MicroSet®
INSTRUMENTATION & CONTROLS

Instruction Manual

pH Indicating Controller Transmitter

MS pH 97

102 Chinmay 1103A 10 Lakaki Road Model Colony Shivajinagar Pune Maharashtra 411016 INDIA ☎ +91 (0) 9922200377 | +91 (0) 9850041801
✉ info@MicroSetindia.com | sales@MicroSet.co.in 🌐 www.MicroSetindia.com | www.MicroSet.co.in

1. CONTENTS

102 Chinmay 1103A 10 Lakaki Road Model Colony Shivajinagar Pune Maharashtra 411016 INDIA ☎ +91 (0) 9922200377 | +91 (0) 9850041801
✉ info@MicroSetindia.com | sales@MicroSet.co.in 🌐 www.MicroSetindia.com | www.MicroSet.co.in

2. Introduction

2.1 Item Supplied:

1. MS pH 97 Indicating controller transmitter
2. User manual
3. Calibration Certificates

Inspection :

- Check for mechanical damage due to possible improper handling during shipment. All claims for damage are to be made promptly to the shipper.
- Make sure the scope of delivery and the information on the name plate corresponds to the ordering information.

2.2 Device Identification:

The Model no. and Specification are found on name plate, located on back side of device. Check the Model no. & Specifications you have ordered.

MicroSet

MODEL NO. –
SUPPLY -
OUTPUT -
Sr NO. -

2.3 Reading User Manual:

- This manual should be provided to the end user.
- Before use, read this manual carefully and compare the instrument specification.
- The contents of this manual may be changed without prior notice.

2.4 Warranty Terms:

- The terms of this instrument that are guaranteed are described in the quotation. We will make any repairs that may become necessary during the guaranteed term free of charge.
- Please contact our sales office if this instrument requires 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 meter will be repaired free of charge or on an at-cost basis.

102 Chinmay 1103A 10 Lakaki Road Model Colony Shivajinagar Pune Maharashtra 411016 INDIA ☎ +91 (0) 9922200377 | +91 (0) 9850041801
✉ info@MicroSetindia.com | sales@MicroSet.co.in 🌐 www.MicroSetindia.com | www.MicroSet.co.in

3. SAFETY INSTRUCTIONS

3.1 General Instructions:

- This pH Controller transmitter was carefully calibrated at the factory before shipment. When pH controller transmitter is delivered, visually check that no damage has occurred during transportation
- Read User manual carefully and understand instructions provided in this manual.
- In general, devices 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 nameplate.
- Before powering up the instrument, consider the following:
    - Has the wiring been carried out correctly.
    - Check the supply voltage correct.
    - Do not apply power with the signal terminal.

3.2 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.

102 Chinmay 1103A 10 Lakaki Road Model Colony Shivajinagar Pune Maharashtra 411016 INDIA ☎ +91 (0) 9922200377 | +91 (0) 9850041801
✉ info@MicroSetindia.com | sales@MicroSet.co.in 🌐 www.MicroSetindia.com | www.MicroSet.co.in

4. TECHNICAL SPECIFICATIONS

Instrument Name	:	pH Indicating Controller Transmitter
Model No.	:	MS pH 97
Types of input	:	1. pH Sensor through BNC
		2. from Pt-100 Sensor.
Supply	:	230V AC, 50 Hz
Output	:	4-20 mA DC, MODBUS RS485
Temperature compensation	:	Manual / Auto through Pt.100 Range – 0-149.9 ^{O}C
Accuracy	:	± 0.01 pH
Calibration	:	2 and 3 Point Calibration
Display	:	4 digit LED display
Sensitivity	:	±0.01 pH
Response Time	:	< 1 Sec
Temperature Coefficient	:	0.5% per ^{O}C
Mounting	:	Panel
Dimensions	:	96 x 96 x 65 mm.

102 Chinmay 1103A 10 Lakaki Road Model Colony Shivajinagar Pune Maharashtra 411016 INDIA ☎ +91 (0) 9922200377 | +91 (0) 9850041801
✉ info@MicroSetindia.com | sales@MicroSet.co.in www.MicroSetindia.com | www.MicroSet.co.in

5. INSTALLATION DETAILS

5.1 Terminal Details:

102 Chinmay 1103A 10 Lakaki Road Model Colony Shivajinagar Pune Maharashtra 411016 INDIA ☎ +91 (0) 9922200377 | +91 (0) 9850041801
✉ info@MicroSetindia.com | sales@MicroSet.co.in 🌐 www.MicroSetindia.com | www.MicroSet.co.in

5.3 Operating Procedure:

Connect Instrument to 230V AC, on back panel. Connect pH & pt100 to their respective connectors Remove Protective cap of the Sensor containing the storage solution (3.8 Molar KCL). Wait for some time. The Instruments processor is ready for working.

Note: Save the Sensor cap for future use as a storage container and bulb protector when sensor is not in service. We recommended 3.8M KCL, as the storage solution.

