



MANUAL

MS ORP 91

ORP INDICATING CONTROLLER TRANSMITTER

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1. INTRODUCTION

Item Supplied :

1. ORP Indicating Controller Transmitter MS ORP 91
2. Manual
3. Calibration Certificate (Page No. 17 of manual)
4. Test / Warrantee Certificate (Page No.19 of manual)

Inspection :

Check for mechanical damage due to possible improper handling during shipment. All claims for damage are to be made promptly to the shipper.

Device Identification :

The Model No. is mentioned on the front plate of the instrument. Terminal configuration and Serial Number are mentioned on the back plate of the instrument.

Warranty Terms :

The terms of this instrument that are warranted are described in the techno commercial offer. We will make any repairs that may become necessary during the warrantee term free of charge against manufacturing defects only.

Please contact us if this instrument requires any repair.

If the instrument is faulty, contact us with concrete details about the problem and the length of time it has been faulty, and state the model and serial number. We would appreciate the inclusion of images or additional information.

The results of our examination will determine whether the indicator will be repaired free of charge or on an at-cost basis

2. SAFETY INSTRUCTIONS

General Instructions :

This ORP Indicating Controller Transmitter was carefully calibrated at the factory before shipment. When ORP Indicating Controller Transmitter is delivered, visually check that no damage has occurred during transportation.

Read this Manual carefully and understand instructions provided herein.

In general, instruments from the manufacturer may only be installed, commissioned, operated and maintained by properly trained and authorized personnel.

Look at the ordering detail to ensure that the device is delivered according to your order.

Check for the correct supply voltage printed on the back plate.

Before powering up the instrument, consider the following:

1. Check if the supply voltage is correct.
2. Do not give power supply to any other terminal.

Storage Precautions :

Store the device in a dry, dust-free location.

Avoid continuous direct sunlight.

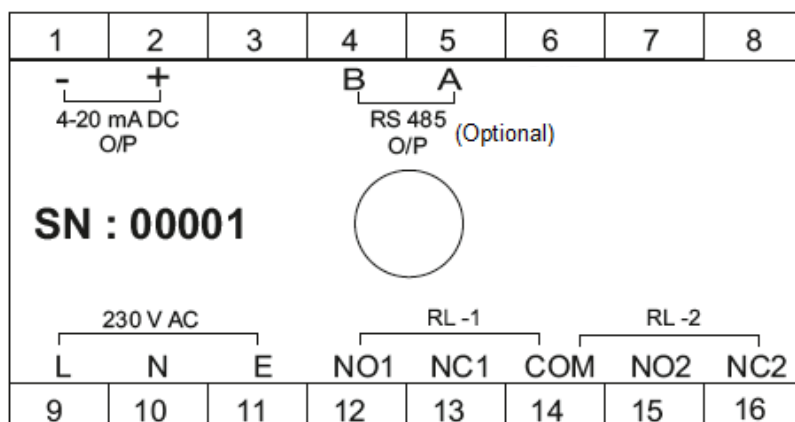
Store the device in its original packing.

Storage temperature: 0 to 55°C.

3. TECHNICAL SPECIFICATIONS





Instrument Name	ORP Indicating Controller Transmitter
Make	MicroSet
Model No	MS ORP 91
Types of Input	ORP Sensor through BNC
Supply	230V AC, 50 Hz
Output	4-20 mA DC, MODBUS RS485 (Optional)
Accuracy	± 1 mV
Calibration	Single Point Calibration.
Display	4 digit LED display
Range	-1999 mV to +1999 mV
Response Time	< 1 Sec
Mounting	Panel
Dimensions	96 x 96 x 65 mm

