Conductivity Measuring and Control Unit LMI 02

- **Inductive, non-electrode measurement**
- **Fuzzy logic self-learning system**
- **Maintenance-free and chemical-resistant measuring probe**
- **Menu-driven user interface**
- **No measuring errors due to surface effects and polarization**
- **Adjustable mode of operation:**
  - Concentration control
  - CIP phase separation
- **Precise, fast temperature sensor**
- **Digital display of conductivity and temperature**
- **Two adjustable set points**
- **Fault signal output**
- **Pre-metering output (selectable)**
- **Time-controlled pre-metering for initial charge**
- **Adjustable pre-metering time delay**
- **Metering time limit**
- **0/4 - 20 mA – current output**
- **Compatible with P3-products**

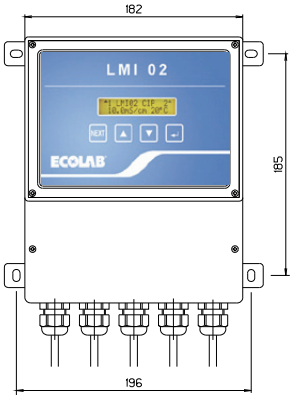
The inductive conductivity measuring and control unit **LMI 02** is especially designed for permanent concentration measurement and control of alkaline or acidic cleaning and disinfecting solutions.
The **LMI 02** is designed as a wall-mounted unit. The measuring operates to the electrodeless measuring principle. The conductivity probe is combined with a temperature sensor (NTC).

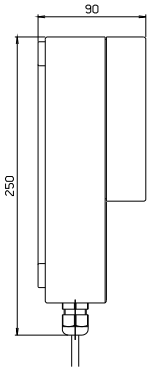
The temperature compensation for **alkaline** products (1.9 %/K) or **acid** detergents (1.25 %/K) is selectable. Front side function keys with a digital display guarantee a simple and reliable operator guidance.
The adaptive Fuzzy controller integrated in the LMI 02 keeps the detergent concentration on a constant and precise level.

Technical Data:

Housing:	plastic housing for wall mounting
Dimensions:	184 x 223 x 82 mm (w ∗ h ∗ d)
Safety type:	IP 65 according to German DIN 40050
Measurement range:	10 mS/cm = 20 mA 20 mS/cm = 20 mA 100 mS/cm = 20 mA 200 mS/cm = 20 mA (ex-works settings)
Conductivity indication:	digital, LC-display
Temperature indication:	digital, LC-display
Temperature compensation:	0 - 100° C, automatically with temperature sensor NTC 2 possible temperature compensation factors: acid (1.25 %/K) and caustic (1.9 %/K) (ex-works settings)
Pre-metering:	0 – 9999 s, adjustable in steps of 1 s
Pre-metering time delay:	0 – 9999 s, adjustable in steps of 1 s
Metering time limitation:	10 – 9999 s, adjustable in steps of 1 s
Switch outputs:	1 floating change-over contact for SP 1, load capacity 8 A/230 V AC 1 floating change-over contact for SP 2, load capacity 4 A/230 V AC 1 floating change-over contact for fault message signal, load capacity 4 A/230 V AC 1 floating change-over contact for pre-metering (additionally configurable), load capacity 4 A/230 V AC
Current output:	0/4 - 20 mA corresponding to 0 - 100 % of the set measuring range max. electric burden resistor 400 Ω
Inputs:	1 floating make contact for pre-metering start 1 floating break contact for metering lock 1 empty signal input for empty signal monitoring by means of reed contact
Mains power supply:	230 V - 240 V AC 115 V - 120 V AC 24 V AC
Mains frequency:	50 Hz - 60 Hz
Ambient temperature:	0° C – max. 50° C for the wall mount housing
Weight:	approx. 3 kg

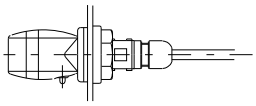
Dimensions:



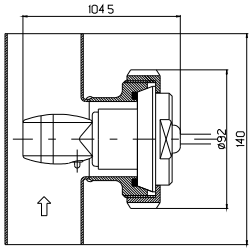


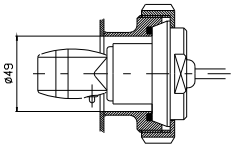
Application examples for conductivity probes:

