MIC 1820/1420
MICROBASED 1/8 & 1/4 DIN LIMIT CONTROLLER WITH RaPID™ CONTROL

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ORDERING

MODEL
8   1/8 DIN
4   1/4 DIN

OUTPUT 1
1   Relay
2   SSRD
3   4-20mA*

OUTPUT 2#
0   None
1   Relay
2   SSRD
3   4-20mA*
4   Transmitter Power Supply+

OUTPUT 3#
0   None
1   Relay*
3   4-20mA**
4   Transmitter Power Supply++

OPTIONS
00   None
01   RS-485 Communications
03   Dual Setpoint

SECOND ANALOG INPUT TYPE
00   None
03   Remote Reset - 0-20mA***

SUFFIX
(Blank)   None
02   Line Voltage 24 V AC/DC
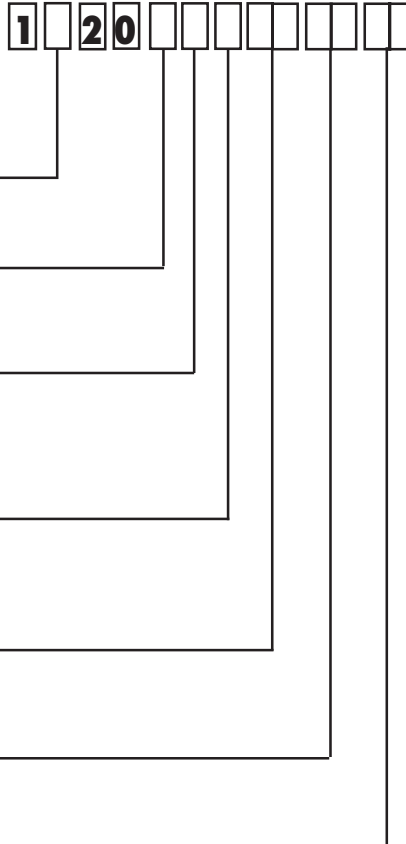
* For current output only.
** For retransmission only.
*** Field changeable to 0/100mV, 0/10V, or Potentiometer (up to 2K ohm)
+ Cannot be included if Output 3 is 4.
++ Cannot be included if Output 2 is 4.

NOTE: OUTPUT 2, when programmed as an ALARM IS programmed as ALARM 2 ONLY. OUPUT 3, when programmed as an ALARM, is programmed as ALARM1 ONLY.

WARRANTY
This instrument is backed by the Partlow comprehensive 2 year warranty. A complete warranty statement is published in the back of the product instruction manual. If you have further questions about warranties, please contact the Partlow factory.

ORDERING INFORMATION
For pricing and additional ordering information, refer to Form 3265, Electronic Price Book, Page 25.

DESCRIPTION

The Partlow MIC 1820 and MIC 1420 Series of microbased, 1/8 DIN and 1/4 DIN process controllers, utilize a fuzzy logic control algorithm which dramatically improves the quality of control in PID controllers. Dubbed RaPID™ (Response assisted PID), the algorithm enhances the traditional PID function by continuously reblending the P, I and D control components on-line. Instead of learning from an event and reacting after it has happened (how all self-tuning PID controllers work), RaPID™ controllers can react as an event occurs, thereby improving the quality of control and speed of response in any application. All the user has to do to improve control is set up the controller in the normal way using pre-tune/auto-tune, and then activate the fuzzy logic by pressing two keys on the front.

CONTROLLERS

SPECIFICATIONS

Input

Thermocouple types	J, K, T, R, S, B, L and N.
RTD	100 ohm (.00385 ohm/ohm/C)
Volts	0 to 5VDC, 1 to 5VDC, 0 to 10VDC and 2 to 10 VDC
Millivolts	0 to 50mVDC and 10 to 50mVDC
Milliamps	0 to 20mADC and 4 to 20mADC
Sensor Fault Detection	Displays ⌐LL⌐ or ⌐HH⌐ for thermocouple or RTD inputs and sensor break, SnSr. Control outputs set to OFF (0% power); alarms operate as if the process variable has gone over-range (TC) and under-range (RTD & V, mV, mA)

