OPERATION MANUAL

SINGLE CHANNEL DATA LOGGER

(WITH MICRO-SD CARD INTERFACE)

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MODEL: VZ-70

DESCRIPTION

The VZ-70 is a micro-controller based Digital process Indicator with data logging feature, offered in a highly compact, rugged and reliable execution. The instrument has three keys on the front panel, with which the operator can set the parameters and configure the instrument as desired. A four-digit red LED digital display is provided on the front panel which indicates the process value in real time. The display can indicate any scale range between –999 to +9999 units. A Micro-SD Card slot to insert or removed SD Card.

The instrument has non-volatile memory (i.e., in case of power failure, the set points and other settings are retained in memory and the indication and control actions resume after power is restored).

The instrument accepts a standard analog current loop signal of 4 to 20 mA DC and displays the process value with Periodic data logging into Micro SD Card as well as in Microcontroller memory(Limited 4000 logs) the set points of which may be configured through the Membrane Keypad on the front panel. Data Logging will always start when process value crosses this set point.

The process display is factory calibrated to the desired operating range of the input through the instrument software and may be changed whenever desired.

The input signal is suitably isolated and conditioned by the micro-controller, which displays the actual process value in real time on the digital display.

The micro-controller based process Indicating and data logger Model: VZ-70 is therefore an ideal instrument for process measurement applications because of it's versatility and inherent accuracy in process measurement , besides other superior characteristics such as total immunity to shocks, dust, ambient temperatures, and humidity. It is available in standard DIN Rail enclosures. It operates on 24 V DC power supply.

Further, the instrument is manufactured using selected high-grade components which guarantee it's functionality and long operational life. The instrument carries a performance guarantee against manufacturing defects and workmanship defects.

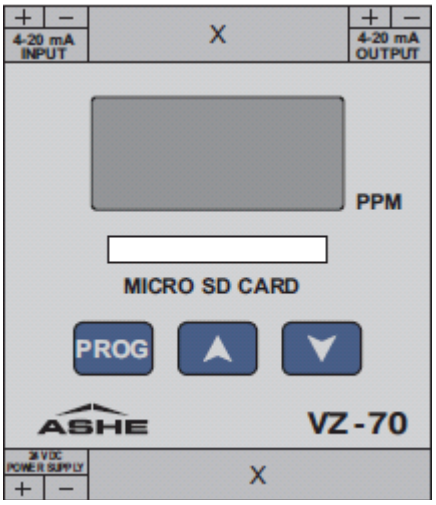
INSTALLATION

All interconnections to the instrument should be made with strong multi-strand wire of the order of 2.5 sq.mm. The ends of the wires should be properly ferruled and suitable lugs must be used for effective termination.

The cables carrying the input signal should be routed separately and properly isolated from any power line cables in the vicinity, to prevent any electromagnetic interference in the input signal readings from the mains power line. Use of shielded twisted pair cable is recommended for input signals. The shield must be connected to Earth only at the instrument end.

OPERATION & SETTINGS

The front panel of the Digital process Indicator Controller is as shown below:



The Digital Indicator Controller has a four-digit display window on the front panel for indicating the process value. Further, MICRO-SD CARD socket to Insert and Remove Micro-SD Card

CONTROL KEYS

The instrument has three keys on the front panel, functions of which are described below

	The PROG or PROGRAM key is the central co-ordinating key to access the settings of the instrument. Pressing this Key allows the operator to sequentially view, change and save the parameters such as Zero and Span settings, Decimal position, Set-points etc.
	The INC or Incrementing key allows the operator to select the numeral in the digit being set on an increasing scale. The digit will sequentially display 0, 1, 2….9 on each pressing of the INC key. This may be used to set the Zero/Span of the display and Set-points of the Relays. The incrementing speed increases if the key is kept pressed.
	The DEC or Decrementing key allows the operator to select the numeral in the digit being set on a decreasing scale or to select Cursor Position. The digit will sequentially display 9, 8, 7….1 on each pressing of the DEC key. This may be used to set the Zero/Span of the display and Set-points of the Relays. The decrementing speed increases if the key is kept pressed.

SETTINGS & CALIBRATION

The following is the sequence of settings on the Digital Indicator / Controller. All settings to be done using Increment (▲) and Decrement (▼) keys.