Scope of delivery: **1 pc. LMI 02**
5 pc. screw sealing unit
3 pc. reducer sealing unit
2 pc. multiple sealing unit
1 pc. wire strap



Conductivity probe for tank wall installation
(21 mm bore-diameter required)
Material No. 287413 (PP)





Conductivity probe for tank wall installation
Material No. 287621 (PP) / 287604 (PEEK)
Tank welding fitting
Material No. 287505

Inline-conductivity probe for pipes
Material No. 287621 (PP) / 287604 (PEEK)
Flow fitting with weld-on end
Material No. 287507

Ordering Data:

Article	Material No.
LMI 02, 230 V / 50 Hz - 60 Hz	187601
LMI 02, 115 V / 50 Hz - 60 Hz	187602
LMI 02, 24 V / 50 Hz - 60 Hz	187603

Inductive conductivity measuring probes with integrated temperature sensor

Construction:	oval aspherical cap, streamline-shaped with 8 mm diameter of measuring boring
Material:	**PP (polypropylene)** **PEEK (polyether etherketon)**
Dimensions:	39 x 50 mm (Ø ∗ h), (without fixing adapter)
Pressure resistance:	PN = 10 bar at 20° C
Temperature resistance:	**max. 90° C (for PP) short-time** **max. 130° C (for PEEK) short-time**
Temperature sensor:	NTC resistor (R_{25} = 214 kΩ) in stainless steel immersion sleeve
Response time of temp. sensor:	approx. 30 s (90 %-value)
Immersion sleeve material:	stainless steel, 1.4571
Sealing element:	O-ring, EPDM 281
Connection cable:	7-wire special cable with round plug M12, length: approx. 0.2 m extension cable with 3 m, 6 m or 20 m available

	Article		Material No.
	**Conductivity measuring probe as aforementioned, with adapter** for PP flow fitting or PVC flow fitting		
	Measuring probe material: Adapter material:	**PP** **PP**	287622
	**Conductivity measuring probe as aforementioned, with adapter** for VA tank welding fitting and VA flow fitting, DN 50		
	Measuring probe material: Adapter material:	**PP** **PP**	287621
	Measuring probe material: Adapter material:	**PEEK** **PVDF**	287604
	**Conductivity measuring probe as aforementioned, with bulkhead screw connection** for tank wall installation, 21 mm bore-diameter required		
	Measuring probe material:	**PP**	287413

Article		Material No.

Conductivity measuring probe as aforementioned in immersion tube
Immersion depth as desired adjustable up to 1000 mm
Cable length: 2.2 m
Immersion tube Ø: 32 mm
Material immersion tube: PP
Housing material measuring probe: **PP** 287623

