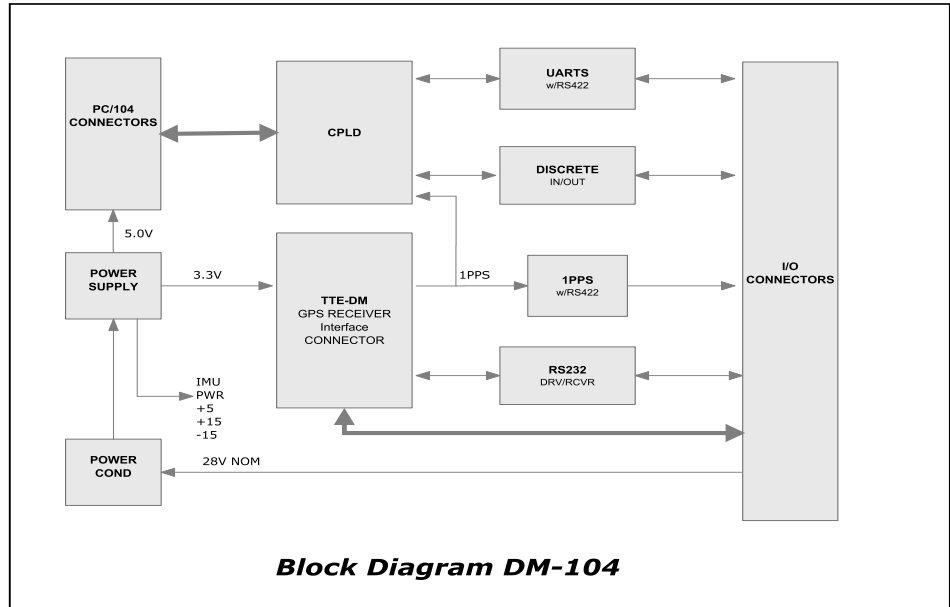


*The DM-104 is a carrier board that provides an attachment for a GPS receiver.*

**FEATURES:**

- PC104 interface
- I/O connections for 4 COM ports (RS422)
- I/O connections for 4 discretes (input/output)
- Interfaces to an IMU appropriate for the GPS receiver
- Interfaces to GPS receiver - Interstate Electronics TruTrak™ Dual Frequency MCM (TTE-DM)
- PCB fabrication per IPC 6012B Class 3/A
- PCB inspection per IPC-A-600
- Board Assy per IPC-A-610 Class 3



Ruggedized boards are constructed using 8-layers and are approximately 90 mils thick.

I/O connectors use locking mating connectors.

Board starts a PC/104 stack and includes a built in +5V stack Power Supply. Stack power for +/- 12V is not included.



Top View



Bottom View



# DM-104

Operating Temperature  $-40^{\circ}$  to  $+85^{\circ}\text{C}$

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## Product Specification

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## INPUT/OUTPUT PIN ASSIGNMENTS

Pin Number	Description
J1-1	IMU_DATA_IN(+)
J1-2	+15V
J1-3	IMU_DATA_IN(-)
J1-4	GROUND
J1-5	IMU_CLK_OUT(+)
J1-6	-15V
J1-7	IMU_CLK_OUT(-)
J1-8	GROUND
J1-9	GROUND
J1-10	+5.0V

Pin Number	Description
J6-1	COM1_RXD(+)
J6-2	COM1_TXD(+)
J6-3	COM1_RXD(-)
J6-4	COM1_TXD(-)
J6-5	GROUND
J6-6	GROUND
J6-7	COM2_RXD(+)
J6-8	COM2_TXD(+)
J6-9	COM2_RXD(-)
J6-10	COM2_TXD(-)
J6-11	COM3_RXD(+)
J6-12	COM3_TXD(+)
J6-13	COM3_RXD(-)
J6-14	COM3_TXD(-)
J6-15	GROUND
J6-16	GROUND
J6-17	COM4_RXD(+)
J6-18	COM4_TXD(+)
J6-19	COM4_RXD(-)
J6-20	COM4_TXD(-)

