

Electronic ballasts for T5 fluorescent lamps

1



14-80 W 220-240 V, 50-60 Hz

- Only 21 mm high
- Optimal lamp operation
- Wide operational ambient temperature range
- Standard & sidemount possibilities
- Low power losses
- Silent operation
- Stabilised flickerfree light
- High power factor



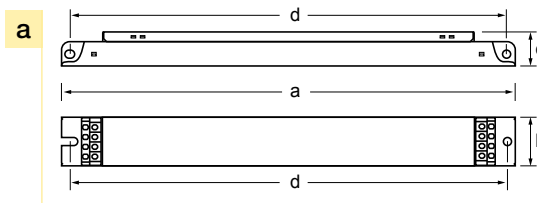
A2

Lamp type	Wattage	No. of lamps	Ballast	EEL	Dimensions	Connection	Weight	Circuit power	Mains current	Lamp power
							(g)	(W)	(A)	(W)
						(p.18)				
	14	1	EL1x14-35s	A2	1	1	175	15.5	0.08-0.07	13.7
	14	2	EL2x14-35s	A2	2	3	250	31	0.15-0.13	13.7
	14	3	EL3/4x14s	A2	2	5	250	46	0.22-0.19	13.7
	14	4	EL3/4x14s	A2	2	6	250	62	0.29-0.26	13.7
	21	1	EL1x14-35s	A2	1	1	175	23	0.12-0.10	20.7
	21	2	EL2x14-35s	A2	2	3	250	45	0.22-0.19	20.7
	24	1	EL1x24s	A2	1	1	190	25	0.12-0.11	22,5
	24	2	EL2x24s	A2	2	2	230	49	0.24-0.21	22.5
	28	1	EL1x14-35s	A2	1	1	175	30	0.15-0.12	27.8
	28	2	EL2x14-35s	A2	2	3	250	60	0.29-0.25	27.8
	35	1	EL1x14-35s	A2	1	1	175	38	0.18-0.16	34.7
	35	2	EL2x14-35s	A2	2	3	250	75	0.35-0.31	34.7
	39	1	EL1x39/36s	A2	1	1	190	42	0.19-0.18	38
	39	2	EL2x39/36s	A2	2	2	245	81	0.36-0.32	38
	49	1	EL1x49s	A2	1	1	190	52.5	0.25-0.23	49.3
	49	2	EL2x49s	A2	2	3	260	104	0.50-0.45	49.3
	54	1	EL1x54s	A2	1	1	200	58	0.26-0.24	53.8
	54	2	EL2x54s	A2	2	2	260	114.5	0.53-0.48	53.8
	80	1	EL1x80s	A2	1	1	200	85	0.40-0.36	80



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

Dimensions	1	2
Length 'a' (mm)	280	360
Width 'b' (mm)	30	30
Height 'c' (mm)	21	21
'd' (mm)	270	350



Delivery information					
Ballast	Unit package		Transportation package		
	Minimum delivery amount	Plastic binding strip	One-way pallet 1200 x 820 (pcs.)	Pallet weight (kg)	Pallet height (cm)
EL1 x s	10	●	2000	350 - 420	57
EL2 x s	10	●	1500	395	57
EL3/4 x s	10	●	1500	390	57

Electronic ballasts for T5-eco fluorescent lamps



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A2

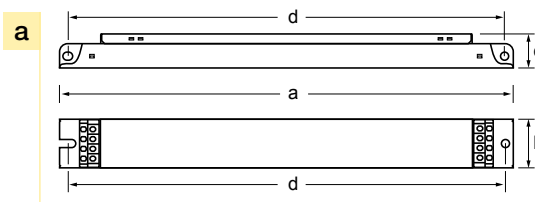
Lamp type	Wattage	No. of lamps	Ballast	EEL	Dimensions	Connection	Weight	Circuit power ¹⁾	Mains current ¹⁾	Lamp power ¹⁾
						(p.18)	(g)	(W)	(A)	(W)
	14	1	EL1x14-35s	A2	1	1	175	13-15	0.08-0.06	11.3-13.4
	14	2	EL2x14-35s	A2	2	3	250	29.2-30.3	0.13-0.12	11.3-13.4
	14	3	EL3/4x14s	A2	2	5	250	38.8-43	0.19-0.17	12.1-13.7
	14	4	EL3/4x14s	A2	2	6	250	52.3-57.4	0.25-0.23	12.1-13.7
	21	1	EL1x14-35s	A2	1	1	175	19.5	0.09	17.7
	21	2	EL2x14-35s	A2	2	3	250	39.5	0.17	17.7
	24	1	EL1x24s	A2	1	1	190	21.6	0.10	19.3
	24	2	EL2x24s	A2	2	2	230	43.6	0.19	19.3
	28	1	EL1x14-35s	A2	1	1	175	28.6	0.12	25.8
	28	2	EL2x14-35s	A2	2	3	250	57.4	0.25	26.2
	35	1	EL1x14-35s	A2	1	1	175	35.3-37.4	0.16-0.15	32.5-34.3
	35	2	EL2x14-35s	A2	2	3	250	70.8-72.7	0.31-0.30	32.5-34.3
	49	1	EL1x49s	A2	1	1	190	46.8-48	0.21-0.20	43.4-47.4
	49	2	EL2x49s	A2	2	3	260	94-100.3	0.43-0.40	43.4-47.4
	54	1	EL1x54s	A2	1	1	200	52.2-54	0.24-0.22	48.3-52
	54	2	EL2x54s	A2	2	2	260	105.4-108.5	0.46-0.45	48.3-52
	80	1	EL1x80s	A2	1	1	200	74.8-80	0.34-0.32	70.5-75.6



