

# ISL 05x Inductive Conductivity Transmitter

Wetted parts in acid-proof, stainless steel and PEEK

Compact, food compatible, hygienic design

3A approved / FDA and EHEDG compliant

Process temperature -20...130°C

4 configurable measuring ranges

Adjustable, active temperature compensation

Insensitive to polarisation, adhesion and solids

LCD display for conductivity and temperature

4...20 mA output for conductivity and temperature



## Description

The ISL05x is a sensor for inductive measurement of conductivity. The compact design in all stainless steel enables installation in pipes from DN40 and upwards.

Precise, configurable temperature compensation and remote setting of the four pre-configured measuring ranges make the ISL ideal for a wide range of conductivity measurements.

The integrated display for mS/cm and °C offers the user instant local supervision, which is an advantage e.g. in manually operated cleaning systems.

A high operating temperature limit is an advantage in SIP systems.

The optimised flow geometry and the fast response time makes the ISL05x particularly suitable in applications for separation of medias and measurements of cleaning agents in CIP equipment.

The accuracy is excellent even at very low conductivity and flow rates.

The comprehensive range of accessories makes hygienic installation easy (Refer to separate data sheet).

## Technical Data

### Sensor

Inductive	2 toroidal-core transformers
Process connection	G1 hygienic
Insulating material	PEEK

### Electrical connection

Cable gland M16	Plast
Plug M12	Nickel-plated brass

### Mechanical data

Housing	Stainless Steel, W1.4301/AISI 304
Process connection	Stainless Steel, W1.4404/AISI 316 L
Protection class	IP67
Media pressure	Max. 10 bar
Vibrations	IEC 68-2-6, GL test2
Approval	3A
Adapters	Refer to "Accessories" data sheet

### EMC data

Immunity	EN 61326
Emission	EN 61326

### Operational conditions

Process temperature	-20...130°C (140°C <1 hour)
Amb. temperature	-20...60°C
Relative humidity	<100%, condensing

### Electrical data

Power supply	18...36 Vdc; max. 180 mA
Response time	$T_{90} < 3 \text{ sec.}$
LCDisplay	All output data also valid for the display

### Conductivity output

Measuring ranges	4 ranges, remote selectable
Ranges	0.5...999 mS/cm, configurable
Temp. compensation	0...5%/K, configurable per range
Temperature drift	< 110 ppm/°C
Accuracy	±1% of the selected range
Repeatability	0.2 % f.s.
Output	4...20 mA; max. 500 Ohm galv. isolated from power supply
Overrange	21.6mA

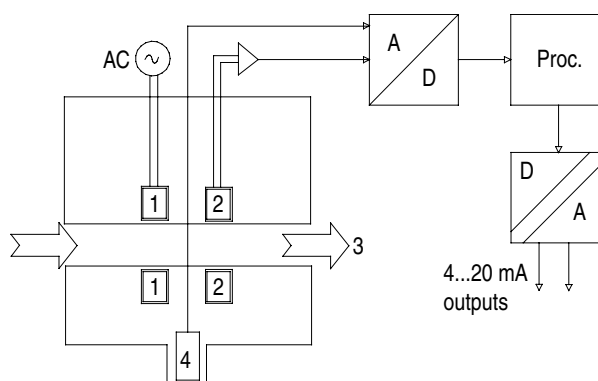
### Temperature output

Accuracy	≤ ±0.2°C (20...50°C) ≤ ±1.5°C (-20...140°C)
Resolution	0.1°C
Repeatability	0.2 % f.s.
Temperature drift	< 150 ppm/°C
Output	4...20 mA; max. 500 Ohm galv. isolated from power supply
Under/overrange	2.4/21.6mA

### Disposal of product and packing

According to national laws or by returning to Baumer

## Functional Principle



Inductive conductivity measurement is based on the principle of a transformer. The primary side of the transformer is controlled by an AC voltage generator.

The liquid flowing through the channel bore (3) in the measuring head forms a conductor loop, which links between the primary side of the transformer (1) and the secondary side of the transformer (2).

The output current is proportional with the conductivity of the media. Signal conditioning, amplification and conversion provides a 4...20 mA signal output from the galvanically isolated D/A converter.

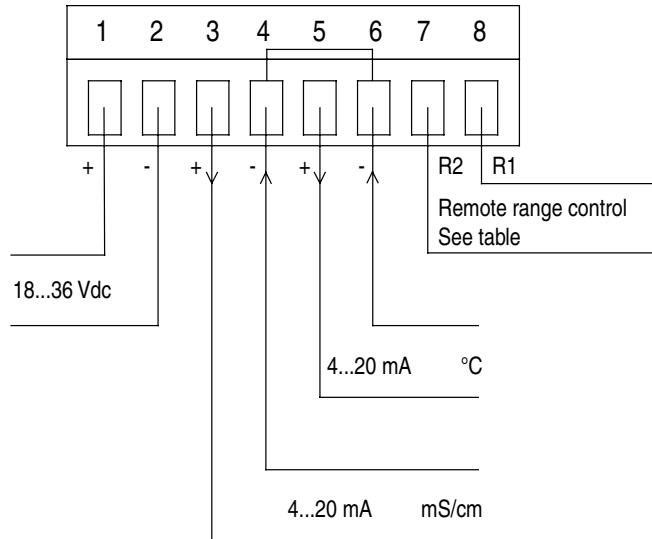
The fast-response temperature sensor in the tip (4) compensates for the temperature in the liquid resulting in maximum accuracy and reliability.