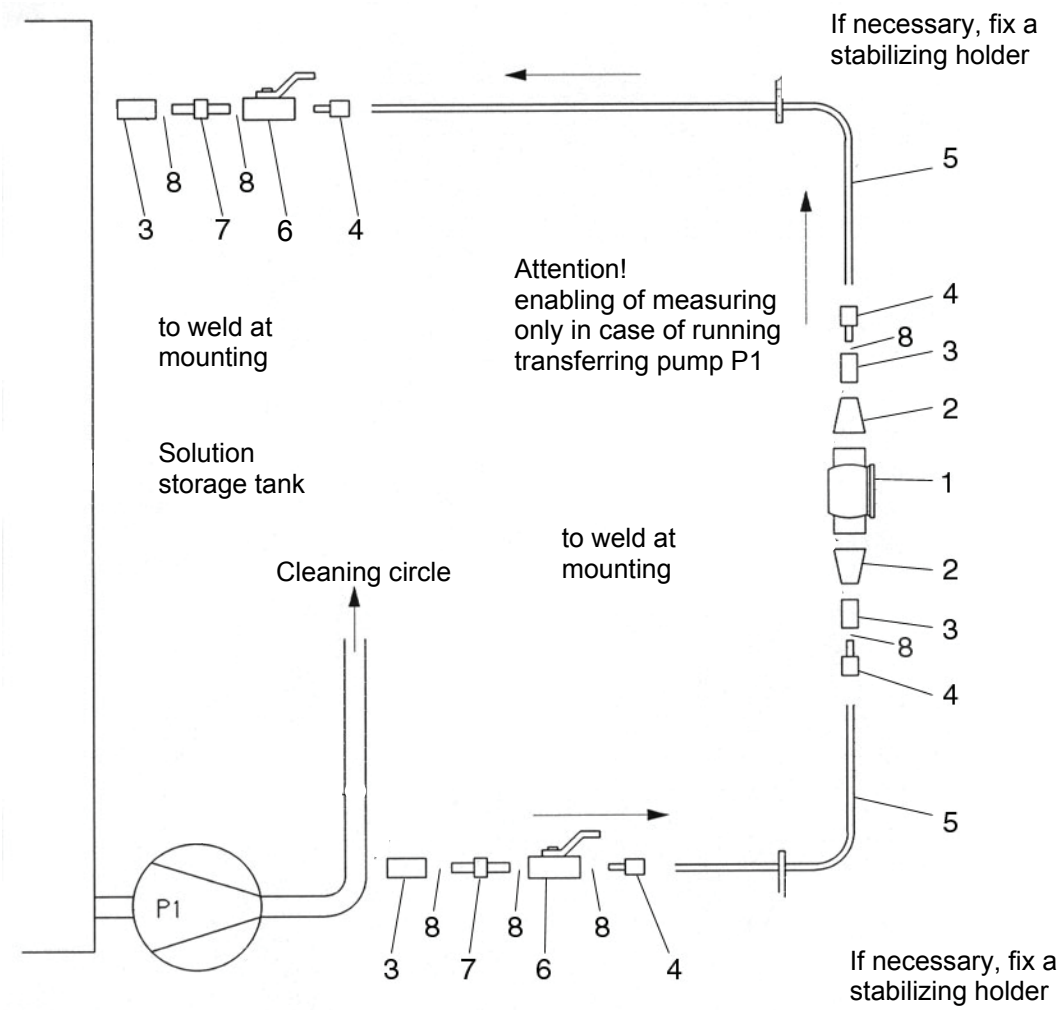
Conductivity measuring probe as aforementioned in immersion tube
with clamping flange and weld-on fitting with union nut
Immersion depth as desired adjustable up to 1000 mm
Cable length: 2.2 m
Material immersion tube: stainless steel 1.4571
Material clamping flange and weld-on fitting: stainless steel 1.4305
Housing material measuring probe: **PEEK** 287605

Extension cable
for measuring probe, 7-pole
Cable length: 3 m 418463277
Cable length: 6 m E99000128
Cable length: 20 m 418463283

	Article	Material No.
	**Tank welding fitting** Material: stainless steel 304 (1.4301)	287505
	**Flow fitting** Material: PP Temperature resistance: up to 80° C Connection: G 1/2"	287506
	**Flow fitting** **Material: PVC** Temperature resistance: up to 50° C Connection: adhesive fitting DN 40	287514
	**Flow fitting with weld-on end** Nominal diameter: DN 50 (int./ext. ø = 49 / 52 mm) Material: stainless steel 304 (1.4301)	287507

Article		Material No.
		
Conductivity measuring probe with temperature sensor cable length: approx. 0.2 m without adapter and attachment parts (as described in the list of conductivity measuring probes!)		
Housing material:	**PP**	287620
Housing material:	**PEEK**	287603
		
O-ring for basis measuring probe 287620 / 287603 precision o-ring 25.8 X3.53, EPDM		417001981
Flat gasket for bulkhead screw connection 287413 22 x 35 x 3 85 EPDM		417000280
Gasket in immersion tube 287623 2 pieces required		417001255
Gaskets DN 50, EPDM		
for tank welding fitting 287505		417016187
for PP / PVC flow fitting 287506 / 287514		415100414
for flow fitting with weld-on end 287507		417016187

Suggested solution: Measurement system configuration in by-pass to circulation pump, with short return to tank



Article		Material No.	Pc.
Pos. 1	Flow-through housing DN 50	287507	1
Pos. 2	Concentric d 50 -25 reducer, V2A seamless	415508873	2
Pos. 3	Weld-on sleeve G 1/2“, V2A	415203424	4
Pos. 4	Cutting-ring screw connection G 1/2“ for 12 x 1.5 mm tubes	415101885	4
Pos. 5	12 x 1.5 mm pipe, V2A	415031164	4 m
Pos. 6	Ball stop cock, G 1/2“, V4A	415502024	2
Pos. 7	Double nipple, G 1/2“, V2A	415203604	2
Pos. 8	Teflon sealing tape (roll)	417100813	1