



Product Information

S02-M12

M12-X Ethernet Connectors for CPU Cards
Mezzanine Expansion Module

Preliminary Edition

Overview

Available as a mezzanine add-on expansion board e.g. to recent CompactPCI® Serial and CompactPCI® PlusIO CPU carrier cards, the S02-M12 provides one or two M12-X style Ethernet connectors as required for railway and many other applications.

As a passive solution, the S02-M12 mezzanine card replaces one or two of the triple RJ45 connectors equipped on suitable CPU carrier cards.

The S02-M12 Ethernet ports are 2.5GBASE-T compliant (backwards compatible to 10BASE-T, 100BASE-TX, and 1000BASE-T). The upper port 1 can be used also in applications where Intel® vPro® is required.

The S02-M12 mezzanine card will be mounted on top of the CPU carrier card, resulting in an 8HP assembly, thus suitable for CompactPCI® Serial backplanes with a right aligned system slot.

Feature Summary

Form Factor

- ▶ Mezzanine module for recent EKF CompactPCI® Serial and CompactPCI® PlusIO CPU boards
- ▶ Proprietary size 41mm x 72mm
- ▶ 8HP Assembly together w. CPU carrier card
- ▶ Typically delivered as a ready to use assembly unit (including CPU card)
- ▶ Mounting position on top of a CPU board (right aligned CompactPCI® Serial system slot recommended)

Interposer Connectors

- ▶ Pass-through micro sockets
- ▶ Hole positions congruently mating the upper and the lower RJ45 connector pins of the carrier card (RJ45 #1 & #3 removed for 2 x M12-X on S02-M12)
- ▶ Pin stackers in addition soldered on the CPU carrier board

M12-X Front Panel Connectors

- ▶ 8-Pos. X-coded right angled M12 Ethernet receptacles
- ▶ Cat. 6A Data transmission rate up to 10Gbps
- ▶ 2.5GBASE-T Ethernet signal transformers
- ▶ Replacement for CPU card RJ45 Ethernet ports 1 and/or port 3
- ▶ All Ethernet features of the particular CPU port preserved, e.g. Intel® vPro®
- ▶ M12-X Ethernet cables & connectors available from many manufacturers
- ▶ Adapter cables available M12-X to RJ45

Suitable CPU Carrier Cards

- ▶ SC9-Toccatà (2.5GBASE-T, Intel® I226-IT NIC)
- ▶ SC8-FLUTE (2.5GBASE-T, Marvell AQR115C PHY)
- ▶ More to come

Applications

- ▶ Railway, transportation
- ▶ Industrial IoT, process control
- ▶ Construction vehicles, harvester
- ▶ Custom specific modifications and alternate design available on request

