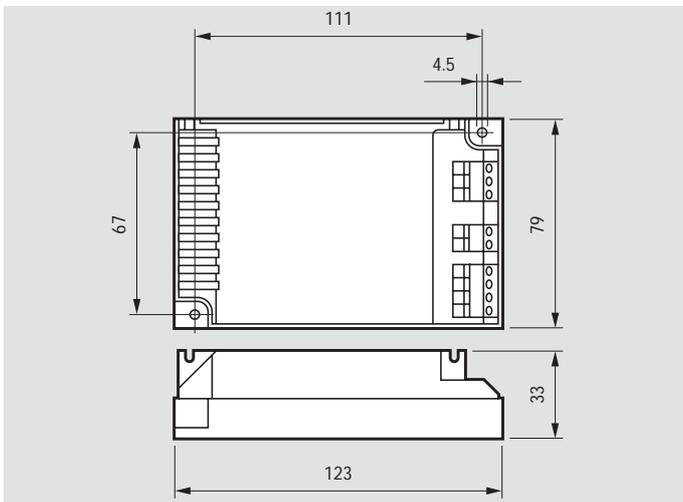


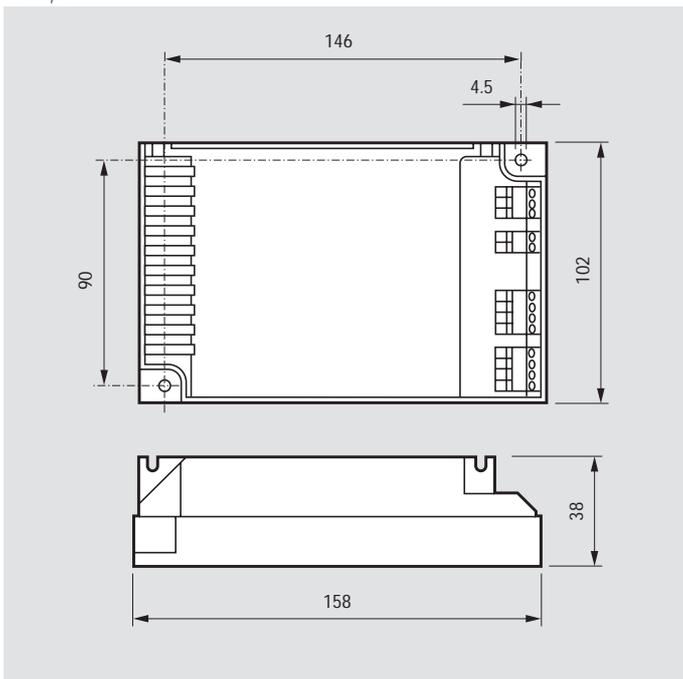
# HF-REGULATOR electronic regulating ballasts for PL-T and PL-C lamps



Dimensions in mm



1-lamps



2-lamps  
1

## Definition

Compact, lightweight, high-frequency electronic regulating ballast for PL-T and PL-C compact fluorescent lamps.

## Description

- The lamp power can be regulated down to 3%
- Stable lamp operation
- 1-10 V control input (European standard)
- Programmed start: flicker-free warm start, ideal for areas with a high switching frequency
- Up to 50% longer lamp life than with conventional ballasts
- Up to 60% reduction in energy consumption can be achieved by using automatic lighting control systems.

All Philips HF-REGULATOR electronic ballasts are fitted with a-control. This is a dedicated integrated circuit that ensures independent control of each electrode and, in doing so, takes care that:

- lamp life is unaffected by dimming position;
- lamp burning is stabler in every dimming position; and
- energy savings, when dimming, are maximised.

## Applications

Typical areas of application include:

- Installations with daylight-linked and remote control systems
- Installations with emergency back-up, according to VDE 0108
- Installations with infrared remote control systems
- Conference rooms
- Cinemas
- Department stores, shops, supermarkets
- Office buildings: insurance companies, banks, government ministries
- Hospitals
- Hotels.

## Philips quality

This implies optimum quality with respect to:

- System supplier
- As manufacturer of lamps, electronic control gear and lighting control equipment, Philips ensures that, from the earliest development stage, optimum performance is maintained
- International standards
- Philips HF electronic regulating ballasts comply with all relevant international rules and regulations.

## Compliances and approvals

- RFI < 30 MHz EN 55015
- Harmonics EN 61000-32
- Immunity EN 61547
- Safety EN 60928
- Performance EN 60929-1E
- Vibration & bump tests IEC 68-2-6 FC IEC 68-2-29 Eb
- Quality standard ISO 9001
- Approval marks ENEC, equivalent to KEMA, VDE, SEMKO, NEMKO, DEMKO, FI, SEV
- Environmental standard ISO 14001
- CE marking.

