LMI 02

A complete conductivity measuring and control unit

- Inductive measurement principle without electrodes
- Digital display of conductivity and temperature
- Simple operation by menu-guided handling
- Maintenance-free and chemical-resistant measuring cell
- Precise, fast temperature sensor
- Compatible with Ecolab products
- Fuzzy Logic self-learning system

ECOLAB®

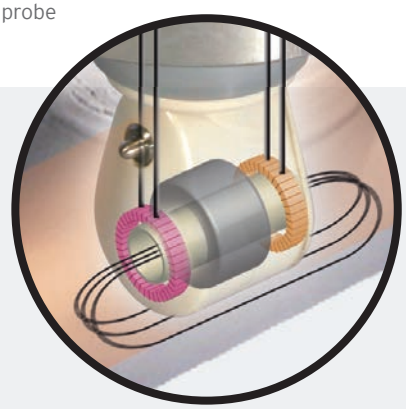
Everywhere It Matters.

LMI 02 – inductive conductivity measuring and control unit

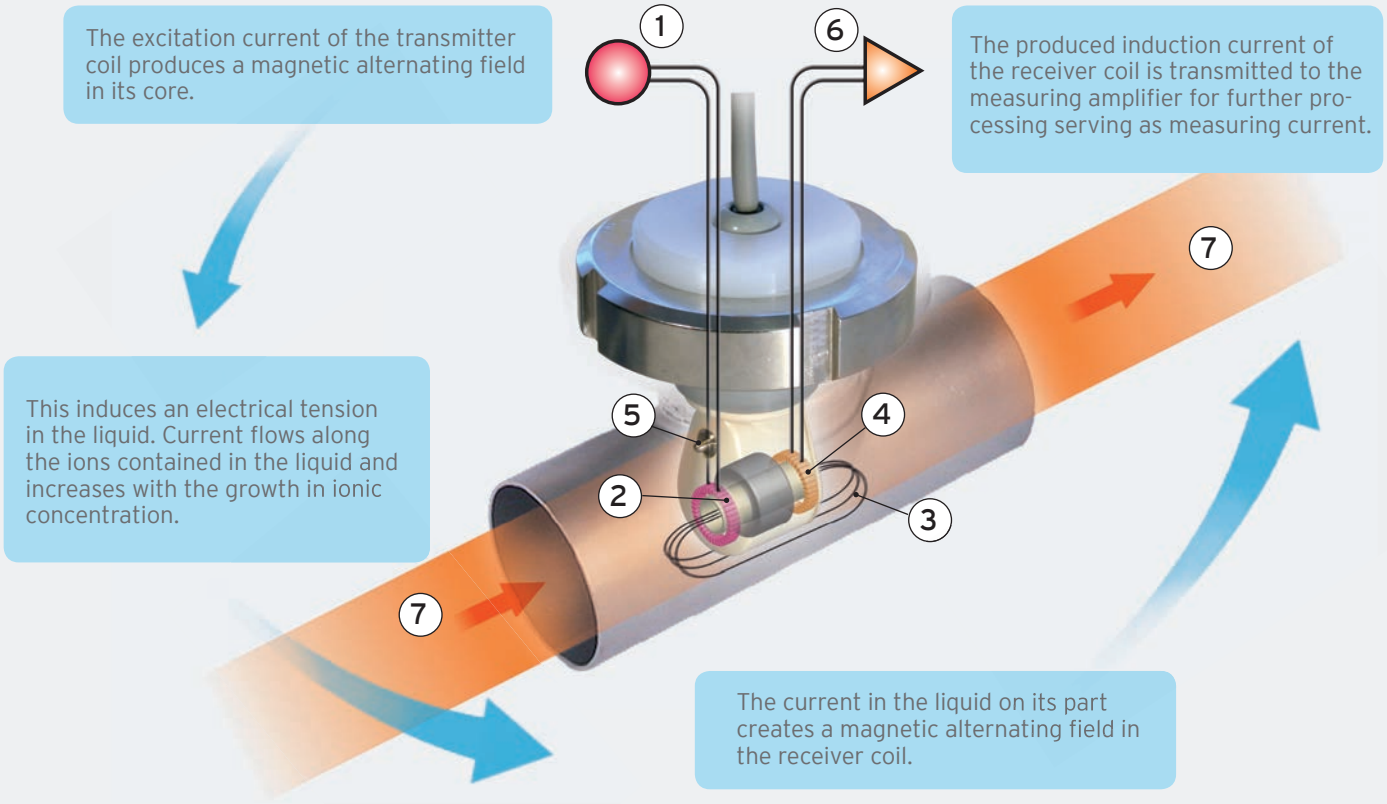
The inductive conductivity measuring and control unit LMI 02 is especially designed for permanent concentration measurement and control of Ecolab products as alkaline or acidic cleaning and disinfecting solutions. Usage in CIP-phase separation is possible too.
The LMI 02 is designed as a wall-mounted unit. The conductivity measuring operates to the electrodeless measurement principle. The conductivity probe is combined with a temperature sensor (NTC). The influence of the temperature on the measured value is compensated according to the used product.
The temperature compensation is selectable e.g. for alkaline products (1.9 %/K) or acid detergents (1.25 %/K). Frontside operation panel with a digital display ensure 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.

