

Electronic Ballasts for High Intensity Discharge Lamps



20 -150 W 220-240 V, 50-60 Hz

- For indoor use only
- Unique solution for protection against mains transients, patent pending
- Pioneering strain relief available for independent use, fits all sizes, patent pending
- Square wave form lamp current
- Flickerless light
- Low losses
- Protection class I
- For HI & C-HI lamps
- Over temperature protection
- EOL protection (under / over lamp voltage, rectification), lamp missing / not igniting



A2*

Lamp type	Wattage	Ballast	BEC ²⁾	Power losses (W)	Dimensions (no.)	Circuit power (W)	Mains current (A)	Power factor	Weight (g)	Lamp power (W)	Ignition voltage (kV pk)
HI	20	EP1x20h	A2	3.5	1	23.5	0.11-0.10	> 0.95	135	20	< 5
	35	EP1x35h	A2	4.5	1	43.5	0.20-0.18	> 0.98	135	39	< 5
	50	EP1x50h ¹⁾	A2	5.5	2	55.5	0.25-0.23	> 0.98	190	50	< 5
	70	EP1x70h	A2	6.8	2	79.8	0.36-0.33	> 0.99	195	73	< 5

1) Preliminary information

2) Ballast efficiency class, according to European Commission Regulation No. 245/2009.

Ballasts meet the 3rd stage (year 2017) energy efficiency requirements (table 2 on page 52)**Note:** For detailed lamp compatibility information please see page 53

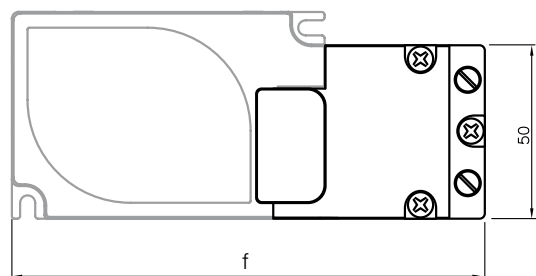
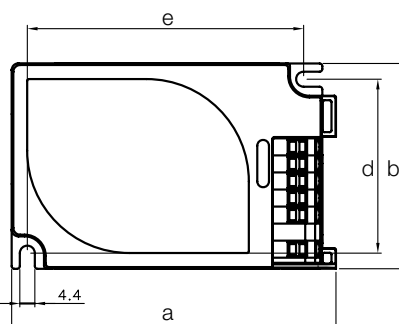
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Dimensions

NO.	1	2
LENGTH 'a' (mm)	95	105
WIDTH 'b' (mm)	60	65
HEIGHT 'c' (mm)	30	30
'd' (mm)	51	56
'e' (mm)	82	92
'f' (mm)	141	151
'g' (mm)	31.5	31.5



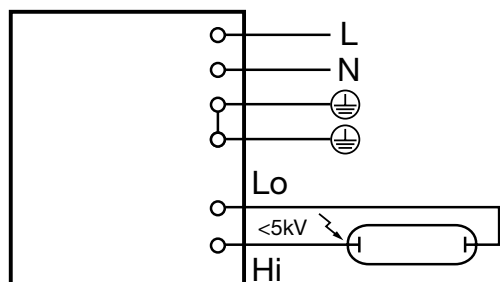
With strain relief (EP-sr)



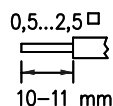
Delivery information

Ballast	Unit package		Transportation package		
	Minimum delivery amount	Carton box	EUR pallet 1200 x 800 (pcs.)	Pallet weight (kg)	Pallet height (cm)
EP1x20h	10	●	1920	280	66
EP1x35h	10	●	1920	280	66
EP1x70h	10	●	1680	350	72
EP-sr	60	●	-	-	-

Connection details



Ballast lamp distance: 150 pF / 1.5 m
 Terminal type: Push in
 Terminals suitable for: solid and stranded wire 0.5 - 2.5 mm²
 Wire strip length: 10 - 11 mm



Characteristics

	EP1x...h
Max.temperature at t _c point	75 °C
Ambient temperature range	-20...+50 °C *
Storage temperature range	-40...+80 °C
Maximum relative humidity	no condensation
Type of protection	IP20
AC range	198-264 VAC
Earth leakage current	< 0,4 mA
Maximum working voltage (U _{out})	350 V
Lifetime (90 % survival)	50 000 h, at T _c

