Datasheet **M40**

High Density Device Interface

Features

- High capacity, high resolution and speed in a compact and cost-effective package.
- Eight analog outputs, eight analog inputs, eight digital outputs, eight digital inputs
- Permits simple interfacing of existing devices to a fast fiber-optic communication loop.
- Can be mounted on or close to the device being controlled
- Very low transition transient on analog output DACs, for compatibility with wideband power supplies.
- Buffer memory for custom waveform generation and data capture applications.

Applications

- Remote control of power supplies and similar devices over fiber-optic.
- Waveform generation for scanned or swept devices.
- Fast data burst capture to internal memory.
- Control of devices across high voltage barriers.
- Connection of multiple devices to a PC host via fiber optic loop controllers. Each device independently addressable.
- Fully automated systems operating in electrically noisy environments.
- Addition of high-performance remote control to existing systems.

Specifications

Analog outputs	Number of independent outputs	8
	Configuration	Single-ended
	Output voltage range	-10 V to + 10 V
	Output current compliance	+/-5 mA via built-in 100R series in output
	Resolution over full voltage span	16 bit
	Linearity max deviation over span	<0.1% of full scale any point to linear fit
	Noise	< 0.5 mV RMS with line frequency averaging
	Crosstalk	< 1 mV for 10 V output on another channel
	Thermal stability	< 200 µV C-1
	Slewing rate	0.6 V µsec-1 typical
	Maximum output refresh rate	100 kHz (internal wavetable driven) 10 kHz (host controlled via fiber optic interface, special host software)

Specifications (continued)

Analog inputs	Number of independent inputs	8
	Configuration	Single-ended high impedance
	Input voltage range	-10 V to +10 V
	Analog filtering	2-pole low pass, 10 kHz (-3dB)
	Linearity max deviation over span	< 0.1% of full scale any point to linear fit
	Noise	< 0.5 mV RMS with line frequency averaging
	Crosstalk	< 1 mV with 10 VDC on another input < 30 mV with 10 VAC 1 MHz on another input
	Resolution over full voltage span	16 bit
	Conversion rate	250 kHz maximum
	Digital filtering	Configurable block averaging, 1 second maximum.
	Calibration	Independent gain and offset for each channel
Digital outputs	Number of independent outputs	8
	Voltage level	TTL
	Maximum current drive capability	3 mA per channel source or sink
	Output impedance	100 ohm
	Minimum output pulse length	15 nsec
Digital inputs	Number of independent inputs	8
	Voltage level	TTL
	Configuration	Active low, internal 47 kohm pullup to +5 V

Power input	+24V (+/- 2V) DC, 500mA maximum, excluding 24V power supplied to external devices (limited to 500 mA).
Controls	16 position rotary switch for address selection
Displays	Status LEDs (power, processor status, comms status)
Case material	Stainless steel sheet.
Weight	0.28kg (0.62 lb)
Operating environment	10 to 35C, < 80% humidity, non-condensing, vibration < 0.2g all axes, 1 to 100 Hz
Storage environment	0 to 50C, < 80% humidity, non-condensing, vibration < 2g all axes, 1 to 100 Hz

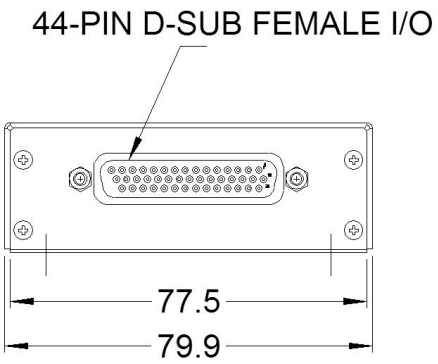
Interfacing and control

Interfaces	Fiber-optic loop, 10 Mbit/sec serial binary.
Data rate	Typical read/write rate >= 1 kHz, depending upon loop configuration. Rate to A500 host memory (special applications) up to 10kHz.
	Fibre-optic loop to host system interfacing available using Ethernet loop controllers: A360 (single loop interfaces) A500, A560 (multiple-loop real-time controllers)
Host computer	Diagnostic host program provided for Windows PC. IG2 interface provides interface to EPICS and EPICS clients including Labview™, Python, C#, C++.

