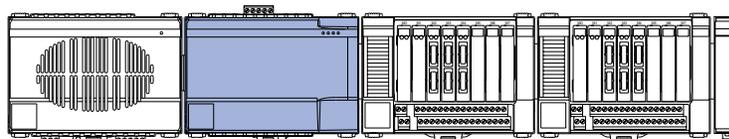


CONTROLLERS

OpenLine® Serial Modbus 586

FEATURES

- 586-based CPU
- Each Unit Controls/Monitors up to 128 Local I/O Channels, Expandable Through Ports
- Any Mix of Analog or Digital I/O
- Executes On-Board Programs Written in Borland or Microsoft C++, Flow Chart, Ladder Logic, Function Block Diagrams, or Sequential Function Charts
- Communications Speeds to 57.6KB
- Modbus ASCII or RTU Protocol
- CE Certified
- Operates in CSA Class I, Div 2 Environments
- DIN Rail or Panel Mount
- Redundant Operation
- Real Time Clock (Y2K Compliant)



MODBUS CONTROLLER UNIT ON OPENLINE® SYSTEM

APPLICATIONS

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

GENERAL DESCRIPTION

Modbus OpenLine® controllers plug directly into OpenLine® dual point module I/O bases. Any combination of 128 analog or digital I/O can be installed in the bases. The Modbus port on the controller supports twisted pair wiring to a 5-pin pluggable connector. The controllers' address and baud rate are DIP switch selectable. OpenLine® controllers share information with other OpenLine® controllers, third party devices and networked PCs using Modbus ASCII or Modbus RTU.

CPUs

The OpenLine® controllers are truly industrialized PCs. The controllers are powered by an AMD 586 processor. All controllers are presently shipped with a multi-threaded embedded DOS operating system. The rugged FLASH disk stores files exactly the same as a hard disk on a PC. DRAM is provided standard at 4MB. This can be expanded to 64 MB on some of the models.

PC104 FORM FACTOR

The internal construction of the Ethernet controller is based on the PC104 stack. This permits future CPU upgrades and expansion of the controller capabilities using add-in cards such as video cards, additional serial ports, quadrature decoder cards, etc.

EMBEDDED CONTROL PROGRAMS

ECPs can be uploaded and downloaded over the network. Once downloaded, ECPs execute as they would on a PC to service the communications ports and process I/O information. Executing local control programs result in much faster response times than are achievable over a network. In an OpenLine® system, the status of all 128 I/O channels are scanned and stored every 500 microseconds. The OpenLine® controllers can instantly access this data over the internal address/data bus using memory reads and writes.

In addition to faster response to I/O status changes, ECPs reduce the amount of network traffic, facilitate concurrent software development and simplify troubleshooting.

For C/C++ programmers, ECPs may be written and compiled with either Borland™ C++ or Microsoft™ C++ and downloaded to the controller. All compiler debugging tools can be used.

If you prefer to develop ECPs using Flow Chart, Ladder Logic, Function Block Diagrams, or Sequential Function Charts, we provide the

ISaGRAF programming package. ISaGRAF is an IEC 1131 compliant software workbench which is easy to learn and use. Programs can be tested and debugged using ISaGRAF simulation prior to downloading the program into the OpenLine® controller. While the program is executing in the controller, the ISaGRAF monitoring application may be run to monitor the program execution and troubleshoot any remaining problems. Programming using ISaGRAF will save countless hours of development time. The programs are self-documenting, making it easier to troubleshoot or modify existing programs.

