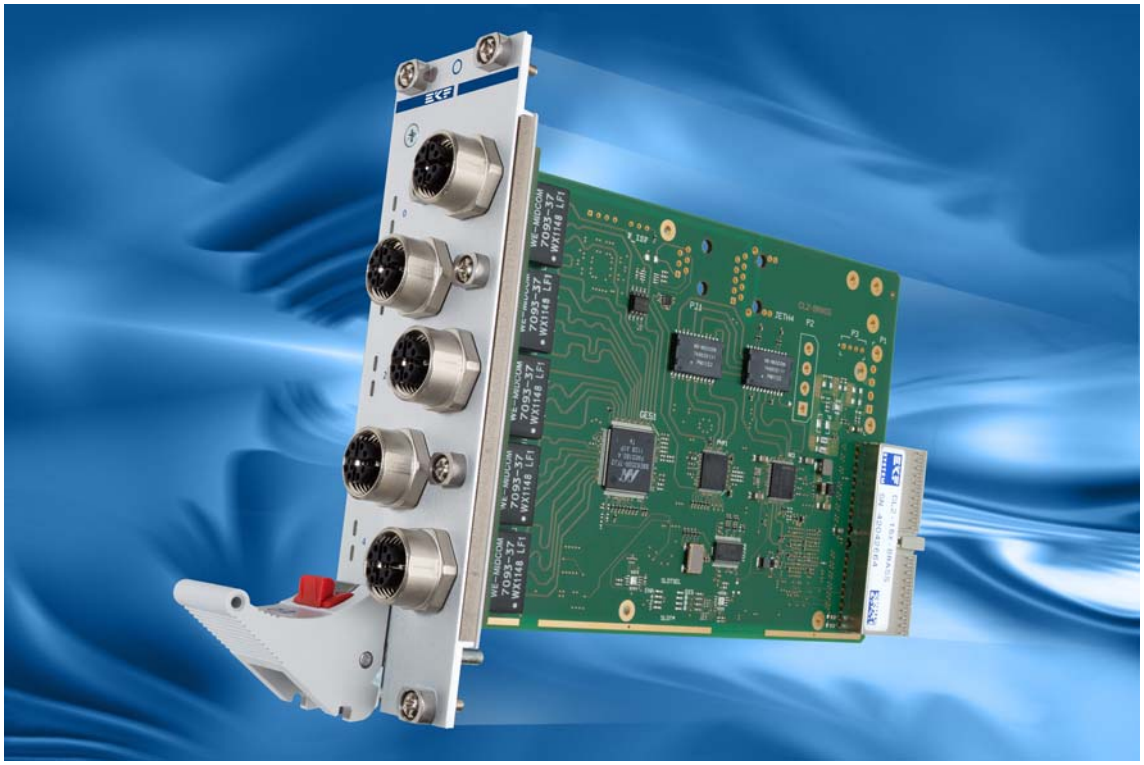
Product Information

CL2-BRASS • *CompactPCI* ® Gigabit Ethernet Switch

Industrial 5+1 Port Switch with M12 Front Panel Connectors

Document No. 6376 • 9 August 2013



CL2-BRASS

General

*Available as 3U CompactPCI® peripheral board, the **CL2-BRASS** is a powerful Gigabit Ethernet switch. Its 8HP front panel is provided either with five M12-style X-coded Gigabit Ethernet circular connectors, or 5 x M12 D-coded 100Mbps sockets. As an option, a sixth GbE channel is reserved for CompactPCI® backplane communication. The CL2-BRASS is equipped with the Marvell® 88E6350R switch, which is self-managed and comprises a rich feature set.*

The CL2-BRASS may be operated either as stand-alone card, powered from a single +5V external supply, or as a *CompactPCI®* peripheral board. For optional communication with the host CPU across the *CompactPCI®* backplane, an on-board Gigabit Ethernet controller is internally connected to the switch. The CL2-BRASS is suitable for a broad range of applications, e.g. industrial communication and transportation.

