

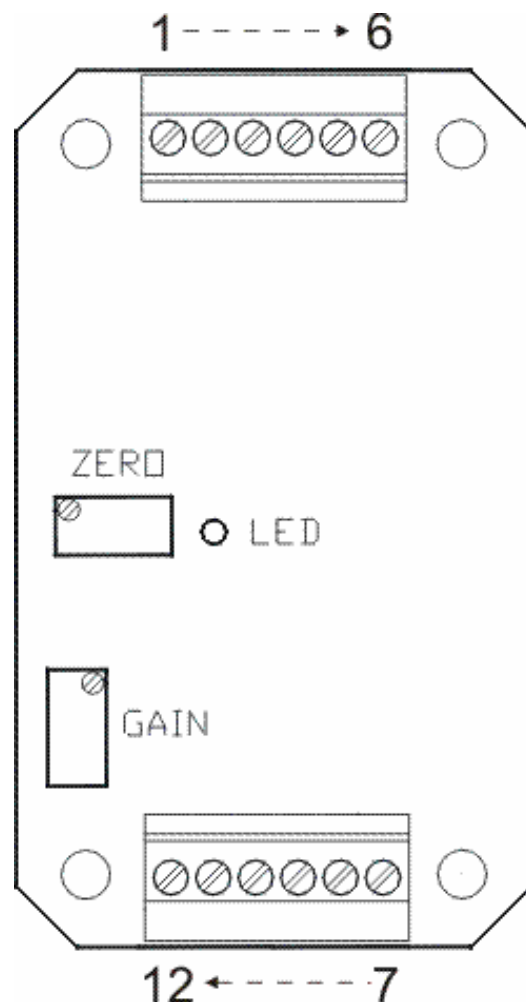
EL600 conditioning electronics Amplifier electronics	CE	Version : UK 1r3 dated 02/03/20 Page: 1/4
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INSTRUCTION MANUAL

MODEL EL621 • EL631 • EL625 • EL635 • EL624 • EL634

ELECTRICAL CONNECTIONS

Terminal	Description
6	Earth
5	- Vps (Power supply)
4	- Vps (Power supply) for cabling purposes
3	+ Vps Power supply to EL600 cards: EL621 and EL631 = 18 – 28 Vdc EL624 and EL634 = 12 – 40 Vdc EL625 and EL635 = 10,5 – 28 Vdc 20 mA max. fed to connected transducer. Current output: EL624 = 4-20 mA (2 wires) with load resistance in series.
2	- Vout (negative output signal)
1	+Vout (positive output signal) EL621 = 0 to ± 10 V; EL631= 0 to +10 V EL634 = 4-20 mA (3 wires) EL625 = 0 to ± 5 V; EL635= 0 to +5 V
7	Shield of cable (like terminal 6)
8	Calibration (DSE Yellow)
9	- Power supply to transducer (DSE Black)
10	+ Power supply to transducer (DSE Red) EL621 and EL631= 15 Vdc (typical) EL624 = 1 Vdc (typical) EL634 = 15 Vdc (typical) EL625 and EL635= 8 Vdc (typical)
11	- Transducer signal (DSE Green)
12	+ Transducer signal (DSE White)



- Series EL600 conditioning electronic cards:**
 Series EL600 are surface mounted electronic amplifiers that need to be powered by a filtered and stabilized power supply (from an external power supply generator). These cards feed the power supply to the connected strain gauge transducer.
 Mating female screw terminal removable connectors are included in the card.
 Output impedance, for EL621, EL631, EL625 and EL635, is low (approximately 10 Ohm)
- S2Tech load cell cable colour connection codes:**
 The connection table lists the connection cable color code of S2Tech transducers (they might change without notice) example: Red = + Vps power supply. Contact S2Tech for any related question.
 Series BC300 load cell connection: Red - Green = Power supply; Blue – Colorless= Signal.

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- EL624 (4-20 mA 2 wires outputs):*

EL624 card provides a 2 wire 4-20 mA output that can only be matched to one direction of use for load cells, as tension or compression but not tension and compression at the same time, like voltage outputs (current cannot be negative).

EL624 circuit need to have a load resistance (RL, not included) to be externally applied on the positive or negative power supply conductors (see page 4 graph); load resistance value is to be chosen in order to stay in the middle of the area of Vps, with reference to the power supply fed to the EL624 card (typically RL=250 Ohm, with 24 Vdc power supply).