4. TERMINAL CONNECTONS



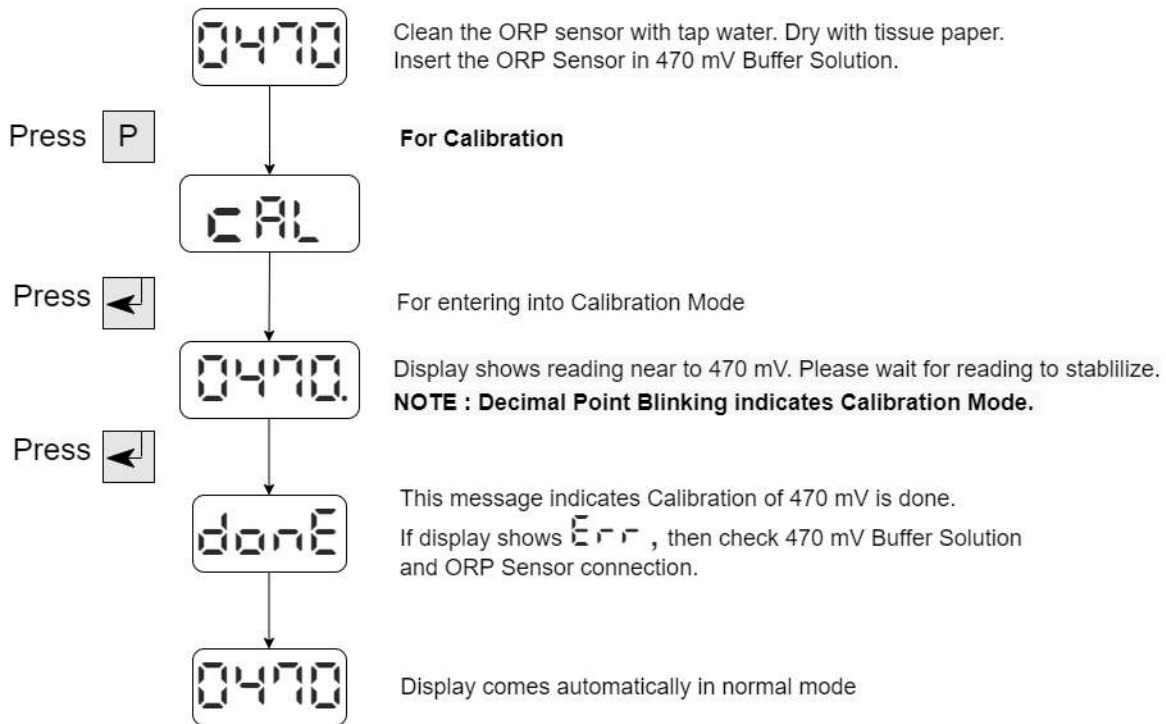
1. Connect Power Supply 230 V AC to Instrument on back plate at Terminals 9, 10, 11(L, N, E).
2. Connect ORP Sensor to BNC Connector on back plate.
3. Connect 4- 20 mA retransmission output at Terminal 1, 2(-, +).
4. Connect RS485 RTU retransmission output at Terminal 4,5(B, A).

5. KEY DETAILS

- Program Key**  - This key is used for 1) Calibration and setting of Setpoints.
2) Setting of password.
- Increment Key**  - This key is used for Increment the numerical value of any digit, from 0 to 9.
- Shift Key**  - This key is used for 1) Setpoints Display.
2) Shift the cursor to the next digit.
- Enter Key**  - This key is used for Validate the function or value of parameter

6. CALIBRATION PROCEDURE

For Calibration :



