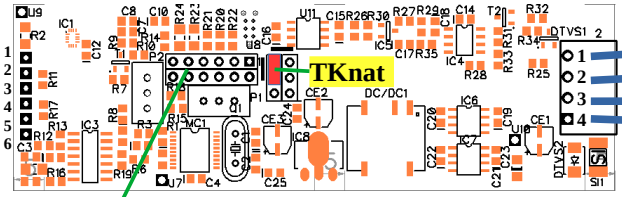
Measuring range selection of the LFTR 4E-40 conductivity transmitter

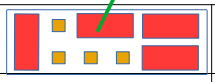
LFTR 4E- 40

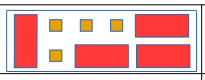
Connection to Measuring cell with **NTC** for temperature compensation

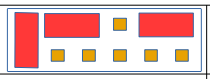


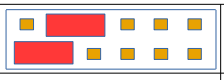
Connection to PLC

Output: 2...10V
Output: 4...20mA max. 21,5mA
supply voltage: 24VDC +-10%
GND ground

Jumper Sel. 1 	**Measuring range**	**Resolution**
Cell constant CC 0.5	4...20 (4+16) mA ≙ 0...100µS	6.25µS/mA
Cell constant CC 1	4...20 (4+16) mA ≙ 0...200µS	12.5µS/mA
Cell constant CC 2	4...20 (4+16) mA ≙ 0...400µS	25µS/mA
Cell constant CC 3	4...20 (4+16) mA ≙ 0...600µS	37.5µS/mA

Jumper Sel. 2 	**Measuring range**	**Resolution**
Cell constant CC 0.5	4...20 (4+16) mA ≙ 0...1000µS	62.5µS/mA
Cell constant CC 1	4...20 (4+16) mA ≙ 0...2000µS	125µS/mA
Cell constant CC 2	4...20 (4+16) mA ≙ 0...4000µS	250µS/mA
Cell constant CC 3	4...20 (4+16) mA ≙ 0...6000µS	375µS/mA

Jumper Sel. 3 	**Measuring range**	**Resolution**
Cell constant CC 0.5	4...20 (4+16) mA ≙ 0...10mS	625µS/mA
Cell constant CC 1	4...20 (4+16) mA ≙ 0...20mS	1250µS/mA
Cell constant CC 2	4...20 (4+16) mA ≙ 0...40mS	2500µS/mA
Cell constant CC 3	4...20 (4+16) mA ≙ 0...60mS	3750µS/mA

Jumper Sel. 4 	**Measuring range**	**Resolution**
Cell constant CC 0.5	4...20 (4+16) mA ≙ 0...100mS	6.25mS/mA
Cell constant CC 1	4...20 (4+16) mA ≙ 0...200mS	12.5mS/mA
Cell constant CC 2	4...20 (4+16) mA ≙ 0...400mS	25mS/mA
Cell constant CC 3	4...20 (4+16) mA ≙ 0...600mS	37.50mS/mA

Jumper Sel. 4.2  (Adjustment change by IMO). Specify jumper Sel. 4.2 when ordering.	**Measuring range**	**Resolution**
Cell constant CC 2	4...20 (4+16) mA ≙ **0...800mS**	50mS/mA
Cell constant CC 3	4...20 (4+16) mA ≙ **0...1200mS**	75mS/mA

Since a temperature compensation is integrated in the measuring system (measuring cell and transmitter), only the conductance at 25°C is relevant. TCref =25°C
The measured value is always output for the solution at 25°C. TCnat.

Calibration of the measuring system

If a higher accuracy than the standard tolerance of the measuring cell (3 / 5%) is required for the conductivity to be measured, we recommend our **KCL calibration solutions** for fine adjustment.

The following calibration solutions are available:

1,413 mS 12,88 mS 50 mS 111,8 mS 212 mS 298 mS

All conductivity values are /cm based on 25°C.

Although the measuring device has automatic temperature compensation, calibration should be performed at a calibration solution temperature of 25°C +- 1°.

We recommend to perform the calibration by means of the software module of the PLC by adjusting the slope.
Please note:
Only the 16mA are relevant for the slope. The 4mA offset must be subtracted from the 20mA.

If you still want to calibrate with the potentiometer on the **LFTR 4E-40**, we recommend our extension cable **LFTR 4E-40 extension 1m** between conductivity measuring cell and transmitter. Thus, the electronics comes into the safe dry area.

Please always touch and hold the PCB with clean washed hands only over the edges. No fingerprints on the printed circuit board!

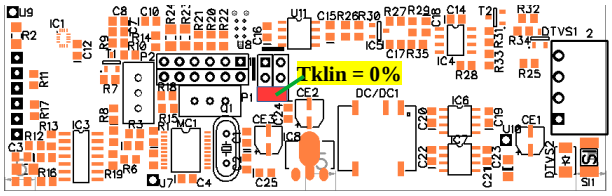
No calibration solution may get onto the PCB. Should this nevertheless happen, the PCB must be rinsed intensively with deionized water and dried at max. 80°C.

Calibration example:

Desired measuring range:	**20mS/cm**
Conductivity measuring cell:	**0022.4000NTC / LM4E 1-3NTC**
Measuring cell sleeve	**0022.4001H / LM4E Sleeve CC1**
Calibration solution:	**12,88 mS**

Jumper Sel.3 CC1 0...20mS 1250µS Resolution.

12880µS / 1250µS/mA = 10,3 mA + 4 mA offset = output current of 14.3mA.



With TKlin there is no temperature compensation of the measured value.

It is also possible to switch the output from 4...20mA / 2...10V to 0...20mA / 0...10V.
If required please ask IMO.