

Universal Device Interface with 20 mA Current Loop Output



Features

- High resolution and speed in a compact and cost-effective package.
- Permits simple interfacing of existing devices to a fast fiber-optic communication loop.
- Can be mounted on or close to the device being controlled
- Up to sixteen devices can be connected on a single fiber-optic loop
- Very low transition transient on analog output DACs, for compatibility with wide-band power supplies.
- High-speed digital pulse output capability.

Applications

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

Specifications

Analog output (voltage)	Number of independent outputs	1
	Output voltage range	-10 V to + 10 V
	Output current compliance	+/- 5 mA
	Resolution over full voltage span.	16 bit
	Linearity max deviation over span	<0.1%
Analog output (current)	Number of independent outputs	1
	Output current range	0.0 to 20.0 mA
	Output voltage compliance	+/- 10 V
	Resolution over full current span.	16 bit
	Linearity max deviation over span	<0.1%



Specifications (continued)

Analog input	Number of independent inputs Configuration Input voltage range Input impedance Common mode rejection	2 Differential -10 V to +10 V (software configurable to +/- 5V, 0 to +5V, or 0 to +10V) 10 kohm 80 dB
Digital output	Number of independent outputs Voltage level Maximum current drive capability Output impedance Minimum output pulse length	4 TTL 24 mA 100 ohm 15 nsec
Digital input	Number of independent inputs Voltage level Configuration Input impedance	4 TTL Active low, internal 10 kohm pul- lup to +5 V 10 kohm
Pulse train (available on all digital outputs)	Pulse length Frequency Number of pulses	12.5 nsec to 440 usec 2.3 kHz to 40 MHz 1 to 65535

Power input	+24V (+/- 2V) DC, 500mA maximum
Controls	16 position rotary switch for address selection
Displays	Status LEDs (power, processor status, comms status)
Case material	Stainless steel sheet.
Weight	0.24kg (0.55 lb)
Operating environment	10 to 35C, < 80% humidity, non-condensing, vibration < 0.2g all axes, 1 to 1000Hz
Storage environment	0 to 50C, < 80% humidity, non-condensing, vibration < 2g all axes, 1 to 1000Hz



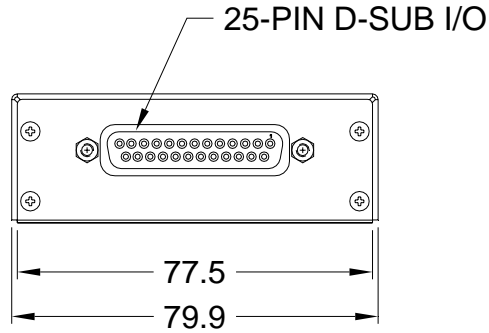
Interfacing and control

Interfaces	Fiber-optic loop, 9600 to 10 Mbit/sec serial, 8 or 9 bit asynchronous binary.
Data rate	Typical read/write rate ≥ 1 kHz, depending upon loop configuration. Rate to A500 host memory (special applications) ≥ 10 kHz.
	Fibre-optic loop to host system interfacing available using loop controllers: A100 (RS-232), A200 (USB), A300 (Ethernet), A500 (Real-time controller)
Host computer	Diagnostic host program provided for PC. Embedded software DLLs available for Microsoft® .NET, Labview and C++.