5.4 Preparation of Standard buffer solution:

For chemical analysis it is necessary to calibrate a pH meter with Sensor. On standard buffer solution of 7 pH, 4 pH, 9.2 pH as per your application. Buffers tables are available with chemical suppliers in tables. Powder or capsule from Dissolve one tablet thoroughly in 100ml distilled or D.M water. Never use tap water. Store this solution in double cover type bottles. It is supplied to instruments. Mark your date on it.

Note: buffer solution deteriorates after two weeks. Now prepare fresh solution. Always keep buffer solution in cool place (Do Not Freeze)

5.5 Key Details:

PROGRAM KEY: - This key is used to Calibration and setting of set points.

INCREMENT KEY: - This key is used to 1) See the Temperature / setting of Temperature.
2) Increment the numerical value of any digit, from 0 to 9, by one at each time.

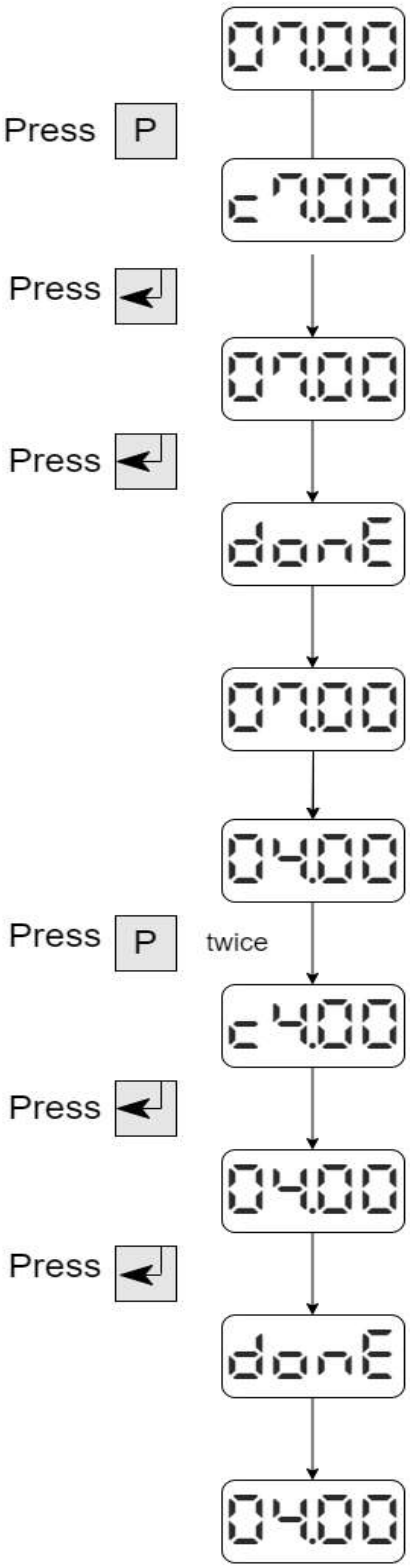
SHIFT KEY: - This key is used to 1)See the Value of Set points.
2) Shift the cursor to the next digit.

ENTER KEY: - This key is used to 1) Validate the function or value of parameter.
2) See the SLOP

102 Chinmay 1103A 10 Lakaki Road Model Colony Shivajinagar Pune Maharashtra 411016 INDIA ☎ +91 (0) 9922200377 | +91 (0) 9850041801
✉ info@MicroSetindia.com | sales@MicroSet.co.in www.MicroSetindia.com | www.MicroSet.co.in

6. CALIBRATION PROCEDURE

For 2 Point calibration :



Clean the sensor with tap water. Dry with tissue paper. Insert the pH Sensor in 7 pH Buffer Solution.

For Entering into calibration mode of 7 pH

display show some reading near to 7pH Please wait for reading to stabilize

This message indicates Calibration of 7 pH is done. If display shows Err, then check Buffer Solution and pH Sensor connection.

Display comes automatically in normal mode

Clean the sensor with tap water. Dry with tissue paper. Insert the pH Sensor in 4 pH Buffer Solution.

For Calibration of 4 pH

For Entering into calibration mode of 4 pH

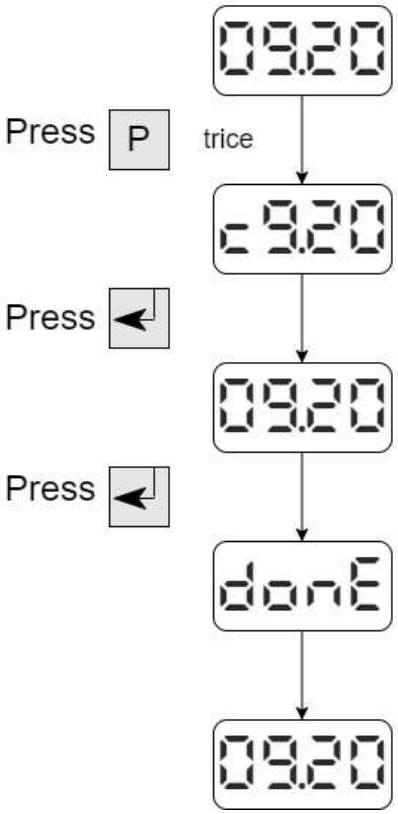
display show some reading near to 4pH Please wait for reading to stabilize

This message indicates Calibration of 4 pH is done. If display shows Err, then check Buffer Solution and pH Sensor connection.