Major Benefits

- Single Size Eurocard 100x160mm^2 (3U/8HP)
- Stand-Alone operation as 5-port Gigabit Ethernet switch, +5V external power
- Option 5 x front panel M12 Gigabit Ethernet circular connectors (X-coded mating face)
- Option 5 x front panel M12 Fast Ethernet circular connectors (D-coded mating face)
- Option internal 6th port Gigabit Ethernet RJ-45 jack
- *CompactPCI®* peripheral card option 32-bit 33/66MHz (on-board GbE controller wired internally to switch)
- Marvell® 88E6350R switch fabric - high performance, non-blocking, Gigabit Ethernet
- Support for up to 1K MAC addresses, 10KByte Jumbo Frames
- Unmanaged solution (external management option via SMI port, by means of Marvell® USB-2-SMI adapter module)
- Option on-board Gigabit Ethernet controller Intel® 82574IT
- Long term availability
- Coating, sealing, underfilling on request
- RoHS compliant 2002/95/EC
- Operating temperature: 0°C to +70°C (industrial temperature range on request)
- Storage temperature: -40°C to +85°C, max. gradient 5°C/min
- Humidity 5% ... 95% RH non condensing
- Altitude -300m ... +3000m
- Shock 15g 0.33ms, 6g 6ms
- Vibration 1g 5-2000Hz
- MTBF 37years
- EC Regulations EN55022, EN55024, EN60950-1 (UL60950-1/IEC60950-1)

subject to changes

CL2-BRASS • X-Coded M12 (Gigabit) • Option CompactPCI®

Theory of Operation

The CL2-BRASS is merely a single chip solution, built around the Marvell® 88E6350R Gigabit Ethernet switch, which provides many built-in network and security features. Advanced (external) management would require the optional RJ-11 SMI (Serial Management Interface) connector to be stuffed, for attachment of the Marvell® USB-2-SMI adapter module. The Windows® based Marvell® SOHO-GUI then can be used to access the device internal registers and tables. Modifications made to the configuration of the switch are stored permanently in an EEPROM on the CL2-BRASS.

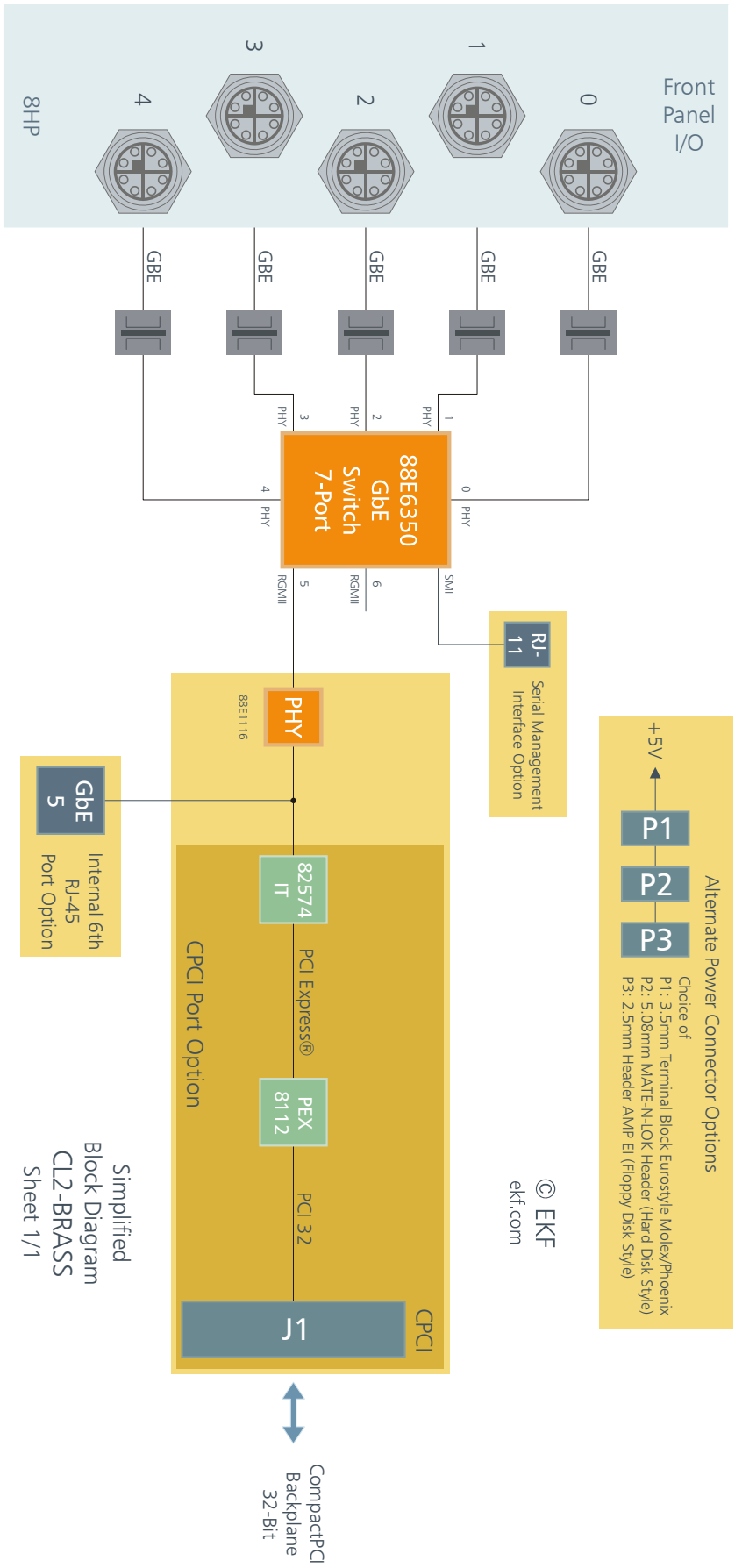
A sixth internal GbE port (RJ-45 jack) is available as an option, on an exclusive base to the CompactPCI® backplane port option.