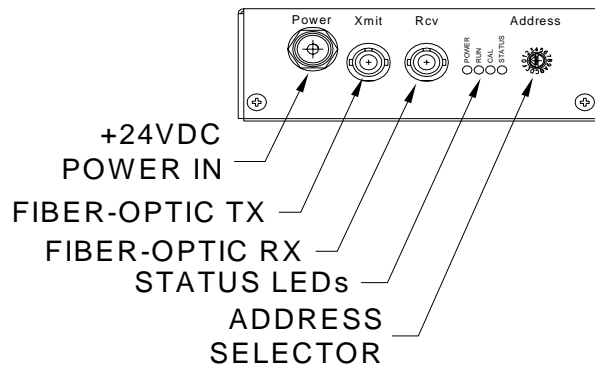
Connectors

Fiber optics	Two 1mm Avago ST bayonet, compatible with 1 mm plastic fiber or 200 um silica fiber																																																				
Power in	2.1mm threaded jack. Mates with Switchcraft S761K or equivalent.																																																				
Signal	25 way DSub female <table border="1" style="margin-left: 40px;"> <tr> <td>1</td> <td>PSU 0V in</td> <td>14</td> <td>+24V DC in</td> </tr> <tr> <td>2</td> <td>Shield (M10 case)</td> <td>15</td> <td>Analog ground</td> </tr> <tr> <td>3</td> <td>Analog In 1 +</td> <td>16</td> <td>Analog In 1 -</td> </tr> <tr> <td>4</td> <td>Digital out 1</td> <td>17</td> <td>Digital out 2</td> </tr> <tr> <td>5</td> <td>Analog In 2 +</td> <td>18</td> <td>Analog In 2 -</td> </tr> <tr> <td>6</td> <td>Analog ground</td> <td>19</td> <td>Analog out 1</td> </tr> <tr> <td>7</td> <td>Analog ground</td> <td>20</td> <td>Analog out 2 (0—20 mA)</td> </tr> <tr> <td>8</td> <td>Analog ground</td> <td>21</td> <td>+5V digital out</td> </tr> <tr> <td>9</td> <td>Digital ground</td> <td>22</td> <td>Digital out 3</td> </tr> <tr> <td>10</td> <td>Digital out 4</td> <td>23</td> <td>Digital ground</td> </tr> <tr> <td>11</td> <td>Digital In 4</td> <td>24</td> <td>Digital In 3</td> </tr> <tr> <td>12</td> <td>Digital In 2</td> <td>25</td> <td>Digital In 1</td> </tr> <tr> <td>13</td> <td>Digital ground</td> <td></td> <td></td> </tr> </table>	1	PSU 0V in	14	+24V DC in	2	Shield (M10 case)	15	Analog ground	3	Analog In 1 +	16	Analog In 1 -	4	Digital out 1	17	Digital out 2	5	Analog In 2 +	18	Analog In 2 -	6	Analog ground	19	Analog out 1	7	Analog ground	20	Analog out 2 (0—20 mA)	8	Analog ground	21	+5V digital out	9	Digital ground	22	Digital out 3	10	Digital out 4	23	Digital ground	11	Digital In 4	24	Digital In 3	12	Digital In 2	25	Digital In 1	13	Digital ground		
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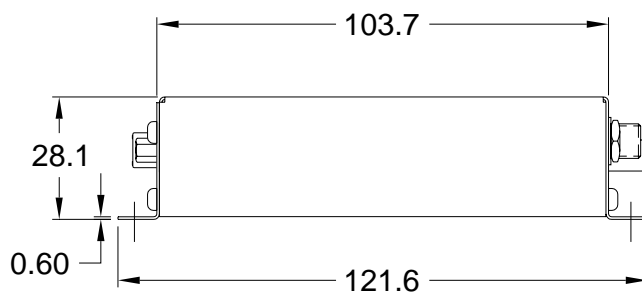
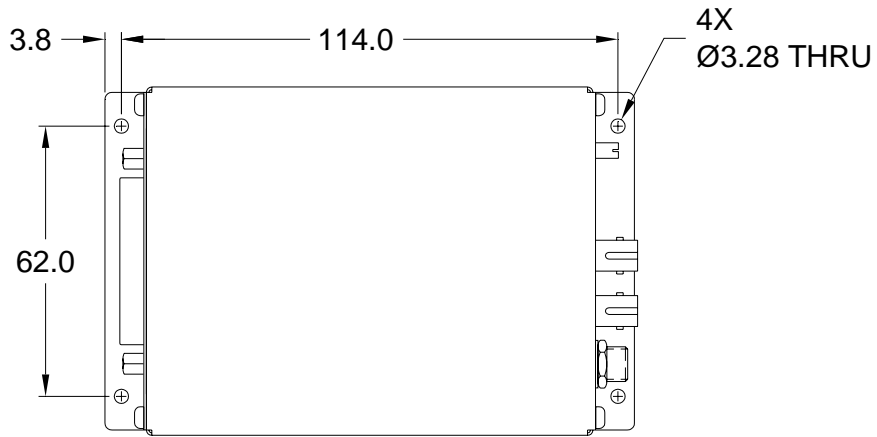
Dims mm



