

Introducing the CIO-DAS08/JR

Overview: CIO-DAS08/JR features

The CIO-DAS08/JR provides eight channels of 12-bit analog input at a fixed $\pm 5V$ range.

The board also provides eight digital inputs and eight digital outputs for sensing and controlling digital devices. The digital bits are port-addressable, and are dedicated to either input or output. All digital bits are TTL level.

The CIO-DAS08/JR can be upgraded to a CIO-DAS08/JR-AO by purchasing and installing the CIO-DUAL-DAC.

Software features

For information on the features of *InstaCal* and the other software included with your CIO-DAS08/JR, refer to the *Quick Start Guide* that shipped with your device.

Installing the CIO-DAS08/JR

What comes with your CIO-DAS08/JR shipment?

The following items are shipped with the CIO-DAS08/JR.

Hardware

- CIO-DAS08/JR



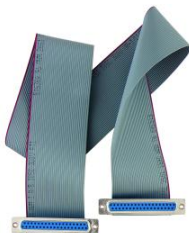
Additional documentation

In addition to this hardware user's guide, you should also receive the *Quick Start Guide* (available in PDF at www.mccdaq.com/PDFmanuals/DAQ-Software-Quick-Start.pdf). This booklet supplies a brief description of the software you received with your CIO-DAS08/JR and information regarding installation of that software. Please read this booklet completely before installing any software or hardware.

Optional components

You can also order the following MCC product to use with your CIO-DAS08/JR.

- C37FF-x cable



- Signal termination and conditioning accessories
MCC provides signal conditioning and termination products for use with the CIO-DAS08/JR. Refer to [Field wiring, signal termination, and conditioning](#) on page 11 for a list of compatible accessory products.

Unpacking the CIO-DAS08/JR

As with any electronic device, you should take care while handling to avoid damage from static electricity. Before removing the CIO-DAS08/JR from its packaging, ground yourself using a wrist strap or by simply touching the computer chassis or other grounded object to eliminate any stored static charge.

If any components are missing or damaged, notify Measurement Computing Corporation immediately by phone, fax, or e-mail:

- Phone: 508-946-5100 and follow the instructions for reaching Tech Support.
- Fax: 508-946-9500 to the attention of Tech Support
- Email: techsupport@mccdaq.com

Installing the software

Refer to the *Quick Start Guide* for instructions on installing the software on the *Measurement Computing Data Acquisition Software CD*. This booklet is available in PDF at www.mccdaq.com/PDFmanuals/DAQ-Software-Quick-Start.pdf.

Configuring the CIO-DAS08/JR

Before you install the CIO-DAS08/JR in your computer, you must set the base address by using the dip switch labeled **ADDRESS** located on the board. By default, this address is set to 300 h (768 decimal). The easiest way to set the base address switch is to let *InstaCal* show you the correct settings. However, if are already familiar with setting ISA base addresses, you may use the base address switch description below to guide your base address selection. The example shown in Figure 1 shows the settings for the factory-default base address of 300 hex.

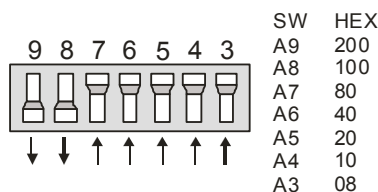


Figure 1. Base address switches

The address logic works by adding up the weights of individual switches to make up a base address. In the default configuration shown in Figure 1, addresses 9 and 8 are DOWN, and all others are UP. Address 9 = 200 hex (512 decimal) and address 8 = 100 hex (256 decimal); when added together they equal 300 hex (768 decimal).

Disregard the numbers printed on the switch

When setting the base address, refer to the numbers printed in white on the printed circuit board.

PC I/O addresses

Hex Range	Function	Hex Range	Function
000-00F	8237 DMA #1	2C0-2CF	EGA
020-021	8259 PIC#1	2D0-2DF	EGA
040-043	8253 Timer	2E0-2E7	GPIB (AT)
060-063	8255 PPI (XT)	2E8-2EF	Serial Port
060-064	8742 Controller (AT)	2F8-2FF	Serial Port
070-071	CMOS RAM & NMI mask (AT)	300-30F	Prototype card

Hex Range	Function	Hex Range	Function
080-08F	DMA page registers	310-31F	Prototype card
0A0-0A1	8259 PIC #2 (AT)	320-32F	Hard disk (XT)
0A0-0AF	NMI mask (XT)	378-37F	Parallel printer
0C0-0DF	8237 #2 (AT)	380-38F	SDLC
0F0-0FF	80287 numeric CO-P (AT)	3A0-3AF	SDLC
1F0-1FF	Hard disk (AT)	3B0-3BB	MDA
200-20F	Game control	3BC-3BB	Parallel printer
210-21F	Expansion unit (XT)	3C0-3CF	EGA
238-23B	Bus mouse	3D0-3DF	CGA
23C-23F	ALT bus mouse	3E8-3EF	Serial port
270-27F	Parallel printer	3F0-3F7	Floppy disk
2B0-2BF	EGA	3F8-3FF	Serial port

Installing the CIO-DAS08/JR

After you configure the board's switches and jumpers, you can install the CIO-DAS08/JR into your computer. To install your board, follow the steps below.

