

Electronic ballasts for compact fluorescent lamps

1



10-40 W 220-240 V, 50-60 Hz

- Slim, only 28 mm high
- Multilamp operation
- Single and twin lamp operation
- Low power losses
- Single case size



A2

Lamp type	Wattage	No. of lamps	Ballast	EEL	Connection	Weight	Circuit power	Mains current	Power factor	Lamp power
					(p.18)	(g)	(W)	(A)		(W)
TC-L	18	1	EL1/2x18-42TCs	A2	11	132	17	0.08	0.94c	14.8
	18	1	EL1x18-42TCs	A2	13	125	17	0.08	0.94c	14.8
	18	2	EL1/2x18-42TCs	A2	12	132	32	0.14	0.97	14.8
	24	1	EL1/2x18-42TCs	A2	11	132	26	0.12	0.95	23
	24	1	EL1x18-42TCs	A2	13	125	26	0.12	0.95	23
	24	2	EL1/2x18-42TCs	A2	12	132	48	0.21	0.98	22.3
	36	1	EL1/2x36/38TCs	A2 BAT	11	132	37	0.17	0.96	34
	36	1	EL1x18-42TCs ¹⁾²⁾	A2	13	125	31	0.14	0.96	28
	36	1	EL1/2x18-42TCs ¹⁾²⁾	A2	12	132	31	0.14	0.96	28
	36	2	EL1/2x36/38TCs	A2 BAT	12	132	72	0.32	0.97	33
TC-F	40	1	EL1/2x18-42TCs ¹⁾	A2	11	132	42	0.19	0.98	39
	40	1	EL1x18-42TCs	A2	13	125	42	0.19	0.98	39
	18	1	EL1/2x18-42TCs	A2	11	132	17	0.08	0.94c	14.8
	18	1	EL1x18-42TCs	A2	13	125	17	0.08	0.94c	14.8
	18	2	EL1/2x18-42TCs	A2	12	132	32	0.14	0.97	14.8
	24	1	EL1/2x18-42TCs	A2	11	132	26	0.12	0.95	23
	24	1	EL1x18-42TCs	A2	13	125	26	0.12	0.95	23
	24	2	EL1/2x18-42TCs	A2	12	132	48	0.21	0.98	22.3
	36	1	EL1/2x36/38TCs	A2 BAT	11	132	37	0.17	0.96	34
	36	1	EL1/2x18-42TCs ¹⁾²⁾	A2	12	132	31	0.14	0.96	28
36	2	EL1/2x36/38TCs	A2 BAT	12	132	72	0.32	0.97	33	

Note: See pages 18-19 for connection diagrams and additional characteristics.

1) Tested and recommended by Helvar, not ENEC approved

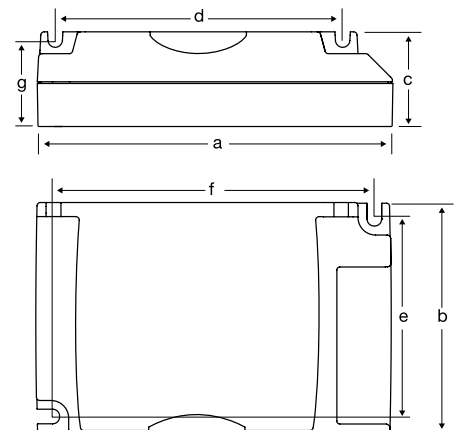
2) Light output 93 %

Dimensions

Length 'a' (mm)	103.5
Width 'b' (mm)	67
Height 'c' (mm)	28
'd' (mm)	83.5
'e' (mm)	57.5
'f' (mm)	93.5
'g' (mm)	25.5

Delivery information

Ballast	Unit package		Transportation package		
	Minimum delivery amount	Carton Box	Pallet 820x1280 (pcs.)	Pallet weight (kg)	Pallet height (cm)
EL-TCs	60	●	1800	260	105