1) Depending on difference in lamps from various manufacturers

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

Dimensions	1	2
Length 'a' (mm)	280	360
Width 'b' (mm)	30	30
Height 'c' (mm)	21	21
'd' (mm)	270	350



Delivery information					
Ballast	Unit package		Transportation package		
	Minimum delivery amount	Plastic binding strip	One-way pallet 1200 x 820 (pcs.)	Pallet weight (kg)	Pallet height (cm)
EL1 x s	10	●	2000	350 - 420	57
EL2 x s	10	●	1500	395	57
EL3/4 x s	10	●	1500	390	57

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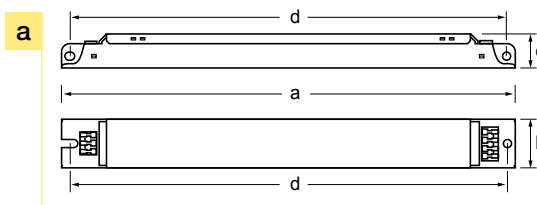
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Lamp type	Wattage	No. of lamps	Ballast	EEI	Dimensions	Connection	Weight	Circuit power	Mains current	Lamp power
							(g)	(W)	(A)	(W)
	14	1	EL1x14-35s-u	A2	1	1	175	15.5	0.08-0.07	13.7
	14	2	EL2x14-35s-u	A2	2	4	250	31	0.15-0.13	13.7
	14	3	EL3/4x14s-u	A2	1	7	210	46	0.22-0.19	13.7
	14	4	EL3/4x14s-u	A2	1	8	210	62	0.29-0.26	13.7
	21	1	EL1x14-35s-u	A2	1	1	175	23	0.12-0.10	20.7
	21	2	EL2x14-35s-u	A2	2	4	250	45	0.22-0.19	20.7
	24	3	EL3/4x24s-u	A2 BAT	1	7	215	73	0.34-0.30	22.5
	24	4	EL3/4x24s-u	A2 BAT	1	8	215	97	0.44-0.40	22.5
	28	1	EL1x14-35s-u	A2	1	1	175	30	0.15-0.12	27.8
	28	2	EL2x14-35s-u	A2	2	4	250	60	0.29-0.25	27.8
	35	1	EL1x14-35s-u	A2	1	1	175	38	0.18-0.16	34.7
	35	2	EL2x14-35s-u	A2	2	4	250	75	0.35-0.31	34.7
	49	1	EL1x49s-u	A2	1	1	190	52.5	0.25-0.23	49.3
	49	2	EL2x49s-u	A2	2	4	260	104	0.50-0.45	49.3
	80	2	EL2x80s-u	A2 BAT	2	4	305	170	0.80-0.73	80



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

Dimensions	1	2
Length 'a' (mm)	280	360
Width 'b' (mm)	30	30
Height 'c' (mm)	21	21
'd' (mm)	270	350



Delivery information					
Ballast	Unit package		Transportation package		
	Minimum delivery amount	Plastic binding strip	One-way pallet 1200 x 820 (pcs.)	Pallet weight (kg)	Pallet height (cm)
EL1 x s-u	10	●	2000	350 - 420	57
EL2 x s-u	10	●	1500	395	57
EL3/4 x s-u	10	●	1500	390	57

