SYSTEM

Product Information

CU5-HUM

CompactPCI® • Dual-Port Isolated RS-485 Interface

Document No. 6965 • 25 March 2013

General

The CU5-HUM is a dual-port isolated RS-485 interface card for PICMG® CompactPCI® systems. It is an assembly unit, comprised of the CK2-SESSION XMC module carrier card, and the DU1-MUSTANG RS-485 XMC mezzanine module.

Both D-Sub front panel connectors are isolated against the board circuitry and withstand up to 250VAC. The 16Mbps EIA/TIA-485 transceivers can be configured for full- or half-duplex operation, either point-to-point or multipoint applications.
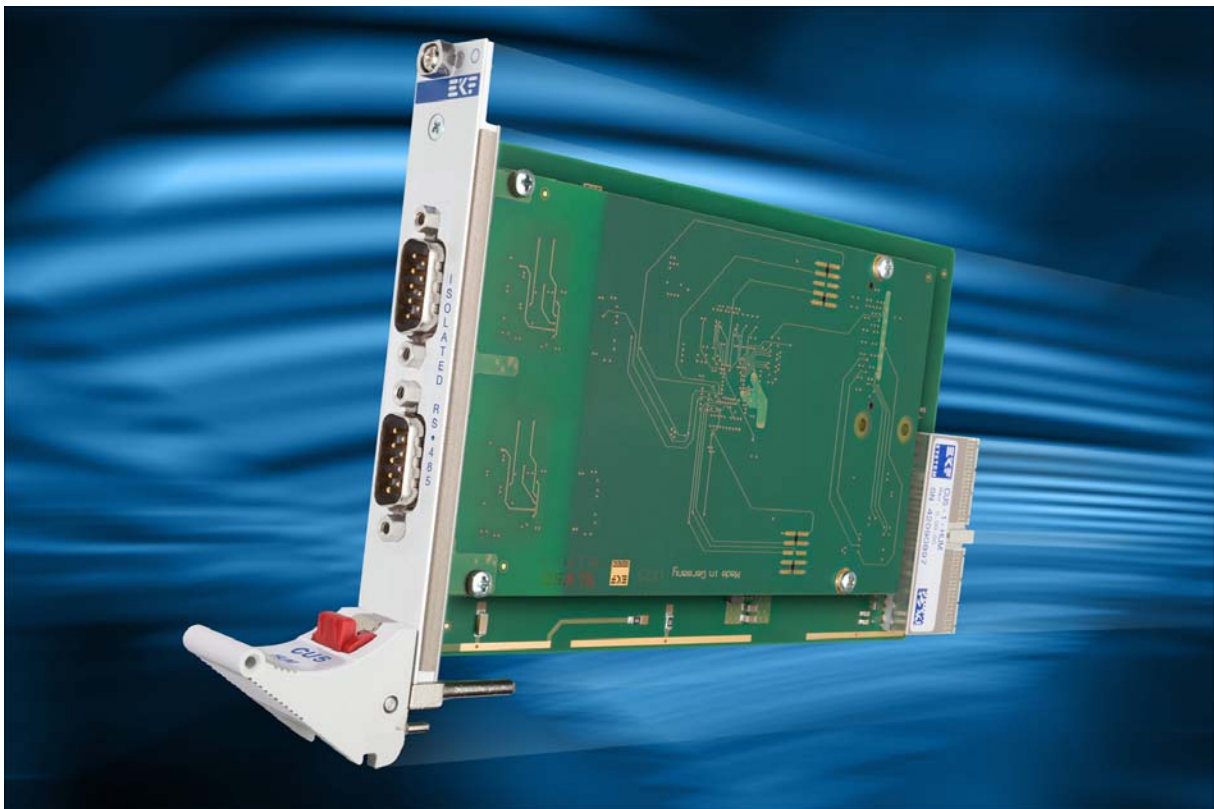
CU5-HUM

CU5-HUM

Theory of Operation

The CU5-HUM is a CompactPCI® peripheral card, equipped with a 32-bit 33/66MHz PCI to PCI Express® bridge. The internal PCI Express® lane is wired to the on-board XMC module connector J15.

The on-board XMC module is equipped with a PCI Express® to UART bridge, which is suitable for asynchronous baud rates up to 15Mbps. Two isolated transceivers are provided to meet the RS-485 physical layer specifications.

