DIGITAL STRAIN INDICATOR

OPERATING INSTRUCTIONS

Model : AS-P3 Series

AJAY SENSORS & INSTRUMENTS

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CONTENTS

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INSTRUCTION MANUAL FOR AS-P3 Series

1.0 INTRODUCTION

"Ajay Sensors" Model: AS-P3 Series is a single channel microcontroller based, versatile process indicator instrument. This precision instrument is ideally suited for industrial and laboratory applications. The instrument is designed to use with resistive strain gauges and strain-gauge based transducers.

This manual contains the information about "AS-P3 Series". Please go through this manual carefully before operating the instrument.

2.0 Features

- Built in precision bridge completion for 120Ω, 350Ω and 1000Ω half and quarter bridges

- Press to tare / zero
- Analog output (Optional)
- Serial communication (Optional)

3.0 SPECIFICATIONS

3.1 Input Connections
Front Panel screw type ***
Quantity: 8 Numbers
Wire size: 16 to 28 AWG

3.2 Bridge Configurations
Types: Quarter, Half and Full Bridges
Internal Bridge Completion:
Quarter Bridge: 120Ω, 350Ω and 1000Ω ± 0.05%
Half Bridge: 120Ω, 350Ω and 1000Ω ± 0.05%

3.3 Display
6 digits, seven segment LED display (12.5mm height, red)

3.4 Measurement Range / Resolution
Strain Range: ± 10,000 με at Gauge Factor (GF) = 2.000 (± 5 mV/V)
Resolution: ± 1 με at Gauge Factor (GF) = 2.000 (± 0.0005 mV/V)
Update Rate : 8 samples / sec

3.5 Measurement Accuracy:
± 0.2% of reading ± 5 counts

3.6 Gauge Factor Control
Range: 0.5000 to 9.900

3.7 Balance control
Front panel "Tare" switch

3.8 Bridge Excitation
2.0 VDC nominal

3.9 Communication interface
RS 232 C

3.10 Shunt Calibration
Location: Across bridge completion resistors
Values:
P- to D120: 11.94 KΩ ± 0.1% (5000 με at GF = 2.000)
P- to D350: 34.8 KΩ ± 0.1% (5000 με at GF = 2.000)
P- to D1K: 99.5 KΩ ± 0.1% (5000 με at GF = 2.000)

3.11 Analog Output
Value: 0 to 10 VDC
Range: 0 to 5000 με
Output load resistance: 2 KΩ
Connector: BNC

3.12 Power
230 V AC Mains Operation, 50 Hz

3.13 Operational Environment
Temperature: 0 to 50°C
Humidity: Upto 90% Rh, non condensing

3.14 Enclosure
184 x 96 x 200mm DIN enclosure

3.15 Weight
1.0 Kg ****

Settable Parameters : Gauge Factor
Front Panel Keys : *Menu;* To scroll through the menus.
Inc; Increments the blinking menu parameter, To reset the peak and to **tare** the reading.
Shift; Shifts the blinking menu digit.
Enter; Stores configuration and Toggles between peak & Normal mode.

3.0 Keyboard Description: The front panel of the instrument consists of 4 keys whose description is given below:

3.1 **MENU:** Pressing the menu key repeatedly enables the user to scroll through the different menus available in the instrument.

3.2 **INC**: INC or Increment key is used increment the value of the blinking digit in menu. In the normal mode, when not in menu, this key is used for resetting the Peak value and if it is pressed for more than 15 sec. it will tare the reading.

3.3 **SHIFT**: 'SHIFT' key is used to shift the blinking digit.

3.4 **ENTER**: When the menu is STOR, 'ENTER' key is used to store the menu settings in the non volatile memory. In the normal mode, when not in menu, this key is used to switch between normal display and peak display.

4.0 Description of menus

4.1 Gauge Factor Control (b xxxx); where 'x' is one of '1', '2', '3' or '4' ('1' refers to 1st key or the MENU key '2' refers to 2nd key or the 'INC' key '3' refers to the 3rd key or the 'SHIFT' key and '4' refers to the 'ENTER' key.

4.24 Saving the menu settings (stor): This menu is used to store all the settings in the non volatile memory band it will be loaded while powering up. Press 'ENTER' key to save the changes made in the menus. When 'ENTER' is pressed, the display will blink once to indicate that the setting have been stored.

5.0 Accessing the hidden (or Masked) Menus : The Menus which are hidden may have to be accessed for re-setting or for any other purpose. The procedure to access all menus (irrespective of masking is as follows)

(a) Put the instrument 'OFF' and put it 'ON', while holding the 'SHIFT' key down.

(b) Release the 'SHIFT' key after the display appears. The display will now show the message 'P xx', where 'xx' starts counting from 00 to 20.

(c) Input the pass word (as set in Menu 'P 1234').

(d) If a wrong pass Word is entered or a pass word is not entered before the count reaches '20', the display will show 'FAIL' and goes back to normal mode without enabling all the Menus.

(e) If a correct Pass Word is entered, then the display will show 'PASS' and goes to normal mode after enabling all the Menus.

(f) Now one can go through all the Menus by pressing Menu key.

6.0 Peak, Valley and Tare functions;

In the normal mode, (i.e., When not in Menu mode) pressing Enter key will toggle the display between normal value the PEAK (Max) value and the Valley (Min) value. When PEAK is displayed a 'P' will be displayed in front of the value. And when Valley is displayed, 'u' will be displayed in front of the value. Since sign is displayed in the same digit as 'P' and 'u' the middle segment of 'P' will disappear for + value and for negative values 'u' will look like 'o'.

Pressing INC key will reset the PEAK.

To tare the value, press INC key continuously for 5 sec.

7.0

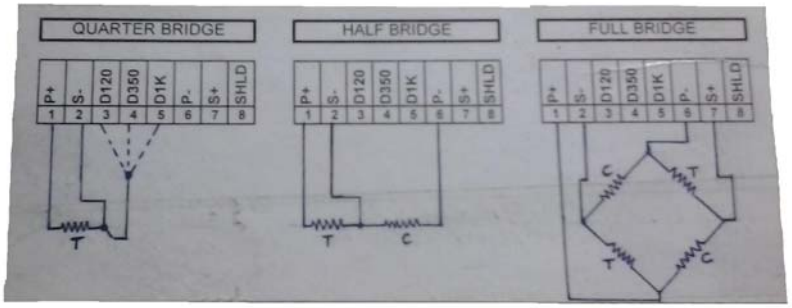
Front Panel

1. Input: Screw Terminals
2. Bridge Selection switch
3. Resistance Selection switch
4. Menu keys for setting

8.0

Input Connections

Strain gauges and strain gauge based transducers are connected to “AS-P3” through the front panel input terminals.
Connections can be made whether the unit if on or off. But we recommend to power off the unit and do the connections.



Quarter Bridge Connections

The following configuration illustrates the connections for making a three wire quarter bridge connection. Select the dummy terminal (D120, D350 or D1K) to correspond with the nominal resistance of the strain gage.

Ensure “Bridge Selection” switch to be selected is “1/4” (Quarter)
Ensure “Resistance Selection” switch is selected according to the connections

Half Bridge Connections

The following configuration illustrates the connections for making a three wire half bridge connection.

Ensure “Bridge Selection” switch to be selected is “1/2” (Half)
Ensure “Resistance Selection” switch is selected according to the connections

Full Bridge / Transducers Connections

The following configuration illustrates the connections for making a full bridge connection.

Ensure “Bridge Selection” switch to be selected is “Full”
Ensure “Resistance Selection” switch is selected according to the connections.