The inductive measurement principle

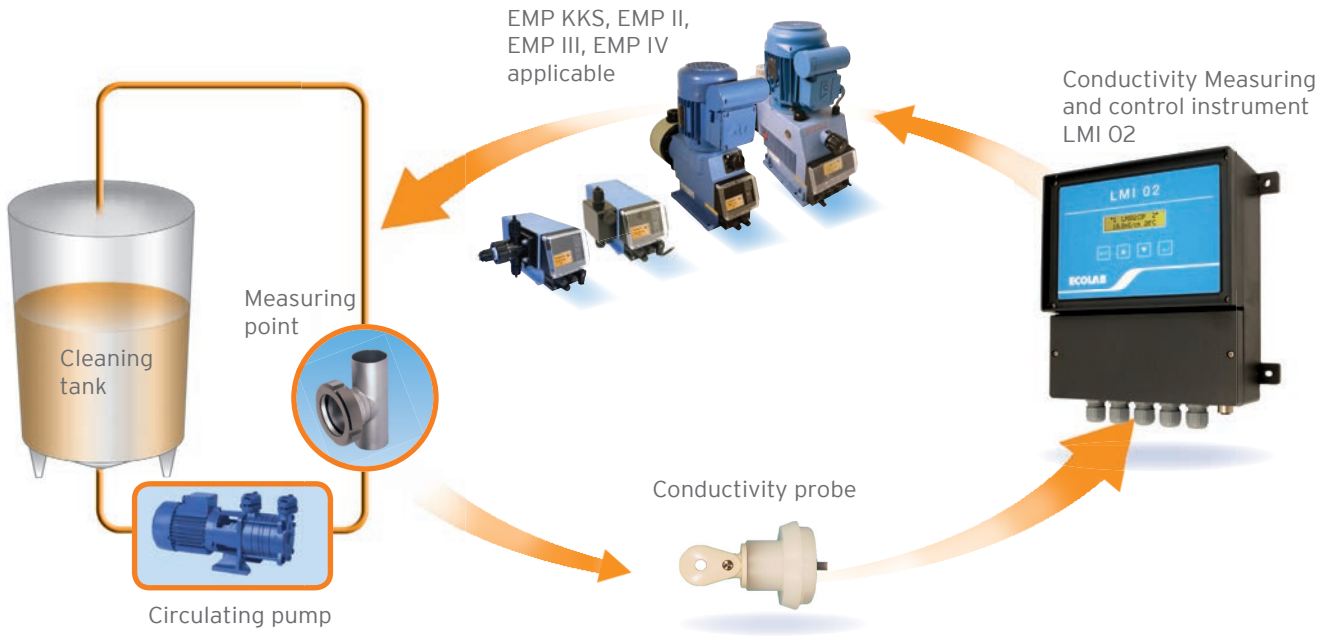
Detailed view of the inductive conductivity probe



1. Oscillator
2. Transmitter coil
3. Power supply in Liquid
4. Receiver coil
5. Temperature sensor
6. Amplifier
7. Flow



Stand-alone system



Range of applications of conductivity measurement

Dairy

- CIP facility
  - Concentration control
  - 1-phase separation
- Bottle washing machines
  - Concentration control
  - Rinse zone monitoring
- Bottle washing machines
- Cooling water monitoring

Breweries and beverage industry

- CIP facility
  - Concentration control
  - 1-phase separation
- Bottle washing machines
  - Concentration control
  - Rinse zone monitoring
- Keg- and container cleaning machines
  - Concentration control
- Spring water monitoring
- Cooling water monitoring

Meat and fish handling

- CIP facility
  - Concentration control
  - 1-phase separation
- Crate washing mashines
  - Concentration control

Industrial technology

- Surface treatment
  - Galvanic industry
  - Steel industry
  - Washing machines
- Print board production
- Water treatment

Benefits:

Control unit LMI 02

- Completely stand-alone operating metering system (Measuring, controlling and monitoring of cleaning detergents)
- Improved metering technique
  - Pre-metering for initial preparation
  - Metering time limit by adjusting a maximum dosing time
  - Empty signal for detergent tank
- LCD-display
- Membrane keyboard, safety type IP 65
- Analog output 0 (4)...20 mA for connecting a recording unit
- Outlets for adjustment value and alarm signal

Conductivity probe

- Maintainance-free due to inductive measurement without electrodes
- Temperature-, pressure- and chemical-resistant
- Various options of installation in tanks and pipelines
- Streamlined shape
- Automatic temperature compensation by installed temperature sensor

Technical Data:

Housing:	plastic housing for wall mounting
Dimensions:	184 x 223 x 82 mm (w x h x 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

Ecolab Engineering GmbH
LANG Industrietechnik
Postfach 1164, 83309 Siegsdorf
Tel. +49 86 6261 0
engineering-mailbox@ecolab.com
www.ecolab-engineering.de

Ecolab Deutschland GmbH
Ecolab-Allee 1
40789 Monheim am Rhein
Tel. +49 02 173 599 0
www.ecolab.com