

Features and Benefits

PTC04 interface board for testing devices

90215
90224
90244
90251
90277
90280

Applications

Experimental tool for Lab and Prototyping
Production Equipment for Serial Programming

Ordering Information

Part No.	Description
PTC04-DBHall	Default Daughter Board (Board + rear panel PTC04)

1. Accessories

Part No.	Description
DLL's for all supported products	
User Inter Faces for supported products	

2. Functional Diagram

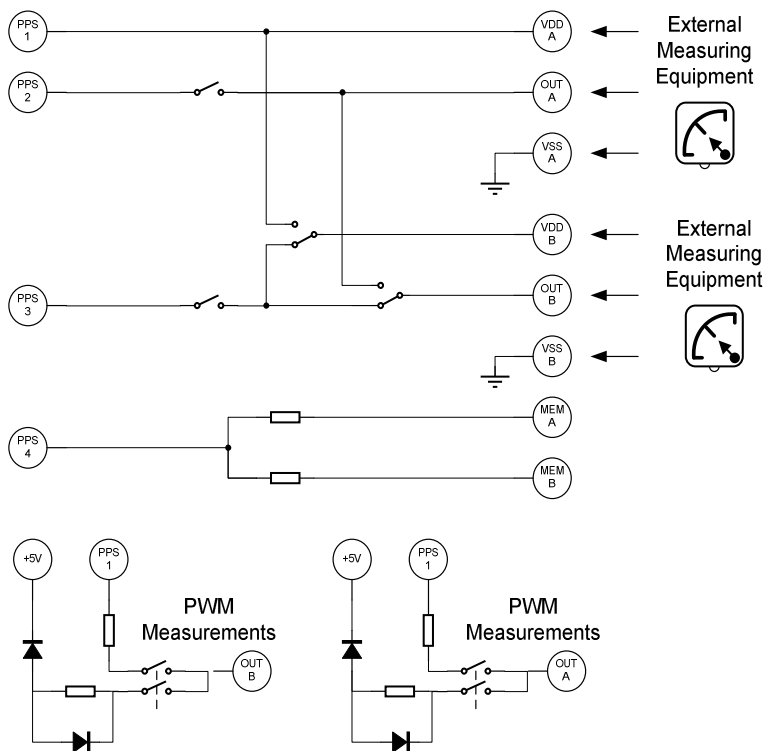


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3. Board description

3.1. Board Layout

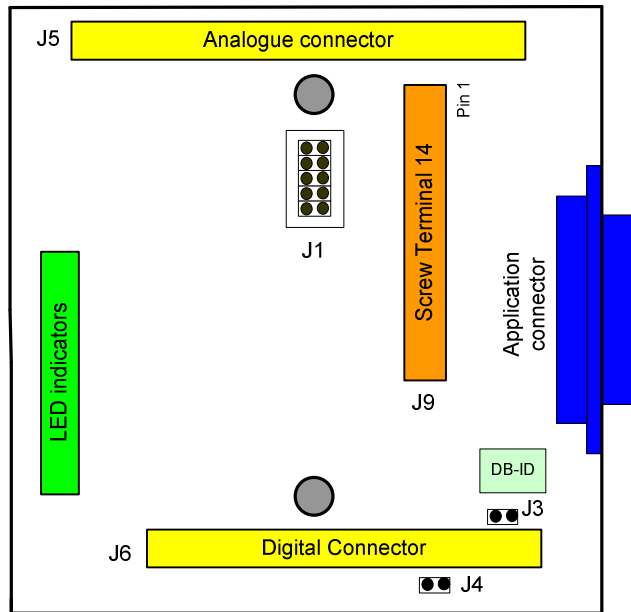
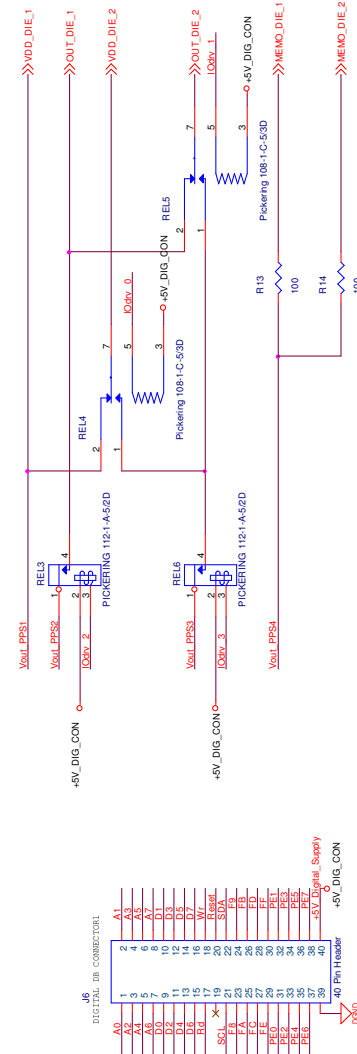