For stand-alone operation of the CL2-BRASS, other +5V power supply connector options are available as an alternate to the CPCI connector J1, e.g. the popular hard disk style MATE-N-LOK header (suitable e.g. for ATX power supplies).

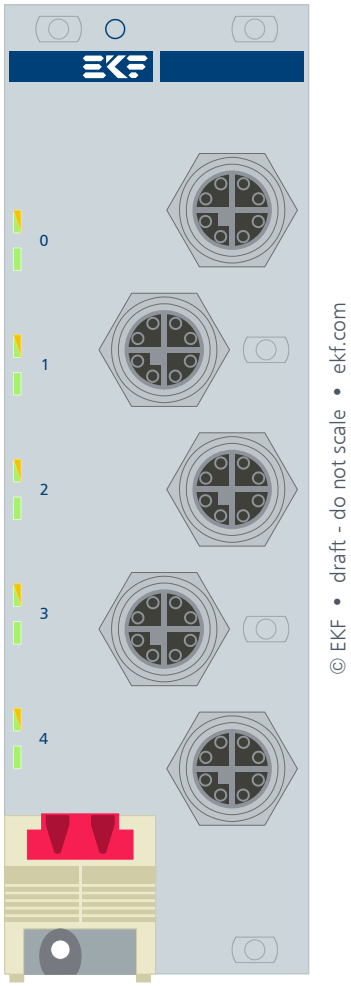
The GbE switch circuitry will be reset at power-up, but can be also manually reset by depressing the red ejector lever button (CPCI reset pass-through available as an option).

