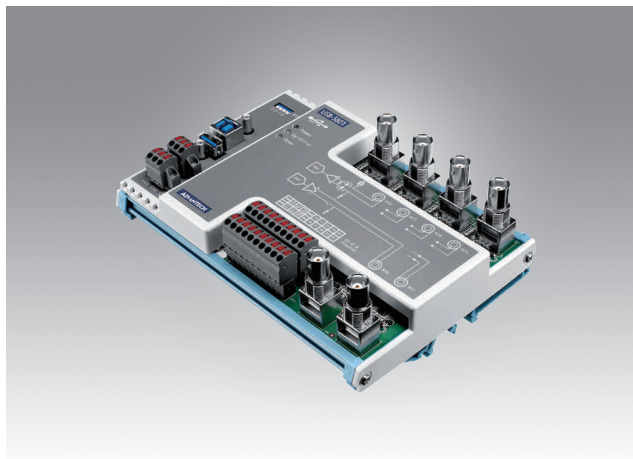


USB-5801

4-ch, 24-bit, 192 kS/s Dynamic Signal Acquisition USB 3.0 I/O Module with Analog Output and Tachometer



Features

- USB 3.0 SuperSpeed and daisy chainable by built-in USB hub
- 4 simultaneously sampled analog inputs, up to 192 kS/s
- 24-bit resolution ADCs with -95 dB total harmonic distortion plus noise (THD+N)
- Built-in anti-aliasing filter
- 2 mA integrated electronic piezoelectric (IEPE) excitation currents
- 2 analog outputs with update rate up to 192 kS/s
- 24-bit resolution DACs with -91 dB total harmonic distortion plus noise (THD+N)
- 2 tachometer inputs for period or frequency measurement
- 4-ch isolated digital input and 4-ch isolated digital output

Introduction

USB-5801 is a high accuracy dynamic signal acquisition USB 3.0 module specifically designed for vibration and acoustic measurements. It provides four simultaneously sampled, 24-bit, IEPE sensor inputs with up to 192 kS/s sample rate for high resolution measurements. It is also equipped with two 24-bit analog outputs with up to 192 kS/s update rate. In addition, it has two tachometer inputs whose data can be correlated to the sensor data. The built-in USB hub makes this module daisy chainable with other USB-5000 series products.

Specifications

Analog Input

- **Channels** 4 (simultaneous sampling, 50 Ω pseudo-differential configurable)
- **Resolution** 24 bits (delta-sigma ADC)
- **Max. Sampling Rate** 1 ~ 192 kS/s
- **Input Coupling** AC/DC, selectable per channel
- **Trigger Modes** Start, Delayed Start, Stop, Delayed Stop
- **Input Range** ± 1 V, ± 2 V, ± 5 V, ± 10 V
- **Offset Error** $< \pm 0.2$ mV
- **Gain Error** $< \pm 0.02\%$ of full-scale range
- **Total Harmonic Distortion Plus Noise (THD+N)** -95 dB
- **IEPE Excitation** 2 mA

Analog Output

- **Channels** 2 (50 Ω pseudo differential)
- **Resolution** 24 bits (delta-sigma DAC)
- **Update rate** 1 ~ 192 kS/s
- **Output coupling** DC
- **Output range** ± 1 V, ± 10 V
- **Offset error** $< \pm 0.5$ mV
- **Gain error** $< \pm 0.03\%$ of full-scale range
- **Total harmonic distortion plus noise (THD+N)** -91 dB
- **Trigger mode** Start, delay to start, stop, delay to stop
- **Auto calibration** Yes

Tachometer Input

- **Channels** 2
- **Input voltage** Logic 0: 3 V max.
Logic 1: 10 V min. (30 V max.)
- **Input frequency** 5 kHz max.
- **Isolation protection** 2,500 V_{DC}
- **Digital Filter** 16 μ s ~ 131 ms

Digital Input

- **Channels** 4
- **Input voltage** Logic 0: 3 V max.
Logic 1: 10 V min. (30 V max.)
- **Opto-isolator response time** 100 μ s
- **Isolation protection** 2,500 V_{DC}
- **Digital Filter** 16 μ s ~ 131 ms

