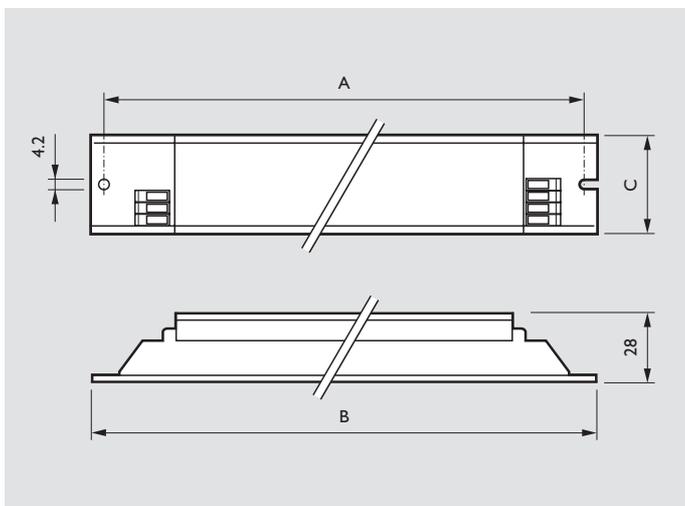


# HF-PERFORMER II

## Electronic ballasts for TL-D lamps

### Lamp control gear



Dimensions in mm

type	A	B	C
HF-P 118/136/158/170 TLD EII	265	280	30
HF-P 218/236/258/270 TLD EII	265	280	30
HF-P 3/418 TLD EII	265	280	39

### Definition

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

### Description

- 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 TLD EII EN 55022A.

# PHILIPS

**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	EEl
TL-D 18 W	1	HF-P 118 TLD EII	19	16.5	2.5	1350	A2
TL-D 18 W	2	HF-P 218 TLD EII	37	16.5	3.5	1350	A2
TL-D 18 W	3	HF-P 3/418 TLD EII	54	16.5	4.5	1350	A2
TL-D 18 W	4	HF-P 3/418 TLD EII	70	16.0	5.5	1350	A2
TL-D 36 W	1	HF-P 136 TLD EII	37	34.0	3.0	3350	A2
TL-D 36 W	2	HF-P 236 TLD EII	70	33.0	4.0	3350	A2
TL-D 58 W	1	HF-P 158 TLD EII	56	51.5	4.5	5200	A2
TL-D 58 W	2	HF-P 258 TLD EII	107	50.5	6.0	5200	A2
TL-D 70 W	1	HF-P 170 TLD EII	68	63.0	5.0	6200	A2
TL-D 70 W	2	HF-P 270 TLD 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**

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 350V AC
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Dual fixture; master-slave operation	Possible, in general a maximum of 3m of lamp wires between ballast and lamp is allowed
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Cable capacity	Max. 200 pF between lamp wires, max. 200 pF between lamp wires and earth EMI precautions have to be taken
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Automatic restart after lamp replacement or voltage dip	Yes; tested with a dip down to 30% with a duration of 10 mains cycles
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Insulation resistance test:	500 V DC from both mains inputs to Earth (not between Line and Neutral)
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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 TLD EII	1	0.09
HF-P 218 TLD EII	2	0.19
HF-P 3/418 TLD EII	3	0.25
HF-P 3/418 TLD EII	4	0.33
HF-P 136 TLD EII	1	0.16
HF-P 236 TLD EII	2	0.31
HF-P 158 TLD EII	1	0.24
HF-P 258 TLD EII	2	0.48
HF-P 170 TLD EII	1	0.30
HF-P 270 TLD EII	2	0.59

**Inrush current**

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

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

MCB type	Relative number of ballasts
B	16A
B	10A
C	10A
L, I	16A
L, I	10A
G, U, II	16A
G, U, II	10A
K, III	16A
K, III	10A

100% (see table above)