Pin Number	Description	
J3-1	XDO1	Discrete Out 1
J3-2	XDO2	Discrete Out 2
J3-3	1PPS(+)	RS422 - One Pulse per Second POS
J3-4	1PPS(-)	RS422 - One Pulse per Second NEG
J3-5	XDO3	Discrete Out 3
J3-6	XDO4	Discrete Out 4
J3-7	XDIN1	Discrete In 1
J3-8	XDIN2	Discrete In 2
J3-9	XDIN3	Discrete In 3
J3-10	XDIN4	Discrete In 4
J3-11	GROUND	
J3-12	ZEROIZE	Buffered ZEROIZE Signal to TTE-DM
J3-13	DM_20	HVSI_IN(+) USER port 1
J3-14	DM_22	HVSI_OUT(+) USER port 1
J3-15	DM_24	HVSI_IN(+) USER port 2
J3-16	DM_19	GPS RESET
J3-17	DM_21	HVSI_IN(-) USER port 1
J3-18	DM_23	HVSI_OUT(-) USER port 1
J3-19	DM_25	HVSI_IN(-) USER port 2
J3-20	DM_27	HVSI_OUT(-) USER port 2
J3-21	DM_29	HVSI_IN(-) USER port 3
J3-22	DM_31	HVSI_OUT(-) USER port 3
J3-23	DM_33	HVSI_IN(-) USER port 4
J3-24	DM_101	GPIO_18
J3-25	DM_103	GPIO_20
J3-26	DM_102	GPIO_19
J3-27	DM_104	GPIO_21
J3-28	DM_35	HVSI_OUT(-) USER port 4
J3-29	DM_16	RS232 SIC_IN Nav port 4
J3-30	DM_15	RS232 SIC_OUT Nav port 4
J3-31	DM_28	HVSI_IN(+) USER port 3
J3-32	DM_26	HVSI_OUT(+) USER port 2
J3-33	DM_32	HVSI_IN(+) Nav port 4
J3-34	DM_30	HVSI_OUT(+) USER port 3
J3-35	DS101	DTD_RX IN (RS232)
J3-36	DM_34	HVSI_OUT(+) USER port 4
J3-37	DS101	DTD_FCO OUT (RS232)
J3-38	DS101	KDP_PROGRAM
J3-39	DS101	DTD_TX OUT (RS232)
J3-40	DS101	DTD_FCI IN (RS232)

Pin Number	Description
J5-1	+28VDC
J5-2	GROUND
J5-3	+28VDC
J5-4	GROUND
J5-5	+28VDC
J5-6	GROUND

Input voltage range for the +28VDC input is 14 to 40VDC.

The internal Power Supply provides approximately 7.7 Watts of PC/104 stack power over the Operating Temp range with no heat sink (based on 11 °C per watt ambient to case). The power supply will continue to operate at temperatures up to 100 °C. The maximum stack power achievable is 50 Watts (25W for the +5V channel and 25W for the +/- 15V channel using an external heat sink ( 2 °C per watt).



# DM-104

Operating Temperature  $-40^{\circ}$  to  $+85^{\circ}$ C

## Product Specification

### Feature Descriptions

- Discrete Inputs/Outputs
- Four contact closure discrete inputs.
- Four open drain N-Channel MOSFET discrete outputs rated at 40V. Maximum current is 2 amps.
- Four RS422 COM ports and an associated EXAR XR16C854 UART. Transmit and receive 128 byte FIFOs. Data rates to 460800 BAUD.
- Interrupt generation from the GPS 1PPS, with an external RS422 1PPS output.
- RS232 Drivers and Receivers for the GPS receiver COM port.
- Docking connector and built in power supply for an Interstate Electronics TTE-DM GPS receiver. The TTE-DM is not supplied with the DM-104. It must be purchased separately.
- Polarity reversal protection for the +14VDC to +40 VDC power input. Common mode power input noise filter with surge protection.
- Address and Interrupt assignments can be tailored to customer specs
- Designed and manufactured to IPC class 3 standards.
- Rugged 90 MIL thick circuit board.
- Conformal coating option.

### Ordering Information

Model MCI2009002 RevA  
or  
Model MCI2009002 RevA/C for conformal coating