V Rose Microsystems, Inc.

**VRM-CX1** **Product Datasheet**

## Overview:

The **VRM-CX1** is a CompactPCI®based, intelligent fieldbus controller with two independent CAN (Controller Area Network) ports. The 3U Eurocard is provided with the i960RP/D (Intel) microprocessor, a powerful 32-bit machine giving freedom for any local data sampling and pre-processing. With its 8MB DRAM and 4MB Flash, the **VRM-CX1** offers a generous amount of memory. Two SJA1000s (Philips) act, as CAN controllers, incorporating all common protocol levels up to the latest version 2.0B. Both physical transceivers (PCA82C251) are optically isolated between themselves and the remaining circuitry. Each CAN port has its own connector (9-pole D-Sub, wiring according CiA Draft 102). An additional UART (RS232) can be used as a general communications port, therefore simplifying development and testing of on-board firmware, and allowing stand-alone operation of the **VRM-CX1**. The CAN connectors CP1 and CP2 protrude through the board's front panel. Two push buttons for reset and NMI are indent mounted in order to prevent from being used inadvertently. A dual LED display reflects the board status. The serial port SP1 is available from a dual row 2x5 pin PCB receptacle. When using a flat microribbon cable with 10-pole IDC header on the one end and a 9-pole D-Sub connector on the other, the result is a PC compatible RS232 serial interface port. The **VRM-CX1** is a 3U type (single size) Eurocard. For CompactPCI® systems utilizing 6U modules (double size Eurocards), V Rose offers a mechanical kit that expands the front panel accordingly (VRM-CR9-ADP).

## Features:

- 3U Eurocard (100x160mm²), front panel width 20.2mm (4HP), mechanics constructed with respect to EMC requirements, ejector lever
- Intel i960RP/RD microprocessor, 3.3V, 33/66MHz, clocked by system bus (local oscillator provided when operated as stand-alone)
- 8Mbyte FPM/EDO DRAM memory, 32-bit, 4Mbyte FLASH ROM (SMT) 28F016SV or 28F160S5 (Intel, Sharp), 32-bit
- Utilities: Watchdog and 5V/3.3V voltage-supervisor MAX705, serial EEPROM 4Kbyte 12C, optional: ACCESS.bus interface
- CAN (Controller Area Network), Protocol Specification 2.0B
- Data rate up to 1Mbit/s
- 2 x 9-pole D-Sub connector (CiA Draft 102), ISO 11898 transceivers 2 x PCA82C251, specified for 110 CAN Bus nodes, thermal protection, short circuit proof, withstands ±40V CANH/ CANL input/output voltage (trucks and buses), optically isolated (2 x DC/DC converters and HP logic-couplers)
- Cable length: min. 40m per segment. 1000m (depends on Baud rate chosen)
- Termination: Externally, on either end of the CAN bus (commonly built-in in the external connectors)
- 2 x SJA1000 stand-alone controller, PeliCAN (CAN 2.0B protocol + additional features), 82C200 BasicCAN compatible, 11-bit and 29-bit identifier, 64-Byte receive buffer FIFO
- Asynchronous, serial protocol: 1 startbit, 7 or 8 databits; 1 or 2 stopbits; optional odd/even parity; standard bit rates up to 230.4kBaud
- Serial Interface Controller: 16C550 asynchronous communication element, Texas Instruments TL16C550C.
- Connector SP1: RS-232/V.24 by ADM232A transceiver, 2x5-pole PCB receptacle, when using a flat microribbon cable with a 10-pole IDC header on the one end and a 9-pole D-Sub connector on the other, the result is a PC compatible interface
- Connector J2: TTL level signals from CAN1/ CAN2 and the UART are wired across the optional connector P2 for use by external (rear) transition-modules (back panel I/O method)
- Connector J1: 32-Bit, 33MHz (133MB/s) 32-Bit DMA Bus Master (133MB/s) PCI Burst Mode 3.3V or 5V interface
- Power Supply: +5V ±5% 2A max., +3.3V ±0.3V 1.5A max.
- Operating Temperature: 0-70°C. Humidity: 5-90% non condensing

## Ordering Options:

**VRM-CR9-ADP:** mechanical kit, expands from panel from 3U to 6U

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