Digital Output

- **Channels** 4
- **Load voltage** 5 ~ 40 V_{DC}
- **Load current** 350 mA/ch (sink)
- **Opto-isolator response time** 100 μ s
- **Isolation protection** 2,500 V_{DC}

General

- **Interface** USB 3.0
- **Data transfer rate** 5 Gbps
- **Connectors** 6 x BNC (AI and AO)
2 x 10-pin, 3.81-mm terminal blocks (tachometer, trigger, and DI/O)
2 x 3-pin, 3.81-mm terminal blocks (power)
1 x USB 3.0 type A (downstream port)
1 x USB 3.0 type B (upstream port)
- **Dimensions** 168 mm x 120 mm x 40 mm (6.6" x 4.7" x 1.6")
- **Operating temperature** 0 ~ 60 °C (32 ~ 140 °F)
- **Storage temperature** -40 ~ 70 °C (-40 ~ 158 °F)
- **Storage humidity** 5 ~ 95% RH (non-condensing)
- **Power supply** External 10 ~ 30 V_{DC} or USB bus power
- **Power consumption** 150 mA typ./200 mA max. @24 V external power
700 mA typ./860 mA max. @5 V bus power

Ordering Information

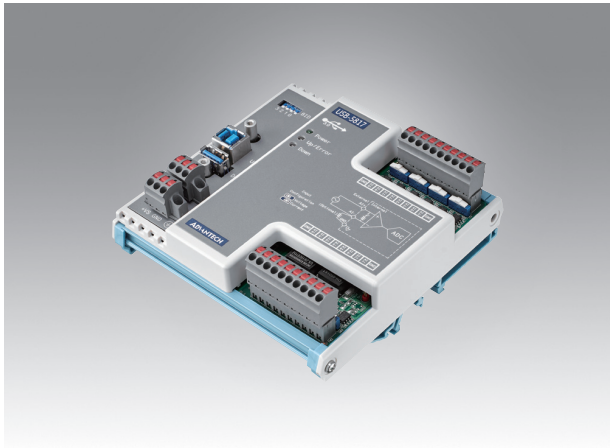
- **USB-5801-AE** 4-ch, 24-bit, 192 kS/s Dynamic Signal Acquisition USB 3.0 I/O Module with Analog Output and Tachometer
- **96PSD-A40W24-MM** DIN RAIL A/D 100-240V 40W 24V

USB-5817

USB-5820

8-ch, 16-bit, 200 kS/s Isolated Analog Input USB 3.0 I/O Module

4-ch, 16-bit, 200 kS/s Isolated Analog Output USB 3.0 I/O Module



USB-5817



Features

- USB 3.0 SuperSpeed
- Daisy chainable by built-in USB hub
- 8 x 16-bit analog input channels with 2,500 V_{DC} isolation
- Support voltage and current measurement
- Wide common-mode voltage range (± 275 V)
- Removable European-type connector
- Supported operating systems: Windows XP/7/8/10

Introduction

USB-5817 is a 8-ch, 16-bit, 200 kS/s Isolated Analog Input USB 3.0 I/O Module. Its compact size and DIN-rail mount kit make it easily installed in a cabinet. Built in USB hub can support daisy chain topology. Euro type pluggable terminal blocks and LED indicator help users to maintain and set up their system. For safe and reliable operation, the controller (host) side is protected by a 2,500 V_{DC} isolation circuit. Furthermore, it supports both voltage and current measurement with common-mode voltage up to ± 275 V.