CONTROL SETTINGS

KEY PRESSED	INITIAL DISPLAY	ALTERNATING DISPLAY	FUNCTION
(POWER ON)	ASHE		
(POWER ON)	iPLO	CP-F /CP-P	If Input Signal is below 3.8mA or is not connected.
-	iPHi		If Input Signal is above 20 mA.
			CP-F Indicates Copy FAILED
			CP-P indicates Copy PASS
	000.0		If sensor is connected and input is between 4-20 mA, then display will show corresponding process value
PROG **P**	dP	100.0	Set the DECIMAL POSITION. *[Options are : 1000,100.0,10.00, 1.000]* These numbers indicate the position of the Decimal with respect to the Least Significant Digit (right-most digit). e.g., 1000 indicates No Decimal Point.
PROG **P**	r nGL	000.0	RANGE LOW setting: The desired Zero (lower) range for the process being measured may be set using ▲ and ▼ keys from -999 to 9999. Use ▼ key to select decimal positon and ▲key to change the number
PROG **P**	r nGH	100.0	RANGE HIGH setting: The desired Span (higher) range setting for the process being measured may be set using ▲ and ▼ keys from -999 to 9999. Use ▼ key to select decimal positon and ▲key to change the number
PROG **P**	Zero	150	Using ▲ and ▼ keys adjust the counts for 4 mA Output.
PROG **P**	SPAn	500	Using ▲ and ▼ keys adjust the counts for 20 mA Output.
PROG **P**	SEt	050.0	The SET-POINT "Set" is displayed alternately with the factory preset value.
PROG **P**	L0G	10	The LOG INTERVAL "LOG" is displayed alternately with the factory preset value.It can be adjusted using ▲ and ▼ keys from 10 to 50 seconds
PROG **P**	CP-L	nO	If "**No**" Selected and pressed PROG key. Display will come to Main Window
		YES	If "**YEs**" Selected and pressed PROG key. Instrument will copy the content of Microcontroller latest Logs and stored it in Micro SD CARD
PROG **P**	COPy		Display will show "COPY" message until data get copied and then come to main window
PROG **P**	(process value)	CP-F	As per connected Input Signal. In case of copy failure or absence of Micro SD Card. Display will toggle between "**CP-F**" and Process Value
	(process value)	CP-P	If log is successfully Copied Display will toggle between "**CP-P**" indicating Copy Pass and Process Value
			This "CP-F" or CP-P Message will shown on regular configured log interval (i.e; between 10 to 50 seconds)

CALIBRATION

All settings to be done using Increment (▲) and Decrement (▼) keys.

KEY PRESSED	DISPLAY	ALTERNATING DISPLAY	FUNCTION
Long Press Increment (▲)	4 mA	0750	This is ZERO CALIBRATION setting. Apply 4 mA and save the counts by using ▼ key.
PROG P	20mA	2560	This is SPAN CALIBRATION setting. Apply 20 mA and save the counts by using ▼ key.
PROG P	(process value)		As per connected Input Signal

RTC SETTINGS

All settings to be done using Increment (▲) and Decrement (▼) keys.

KEY PRESSED	DISPLAY	ALTERNATING DISPLAY	FUNCTION
Press Increment (▲) and Decrement (▼) keys together	YEAr	0018	Here you can set Year. Here 18 Indicates 2018.Use INC or DEC Key to Set the year
PROG P	mon	0007	Here You can Set Month. Use INC or DEC Key to Set the Month from 1to 12
PROG P	dAtE	0017	Here You can Set Date. Use INC or DEC Key to Set the Date from 1 to 31
PROG P	mon	0007	Here You can Set Month. Use INC or DEC Key to Set the Month from 1to 12
PROG P	dAtE	0017	Here You can Set Date. Use INC or DEC Key to Set the Date from 1 to 31
PROG P	HoUr	0009	Here You can Set Date. Use INC Key to Set the Date from 0 to 23
PROG P	Min	0002	Here You can Set Minute. Use INC or DEC Key to Set the Minute from 0 to 59
PROG P	SEC	0017	Here You can Set Date. Use INC or DEC Key to Set the Seconds from 0 to 59
PROG P	(process value)		As per connected Input Signal

KEY PRESSED	DISPLAY	ALTERNATING DISPLAY	FUNCTION
Press Decrement (⮟) key	11.05	(process value)	Momentarily shows current time and then process value

Clearing Log Memory

All settings to be done using Increment (⮝) and Decrement (⮟) keys.

KEY PRESSED	DISPLAY	ALTERNATING DISPLAY	FUNCTION
Long Press Decrement (⮟) key	C-LG	nO	If "**No**" Selected and pressed PROG key. Display will come to Main Window
		YES	If "**YEs**" Selected and pressed PROG key. Instrument will clear the content of Microcontroller latest Logs
PROG **P**	(process value)		As per connected Input Signal

This completes the entire settings of the Digital Process Indicator / Controller.

KEY NOTATIONS

ABBREVIATION ON DISPLAY	EXPLANATION
iPLO	Input Low
iPHi	Temperature Sensor Fault
CP-P	Copy Pass
CP-F	Copy Fail

TECHNICAL SPECIFICATIONS

Model	:	VZ-70(Single Channel Data Logger)
Type	:	Microcontroller based Digital Process Indicator with Data Logging
Input Signal	:	4 to 20 mA DC.
Display	:	Seven-segment, Red LED display.
Indications	:	Four-digit display.
Scale Range	:	-999 to 9999 [Fully configurable].
Calibration Range	:	May be calibrated as required.
Decimal point	:	Selectable.
Response time	:	Typically 200 mS.
Output	:	4 to 20 mA DC.
Memory	:	Non-Volatile (on EEPROM).
Logging Interval	:	10 to 50 seconds(Configurable)
Settings	:	By Membrane Switchpad on front panel and Modbus RTU commands
Features	:	Configurable for Scale Calibration, Decimal point, Modbus RTU etc.
Accuracy	:	± 0.1% FS.
Power Supply	:	24V DC
Dimension	:	75 x 55 x 110 mm [HxWxD].
Weight	:	Approximately 0.5 Kgs
Enclosure	:	Polycarbonate