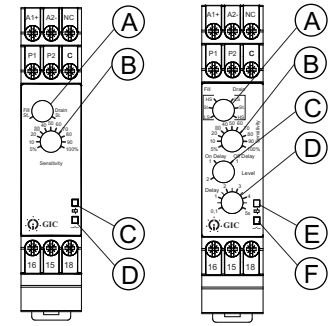
Liquid Level Controller

Cat. No. :

LMU110

LMU111



LMU110 **LMU111**

Controls:

LMU110

A. Selection of operating mode. Fill / Drain.
B. Sensitivity control (%).
C. Power supply status (green) LED.
D. Relay output status (Red) LED.

LMU111

A. Selection of operating mode. Fill / Drain & the sensitivity range LS/ St./ HS.
B. Sensitivity control (%).
C. Selection for "Number of level" with delay type (On or OFF delay) when for 1Level.
D. Time Delay control.
E. Power supply status (green) LED.
F. Relay output status (Red) LED.

Description:

The Liquid Level Controller is used to detect the liquid level in a tank where liquids are electrically conducting and device controls the relay output according to the mode of operation. The mode of operation can be filling or draining, filling only one tank with dual levels monitoring, filling only one tank with single level monitoring, draining only one tank with dual level monitoring, draining only one tank with single level monitoring. The signal completes the electrical path through liquid, the control circuit detects the signal and drives relay. The reference resistivity can be set by a potentiometer on the device to match liquid resistivity. The output of device can be used to turn ON & OFF pumps, solenoids or valves.

Features:

1. Monitor Filling or Draining operations.
2. Monitor single or dual levels.*
3. Protection against dry run and over filling.
4. Wide operating voltage 24-240V AC/DC.
5. Adjustable sensitivity 250 Ohm-1Mohm.*
6. Adjustable delay 0.1 – 5 Sec to prevent wave effect.*
7. Probes supplied with AC current.
8. LED status indication.
9. 1 C/O relay output.
10. CE, RoHS & REACH compliant.

* Refer product specification table.

Product Specifications:

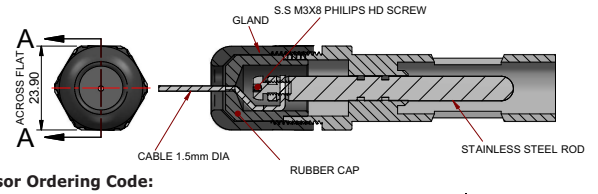
Catalogue Nos.	LMU110	LMU111
SUPPLY CHARACTERISTICS :		
Supply Voltage	24-240 VAC/DC -15/+10%	
Supply Frequency	50/60 Hz +/-10%	
Power Consumption	4VA, 1W	
Insulation Voltage (Ui)	250V	
Over Voltage Category	III	
DEVICE CHARACTERISTICS :		
Sensor Probes	Stainless Steel SS316L, 3Nos	
Probe Length	10 cm	
Sensitivity (adjustable)	5Kohm to 100Kohm	250ohm to 1Mohm LS 250 ohm to 5 Kohm St 5 Kohm to 100 Kohm HS 50 Kohm to 1 Mohm
Settable delay	NA	0.1 to 5sec
Monitoring type	Dual level only	Singal or Dual selectable
Probe Voltage & Current	12 Vp-p,< 1 mA	
Probe cable	Cable gauge (Min):0.5 sqmm Tin coated,Cable dia(Min): 1.5mm Max Cable Length-200m Max capacity of pobe cable: for LMU110 - 10nF for LMU111 - LS: 4.7nF, St: 2.2nF, HS: 1nF	
Output Control Mode	Relay ON/OFF	
Contact Ratings	1 C/O, 8A@250 VAC, Resistive	
Utilization Category	AC-15: 1A/250 VAC DC-13: 1A/24 VDC	
Electrical Life	1 x 10^5 Operations	
Mechanical Life	1 x 10^7 Operations	
LED Indication	GREEN LED: Power ON, RED LED : Relay Output ON	
Operating Temperature	-20°C to +60°C	
Storage Temperature	-20°C to +70°C	
Weight Approx.(Packed)	75 gm	77 gm
Relative Humidity	5 to 93 % RH (non condensing)	
Mounting Type	Din Rail Mounting	
STANDARDS:		
	IEC 60255-26 IEC 60255-27	
EMI/EMC COMPLIANCE :		
ESD	IEC 61000-4-2	CD:6KV AD:8KV
Radiated Susceptibility	IEC 61000-4-3	80MHz to 1GHz @10V/m 2.7GHz to 6GHz @3V/m
Electrical Fast Transient	IEC 61000-4-4	2KV
Surge	IEC 61000-4-5	L-PE:4KV L-L:2KV
Conducted Susceptibility	IEC 61000-4-6	10V/m
Voltage Dips & Interruptions (AC)	IEC 61000-4-11	
Conducted Emission	CISPR 32	Class B
Radiated Emission	CISPR 11	Class B
SAFETY COMPLIANCE :		
Dielectric Strength	4KV AC / 50Hz / 1 min	
Rated Impulse Withstand Voltage (Uimp)	4.6 KV (1.2/50us)	
Insulation resistance	>500Mohm/ 500VDC	
ENVIRONMENTAL COMPLIANCE :		
Cold Heat	IEC 60068-2-1	
Dry Heat	IEC 60068-2-2	
Vibration	IEC 60255-1	10-150Hz
Non-Repetitive Shock	IEC 60255-1	15gn(11ms) , 5gn(11ms)
Bump	IEC 60255-21-3	Horiz-1gn Ver-0.5gn
Seismic	IEC 60255-21-2	10gn 16ms