Display comes automatically in normal mode

102 Chinmay 1103A 10 Lakaki Road Model Colony Shivajinagar Pune Maharashtra 411016 INDIA ☎ +91 (0) 9922200377 | +91 (0) 9850041801
✉ info@MicroSetindia.com | sales@MicroSet.co.in 🌐 www.MicroSetindia.com | www.MicroSet.co.in

FOR 3 Point calibration :



Clean the sensor with tap water. Dry with tissue paper.
Insert the pH Sensor in 9.20 pH Buffer Solution.

For Calibration of 9.20 pH

For Entering into calibration mode of 9.20 pH

display show some reading near to 9.2pH Please wait for reading to stabilize

This message indicates Calibration of 9.20 pH is done. If display shows Err ,then check Buffer Solution and pH Sensor connection.

Display comes automatically in normal mode

Note :

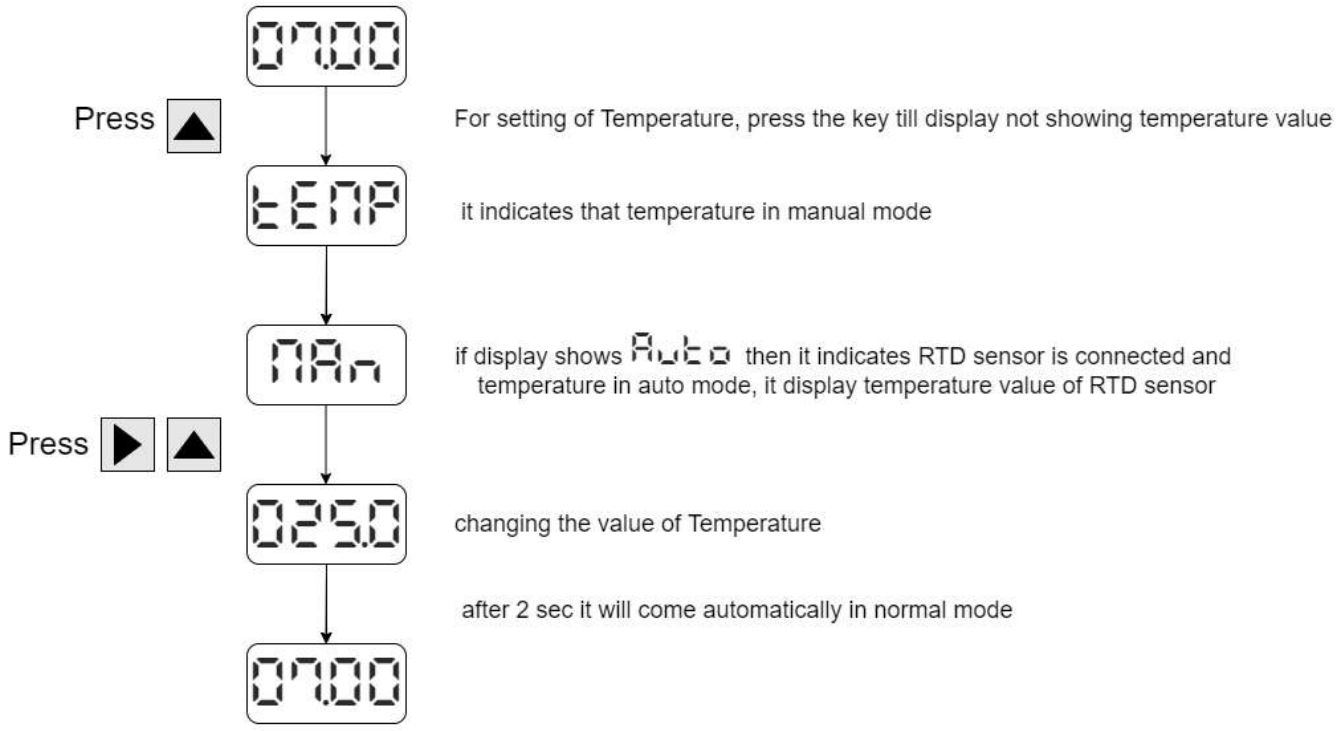
102 Chinmay 1103A 10 Lakaki Road Model Colony Shivajinagar Pune Maharashtra 411016 INDIA ☎ +91 (0) 9922200377 | +91 (0) 9850041801
✉ info@MicroSetindia.com | sales@MicroSet.co.in 🌐 www.MicroSetindia.com | www.MicroSet.co.in

6.2 Temperature Compensation

When RTD PT 100 Temperature Sensor **is connected,** pH Indicating Controller Transmitter MS pH 97 automatically goes in **Automatic Temperature Compensation Mode**.

