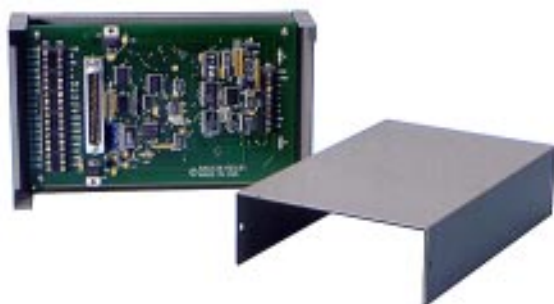# Model RAD128

Remote 12-Bit, 8-Channel Analog-to-Digital Module

FEATURES

- *Eight Single-Ended Channels*
- *Eight Digital I/O Lines*
- *Eight Extra Digital Outputs*
- *Communicates Over RS-485 Line to PC*
- *Three 16-Bit Counter/Timers*
- *Simple ASCII Based Programming*

DESCRIPTION

The Model RAD128 is an intelligent, 8-channel, analog-to-digital converter unit that communicates with the host computer via EIA RS-485, full or half-duplex, serial communications protocol. ASCII-based command/response protocol permits communication with virtually any computer system. The RAD128 can communicate on the same RS-485 line with the RDIO unit above or any other RS-485 device. As many as 31 can be connected on a single two- or four-wire multidrop RS-485 network. Each unit has a unique address. Communication uses a master/slave protocol wherein the pod talks only if queried by the computer.

SPECIFICATIONS

SERIAL COMMUNICATIONS INTERFACE

Serial Port

EIA RS-485, opto-isolated Matlabs type LTC491 Transmitter/Receiver

Input Common Mode Voltage

Isolated: 300V minimum
Non-isolated: -7V to +12V

Receiver Input Sensitivity

±200mV, differential Input

Receiver Input Impedance

12kW minimum

Transmitter Output Drive

60mA, short circuit without damage is 100mA

Serial Data Rates (programmable)

1200, 2400, 4800, 9600, 14400, 19200, and 28800 baud

ANALOG INPUTS

Channels

Eight single-ended

Resolution

12-bits

Accuracy

±1LSB

Voltage Ranges

±5V, ±10V, 0-5V, 0-10V

Coding

Unipolar: True binary
Bipolar: Offset binary

Throughput

10,000 conversions per second

A/D Type

Successive approximation

Gain Drift

±5ppm

Trigger Source

Software command, on-board programmable timer, or external source

DIGITAL I/O

Number of Lines

8 configured as input or output on individual basis

As Digital Input

Logic High: +2.0V to +5.0V @ 20mA max.
Logic Low: -0.5V to +0.8V @ 0.4mA max.

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AS DIGITAL OUTPUT

Logic-Low Output Current: 350mA max.
Inductive kick suppression diode included in each circuit
High-Level Output Voltage: Open collector, compliance with up to 50VDC user-supplied voltage.
If no user supplied voltage exists, outputs pulled up to +5Vdc via 10kW resistors.

DIGITAL OUTPUTS

Number of Lines

8, each with 10 LSTTL load drive capability

PROGRAMMABLE TIMER

Type

82C54-2

Number of Counters

Three 16-bit down counters

Output Drive

2.2mA @ 0.45V (5 LSTTL loads)

Input Gate

TTL/DTL/CMOS compatible

Clock Input Frequency

DC to 10MHz

Active Count Edge

Negative edge

Minimum Clock Pulse Width

30nS high/50nS low

Timer Range

2.5MHz to <1 pulse per hour

ENVIRONMENTAL

Temperature

Operating: 0 to 65°C
Storage: -20 to 70°C

Humidity

5 to 95% RHNC

Power Requirements

Power can be applied from the computer's +12VDC power supply for the opto-isolated section via the serial communication cable and from a local power supply for the rest of the unit. If there is not sufficient cable from the computer, a central power supply maybe used for th opto-isolated section.
Opto-Isolated Section: 7.5 to 35VDC @ 7mA
Local Power: 7.5 to 16VD @ 75mA

SOFTWARE

A disk is provided that is ASCII-based. ASCII programming permits the user to write applications in any high-level language that supports ASCII string functions. The communication protocol has two forms: non-addressed and addressed. Use non-addressed protocol if only one pod is in use. If more than one pod is in use, then addressed protocol is required. The difference is that, in addressed mode, an address command is sent to enable communication with the specific pod. That address command needs to be sent only once to enable communication with that pod and disables communications with all other pods on the network. The command structure is seven data bits, even parity, and one stop bit. All numbers sent to and received from the pod are in hexadecimal form. Commands are issued in simple, easy to learn leter and number combinations.

Operating Systems Supported

DOS 3.3 and higher
Windows 3.1x
Windows 95
Windows NT

Languages Supported

Any high-level language that supports ASCII string functions

Demo/Example Programs Included

Examples in C, and Pascal are included.

Drivers Provided

No "Task" call drivers are included.

ORDERING GUIDE

Model RAD128

Module, software, manual

Model UTB-B

Metal enclosure

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