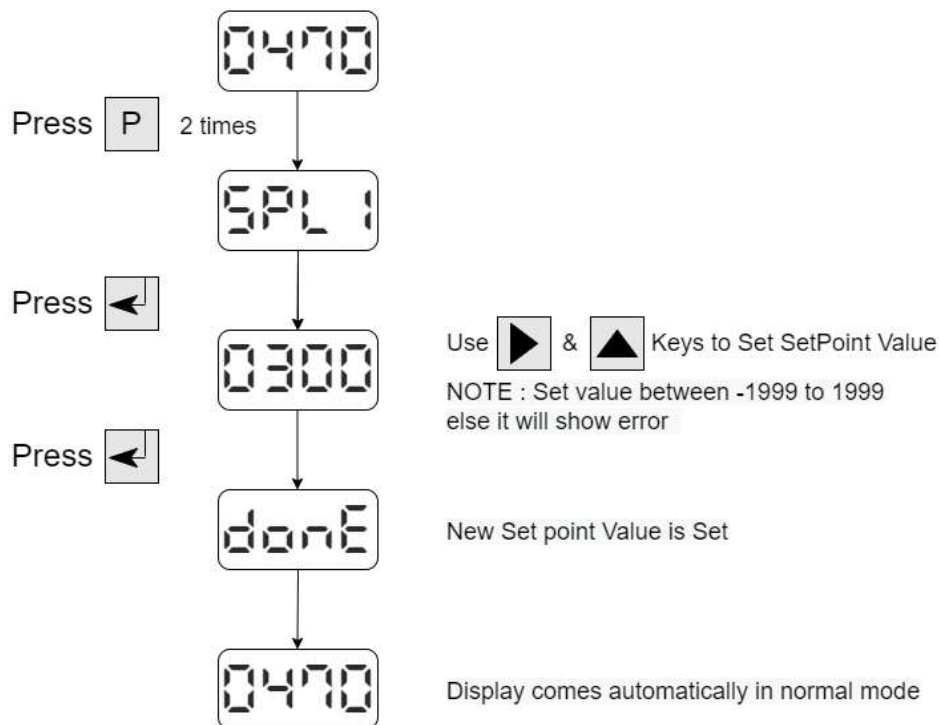
7. SETPOINT

1. You can use SPL1 & SPH1 for **Low range controlling of ORP**
If you enter SPL1 = 0300 & SPH1 = 0400,
Then in this case Relay will get ON when ORP value goes below 300 & Relay will get OFF when ORP value goes above 400
2. You can use SPL2 & SPH2 for **High range controlling of ORP**
If you enter SPL2 = 700 & SPH1 = 800,
Then in this case Relay will get ON when pH value goes above -700 ORP & Relay will get OFF when pH value goes below -800 ORP