Feature Summary

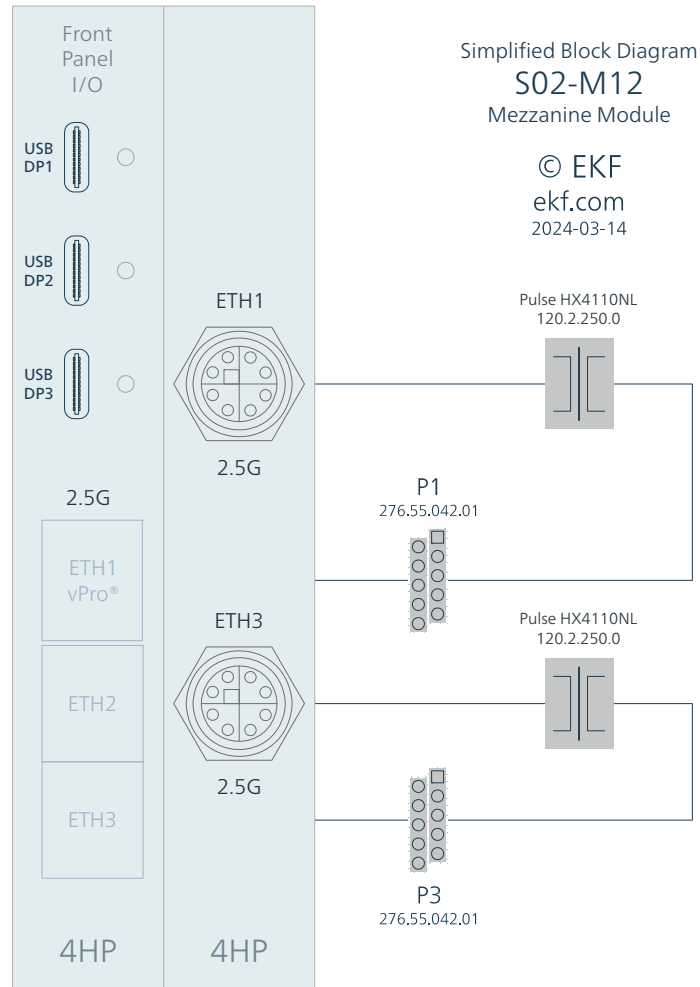
Environment & Regulatory

- ▶ Designed & manufactured in Germany
- ▶ Certified quality management according to ISO 9001
- ▶ Long term availability
- ▶ Rugged solution
- ▶ Coating, sealing, underfilling on request
- ▶ RoHS compliant
- ▶ Operating temperature -40°C to +85°C (industrial temperature range)
- ▶ 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 847.2 years (MIL-HDBK-217F, SN29500 @+40°C)
- ▶ EC Regulatory EN55035, EN55032, EN62368-1 (CE)

