

## NETWORK INTERFACES

### Parallel Bus

#### FEATURES

- Each Board Controls Up to 24 or 32 I/O Modules
- Scans 512 Digital I/O Points in Less Than 200  $\mu$ Sec.
- Compatible With Parallel Controller Boards From Other Manufacturers
- DIP Switch Selectable Address and Options
- Up to 32 Addressable Boards Over 500 Feet
- On-Board Terminating Resistors
- On-Board Communications Watchdog Timer



#### APPLICATIONS

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

#### DIGITAL INPUTS/OUTPUTS

The 72-PMX-24D controller board mates with any of our 8, 16, or 24 digital module racks. The 72-PMX-32D or 72-PMX-32AD controller board mates with special rack part number 70GRCP32-HL which accepts up to 32 G5 analog or digital I/O modules. Connections are made between the PC (or other type of host) parallel port and the controller boards via a 50 pin flat ribbon cable. The cable can be up to 500 feet in length. The cable from the host is connected to the first controller board on the bus and then daisy chained to additional controller boards. Up to 32 controller boards with 16 module racks (or 16 controller boards with 24 or 32 module racks) can be added anywhere along the cable. The maximum number of I/O per parallel port is 512.

#### SPEED

The parallel bus is high speed. The host PC can read or write eight digital I/O modules in less than 3 microseconds which means that 512 digital I/O modules can be scanned in less than 200 microseconds! Each group of eight I/O modules are accessed through a separate I/O port register on the host PC or controller. In assembly language, an **IN** or **OUT** instruction is used to read or write this information. In C language, an **inp** or **outp** function call is used. In BASIC, an **INP** or **OUTP** instruction is used.

#### WATCHDOG TIMER

Each controller board has an on-board communications watchdog timer which monitors communications between the host and controller board. A timer value between 0.5 seconds and 12 seconds is selected for each board. On power up, the timer begins counting down. Whenever a message from the host is received, the timer is restarted. Should the timer time out, all of the output modules being controlled by the board will be set to one of four DIP switch selectable conditions (ie. all off).

#### OTHER FEATURES

One of the control lines on the parallel bus is called RESET. The RESET line can be used to simultaneously turn off all of the output modules being controlled by each of the boards on the bus.

Three LEDs on the controller boards assist in troubleshooting problems. They indicate when power is being applied, when messages are being received, and when the watchdog timer has timed out.

