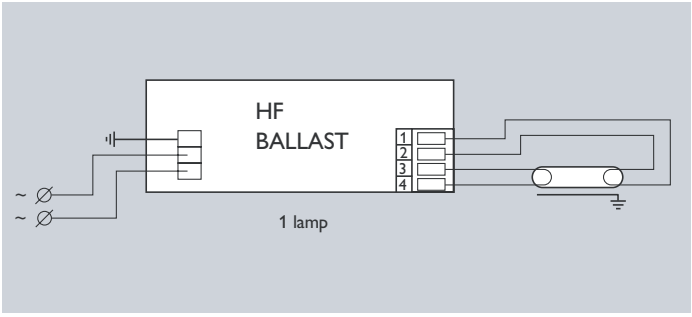
Ballast	Qty. of lamps	Input current A
HF-P 118 TL-D EII	1	0.09
HF-P 218 TL-D EII	2	0.19
HF-P 3/418 TL-D EII	3	0.25
HF-P 3/418 TL-D EII	4	0.33
HF-P 136 TL-D EII	1	0.16
HF-P 236 TL-D EII	2	0.31
HF-P 158 TL-D EII	1	0.24
HF-P 258 TL-D EII	2	0.48
HF-P 170 TL-D EII	1	0.30
HF-P 270 TL-D EII	2	0.59

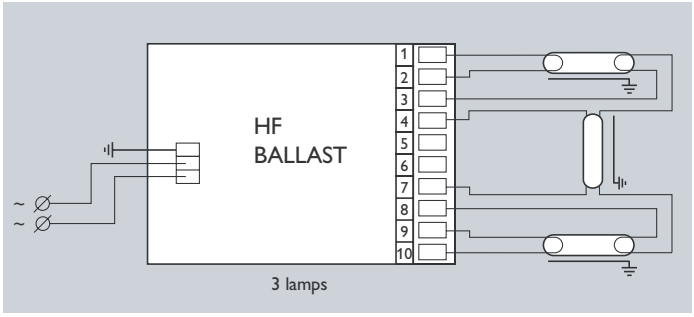
Inrush current

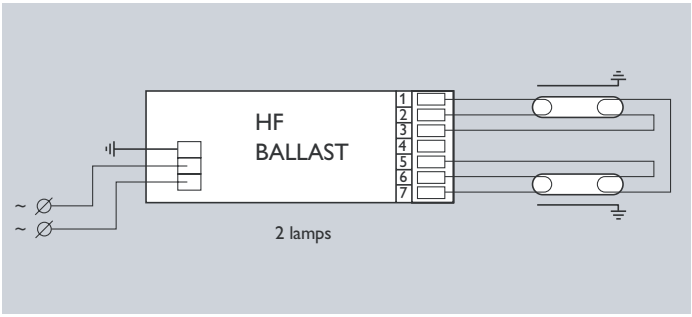
Ballast	Max. quantity of ballast per Miniature Circuit Breaker		Inrush current value time at typical mains impedance
	Type B16 A	Type C16A	
HF-P 136 TL-D EII	28	48	18 A / 250 µs
HF-P 118 TL-D EII	28	48	18 A / 250 µs
HF-P 218 TL-D EII	28	48	18 A / 250 µs
HF-P 3/418 TL-D EII	12	20	31 A / 350 µs
HF-P 136 TL-D EII	28	48	18 A / 250 µs
HF-P 236 TL-D EII	28	48	18 A / 250 µs
HF-P 158 TL-D EII	28	48	18 A / 250 µs
HF-P 258 TL-D EII	12	20	31 A / 350 µs
HF-P 170 TL-D EII	28	48	18 A / 250 µs
HF-P 270 TL-D EII	12	20	31 A / 350 µs

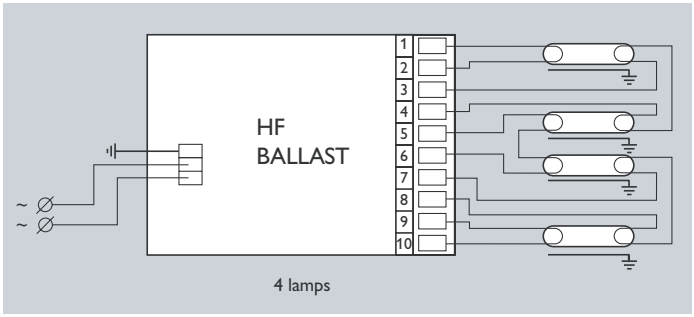
Conversion table for max. quantities of ballasts on other types of Miniature Circuit Breaker