# HF-REGULATOR electronic regulating ballasts for PL-T and PL-C lamps

Technical data in relation to energy saving

Lamp	Qty. of lamps	Ballast	System power* W	Lamp	Efficacy* lm/W	Lumen* lm
				Power* W		
PL-T 18W	1	HF-R 118 PL-T/C	21	16.5	73	1200
PL-C 18W	1	HF-R 118 PL-T/C	21	16.5	73	1200
PL-T 18W	2	HF-R 218 PL-T/C	38	16.5	73	1200
PL-C 18W	2	HF-R 218 PL-T/C	38	16.5	73	1200
PL-T 26W	1	HF-R 126 PL-T/C	29	24	75	1800
PL-C 26W	1	HF-R 126 PL-T/C	29	24	75	1800
PL-T 26W	2	HF-R 226 PL-T/C	54	24	75	1800
PL-C 26W	2	HF-R 226 PL-T/C	54	24	75	1800
PL-T 32W	1	HF-R 132 PL-T	38	32	75	2400
PL-T 32W	2	HF-R 232 PL-T	72	32	75	2400
PL-T 42W	1	HF-R 142 PL-T	50	43	74	3200
PL-T 42W	2	HF-R 242 PL-T	96	43	74	3200

\* At 100%.

## Technical data for installation

### Mains operation

Rated mains voltage	220 - 240 V
with tolerances for safety: +/- 10%	198 - 264 V
tolerances for performance: +6% -8%	202 - 254 V
Mains frequency	50/60 Hz
Operating frequency	> 42 kHz
Power factor	0.95 at 100% power

Smart power: with AC mains voltage fluctuations, luminous flux varies by  $\pm 2\%$  max.

### DC voltage operation (during emergency back-up)

Required battery voltage for guaranteed ignition	198 - 254 V DC
Required battery voltage for burning lamps	176 - 254 V DC

### Control input

Control voltage	1 - 10V DC
Protected against accidental mains voltage connection	yes

### Regulating level (lamp power)

The control input complies with IEC 929, Amendment 1, Annex E and is compatible with Philips lighting control equipment.

### Ignition time

< 2 s

### Earth leakage current

< 0.5 mA per ballast

Maximum number of ballasts which can be connected to one Residual Current Detector of 30 mA

30

### Overvoltage protection

48 hr at 320 V AC  
2 hr at 350 V AC

### Dual fixture; master slave operation

not advisable

### Advised maximum cable capacity for optimum performance and EMI suppression

max. 30 pF between lamp wires;  
max. 75 pF between lamp wires and earth; care has to be taken for symmetrical wiring

### Lamp wiring

The use of 500 V rated components is advised for PL-T 32 W and 42 W types  
Note: Keep lamp wiring as short as possible; do not bunch wires from terminals 1 & 2 with those from terminals 3 & 4 (1-lamp ballasts), or wires from terminals 3, 4, 5 & 6 with those from terminals 1, 2, 7 & 8 (2-lamp ballasts)

Automatic restart after lamp replacement or voltage dip

yes

### 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.

## Mains current at 230 V

Ballast	Input current
	A
HF-R 118 PL-T/C	0.09
HF-R 218 PL-T/C	0.17
HF-R 126 PL-T/C	0.13
HF-R 226 PL-T/C	0.24
HF-R 132 PL-T	0.17
HF-R 232 PL-T	0.31
HF-R 142 PL-T	0.22
HF-R 242 PL-T	0.42

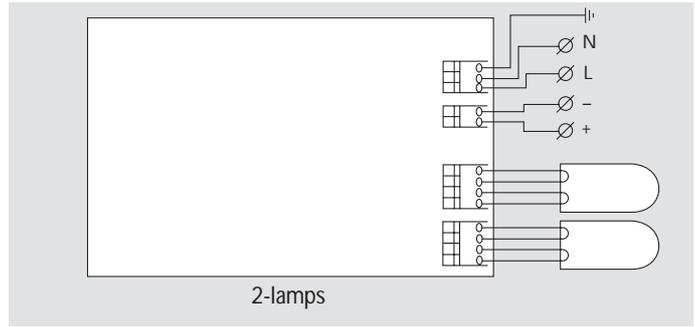
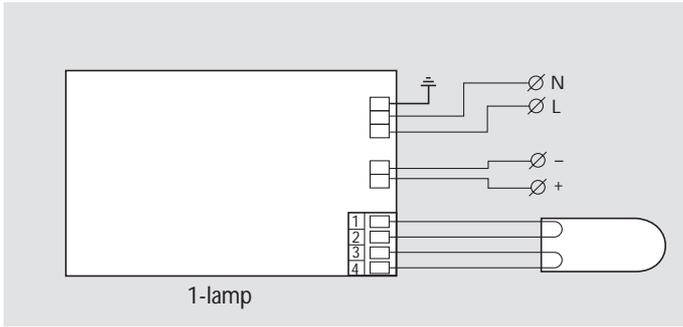
## Inrush current