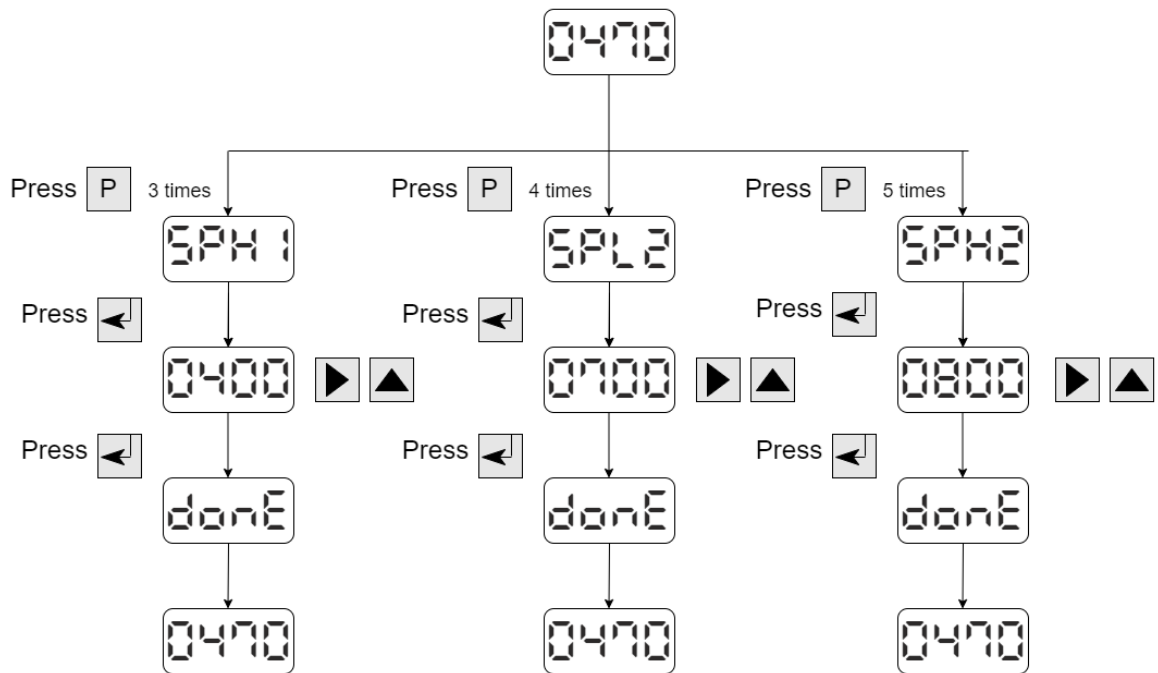
- **Denotations :**

SPL1	=	SetPoint Low for RL-1
SPH1	=	SetPoint High for RL-1