Note:

1. The technical information provided in this document is correct at the time of going to press.
2. Product innovation being a continuous process, we reserve the right to alter specifications without any prior notice.
3. Only qualified persons are authorized to install the device.

Sensor Probe Diagram:

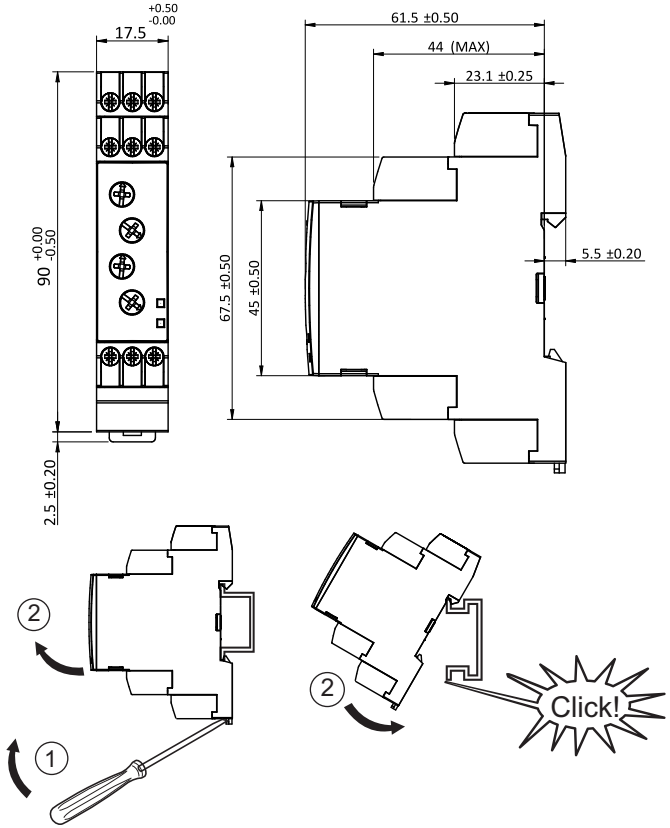
A single pole electrode used for level control in wells or storage tanks. It comprises stainless steel probe with plastic holder and cable gland. A seal ring and the tightening of the cable gland prevent liquid from entering the cable terminal connector and causing its oxidation. Cable connection: Screw The external cable diameter must be 1.5 mm to warrant perfect sealing.



Sensor Ordering Code:

Sr.No.	Cat No.	Description	Operating Temp.
1	44S0003	SET OF 3 STAINLESS STEEL SENSORS	-10°C to +65°C
2	44S0006	SET OF 6 STAINLESS STEEL SENSORS	-10°C to +65°C
3	44S0013	SET OF 3 STAINLESS STEEL SENSORS	-20°C to +165°C
4	44S0016	SET OF 6 STAINLESS STEEL SENSORS	-20°C to +165°C

Product Diagram:

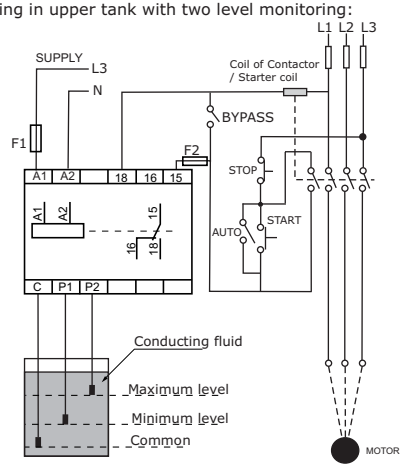


Terminal Details:

