

DIGITAL CONTROLLER

MODEL: CY-62

DESCRIPTION

The ASHE CY-62 is a fully configurable micro-controller based universal Digital process Indicator with control outputs, 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. A four-digit red LED digital display is provided to indicate the process value. The display can indicate any scale range between -999 to +9999 units.

The instrument is a universal input Indicating Controller and can accept the following signal inputs: -

- Thermocouple, type S (Pt Rh10%-Pt element) Sensor.
- Thermocouple, type R (Pt Rh13%-Pt element) Sensor.
- Thermocouple, type K (Cr-Al element) Sensor.
- Thermocouple, type J (Fe-Ko element) Sensor.
- 1°C or 0.1°C RTD Pt-100 Sensor.
- 4 to 20 mA DC or 0 to 10 V DC.

The CY-62 provides two control Relay set-points, which may be configured for either High or Low setting with independent Hysteresis value, through the Membrane Keypad on the front panel [see CONFIGURATION section]. The instrument operates on 90 to 270 VAC universal AC power supply and is offered in DIN standard panel-mount execution. The CY-62 can provide PID control action for Relay1, while Relay2 has ON/OFF control action.

INSTALLATION

The instrument should be mounted in the cutout (44 x 92 mm) on the panel using the mounting clamps provided. All inter-connections 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 suitably terminated.

The cables carrying the Input Signal should be properly isolated from the Power Line cables to prevent any electromagnetic interference or noise-related malfunctions from the Mains Power Line. Use of shielded twisted pair cable is recommended for the input signal. It is essential that the instrument be earthed to a proper grounding point before connecting the power supply.

After connecting the input signal to a suitable source or Sensor, the power may be switched ON. The instrument must first be configured and then calibrated (see sections below).

OPERATION & SETTINGS

The front panel of the CY-62 Digital Indicator is as shown below :



The Indicator has one display window on the front panel for indication of Process value and the menu options. Two LED indications show the status of the two control Relays.

CONTROL KEYS

The instrument has three keys on the front panel, as described below:

	The PROGRAM key is the central co-ordinating key for accessing the settings of the instrument. Pressing this Key, one can sequentially view, change and save the parameters such as Input selection, Zero & Span settings, Decimal Points, Relay set-point, Hysteresis, Control Logic, etc.
	The INC or Incrementing key allows the operator to select the numeral in the digit being set. 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 calibration range on the display.
	The DEC or Decrementing key allows the operator to select the numeral in the digit being set. The digit will sequentially display 9, 8, 7....0 on each pressing of the DEC key. This may be used to set the Zero/Span calibration range on the display.

TERMINAL DIAGRAM

UPPER TERMINAL BLOCK

INPUT	1	2	3	4	5	6	7	8
4 to 20 mA	+	-			X	NO	C	NC
RTD Pt-100		+	-	-				
Thermocouple			+	-				
	INPUT					RELAY-2		

LOWER TERMINAL BLOCK

9	10	11	12	13	14	15	16
L	N	E	NO	C	NC	No Connections	
POWER SUPPLY 90 to 270 VAC,50Hz			RELAY-1				

DETAILS

TERMINAL BLOCK	TERMINAL NO.	NOTATION	DETAILS
UPPER	1	+	INPUT SIGNAL OR SENSOR
	2	-	
	3		
	4		
	5	X	No Connections
	6	NO	RELAY-2
	7	C	
	8	NC	
LOWER	9	L	Power Supply 90 to 270 VAC,50Hz
	10	N	
	11	E	
	12	NO	RELAY-1
	13	C	
	14	NC	
	15	X	No Connections
	16	X	

1. For 4 to 20 mA DC input >> Terminals 1,2
2. For RTD Pt-100 input >> Terminals 2,3,4
3. For Thermocouple input >> Terminals 3,4

CONFIGURATION

KEY PRESSED	DISPLAY	ALTERNATING DISPLAY	FUNCTION
(POWER ON)	RTD		Display shows selected Input or Sensor type.
	PROCESS VALUE		Display shows process value or 'OPEn' if sensor is open.
PROG	St1	(Preset Value)	Set-point for Relay-1 is displayed alternately with factory preset value. Use ↑ & ↓ keys to change setpoint.
PROG	St2	(Preset Value)	Set-point for Relay-2 is displayed alternately with factory preset value. Use ↑ & ↓ keys to change setpoint.
PROG	Process Value		The instrument exits the Control setting mode and displays process value corresponding to input.