CL2-BRASS • D-Coded M12 (100Mbps) • CompactPCI® Option

Block Diagram



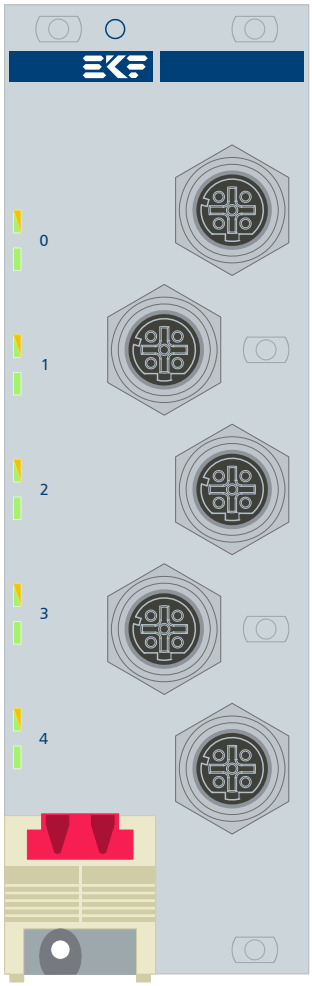
Front Panel Options



CL2-BRASS
C31-M12X

M12 X-Coded 8-Lead Gigabit Ethernet Connectors

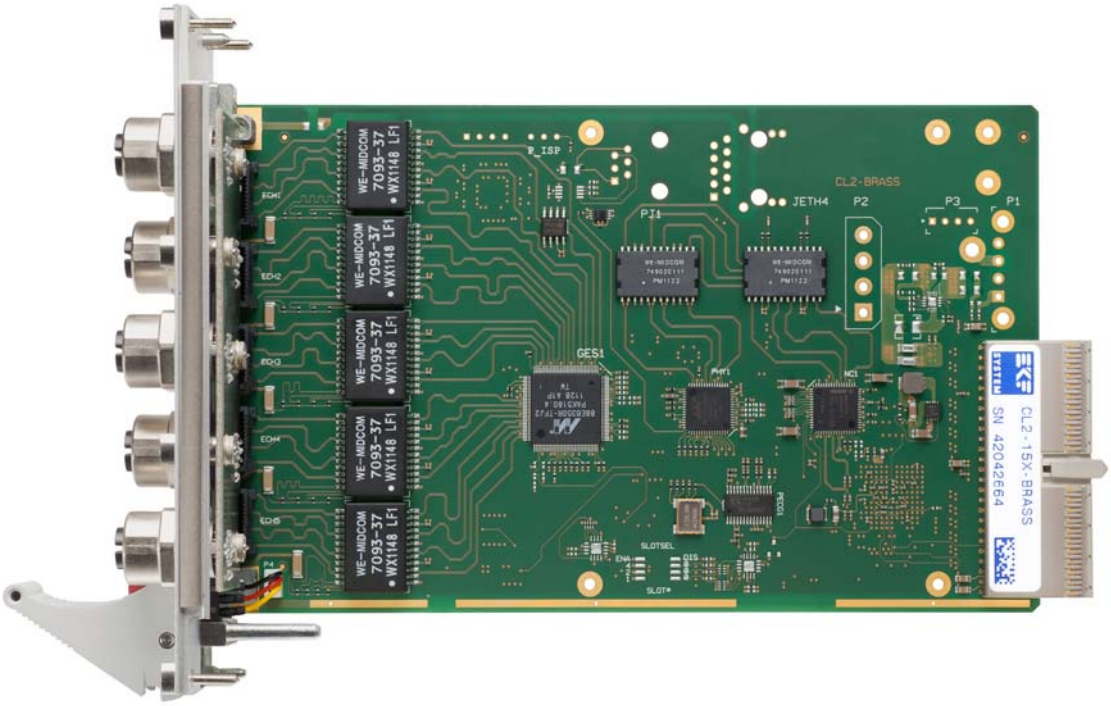
Designed for Optimum Performance



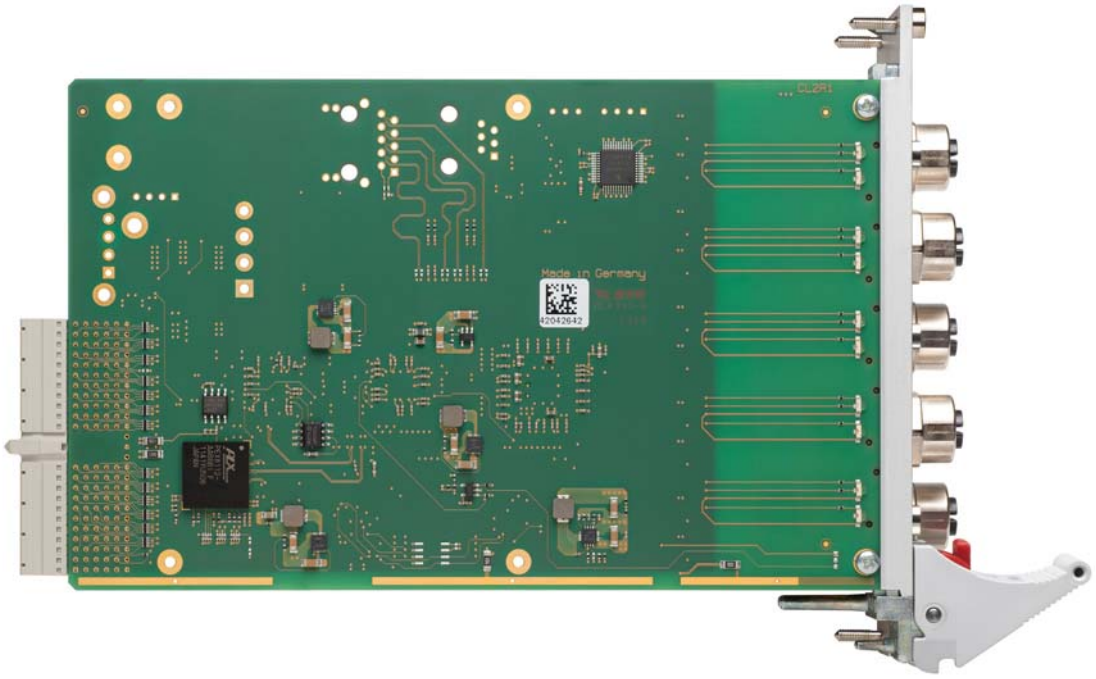
CL2-BRASS
C34-M12D

M12 D-Coded 4-Lead 100Mbps Ethernet Connectors

Designed for Legacy Applications (Railway)



CL2-BRASS Top View • Option CompactPCI®



CL2-BRASS Bottom View • Option CompactPCI®

CL2-BRASS • D-Coded M12 (100Mbps Ethernet)

X-Coded and D-Coded M12 Cable Assemblies Available

M12 to M12 Cable
Phoenix Contact

M12 Cable Connector
Phoenix Contact