When RTD PT 100 Temperature Sensor **is Not connected**, pH Indicating Controller Transmitter MS pH 97 is in **Manual Temperature Compensation Mode.**

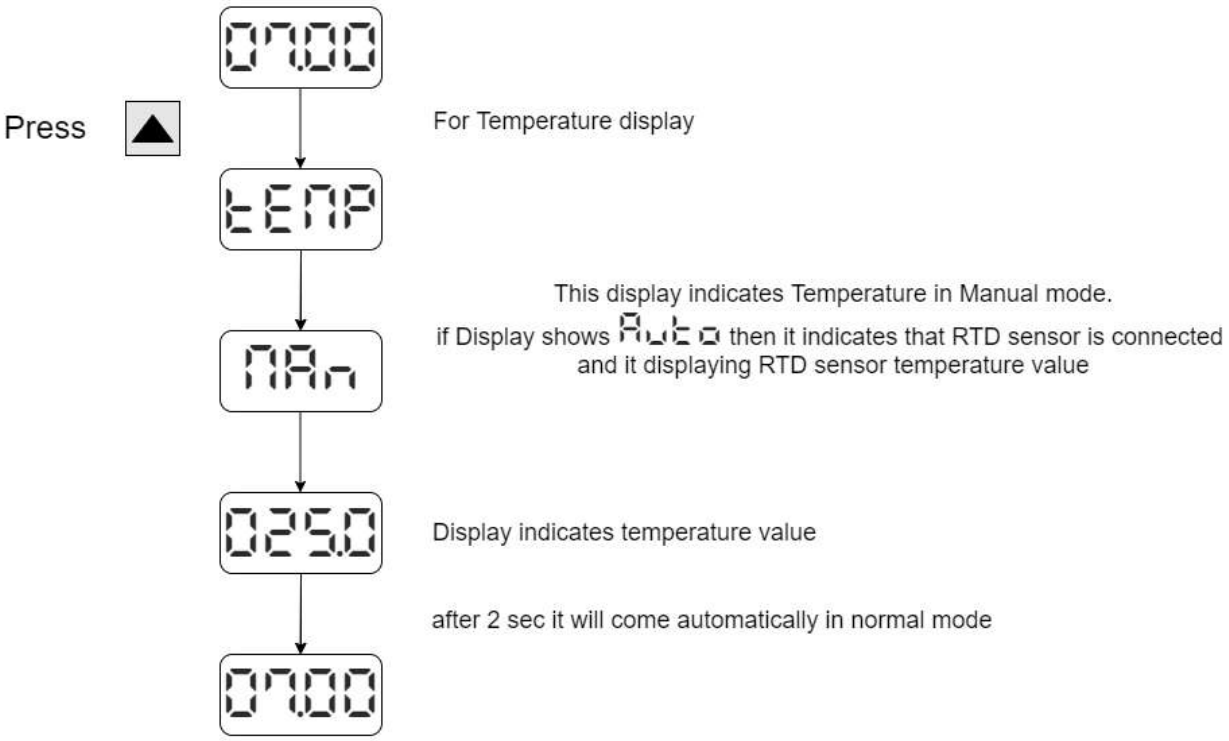
For Temperature Setting : -



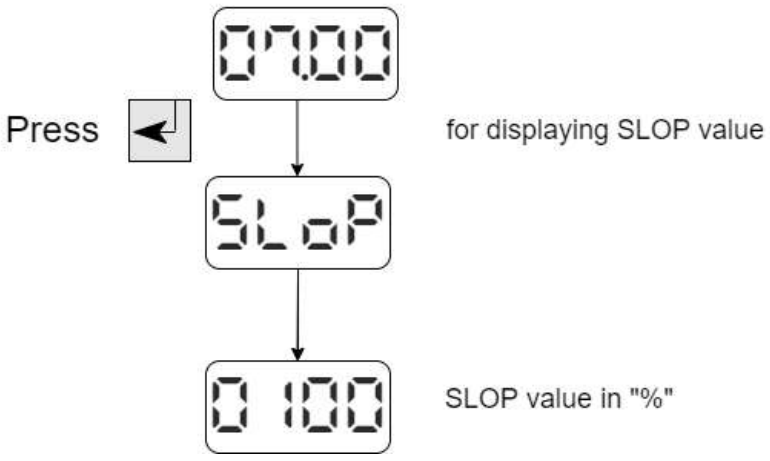
Note: When you are using manual Temp you must set it before taking pH reading.

102 Chinmay 1103A 10 Lakaki Road Model Colony Shivajinagar Pune Maharashtra 411016 INDIA ☎ +91 (0) 9922200377 | +91 (0) 9850041801
✉ info@MicroSetindia.com | sales@MicroSet.co.in 🌐 www.MicroSetindia.com | www.MicroSet.co.in

For Temperature Display : -



6.3 SLOP:



The slope is a conversion that the pH meter uses to convert the electrode signal in mV to pH. Generally a slope between **90 and 105%** is acceptable.

