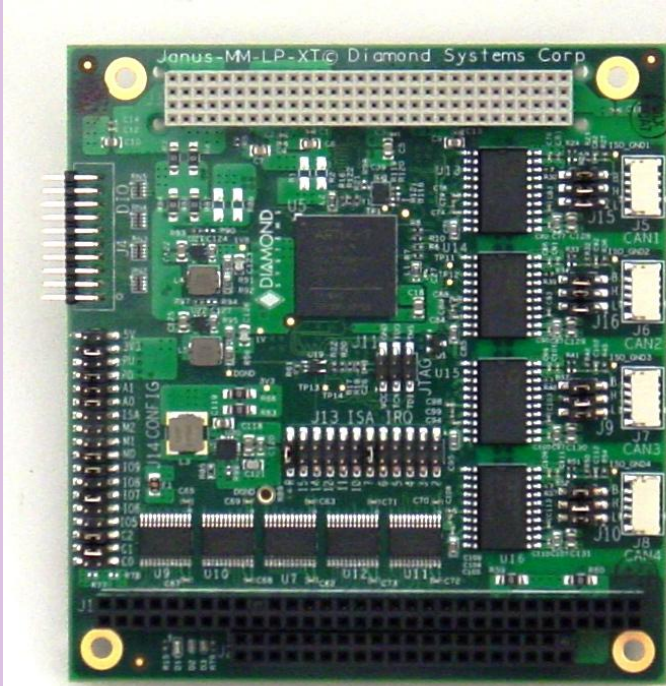


# JANUS-MM-4LP-XT



PC/104-Plus Quad or Dual Isolated CAN Module with 16 DIO



- ◆ 2 or 4 CAN 2.0B ports
- ◆ Data rates up to 1Mbps
- ◆ Supports standard (11-bit identifier) and extended (29-bit identifier) frames
- ◆ Expanded TX and RX message queues for enhanced performance
- ◆ 16 8-byte transmit message queues
- ◆ 31 8-byte receive message queues
- ◆ 16 receive filters
- ◆ Galvanically isolated transceivers
- ◆ 500V port-to-host and port-to-port isolation
- ◆ Jumper selectable biased split termination for improved noise reduction
- ◆ 16 digital I/O lines
- ◆ Latching connectors for increased ruggedness
- ◆ PCI and ISA bus interfaces
- ◆ Basic CAN driver included with APIs and monitor program
- ◆ Supports Linux Ubuntu 12.04LTS and Windows Embedded 7
- ◆ Extremely rugged -40°C to +85°C operating temperature
- ◆ MIL-STD-202G shock and vibration compatible
- ◆ PC/104-Plus form factor:  
3.55" x 3.775" (90mm x 96mm)

## High Performance CAN Functionality

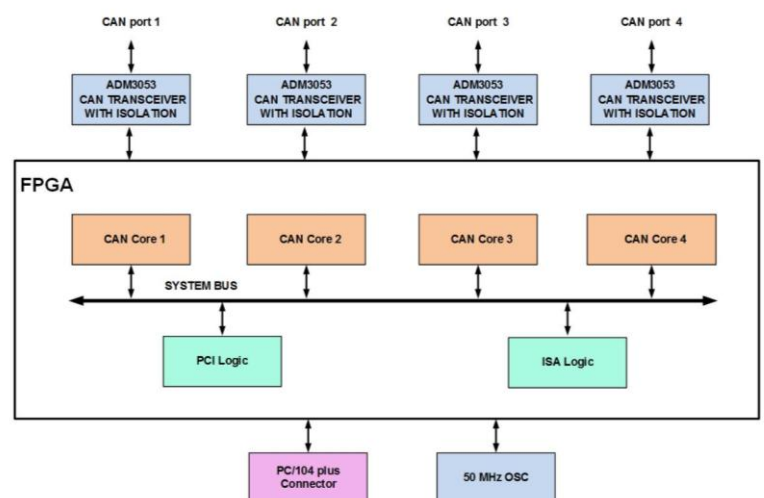
The Janus-MM-4LP-XT family of I/O modules offers two or four opto-isolated CANbus 2.0B ports plus 16 digital I/O lines. Models are available in both the PC/104-Plus and PC/104 form factors. An FPGA core houses the CAN controller logic and digital I/O logic providing data rates up to 1Mbps. Each CAN port supports standard and extended frames as well as expanded TX and RX message queues for enhanced performance. Each port has its own combination isolator and transceiver chip. The Janus-MM-4LP-XT fits a wide variety of rugged and on-vehicle embedded serial I/O application needs.

## Digital I/O

Janus-MM-4LP-XT offers 16 programmable digital I/O lines organized as two 8-bit digital I/O ports.

## Rugged Design

Janus-MM-4LP-XT was designed with harsh applications in mind including latching connectors to further improve reliability. Extended temperature operation of -40°C to +85°C is tested and guaranteed. The module is compatible with MIL-STD-202G shock and vibration specifications.