Electronic ballasts for T5 eco fluorescent lamps



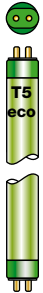
14-80 W 220-240 V, 50-60 Hz

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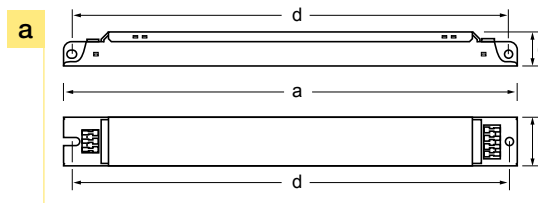
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Lamp type	Wattage	No. of lamps	Ballast	EEI	Dimensions	Connection	Weight	Circuit power ¹⁾	Mains current ¹⁾	Lamp power ¹⁾
						(p.18)	(g)	(W)	(A)	(W)
	14	1	EL1x14-35s-u	A2	1	1	175	13-15	0.08-0.06	11.3-13.4
	14	2	EL2x14-35s-u	A2	2	4	250	29.2-30.3	0.13-0.12	11.3-13.4
	14	3	EL3/4x14s-u	A2	1	7	210	38.8-43	0.19-0.17	12.1-13.7
	14	4	EL3/4x14s-u	A2	1	8	210	52.3-57.4	0.25-0.23	12.1-13.7
	21	1	EL1x14-35s-u	A2	1	1	175	19.5	0.09	17.7
	21	2	EL2x14-35s-u	A2	2	4	250	39.5	0.17	17.7
	24	3	EL3/4x24s-u	A2 BAT	1	7	215	64.3	0.28	19.4
	24	4	EL3/4x24s-u	A2 BAT	1	8	215	85	0.37	19.75
	28	1	EL1x14-35s-u	A2	1	1	175	28.6	0.12	25.8
	28	2	EL2x14-35s-u	A2	2	4	250	57.4	0.25	26.2
	35	1	EL1x14-35s-u	A2	1	1	175	35.3-37.4	0.16-0.15	32.5-34.3
	35	2	EL2x14-35s-u	A2	2	4	250	70.8-72.7	0.31-0.30	32.5-34.3
	49	1	EL1x49s-u	A2	1	1	190	46.8-48	0.21-0.20	43.4-47.4
	49	2	EL2x49s-u	A2	2	4	260	94-100.3	0.43-0.40	43.4-47.4
	80	2	EL2x80s-u	A2 BAT	2	4	305	151.8-161	0.70-0.65	71.2-76.2

1) Depending on difference in lamps from various manufacturers

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

Dimensions	1	2
Length 'a' (mm)	280	360
Width 'b' (mm)	30	30
Height 'c' (mm)	21	21
'd' (mm)	270	350



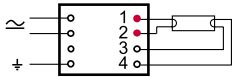
Delivery information					
Ballast	Unit package		Transportation package		
	Minimum delivery amount	Plastic binding strip	One-way pallet 1200 x 820 (pcs.)	Pallet weight (kg)	Pallet height (cm)
EL1 x s-u	10	●	2000	350 - 420	57
EL2 x s-u	10	●	1500	395	57
EL3/4 x s-u	10	●	1500	390	57

Connection diagrams

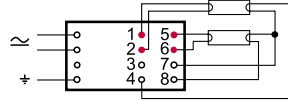
1 EL-s, EL-su, EL-ngn, EL-TCs

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

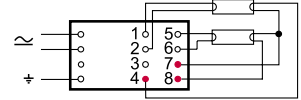
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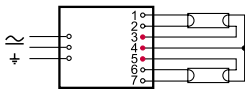
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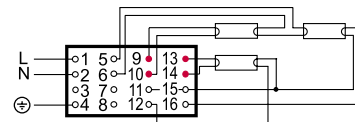
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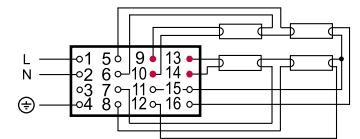
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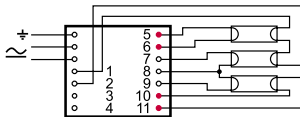
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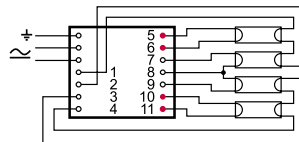
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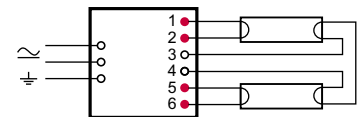
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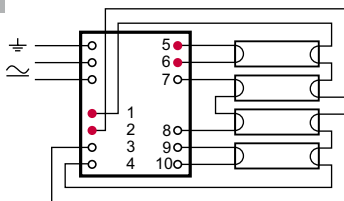
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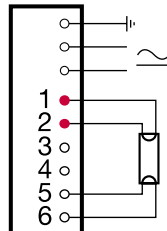
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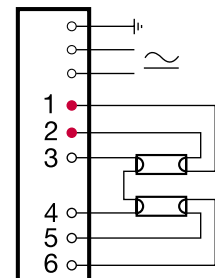
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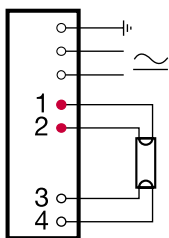
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12



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