102 Chinmay 1103A 10 Lakaki Road Model Colony Shivajinagar Pune Maharashtra 411016 INDIA ☎ +91 (0) 9922200377 | +91 (0) 9850041801
✉ info@MicroSetindia.com | sales@MicroSet.co.in 🌐 www.MicroSetindia.com | www.MicroSet.co.in

6.4 Set point setting:

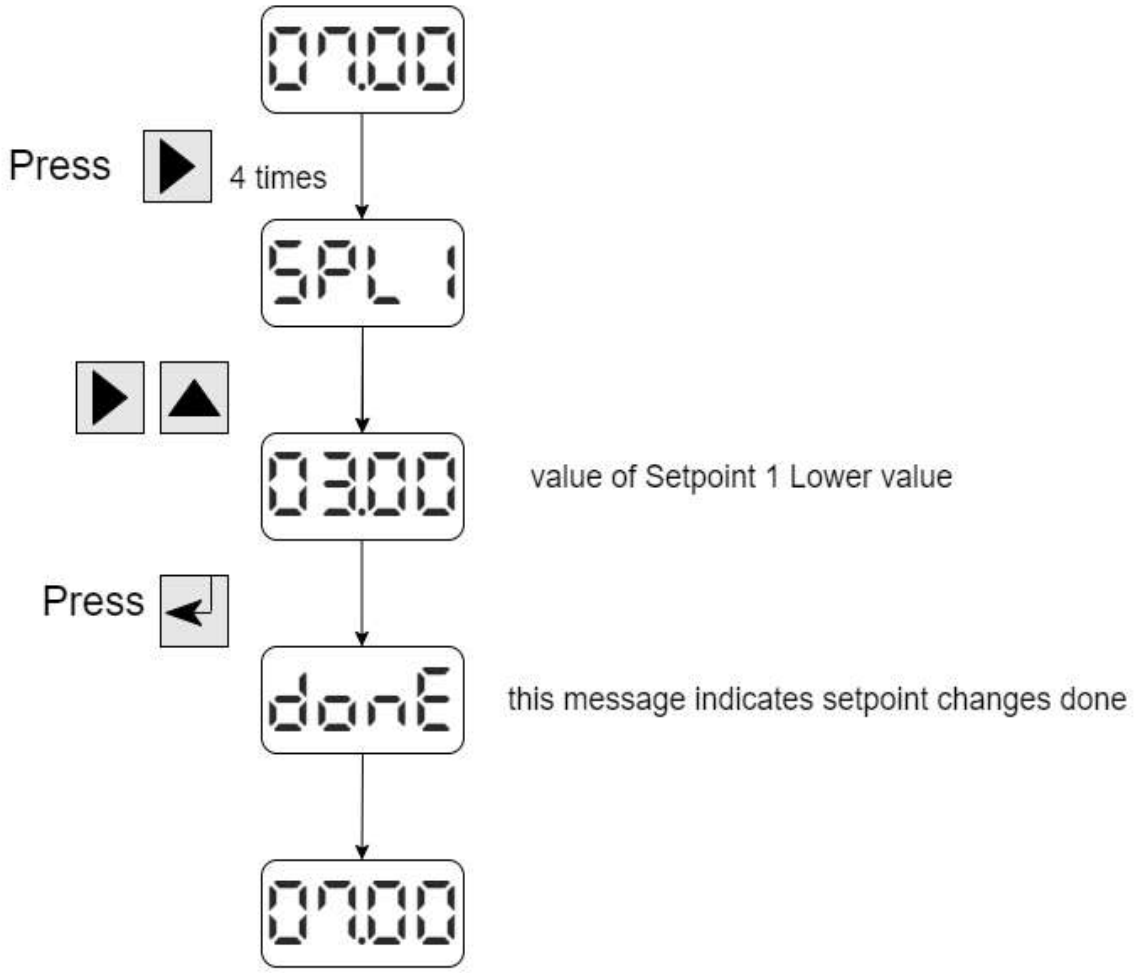
1. You can use SPL1 & SPH1 for Low range controlling of pH.
   If you entered the pH SPL1 = 3.00 & SPH1 = 4.00. Then in this case relay will get ON when pH goes below 3.00 pH & Relay will get OFF, when pH value goes above 4.00 pH

2. You can use SPL2 & SPH2 for High range controlling of pH.
   If you entered the SPL2 = 7.00 & SPH1 = 8.00, Then in this case relay will get ON. When pH value goes above 8.00 pH & Relay will get OFF when pH value goes below 7.00 pH