Specifications

Analog Input

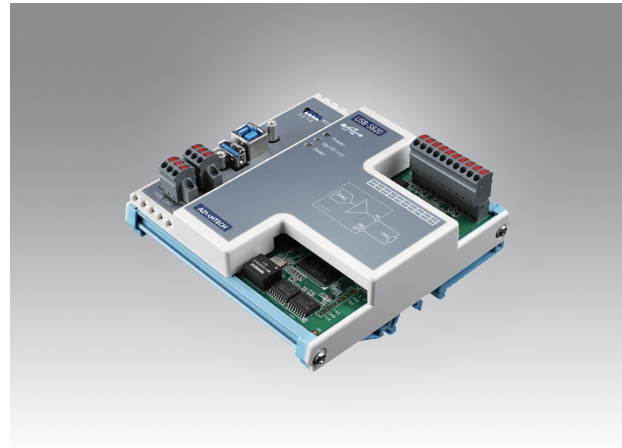
- Channels 8
- Resolution 16 bits
- Input Voltage Range ± 10 V, 0-20 mA
- Common-Mode Voltage Range ± 275 V
- Measurement Error $< \pm 0.01\%$ of full-scale range
- Isolation Protection 2,500 V_{DC}
- Sampling rate 200 kS/s (shared by all channels)
- Input Impedance Common-mode 200 k Ω , Differential 800 k Ω

General

- Interface USB 3.0
- Data transfer rate 5 Gbps
- Connectors 2 x 10-pin terminal block (3.81 mm, AI)
2 x 3-pin screw terminal block (3.81 mm, power)
USB 3.0 type A (downstream port)
USB 3.0 type B (upstream port)
- Dimensions 120 x 120 x 40 mm (4.72 x 4.72 x 1.57 in)
- Operating Temperature 0 ~ 60 °C (32 ~ 140 °F)
- Storage Temperature -40 ~ 70 °C (-40 ~ 158 °F)
- Storage Humidity 5 ~ 95% RH (non-condensing)
- Power Supply External 10 ~ 30 V_{DC} or USB bus power
- Power Consumption 100 mA typical @ 24 V external power
350 mA typical @ 5 V bus power

Ordering Information

- **USB-5817-AE** 8-ch, 16-bit, 200 kS/s Isolated Analog Input USB 3.0 I/O Module
- **96PSD-A40W24-MM** DIN rail A/D 100 ~ 240 V, 40 W, 24 V



USB-5820



Features

- USB 3.0 SuperSpeed
- Daisy chainable by built-in USB hub
- 4 x 16-bit analog output channels with 2,500 V_{DC} isolation
- Multiple voltage and current output ranges
- Removable European-type connector
- Supported operating systems: Windows XP/7/8/10

Introduction

USB-5820 is a 4-ch, 16-bit, 200 kS/s Isolated Analog Output USB 3.0 I/O Module. Its compact size and DIN-rail mount kit make it easily installed in a cabinet. Built in USB hub can support daisy chain topology. Euro type pluggable terminal blocks and LED indicator help users to maintain and set up their system. For safe and reliable operation, the controller (host) side is protected by a 2,500 V_{DC} isolation circuit. Furthermore, it supports multiple voltage and current output ranges.

Specifications

Analog Output

- Channels 4
- Resolution 16 bits
- Output Voltage Range 0 ~ 5 V, 0 ~ 10 V, ± 5 V, ± 10 V
- Output Current Range 0 ~ 20 mA, 4 ~ 20 mA (source type)
- Load > 1 k Ω (voltage output)
 $< 625 \Omega$ (current output)
- Output Error $< \pm 0.1\%$ of full-scale range
- Isolation Protection 2,500 V_{DC}
- Updating rate 200/n kS/s, where n is number of enabled channel (n = 1 ~ 4)
- Slew Rate 1 V/ μ s

General

- Interface USB 3.0
- Data transfer rate 5 Gbps
- Connectors 1 x 10-pin terminal block (3.81 mm, A/I)
2 x 3-pin screw terminal blocks (3.81 mm, power)
1 x USB 3.0 type A (downstream port)
1 x USB 3.0 type B (upstream port)
- Dimensions 120 x 120 x 40 mm (4.72 x 4.72 x 1.57 in)
- Operating Temperature 0 ~ 60 °C (32 ~ 140 °F)
- Storage Temperature -40 ~ 70 °C (-40 ~ 158 °F)
- Storage Humidity 5 ~ 95% RH (non-condensing)
- Power Supply External 10 ~ 30 V_{DC} or USB bus power
- Power Consumption 100 mA typ./130 mA max. @ 24 V external power
450 mA typ./770 mA max. @ 5 V bus power

Ordering Information

- **USB-5820-AE** 4-ch, 16-bit, 200 kS/s Isolated Analog Output USB 3.0 I/O Module
- **96PSD-A40W24-MM** DIN rail A/D 100 ~ 240 V, 40 W, 24 V

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All product specifications are subject to change without notice.