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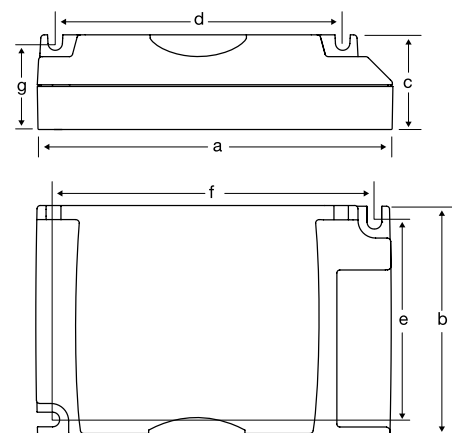
Lamp type	Wattage	No. of lamps	Ballast	EEL	Connection	Weight	Circuit power	Mains current	Power factor	Lamp power
					(p.18)	(g)	(W)	(A)		(W)
TC-DD	10	1	EL1/2x9-13TCs	A2	11	118	12	0.05	0.91c	10.0
	16	1	EL1/2x9-13TCs	A2	11	118	17	0.08	0.95	15
	21	1	EL1/2x18-42TCs ¹⁾	A2	11	132	25	0.11	0.97	22.3
	28	1	EL1/2x18-42TCs	A2	11	132	29	0.13	0.97	27.0
	38	1	EL1/2x36/38TCs	A2 BAT	11	132	38	0.17	0.96	34.8
	38	2	EL1/2x36/38TCs	A2 BAT	12	132	74	0.32	0.97	34
T5c	22	1	EL1/2x18-42TCs	A2	11	132	25	0.12	0.95	22.6
	22	1	EL1x18-42TCs	A2	13	125	25	0.12	0.95	22.6
	40	1	EL1/2x18-42TCs	A2	11	132	41	0.19	0.98	38.6
	40	1	EL1x18-42TCs	A2	11	125	41	0.19	0.98	38.6
T5	14	1	EL1/2x9-13TCs ¹⁾	A2	11	118	16	0.07	0.95	14.7
	21	1	EL1/2x9-13TCs ¹⁾	A2	11	118	22.5	0.10	0.97	21
	28	1	EL1/2x9-13TCs ¹⁾	A2	11	118	31	0.14	0.97	28.2
T8	30	2	EL2x32/42TCs ¹⁾	A2	11	132	57.5	0.25	0.97	26.6
TC-SE	9	1	EL1/2x9-13TCs	A2	11	118	10	0.05	0.9c	8.5
	9	1	EL1x9-13TCs	A2	13	110	10	0.05	0.9c	8.5
	9	2	EL1/2x9-13TCs	A2	12	118	18	0.08	0.96	8.5
	11	1	EL1/2x9-13TCs	A2	11	118	14	0.07	0.93c	12.8
	11	1	EL1x9-13TCs	A2	13	110	14	0.07	0.93c	12.8
	11	2	EL1/2x9-13TCs	A2	12	118	27	0.12	0.98	12.9

Note: See pages 18-19 for connection diagrams and additional characteristics.

1) Tested and recommended by Helvar, not ENEC approved

Dimensions	
Length 'a' (mm)	103.5
Width 'b' (mm)	67
Height 'c' (mm)	28
'd' (mm)	83.5
'e' (mm)	57.5
'f' (mm)	93.5
'g' (mm)	25.5

Delivery information					
Ballast	Unit package		Transportation package		
	Minimum delivery amount	Carton Box	Pallet 820x1280 (pcs.)	Pallet weight (kg)	Pallet height (cm)
EL-TCs	60	●	1800	260	105



Electronic ballasts for compact fluorescent lamps

1



9-26 W 220-240 V, 50-60 Hz

- Slim only 28 mm high
- Multilamp operation
- Single and twin lamp operation
- Low power losses
- Single case size