- **Denotations :**

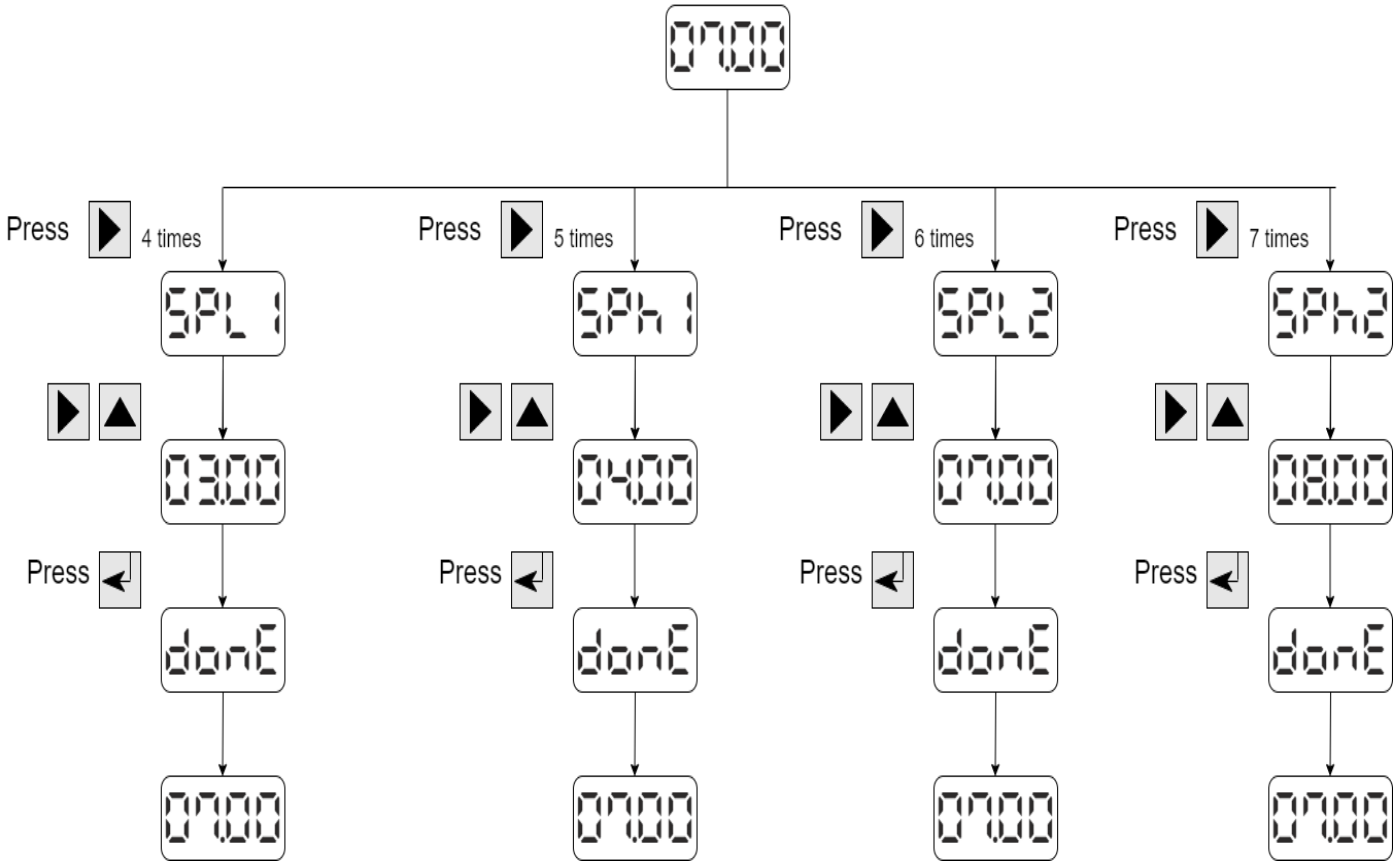
SPL1 = Set point Low 1
SPH1 = Set point High 1
SPL2 = Set point Low 2
SPH2 = Set point High 2

For Setting of Set points :-



Similarly for setting of set points please refer below flow chart :