* For independent use, T_a max. = 40 °C for 70 W,
 only if mounted on flammable surface. Otherwise T_a max. = 50 °C

Standards

	EP1x...h
General, safety and particular requirements according to	IEC/EN 60347-1, IEC/EN 61347-2-12
EMC immunity according to	IEC/EN 61547
Mains current harmonics according to	IEC/EN 61000-3-2
Surge immunity according to	IEC/EN 61000-4-5
Radio frequency interference according to	IEC/EN 55015

Ballast efficiency class (A2)

Nominal lamp wattage P (W)	Minimum ballast efficiency η ballasts (%)
P ≤ 30	78
30 < P ≤ 75	85
75 < P ≤ 105	87
105 < P ≤ 405	90
P > 405	92

Table 2: Minimum efficiency requirements for ballasts for discharge lamps
 (3rd stage, year 2017)

Lamp compatibility for EP1x...

Manufacturer	20 W EP1x20h		35 W EP1x35h		70 W EP1x70h	
	TYPE	(cap)	TYPE	(cap)	TYPE	(cap)
OSRAM	HCI-TF	(GU6.5)	HCI-T	(G12)	HCI-T	(G12)
	HCI-TC	(G8.5)	HCI-TF	(GU6.5)	HCI-TC	(G8.5)
	HCI-R111	(GX8.5)	HCI-TC	(G8.5)	HCI-TS	(RX7s)
	HCI-PAR	(E27)	HCI-R111	(GX8.5)	HCI-T/P	(E27)
			HCI-PAR	(E27)	HCI-E/P	(E27)
			HCI-E/P	(E27)	HCI-R111	(GX8.5)
					HCI-PAR	(E27)
					HQI-T	(G12)
					HQI-TS	(RX7s)
					HQI-E	(E27)
PHILIPS	CDM-T	(G12)	CDM-T	(G12)	CDM-T	(G12)
	CDM-TC	(G8.5)	CDM-T Elite	(G12)	CDM-T Elite	(G12)
	CDM-Tm	(GU6.5)	CDM-TC	(G8.5)	CDM-TC	(G8.5)
	CDM-Rm	(GX10)	CDM-TC Elite	(G8.5)	CDM-TC Elite	(G8.5)
	CDM-R111	(GX8.5)	CDM-Tm Elite	(GU6.5)	CDM-R	(E27)
			CDM-Rm Elite	(GX10)	CDM-R Elite	(E27)
			CDM-R	(E27)	CDM-TD	(RX7s)
			CDM-R Elite	(E27)	CDM-TP	(PG12-2)
			CDM-R111	(GX8.5)	CDM-R111	(GX8.5)
GE	CMH 20/T	(G12)	CMH 35/T	(G12)	CMH 70/T	(G12)
	CMH 20/T	(G8.5)	CMH 35/T	(G8.5)	CMH 70/T	(G8.5)
	CMH 20/T	(GU6.5)	CMH 35/T	(GU6.5)	CMH 70/TC	(G8.5)
	CMH 20/PAR	(E27)	CMH 35/TC	(G8.5)	CMH 70/TD	(RX7s)
			CMH 35/MR16	(GX10)	CMH 70/PAR	(E27)
			CMH 35/PAR	(E27)	CMH 70/E	(E27)
			CMH 35/TD	(RX7s)		

Note: Not suitable for lamps with internal ignitor

Quantity of ballasts for miniature circuit breakers (MCB's)

Lamp(s)	EP-h	Quantity of ballasts per miniature circuit breaker 16 A Type C		Typical inrush current I_{peak} (A)	1/2 value time Δt (μs)	Calculated energy $I_{peak}^2 \Delta t$ (A ² s)
		Based on I_{cont}	Based on I_{peak}			
1x20 HI	EP1x20h	104	75	22	135.0	0.05
1x35 HI	EP1x35h	58	52	32	137.0	0.10
1x70 HI	EP1x70h	32	32	41	188.0	0.22