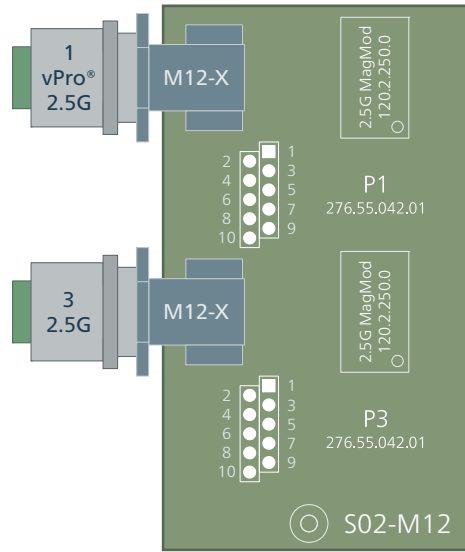
All items are subject to change



Block Diagram

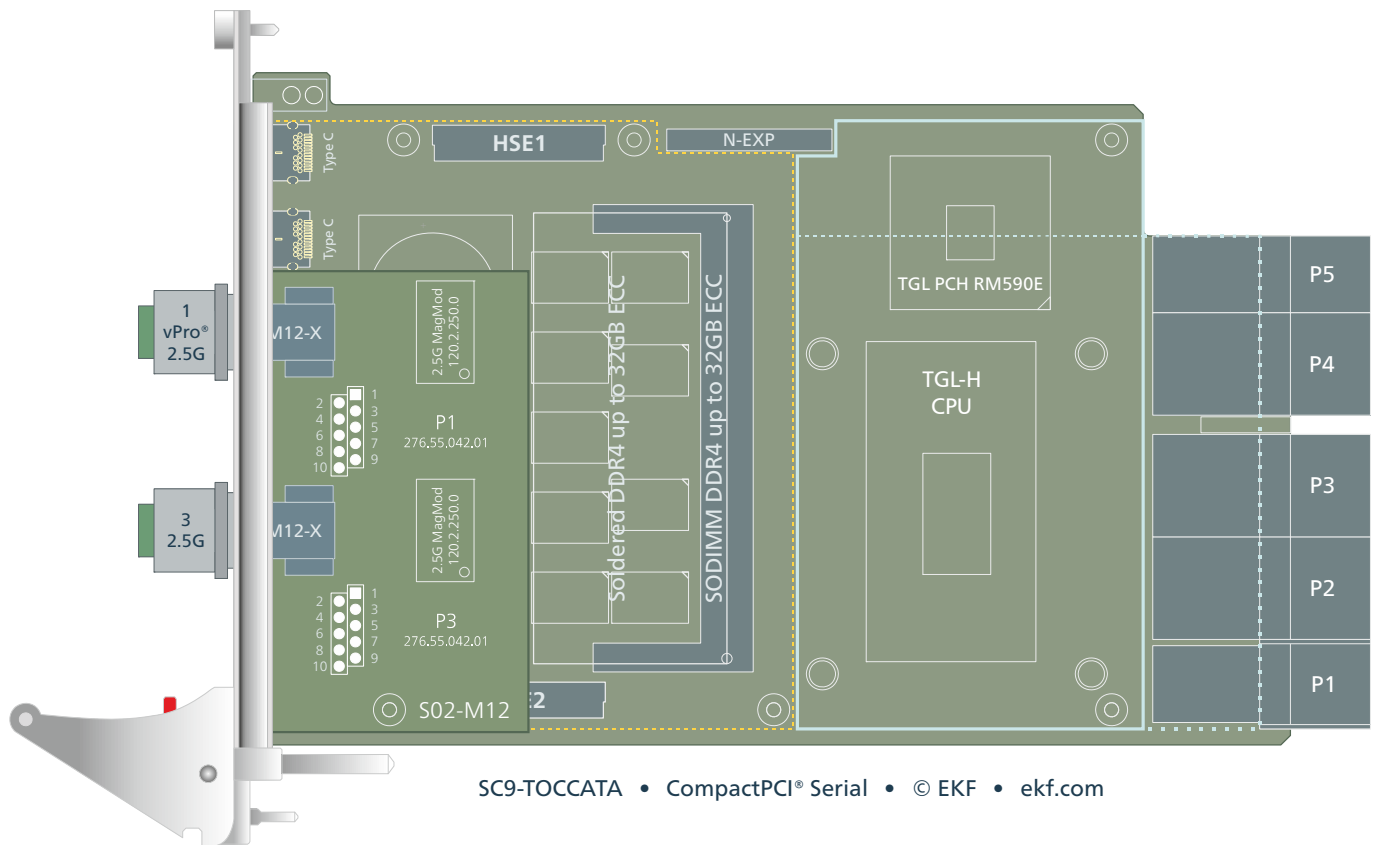


Top View Component Assembly



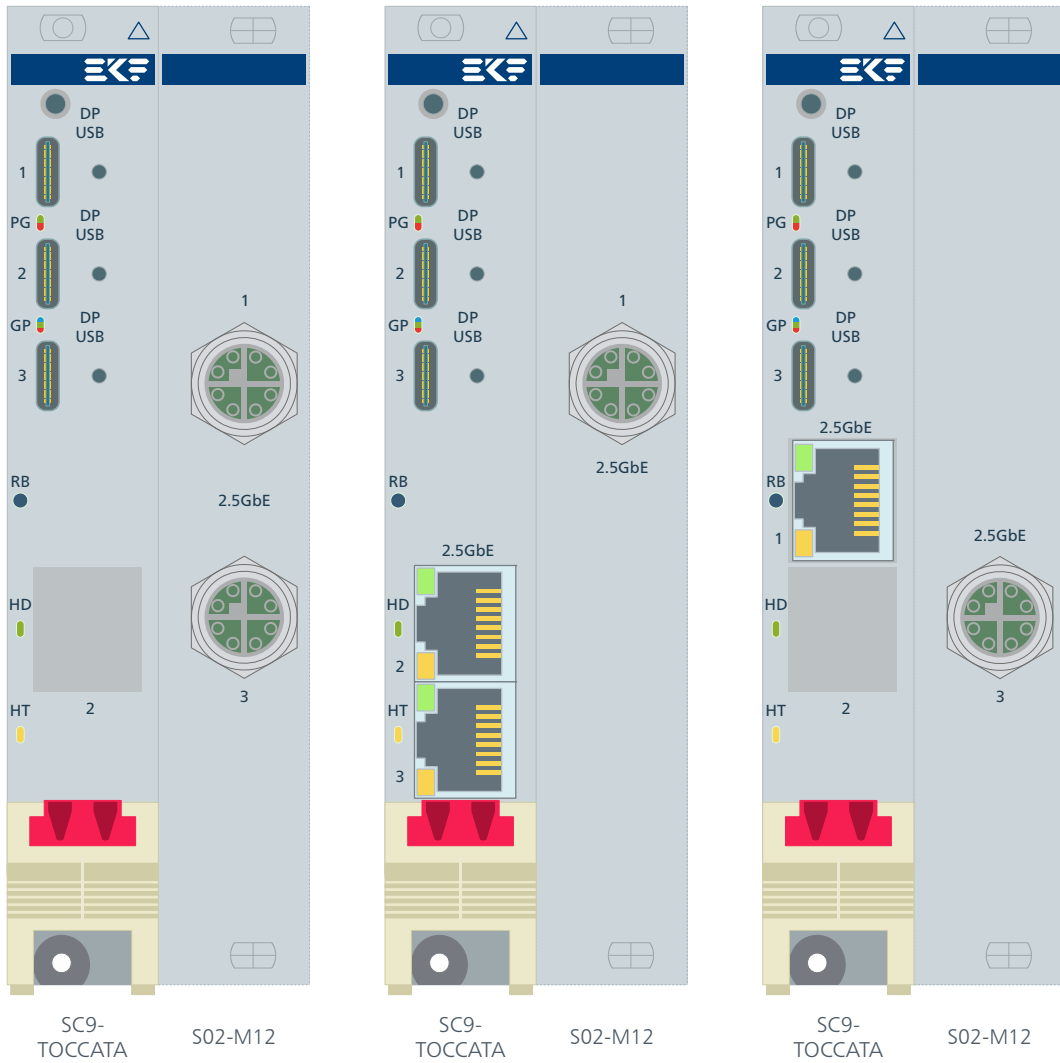
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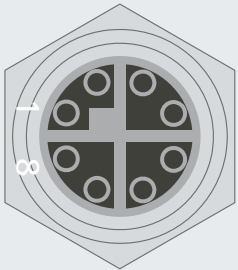
SC9-TOCCATA • CompactPCI® Serial • © EKF • ekf.com

Front Panel



Dual M12-X & Single M12-X Options

M12-X Receptacles

M12-X Receptacles • Gigabit Ethernet		
<p>271.12.008.10</p>  <p>© EKF • ekf.com Draft - Do Not Scale</p>	1	MDX0+
	2	MDX0-
	3	MDX1+
	4	MDX1-
	5	MDX3+
	6	MDX3-
	7	MDX2-
	8	MDX2+

The pin numbers of an M12 X-coded connector do not reflect the RJ45 Gigabit Ethernet signal assignment. For cross-over patch cables M12 to RJ45 please refer to the table below.

M12-X	Signal Colors T568B	RJ45
