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DIAMOND SYSTEMS CORPORATION

RUBY-MM-412/812/1612

4-, 8- or 16-Channel 12-bit Analog Output PC/104 Module



- 4, 8, or 16 analog outputs
- 12-bit D/A resolution
- Unipolar and bipolar output ranges
- User-adjustable output range
- On-board and external voltage references
- 24 digital I/O lines (82C55)

DESCRIPTION

The Ruby-MM series provides 4, 8 or 16 channels of 12-bit resolution analog voltage outputs plus 24 digital I/O lines on a single PC/104 module. An on-board precision voltage reference circuit offers analog output ranges of 0-2.5V, 0-5V, and 0-10V in unipolar mode or ±2.5V, ±5V, and ±10V in bipolar mode. All analog outputs can source or sink up to 5mA simultaneously.

The analog outputs are based on the DAC8412 quad 12-bit D/A converter chip. This chip resets all outputs to mid-scale on power-up, meaning 0V for bipolar ranges and 1/2 the full-scale voltage for unipolar ranges. To obtain power-on reset to 0V for unipolar ranges, a special-order version is available using the DAC8413 which powers up to zero scale instead.

On the 16-channel model, each group of 8 channels can be set for a different output range. On the 4- and 8-channel models, all outputs have the same output range. All outputs are updated simultaneously, either with a software command or in response to an external trigger.

The board includes 24 digital I/O lines using an 82C55 chip. All I/O lines have 10K Ohm pull-up resistors for guaranteed logic levels on power-up.

Ruby-MM-1612 is designed and tested for extended

SPECIFICATIONS

Analog outputs	4/8/16 12-bit
Output ranges	±5V, ±10V, 0-5V, 0-10V
Output current	±5mA max per channel
Settling time	6µS max to 0.01%
Relative accuracy	±1 LSB
Minimum load	2K Ω
Reset	0V for bipolar ranges, mid-scale for unipolar ranges
Digital I/O lines	24, CMOS / TTL compatible
DIO Input voltage	Logic 0: -0.5V min, 0.8V max Logic 1: 2.0V min, 5.5V max
DIO Output voltage	Logic 0: 0.0V min, 0.4V max Logic 1: 3.0V min, 4.6V max
Output Current	±2.5mA max per line
Dimensions	3.55" x 3.775" (90mm x 96mm)
Input Power	+5VDC±10%
Power Draw (typical)	220mA (4 channel) 290mA (8 channel) 430mA(16 channel)
Operating temp	-40°C to +85°C
Weight	3.4oz / 96g (4 channel) 2.7oz / 76g (8 channel) 3.0oz / 85g (16 channel)

temperature operation (-40 to +85oC). It requires only +5VDC from the system power supply via the PC/104 bus. Analog ±15V supplies are derived from miniature DC/DC converters on the board. All I/O is contained on a single 50-pin connector compatible with standard .1" connector ribbon cables, such as Diamond Systems' C-50-18.

ORDERING INFORMATION

Part No.	Description
RMM-412-XT	4 12-bit D/A, 24 Digital I/O
RMM-812-XT	8 12-bit D/A, 24 Digital I/O
RMM-1612-XT	16 12-bit D/A, 24 Digital I/O

FOR MORE INFORMATION

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