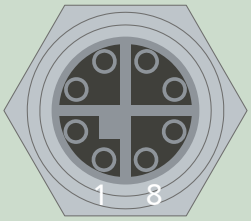
M12 to RJ45 Cable
Phoenix Contact

M12 Gigabit Ethernet Cable Assembly

M12 Gigabit Ethernet Cable Assembly

C31-M12X
Gigabit Ethernet • 271.12.008.00 • M12-X Flush-type socket 1+10 Gigabit Ethernet

271.12.008.00



Upper F/P LEDs (0-4):
yellow=1Gbit/s green=100Mbit/s off=10Mbit/s

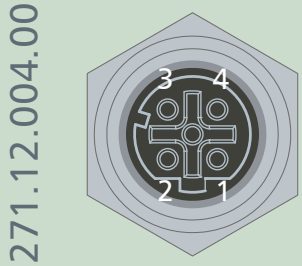
Lower F/P green LEDs (0-4):
on=link established blinking=activity (data)

Ports 0-4	1	MDX0+
	2	MDX0-
	3	MDX1+
	4	MDX1-
	5	MDX3+
	6	MDX3-
	7	MDX2-
	8	MDX2+

Suitable Gigabit Ethernet cable assemblies M12 to M12 (EKF part #271.14.008.xx, xx=meters) and M12 to RJ-45 (EKF part #271.15.008.xx, xx=meters) are available.