Summary of Features

▸ PICMG® CompactPCI® Classic (CPCI 2.0), peripheral slot card

▸ Assembly unit comprising carrier board CK2-SESSION & XMC module DU1-MUSTANG

▸ Single size Eurocard 3U 4HP 100x160mm^2

▸ Backplane connector J1 (32-bit, 33/66MHz) 3.3V/5V V_{IO}

▸ XMC module carrier board, equipped with XMC connector J15

▸ XMC Module single-width mezzanine card 139mm x 74mm, stack height 10mm

▸ Equipped with dual-port UART

▸ PLX Oxford 950 UART w. 128-byte transmit/receive FIFO

▸ Asynchronous baud rates up to 15Mbps

▸ Windows® & Linux device driver support

▸ 5kV rms isolation barrier RS-485/RS-422 transceivers (Analog Devices)

▸ Configurable as half- or full-duplex

▸ ±15 kV ESD protection on RS-485 input/output pins

▸ Data rate 16 Mbps

▸ Connect up to 256 nodes on one bus (driver enable control via DTR)

▸ Open- and short-circuit, fail-safe receiver inputs

▸ High common-mode transient immunity >25 kV/μs

▸ Thermal shutdown protection

▸ Two front bezel male 9-pin D-Sub connectors

▸ RS-485 ports isolated against each other and board circuitry 250VAC

▸ On-board DIP-switches for full/half-duplex setting, and line termination on/off

▸ Commercial and industrial temperature range

▸ Long term availability

▸ Rugged solution (coating/sealing available on request)
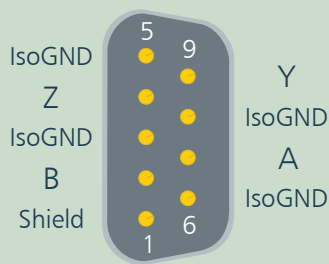
▸ RoHS compliant

CU5-HUM Assembly Unit

ANSI/TIA/EIA-485-A
Interconnect Application

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G = Generator • R = Receiver • RT = Termination Resistor
A/A' = Generator/Receiver Interface Point
B/B' = Generator/Receiver Interface Point
C/C' = Generator/Receiver Common
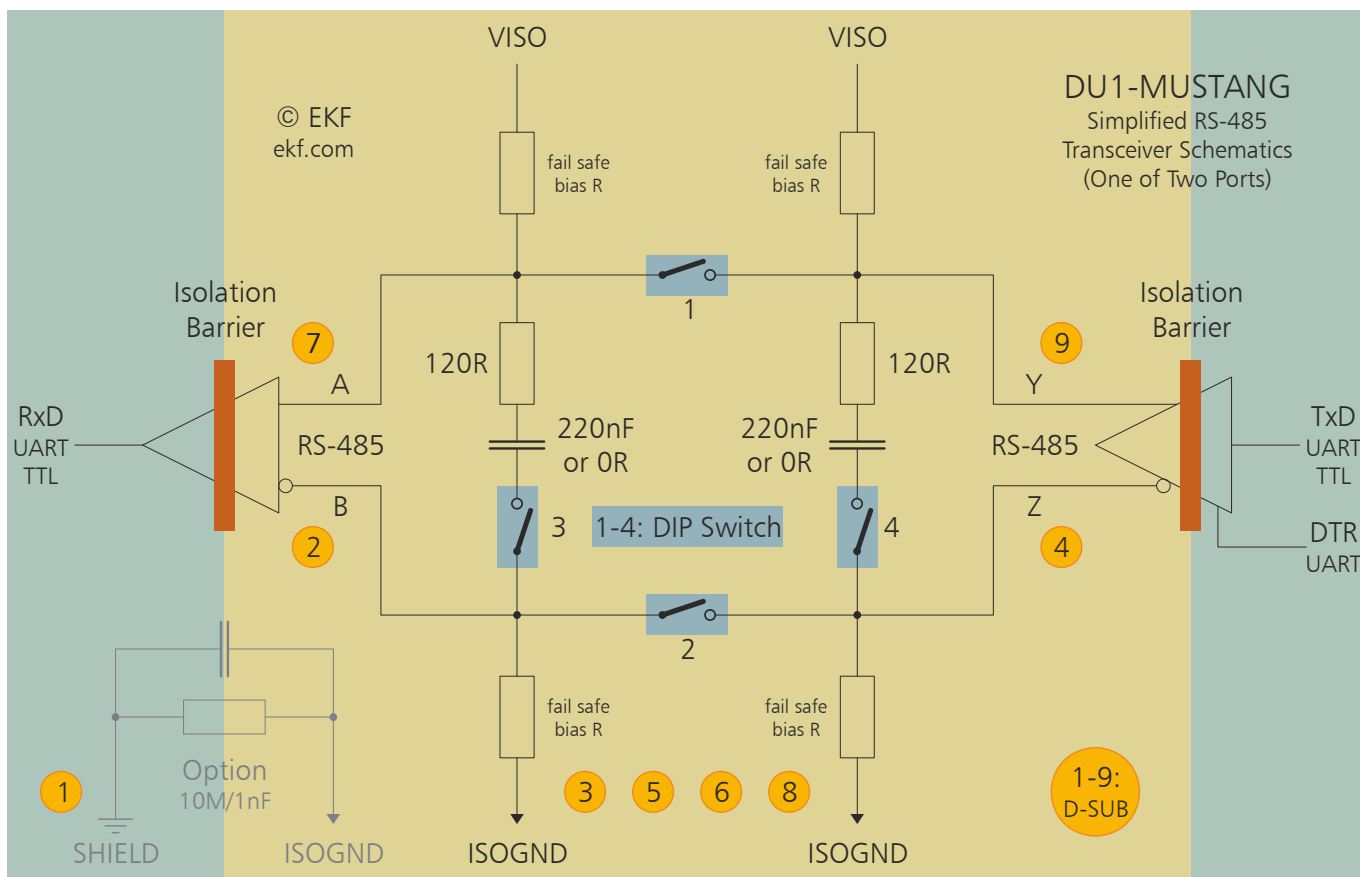
Serial Ports 1 / 2 • Male D-SUB 9		
EKF Part No. 261.02.009.23		
1		Shield (Frame Ground)
2		B (Inverting Input)
3		Isolated Ground
4		Z (Inverting Output)
5		Isolated Ground
6		Isolated Ground
7		A (Non-Inverting Input)
8		Isolated Ground
9		Y (Non-Inverting Output)

