CHLORINE METER

CL 950

(OPERATING MANUAL)

TEST & CALIBRATION CERTIFICATE

This is the test and calibration report, as done at our factory against the standard solutions. The readings are as follows:

Standard solution reading (PPM)	Meter Reading
1	
2	
3	
4	

Relay Operation: ☐ Alarm Mode ☐ Control Mode ☐ Auto Reset Mode

☐ ACK ☐ nACK

Done By:

Date:

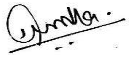
WARRANTY CERTIFICATE

We certify that the instrument mentioned above has been tested by us and is warranted for a period of 12 months(6 months for sensor) from the date of dispatch. We would replace or repair defects arising due to faulty design, material, or workmanship within the above mentioned period. This is if the part in respect to which the complaint is made, is sent to the dealer at the purchaser's expense.

The warranty is valid subject to:

- The meter or part has not been subject to alteration, accidents or misuse.
- The installation having been done as per our guidelines in the manual.

Aster Technologies And Controls LLP



Authorized Signatory

TECHNICAL SPECIFICATIONS:

METER	
1. Physical dimensions	160(H)X250(V)X120(D)mm
2. Enclosure	ABS Weather proof/IP 65
3. Mounting	Field
4. Parameter sampling rate	< 2 seconds
5. Resolution	00.01
6. Accuracy	± 2% of FSD
7. Power supply	230 V A.C. ± 15 %
8. Alarms/Control relays	Individual high & low relay
9. Display	4 Digit 7 SEGMENT LED
10. Calibration/Set point	Using front panel keypad.
11. Output	4-20 mA D.C.Current
12. Display Range	00.01 to 20.00

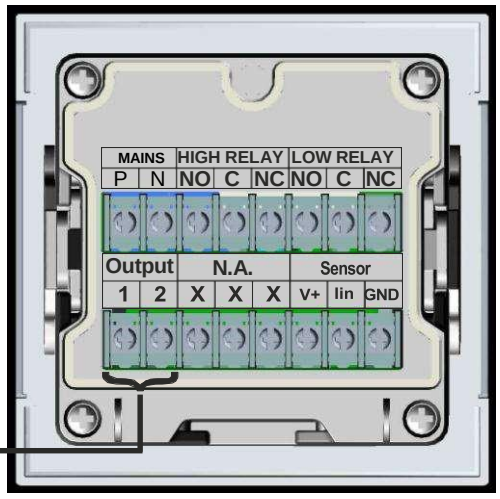
SENSOR	
1. Overall dimension	168 mm(L) X 28 mm(W)
2. Type	Flow through/Tank(Optional)
3. Electrode material	Glass bulb
4. Process connection	25 NB BSP M
5. Integral cable length	5 meter
6. Application	Water
7. Temperature	0-50°C
8. Max. Pressure	5 kg/cm^2

GETTING ACQUAINTED WITH THE METER:

This meter is user friendly & easy to understand. Its operation will be clear when we go through all the parts of the meter.

1. **SENSOR** : It is the main part of the Chlorine Meter. It has two electrodes : One reference and one measuring electrode enclosed in glass tubing. This is dipped into the line of which Chlorine is to be measured, it senses the Chlorine and sends a signal to the meter.
2. **METER** : This is the unit that processes the information received from the sensor and displays Actual Chlorine in the line. This unit can also transmit signals to dosing pumps, hooters, valves etc through inbuilt relays and 4-20mA output.

WIRING CONNECTIONS:



Description	Terminal details	1	2
With relay output only	Not appl.	X	X
4-20 mA current O/P with relays	Current O/P	Iout	GND

INSTALLATION GUIDELINES:
SENSOR:

1. The CHLORINE sensor is normally supplied with **25 NB** male threading. Maximum flow in line should not more than **50LPH.**
2. The sensor should be mounted **vertically** in the line.
3. The sensor shall be connected in the **sampling line** and line is of material PVC/UPVC only no metal.
4. The fitting should be connected to the **sampling line** only.
5. Sensor cable/lugs should not be extended.
6. Sensor need frequent cleaning based on application.

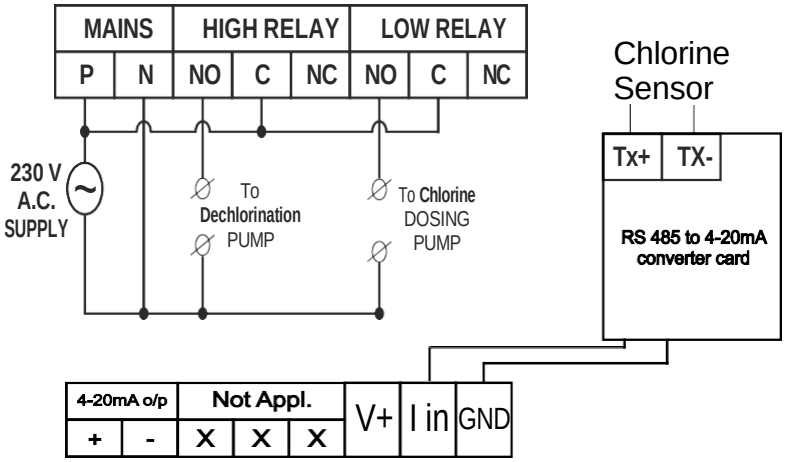
• Maintenance

1. Chlorine electrodes generally do not require routine maintenance . If a clear malfunction occurs, do not open or attempt to repair the electrode yourself. Please contact us as soon as possible.
2. After use, rinse the electrode tip with clean water and put the protective cap back on.
3. During measurement, ensure that the tested liquid is flowing with a uniform flow rate and that there are no air bubbles attached to the measuring surface.
4. If dirt is present on the electrode membrane, sensitivity to mineral components will decrease and proper measurement may not be possible. Please ensure that the platinum ring area is clean.

