Instrumentation Grade Performance
24-Bit ADC For PC/104
MPC624

Features

✓ 24-bit $\Delta\Sigma$ A/D converter

✓ Multi-channel with single cycle settling

✓ Fault protection on analog/digital

✓ Direct connect to sensors

✓ Input range ±10.1Vdc or ±1.01Vdc

✓ Selectable Z_{in} per channel

✓ Opto isolated digital I/O

✓ Excitation supply CC/CV

✓ Onboard temperature sensor

✓ Extended temperature range available

The MPC624 PC/104 expansion board offers two measurement functions for the A/D user: voltage measurements with instrumentation grade accuracy, and direct connection to sensors. When mounted in a PC/104 stack, the MPC624 provides voltage readings with instrumentation grade accuracy up to 6.5 digits. Screw terminals allow the board to connect directly to all common sensors without any external signal conditioning. For sensors that require excitation, the board provides constant current (CC) and constant voltage (CV) through a matrix of jumpers to all channels.

Whether the application is for the measurement of voltage from scientific instrumentation or sensors, the user connects into a 5-pin screw terminal, which provides measurement, shielding and excitation sourcing.

With an external shunt connected to the screw terminals, the MPC624 can measure all fundamental electrical parameters: voltage, current, and resistance. The MPC624 can also measure four onboard parameters: secondary reference, temperature, excitation current, and power supplies.
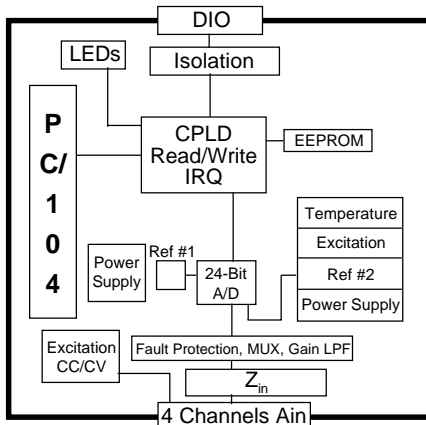
Software Support

Example code for all functions
C-code/Mathcad™ for advanced algorithms
RUN.EXE, GSDOS, MSDOS, Windows98/CE/NTe, Linux, VxWorks®

Compatible Hardware

Any Micro/sys CPU with PC/104 expansion connector
[See Section 1]

Mounting/Packaging

PC/104 standard

Micro/sys 3730 Park Place, Montrose, CA 91020 (818)244-4600 Fax (818)244-4246
email: info@embeddedsys.com

Specifications:

Mechanical:
- ❑ PC/104 standard
- ❑ 3.55" (plus I/O region) x 3.775"

Power Requirements and switching:
- ❑ +5v ±5% 120mA typical, 300mA max

Environmental:
- ❑ 0° - +70°C operating
- ❑ -40 - +85°C operating, -ET version
- ❑ 5%-95% relative humidity, non-condensing

Excitation Source:
- ❑ Jumpers set board to CC or CV
- ❑ CC (1, 4, or 18mAdc) with Vdc limit
- ❑ CV (5, 6, or 9Vdc) with mAdc limit

PC/104 Interface:
- ❑ 8-bit transfers
- ❑ IRQ 2-7 supported
- ❑ IRQ 10,11,12,14,15 supported if optional 16-bit connector installed

Isolated Digital I/O:
- ❑ 2 D_{OUT}, r_{ON} 10Ω, sink 200mA @ $250V_{PK}$
- ❑ 2 D_{IN}, source 3 – 32Vdc, 16mA Max
- ❑ Any/all inputs can generate an IRQ
- ❑ Read-back function on outputs
- ❑ 8 user LEDs

Analog Inputs:
- ❑ 4 differential channels total, with selectable Z_{IN} of 10k, 100k, or 10^{11} Ω
- ❑ Input range of ±10.1V, ±1.01V with ±40V fault protection and CM/DM filters
- ❑ Noise level on 1V range @ 6.875Hz: 1.2uVrms, 20.7-bits, .6ppm
- ❑ Noise level on 10V range @ 6.875Hz: 5.2uVrms, 21.9-bits, .26ppm
- ❑ SFDR @ 6.875Hz: -130dB
- ❑ Long term stability @ 6.9Hz ±3ppm
- ❑ TC: uncompensated <10ppm/°C, software/ temp compensated <1ppm/°C
- ❑ CMRR: -95dB
- ❑ 50/60Hz rejection: -80dB
- ❑ Channel to channel cross-talk: -145dB
- ❑ 10 conversion speeds (6.875Hz to 3.52Khz) with accuracy/speed trade-off
- ❑ Monitoring of onboard secondary reference for system integrity check
- ❑ Onboard temp sensor for calibration and thermocouple "CJ" compensation
- ❑ Monitoring of onboard excitation current
- ❑ Monitoring of onboard power supplies

External Connections:
- ❑ 5-pin screw terminal per analog input
- ❑ 5-pin screw terminal for isolated I/O

Ordering Information:

MPC624	24-bit, 2-channel analog input
MPC624-ET	24-bit, 2-channel analog input, extended temperature operation
624OPT11	2 additional analog channels
624OPT21	Isolated I/O, 2in/2out
624OPT90	Excitation CC/CV
MPCOPT16ST	16-bit PC/104 stackthrough connector

Add -ET to option for extended temp operation

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