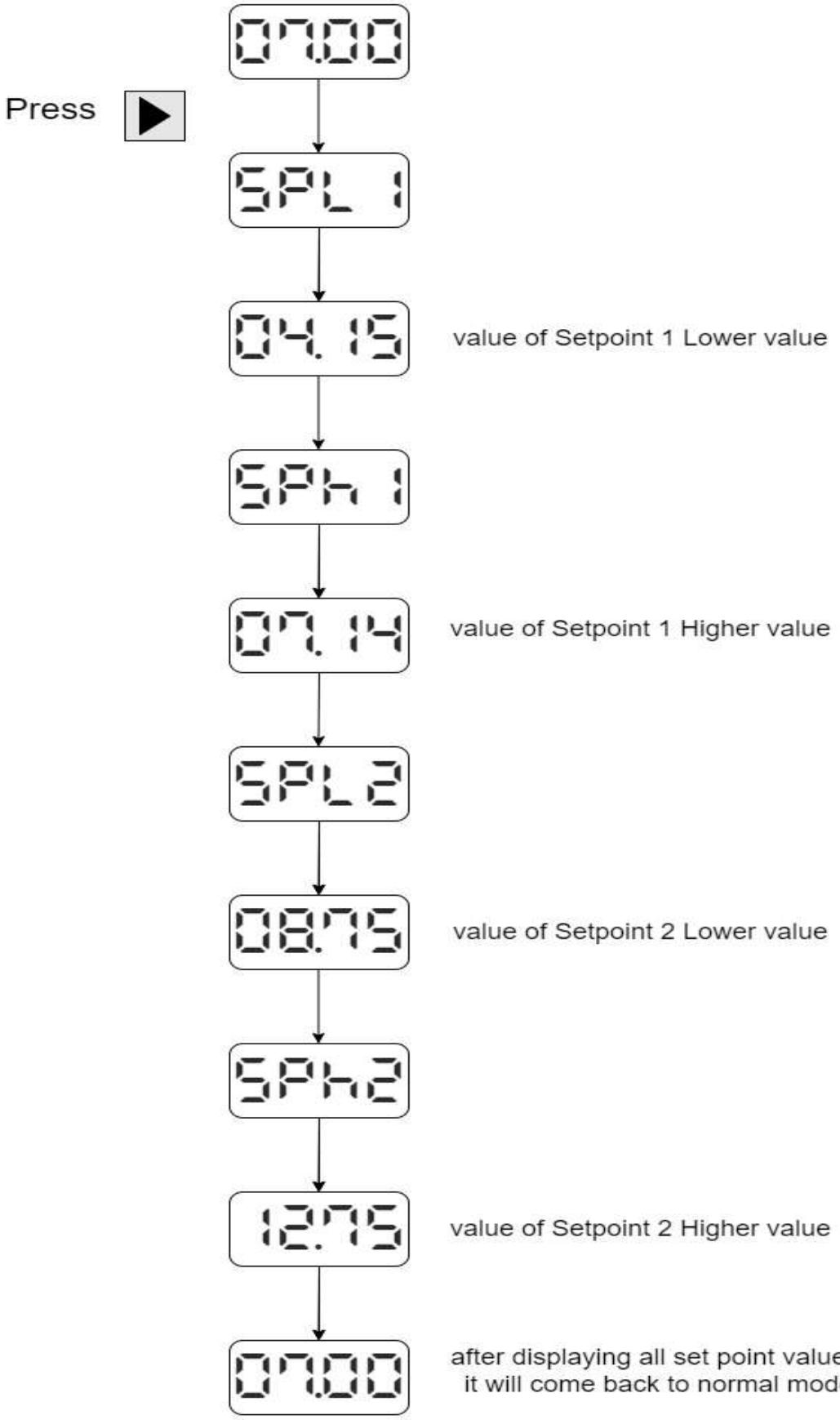
102 Chinmay 1103A 10 Lakaki Road Model Colony Shivajinagar Pune Maharashtra 411016 INDIA ☎ +91 (0) 9922200377 | +91 (0) 9850041801
✉ info@MicroSetindia.com | sales@MicroSet.co.in www.MicroSetindia.com | www.MicroSet.co.in



- **You can see the value of Set points**

102 Chinmay 1103A 10 Lakaki Road Model Colony Shivajinagar Pune Maharashtra 411016 INDIA ☎ +91 (0) 9922200377 | +91 (0) 9850041801
✉ info@MicroSetindia.com | sales@MicroSet.co.in www.MicroSetindia.com | www.MicroSet.co.in