Front Panel M12 Gigabit Ethernet Ports

C34-M12D
100Mbit Ethernet • 271.12.004.00 • M12-D Flush-type socket 100Mbps Ethernet



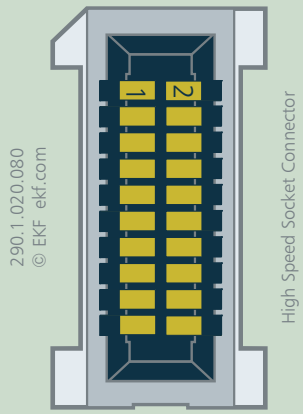
Upper F/P LEDs (0-4):
yellow=1Gbit/s green=100Mbit/s off=10Mbit/s

Lower F/P green LEDs (0-4):
on=link established blinking=activity (data)

Ports 0-4	1	MDX0+ TX+
	2	MDX1+ RX+
	3	MDX0- TX-
	4	MDX1- RX-

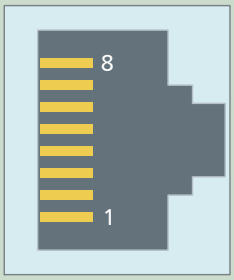
Suitable 100Mbps Ethernet cable assemblies M12 to M12 (EKF part #271.14.004.xx, xx=meters) and M12 to RJ-45 (EKF part #271.15.004.xx, xx=meters) are available.

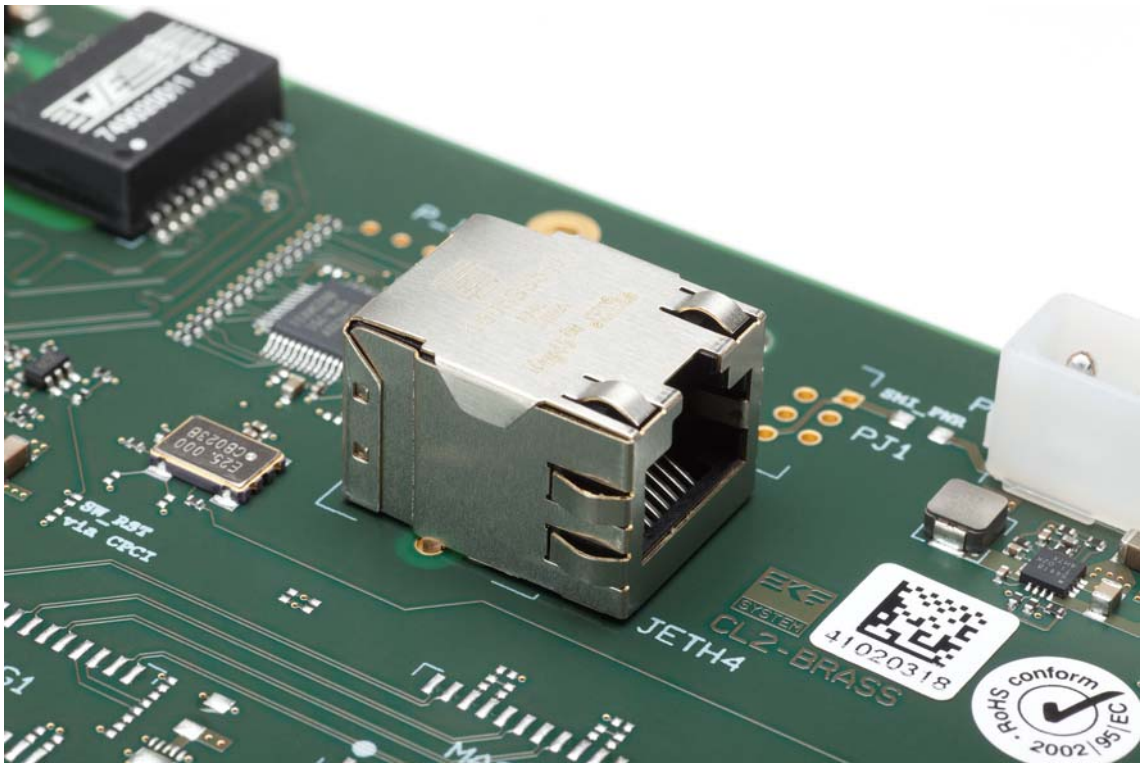
CL2
High Speed Dual Row Socket 0.8mm Pitch (290.1.020.080)