Last updated: 5-Jun-2019

USB-5830 USB-5850 USB-5860

16-ch Isolated Digital Input and 16-ch Isolated Digital Output USB 3.0 I/O module
16-ch Isolated Digital Input & 8-ch PhotoMOS Relay USB 3.0 I/O module
8-ch Isolated Digital Input & 8-ch Relay USB 3.0 I/O module

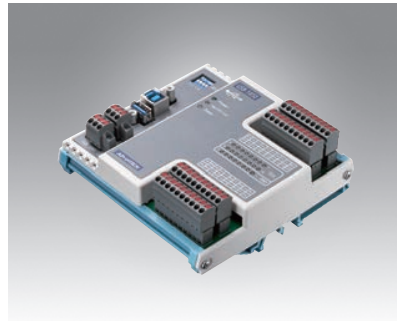


USB-5830

FCC CE RoHS

Features

- USB 3.0 SuperSpeed
- Daisy chainable by built in USB hub
- 16-ch digital input and 16-ch digital output with 2,500 V_{DC} isolation
- Wide input voltage range (10 ~ 30 V_{DC})
- Wide output voltage range (5 ~ 40 V_{DC}) and high output current (350 mA/ch)
- Quick removable European type connector
- LED indicators for I/O status
- Supported operating systems: Windows XP/7/8/10



USB-5850

FCC CE RoHS

Features

- USB 3.0 SuperSpeed
- Daisy chainable by built in USB hub
- 16-ch digital input and 8-ch PhotoMOS Relay output (Form A) isolation
- Wide input voltage range (10 ~ 30 V_{DC})
- 1500 V_{DC} optical isolation for relay outputs
- Quick removable European type connector
- LED indicators for I/O status
- Supported operating systems: Windows XP/7/8/10



USB-5860

FCC CE RoHS

Features

- USB 3.0 SuperSpeed
- Daisy chainable by built in USB hub
- 8-ch Isolated Digital Input and 8-ch Form A-type Relay Output
- Wide input voltage range (10 ~ 30 V_{DC})
- High-voltage isolation on input channel (2,500 V_{DC})
- Quick removable European type connector
- LED indicators for I/O status
- Supported operating systems: Windows XP/7/8/10

Introduction

The USB-5800 series are industrial isolated digital input and output USB 3.0 I/O modules. Its compact size and DIN-rail mount kit can install easily in a cabinet. Built in USB hub can support daisy chain topology. Euro type pluggable terminal blocks and LED indicator help users to maintain and set up their system. All digital input and digital output channels are protected by 2,500 V_{DC} isolation.

Specifications

Digital Input

- **Channels** 16
- **Input voltage** Logic 0: 3 V max.
Logic 1: 10 V min. (30 V max.)
- **Isolation protection** 2,500 V_{DC}

Digital Output

- **Channels** 16
- **Load voltage** 5 ~ 40 V_{DC}
- **Load current** 350mA/ch (sink) @ 25°C
250mA/ch (sink) @ 60°C
- **Isolation protection** 2,500 V_{DC}
- **Opto-isolator Response Time** 100µs

General

- **Interface** USB 3.0
- **Data transfer rates** 5 Gbps
- **Connectors** 10-pin 3.81 mm terminal block * 4 (I/O)
3-pin 3.81 mm screw terminal block (power) * 2
USB 3.0 type A (to PC)
USB 3.0 type B (hub)
120 x 120 x 40 mm
- **Dimensions** 120 x 120 x 40 mm
- **Operating temperature** 0 ~ 60°C (32 ~ 140°F)
- **Storage temperature** -40 ~ 70°C (-40 ~ 158°F)
- **Storage humidity** 5 ~ 95% RH (non-condensing)
- **Power supply** 10 ~ 30 V_{DC}
- **Power Consumption** Typical 240mA @ 5V;
Max. 480mA @ 5V