IsoGND
Z
IsoGND
B
Shield

Y
IsoGND
A
IsoGND

DU1-MUSTANG
RS-485

www.ekf.com/d/dcom/du1/img/du1_dsub.pdf

VISO   VISO

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DU1-MUSTANG
Simplified RS-485
Transceiver Schematics
(One of Two Ports)

fail safe bias R   fail safe bias R

Isolation Barrier

⑦

Isolation Barrier

RxD UART TTL

A

RS-485

120R   120R

Y

RS-485

⑨

TxD UART TTL

220nF or 0R   220nF or 0R

B

②

Z

DTR UART

3   1-4: DIP Switch   4

④

2

Option
10M/1nF

①

fail safe bias R   fail safe bias R
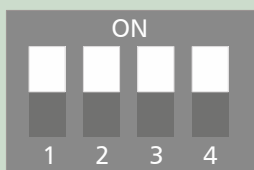
③ ⑤ ⑥ ⑧

1-9: D-SUB

SHIELD   ISOGND   ISOGND   ISOGND

RS-485 Full-Duplex/Half-Duplex Configuration Options

DIP Switches 1/2

EKF Part No. 160.15.04.0

160.15.04.0 © EKF • ekf.com — ON — 1 2 3 4	
1=OFF 2=OFF	Full-Duplex RS-485
1=ON 2=ON	Half-Duplex RS-485
3=ON	A/B Termination Active
4=ON	Y/Z Termination Active (Full-Duplex Only)

Detailed Information

The CU5-HUM is an assembly unit, which is comprised of a XMC module carrier card, and the XMC module itself. For more detailed information on these components please refer to the table below:

CU5-HUM Assembly Elements		
CK2-SESSION	XMC Carrier	www.ekf.com/c/cpcc/ck2/ck2.html
DU1-MUSTANG	XMC Module	www.ekf.com/d/dcom/du1/du1.html

Ordering Information

Ordering Information
For popular CU5-HUM SKUs please refer to www.ekf.com/liste/liste_20.html#CU5

Industrial Computers Made in Germany
boards.   systems.   solutions.