A2

Lamp type	Wattage	No. of lamps	Ballast	EEL	Connection	Weight	Circuit power	Mains current	Power factor	Lamp power
					(p.18)	(g)	(W)	(A)		(W)
TC-DE	10	1	EL1/2x9-13TCs	A2	11	118	10	0.05	0.9c	8.9
	10	1	EL1x9-13TCs	A2	13	110	10	0.05	0.9c	8.9
	10	2	EL1/2x9-13TCs	A2	12	118	20	0.09	0.97	8.9
	13	1	EL1/2x9-13TCs	A2	11	118	15	0.07	0.94c	13.8
	13	1	EL1x9-13TCs	A2	13	110	15	0.07	0.94c	13.8
	13	2	EL1/2x9-13TCs	A2	12	118	28	0.13	0.98	13.5
	18	1	EL1/2x18TCs	A2	11	120	19	0.09	0.96	16.9
	18	1	EL1x18TCs	A2	13	113	19	0.09	0.96	16.9
	18	2	EL1/2x18TCs	A2	12	120	36	0.16	0.98	16.9
	26	1	EL1/2x18-42TCs	A2	11	132	27	0.13	0.96	24.7
	26	1	EL1x18-42TCs	A2	13	125	27	0.13	0.96	24.7
	26	2	EL1/2x18-42TCs	A2	12	132	51	0.23	0.98	23.8
PL-R	14	1	EL1/2x14/17TCs ¹⁾	A2 BAT	11	131	18	0.08	0.92c	15.8
	14	1	EL1x14/17TCs ¹⁾	A2 BAT	13	126	18	0.08	0.92c	15.8
	14	2	EL1/2x14/17TCs ¹⁾	A2 BAT	12	131	34	0.15	0.96	15.5
	17	1	EL1/2x14/17TCs ¹⁾	A2 BAT	11	131	21.5	0.1	0.93c	19.3
	17	1	EL1x14/17TCs ¹⁾	A2 BAT	13	126	21.5	0.1	0.93c	19.3
	17	2	EL1/2x14/17TCs	A2 BAT	12	131	41	0.18	0.96	18.6

1) Ballast Lumen Factor for 1x14 W, 2x14 W, 1x17 W: 107 %

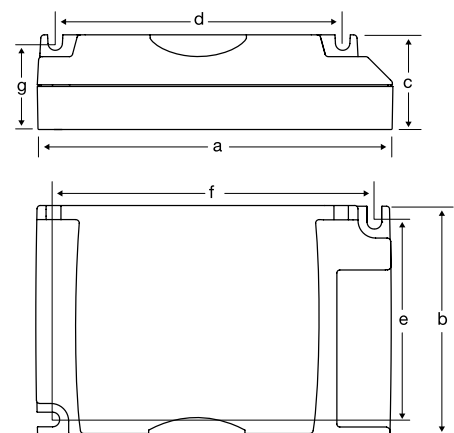
Note: See pages 18-19 for connection diagrams and additional characteristics.

Dimensions

Length 'a' (mm)	103.5
Width 'b' (mm)	67
Height 'c' (mm)	28
'd' (mm)	83.5
'e' (mm)	57.5
'f' (mm)	93.5
'g' (mm)	25.5

Delivery information

Ballast	Unit package		Transportation package		
	Minimum delivery amount	Carton Box	Pallet 820x1280 (pcs.)	Pallet weight (kg)	Pallet height (cm)
EL-TCs	60	●	1800	260	105



Electronic ballasts for compact fluorescent lamps



13-57 W 220-240 V, 50-60 Hz

1

- Slim only 28 mm high
- Multilamp operation
- Single and twin lamp operation
- Low power losses
- Single case size



A2

Lamp type	Wattage	No. of lamps	Ballast	EEL	Connection	Weight	Circuit power	Mains current	Power factor	Lamp power
					(p.18)	(g)	(W)	(A)		(W)
TC-TE	13	1	EL1/2x9-13TCs	A2	11	118	15	0.07	0.94c	13.8
	13	1	EL1x9-13TCs	A2	13	110	15	0.07	0.94c	13.8
	13	2	EL1/2x9-13TCs	A2	12	118	28	0.13	0.98	13.5
	18	1	EL1/2x18TCs	A2	11	120	19	0.09	0.96	16.9
	18	1	EL1x18TCs	A2	13	113	19	0.09	0.96	16.9
	18	2	EL1/2x18TCs	A2	12	120	36	0.16	0.98	16.9
	26	1	EL1/2x18-42TCs	A2	11	131	27	0.13	0.96	24.7
	26	1	EL1x18-42TCs	A2	13	125	27	0.13	0.96	24.7
	26	2	EL1/2x18-42TCs	A2	12	131	51	0.23	0.98	23.8
	26	2	EL2x32/42TCs	A2	12	131	53	0.24	0.97	24
	32	1	EL1/2x18-42TCs	A2	11	131	32	0.15	0.97	29.4
	32	1	EL1x18-42TCs	A2	13	125	32	0.15	0.97	29.4
	32	2	EL2x32/42TCs	A2	12	131	64	0.29	0.98	28.5
	42	1	EL1/2x18-42TCs	A2	11	131	44	0.2	0.98	42.2
	42	1	EL1x18-42TCs	A2	13	125	44	0.2	0.98	42.2
	42	2	EL2x32/42TCs	A2	12	131	85	0.38	0.98	40.5
	57	1	EL1/2x18-42TCs	A2	11	131	58.5	0.26	0.99	54
	57	1	EL1x18-42TCs	A2	13	125	58.5	0.26	0.99	54

