SCM9B-3000/4000

Computer-to-Analog Output Modules

DESCRIPTION

The SCM9B-3000/4000 series are complete computer-to-analog output interfaces. They are designed to be mounted remotely from a host computer and communicate, in ASCII, with standard RS-232 and RS-485 serial ports. Simple ASCII commands are used to control a 12-bit DAC (Digital-to-Analog Converter) which is scaled to provide commonly used current and voltage ranges. An 8-bit CMOS microprocessor provides an intelligent interface between the host and the DAC. The 3000/4000 are compatible with the 1000/2000 input modules and may be mixed in any order.

The modules are easy to use. You do not need engineering experience in complicated data acquisition hardware. This modular approach to data acquisition is extremely flexible, easy to use and cost effective. The modules can be mixed and matched to fit the application. They can be placed remote from the host and from each other. You can string up to 124 modules on one set of wires.

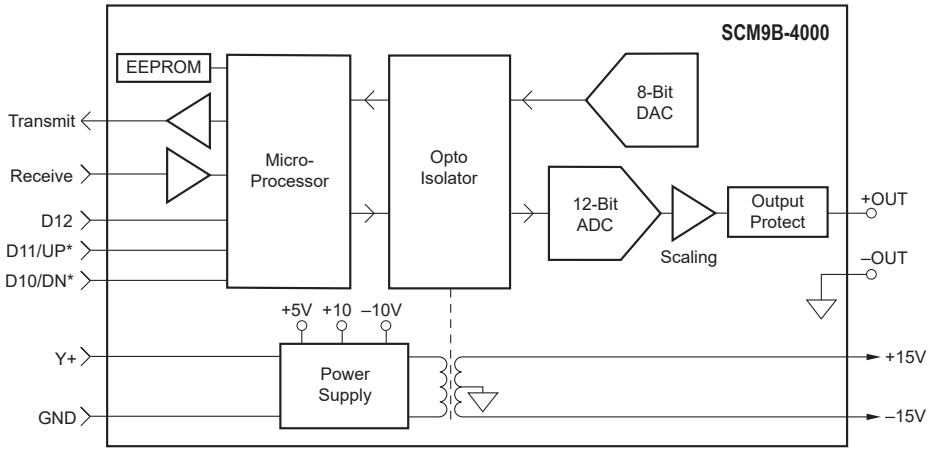
Although software is not required, utility software (SCM9B-S1000) is available online to make the 3000/4000 easier to learn and use. S1000 software is provided at no charge on request with a purchase order and is not copy protected.

FEATURES

- Analog Output Ranges: 0-1V, ±1V, 0-5V, ±5V, 0-10V, ±10V, 0-20mA, 4-20mA
- Communicates in ASCII with RS-232 or RS-485 Serial Ports
- Programmable High/Low Output Limits
- 500Vrms Output Isolation
- 12-bit Output Resolution
- Scaling in Engineering Units
- Data Rates: 300 to 38,400bps
- Nonvolatile Digital Calibration
- Output Protection: 240VAC (Current Output) ±30V (Voltage-outputs)
- Direct Connection to 'Dumb' Terminals or Modems
- Requires +10 to +30VDC Unregulated Supply
- May be Located up to 10,000 Feet from Host (RS-485)
- Addressable: up to 124 Units per Serial Port
- "Bumpless" Manual Control Inputs
- CE Compliant

Specifications

Module	SCM9B-3000/4000
Input Range	RS-232C
Output Range	0-1V, ±1V, 0-5V, ±5V, 0-10V, ±10V, 0-20mA, 4-20mA
Mechanical Format	Plug-In or Hockey Puck
Isolation Voltage	500Vrms
Isolation Type	Transformer/Optical 2-way
Accuracy	±0.1% of FS (max)
Supply Voltage	+10 to +30VDC
Output Voltage Withstand	N/A
Gain/Offset Adjust	Autozero, Autocal
Module Bandwidth	Programmable
NMR (60 Hz) Rejection	N/A
External I-to-V Resistor	N/A
Output Control	RS-232
Output Resistance	N/A
Dimensions	3.60 x 2.45 x 1.10 Inches
Interface	10 Pos Term Block
Customization	No
Weight	103 Grams (3.63 ounces)



LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

SCM9B-3000/4000 Block Diagram - For Module Dimensions and Pinouts, See Page 5-26

©1984-2024 Dataforth Corporation, All Rights Reserved ISO9001:2015-Registered QMS

Specifications

Typical at +25°C and nominal power supply unless otherwise noted.