Ordering Information

- **USB-5830-AE** 16-ch isolated digital input & 16-ch isolated digital output USB 3.0 I/O module
- **96PSD-A40W24-MM** DIN RAIL A/D 100-240V 40W 24V

Specifications

Digital Input

- **Channels** 16
- **Input voltage** Logic 0: 3 V max.
Logic 1: 10 V min. (30 V max.)
- **Isolation protection** 2,500 V_{DC}

PhotoMOS Relay Output

- **Channels** 8
- **Relay type** PhotoMOS SPST (Form A)
- **Load Voltage** 60V (AC peak or DC)
- **Load current** 1.2A
- **Peak load current** 4A @ 100ms (1 pulse)
- **Isolation protection** 1,500 V_{DC}
- **Turn-on time** 1 ms typical
- **Turn-off time** 0.6 ms typical

General

- **Interface** USB 3.0
- **Data transfer rates** 5 Gbps
- **Connectors** 10-pin 3.81 mm terminal block * 4 (I/O)
3-pin 3.81 mm screw terminal block (power) * 2
USB 3.0 type A (to PC)
USB 3.0 type B (hub)
120 x 120 x 40 mm
- **Dimensions** 120 x 120 x 40 mm
- **Operating temperature** 0 ~ 60°C (32 ~ 140°F)
- **Storage temperature** -40 ~ 70°C (-40 ~ 158°F)
- **Storage humidity** 5 ~ 95% RH (non-condensing)
- **Power supply** 10 ~ 30 V_{DC}
- **Power Consumption** Typical 240mA @ 5V;
Max. 420mA @ 5V

Ordering Information

- **USB-5850-AE** 16-ch isolated digital input & 8-ch PhotoMOS relay USB 3.0 I/O module
- **96PSD-A40W24-MM** DIN RAIL A/D 100-240V 40W 24V

Specifications

Digital Input

- **Channels** 8
- **Input voltage** Logic 0: 3 V max.;
Logic 1: 10 V min. (30 V max.)
- **Isolation protection** 2,500 V_{DC}

Relay Output

- **Channels** 8
- **Relay Type** Form A
- **Contact Rating (resistive)** 2A @ 250V_{AC}, 2A @ 30V_{DC}
- **Max. Switching Power** 500VA, 60W
- **Max. Switching Voltage** 270V_{AC}, 125V_{DC}
- **Resistance** 30mΩ max.
- **Operating Time** Max. 10ms
- **Releasing Time** Max. 5ms
- **Life Expectancy** Mechanical 2 x 10⁷ ops. at no load.
Electrical 3 x 10⁴ ops. @ 2A/250V_{AC}

General

- **Interface** USB 3.0
- **Data transfer rates** 5 Gbps
- **Connectors** 10-pin 3.81 mm terminal block * 3 (I/O)
3-pin 3.81 mm screw terminal block (power) * 2
USB 3.0 type A (to PC)
USB 3.0 type B (hub)
120 x 120 x 40 mm
- **Dimensions** 120 x 120 x 40 mm
- **Operating temperature** 0 ~ 60°C (32 ~ 140°F)
- **Storage temperature** -40 ~ 70°C (-40 ~ 158°F)
- **Storage humidity** 5 ~ 95% RH (non-condensing)
- **Power supply** 10 ~ 30 V_{DC}
- **Power Consumption** Typical 240mA @ 5V;
Max. 460mA @ 5V

Ordering Information

- **USB-5860-AE** 8-ch isolated digital input & 8-ch relay USB 3.0 I/O module
- **96PSD-A40W24-MM** DIN RAIL A/D 100-240V 40W 24V

ADVANTECH

Industrial I/O

All product specifications are subject to change without notice.

