CANPCI Series

A Line of CANbus® Network Interface Modules for PCI Bus Computers

INSTALLATION GUIDE

INTRODUCTION

The CANPCI Series of Controller Area Network (CAN) adapters provide fieldbus access to PCI bus computers. CAN is the Data Link layer technology used by CANopen, DeviceNet and Smart Distributed System. The CANPCI supports 8-bit transfers and takes advantage of the high-speed PCI bus. The CANPCI-DN implements the DeviceNet physical layer. The CANPCI-CO provides a CANopen physical layer.

The CANPCI features the Philips SJA1000 CAN stand-alone controller chip which is used widely in both the automotive and industrial environments. Besides being backward compatible with the older 82C200, the SJA1000 has more features than its predecessor. The 82C200 is restricted to BasicCAN (11-bit identifiers) whereas the SJA1000 operates in either BasicCAN mode or the newer PeliCAN mode which supports the CAN 2.0B specification (29-bit identifiers). The SJA1000 maintains extended frame passivity while in the BasicCAN mode.

The SJA1000 operates from a 16 MHz clock and features a larger receive buffer and better acceptance-filtering — including the ability to extend the acceptance mask to the data field. It has the capability to operate at data rates as great as 1 Mbps.

Optically-isolated transceivers provide reverse voltage and short-circuit protection for either the CANPCI-DN (implementing the DeviceNet 5- position open style connector) or the CANPCI-CO (implementing the CANopen DB-9 connector as defined by CAN in Automation).

The PeliCAN mode includes:

- Error counters with read/write access
- Programmable error warning limit
- Last error code register
- Error interrupt for each CAN bus error
- Arbitration lost interrupt with detailed bit position
- Single-shot transmission (no re-transmission)
- Listen only mode (no acknowledge, no active error flags)
- Hot plugging support (software driven bit rate detection)
- Acceptance filter extension (4-byte code, 4-byte mask)
- Reception of 'own' messages (self reception request)

CONTEMPORARY CONTROLS®

TRADEMARKS

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DISCLAIMER

Contemporary Control Systems, Inc. reserves the right to make changes in the specifications of the product described within this manual at any time without notice and without obligation of Contemporary Control Systems, Inc. to notify any person of such revision or change.

SPECIFICATIONS

Power Requirements	+5 V	+3.3 V
	100 mA	150 mA

Environmental

Operating temperature:	0°C	to +60°C
Storage temperature:	–40°C	to +85°C

Data Rates

50 kbps, 100 kbps, 125 kbps, 250 kbps, 500 kbps, 1 Mbps

Dimensions

4.72" x 2.52"

(120 mm x 64 mm)

Fieldbus Connectors

CANPCI-CO:	DB-9
CANPCI-DN:	Screw, 5-terminal

I/O Mapping

Occupies 128 bytes of I/O space

Interrupt Lines

Occupies one available PCI interrupt

Shipping Weight

1 lb. (.45 kg)

Compatibility

Compliant with CAN 2.0A and CAN 2.0B

Regulatory Compliance

CE Mark, RoHS

CFR 47, Part 15 Class A

INSTALLATION

HARDWARE: The CANPCI can be installed in any PCI computer bus. With power removed from the computer, remove its cover. Take care when installing the CANPCI because both it and the exposed computer motherboard are sensitive to electrostatic discharge. To prevent inadvertent damage, touch the metal chassis of the internal power supply to discharge yourself then remove the CANPCI from its protective ESD package.

CANbus Termination

If the CANPCI is located at the end of a trunk, line-matching impedance is required. A 124-ohm resistor is supplied for this purpose and is invoked by a jumper on header JP6. If the CANPCI is not located at the end of a trunk,this jumper should be removed.

After termination is arranged, insert the CANPCI into an available PCI bus slot. Once the CANPCI is mounted, it can be attached to the CANbus. As illustrated below, the CANPCI-CO is provided with a DB-9 male connector for attaching to the CANbus, whereas he CANPCI-DN uses an open style male connector with screw terminals. To facilitate use of the screw terminals, a mating female connector has been provided.

Hardware installation is completed by replacing the computer cover.

CONNECTOR PIN ASSIGNMENTS

Function	CANPCI-CO	CANPCI-DN
V–	3,6	1
CAN_L	2	2
Drain	5	3
CAN_H	7	4
V+	9	5
Not Used	1,4,8	—
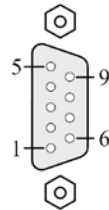
Support Files

In support of sustainable manufacturing and environmental legislation, Contemporary Controls has refrained from providing a software disk or CD with this product. A driver, API and utility program can be obtained by contacting Contemporary Controls.

OPERATION

CANbus Transceiver Power

The **CANPCI-CO** takes it transceiver power from the host computer, but an onboard DC-DC converter provides 1500 volts of galvanic isolation.

The **CANPCI-DN** obtains its transceiver power from the CANbus, but an onboard circuit is provided to regulate that voltage to a constant 5 V.

DeviceNet Reverse Voltage Protection

The CANPCI-DN is protected from excessive voltage if the DeviceNet power connections are accidentally reversed. However, this protection results in the CANPCI-DN ground being about 700 mV above the CANbus ground.

WARRANTY

Contemporary Controls (CC) warrants this product to the original purchaser for two years from the product shipping date. Product returned to CC for repair is warranted for one year from the date the repaired product is shipped back to the purchaser or for the remainder of the original warranty period, whichever is longer.

If the product fails to operate in compliance with its specification during the warranty period, CC will, at its option, repair or replace the product at no charge. The customer is, however, responsible for shipping the product; CC assumes no responsibility for the product until it is received.

CC's limited warranty covers products only as delivered and does not cover repair of products that have been damaged by abuse, accident, disaster, misuse, or incorrect installation. User modification may void the warranty if the product is damaged by the modification, in which case this warranty does not cover repair or replacement.

This warranty in no way warrants suitability of the product for any specific application. IN NO EVENT WILL CC BE LIABLE FOR ANY DAMAGES INCLUDING LOST PROFITS, LOST SAVINGS, OR OTHER INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PRODUCT EVEN IF CC HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES, OR FOR ANY CLAIM BY ANY PARTY OTHER THAN THE PURCHASER.

THE ABOVE WARRANTY IS IN LIEU OF ANY AND ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED OR STATUTORY, INCLUDING THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR PARTICULAR PURPOSE OR USE, TITLE AND NONINFRINGEMENT.

RETURNING PRODUCTS FOR REPAIR

Return the product to the location where it was purchased by following the instructions at the URL below:

www.ccontrols.com/rma.htm

DECLARATION OF CONFORMITY

Additional compliance documentation can be found on our website.

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