Ordering information

M10	M10 device with two voltage analog outputs, two analog inputs, four digital inputs and four digital outputs. Including PTCDiagnostic host software
	See separate data sheet.
M10-C	M10 device with one 0-20 mA current output, one voltage analog output, two analog inputs, four digital inputs and four digital outputs. Including PTCDiagnostic host software





Dims mm

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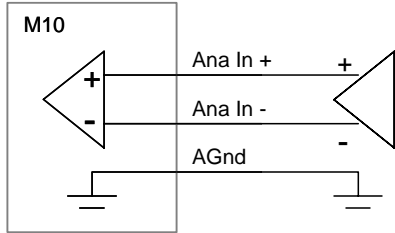
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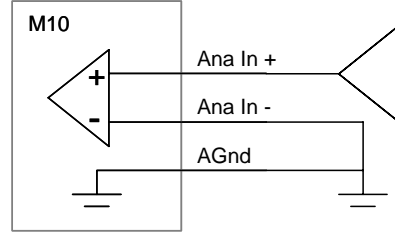


Recommended Connection Arrangements

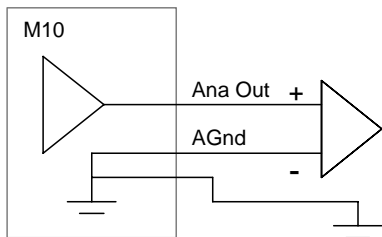
Analog input : differential source



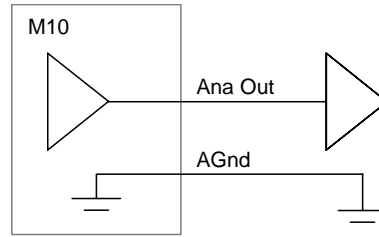
Analog input : single-ended source



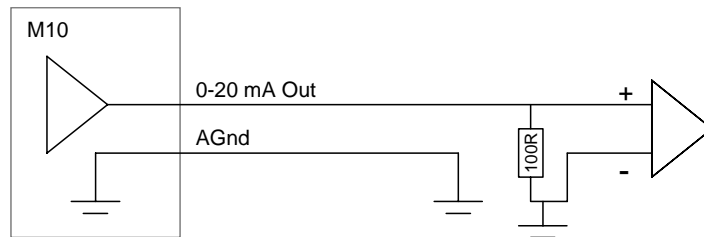
Analog output : differential destination



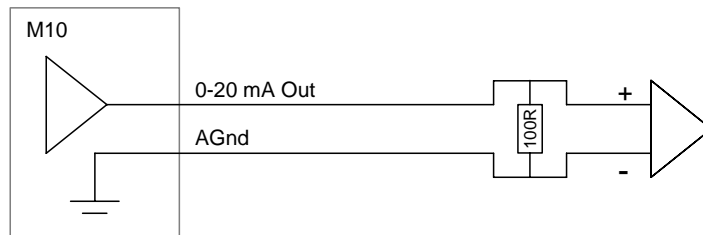
Analog output : single-ended destination



Analog output (0 –20 mA current) : single-ended destination



Analog output (0 –20 mA current) : differential destination

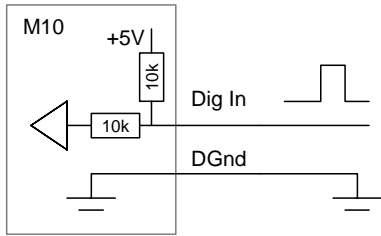


Choose terminating resistor according to required voltage at receiver:

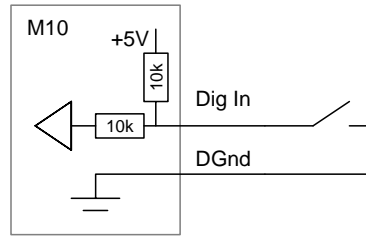
50 ohm	0.0 to +1.0 V
100 ohm	0.0 to +2.0 V
500 ohm	0.0 to +5.0 V
1 kohm	0.0 to + 10.0V



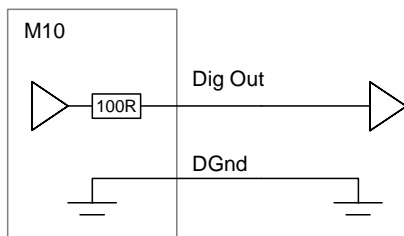
Digital input : TTL input



Digital input : volts-free contact



Digital output : TTL load



Digital output : optoisolator