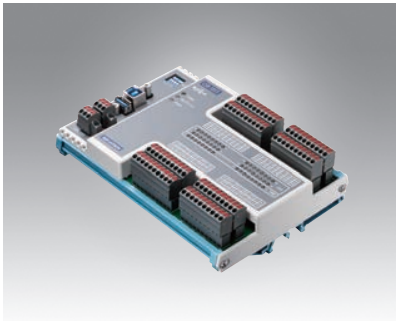
Last updated: 27-Jun-2018

USB-5855 USB-5856 USB-5862

32-ch Isolated Digital Input & 16-ch PhotoMOS Relay USB 3.0 I/O module

32-ch Isolated Digital Input and 32-ch Isolated Digital Output USB 3.0 I/O module

16-ch Isolated Digital Input & 16-ch Relay USB 3.0 I/O module

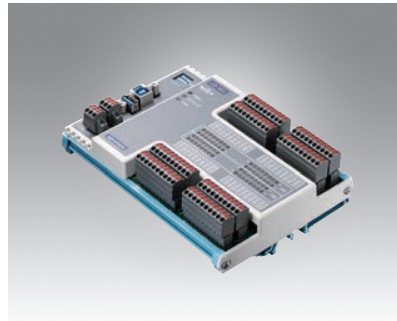


USB-5855

FCC CE RoHS

Features

- USB 3.0 SuperSpeed
- Daisy chainable by built in USB hub
- 32-ch digital input and 16-ch PhotoMOS Relay output (Form A) isolation
- Wide input voltage range (10 ~ 30 V_{DC})
- 1500 V_{DC} optical isolation for relay outputs
- Quick removable European type connector
- LED indicators for I/O status
- Supported operating systems: Windows XP/7/8/10

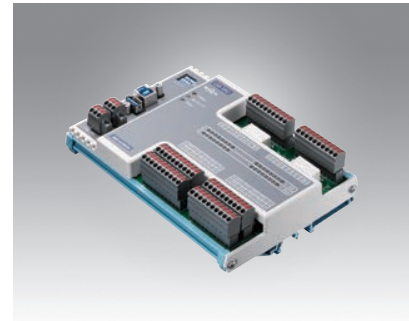


USB-5856

FCC CE RoHS

Features

- USB 3.0 SuperSpeed
- Daisy chainable by built in USB hub
- 32-ch digital input and 32-ch digital output with 2,500 V_{DC} isolation
- Wide input voltage range (10 ~ 30 V_{DC})
- Wide output voltage range (5 ~ 40 V_{DC}) and high output current (350 mA/ch)
- Quick removable European type connector
- LED indicators for I/O status
- Supported operating systems: Windows XP/7/8/10



USB-5862

FCC CE RoHS

Features

- USB 3.0 SuperSpeed
- Daisy chainable by built in USB hub
- 16-ch Isolated Digital Input and 16-ch Form A-type Relay Output
- Wide input voltage range (10 ~ 30 V_{DC})
- High-voltage isolation on input channel (2,500 V_{DC})
- Quick removable European type connector
- LED indicators for I/O status
- Supported operating systems: Windows XP/7/8/10

Introduction

The USB-5800 series are industrial isolated digital input and output USB 3.0 I/O modules. Its compact size and DIN-rail mount kit can install easily in a cabinet. Built in USB hub can support daisy chain topology. Euro type pluggable terminal blocks and LED indicator help users to maintain and set up their system. All digital input and digital output channels are protected by 2,500 V_{DC} isolation.

Specifications

Digital Input

- Channels** 32
- Input voltage** Logic 0: 3 V max.
Logic 1: 10 V min. (30 V max.)
- Isolation protection** 2,500 V_{DC}

PhotoMOS Relay Output

- Channels** 16
- Relay type** PhotoMOS SPST (Form A)
- Load Voltage** 60V (AC peak or DC)
- Load current** 1.2A
- Peak load current** 4A @ 100ms (1 pulse)
- Isolation protection** 1,500 V_{DC}
- Turn-on time** 1 ms typical
- Turn-off time** 0.6 ms typical