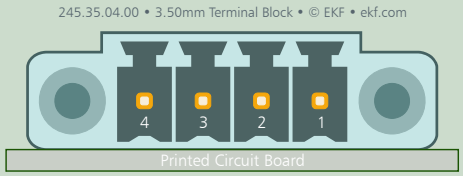
MDX3-	01	02	
MDX3+	03	04	
	05	06	MDX2-
	07	08	MDX2+
	09	10	
	11	12	
	13	14	MDX1-
	15	16	MDX1+
MDX0-	17	18	
MDX0+	19	20	

This high speed connector is in use on-board for each network port between the CL2-BRASS and the riser cards C31-M12X or C34-M12D. Custom specific riser cards with a mixture of M12 X-coded (e.g. uplink) and M12 D-coded (e.g. downstream) or even proprietary connectors can be designed - please contact sales@ekf.de.

Option On-Board Gigabit Ethernet • 270.01.08.06 • Single RJ-45 Jack			
270.01.08.06  © EKF • ekf.com Draft - Do Not Scale	Port 5	1	MDX0+
		2	MDX0-
		3	MDX1+
		4	MDX2+
		5	MDX2-
		6	MDX1-
		7	MDX3+
		8	MDX3-



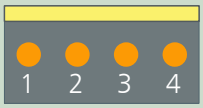
Option on-Board RJ-45 Gigabit Ethernet Port 5

P1 (Option) +5V Power Stand-Alone • 245.35.04.00 • 3.50mm Terminal Block		
	1	+5V
	2	GND
	3	Reserved/Shield
	4	NC

The CL2-BRASS can be optionally provided with a 3.50mm terminal block for attachment of external +5V power to the board. The terminal block header is a Phoenix Contact #1843813 or Molex #39506-1004 or equivalent, which mates with a Phoenix Contact #1847071 or Molex #39504-0004 plug. The plug can be fixed by two M2 screws.

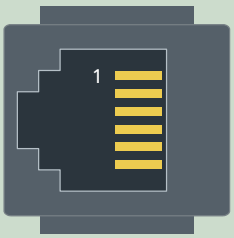
P2 (Option) +5V Power Stand-Alone • 264.02.004.13 • MATE-N-LOK		
© EKF • ekf.com  264.02.004.13 AMP MATE-N-LOK	1	NC
	2	GND
	3	GND
	4	+5V

The CL2-BRASS can be optionally provided with a MATE-N-LOK header for attachment of +5V power on pin 4. This header is suitable for most ATX style power supplies (also in use on hard disk drives).

