



5030

PID Controller

Model 5030 is rugged, reliable and fail-safe, tried and proven in the field for more than 10 years for all types of applications and environments. Model 5030 has hardware capabilities like universal inputs, universal outputs, transmitter supply, remote set point, re-transmission output and serial communication as standard features.

Output type selectable is Relay, SSR, DC signal, Forward/Reverse relay for motorized valves with and without feedback. Besides control output the unit has 2 Auxiliary relays programmable as Absolute/deviation/Band alarm/Aux functions. The input can be programmed for any one of thermocouple types, RTD Pt100, current or voltage.

Model 5030 has 4 digit display for PV, SV and 20 segment bar display for MV. Control output can be limited using high or low limit selection.

Configuration, Programming, Operation & Calibration modes are protected by DIP switches. Zero and span of process variable, remote set point and valve position are adjusted by digital calibration through front panel keys.

Model 5030 has retransmission output for interface to recorder and serial RS485 communication over MODBUS for PC interface.

5030 has special batch parameters to avoid first overshoot during startup and set point change.

Features

- Micro-controller based universal process controller
- Wide choice of input & output types
- Pulsed output for MOV with/without position feedback
- Remote set point input for cascade control
- Configurable control parameters
- Simultaneous PV, SV, MV display
- Isolated retransmission & TPS output
- Isolated RS485 Communication port
- Metal enclosure for better EMI shielding
- Batch parameters for overshoot avoidance
- Field selectable output from Relay, Motorized valve control (with or without feedback) or linear output

Applications

- Metal Treatment
- Furnace Control
- Glass Industry
- Food Processing
- Cascade Control
- Reactor Control
- HVAC Control
- Test Beds
- Annealing Furnace

Technical Specifications

Input

Input 1: PV Input	
Input Type	Thermocouple: B, E, J, K, R, S, T, N, G, C RTD (3 wire): Pt100, Linear
Display Range	Refer Table-1
Accuracy	± 0.1% of F.S ± 1 Count.
CMRR	120 dB
NMRR	60 dB
ADC Resolution	15 ½ Bits
Display Resolution	0.1/1.0 °C
Sampling Rate	2.5 S/sec
CJC Error	±2.0 °C
Burn out current	1uA
RTD excitation current	1mA
Temp-co	<100ppm/°C
Input Impedance	>1M Ω
Max Voltage	20VDC

Input 2: RSP Input	
Current Input	Current : 0/4-20 mA DC
Input Impedance (Ext)	250 Ω
Accuracy	± 0.1% of F.S ±1 Count
Range	-1999 to 9999

Input 3: ZV Input	
Potentiometer Input	Resistance: 100Ω to 2000Ω
Accuracy	± 0.1% of F.S ± 1 Count
Range	-1999 to 9999

Display & Keys	
Process Value	4 digit 0.56", 7 segment Red LEDs
Set Point Value	4 digit 0.39", 7 segment Red LEDs
Control Output/ Valve Position Indication	20 segment Red bargraph
Status Indication	Discrete Red LEDs for A1, A2, A3, HT/FR, TxD, RxD, A/M, L/R set point
Keys	Set, Digit shift, Increment, Decrement, Enter

Output

Control Output	
Control Type	PID
Proportional Band	1 to 400 (Field Configurable as Absolute, % SP, % SPAN)
Integral Time (Reset)	1 to 1800 sec (0-OFF)
Derivative Time (Rate)	1 to 600 sec (0-OFF)
Cycle Time	For Relay 0 to 300 Sec

Control Relay	
Type	SPDT
Rating	2A @ 250VAC

Heat Relay Output	
Relay	1

Forward/Reverse Relay Output	
Relay	2

SSR Control Output (Factory installed instead of Linear output)	
Rating	12V@ 12mA
Cycle Time	0.4 Seconds or 4 Seconds

Linear Output	
Current (Optional)	Isolated 0/4-20mA @ 600Ω Max.
Voltage (Optional)	Isolated 0-5V/0-10V @ 2KΩ Min.
Accuracy	± 0.3% of full scale ± 1 Count

Alarm Output	
Relays	2 / 3*
Type	SPDT
Rating	2A@ 250VAC

* When F/R is selected as Control Relay, only 2 relays are possible as Alarm o/p, else 3 relays are possible.

Retransmission Output	
Current (Optional)	Isolated 0/4-20mA @ 600Ω Max.
Voltage (Optional)	Isolated 0-5V/0-10V @ 2KΩ Min.
Accuracy	± 0.3% of full scale ±1 Count
Transmitter Power Supply	24VDC @ 30mA

Communication Output	
Interface	RS485
Protocol	Modbus-RTU
Baud Rate (bps)	9600, 19200

Power supply	
Voltage	230V AC ±10%, 50 Hz 110V AC ±10%, 50 Hz (Optional)
Power Consumption	< 15 VA

Isolation (Withstanding voltage)
Between primary terminals* and secondary terminals**: **At least 1500 V AC for 1 minute**
Between primary terminals* and grounding terminal: **At least 1500 V AC for 1 minute**
Between grounding terminal and secondary terminals**: **At least 1500 V AC for 1 minute**
Between secondary terminals**: **At least 500 V AC for 1 minute**

* Primary terminals indicate power terminals and relay output terminals.

** Secondary terminals indicate I/O signal and Communication O/P.

Note: PV Input not isolated from SV Input

Insulation resistance: >20MΩ @ 500 V DC between all terminals and grounding terminal

Physical	
Case	M.S. powder coated with ABS molded bezel and membrane key pad
Terminals	Cable wire up to 2.5 mm ²
Bezel size (mm)	96(H) x 96(W)
Panel cutout (mm)	92(H) x 92(W)
Depth behind panel	220 mm max. Including terminals
Weight	< 2.5 Kg
Enclosure (Standard)	IP20
Enclosure (Optional)	Explosion proof (Group IIA / IIB)

Environmental	
Operating temperature	0 to 55 °C
Storage temperature	0 to 80 °C
Humidity	30 to 95 % RH non-condensing

Table 1: Display Range

Input Type	Input Type	Ranges
Thermocouple	B	450 to 1820°C
	E	-200 to 1000°C
	J	-200 to 1200°C
	K	-200 to 1372°C
	R	0 to 1768°C
	S	0 to 1768°C
	T	-200 to 400°C
	N	-270 to 1300°C
	G	0 to 2320°C
	C	0 to 2320°C
RTD	Pt100 (0.1 °C)	-199.9 to 850°C
	0/4 to 20 mA	-1999 to 9999
Linear	0/1-5V	-1999 to 9999

Ordering Code

Model	Input Type	Power Supply	Retransmission O/P	Control Output	Mounting
5030	X	XX	X	X	XX
	1 E	A1 110VAC	1 4-20mA	R Relay	P0 Panel
	2 J	A2 230VAC	2 0-20mA	F F/R relay with feedback	FP Wall FLP
	3 K		3 1-5VDC		
	4 T		4 0-5VDC	M F/R relay without feedback	
	5 B			C 4-20 mA	
	6 R			D 0-20mA	
	7 S			V 0-5 VDC	
	8 N			U 0-10 VDC	
	H G			S SSR	
	I C				
	9 Pt100				
	C 4-20mA				
	D 0-20mA				
	E 1-5VDC				
	F 0-5VDC				

X - Specify from table

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