3U-VPX conduction cooled Load board

HARTMANN ELECTRONIC
A Phoenix Mecano Company

Description LXH0000840

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Impressum:
Hartmann Electronic GmbH
Motorstraße 43, D-70499 Stuttgart (Weilimdorf)
Telefon + 49 711 1 39 89-0
Telefax + 49 711 8 66 11 91
E-mail info@hartmann-electronic.com
Internet www.hartmann-electronic.com

Hartmann Electronic is an established leader in the design and manufacturing of backplanes and electronic packaging for micro-computer systems. With over 30 years of experience in high-speed backplane design and manufacturing, Hartmann offers an extensive range of standard backplanes and system platform products supporting architectures including VME/64x, CompactPCI/2.16, AdvancedTCA, VPX, VXS, VXI, CompactPCIe, and others.

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1 General description

The VPX Load board is designed in 5HP- 3U form factor, in conduction cooled version.
The Load board serves to simulate loads on VPX systems.
Both electrical and thermal conditions can be simulated.
The following load streams can be switched with the coding and tilt lever switches located on the front plate:

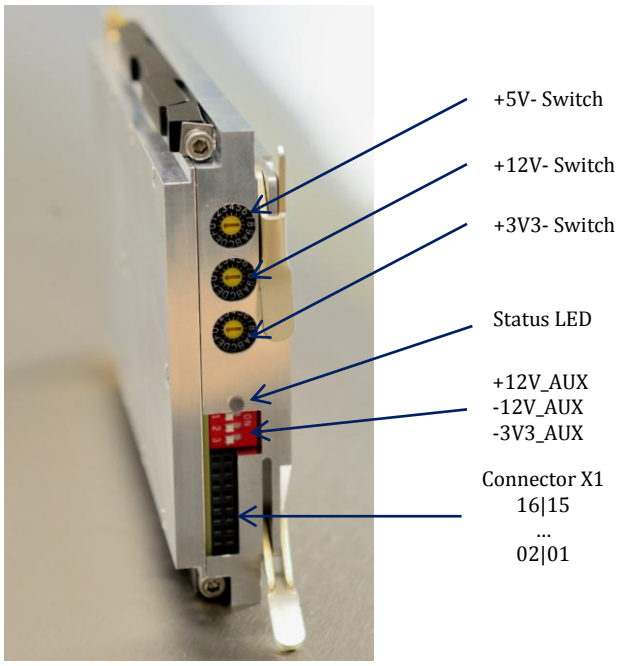

Figure 1, Frontpanel of Load board

5VDC must always be connected as control voltage
Voltage are tapped at the VPX bus via the P0 and P1 plug.

Excess temperature protection
The load test card switches itself off at a temperature on the topside of the load test card of 120 °C +-5 K.
Once cooled, it turns itself on again.

Please note:
The Load board becomes hot during operation.

Voltages	Load current	Control options
5V	0A … 15A	in 1A stages
12V	0A … 10A	in 2/3A stages
3V3	0A … 15A	in 1A stages
+12V_AUX	2/3A	ON/OFF
-12V_AUX	2/3A	ON/OFF
+3V3_AUX	1A	ON/OFF

Figure 2, Possible settings on Load board switches

The status-LED light green, if all works well.
In case of overtemperature, the status-LED light red. In this case is the Slot not loaded.

Furthermore, 4 TMP-300-ICs are attached to the load board: On the front at bottom and top and on the back at the bottom and top.
It is possible to measure the temperature on the load test card via these.
These Outputs connections are also run via the plug X1.
Analog Out for Temperature 10mV/°C
The output voltage for Temperature is typical 750mV ±30mV by 25°C

X1 Connector							
1	**3**	**5**	**7**	**9**	**11**	**13**	**15**
+5V-MP	+3V3-MP	+12V-MP	GND	GND	GND	GND	GND-MP0
2	**4**	**6**	**8**	**10**	**12**	**14**	**16**
-12VAUX-MP	+3V3AUX-MP	+12VAUX-MP	V-Temp1	V-Temp2	V-Temp3	V-Temp4	GND-MP1

Figure 3, Pin assignments connector X1

2 Heatpoints of the card

The PCB is in tree area organized.
On the primary side, we have the +3V3 and +12V Area.