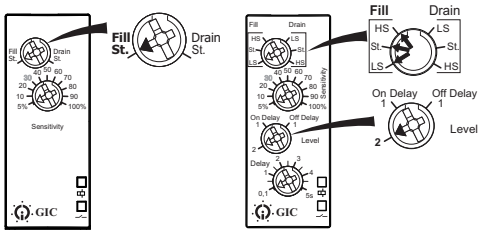
PH1/ Ø4.5 mm	0.5 - 0.6 N.m (4.4 - 5.3 lb.in) Terminal screw - M2.6
	1 X 0.5 ....2.5mm² Solid/Stranded Wire
AWG	1 X 20 to 14

Operating Function diagram:

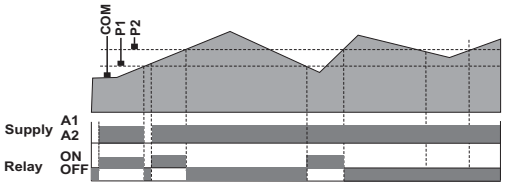
Filling in upper tank with two level monitoring:



Note :- In case of DOL starter connection with LMR, Connect 15 & 18 no. of Liquid Monitoring Relay to 93 & 95 no. of DOL Starter respectively

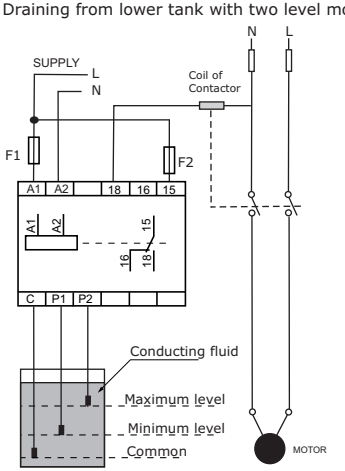


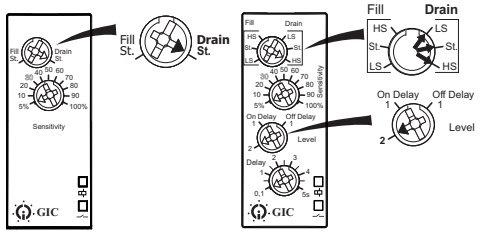
When tank is empty (liquid level is below the P1 probe), the relay turns ON and the relay turns OFF when tank is completely filled with liquid (liquid level reaches to P2 probe).



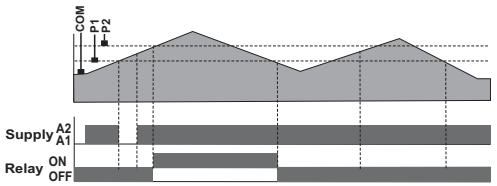
P1	P2	Relay & RED LED Indication
OUT	OUT	ON
IN	OUT	ON
IN	IN	OFF

Draining from lower tank with two level monitoring:



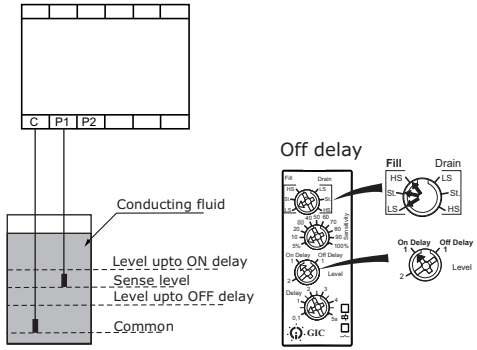


When tank is completely filled with liquid (liquid level is above P2 probe), the relay turns ON. When tank is empty (liquid level drops below the P1 probe), the relay turns OFF.



P1	P2	Relay & RED LED Indication
OUT	OUT	OFF
IN	OUT	OFF
IN	IN	ON

Filling tank with one level monitoring:

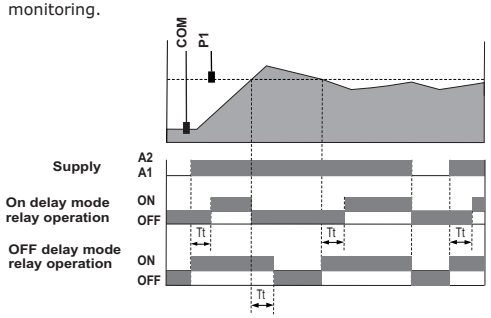


Note:
1. This mode is only applicable to LMU111
2. When 1Level On delay is selected, only use C & P1

When tank is partially filled or empty (liquid level is below P1 Probe) the relay turns ON and when tank is completely filled with liquid,(liquid level reaches to P1 probe), relay turns OFF. In this mode P2 terminal is kept not connected.

