4P20 PC/104-PLUS POE POWER SUPPLY

1.0

This page intentionally not blank

Table of Contents

GENERAL

DESCRIPTION

The 4P20 is a Power-Over -Ethernet power supply that allows remote operation of low power PC/104-PLUS stacks. The 4P20 provides a feed-through POE tap so that the remote system can get power and Ethernet communication from a single CAT5 cable up to 100 meters long. The 4P20 supplies 5V and limited amounts of +- 12V power to the stack. +-12 Volt outputs can be disabled if not required.

An auxiliary power input can be used if POE is not available, or for battery backup / failover type applications. Output power is isolated from POE and AUX power. Power connectors compatible with pluggable screw terminals are provided for the AUX and +5V power. +5V and +- 12V are wired to the PC/104 and PC/104 PCI connectors.

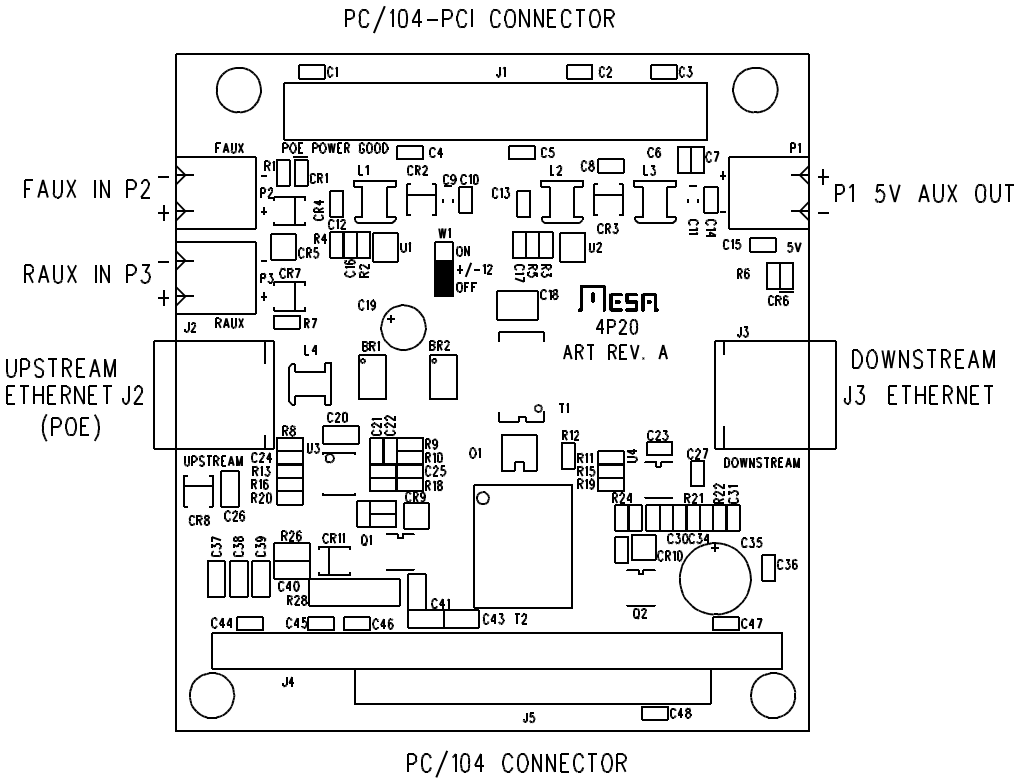
HARDWARE CONFIGURATION

+/-12V DISABLE

The 4P20 only has one hardware option, + /-12V disable. This option is set by th e position of jumper W1. When W1 is in the up position (towards the PCI connector), the +12V and -12V power supplies are enabled. When W1 is in the down position (towards the PC/104 connector), the +12 and -12V power supplies are disabled.