RL is not to be applied twice on the measuring circuit. Be sure that the electronics that measures the current signal does not have an internal RL, applied in its input circuit.

EL634 has a 4-20 mA, 3 wires, output and does not need the RL load resistance.
- Built-in calibration circuit:*

S2Tech not amplified load cells (mV/V outputs) have a built-in calibration circuit that allows to calibrate them, easily, together with the connected electronics.

The calibration circuit generates an electrical signal (when GREEN and WHITE conductors are connected) corresponding to a known load value (lower than the load cell full scale), without having to apply any load on the load cell.

Calibration circuit is activated by short circuiting the YELLOW calibration conductor together with the GREEN, when load cell has no load applied (preload, tare etc.); the obtained signal corresponds to the value, expressed in engineering units, that is listed in the load cell “Final Test Certificate” as “Calibration Equivalent Load Value”.

Calibration circuit could generate a signal with opposite polarity compared to the transducer normal use.
- Calibration procedure:*

Check that electrical connections are correct and that power supply is fed to the EL600 card (LED on EL600 card is to be on).

A voltmeter, or amperometer, is required for measuring the electrical values of EL600 card during calibration, as well as a known load specimen or the transducer’s “Final test certificate” (only S2Tech transducers), in order to set the gain trimmer.

Ground EL600 card, cable shields, transducers and the connected electronics to a single earth well, in order to avoid current loops between different grounds.

It is advisable to wait enough time (approximately 30min) to reach a thermal stability on the EL600 card and on the connected transducer.

It is advisable to mechanically cycle the transducer a few times, in order to reduce effects of mechanical settlings.

Calibration is performed by setting zero and gain signals so that they correspond to the matching engineering values. When working with voltmeters or amperometers, consider only the most significant decimals, when setting zero and gain values.

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1. Zero regulation:

Use a screwdriver to set the voltage, or current signal, corresponding to the required engineering units value (example: load cell mod. 546QD-110 Kg: 0Kg = 0 V or 0 Kg=4 mA for current).

2. Gain regulation:

- Specimen value:

Apply the specimen onto the transducer with a good alignment along the transducer's measuring axis.

Specimen value should be as close as possible to the transducer measuring range.

Use a screwdriver to set the voltage, or current signal, corresponding to the required engineering units value (example: load cell mod. 546QD-110 Kg: 110 Kg = 5 V or 10 V or 110 Kg = 20 mA for current).

- Calibration circuit:

Activate the calibration circuit and set the output signal, with gain trimmer, with reference to the "Calibration equivalent load".

The "Calibration equivalent load value" is normally lower than the load cell measuring range therefore also the amplified output is to be set proportionally lower by means of the following formula:

Example: load cell 546QD-110 Kg, calibrated with EL621 card 0 to ± 10 V output, with "Calibration equivalent load" value = 75,5 Kg and with X = value to be set with gain trimmer, with calibration circuit active.

$$X : 75,5 \text{ Kg} = 10 \text{ V} : 110 \text{ Kg}$$

$$X = \frac{10 \text{ V} \times 75,5 \text{ Kg}}{110 \text{ Kg}} = 6,863 \text{ V}$$

At the end of gain setting, disconnect the short circuit between Yellow and Green conductors.

3. Repeat calibration procedure 1. Zero and 2. Gain settings till the right electrical values are measured. It is normal that zero and gain regulations may influence each other and the number of times this procedure has to be repeated to converge to the desired values depends from the type of performed calibration.

CE DECLARATION

EL600 conditioner electronics complies with the requirements of the following norms:

EN 61326-1(1997) + A1(1998) + A2(2001) + A3(2003); EN 61000-6-2(2001); EN 61000-3-2(2000) + A2(2005); EN 61000-3-3(1995) + A1(2001); EN 61000-4-2 (1995) + A1(1998) + A2(2001); EN 61000-4-3(2002) + A1(2002); EN 61000-4-4(1995) + A1(2001) + A2(2001); EN 61000-4-5(1995) + A1(2001); EN 61000-4-6(1996) + A1(2001); EN 61000-4-8(1993) + A1(2001); EN 61000-4-11(2004)

