

## Electronic ballasts for T5 fluorescent lamps

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

- Smallest available quality ballast
- Standard & sidemount possibilities
- Optimal lamp operation
- Low power losses
- Long lifetime
- Green values
- High power factor

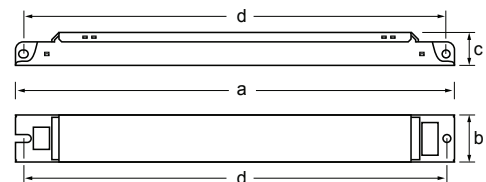


### A2 BAT

Lamp type	Wattage	No. of lamps	Ballast	EEI	Dimensions	Connection	Weight	Circuit power	Mains current	Lamp power
						(p.30)				
T5	14	1	EL1x14-35ngn5	A2 BAT	1	1	127	15.5	0.08-0.06	13.7
	14	2	EL2x14-35ngn5	A2 BAT	2	12	204	31	0.16-0.15	13.7
	14	3	EL3/4x14ngn5	A2	2	6	204	46	0.22-0.19	13.7
	14	4	EL3/4x14ngn5	A2	2	7	204	62	0.29-0.26	13.7
	14	4	EL4x14ngn5	A2 BAT	2	7	190	63	0.30-0.26	13.7
	21	1	EL1x14-35ngn5	A2 BAT	1	1	127	23	0.12-0.10	20.7
	21	2	EL2x14-35ngn5	A2 BAT	2	12	204	45	0.22-0.19	20.7
	24	1	EL1x24ngn5	A2	1	1	130	25	0.12-0.11	22.5
	24	2	EL2x24ngn5	A2 BAT	2	8	193	49	0.24-0.21	22.5
	24	3	EL3/4x24ngn5	A2 BAT	2	6	208	73	0.34-0.30	22.5
	24	4	EL3/4x24ngn5	A2 BAT	2	7	208	97	0.44-0.40	22.5
	28	1	EL1x14-35ngn5	A2 BAT	1	1	127	30	0.15-0.12	27.8
	28	2	EL2x14-35ngn5	A2 BAT	2	12	204	60	0.29-0.25	27.8
	35	1	EL1x14-35ngn5	A2 BAT	1	1	127	38	0.18-0.16	34.7
	35	2	EL2x14-35ngn5	A2 BAT	2	12	204	75	0.35-0.31	34.7
	39	1	EL1x39/36ngn5	A2 BAT	1	1	130	42	0.19-0.18	38
	39	2	EL2x39/36ngn5	A2 BAT	2	8	195	81	0.36-0.32	38
	49	1	EL1x49ngn5	A2 BAT	1	1	130	55	0.25-0.23	49.3
	49	2	EL2x49ngn5	A2 BAT	2	12	211	105	0.50-0.45	49.3
	49	2	EL2x49ngn5-XL	A2 BAT	3	12	265	105	0.50-0.45	49.3
54	1	EL1x54ngn5	A2 BAT	1	1	130	58	0.26-0.24	53.8	
54	2	EL2x54ngn5	A2 BAT	2	8	206	115	0.53-0.48	53.8	
54	2	EL2x54ngn5-XL	A2 BAT	3	8	260	115	0.53-0.48	53.8	
80	1	EL1x80ngn5	A2 BAT	2	1	192	86	0.42-0.36	80	
80	2	EL2x80ngn5	A2 BAT	3	12	300	170	0.80-0.73	80	

Note: See pages 30-33 for connection diagrams and additional characteristics.

Dimensions	1	2	3
Lenght 'a' (mm)	190	280	360
Width 'b' (mm)	30	30	30
Height 'c' (mm)	21	21	21
'd' (mm)	180	270	350