Figure 3-1

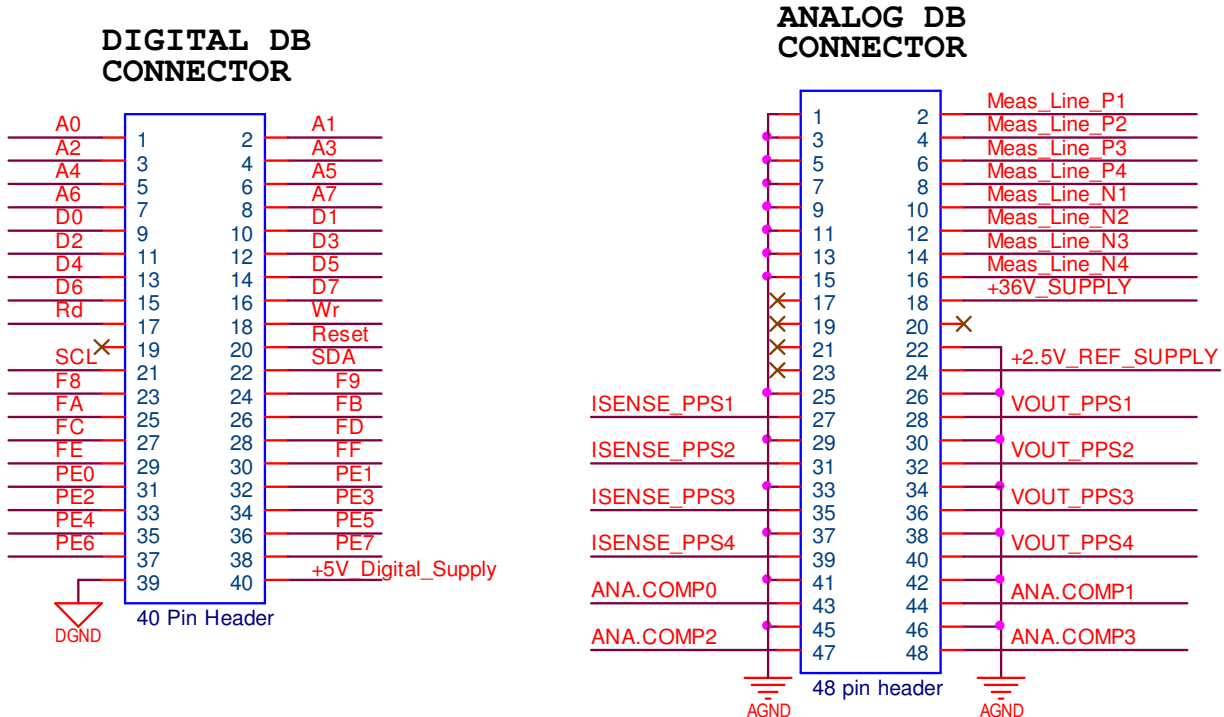
- J1: Jumpers to connect the measurement sensing lines immediately to the force lines. These jumpers are needed when no force and sense is used.
- J3 and J4: These jumpers are future expansions in order to support PWM output measurements and are not needed for testing the 90251 or the 90277.
- DB-ID: This ID keeps a few initial variables in mind. It allows for example to detect what DB is connected to the programmer and if the DB is not expired.
- J5 and J6: these are the Analog and Digital connectors. See below for a detailed description.
- Application Connector: Connection to the application. See below for details
- J9: 14 pins screw terminal. It provides the same signals as the application connector.



	Size	Project : 9027790251-902441902415		Rev
	A3	Schematic : PTCAD.D97.HALL101		2.0
Drawn by	Modified by	Checked by	Released by	

3.3. Daughter board Connectors

The main board has two connectors to the interface with the application. The PTC allows adding a full PCB in between. This daughter board can be mounted on the two connectors. In some exceptional cases, a daughter board contains only a few wires from the Analog connector to the application connector. The pins on of the connectors are described below.



