

# Controllable (1-10 V) electronic ballasts for compact fluorescent lamps


**24-80 W 220-240 V, 50-60 Hz**

- Switch-Control / Analogue control <sup>1)</sup>
- Only 21 mm high
- Standard & Side mounting
- Dimming range 1-100 %
- Microprocessor controlled
- User friendly, quick release connectors
- Low energy consumption
- Flickerless light


**A1**

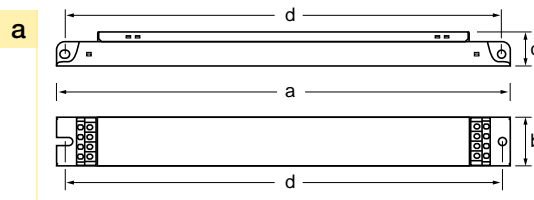
Lamp type	Wattage	No. of lamps	Ballast	EEL	Dimensions	Connection	Weight	Circuit power	Mains current	Lamp power
						(p.26)	(g)	(W)	(A)	(W)
<b>TC-L</b>	24	1	EL1x24sc <sup>2)</sup>	A1	1	1	270	26	0.13-0.12	24
	24	2	EL2x24sc <sup>2)</sup>	A1	2	2	340	50	0.24-0.20	24
	36	1	EL1x36sc	A1	1	1	270	37	0.17-0.16	32
	36	2	EL2x36sc	A1	2	2	340	71	0.33-0.30	32
	40	1	EL1x39sc <sup>2)</sup>	A1	1	1	270	44	0.20-0.18	40
	40	2	EL2x39sc <sup>2)</sup>	A1	2	2	340	84	0.40-0.36	40
	55	1	EL1x55sc	A1	1	1	270	61	0.28-0.26	55
	55	2	EL2x55sc	A1	2	2	340	117	0.53-0.49	55
<b>TC-F</b>	80	1	EL1x80sc <sup>2)</sup>	A1	1	1	270	88	0.41-0.38	80
	24	1	EL1x24sc <sup>2)</sup>	A1	1	1	270	26	0.13-0.12	24
	24	2	EL2x24sc <sup>2)</sup>	A1	2	2	340	50	0.24-0.20	24
	36	1	EL1x36sc <sup>2)</sup>	A1	1	1	270	37	0.17-0.16	32
	36	2	EL2x36sc <sup>2)</sup>	A1	2	2	340	71	0.33-0.30	32
<b>T5c</b>	40	1	EL1x39sc <sup>2)</sup>	A1	1	1	270	43	0.20-0.18	40

**Note:** See pages 26-28 for connection diagrams and additional characteristics.

1) Simultaneous lighting control by Switch-Control and Analogue control

2) Tested and recommended by Helvar, not ENEC approved combination

Dimensions	1	2
Length 'a' (mm)	360	430
Width 'b' (mm)	30	30
Height 'c' (mm)	21	21
'd' (mm)	350	420



## Delivery information

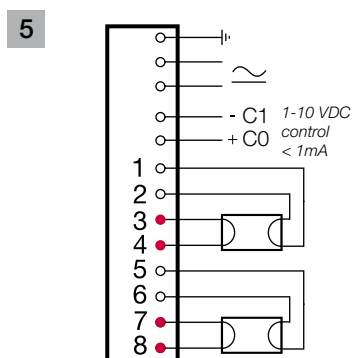
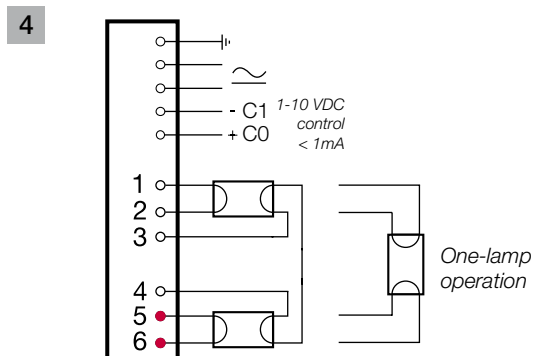
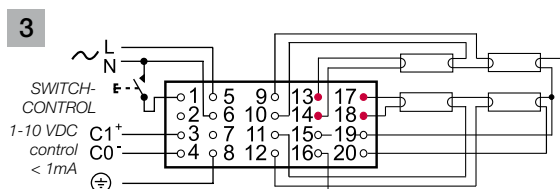
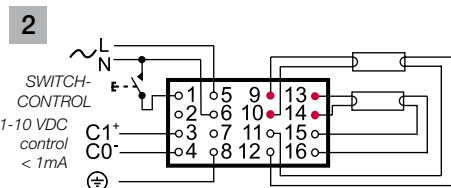
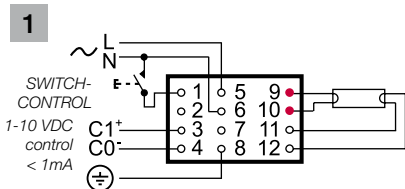
Ballast	Unit package		Transportation package		
	Minimum delivery amount	Plastic binding strip	EUR pallet 1200 x 800 (pcs.)	Pallet weight (kg)	Pallet height (cm)
EL1 x sc	10	●	980	300	40
EL2 x sc	10	●	840	325	43