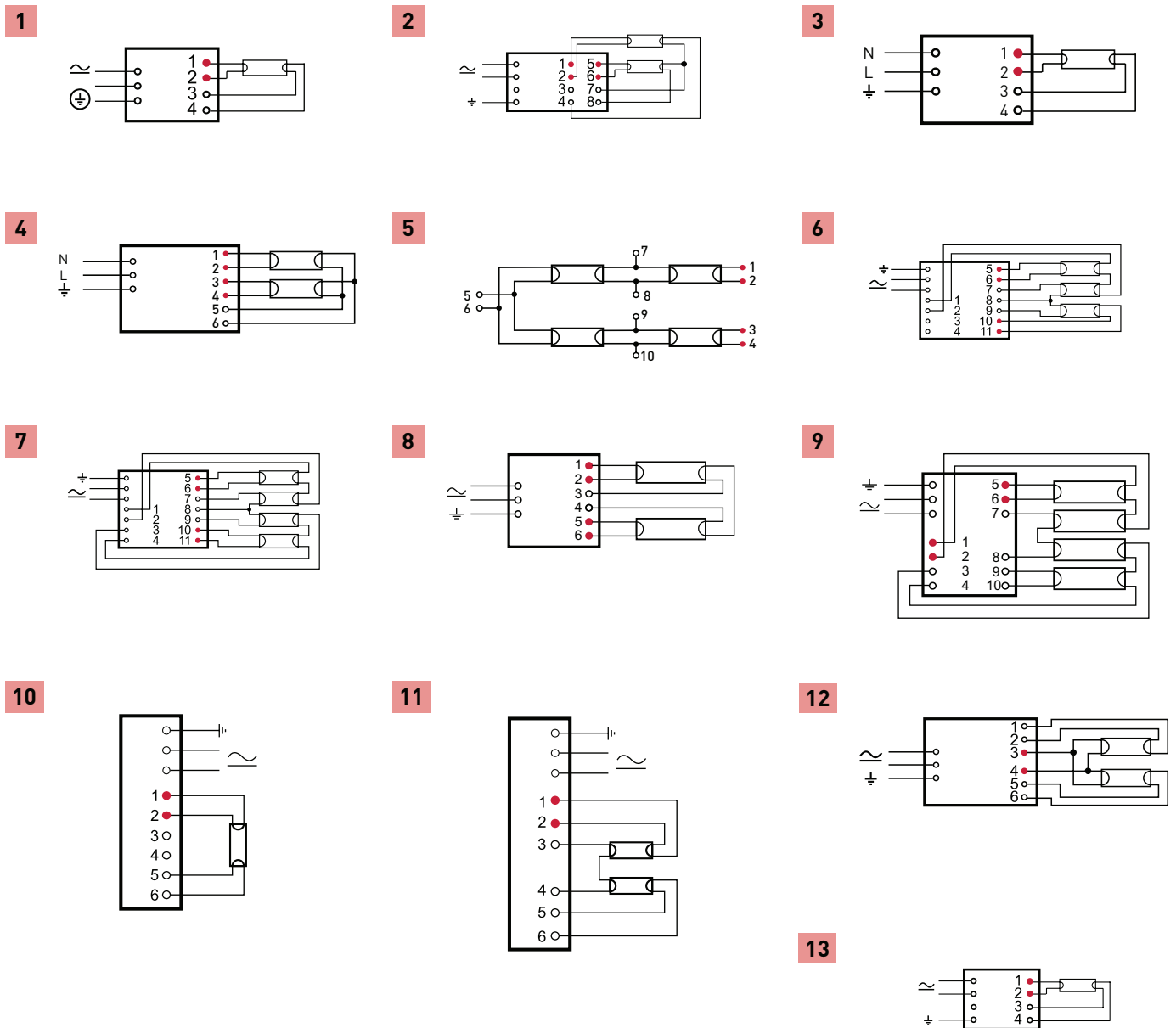
### Delivery information

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 ngn5	10	●	2000	260-300	48
EL2 x ngn5 & EL3/4 x ngn5	10	●	2000	400-450	56
EL2x55ngn5 & EL2x80ngn5	10	●	1500	400-420	56