SPL2	=	SetPoint Low for RL-2
SPH2	=	SetPoint High for RL-2

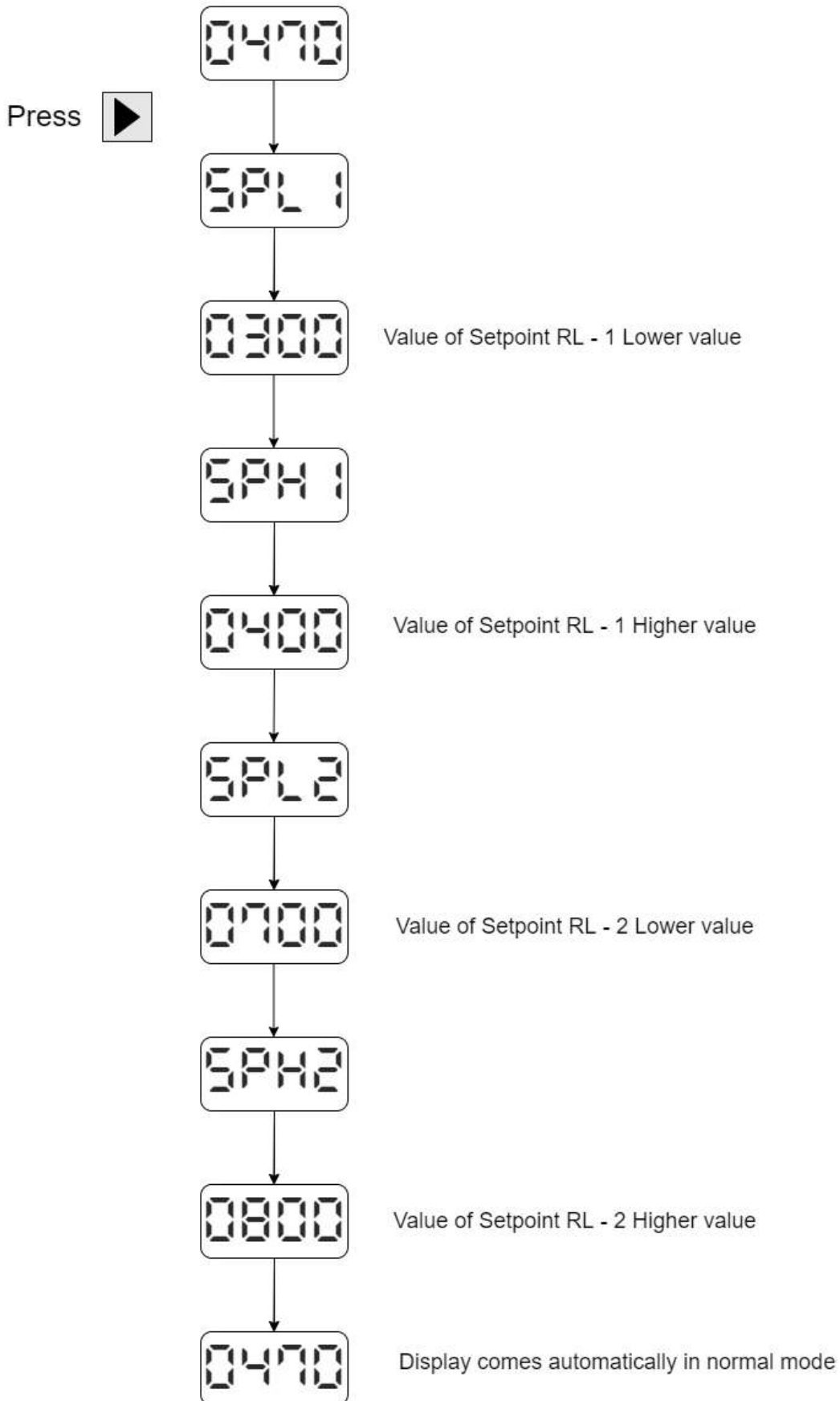
For Setting of Set points SPL1 :