1	MDX0+ white/orange	1
2	MDX0- orange	2
3	MDX1+ white/green	3
4	MDX1- green	6
5	MDX3+ white/brown	7
6	MDX3- brown	8
7	MDX2- white/blue	5
8	MDX2+ blue	4

Mating Cable Assemblies

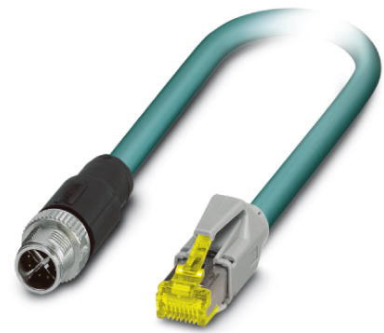
Gigabit Ethernet cable M12 to M12: #271.14.008.xx (xx=length/meter)
 Gigabit Ethernet cable M12 to RJ-45: #271.15.008.xx (xx=length/meter)



M12 to M12 Cable
Phoenix Contact



M12 Cable Connector
Phoenix Contact



M12 to RJ45 Cable
Phoenix Contact



M12 Gigabit Ethernet Cable Assembly

Ordering

Typically, the S02-M12 mezzanine card comes as a ready-to-use assembly together with the particular CPU carrier card.

Ordering Information

For popular S02-M12 SKUs please refer to
www.ekf.com/liste/liste_21.html#S02

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