3.3.1. Digital DB Connector (40 Pins)

Mainly, the digital connector is meant to expand the programmer to extra needs. Address lines A0-A7 together with the Map Select Lines F8-FF allows to direct access an area of 2 K. Examples would be adding a simple addressed I/O register by using the selection lines. If more complexity is needed, a full FPGA can be mounted on the DB board

Pins	Names	Description
1 – 8	A0 – A7	Address lines
9 – 16	D0 – D7	Data Lines active during Rd or Wr signals
17	Rd	Read: A negative pulse will indicate a sampling of the data on the Data Bus
18	Wr	Write: A Negative pulse will indicate when data is available on the Data Bus
20	Reset	This signal goes low by powering the PTC or by pressing the reset button. This line can be pulled low by application. Check firmware documentation for resetting by software.
21-22	SCL / SDA	I2c Bus
23-30	F8,F9,...,FF	CS lines when the address areas are accessed
31-38	Port E	Note: These pins are limited to 5 Volt input/output!!!! The full Port E of the Atmega core is mounted to these pins. This allows us to use advanced features like PWM, UARTS, Time Measurements, etc.... By using firmware that supports these, functions, application specific requirements can be fulfilled.
39	Dgnd	Digital Ground
40	+5V Digital	5 Volt Digital Supply. Maximum current to get out of this supply: 250mA

Note: All the pins are limited to 5 Volt input/output!!!! However, there are Protections, please take precautions in order to avoid damage of the main board.

3.3.2. Analog DB Connector (48 Pins)

Mainly, the analog connector provides all the analog signals and measure possibilities.

Pins	Names	Description
28,32,36	PPS 1-3	Output of the Programmable Supplies
40	PPS 4	Output of the Fast DAC Programmable Power Supply
27,31,35,39	Isense_PP1-4	Outputs (Driver outputs before Rsens) for current evaluations. These outputs could be used to connect to the analog comparators in order to create fast digital signals based on current.
2,4,6,8	ExtMeas1-4Pos	There are 4 differential inputs for making measurements
10,12,14,16	ExtMeas1_4Neg	The negative inputs of ExtMeas1-4Pos
17,19,21,23	Shtd_PPS1-4	Outputs that shows the status of the Drivers. Signals are meant to connect LED's to put the front panel
43,44,47,48	AnaComp0-3	Input (limited to 5V) See *Note. Fast Level comparators in order to remove time consuming measurement
18	+35V_Supply	Supply to extend the daughter board with some extra drivers
24	+2.5V Ref	Output of internal reference
All other	AGND	Analog Ground

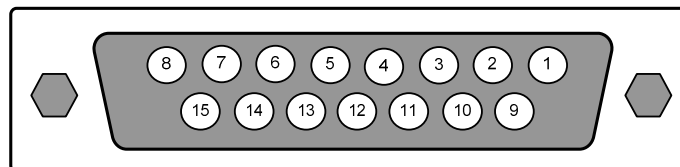
Note: All the pins are limited to 35 Volt input/output!!!! However, there are Protections, please take precautions in order to avoid damage of the main board.

* Note: Some pins are protected and limited to 5 Volt!!!! However, there are Protections, please take precautions in order to avoid damage of the main board.

3.4. Application Connector

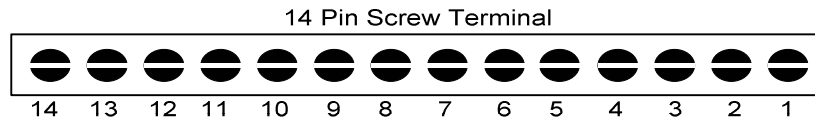
3.4.1. DB15

DB15 Female Connector



Pins	Names	Description
1	VDD A	Supply Device A
2	MEMO A	
3	VSS A	Analog Ground Device A
4	OUT A	Output Device A
5	VDD B	Supply Device B
6	MEMO B	
7	VSS B	Analog Ground Device B
8	OUT B	Output Device B
9	SENSING VDD A	Sensing Supply Device A
10	SENSING VSS A	Sensing Analog Ground A
11	SENSING OUT A	Sensing Output
12	NC	Not Connected
13	SENSING VDD B	Sensing Supply Device B
14	SENSING VSS B	Sensing Analog Ground B
15	SENSING OUT B	Sensing Output Device B

3.4.2. 14 Pins Screw Terminal



Pins	Names	Description
1	VDD A	Supply Device A
2	SENSING VDD A	Sensing Supply Device A
3	MEMO A	
4	SENSING VSS A	Sensing Analog Ground A
5	VSS A	Analog Ground Device A
6	SENSING OUT A	Sensing Output
7	OUT A	Output Device A
8	VDD B	Supply Device B
9	SENSING VDD B	Sensing Supply Device B
10	MEMO B	
11	SENSING VSS B	Sensing Analog Ground B
12	VSS B	Analog Ground Device B
13	SENSING OUT B	Sensing Output Device B
14	OUT B	Output Device B

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