Analog Output
- Single-channel analog output
  - Voltage: 0-1V, ±1V, 0-5V, ±5V, 0-10V, ±10V
    - Maximum output current: 5mA
  - Current: 0-20mA, 4-20mA
    - Compliance voltage: 12V
- Output isolation: 500Vrms.
- 12-bit output resolution.
- Accuracy (Integral & Differential Linearity): 0.1% FSR (max)
- Zero drift: ±30µV/°C (Voltage Output (max))
  - ±0.2µA/°C (Current Output (max))
- Span tempco: ±25ppm/°C (max)
- 1000 conversions per second
- Settling time to 0.1% FS: 300µs (typ) (1ms max)
- Output change manual mode (–FS to +FS): 5s
- Programmable output slope (4000): 0.01V/s (mA/s) to 10,000V/s (mA/s)
- Current output voltage compliance: 12V
- Voltage output drive: 5mA (min), 10mA (max)

Analog Output Readback (4000)
- 8-bit analog-to-digital converter
- Accuracy over temperature (–25 to +70°C): 2.0% FS (max)

Digital
- 8-bit CMOS microcomputer
- Digital scaling and calibration stored in nonvolatile memory
- Programmable High/Low output limits
- Programmable data scaling (4000)
- Programmable starting value (4000)
- Programmable watchdog timer provides orderly shutdown in the event of host failure (4000)

Digital Inputs
- Three digital inputs per module
- Voltage levels: ±30V without damage
- Switching levels: High, 3.5V (min), Low, 1.0V (max)
- Internal pull-up resistors for direct switch input

Communications
- Communications in ASCII via RS-232C, RS-485 ports
- Selectable data rates: 300, 600, 1200, 2400, 4800, 9600,19200, 38400bps
- NRZ asynchronous data format; 1 start bit, 7 data bits, 1 parity bit, and 1 stop bit
- Parity: odd, even, none
- User selectable channel address
- ASCII format command/response protocol
- Up to 124 multidrop modules/host communications port
- Communications distance up to 10,000 feet (RS-485)
- Can be used with “dumb” terminal
- All communications setups (address, data rate, parity) stored in nonvolatile memory using EEPROM.
- Checksum can be added to any command or response

Power
- Requirements: Unregulated +10V to +30VDC, 0.75W (max) (Voltage Output), 1.0W (max) (Current Output)
- Internal switching regulator
- Protected against power supply reversals

Mechanical
- Dimensions: See dimension drawing
- Case: ABS with captive mounting hardware
- Connectors: Screw terminal barrier plug (supplied)
  Replace with Phoenix MSTB 1.5/10 ST 5.08 or equivalent

Environmental
- Temperature Range: Operating –25°C to +70°C
  Storage –25°C to +85°C
- Relative Humidity: 0 to 95% Noncondensing

Specifications are subject to change without notice.

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

©1984-2024 Dataforth Corporation, All Rights Reserved ISO9001:2015-Registered QMS

Ordering Information – SCM9B-3000/4000

Part Number	Input Range	Output Range	Mechanical Format
SCM9B-3121	RS-232C	±1V	Plug-In or Hockey Puck
SCM9B-3122	RS-485	±1V	Plug-In or Hockey Puck
SCM9B-3131	RS-232C	±5V	Plug-In or Hockey Puck
SCM9B-3132	RS-485	±5V	Plug-In or Hockey Puck
SCM9B-3141	RS-232C	±10V	Plug-In or Hockey Puck
SCM9B-3142	RS-485	±10V	Plug-In or Hockey Puck
SCM9B-3171	RS-232C	0 to +5V	Plug-In or Hockey Puck
SCM9B-3172	RS-485	0 to +5V	Plug-In or Hockey Puck
SCM9B-3181	RS-232C	0 to +10V	Plug-In or Hockey Puck
SCM9B-3182	RS-485	0 to +10V	Plug-In or Hockey Puck
SCM9B-3251	RS-232C	0-20mA	Plug-In or Hockey Puck
SCM9B-3252	RS-485	0-20mA	Plug-In or Hockey Puck
SCM9B-3261	RS-232C	4-20mA	Plug-In or Hockey Puck
SCM9B-3262	RS-485	4-20mA	Plug-In or Hockey Puck
SCM9B-4122	RS-485	±1V	Plug-In or Hockey Puck
SCM9B-4132	RS-485	±5V	Plug-In or Hockey Puck
SCM9B-4141	RS-232C	±10V	Plug-In or Hockey Puck
SCM9B-4142	RS-485	±10V	Plug-In or Hockey Puck
SCM9B-4161	RS-232C	0 to +1V	Plug-In or Hockey Puck
SCM9B-4171	RS-232C	0 to +5V	Plug-In or Hockey Puck
SCM9B-4172	RS-485	0 to +5V	Plug-In or Hockey Puck
SCM9B-4181	RS-232C	0 to +10V	Plug-In or Hockey Puck
SCM9B-4182	RS-485	0 to +10V	Plug-In or Hockey Puck
SCM9B-4251	RS-232C	0-20mA	Plug-In or Hockey Puck
SCM9B-4252	RS-485	0-20mA	Plug-In or Hockey Puck
SCM9B-4261	RS-232C	4-20mA	Plug-In or Hockey Puck
SCM9B-4262	RS-485	4-20mA	Plug-In or Hockey Puck

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

©1984-2024 Dataforth Corporation, All Rights Reserved ISO9001:2015-Registered QMS