

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



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

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



A1

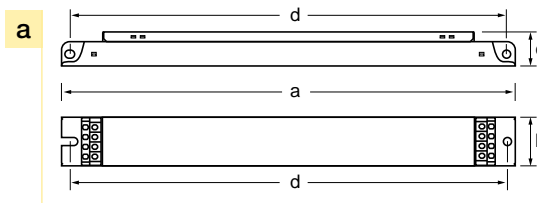
2

| Lamp type | Wattage | No. of lamps | Ballast | EEL | Dimensions | Connection | Weight | Circuit power | Mains current | Lamp power |
|-----------|---------|--------------|------------------------|-----|------------|------------|--------|---------------|---------------|------------|
| | | | | | | | (g) | (W) | (A) | (W) |
| TC-L | 24 | 1 | EL1x24sc ²⁾ | A1 | 1 | 1 | 270 | 26 | 0.13-0.12 | 24 |
| | 24 | 2 | EL2x24sc ²⁾ | 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 ²⁾ | A1 | 1 | 1 | 270 | 44 | 0.20-0.18 | 40 |
| | 40 | 2 | EL2x39sc ²⁾ | 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 |
| TC-F | 80 | 1 | EL1x80sc ²⁾ | A1 | 1 | 1 | 270 | 88 | 0.41-0.38 | 80 |
| | 24 | 1 | EL1x24sc ²⁾ | A1 | 1 | 1 | 270 | 26 | 0.13-0.12 | 24 |
| | 24 | 2 | EL2x24sc ²⁾ | A1 | 2 | 2 | 340 | 50 | 0.24-0.20 | 24 |
| | 36 | 1 | EL1x36sc ²⁾ | A1 | 1 | 1 | 270 | 37 | 0.17-0.16 | 32 |
| T5c | 36 | 2 | EL2x36sc ²⁾ | A1 | 2 | 2 | 340 | 71 | 0.33-0.30 | 32 |
| | 40 | 1 | EL1x39sc ²⁾ | 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 |



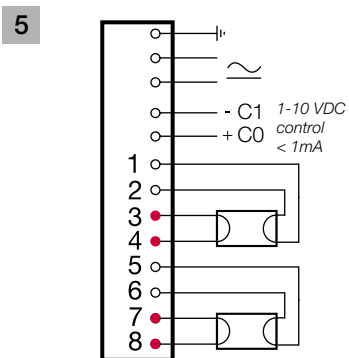
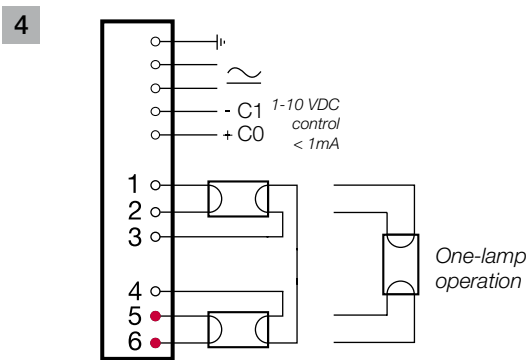
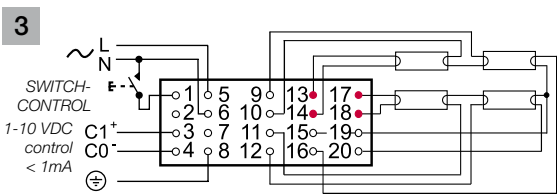
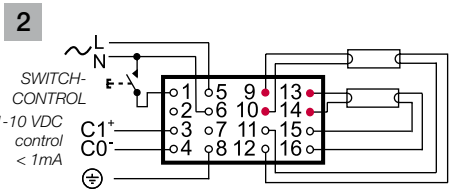
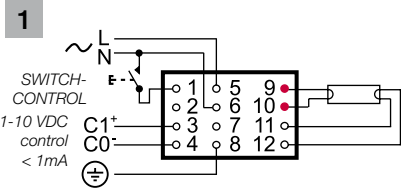
| Delivery information | | | | | |
|----------------------|-------------------------|-----------------------|------------------------------|--------------------|--------------------|
| Ballast | Unit package | | Transportation package | | |
| | Minimum delivery amount | Plastic binding strip | EUR pallet 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 _c point | 80 °C |
| Ambient temperature range | +10...+50 °C ¹⁾ |
| 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 _{out}) | 400 V |
| Lifetime (90 % survival) | 50 000 h , at 70 °C t _c |
| Max length of ballast to lamp wiring | 1.5 m/2 m (hot/cold) ²⁾ |
| 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 ^{*)} | ● |
| 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).

