

IOC8800 LOW COST DIN-RAIL MOUNTED IOC 2 SITE Industry Pack® CARRIER



Product Description

The Newwood Solutions Ltd IOC8800 uses the wide range of Industry Packs available and the power of a small single board processor running Linux (or other operating system) which delivers a compact DIN rail mounting IOC solution.

The IOC8800 also comes complete with space for our 9000 series range of signal conditioning cards (Optical isolation, analogue filtering etc) and our plug-in DC/DC converter cards for plant isolation. The IOC8800 connects to plant wiring through 50-way SCSI II connector so that inexpensive, commercially available cables can be used with Newwood's range of DIN Rail Terminal Boards. These allow options such as screw terminals, single ended or differential Lemo, BNC etc.

Main Features:

- Cost Effective All-in-One IOC solution with flexible I/O options via IP cards
- Compact Alternative to VME, cPCI, PXIe
- Large range of ADC, DAC, DIO, RS232, Scaler Industry Pack cards available
- Low cost 'BeagleBone Black' Single-Board Computer
- DC/DC converter slots to power optical isolation
- Signal Conditioning Boards for digital isolation and analogue filtering
- Mix and Match I/O types
- External triggers for synchronisation and control of modules
- Status Leds for DC power and thermal fuses status
- Ethernet 10/100 Mbps
- Free Software downloads and support for Linux, EPICS, Windows.

Processor

The IOC8800 uses the 'BeagleBone Black' Single Board Computer (SBC) this has 1Ghz ARM A8 processor with 512MB DDR3 800MHz ram, 4GB eMMC flash, micro SD card slot, 10/100 Ethernet, 2xUSB, HDMI graphics and 2x 200MHz PRU 32-bit microcontrollers.

FPGA Interface

The logic on the IOC8800 consists of an FPGA which interfaces the Single Board Computer such as the Beaglebone Black (BBB) to the Industry Packs.

The IP clocks can run at 8MHz or 32MHz and can be individually set per IP card in the main FPGA using registers.

Led indicators on the board show when the IP cards are addressed by the Single Board Computer. There are 3 buffered digital inputs (TTL, LTTL compatible) to the IOC8800 which can be used for synchronisation and control of the IP modules.

Newwood Solutions Ltd keeps the right to change technical specification without further notice. All trademarks mentioned are property of their respective owners. Issue 1.0 08-01-2019





Industry Packs

All Industry Pack card conform to an open specification which defines their key characteristics and ensuring compatibility between suppliers.

On the IOC8800 each Industry Pack has provision for a plug-in Signal Conditioning Board which allows for signal conditioning and plant isolation to be added. We have chosen the 50-way SCSI II connector so that inexpensive, commercially available cables can be used with Newwood Solutions's range of DIN Rail Terminal Boards for connection to plant wiring.

EPICS, Linux component device drivers are available from Hytec for our range of IP cards. These drivers scan the IP slots to determine the current I/O and will auto configure the IP cards allowing the systems to be operational quickly.

Newwood's Range of Industry Pack Cards

| Cat No | Name | Description |
|--------|-------------|--|
| 8701 | IP-ADC-8701 | 8/16 channel 16 bit ADC with programmable gain ranges 200KHz sample rate |
| 8702 | IP-DAC-8702 | 16 channel 16 bit DAC O/P with function generator memory 64KHz sample rate |
| 8715 | IP-DAC-8715 | 16 channel 18 bit DAC with programmable gain ranges 64KHz sample rate |
| 8417 | IP-ADC-8717 | 8 channel 24 bit ADC Simultaneous ADC with memory |
| 8424 | IP-ADC-8724 | 4 channel 16 bit ADC 1MHz sample rate |
| 8600 | IP-SMC-8600 | User programmable (FPGA Xilinx) 48 bit buffered I/O |
| 8602 | IP-SMC-8602 | 4 channel Stepper Motor Controller |
| 8606 | IP-DIO-8606 | 48 bit Digital I/O—6 x 8 bits each bank selectable |
| 8512 | IP-DIO-8612 | 16 channel Scaler 32-bit 18MHz |
| 8613 | IP-DIO-8613 | 4 Channel Quadrature Encoder |
| 8622 | IP-DIO-8622 | 16 channel Histogramming latched Multichannel Scaler 32-bit 50MHz |
| 8623 | IP-DIO-8623 | Programmable Clock Generator |
| 8515 | IP-SI-8515 | 8 Channel RS-232 UART with 64 character buffer |
| 8516 | IP-SI-8516 | 8 Channel RS-485 / RS-424 UART with 64 character buffer |

Signal Conditioning Boards

The IOC uses the 9000 series range of mini plug-in I/O Signal Conditioning Boards, they route all I/O signals via the PCB mounted high density 50-way SCSI-2 sockets to the industry packs.

| SCB Module | Description |
|------------|---|
| 9202 | 16 pairs of jumper selectable analogue cut off filter |
| 9301 | 16 optically isolated digital inputs and strobes. Use with 8606 |
| 9303 | 16 optically isolated digital outputs and strobes. Use with 8606 |
| 9304 | Straight through card. No conditioning |
| 9305 | 8 optically isolated inputs and 8 optically isolated outputs. Use with 8606 |
| 9307 | 32 optically isolated inputs for use with 8005 VME64x I/O card |
| 9308 | 32 optically isolated outputs for use with 8005 VME64x I/O card |

Power Supplies and Indicators

The unit requires 5V only to operate. The +/-12v if required can be supplied from an external power supply or from the optional plug-in 5V to +/-12V DC/DC converters which also allows for plant side to be isolated.

Led lamps are used to show when board is powered and if any of the thermal fuses have tripped.

DIN Rail Mounted PCB Support

The compact PCB mounting profile provides a modular approach and enables the user to tailor the system to their requirements.

The width of the system is based on the 108mm compact PCB mounting for DIN Rail.

Newwood Solutions Ltd keeps the right to change technical specification without further notice. All trademarks mentioned are property of their respective owners. Issue 1.0 08-01-2019

