

PARTLOW CHART RECORDER: Model MRC 5000

INTRODUCTION

DESCRIPTION

Designed with the latest innovation in recording technology, enclosures, and functionality, the MRC 5000 is Slim, Trim, and Simple. Finding a place to install this recorder is easy, with its compact 2.5 panel depth and short 1.3 protrusion from the front of the panel. It can be panel or surface mounted. The cutout size for the MRC 5000 is the commonly utilized 12.7 square cutout. An optional adaptor plate provides convenient retrofitting of the MRC 5000 in Partlow MRC 7000 /ARC 4100 cutouts.

MODELS

The MRC 5000 is available in two basic versions for trend recording of one or two values. A compliment of options provides the flexibility to handle a variety of applications.

FEATURES

1 or 2 trend pen versions Universal Inputs
4 digit red LED display Up to 2 alarms per pen
High/Low limit capability available Universal power supply
Configuration port Communications

CONFIGURATION

A simple prompting scheme provides rapid access to all configuration data. Programming is simple enough that instructions are provided on a 4 x 6 card that can be stored in a pocket on the back of the wiring access panel. During normal operation, the display can show process value(s) or be blanked.

OPERATOR INTERFACE

Beyond the configuration capability, the display and keypad provide for easy alarm setpoint changes. The operator interface has been designed to make daily operation as simple as possible. The operator interface also provides access to test and calibration facilities to simplify troubleshooting and maintenance.

CONSTRUCTION

The MRC 5000 is housed in an injection molded Noryl enclosure which can be panel or surface mounted. Mounting brackets accompany the unit. Its design allows it to fit into the panel cutout of competitive products. The standard enclosure carries a NEMA 3 rating.

OPTIONS

The MRC 5000 is available with an appropriate compliment of options. Process alarms or high or low limit capability is available. Upcoming options include PC based configuration software and a communications interface.

FIELD UPGRADES

If the recorder was purchased with any relays included, additional relays can be added by replacing the relay board. If a recorder does not initially require alarm relays, purchase of the AA suffix option (Alarms and Communications Connectivity Option) allows connectivity to the main board which allows for later field installation of either or both options. Field installation of the Communications Option does require some disassembly of the platen assembly to add an interface board, and does require that the AA' suffix option had been included. Typically, upgrades involve adding boards; however, PROMs may need to be changed as well. Consult your supplier or the factory for information regarding other options.

SPECIFICATIONS

Inputs

Input Types/Range	Type	Range
Thermocouple types:	J	0°C to 760°C, 0°F to 1400°F
	K	0°C to 1360°C, 0°F to 2500°F
	I	-200°C to 400°C, -330°F to 750°F
	R	200°C to 1650°C, 400°F to 3000°F
	S	200°C to 1650°C, 400°F to 3000°F
RTD	100 ohm Platinum	-140°C to 400°C, -220°F to 750°F
	.00385 ohms/ohm/°C	
Current DC	0 to 20mA, 4 to 20mA	
	Internal 4.7 ohm Shunt Resistor	
Voltage DC	0 to 25mV, 0 to 50mV, 10 to 50mV, 0 to 5V, 1 to 5V	
Impedance	> 100M ohm for TC and mV inputs	
	100K ohms for 5V inputs	
	4.7 ohms for mA inputs	
RTD Excitation Current	150 micro amps, typical	
Input Scan Rate	1 scans per second for non-RID inputs	
	1 scans per 1.2 seconds for RID inputs	
Input Correction	Offset Adjustment, -999 to 999 units	
Sensor Fault Detection	Display goes to SnSr & pen goes upscale if a sensor break is detected. No sensor break can be detected for zero based Volt and Milliamp ranges	
	Display goes to Hi 10% above span.	
	Display goes Lo 10% below span or zero, whichever is higher.	

INPUT PERFORMANCE

Performance under Reference Condition

Measurement Error	Type J, K, I, R, 5, and RID: $\pm 0.25\%$ of span ± 1 degree mA, mV, and VDC: $\pm 0.25\%$ of scaled span plus 1 least significant digit
Cold Junction Compensation Error	$\pm 0.2^{\circ}\text{C}@25^{\circ}\text{C}$
Cold Junction Compensation Rejection	$0.04^{\circ}/^{\circ}\text{C}$ deviation from 25°C
Linearization Error	TC: $\pm 0.25^{\circ}\text{C}$ typical, $\pm 0.5^{\circ}\text{C}$ worst case with expectations RTD: $\pm 0.1^{\circ}\text{C}$ typical, $\pm 0.3^{\circ}\text{C}$ worst case
Ambient temperature Error	$\pm 0.01\%$ of span per $^{\circ}\text{C}$ deviation from 25°C
Common Mode Rejection	>120 dB at 50/60 Hz, 260 VAC max.
Normal Mode Rejection	85 dB minimum @60Hz or greater
Isolation	Inputs share a common signal ground

Reference Conditions

Ambient temperature	25°C
Relative Humidity	60-70%
Supply Voltage	115 VAC, 60Hz
Source Resistance	<10 ohms for TC input
Lead Resistance	<0.1 ohm/lead balanced (Pt 100)

RECORDING

Pen Type	Disposable fiber tip
Pen Color	Pen 1 – Red/ Pen 2 - Green
Chart Size	10 inch
Chart Drive	Stepper motor
Chart Rotation days	User configurable: 8 hours, 12 hours, 24 hours, 48 hours, or 7
Chart Span	Bottom and top of span, -9999 to 9999 units

RECORDING PERFORMANCE

Chart Recording Accuracy	0.5% of chart span reference accuracy
Chart Rotation Accuracy	$\pm 0.5\%$ of rotation time, assuming all backlash removed

OPERATOR INTERFACE

Display	Four digit, 0.56 high, red, seven segment, LED display
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Status Indicators indicator	Five red LED alarm status indicators, One green LED Pen 2
Keypad	Three keys for programming and unit operation
Display Modes	Normal: Process value(s) or blank

ALARMS

Number	Up to two process alarms for each of two inputs
Type	Process high or low
Limit Device	Optional high/low limits for each input with latching output Normally open output latches open Red reset button included to the right of the display
Hysteresis	Fully adjustable, 0 to 200 units, single sided
Security	Alarm setpoint changes can be prohibited
Sensor Fault Action	Alarms work normally in Hi and Lo conditions Alarm relays are de-energized in a "SnSr" sensor break condition

RELAY OUTPUTS

Relays	SPDT, contacts rated 5 amps resistive at 115 VAC, 2.5 amps resistive at 230 VAC, 1/8 HP at 230 VAC (single phase), 250 VA at 115/230
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POWER REQUIREMENTS

Line Voltage	90-264 VAC, 50/60 Hz Optional: 20-50 VAC, 50/60 Hz or 22-65 VDC
Power Consumption:	18 VA Maximum