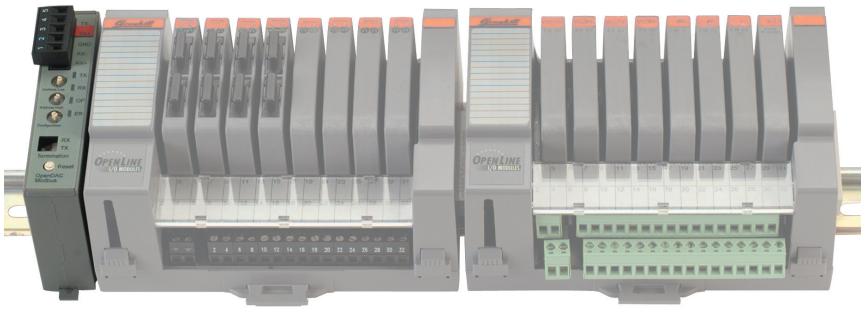
NETWORK INTERFACES
OpenDAC® for Modbus

FEATURES

- Each Unit Controls/Monitors up to 32 Analog and/or Digital I/O using OpenLine® Modules
- Network up to 247 OpenDACs® per Host PC, Each Separated by as much as 4,000 Feet
- Communicate Over RS-422/485 at Speeds from 9600 Baud to 56.7 KB
- 100% Modbus ASCII or Modbus RTU Compatible
- CE Certified
- DIN Rail or Panel Mount



MODBUS UNIT ON OPENDAC® SYSTEM

APPLICATIONS

- Stand Alone Control
- Local Control & I/O
- **Remote I/O**
- Distributed I/O
- SCADA
- RTU

GENERAL DESCRIPTION

OpenDAC® for Modbus is an inexpensive, flexible interface to 32 analog or digital OpenLine® I/O. As one of 247 slave devices on a Modbus network, OpenDAC® for Modbus constantly scans and stores the current status of each I/O. Upon command from the host device, the controller will change the status of an output or return the value of an input. The slave address is switch selectable. Diagnostic LEDs provide troubleshooting assistance.

ANALOG & DIGITAL I/O

OpenDAC® for Modbus connects directly to two 16 channel racks. Any combination of analog and digital I/O modules may be used. On power up, the OpenDAC® scans and stores the I/O configuration and makes the information available to the master for query.

In addition to simple On/Off instructions, Modbus commands allow you to:

- Read linearized thermocouple and RTD temperature values
- Count pulses at frequencies up to 1000Hz
- Detect rising or falling edges
- Latch momentary input events
- Set the level of analog outputs

COMMUNICATIONS

The host computer and OpenDAC® for Modbus communicate serially over one or two pair of twisted wires per RS-422/485 in a multi-drop configuration. They use Modbus ASCII or RTU format to code the command and the response messages. Application programs running on the host computer issue commands and then await responses from the OpenDAC®. The communications speed is switch selectable between 9600 and 56700 baud. The entire network can span 4000 feet.

FAULT TOLERANCE

Each OpenDAC® for Modbus has an internal communications watchdog timer to minimize the impact of a broken Modbus link between the controller and the master device. If activated, the timer must be reset by an incoming message within the prescribed period of time. If not, the controller will force it's outputs into a default state.

SOFTWARE

Software drivers are available which simplify the task of interfacing host programs written in Visual Basic or C to the Modbus network. Sample programs, set-up and debug utilities are included on the disk with the drivers. Interface drivers for most third party software packages are available through their distributors. Our DLL will assist you in building custom Man-Machine Interfaces using Visual Basic, Visual C/C++, or Borland compilers running on Windows 95, 98 or NT.

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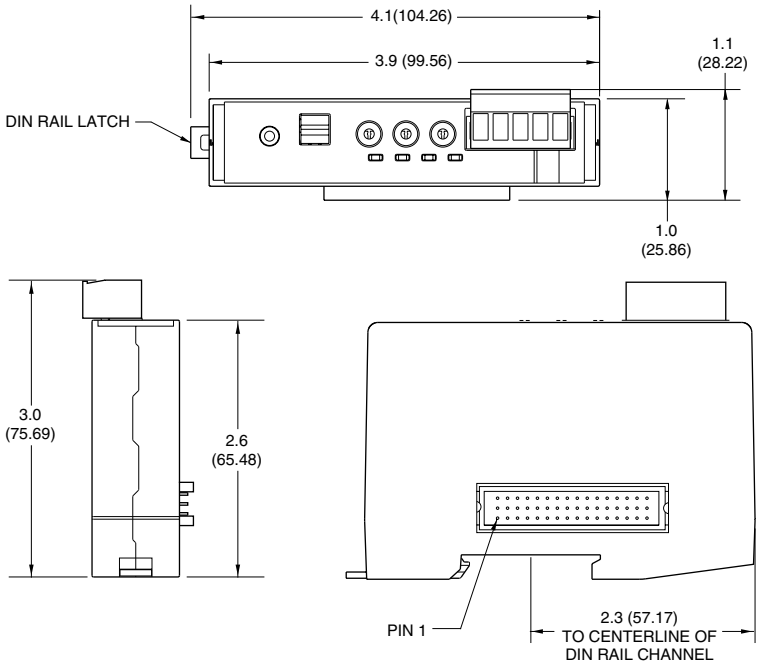
DIMENSIONS In inches (and millimeters)



SPECIFICATIONS

Power Supply: 4.75 to 5.25 Vdc
Supply Current (less modules): 1 amp @ 5 Vdc max.
Operating Temperature: 0 to 60°C
Humidity: 95% non-condensing
Microprocessor: V25 @ 10 MHz
Housing Material: ABS/Polycarbonate blend
Connections:
RS-422/485: 5 position depluggable connector
Passive Rack: 48-pin Euro DIN (male)
Serial Data:
Format: 10 Bit ASCII: 1 Start, 1 Stop, 8 Data
Integrity: Message Checksum
Range of Network: Compliant with EIA/TIA RS485-A (1 standard load per controller). Operates in multi-drop mode. 247 DIP switch selectable addresses. May require RS485 repeaters for lengths over 4000 feet or more than 32 controllers. Consult factory for special configurations.

ORDERING INFORMATION

Part Number	Description
OpenDAC® Network Interface	
72-MOD-4000	Analog/Digital OpenDAC® for Modbus
OpenDAC® User's Manual and Software	
72-UM-OMOD	OpenDAC® for Modbus user's manual
72-UME-DLL32	Ethernet/Modbus DLL for Windows 95/98/NT
72-UOL	OpenLine® configuration and product data
Compatible Components	
OpenDAC® I/O Racks Digital OpenLine® I/O Modules Analog OpenLine® I/O Modules Power Supply	

Available from your local authorized Grayhill Distributor. For prices and discounts, contact your local sales office, an authorized Distributor, or Grayhill.