## Connection diagrams

### EL-sc, EL-CHFC3

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

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1	EL1x ...sc
2	EL2x ...sc
3	EL4x ...sc
4	EL1/2x13CHFC3, EL1/2x18CHFC3, EL1/2x18-42CHFC3
5	EL2x26-42CHFC3

## Characteristics

	EL-sc
Max.temperature at t <sub>c</sub> point	80 °C
Ambient temperature range	+10...+50 °C <sup>1)</sup>
Storage temperature range	-40...+80 °C
Maximum relative humidity	no condensation
Number of starts per lamp	> 50 000
AC Range	198-264 VAC
DC range (starting voltage >190VDC)	176-280 VDC
Over voltage duration	320 VAC, 1 h
Power factor (at maximum), typical	0.98
Earth leakage current	< 0.4 mA
Maximum working voltage (U <sub>out</sub> )	400 V
Lifetime (90 % survival)	50 000 h , at 70 °C t <sub>c</sub>
Max length of ballast to lamp wiring	1.5 m/2 m (hot/cold) <sup>2)</sup>
Ignition time, typical	<1.3 s

1) To ensure stable operation of TC-L lamps in ambient temperatures below 18°C it is not recommended to dim the light level below 3 %

2) For TC-L lamps 1 m/2 m (hot/cold lamp wires)

## Standards

	EL-sc
General and safety requirements EN61347-2-3	●
Performance requirements EN60929	●
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	●

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

## Switch-Control information, EL-sc ballasts

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Switch-Control provides ON/OFF switching and UP/DOWN dimming functionality from one or more simple switches. Switch-Control can be used together and simultaneously with other compatible control devices.

- EL-sc ballasts and analogue 1-10 V control.

### Suitable switch:

- Automatic return type. Mains rated (Mains is still present at the ballast terminals if the lamps are switched off from Switch-Control).
- The switch should withstand a short circuit current of:
  - 0.2 mA per ballast

### Connection:

- Between the Switch-Control input and N (or L).
- Wire length: 200 m maximum.
- Ballasts per switch: 50 (observe above).
- Ensure all ballasts and associated switches are connected to the same mains phase.

### Operation:

- Switch off: Short push of the switch (<0.4 second).
- Switch on: Short push of the switch (<0.4 second).
  - Re-strike within 3 seconds of switch off is prevented to ensure optimal lamp warm start.
  - EL-sc ballasts will switch on to the analogue control set level.
- Dimming: Long push of the switch (>0.5 second).
  - If lamps are off, the ballast dims up from minimum.
  - If lamps are on, the ballast dims in the opposite direction to previously.

### Regaining analogue control when Switch-Control is active:

- Dim the analogue control device from min. to max. and back to minimum within 1 second.

### Correction of out of sequence operation:

- Switch the mains supply off and on, or...
- Long push (until all lamps are on), then a short push (all lamps off), then wait 3 seconds and switch on (short push).

### Compatibility:

Some ballasts manufacturers have functionality similar to Helvar Switch-Control. In most cases these methods are NOT COMPATIBLE with each other.

### Connection

Between the Switch-Control input (pin1) and L (or N).