Janus-MM-4LP Block Diagram

# Janus-MM-4LP: 2 or 4 CANbus 2.0 Ports with DIO



## Specifications

<b>Number of CAN ports</b>	2 or 4 CANbus 2.0B, model dependent
<b>Data rates</b>	Up to 1Mbps
<b>Controller</b>	FPGA based
<b>Transceiver</b>	ADM3053 isolation + transceiver
<b>Isolation</b>	500V port-to-port and port-to-host
<b>Frames</b>	Standard 11-bit identifier Extended 29-bit identifier
<b>Message queues</b>	Expanded TX and RX message queues 16 8-byte transmit message queues 31 8-byte receive message queues
<b>Receive filters</b>	16
<b>Termination</b>	Jumper selectable biased split termination
<b>Digital I/O</b>	16 programmable digital I/O lines arranged in 2 8-bit ports
<b>Logic levels</b>	3.3V or 5V, jumper selectable
<b>Pull-up/pull-down</b>	Jumper selectable
<b>Direction control</b>	Software programmable
<b>Host interface</b>	PCI or ISA, self selecting
<b>Connectors</b>	Latching connectors for increased ruggedness
<b>Input power</b>	+5VDC +/-5%
<b>Power consumption</b>	W at 5VDC
<b>OS support</b>	Windows Embedded 7 Linux Ubuntu 12.04 LTS
<b>Operating temp</b>	-40°C to +85°C (-40°F to +185°F)
<b>Operating humidity</b>	5% to 95% non-condensing
<b>Shock</b>	MIL-STD-202G compatible
<b>Vibration</b>	MIL-STD-202G compatible
<b>MTBF</b>	tbd hours at 20°C
<b>Form factor</b>	PC/104-Plus 3.55" x 3.775" (90mm x 96mm)
<b>Weight</b>	2.5oz (71g)
<b>RoHS</b>	Compliant

## Key Features

All CAN ports on the Janus-MM-4LP-XT are driven from an FPGA-based CAN 2.0 bus controller core which provides full CAN2.0B functionality. Each port has an Analog Devices combination isolation and transceiver chip, independently isolating it from the host system and other ports to eliminate sensitivity to noise and ground shifts in the network.

The product has several jumper configurable options including CAN biased split termination for improved noise reduction. The digital I/O logic level and pull-up / pull-down resistors are also jumper configurable.

For additional ruggedization, zero ohm jumper-bypass resistors can be installed in any configuration.

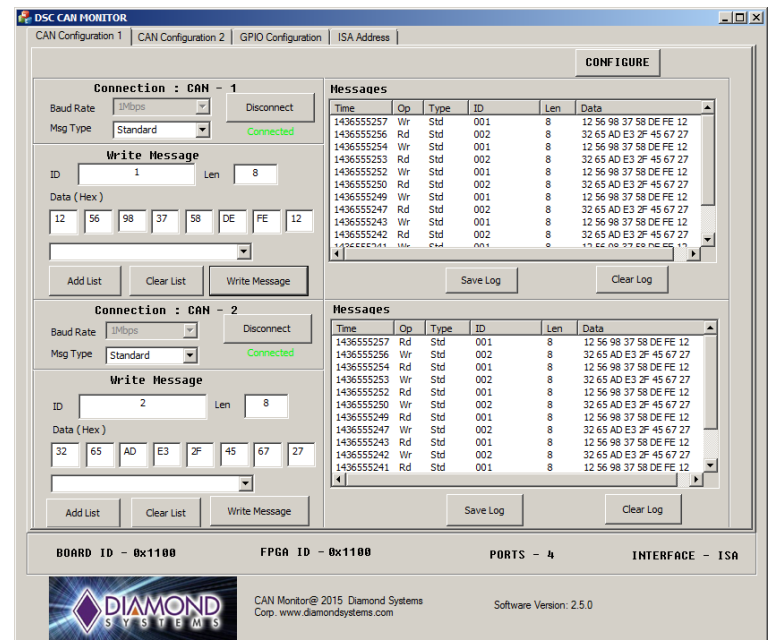
## Ordering Information

<b>JNMM-4LP-XT</b>	Quad isolated CAN port PC/104-Plus Module with 16 Digital I/O
<b>JNMM-2LP-XT</b>	Dual isolated CAN port PC/104-Plus Module with 16 Digital I/O
<b>JNMM-4L-XT</b>	Quad isolated CAN port PC/104 Module with 16 Digital I/O
<b>JNMM-2L-XT</b>	Dual isolated CAN port PC/104 Module with 16 Digital I/O
<b>6981182</b>	CANbus 2.0 cable
<b>6981164</b>	Digital I/O cable

## Software Support

Janus-MM-4LP-XT comes with a basic CAN driver for both Windows Embedded 7 and Linux Ubuntu 12.04 LTS operating systems. Both drivers support dual-independent and dual-redundant modes.

Windows Embedded 7 and Linux APIs and monitor programs are also included. The monitor program allows users to set, manage and observe all of the functions and traffic on the CAN ports and digital I/O lines.



Windows 7 Monitor Program