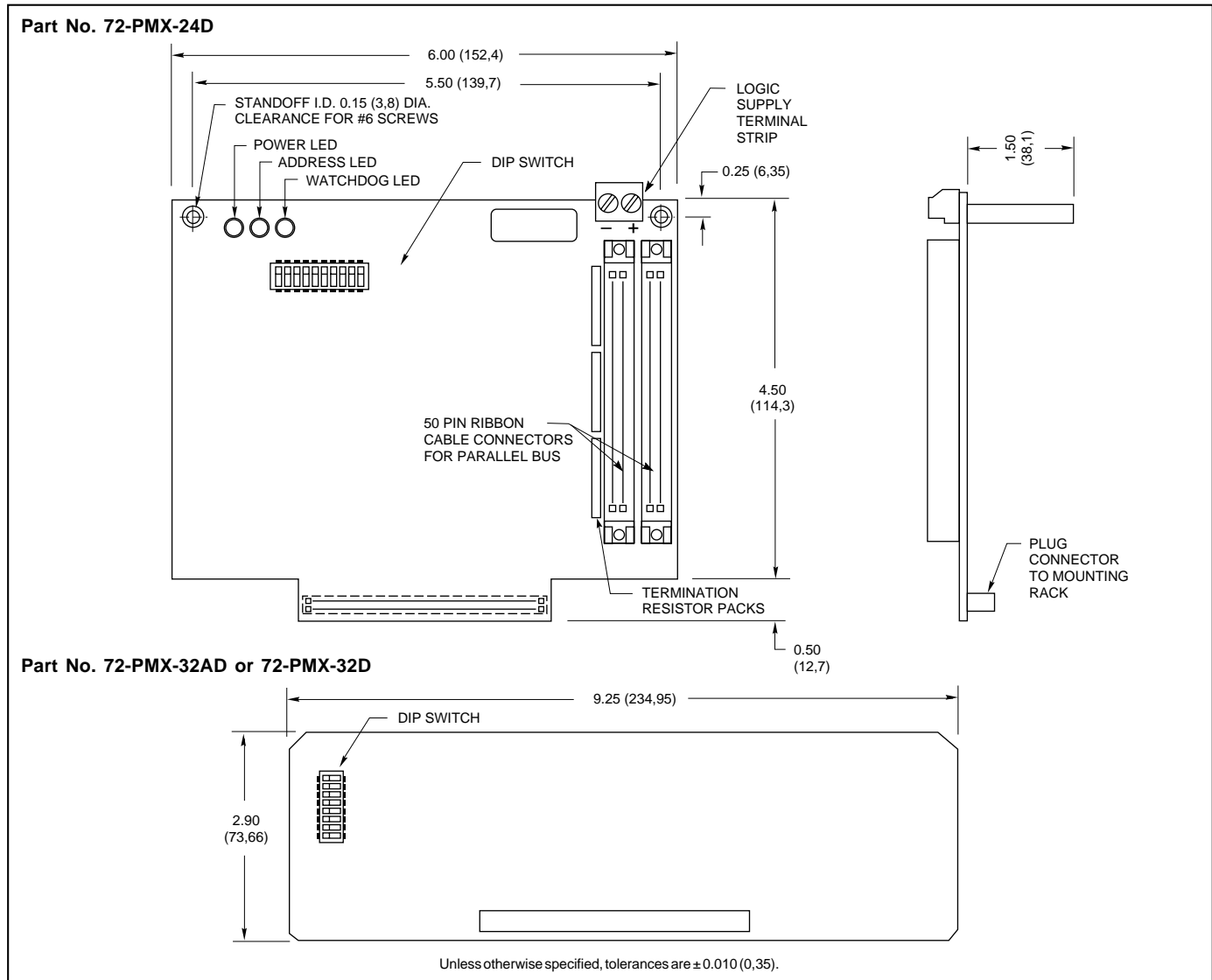
#### THE 72-PC28 ADAPTER CARD

In applications where the host computer is a PC, the 72-PC28 adapter card is an IBM PC/XT/AT bus to parallel bus interface which occupies a single half slot in the computer. The bus ribbon cable plugs into it's 50-pin male header connector. Each adapter card can drive up to thirty two 72-PMX-24D controller boards, sixteen 72-PMX-32D controller boards or sixteen 72-PMX-32AD controller boards over a total distance of 500 feet. Up to four 72-PC28 adapter cards can be installed in one PC. The base address for the card and wait states are DIP switch selectable.

Each 72-PC28 includes a complete User's Manual and a software setup/test utility program. This program graphically shows you dip switch, jumper and termination resistor settings for the system configuration you decided. You can then use the program to configure and manipulate any I/O on the parallel bus.

All controller boards are thoroughly tested prior to shipment.

## DIMENSIONS In inches (and millimeters)



## SPECIFICATIONS

**Supply Voltage:** 4.9 to 5.1 Vdc

**Supply Current (board only):** 1.5A maximum

**Operating Temperature:** 0° to 60°C

**Humidity:** 95% non-condensing

**Connections (72-PMX-24D):**

Parallel bus: Two 50-pin male header connectors

Rack: 50-pin female plug connector

**Connections (72-PMX-32D or 72-PMX-32AD):**

Parallel bus: Two 50-pin male header connectors located on rack 70GRCP32-HL

Rack: 70-pin female plug connector

**Parallel Data:**

Format: 8-Bit Parallel

**Range of Network:**

Multi-drop: Up to 500 feet total cable length, with (32) 72-PMX-24D or (16) 72-PMX-32D or 72-PMX-32AD boards maximum

## ORDERING INFORMATION

Part Number	Description
<b>Controller Board</b>	
<b>72-PMX-24D</b>	Parallel controller board for up to 24 digital I/O modules
<b>72-PMX-32AD</b>	Parallel controller board for 32 G5 analog or digital I/O modules
<b>72-PMX-32D</b>	Parallel controller board for 32 G5 digital I/O modules
<b>Adapter Card</b>	
<b>72-PC28</b>	IBM PC parallel port plug-in board, includes 72-UMP manual
<b>User's Manual</b>	
<b>72-UMP</b>	Manual with utility software and sample programs

For finished ribbon cable assemblies, see "Controller Accessories"

**Available from your local authorized Grayhill Distributor.**

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