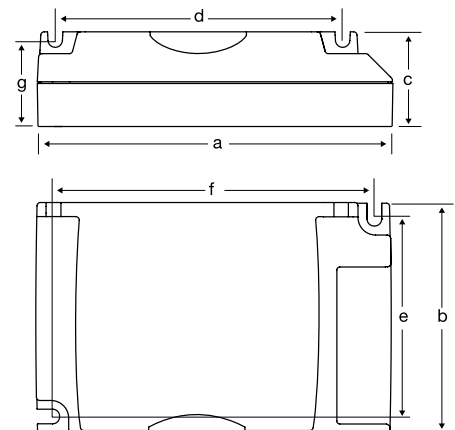
Note: See pages 18-19 for connection diagrams and additional characteristics.

Dimensions

Length 'a' (mm)	103.5
Width 'b' (mm)	67
Height 'c' (mm)	28
'd' (mm)	83.5
'e' (mm)	57.5
'f' (mm)	93.5
'g' (mm)	25.5

Delivery information

Ballast	Unit package		Transportation package		
	Minimum delivery amount	Carton Box	Pallet 820x1280 (pcs.)	Pallet weight (kg)	Pallet height (cm)
EL-TCs	60	●	1800	260	105

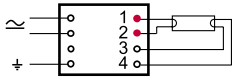


Connection diagrams

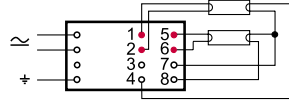
1 EL-s, EL-su, EL-ngn, EL-TCs

NOTE: All wiring to the connectors marked with a red dot (hot wires) should be as short as possible.

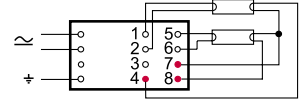
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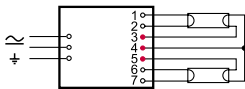
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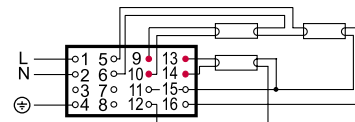
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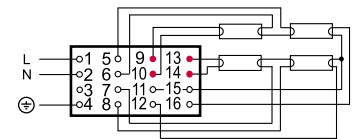
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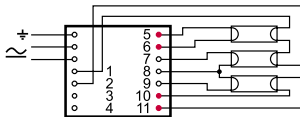
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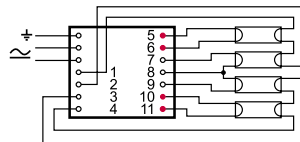
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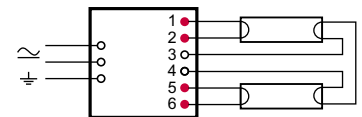
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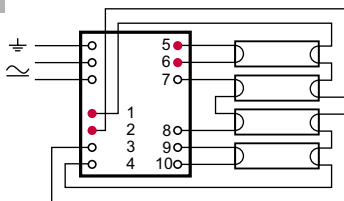
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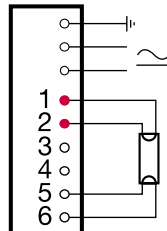
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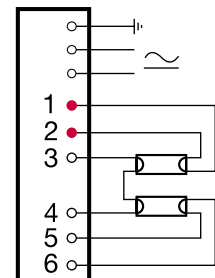
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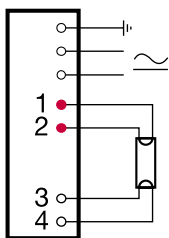
11