# Connection diagrams

## EL-ngn5, EL-s, EL-ngn, EL-es, EL-ef, EL-TCs

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



1	EL1x...ngn, EL1x...ngn5
2	EL2x58s, EL2x70s
3	EL1x18ef, EL1x36ef, EL1x58ef
4	EL2x18ef, EL2x36ef
5	EL4x18ef
6	EL3/4x18ngn (three lamp connection), EL3/4x14ngn5, EL3/4x24ngn5
7	EL3/4x18ngn (four lamp connection), EL3/4x14ngn5, EL3/4x24ngn5, EL4x14ngn5
8	EL2x18ngn, EL2x36ngn, EL2x58ngn, EL2x24ngn5, EL2x39/36ngn5, EL2x54ngn5, EL2x54ngn5-XL, EL2x55ngn5, EL2x36es, EL2x58es
9	EL4x18ngn, EL4x18es
10	EL1/2x14/17TCs, EL1/2x18-42TCs, EL1/2x18TCs, EL1/2x9-13TCs, EL1/2x36/38TCs
11	EL1/2x14/17TCs, EL1/2x18-42TCs, EL1/2x18TCs, EL1/2x9-13TCs, EL2x32/42TCs, EL1/2x36/38TCs
12	EL2x14-35ngn5, EL2x49ngn5, EL2x49ngn5-XL, EL2x80ngn5
13	EL1x ...s

	EL-s	EL-ngn	EL-ngn5	EL-es	EL-TCs	EL-ef
Max. temperature at $t_c$ point	75 °C <sup>3)</sup>	75 °C	75 °C <sup>7)10)</sup>	75 °C	75 °C	70 °C
Ambient temperature range	-20...+50 °C	-20...+50 °C	-20...+50 °C <sup>11)</sup>	-15...+50 °C	-20...+50 °C	-15...+50 °C
Storage temperature range	-40...+80 °C	-40...+80 °C	-40...+80 °C	-40...+80 °C	-40...+80 °C	-40...+80 °C
Maximum relative humidity	no condensation	no condensation	no condensation	no condensation	no condensation	no condensation
Number of starts per lamp	> 50 000	> 60 000	> 50 000	> 20 000	> 50 000	> 6 000
AC Range	198-264 VAC <sup>4)5)</sup>	198-264 VAC	198-264 VAC	198-264 VAC	198-264 VAC	220 - 240 VAC
DC range (starting voltage >190VDC)	176-280 VDC <sup>5)</sup>	176-280 VDC	176-280 VDC	198-264 VDC <sup>9)</sup>	176-280 VDC <sup>11)</sup>	220 - 240 VDC
Over voltage duration	320 VAC, 1 h	320 VAC, 1 h	320 VAC, 1 h	320 VAC, 1 h	320 V / 1 h	270 VAC, 2 h
Power factor (at maximum), typical	0.98	0.98	0.98	0.98	> 0.95	0.95
Earth leakage current	< 0.4 mA	< 0.4 mA	< 0.4 mA	< 0.4 mA	< 0.4 mA	< 0.4 mA
Maximum working voltage (Uout)	400 V	350 V <sup>6)</sup>	400 V <sup>6)</sup>	350 V <sup>6)</sup>	250 V <sup>2)</sup>	280 V <sup>12)</sup>
Lifetime (90 % survival)	50 000 h, at $t_c$	60 000 h, at $t_c$	60 000 h, <sup>8)</sup> at $t_c$ >100 000h, at $T_a$ 50°C	50 000 h, at $t_c$	50 000 h, at $t_c$	30 000 h, at $T_c$ 45 000 h, at $T_a$ 50°C
Max length of ballast to lamp wiring	2 m	1.5 m	2 m	1.5 m	1 m / 2 m (hot / cold)	2 m
Ignition time, typical	~1.0 s	< 1 s	~1 s	< 2 s	~1 s	0.3 s

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

2) EL2x32/42TCs 300 V

3) For EL 2x70s,  $t_c = 70$  °C

4) For EL2x70s AC range is 204-264 V

5) EL2x70s max 6 hours at 176-190 VDC

6) 3/4x18ngn, Uout = 400 V

7) 70 °C EL3/4x14ngn5

8) Please see page 33 for detailed information

9) Operationally suitable for emergency use with central battery

10) 85 °C, for EL-ngn5-XL-types

11) max  $T_a$  65 °C, for EL-ngn5-XL-types

12) Uout = 380 V for EL2x36ef & EL4x18ef

## Standards

	EL-s / EL-su	EL-ngn	EL-ngn5	EL-es	EL-TCs	EL-ef
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 <sup>*</sup>	●	●	●	●	●	●
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	●	●	●	●	●	-
Type of starting; preheat (warm start)	●	●	●	●	●	-
EBLF (Emergency Ballast Lumen Factor)	-	-	>0,3	-	-	-
BLF (Ballast Lumen Factor)	-	-	~1	-	-	~1

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