Outputs

Output 1

Relay	SPDT
	2A Resistive at 120/240 VAC
SSR Driver	> 4.2V DC into 1K ohm minimum
Current Output	0 to 20mADC into 500 ohms max
	4 to 20mADC into 500 ohms max
Volts DC Output	0 to 10VDC 500 ohms minimum
	0 to 5VDC 500 ohms minimum

Output 2

Relay	SPDT
	2A Resistive at 120/240 VAC
SSR Driver	> 4.2V DC into 1K ohm minimum
Current Output	0 to 20mADC into 500 ohms max
	4 to 20mADC into 500 ohms max
Volts DC Output	0 to 10VDC 500 ohms minimum
	0 to 5VDC 500 ohms minimum
Transmitter Power	20 to 28VDC (24VDC nominal)
Supply	910 ohm (22mA @ 20VDC)

Output 3

Relay	SPDT
	2A Resistive at 120/240 VAC
SSR Driver	> 4.2V DC into 1K ohm minimum
Current Output	0 to 20mADC into 500 ohms max
(retransmission only)	4 to 20mADC into 500 ohms max
Volts DC Output	0 to 10VDC 500 ohms minimum
(retransmission)	0 to 5VDC 500 ohms minimum
Transmitter Power	20 to 28VDC (24VDC nominal)
Supply	910 ohm (22mA @ 20VDC)

Display

Digital Display	Four 7 segment LEDs
	1/8 DIN: Top .39", Bottom .28"
	1/4 DIN: Top .53", Bottom .39"
Status Indicators	Individual LED indictors for Output 1, Output 2, Manual, Alarm, Pre and Auto Tune

Alarm Adjustment

Process Alarm	– Input Span
Deviation Alarm	– Input Span
Deviation Band Alarm	0 to Input Span

Control Adjustments

On/Off Hysteresis	0.1% to 10.0% of Input Span
Proportional Band	0 (Off), 0.5% to 999.9% of Input Span
Manual Reset	0% to 100% of Output Power
Auto Reset	1 sec to 99 min 59 sec/repeat and OFF
Rate	0 sec to 99 mins. 59 sec
Cycle Time	.5, 1, 2, 4, 8, 16, 32, 64, 128, 256, and 512 seconds
Deadband/Overlap	-20% to +20% of PropBand 1 + PropBand 2

Performance

Measurement Accuracy	– 0.25% of span, – 1 LSD at 20 deg C Note: Reduced performance with Type "B" thermocouple between 100-600C (212-1112F)
Ambient Temperature Error	0.01% of span /deg C change in ambient
Linearization Accuracy (TC and RTD)	Better than – 0.2 deg C any point, any 0.1 deg C range (– 0.05 deg C typical). Better than – 0.5 deg C any point, any 1 deg C range
Cold Junction Compensation	Better than – 0.7 deg C
Noise Rejection	Common mode: >120dB at 50/60Hz giving negligible effect at up to 264V 50/60Hz
	Series Mode: >500% of span (at 50/60 Hz) causes negligible effect
Line Voltage	90 to 264VAC 50/60 Hz (standard) 20 to 50VAC 50/60Hz or 22 to 65 VAC (optional)
Operating Temperature	0 to 55 C
Storage Temperature	-20 to 80 C
Humidity	20 to 95% non condensing
Source Resistance	1000 ohm maximum (thermocouple)
Lead Resistance	50 ohm per lead maximum balanced (Pt100)
EMI Susceptibility	Designed to meet EN50082 Part 2
EMI Emissions	Designed to meet EN50081 Part 2
Dimensions	1/8 DIN front panel: 48mm x 96mm (1.89" x 3.78") 100mm deep (3.94") 1/4 DIN front panel: 96mm x 96mm (3.78" x 3.78") 100mm deep (3.94"
Weight	1/8 DIN: 8 ounces maximum 1/4 DIN: 16 ounces maximum
Front Panel Sealing	IP66/NEMA4 (1420 only)
Power Consumption	4 Watts

Agency Approvals

UL Recognized (pending)
cUL Certified for use in Canada (pending)

Digital Communications

Type	RS-485 serial communication port:
Protocol	Modbus RTU
Bit Rate	User configurable to 1200, 2400, 4800, 9600
Address	User configurable 1 to 32

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