63%

104%

108%

65%

212%

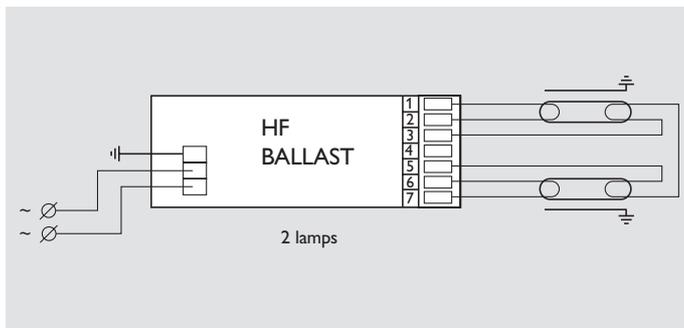
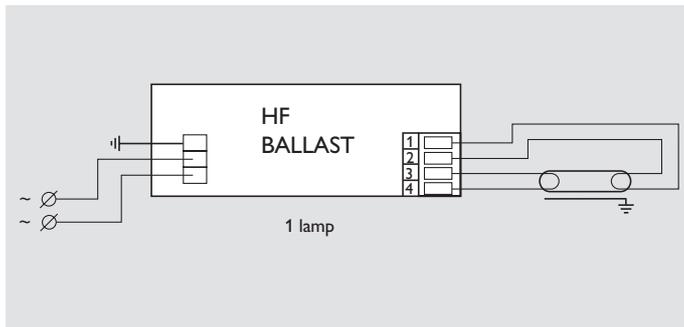
127%

254%

154%

**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 30mA is 30.



**Connector types:**

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

**Wire lengths:**

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

**Wiring diagram 2 lamps:**

Connector 4 can be connected, but this is not necessary

**Ordering and packing data**

Ballast	1 Piece		Bulk packing				Weight gross kg	EAN code 8711500..	EOC
	EAN code 8711500..	Weight kg	Qty.	Dimensions l x w x h cm	Volume m³				
HF-P 118 TLD EII	934086	0.22	12	32.8 X 20.6 X 8.7	0.006	2.9	934093	93408630	
HF-P 218 TLD EII	934130	0.25	12	32.8 X 20.6 X 8.7	0.006	3.2	934154	93413030	
HF-P 3/418 TLD EII	931641	0.29	10	32.8 X 22.1 X 8.7	0.006	3.1	931658	93164130	
HF-P 136 TLD EII	931467	0.23	12	32.8 X 20.6 X 8.7	0.006	3.0	931474	93146730	
HF-P 236 TLD EII	931504	0.23	12	32.8 X 20.6 X 8.7	0.006	3.0	931511	93150430	
HF-P 158 TLD EII	931481	0.25	12	32.8 X 20.6 X 8.7	0.006	3.2	931498	93148130	
HF-P 258 TLD EII	931528	0.25	12	32.8 X 20.6 X 8.7	0.006	3.3	931535	93152830	
HF-P 170 TLD EII	934116	0.22	12	32.8 X 20.6 X 8.7	0.006	2.9	934123	93411630	
HF-P 270 TLD EII	058638	0.25	12	32.8 X 20.6 X 8.7	0.006	3.2	058645	05863830	

**Technical data for design and mounting HF ballasts in fixtures**

**Temperatures**

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

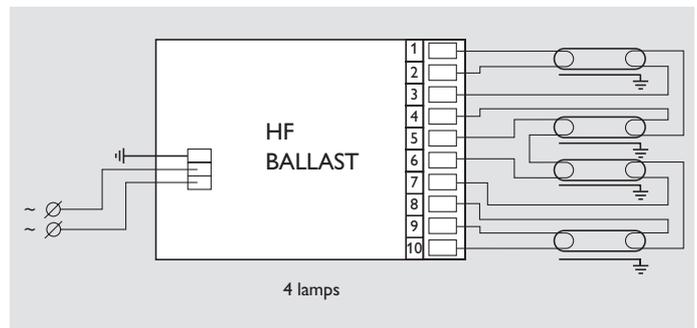
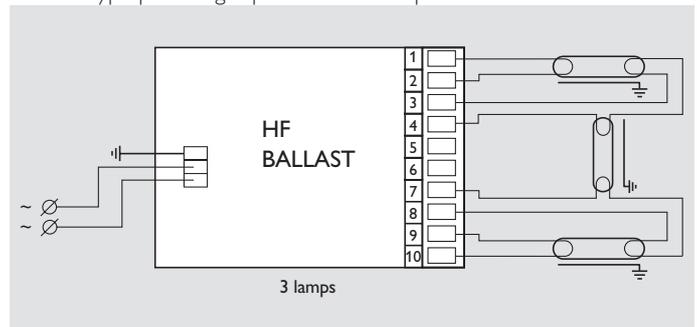
Max. Tcase = 75°C

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 TLD 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.



wiring diagrams

**Wire cross-section:**

Lower connector

On the mains side: 0.5 - 1.0 mm²  
 On the lamp side: 0.5 - 1.0 mm²

Upper connector

On the mains side: 0.5 mm² solid wire; 0.75 mm² stranded wire  
 On the lamp side: 0.5 mm² solid wire; 0.75 mm² stranded wire

**Strip length:** 8 - 9 mm



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Data subject to change