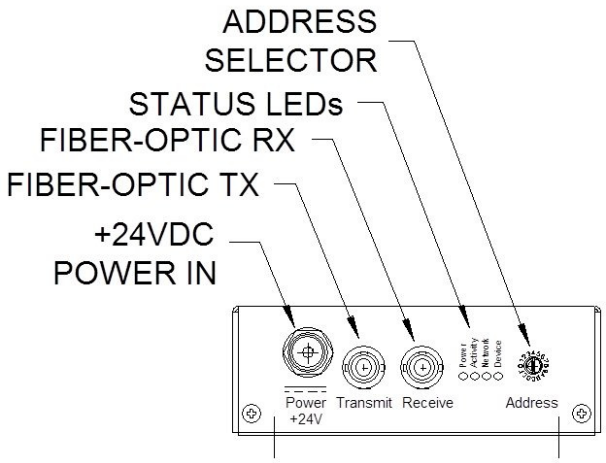
Connectors

Fiber optics	Two 1mm Avago ST bayonet, compatible with 1 mm plastic fiber or 200 µm silica fiber. ^40 nm (red) light.
Power in	2.1mm threaded jack. Mates with Switchcraft S761K or equivalent.
Signal	44 way DSub female

1	Analog In 07	16	Analog In 08	31	Shield
2	Analog In 05	17	Analog In 06	32	PS Gnd
3	Analog In 03	18	Analog In 04	33	+24 VDC out
4	Analog In 01	19	Analog In 02	34	Digital In 01
5	Gnd	20	Digital In 02	35	Digital In 03
6	Gnd	21	Digital In 04	36	Digital In 05
7	Gnd	22	Digital In 06	37	Digital In 07
8	Gnd	23	Digital In 08	38	Digital Out 01
9	Gnd	24	Digital Out 02	39	Digital Out 03
10	Gnd	25	Digital Out 04	40	Digital Out 05
11	Gnd	26	Digital Out 06	41	Digital Out 07
12	Analog Out 07	27	Analog Out 08	42	Digital Out 08
13	Analog Out 05	28	Analog Out 06	43	Gnd
14	Analog Out 03	29	Analog Out 04	44	+5 VDC out
15	Analog Out 01	30	Analog Out 02		

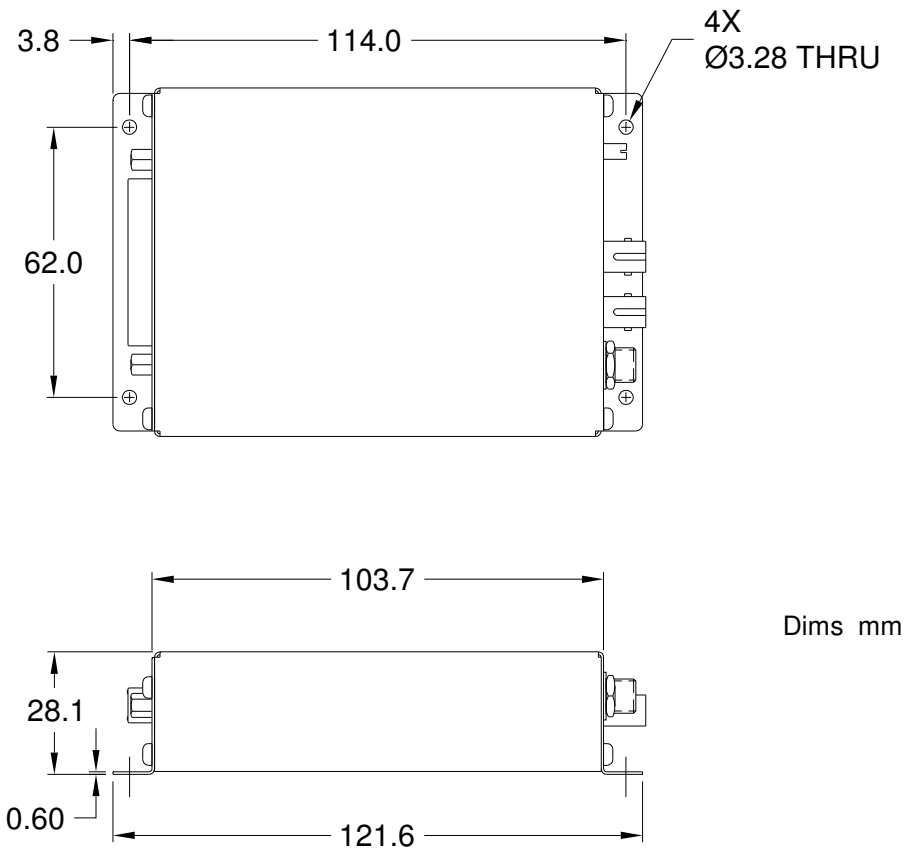


Dims mm



Ordering information

M40	M40 device with eight voltage analog outputs, eight analog inputs, eight digital inputs and eight digital outputs. Including PTC Diagnostic host software.
- NOCASE	M40 supplied as an uncased PCB



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