MCB type		Relative number of ballasts
B	16A	100% (see table above)
B	10A	63%
C	10A	104%
L, I	16A	108%
L, I	10A	65%
G, U, II	16A	212%
G, U, II	10A	127%
K, III	16A	254%
K, III	10A	154%









wiring diagrams

Technical data for design and mounting HF ballasts in fixtures

Temperatures

Temperature range to ignite lamp with ignition aid	-25°C to +50°C

Max. Tcase = 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. The HF-Performer II ballast for TL-D applications has a specified lifetime of 50.000 hrs, with a maximum of 10% failures guaranteed, at a measured Tcase of 75°C.

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.

Connector types:
Wago universal connector. Suitable for both automatic wiring (ALF and ADS) and manual wiring

Wire lengths:
For 1L circuits keep wires to terminals 3 and 4 short
For 2L circuits keep wires to terminals 1, 2, 6 and 7 short
For 3 & 4L circuits keep wires to terminals 1, 2, 9 and 10 short

Wiring diagram 2 lamps:
Connector 4 can be connected, but this is not necessary

Wire cross-section:
Lower connector
On the mains side: 0.5 - 1.0 mm^2
On the lamp side: 0.5 - 1.0 mm^2

Upper connector
On the mains side: 0.5 mm^2 solid wire; 0.75 mm^2 stranded wire
On the lamp side: 0.5 mm^2 solid wire; 0.75 mm^2 stranded wire

Strip length: 8 - 9 mm

Notes
1. Data is based on a main supply with an impedance of 400 mΩ (equal to 15 m cable of 2,5 mm and another 20 m to te middle of the power distribution), under worst case conditions. With an impedance of 800 mΩ the number of ballasts can be increased by 10%.
2. Measurements will be verified in real installations; therefore data are subject to change.
3. In some cases the maximum number of ballasts is not determined by the MCB but by the maximum electrical load of the lighting installation.
4. Note that the maximum number of ballasts is given when these are all switched on at het same moment, i.e. by a wall switch.
5. Measurements were carried out on single-pole MCB's. For multi-pole MCB's it is advisable to reduce the number of ballasts by 20%.
6. The maximum number of ballasts wich can be connected to one Residual Current Detector of 30 mA is 30.

Ordering and packing data

Ballast	1 Piece		Bulk packing					EOC
	EAN code	Weight	Qty.	Dimensions l x w x h	Volume	Weight gross	EAN code	
		kg		cm	m^3	kg		
HF-P 118 TL-D EII	8711500934086	0.22	12	32.8 X 20.6 X 8.7	0.006	2.9	8711500934093	934086 30
HF-P 218 TL-D EII	8711500934130	0.25	12	32.8 X 20.6 X 8.7	0.006	3.2	8711500934154	934130 30
HF-P 3/418 TL-D EII	8711500931641	0.29	10	32.8 X 22.1 X 8.7	0.006	3.1	8711500931658	931641 30
HF-P 136 TL-D EII	8711500931467	0.23	12	32.8 X 20.6 X 8.7	0.006	3.0	8711500931474	931467 30
HF-P 236 TL-D EII	8711500931504	0.23	12	32.8 X 20.6 X 8.7	0.006	3.0	8711500931511	931504 30
HF-P 158 TL-D EII	8711500931481	0.25	12	32.8 X 20.6 X 8.7	0.006	3.2	8711500931498	931481 30
HF-P 258 TL-D EII	8711500931528	0.25	12	32.8 X 20.6 X 8.7	0.006	3.3	8711500931535	931528 30
HF-P 170 TL-D EII	8711500934116	0.22	12	32.8 X 20.6 X 8.7	0.006	2.9	8711500934123	934116 30
HF-P 270 TL-D EII	8711500058638	0.25	12	32.8 X 20.6 X 8.7	0.006	3.2	8711500058645	058638 30