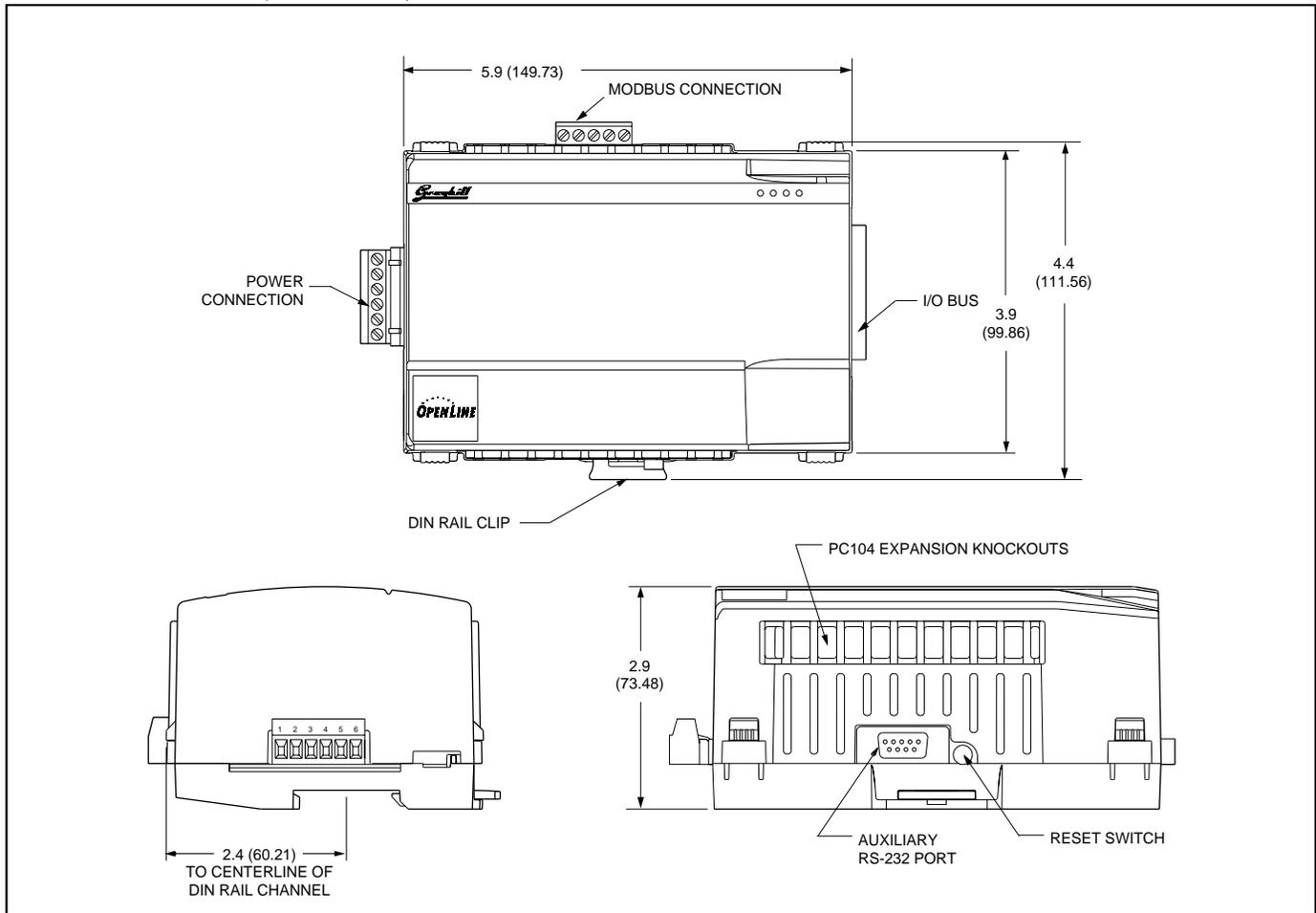
HOT BACKUP

OpenLine® systems are able to have two power supplies and controllers on the same I/O stack for applications requiring redundancy. One controller would be the primary and the other the secondary. Controllers and power supplies can be hot-swapped without disrupting the system's performance.

OTHER FEATURES

COM1 on the controller is an auxiliary RS-232 port that can be used for interrogating the CPU or talking to other RS-232 devices such as operator interface panels, printers, bar code readers, etc.

DIMENSIONS In inches (and millimeters)



SPECIFICATIONS

Power Supply: 4.75 to 5.25 Vdc
Supply Current (less modules): 1.5A maximum
Humidity: 5 to 95% non-condensing
Housing Material: ABS/Polycarbonate blend
CPU: 133 MHz AMD 586
Connections:
 Modbus: 5-pin pluggable terminal block
Serial Data:
 Format: Modbus ASCII or RTU
 Integrity: 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.

ACCESSORIES

See p. H-54

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

ORDERING INFORMATION

Part Number	Description
OpenLine® Controllers	
72-MOD-4400	4MB DRAM, 4MB flash disk, 0° to 60°C
72-MOD-4500	4MB DRAM (expandable to 64MB), 4MB flash disk, -40° to 60°C
72-MOD-4550	4MB DRAM (expandable to 64MB), 12MB flash disk, -40° to 60°C
OpenLine® User's Manuals and Utilities	
72-UM-MOD4	Modbus controller user's manual
7W-UM-ISA	OpenLine® ISaGRAF user's manual
72-UM-OLAPI	OpenLine® controller API for creating ECPs
72-UOL	OpenLine® configuration and product data
Software	
7W-WD2-32	ISaGRAF 32 variable editor and debugger
7W-WD16-256	ISaGRAF 256 variable editor and debugger
7W-WDL-UL	ISaGRAF unlimited variable editor and debugger
72-UME-DLL32	Ethernet/Modbus DLL for Windows 95/98/NT
Compatible Components	
OpenLine® I/O bases OpenLine® I/O modules OpenLine® analog I/O modules OpenLine® power supply OpenLine® terminators Cable extenders	