General

- Interface** USB 3.0
- Data transfer rates** 5 Gbps
- Connectors** 10-pin 3.81 mm terminal block * 8 (I/O)
3-pin 3.81 mm screw terminal block (power) * 2
USB 3.0 type A (to PC)
USB 3.0 type B (hub)
168 x 120 x 40 mm
0 ~ 60°C (32 ~ 140°F)
-40 ~ 70°C (-40 ~ 158°F)
5 ~ 95% RH (non-condensing)
10 ~ 30 V_{DC}
Typical 240mA @ 5V;
Max. 720mA @ 5V
- Dimensions**
- Operating temperature**
- Storage temperature**
- Storage humidity**
- Power supply**
- Power Consumption**

Ordering Information

- USB-5855-AE** 32-ch isolated digital input & 16-ch PhotoMOS relay USB 3.0 I/O module
- 96PSD-A40W24-MM** DIN RAIL A/D 100-240V 40W 24V

Specifications

Digital Input

- Channels** 32
- Input voltage** Logic 0: 3 V max.
Logic 1: 10 V min. (30 V max.)
- Isolation protection** 2,500 V_{DC}

Digital Output

- Channels** 32
- Load voltage** 5 ~ 40 V_{DC}
- Load current** 350mA/ch (sink) @ 25°C
250mA/ch (sink) @ 60°C
- Isolation protection** 2,500 V_{DC}
- Opto-isolator Response Time** 100µs

General

- Interface** USB 3.0
- Data transfer rates** 5 Gbps
- Connectors** 10-pin 3.81 mm terminal block * 8 (I/O)
3-pin 3.81 mm screw terminal block (power) * 2
USB 3.0 type A (to PC)
USB 3.0 type B (hub)
168 x 120 x 40 mm
0 ~ 60°C (32 ~ 140°F)
-40 ~ 70°C (-40 ~ 158°F)
5 ~ 95% RH (non-condensing)
10 ~ 30 V_{DC}
Typical 240mA @ 5V;
Max. 600mA @ 5V
- Dimensions**
- Operating temperature**
- Storage temperature**
- Storage humidity**
- Power supply**
- Power Consumption**

Ordering Information

- USB-5856-AE** 32-ch isolated digital input & 32-ch isolated digital output USB 3.0 I/O module
- 96PSD-A40W24-MM** DIN RAIL A/D 100-240V 40W 24V

Specifications

Digital Input

- Channels** 16
- Input voltage** Logic 0: 3 V max.;
Logic 1: 10 V min. (30 V max.)
- Isolation protection** 2,500 V_{DC}

Relay Output

- Channels** 16
- Relay Type** Form A
- Contact Rating (resistive)** 2A @ 250V_{AC}, 2A @ 30V_{DC}
- Max. Switching Power** 500VA, 60W
- Max. Switching Voltage** 270V_{AC}, 125V_{DC}
- Resistance** 30mΩ max.
- Operating Time** Max. 10ms
- Releasing Time** Max. 5ms
- Life Expectancy** Mechanical 2 x 10⁷ ops. at no load.
Electrical 3 x 10⁴ ops. @ 2A/250V_{AC}

General

- Interface** USB 3.0
- Data transfer rates** 5 Gbps
- Connectors** 10-pin 3.81 mm terminal block * 8 (I/O)
3-pin 3.81 mm screw terminal block (power) * 2
USB 3.0 type A (to PC)
USB 3.0 type B (hub)
168 x 120 x 40 mm
0 ~ 60°C (32 ~ 140°F)
-40 ~ 70°C (-40 ~ 158°F)
5 ~ 95% RH (non-condensing)
10 ~ 30 V_{DC}
Typical 240mA @ 5V;
Max. 680mA @ 5V
- Dimensions**
- Operating temperature**
- Storage temperature**
- Storage humidity**
- Power supply**
- Power Consumption**

Ordering Information

- USB-5862-AE** 16-ch isolated digital input & 16-ch relay USB 3.0 I/O module
- 96PSD-A40W24-MM** DIN RAIL A/D 100-240V 40W 24V

ADVANTECH

Industrial I/O

All product specifications are subject to change without notice.

Last updated: 27-Jun-2018