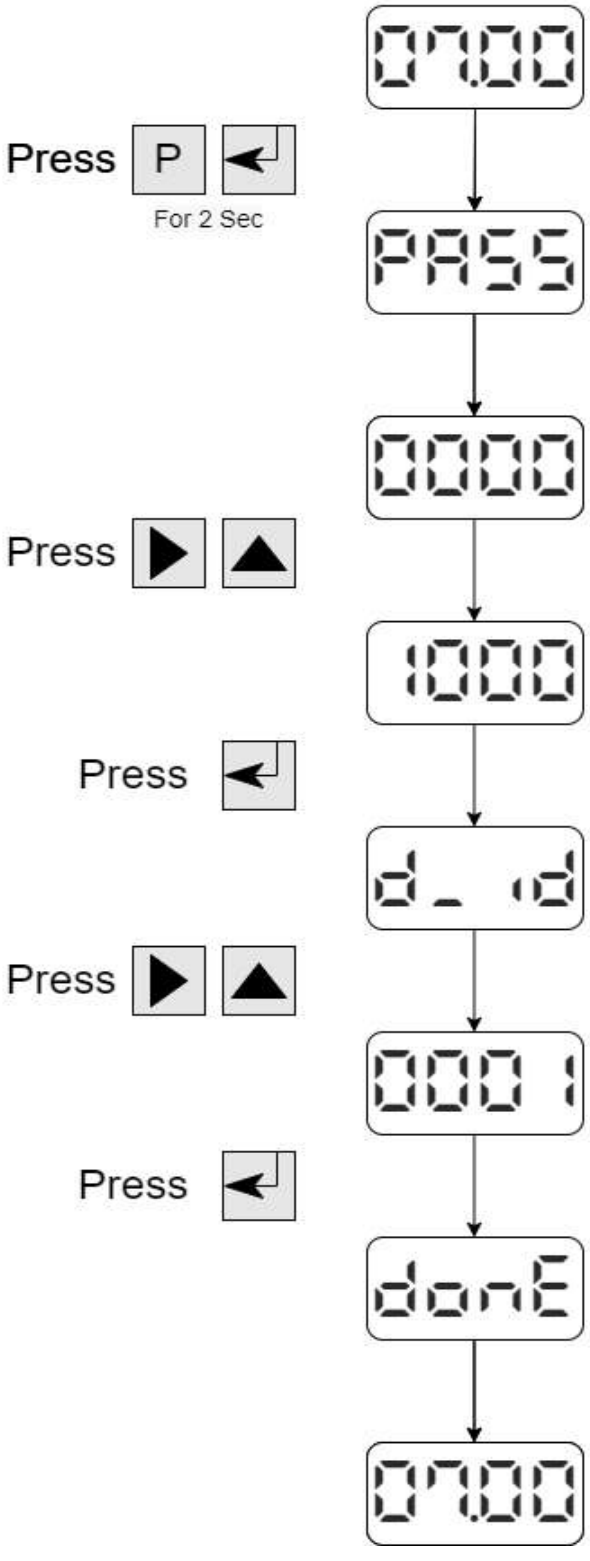
For Setpoint Display :-



102 Chinmay 1103A 10 Lakaki Road Model Colony Shivajinagar Pune Maharashtra 411016 INDIA +91 (0) 9922200377 | +91 (0) 9850041801
info@MicroSetindia.com | sales@MicroSet.co.in www.MicroSetindia.com | www.MicroSet.co.in

7.MODBUS

For setting of Slave ID : -



102 Chinmay 1103A 10 Lakaki Road Model Colony Shivajinagar Pune Maharashtra 411016 INDIA ☎ +91 (0) 9922200377 | +91 (0) 9850041801
✉ info@MicroSetindia.com | sales@MicroSet.co.in 🌐 www.MicroSetindia.com | www.MicroSet.co.in

Communication parameters of RS485 are:

Communication Protocol	Modbus - RTU
Baud Rate	9600
Data Bit	8
Check Mode	None
Slave ID	Default = 1 (Range = 1-245)

For checking the Modbus made the connection for respective Terminals.

102 Chinmay 1103A 10 Lakaki Road Model Colony Shivajinagar Pune Maharashtra 411016 INDIA ☎ +91 (0) 9922200377 | +91 (0) 9850041801
✉ info@MicroSetindia.com | sales@MicroSet.co.in www.MicroSetindia.com | www.MicroSet.co.in

⚠ 8.SAFETY WARNING & GENERAL INSTRUCTIONS

1. Read User manual carefully and understand instructions & directions provided in this manual.
2. Installation, connections, commissioning and service shall carry 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 (240 VAC) with proper polarity to the instrument, before Powering ON instrument.

11. TROUBLE SHOOTING PROCEDURE

SYMPTOMS	CAUSE OF FAILURE	ACTION TO BE TAKEN
No display indication	1.Absence of 240 V AC at terminal block. 2. Loose connection on termination.	1.Check 240 V AC power supply & rectify the fault. 2.Tight the terminal connections.

102 Chinmay 1103A 10 Lakaki Road Model Colony Shivajinagar Pune Maharashtra 411016 INDIA ☎ +91 (0) 9922200377 | +91 (0) 9850041801
✉ info@MicroSetindia.com | sales@MicroSet.co.in 🌐 www.MicroSetindia.com | www.MicroSet.co.in

9.TEST / CALIBRATION CERTIFICATE

Calibration Date:

ITEM DETAILS

Name	:	pH Indicating Controller Transmitter
Make	:	MicroSet
Model	:	pH 97
Serial No.	:	
Input	:	

READING

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

Calibrated By,

102 Chinmay 1103A 10 Lakaki Road Model Colony Shivajinagar Pune Maharashtra 411016 INDIA ☎ +91 (0) 9922200377 | +91 (0) 9850041801
✉ info@MicroSetindia.com | sales@MicroSet.co.in 🌐 www.MicroSetindia.com | www.MicroSet.co.in

10.WARRANTEE 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 purchaser, &the transit risk for such material will rest with the purchaser.

The warranty is applicable only if the instrument is used within its specification. The warranty for the replace components will lapse along with that of the main instrument.

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

ITEM DETAILS

Name	:	pH Indicating Controller Transmitter
Make	:	MicroSet
Model	:	pH 97
Serial No.	:	

For **MicroSet Instrumentation & Controls**

Seal

102 Chinmay 1103A 10 Lakaki Road Model Colony Shivajinagar Pune Maharashtra 411016 INDIA +91 (0) 9922200377 | +91 (0) 9850041801
info@MicroSetindia.com | sales@MicroSet.co.in www.MicroSetindia.com | www.MicroSet.co.in