12



13



- | | |
|----|--|
| 1 | EL1x ...s, EL1x...ngn |
| 2 | EL2x18s, EL2x24s, EL2x36/40s, EL2x39/36s, EL2x54s, EL2x55s, EL2x58s, EL2x70s |
| 3 | EL2x14-35s, EL2x49s |
| 4 | EL2x14-35s-u, EL2x36/40s-u, EL2x49s-u, EL2x58s-u, EL2x80s-u |
| 5 | EL3/4x14s, EL3/4x18s (three lamp connection) |
| 6 | EL3/4x14s, EL3/4x18s (four lamp connection) |
| 7 | EL3/4x14s-u, EL3/4x18s-u, EL3/4x24s-u (three lamp connection) |
| 8 | EL3/4x14s-u, EL3/4x18s-u, EL3/4x24s-u (four lamp connection) |
| 9 | EL2x18ngn, EL2x36ngn, EL2x58ngn |
| 10 | EL4x18ngn |
| 11 | EL1/2x14/17TCs, EL1/2x18-42TCs, EL1/2x18TCs, EL1/2x9-13TCs, EL1/2x36/38TCs |
| 12 | EL1/2x14/17TCs, EL1/2x18-42TCs, EL1/2x18TCs, EL1/2x9-13TCs, EL2x32/42TCs, EL1/2x36/38TCs |
| 13 | EL1x14/17TCs, EL1x18-42TCs, EL1x18TCs, EL1x9-13TCs |

Characteristics

1

	EL-s / EL-su	EL-ngn	EL-TCs
Max.temperature at t _c point	75 °C ^{3) 4)}	75 °C	75 °C
Ambient temperature range	-20...+50 °C ⁷⁾	-20...+50 °C	-20...+50 °C
Storage temperature range	-40...+80 °C	-40...+80 °C	-40...+80 °C
Maximum relative humidity	no condensation	no condensation	no condensation
Number of starts per lamp	> 50 000	> 50 000	> 50 000
AC Range	198-264 VAC ⁵⁾⁶⁾	198-264 VAC	198-264 VAC
DC range (starting voltage >190VDC)	176-280 VDC ⁶⁾	176-280 VDC	176-280 VDC ¹⁾
Over voltage duration	320 VAC, 1 h	320 VAC, 1 h	320 V / 1 h
Power factor (at maximum), typical	0.98	0.98	> 0.95
Earth leakage current	< 0.4 mA	< 0.4 mA	< 0.4 mA
Maximum working voltage (U _{out})	400 V	350 V	250 V ²⁾
Lifetime (90 % survival)	50 000 h, at t _c	50 000 h, at t _c	50 000 h, at t _c
Max length of ballast to lamp wiring	2 m	1.5 m	1 m / 2 m (hot / cold)
Ignition time, typical	~1.0 s	< 1 s	~1 s

1) For 2 x 42 W lamp, DC range is 190-280 V

2) EL2x32/42TCs 300 V

3) For EL 3/4x14s and EL 3/4x18s, t_c = 80 °C

4) For EL 2x70s, t_c = 70 °C

5) For EL2x70s and EL2x80s-u AC range is 204-264 V

6) EL2x70s, EL2x55s and EL2x80s-u max 6 hours at 176-190 VDC

7) For 3/4x24W TC-F lamps, T_a = >18°C

Standards

	EL-s / EL-su	EL-ngn	EL-TCs
General and safety requirements EN61347-2-3	●	●	●
Additional safety requirements for AC/DC supplied ballasts acc. to EN61347-2-3 Annex J	●	●	●
Performance requirements EN60929	●	●	●
Preheat starting	●	●	●
Lamp life acc. to EN60081 / EN60901 *)	●	●	●
Mains current harmonics, acc. to EN61000-3-2	●	●	●
Radio Frequency Interference, acc. to EN55015	●	●	●
Immunity standard, acc.to EN61547	●	●	●
Vibration test EN60068-2-64 test Fh	●	●	●
Bump test EN60068-2-29 test Eb	●	●	●
Thermal protection class EN61347, C5e	●	●	●

* EN 60081 for T5 & T8 fluorescent lamps, EN 60901 for compact fluorescent lamps