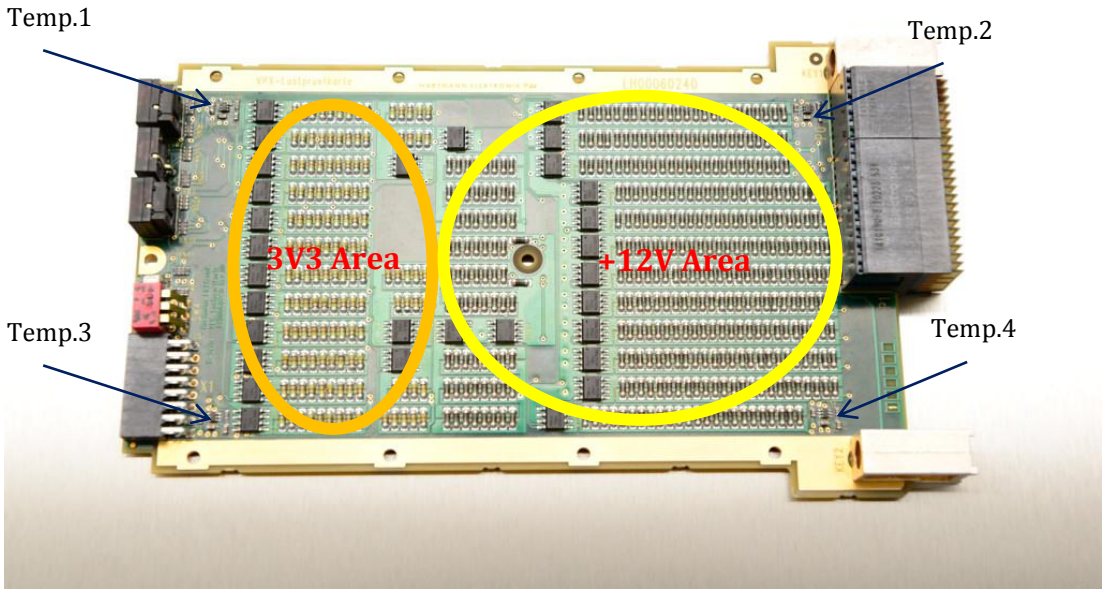

Figure 4, Primary side of Load board

On the secondary side, we have the +5V Area and all Area of AUX-Voltages.

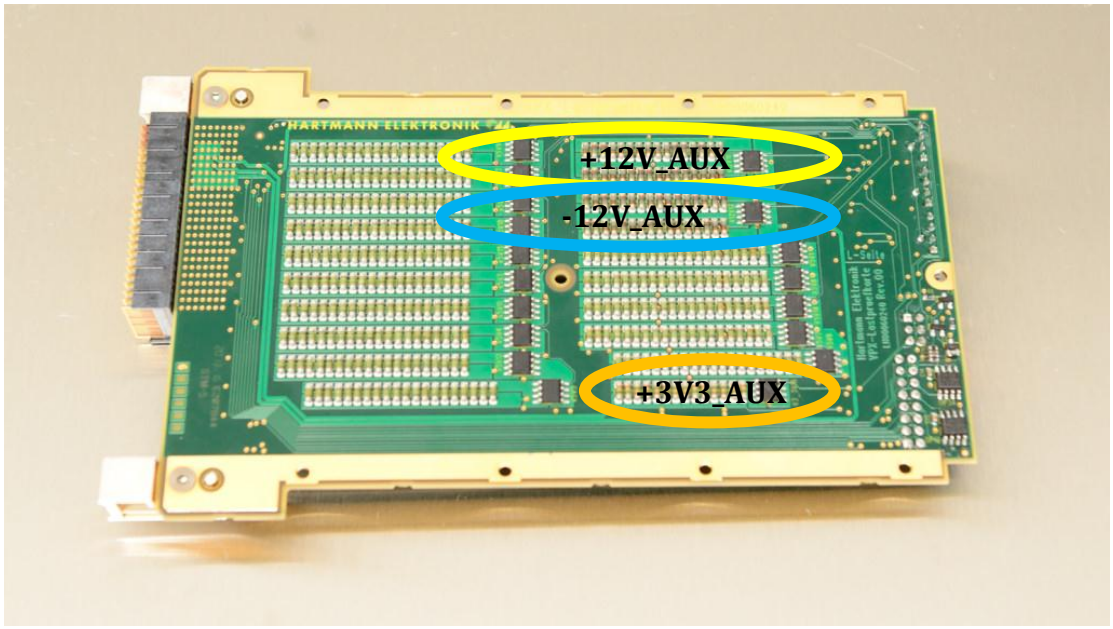

Figure 5, Secondary side of Load board

3 Signal description and pinout of P0 and P1 connectors

The incoming voltage levels for the voltages +5V, +12V, +3V3, +12 V-AUX, -12 V-AUX and +3V3-AUX can be measured at measuring points close to the plugs P0 and P1. These measuring points are run via the plug X1 (on the front plate).

Pin	P0- Connector VPX Card						
	ROW A	ROW B	ROW C	ROW D	ROW E	ROW F	ROW G
1	VS2	VS2	VS2	NC	VS1	VS1	VS1
2	VS2	VS2	VS2	NC	VS1	VS1	VS1
3	VS3	VS3	VS3	NC	VS3	VS3	VS3
4	NC	NC	GND	-12VAUX	GND	NC	NC
5	NC	NC	GND	+3V3AUX	GND	NC	NC
6	NC	NC	GND	+12VAUX	GND	NC	NC
7	NC	NC	GND	NC	NC	GND	NC
8	GND	NC	NC	GND	NC	NC	GND

Figure 6, Pin assignments connector P0

VS1= +12V, VS2= +3V3, VS3=+5V, NC= not connected.

Pin	P1- Connector VPX Card						
	ROW A	ROW B	ROW C	ROW D	ROW E	ROW F	ROW G
1	NC	NC	GND	NC	NC	GND	NC
2	GND	NC	NC	GND	NC	NC	GND
3	NC	NC	GND	NC	NC	GND	NC
4	GND	NC	NC	GND	NC	NC	GND
5	NC	NC	GND	NC	NC	GND	NC
6	GND	NC	NC	GND	NC	NC	GND
7	NC	NC	GND	NC	NC	GND	NC
8	GND	NC	NC	GND	NC	NC	GND
9	NC	NC	GND	NC	NC	GND	NC
10	GND	NC	NC	GND	NC	NC	GND
11	NC	NC	GND	NC	NC	GND	NC
12	GND	NC	NC	GND	NC	NC	GND
13	NC	NC	GND	NC	NC	GND	NC
14	GND	NC	NC	GND	NC	NC	GND
15	NC	NC	GND	NC	NC	GND	NC
16	GND	NC	NC	GND	NC	NC	GND

Figure 7, Pin assignments connector P1