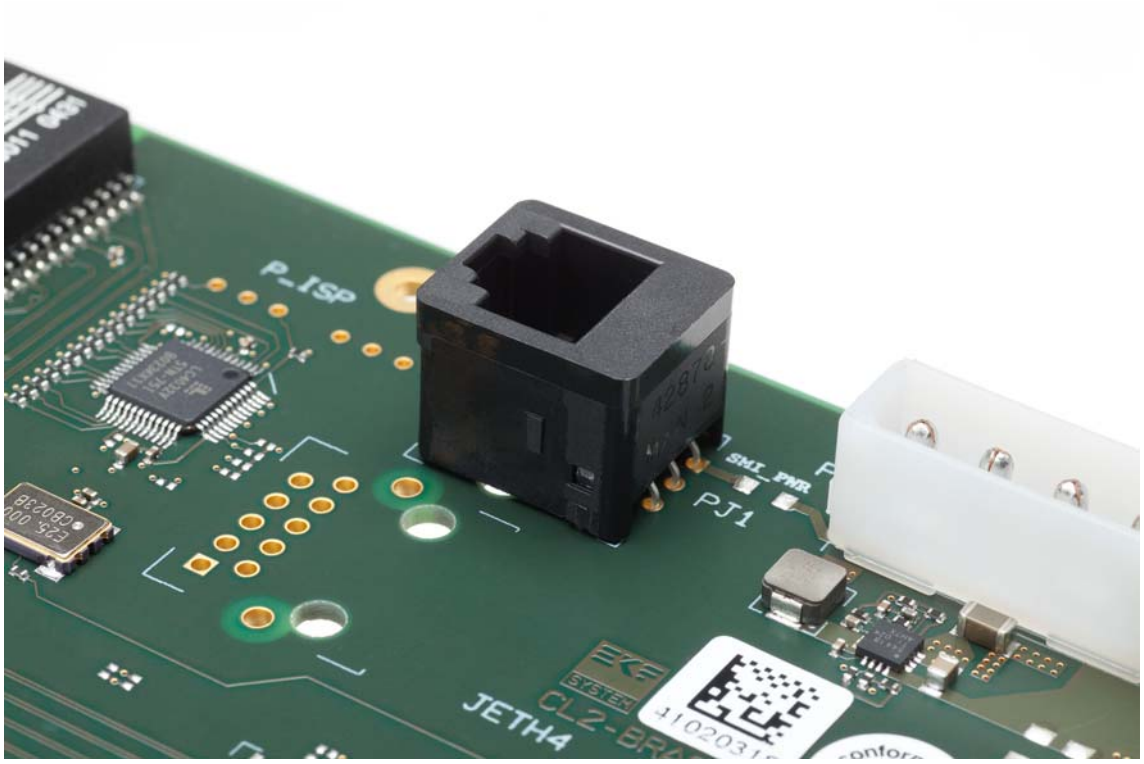
P3 (Option) +5V Power Stand-Alone • 264.02.004.03 • EI-Series Header		
© EKF • ekf.com  264.02.004.03 AMP EI-Series	1	+5V
	2	GND
	3	GND
	4	NC

The CL2-BRASS can be optionally provided with an AMP EI-Series header for attachment of +5V power on pin 1. This header is suitable for some ATX style power supplies (also in use on floppy disk disk drives).

Warning:
Assembly may not be protected against misalignment with respect to +5V and GND
Confusing pins may cause permanent damage to the board

Option Serial Management Interface • 270.10.06.00 • RJ-11 Modular Jack		
 270.10.06.00 © EKF • ekf.com	1	+5V
	2	SMI DATA
	3	GND
	4	GND
	5	SMI CLOCK
	6	+5V

The CL2-BRASS may be optionally provided with an RJ-11 jack for attachment of the Marvell® USB-2-SMI adapter module. The Windows® based Marvell® SOHO-GUI then can be used to access the GbE switch internal registers and tables. The USB-2-SMI is connected to the CL2-BRASS by means of a four lead cable (only pins 2 - 5 from the table above in use). The USB-2-SMI adapter module must be ordered directly from Marvell®. Signing of a Marvell® non-disclosure agreement (NDA) may be required. Please contact your nearest Marvell® sales office or distributor in your area, which can be located at http://extranet.marvell.com/sales/.



SMI Management Interface Option

Related Information
CL2-BRASS Home: www.ekf.com/c/cnic/cl2/cl2.html
CL1-COMBO Home: www.ekf.com/c/cnic/cl1/cl1.html (similar to CL2-BRASS but 5 x RJ-45 F/P Jacks)
Marvell® 88E6350R Product Brief (Marvell® Website) http://www.marvell.com/switching/assets/marvell_linkstreet_88E6350r_product_brief.pdf

Ordering Information
For popular CL2-BRASS SKUs please refer to www.ekf.com/liste/liste_20.html#CL2
Gigabit Ethernet cable M12 to M12: #271.14.008.xx (xx=length/meter) Gigabit Ethernet cable M12 to RJ-45: #271.15.008.xx (xx=length/meter)
100Mbps Ethernet cable M12 to M12: #271.14.004.xx (xx=length/meter) 100Mbps Ethernet cable M12 to RJ-45: #271.15.004.xx (xx=length/meter)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