Ballast	Max. quantity of ballasts per Miniature Circuit Breaker		Inrush current 1/2 value time at typical mains impedance
	type B 16 A		
	type B 16 A	type C 16 A	
HF-R 118 PL-T/C	28	48	40A/110 $\mu$ s
HF-R 218 PL-T/C	28	48	35A/120 $\mu$ s
HF-R 126 PL-T/C	28	48	40A/110 $\mu$ s
HF-R 226 PL-T/C	28	48	35A/120 $\mu$ s
HF-R 132 PL-T	28	48	40A/110 $\mu$ s
HF-R 232 PL-T	12	20	45A/170 $\mu$ s
HF-R 142 PL-T	28	48	40A/110 $\mu$ s
HF-R 242 PL-T	12	20	45A/170 $\mu$ s

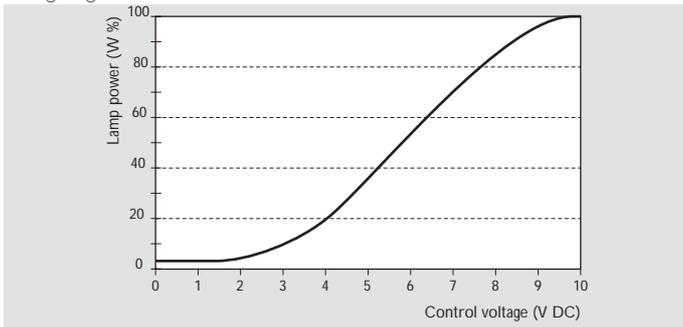
## Conversion table for max. quantities of ballasts on other types of Miniature Circuit Breaker

MCB type	Relative quantity of ballasts	
B	16 A	100% (see table above)
B	10 A	63%
C	16 A	170%
C	10 A	104%
L, I	16 A	108%
L, I	10 A	65%
G, U, II	16 A	212%
G, U, II	10 A	127%
K, III	16 A	254%
K, III	10 A	154%

# HF-REGULATOR electronic regulating ballasts for PL-T and PL-C lamps



Wiring diagrams



Relationship between lamp power and control voltage

**Notes:**

1. Data is based on a mains supply with an impedance of 400 mΩ (equal to 15 m cable of 2.5 mm<sup>2</sup> and another 20 m to the 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 the 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%.

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

**Temperatures**

- Temperature range to ignite lamp +10 ° to +50 °C with ignition aid
- Stable lamp operation assured > 15 °C

Max. tcase = 75°C\*\*

**Note:**

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. For more information regarding this subject consult the Philips Application guide to fluorescent lamp control gear.

Class II luminaires this application is not advisable; only with extensive tests on luminaires can the correct operation be verified

Hum and noise level inaudible

Permitted humidity is tested according to EN 60928 par. 12. 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.

The connection wiring is greatly simplified through use of insert contacts, with push buttons

Wire cross-section:  
 On the mains side (mains/control voltage): 0.5 - 1.5 mm<sup>2</sup>  
 On the lamp side: 0.5 - 1.5 mm<sup>2</sup>

Strip length: 11 mm

**Ordering and packing data**

Ballast	1 Piece		Bulk packing					EAN code	EOC
	EAN code	Weight	Qty.	Dimensions	Volume	Weight gross			
		kg	pcs	l x w x h cm	m <sup>3</sup>	kg			
HF-R 118 PL-T/C	8711500 059987	0.25	36	25.5 x 24.5 x 18.5	0.01	9.2	8711500 059994	059987	
HF-R 218 PL-T/C	8711500 058904	0.42	24	32.4 x 31.4 x 17.9	0.01	10.7	8711500 058911	058904	
HF-R 126 PL-T/C	8711500 060006	0.25	36	25.5 x 24.5 x 18.5	0.01	9.2	8711500 060013	060006	
HF-R 226 PL-T/C	8711500 058881	0.42	24	32.4 x 31.4 x 17.9	0.01	10.7	8711500 058898	058881	
HF-R 132 PL-T	8711500 059963	0.25	36	25.5 x 24.5 x 18.5	0.01	9.2	8711500 059970	059963	
HF-R 232 PL-T	8711500 058843	0.42	24	32.4 x 31.4 x 17.9	0.01	10.7	8711500 058850	058843	
HF-R 142 PL-T	8711500 059949	0.25	36	25.5 x 24.5 x 18.5	0.01	9.2	8711500 059956	059949	
HF-R 242 PL-T	8711500 058829	0.42	24	32.4 x 31.4 x 17.9	0.01	10.7	8711500 058836	058829	