CONNECTORS

CONNECTOR LOCATIONS AND DEFAULT JUMPER POSITIONS



CONNECTORS

ETHERNET CONNECTORS

J2 and J3 are the 4P20's feedthrough Ethernet connectors. J2 is the upstream connector that connects to a POE enabled HUB. J3 is the downstream connector that connects (usually via a short patch cable) to the PC104-PLUS CPU's Ethernet port.

5V AUX OUT

P1 is an alternate connection to the 4P20's 5V output. It can be used as a convenient power tap for non-PC/104-plus devices.

P1 PINOUT

PIN1	5V
PIN2	GROUND

FAUX IN

If POE power is not available, the FAUX input allows the 4P20 to be powered from an external source. The FAUX input share the same current limiting as the POE input. This limits the lowest voltage the 4P20 will operate with full power out. The FAUX input can range from +36 to +60 VDC.

P2 PINOUT

PIN1	+36 to +60 VDC
PIN2	INPUT COMMON

RAUX IN

Like the FAUX input, the RAUX input allows the 4P20 to be powered from an external source. Unlike the FAUX input, the RAUX input does not have an input current limit and therefore has a larger input volatge range. The RAUX input can range from +18 to +60 VDC.

PIN1	+18 to +60 VDC
PIN2	INPUT COMMON

CONNECTORS

PC/104 CONNECTORS

The 4P20 connects its GND,5V,+12V and -12V outputs to the standard PC/104, PC104-PLUS power pins so that the stack can be powered without additional cables

J1 CONNECTOR PINOUT (PC/104-PLUS CONNECTOR)

GND = A5,A10,A14,A20,A24,A28,B3,B9,B13,B18,B23

GND = C4,C7,C12,C16,C22,C26,D5,D11,D15,D20,D25,D27

+5V = A22,A26,B21,B27,C1,C24,C28,D2

+12V = A29

-12V = A30

J4 CONNECTOR PINOUT (PC/104 8 BIT CONNECTOR)

GND = B1,B31,B32

+5V = B3,B29

+12V = B9

-12V = B7

J5 CONNECTOR PINOUT (PC/104 16 BIT EXTENSION)

GND = C0,D0

OPERATION

POE OPERATION

Power over Ethernet is a system that allows low powered remote devices to get power over standard Ethernet wiring. The 4P20 is a POE tap for low power PC/104 and PC/104-PLUS systems. The 4P20 supplies 11W total of 5V and +- 12V power. This power is electrically isolated from the power delivered via the Ethernet wiring.

Normally, the 4P20 is put in series with the Ethernet wiring coming from a POE capable hub and the remote system, with the 4P20s UPSTREAM connector (J2) connected to the hub, and the DOWNSTREAM connector (J3) connected with a short CAT5 patch cable to the CPU or other remote PC/104 card.

AUXILIARY INPUT OPERATION

In addition to running from a POE source, the 4P20 can function as an isolated power supply for a PC/104 stack with and external 18 to 60V power source. If an external source is supplied to the RAUX input, it has dominance over the POE input, shutting down the POE input and using the RAUX input exclusively as the power source. This allows dual sources to coexist, for example battery and POE. Note that the 4P20 can seamlessly shift from POE power to RAUX power, but the reverse is not true, as the POE system takes time to go through its detection, classification, and startup phases, when it starts to power a load.

REFERENCE

SPECIFICATIONS

POWER	**MIN**	**MAX**	**NOTES**:
5V OUTPUT VOLTAGE	4.75V	5.25V	
5V OUTPUT CURRENT	---	2A	1
+12V OUTPUT VOLTAGE	11.7V	12.3V	
+12V OUTPUT CURRENT	---	200 mA	1
-12V OUTPUT VOLTAGE	-11.7V	-12.3V	
-12V OUTPUT CURRENT	---	100 mA	1
ISOLATION VOLTAGE	---	500 VDC	2

NOTE 1: Total output power not to exceed 11W with POE, 13W with RAUX or FAUX inputs

NOTE 2: Isolation between input and output, that is POE,RAUX,FAUX and 5V,+/-12