PARAMETER SETTINGS

KEY PRESSED	DISPLAY	ALTERNATING DISPLAY	FUNCTION
(POWER ON)	AnLG		Display will show the selected Input or Sensor type. The default Input is RTD Pt-100 sensor.
	PROCESS VALUE		The display shows process value corresponding to sensor reading or 'OPEn' if sensor is open.
Press and hold the Increment ↑ and Decrement ↓ keys together for 4 seconds	SEn	AnLG	The Input Signal / Sensor options are as follows : tC- J Thermocouple type J sensor tC- K Thermocouple type K sensor tC- R Thermocouple type R sensor tC- S Thermocouple type S sensor AnLG Analog input (customer should pre-specify the input as either 4 to 20 mA or DC voltage) Γtd.1 RTD Pt-100 [three-wire] sensor with 1°C resolution Γtd1 RTD Pt-100 [three-wire] sensor with 0.1°C resolution
PROG	dP	1000	Set DECIMAL POSITION. <i>Options are 0/1/2/3.</i> 0 indicates No Decimal. This parameter is visible only if the sensor type is AnLG.
PROG	IPC	0000	Set INPUT CORRECTION which directly adds or subtracts a digit from display reading if necessary for minor corrections in readings.
PROG	LO K	nO	LOCK setting for Auto tune PID Control action. In Unlocked condition, the PID settings can be "autotuned" using ↓ key. nO Auto PID Tuning will be activated (Press DECREMENT key to start Auto-Tuning) Yes Manual PID Tuning will be activated.
PROG	ΓnGL	000.0	RANGE LOW setting: The desired Zero (lower) range for the process being measured may be set using ↑ and ↓ keys. The lower limits for individual inputs are : tC- S, R, K, J 0000°C Γtd 1, Γtd.1 -099°C AnLG -999
PROG	ΓnGH	100.0	RANGE HIGH setting: The desired Span (higher) range setting for the process being measured may be set using ↑ and ↓ keys. The lower limits for individual inputs are : tC- S, R 1750°C tC- K 1200°C tC- J 0750°C Γtd 1, Γtd.1 0400°C AnLG 9999
PROG	Con1	HEt	Type of Control output for Relay1. Options are : - HEt Heating Control Logic COL Cooling Control Logic Pld PID Control OFF No control action. Instrument works as a simple indicator.
PROG	HY1	[User Setting]	Hysteresis to be set for control action of Relay-1 (between 0001 to 0100). Factory-setting may be changed as required. Hysteresis for each Relay may be set independently. Option available for Heating and Cooling control logic only.
PROG	dLY1	[User Setting]	Delay to operate Relay 1 (between 0000 to 0254 seconds). Option available for Heating and Cooling control logic only
PROG	CY-t	[User Setting]	Set the Cycle Time for PID control action. The Cycle Time can be set from 0001 to 0060 seconds. [Default Value is 10 seconds] Option available for PID Control only.
PROG	P-G	[User Setting]	Set the Proportional Gain for PID Control action. The Proportional Gain can be set from 000.0 to 010.0. [Default Value is 0000] Option available for PID Control Only.
PROG	In-t	[User Setting]	Set the Integral Time for PID Control action. The Integral Gain be set from 000.0 to 010.0. [Default Value is 000.8] Option available for PID Control only.
PROG	dΓ-t	[User Setting]	Set the Derivative Time for PID Control action. The Integral Gain be set from 000.0 to 010.0. [Default Value is 010.0] Option available for PID Control only.
PROG	Con2	HEt	Type of control output for Relay-2. Options are: HEt Heating Control Logic COL Cooling Control Logic OFF Instrument operates with single Relay control.
PROG	HY2	[User Setting]	Hysteresis to be set for control action of Relay-2 (between 0001 to 0100). Hysteresis for each Relay may be set independently.
PROG	Process Value		The instrument come out of parameter setting mode and displays process value corresponding to input signal / sensor.

This completes the entire settings of the CY-62 Digital Indicating Controller.