Install the MCC DAQ software before you install your board

The driver needed to run your board is installed with the MCC DAQ software. Therefore, you need to install the MCC DAQ software before you install your board. Refer to the *Quick Start Guide* for instructions on installing the software.

1. Turn your computer off, open it up, and insert your board into an available ISA slot.
2. Close your computer and turn it on.
3. To test your installation and configure your board, run the *InstaCal* utility you installed in the previous section. Refer to the *Quick Start Guide* that came with your board www.mccdaq.com/PDFmanuals/DAQ-Software-Quick-Start.pdf for information on how to initially set up and load *InstaCal*.

Connecting the board for I/O operations

Connectors, cables – main I/O connector

The table below lists the board connector, applicable cables, and compatible accessory products.

Board connector, cables, and accessory equipment

Connector type	37-pin D type connector
Compatible cable	C37FF-x DFCON-37 (mating connector)
Compatible accessory products with the C37FF-x cable	CIO-MINI37 CIO-LAB8-TERM

Information on signal connections

General information regarding signal connection and configuration is available in the *Guide to Signal Connections* (available at www.mccdaq.com/signals/signals.pdf).

Pinout – main I/O connector

The CIO-DAS08/JR I/O connector is a standard 37-pin male D connector that is accessible from the rear of the computer through the expansion backplate.

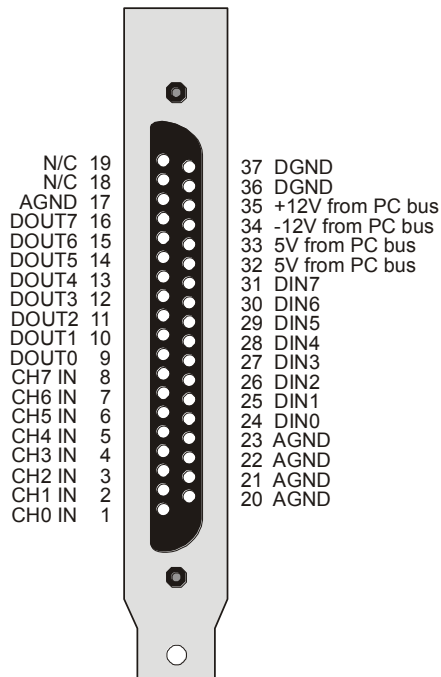


Figure 2. CIO-DAS08/JR pin-out

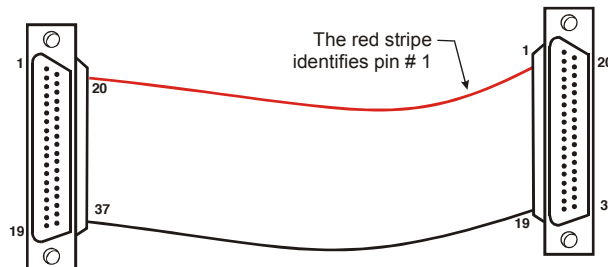


Figure 3. C37FF-x cable

Field wiring, signal termination, and conditioning

You can use the following cabling, screw termination, and signal conditioning products with the CIO-DAS08/JR.

- CIO-MINI37 – 37-pin screw terminal board. Details are available at www.mccdaq.com/products/screw_terminal_bnc.aspx
- DFCON37 – Connector kit that includes a 37-pin female D-connector, D-shell, 37 crimp pins, and cable termination kit to construct your own cable. Details are available at www.mccdaq.com/daq-accessory/DFCON-37.aspx
- CIO-LAB8-TERM – Experimentors Laboratory Screw Terminal Board for the DAS08 series.

Optional analog output capability

- You can add analog output capability to the CIO-DAS08/JR with the CIO-DUAL-DAC upgrade kit. This kit includes a two channel D/A AD7237 chip that when installed add two analog outputs to the board.
- To install, insert the AD7237 chip into the socket labeled U13. Align the notch or dimple indicating pin 1 on the chip with the notch in the white silkscreen outline printed on the board at the U13 position. Details on the CIO-DUAL-DAC kit are available on our web site at www.mccdaq.com/isa-data-acquisition/CIO-DUAL-DAC.aspx.

Calibrating the CIO-DAS08/JR

You can quickly calibrate the CIO-DAS08/JR using *InstaCal*. The CIO-DAS08/JR has a fixed input range and does not have any input amplification or gain/offset compensation electronics. When using the optional Universal Library, all compensation for gain/offset errors is done in software after the signal is acquired. The gain and offset calibration factors are stored in the CB.CFG configuration file and applied to the analog samples after they are acquired.

Run the **Calibrate** option from *InstaCal* to set the calibration factors.