5. A properly functioning residual chlorine electrode should always have a clean and shiny platinum sensing ring. If the platinum ring becomes rough or covered with contaminants after measurement, clean it according to the following methods (for reference):
   Inorganic contamination: Immerse the electrode in 0.1 mol/L dilute hydrochloric acid for 15 minutes, gently wipe the platinum ring with a cotton swab, then rinse with tap water.
   Organic or oily contamination: Immerse the electrode in tap water with a small amount of detergent, such as dishwashing liquid, and thoroughly clean the sensing surface. Gently wipe the platinum ring with a cotton swab, then rinse with tap water. If an oxide film has formed on the pla tinum ring, gently polish the sensing surface with toothpaste or 1000 grit fine sandpaper, then rinse with tap water. The platinum ring is connected to glass, so please handle carefully during polishing.
6. Before locking the cable connector to the device connector, do not place the connector part into water.

Meter Wiring

TYPICAL WIRING DIAGRAM OF A DOSING PUMP THROUGH RELAY :



KEY SIGNIFICANCE:

The **View** key works as the right shift key at the time of choosing the placement of a digit.

The **Ack** key helps in increasing the value of a digit in cyclic order.

The **Menu** key displays settings like Display Mode, SET point, Hysteresis and Temperature. The Menu key also works as the Enter and Exit key.

METER OPERATION:

In regular operation, the meter displays the actual value of chlorine in the Line. Pressing the view key will display all the settings in the meter.

PROGRAMMING THE SET POINT:

For programming the set point go as per following table

KEY TO BE PRESSED	**DISPLAY**
MENU	SET HI
MENU	Previously set high value
Using ack. & view key to set high value	
MENU	HYS1
MENU	Previously set Hysteresis value
MENU	SET LO
MENU	Previously set low value
Using ack. & view key to set low value	
MENU	HYS2
MENU	Previously set Hysteresis value
MENU	END

Hysteresis (hys1):

The %age value for which the relay will not reset after getting energised. For eg. If the high value is set at 9.00 and the hysteresis is kept at 10% then the high relay will get energised the moment value exceeds 9.0 (after the set control delay) and will remain energized until the value falls to 8.1..And similar is the case with hyst2 i.e. for low value.Eg. If low set point is 5 with 10% hysterysis, the relay gets reset only when the value goes over 5.5. (Normally, both hysteresis values are kept at 10%).

IN CASE OF 4-20mA OUTPUT:

In case of UT-650(with4-20 O/P), the meter takes current input & gives 4-20mA output current. The factory settings for ZERO(value at which transmitter would give 4 mA current) & SPAN (value at which transmitter would give 20 mA current) are:

Reading	Current Output(mA)
00.00	4mA
	20mA

To change the Zero & Span settings follow the guideline below:

KEY TO BE PRESSED	DISPLAY
VIEW & ACK	PASS
ENTER PASSWORD 0678 USING VIEW & ACK. KEY	
MENU	Type
MENU	Norm
MENU	Zero
MENU	Previously set ZERO value
Use VIEW & ACK.key to change the value	
MENU	SPAN
MENU	Previously set SPAN value
Use VIEW & ACK.key to change the value	
MENU	END

Instrument also works as 4_20 mA current simulator.It gives 4 mA & 20 mA current for the calibration of other instruments.Follow the below guideline:

KEY TO BE PRESSED	DISPLAY
VIEW & ACK	PASS
ENTER PASSWORD 0420 USING VIEW & ACK. KEY	
MENU	4 mA
Instrument will give 4 mA current	
MENU	20 mA
Instrument will give 20 mA current	
MENU	End
MENU	Actual reading

TROUBLESHOOTING:

TROUBLE	PROBABLE CAUSE	ACTION
DURING COMMISSIONING		
Fluctuating readings	Sensor not dipped in the line properly	Loop the outlet tubing such that the tee always remains flooded with water
	Wrong wiring	Connect the wires as per drawing
	Sensor not sensing	Disconnect the sensor, by removing the wires then by shorting the input terminals, check the reading, the reading is around 00.00, then change the sensor.
DURING CALIBRATION		
Meter shows mismatch reading	Calibration Disturbed	Recalibrate the meter
DURING NORMAL SERVICE		
Display Shows Erroneous reading	Sensor not dipped in the line properly	Loop the outlet tubing such that the tee always remains flooded with water
Meter shows LpBr	Sensor output may be more or less than the min. or max. values	Recalibrate the meter. If problem persists change the sensor
No display	High voltage	Check MOV/FUSE, if it is burnt then replace it with new one
Frequent Fuse failure	MOV short	Replace MOV* as well as FUSE**

*MOV 14mm Dia. and 320V AC

** FUSE -- 630mA

Follow the guideline below for better results.:

DOS	DON'TS
Do turn Chlorine meter OFF before disconnecting electrode.	Do not touch the bottom part of Chlorine electrode with your hands,especially the bulb or reference junction.
Do rinse the Chlorine electrode throughly with deionized water before measuring a new sample.	Do not scratch or damage the Chlorine electrode bulb.This may totally break electrode or result in errorneous readings
Do standardize your Chlorine sensor frequently for the most accurate results.	Do not use reference junction with fast flowing reference junction in small samples where flow of reference solution could contaminate the sample.
Do mount Chlorine sensor in a sampling line vertically.	Do not mount the sensor in any housing other than the supplied one
Ensure the holder output is always kept open to atmosphere.	Do not extend the sensor cable.
	Do not put the sensor directly into high temperature

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