## Ordering Details - ISL 05x

Type (Excl. welding part or adapter)	Approval	ISL 05x x	
Standard sensor shaft (40 mm)		6' digit	0
Extended sensor shaft (87 mm)			1
Standard sensor shaft (40 mm)	3A		2
		7' digit	
Cable gland, M16			1
Plug, M12			2

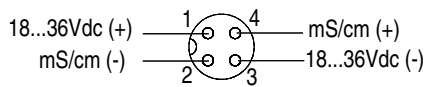
3.1.b material certificate, type number 5509-227

## Electrical Installation

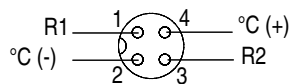


Range	R1	R2
	Volt	Volt
1	0/open	0/open
2	24	0
3	0	24
4	24	24

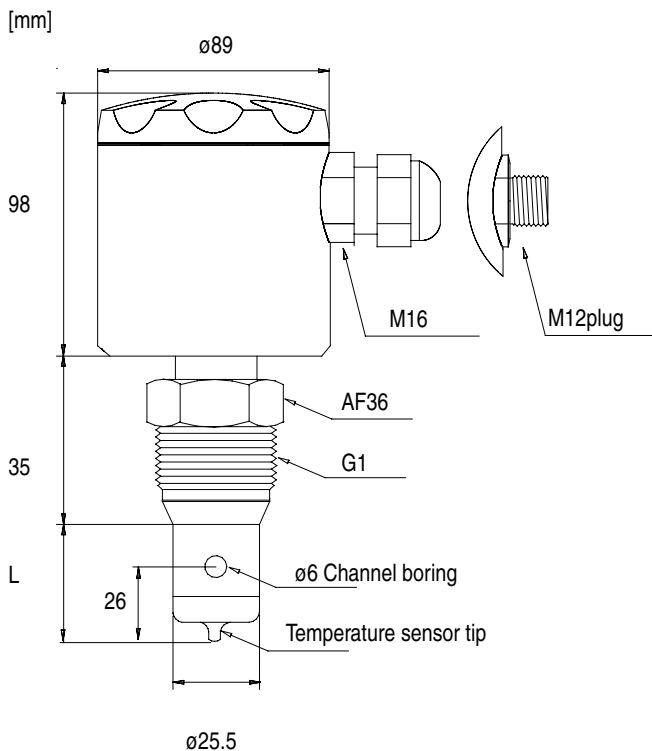
Jog shuttle range	Resolution for display
mS/cm	mS/cm
0...0.5	0.001
0...1	0.001
0...2	0.01
0...3	0.01
0...5	0.01
0...10	0.1
0...20	0.1
0...30	0.1
0...50	0.1
0...100	1.0
0...200	1.0
0...300	1.0
0...500	1.0
0...999	1.0



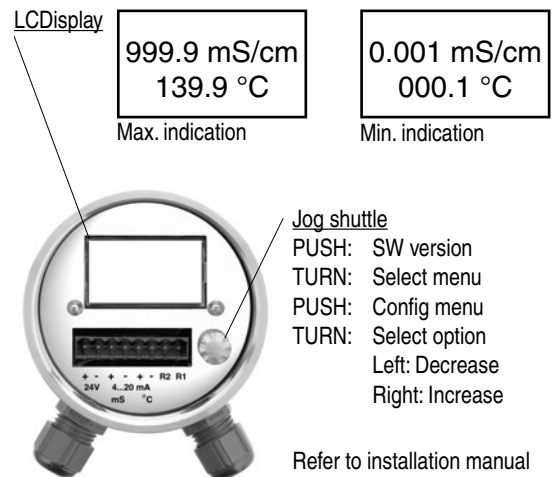
- 1: Brown
- 2: White
- 3: Blue
- 4: Black



## Dimensional Drawings



Insert length L = 40: Standard sensor shaft  
 Insert length L = 87: Extended sensor shaft



## 3A Approval

The ISL 052x is approved by 3A providing it is mounted in a 3A approved counter part and installed according to the guidelines given in the installation manual.

The 3A approved products fulfill the FDA demands and follow the EHEDG guidelines regarding design, materials and finishing. Refer to the 3A marked counter parts in the data sheet "Accessories".

