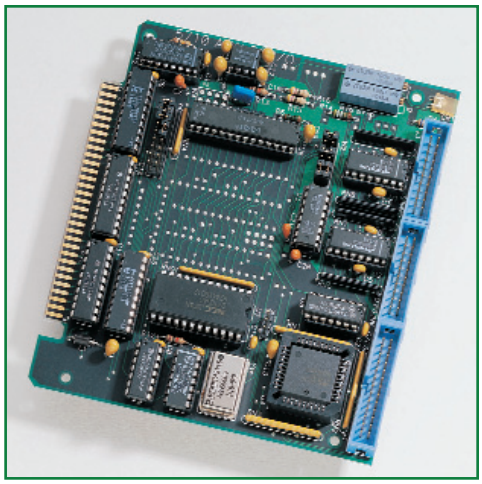
OCTAGON SYSTEMS
• 6510 W. 91st Ave • Westminster CO 80031 • USA
* PH: 303-430-1500 * FAX 303-412-2050

- Embedded rugged computers
- –40° to 85° C
- Embedded operating systems
- COTS—high reliability

Analog input & digital expansion card for Micro PC

The 5710 card provides a versatile platform for mixed analog/digital environments. With 16 analog input channels and 19 digital I/O channels, it can monitor and control a wide variety of conditions simultaneously. Two D/A output channels control the most sensitive equipment.

The analog input channels provide 12–bit resolution for up to 70,000 samples per second. Adjustable full–scale readings allow measurements from ±50 mV to ±5V, on a per–channel basis. The analog output also has adjustable ranges, from –5V to +10V. Strict isolation ensures that spurious noise does not interfere with the signals. 19 TTL digital I/O lines complete the package of I/O in this compact card.



Octagon products are designed and manufactured under the supervision of an ISO 9001–2000 certified quality management system.

An 82C54 counter timer chip provides six modes of counter/timer operation. An example of one of these modes is autoconvert, which is a method of starting a conversion at a regular interval. The control program must read the data after the conversion is complete and change channels if necessary. CTC0 and CTC1 are used to generate a timed interval for the autoconvert feature. CTC0 divides a 4 MHz oscillator output. The divide ratio and countdown function are software programmable and must be initialized by the control program.

Micro PC cards plug into any ISA expansion slot or Micro PC card cage. The Octagon family of Micro PC controllers, expansion cards, and card cages provide a complete solution for applications in transportation, security, military, communications, distributed control, point–of–sale, ticketing machines, weighing equipment, and other similar applications.

The 5710 will withstand high shock and vibration, and operates in temperature ranges from –40° to +85° C. This rugged expansion card will provide years of reliable service in the most challenging environments.

Features

Card overview:

- 16 analog input channels
- Two analog output channels
- 19 digital I/O channels
- 16–bit general purpose counter/timer
- LED indicates card access for troubleshooting

6510 W. 91st Avenue • Westminster CO 80031 • 303–430–1500
www.octagonsystems.com

Analog Inputs:

- 16 single–ended or eight differential channels, jumper selectable
- 13–bit (12–bit plus sign) resolution
- Conversion rate is 70,000 samples per second
- 32–bit autoconversion timer
- Programmable gain amplifier can be applied individually to each channel, providing full–scale readings of ±50 mV to ±5V
- Overload protection up to ±16V
- Input impedance for any channel is more than 1 MΩ

Analog Outputs:

- Two 12–bit D/A outputs
- Output range of 0–5V, 0–10V, or ±5V, jumper selectable
- Maximum output current 5 mA
- Switch resistance 3Ω maximum
- Each output isolated from each other & the system

Digital I/O:

- Eight channels, configured as inputs or outputs
- Eight channels, configured as inputs or outputs in groups of four
- Three dedicated output channels
- TTL levels
- All lines pulled up with 10K resistors
- Sink and source 2.5 mA

16–bit Counter/Timer:

- Completely software configurable
- 10 MHz bandwidth
- 6 operational modes
- 4 MHz internal timebase
- External digital clock input
- External digital gate input
- External digital output
- Counts in binary or BCD

Base Address:

- Jumper–selectable base addresses of 100h, 110h, 120h, 130h, 140h, 150h, 160h, or 170h

Interrupts:

- Jumper–selectable interrupt generated at end of D/A conversion
- Choice of IRQ2, 3, 4, 5, 6, or 7

Connectors:

- Two 20–pin connectors for analog inputs. Two analog outputs also included on one connector. Mates with STB–20 terminal board
- 26–pin connector for digital I/O. Mates with STB–26 terminal board

6510 W. 91st Avenue • Westminster CO 80031 • 303–430–1500
www.octagonsystems.com

Environmental & power:

- –40° to 85° C operating
- –50° to 90° C nonoperating
- 5% to 95%, RH, noncondensing)
- 40g shock, 5g vibration, 3 axis
- Size: 4.5" x 4.9", Micro PC form factor
- Power: 5V at 50 mA (typical), ±12V at 20 mA

Ordering information

#3181 5710 analog & digital I/O card

Typical Configurations

Several terminal boards are available for a 5710 analog I/O expansion card. The 5B analog module rack is an industry–standard rack with the capability of measuring thermocouples, strain gauges, voltage, and currents with up to 1500V of isolation. You can also control current output with a 5B module.

The ATB–20 analog terminal board provides a connection for field wiring. You can use 12 to 22 gauge solid or stranded wire to connect equipment to the screw terminals. The screw terminals bring the lines from the 5710 card out to the terminal board. Connection from the 5710 to the ATB–20 is one to one.

For applications requiring medium voltage inputs or outputs, the ITB–8/16 or ITB–16/8 level conversion board provides a medium–voltage, high–current interface. Medium–voltage logic, up to 28V, is used to convert these voltage levels to TTL levels used by the 5710. You can connect lamps, small solenoids and relays.

An STB–20 or STB–26 is a terminal board for the digital I/O lines. When heavy–duty loads and inputs (up to 3A and 260V AC or DC) are required, the 5710 digital I/O lines can interface with the MPB series opto module racks. The opto modules have the advantage of providing 4000V of isolation between the high–voltage systems and the 5710.

6510 W. 91st Avenue • Westminster CO 80031 • 303–430–1500
www.octagonsystems.com