Similarly for setting of Setpoint SPH2, SPL2, SPH2. please refer below flow chart :



For Setpoint Display :

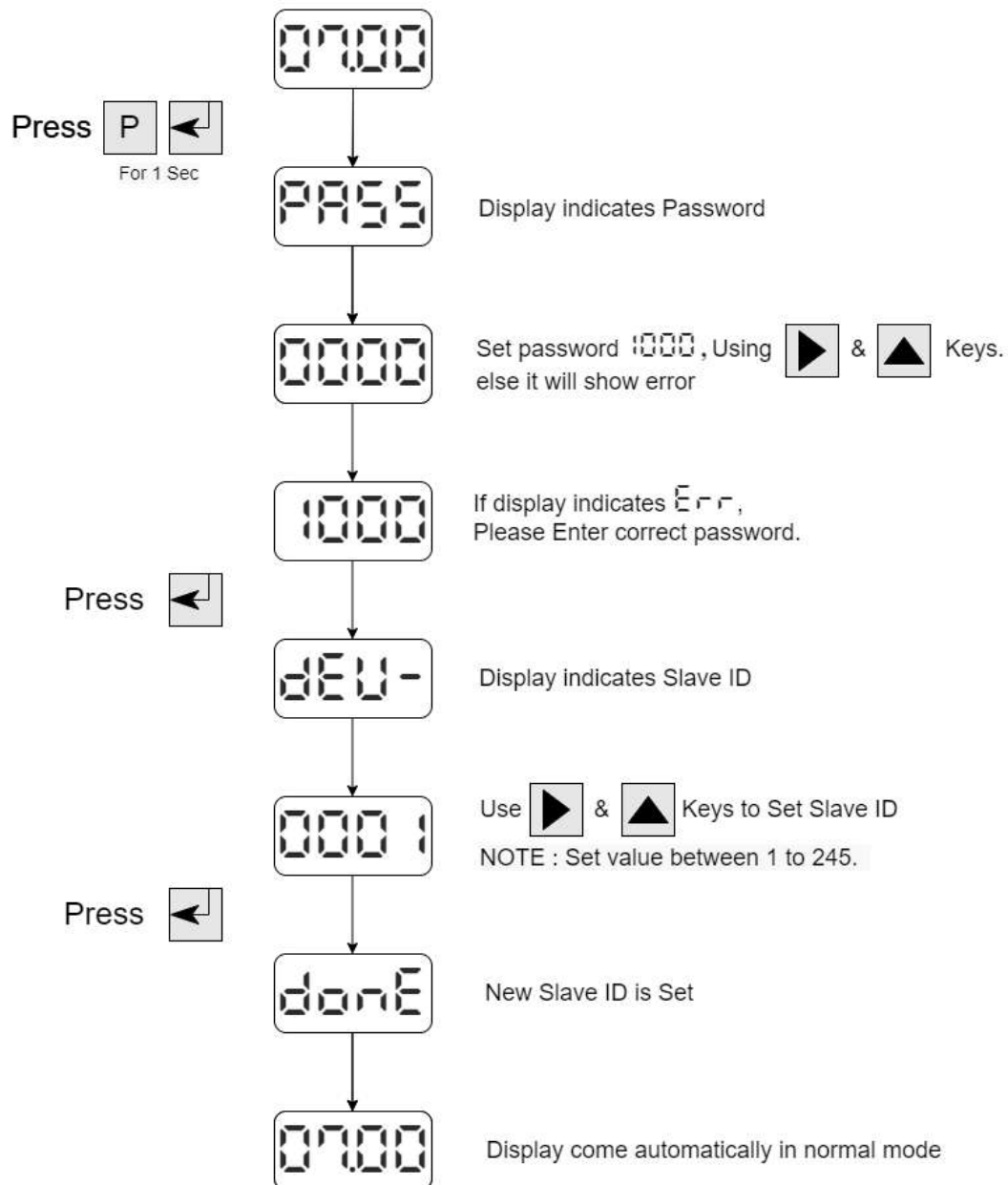


8. MODBUS RS485 (Optional)

This pH Indicating Controller Transmitter MODBUS communication is based on RS485 RTU. User can set the slave ID as per the requirement with following Specification,

Baud Rate	9600
Slave ID	1 (default)
Start Bit	1
Data Bit	8
Parity	NONE
Stop Bit	1

For setting of Slave ID :-





9. SAFETY WARNING

1. Read Manual carefully and understand instructions & directions provided in this manual.
2. Installation, connections, commissioning and service shall be carried out by only qualified and authorized person.
3. To protect instrument from any external hazards, customer should take necessary care while preparing site ready before installation.
4. Ensure proper supply voltage (230 VAC) with proper polarity to the instruments, before Powering ON instrument.

TROUBLE SHOOTING PROCEDURE

SYMPTOMS	CAUSE OF FAILURE	ACTION TO BE TAKEN
No display indication	<ol style="list-style-type: none">1. Absence of 230 V AC at terminal block.2. Loose connection on terminals.	<ol style="list-style-type: none">1. Check 230 V AC power supply & rectify the fault.2. Tight the terminal connections.

10. TEST / CALIBRATION CERTIFICATE

Calibration Date: ___ / ___ / 20 ___

ITEM DETAILS

Name : ORP Indicating Controller Transmitter

Make : MicroSet

Model : MS ORP 91

Serial No. : _____

Input : ORP Simulator

ORP Sensor Model : MS pH ___ SN : _____

READING

Standard Buffer Solution ORP	Observed Reading Before Calibration ORP	Observed Reading After Calibration ORP	Observed Reading After Calibration mA

Relay RL – 1 Working OK

Relay RL – 2 Working OK

Calibrated By,

Seal

11. WARRANTY CERTIFICATE

MicroSet warrants each instrument to be free from defects in material & workmanship. This obligation to servicing or part returned to the company for that purpose & making good any parts thereof which shall be within warranty period, returned to the company under a written intimation & which to the company's satisfaction to be found defective. The company reserves the right to decide the workplace for the repair work. The freight for defective material will have to be borne by the buyer, & the transit risk for such material will rest with the buyer.

The warranty is applicable only if the instrument is used within its specification.

THIS WARRANTY IS VALID UP TO 12 months from date of Tax Invoice (Sensors Carry No Warranty since Consumables)

ITEM DETAILS

Name	:	ORP Indicating Controller Transmitter
Make	:	MicroSet
Model	:	MS ORP 91
Serial No.	:	— — — — —

For **MicroSet Instrumentation & Controls**

Seal

Authorized Signatory