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# TCPS007-TM

**Rear I/O Module for Quad 10/100/1000 Ethernet CPCI-S.0  
Modules**

Version 1.0

## **User Manual**

Issue 1.0.0

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## **TCPS007-TM-10R**

Rear I/O Module for Quad 10/100/1000 Ethernet  
CPCI-S.0 Modules

(RoHS compliant)

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# 1 Product Description

The TCPS007-TM is a PICMG CPCI-S.0 R2.0 compatible 3U rear I/O module that provides a four channel 10Base-T / 100Base-TX / 1000Base-T Ethernet interface.

The TCPS007-TM distributes the Ethernet signals of TEWS' Gigabit Ethernet CPCI-S.0 modules with rear I/O to RJ-45 connectors located in the front panel of the module.

Impedance mismatches, caused by backplane connectors, lead to signal distortion of the Ethernet signals. To reduce these effects, the routing on the TCPS007-TM is optimized for differential Ethernet signals.

Additionally, common mode choke filters are placed into the Ethernet signal lines to improve signal quality by suppressing common mode noise on the Ethernet signal lines.

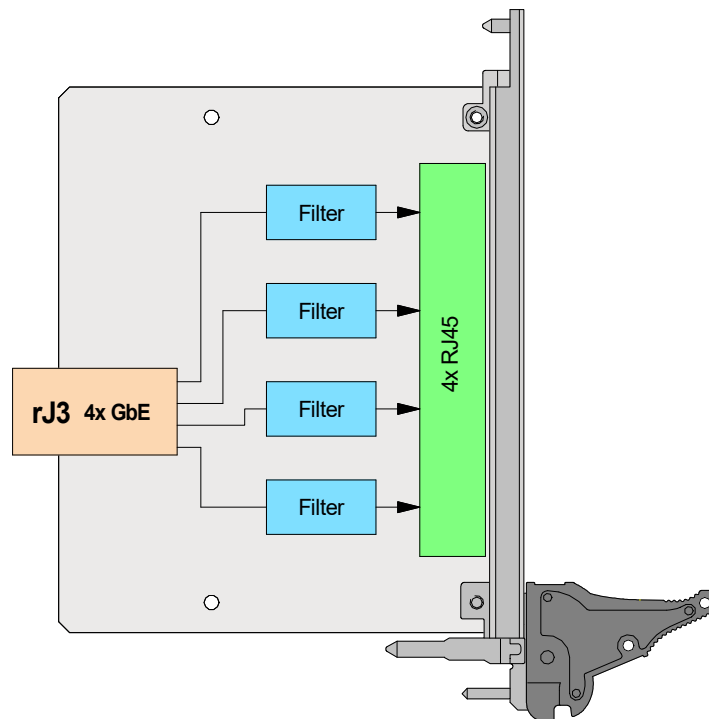


Figure 1-1 : Block Diagram

## 2 Technical Specification

Interface	
<b>Mechanical Interface</b>	Compact Serial 3U Rear Board conforming to PICMG CPCI-S.0 R2.0
<b>Electrical Interface</b>	Rear-I/O via rJ3

On Board Devices	
<b>Common Mode Choke</b>	4x LG01-0356N2 (Halo) or compatible

I/O Interface	
<b>Number of Channels</b>	4
<b>I/O Connector</b>	RJ45 jacks (Würth 615 032 137 821 or compatible)

Physical Data		
<b>Power Requirements</b>	none	
<b>Temperature Range</b>	Operating	-40°C to +85°C
	Storage	-40°C to +85°C
<b>MTBF</b>	56578000 h MTBF values shown are based on calculation according to MIL-HDBK-217F and MIL-HDBK-217F Notice 2; Environment: G <sub>B</sub> 20°C. The MTBF calculation is based on component FIT rates provided by the component suppliers. If FIT rates are not available, MIL-HDBK-217F and MIL-HDBK-217F Notice 2 formulas are used for FIT rate calculation.	
<b>Humidity</b>	5 – 95 % non-condensing	
<b>Weight</b>	104 g	

Table 2-1 : Technical Specification

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## 3 Handling and Operation Instructions

### 3.1 ESD Protection



This CPCI.0 module is sensitive to static electricity.  
Packing, unpacking and all other module handling has to be done with appropriate care.



## 4 Pin Assignment – I/O Connector

### 4.1 CPCI-S.0 rJ3 Connector

Pin	3 - 01	3 - 02	3 - 03	3 - 04	3 - 05	3 - 06	3 - 07	3 - 08
A	ETH_0_0+	GND	ETH_2_0+	GND	-	GND	-	GND
B	ETH_0_0-	ETH_1_0+	ETH_2_0-	ETH_3_0+	-	-	-	-
C	GND	ETH_1_0-	GND	ETH_3_0-	GND	-	GND	-
D	ETH_0_1+	GND	ETH_2_1+	GND	-	GND	-	GND
E	ETH_0_1-	ETH_1_1+	ETH_2_1-	ETH_3_1+	-	-	-	-
F	GND	ETH_1_1-	GND	ETH_3_1-	GND	-	GND	-
G	ETH_0_2+	GND	ETH_2_2+	GND	-	GND	-	GND
H	ETH_0_2-	ETH_1_2+	ETH_2_2-	ETH_3_2+	-	-	-	-
I	GND	ETH_1_2-	GND	ETH_3_2-	GND	-	GND	-
J	ETH_0_3+	GND	ETH_2_3+	GND	(TERM)	GND	(TERM)	GND
K	ETH_0_3-	ETH_1_3+	ETH_2_3-	ETH_3_3+	(TERM)	(TERM)	(TERM)	(TERM)
L	GND	ETH_1_3-	GND	ETH_3_3-	GND	(TERM)	GND	(TERM)

Table 4-1 : Peripheral Slot rJ3 Pin Assignment

(TERM) is an optional connection to the termination plane

Signal naming is "ETH\_Channel\_Diff-Pair+/-".

## 4.2 Front Connector

On the TCPS007-TM-10R four RJ45 connectors are located in the front panel.

For pin assignment and front panel labeling, see the figures below.

Pin	Signal (1000)	Signal (100, 10)
1	TX0/RX0+	TX+
2	TX0/RX0-	TX-
3	TX1/RX1+	RX+
4	TX2/RX2+	not used
5	TX2/RX2-	not used
6	TX1/RX1-	RX-
7	TX3/RX3+	not used
8	TX3/RX3-	not used

Table 4-2 : Front I/O Pin Assignment

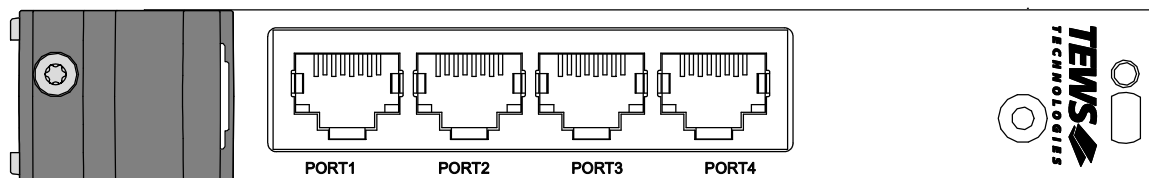


Figure 4-1 : TCPS007-TM Front Panel View