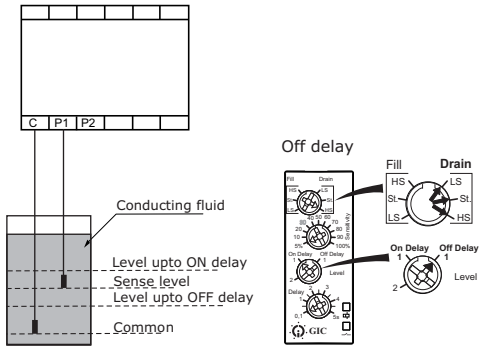
This operation is not recommended for pump controlling. But used for application like water purifier level controlling where water flow is controlled by electric valve.

Note:
Due to ON or OFF delay (0.1 s...5 s), it is possible to set up time dependent liquid level control using two probe (CMN, P1). The integrated ON or OFF Delay also prevent frequently switching of load/motor in one tank for one level monitoring.



P1	Relay & RED LED Indication
OUT	ON
IN	OFF

Draining tank with one level monitoring:

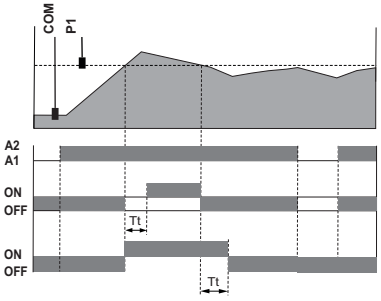


Note:
1. This mode is only applicable to LMU111
2. When 1Level Off delay is selected, only use C & P1

When tank is completely filled with liquid (liquid level is above P1 probe), the relay turns ON. When tank is empty (liquid level is below the P1 probe), the relay turns OFF. In this mode P2 terminal is kept not connected.

This operation is not recommended for pump controlling. But used for application like water purifier level controlling where water flow iscontrolled by electric valve.

Note:
Due to ON or OFF delay (0.1 s...5 s), it is possible to set up time dependent liquid level control using two probe (CMN, P1) The integrated ON or OFF Delay also prevent frequently switching of load/motor in one tank for one level monitoring.



P1	Relay & RED LED Indication
OUT	OFF
IN	ON

Device controlling mode:

LMU110
1. Draining from lower tank or filling in upper tank with 2 levels monitoring.
2. Sensitivity range: 5 Kohm to 100 Kohm.

LMU111
1. Draining from lower tank or filling in upper tank with 2 levels monitoring or 1 level monitoring.
2. 1 level monitoring can be configure with ON delay or OFF delay.
3. ON or OFF delay can be adjust by Tt potentiometer range 0.1 to 5sec.
4. Sensitivity range: 250 ohm to 1Mohm.
(LS: 250 ohm to 5 Kohm, St: 5 Kohm to 100 kohm, HS: 50 kohm to 1 Mohm.

Sensitivity Setting:
Following are the steps to set and fix sensitivity according to the liquid conductivity.
1. Keep probes connected to CMN,P1 & P2 in conductive Liquid & sensitivity pot at minimum position.
2. Keep the delay pot at minimum position (0.1S position). for LMU111
3. Rotate the sensitivity pot towards maximum, side till the relay RED LED turns "ON". Keep sensitivity pot setting two divisions ahead from the position at which RED LED & Relay gets "ON".
4. Remove probe connected to P1 from conductive liquid & check whether the Relay RED LED switches "OFF".

Note:
1) Do not disturb sensitivity pot setting once fixed, because the position of sensitivity pot is adjusted according to conductivity level of Liquid.
2) This device is not used with pure water, Oils, corrosive liquids and flammable liquids.

⚠ Caution :

1) Do not touch the device while power is being supplied.
2) Tighten terminal screws with the specified torque.
3) Always follow instructions stated in product leaflet.
4) Before installation, check to ensure that specifications agree with intended application.
5) Installation to be done by skilled electrician.
6) Suitable dampers should be provided in the event of excessive vibrations.
7) To set the potentiometer use the screw driver.
8) Turn power off before installing, removing, wiring or maintaining.

Failure to follow these instructions can result in serious injury, or equipment damage.

E-Waste Regulatory notice: Kindly treat, recycle or dispose of this equipment in an environmentally sound manner after End of Life, as per WEEE (Waste and Electronic Equipment) regulations or as per local norms; or hand it over to General Industrial Controls Pvt. Ltd,
through website https://www.gicindia.com/get-in-touch/

Ordering Information:

LMU110	24 - 240V AC/DC, Level Monitoring, Sensitivity 5K Ohm-100K ohm, 1 C/O
LMU111	24 - 240V AC/DC, Level Monitoring, Sensitivity 250 Ohm-1Mohm, 1 C/O

In case of complaint, Contact:
GENERAL INDUSTRIAL CONTROLS PVT. LTD.
T-107, MIDC, BHOSARI, PUNE - 411 026, MAHARASHTRA, INDIA.
Contact No.: +91 20 46232323, Email: service@gicindia.com
For Technical Assistance:
Email: App.engg@gicindia.com

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