

## USB-5820

# 4-Channel, 16-Bit, 200 kS/s Isolated Analog Output USB 3.0 I/O Module

## Startup Manual

### Packing List

Before installation, please ensure that the following items are included with the product:

1. 1 x USB-5820 module
2. 3 x Terminal blocks
3. 1 x USB-5820 startup manual
4. 1 x USB 3.0 lockable cable (1 m)

If any of the above items are missing or damaged, contact your distributor or sales representative immediately.

### User Manual

For more detailed information regarding this product, please download the USB-5820 user manual from the Advantech website.

### Overview

Advantech's USB-5820 is an industrial-grade isolated analog output USB 3.0 I/O module. To ensure easy installation in cabinet computers, USB-5820 modules are compact and equipped with a DIN-rail mount kit. The built-in USB hub can support a daisy-chain topology, while Euro-type pluggable terminal blocks and LED indicators can facilitate configuration and maintenance.

For more information about this or other Advantech products, visit our website at

<http://www.advantech.com>



For driver/SDK downloads and technical support services, visit our support website at

<http://support.advantech.com>

This manual is for USB-5820.

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### Specifications

#### General

- **Connectors:**
  - 1 x 10-pin terminal block (3.81 mm, A/O)
  - 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<sup>3</sup> (4.72 x 4.72 x 1.57 in<sup>3</sup>)
- **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<sub>DC</sub>
- **Interface:** USB 3.0
- **Data Transfer Rates:** 5 Gbps
- **Power Consumption:**
  - 100 mA typ./130 mA max. @24 V external power
  - 450 mA typ./770 mA max. @5 V bus power
- **ESD Protection:**
  - Air: ±8 kV
  - Contact: ±6 kV
- **DC Surge Protection:** 2 kV

#### 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 kΩ (voltage output)
  - < 625 Ω (current output)
- **Output Error:** < ±0.1% of full-scale range
- **Isolation Protection:** 2,500 V<sub>DC</sub>
- **Updating Rate:**  
200/n kS/s, where n is the number of enabled channels (n = 1 ~ 4)
- **Slew Rate:** 1 V/μs

### Installation Instructions

1. Install the SDK and drivers downloaded from the Advantech website.
2. Touch the metal case of the computer to discharge any static electricity that may be in your body.
3. Insert the USB module into the designated USB port. Use caution when inserting the module to avoid damaging the components due to excessive force.

## Declaration of Conformity

### FCC Class A

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and operated in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause interference. In such cases, users are required to correct the interference at their own expense.

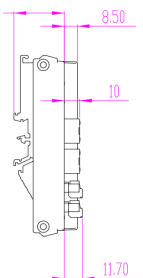
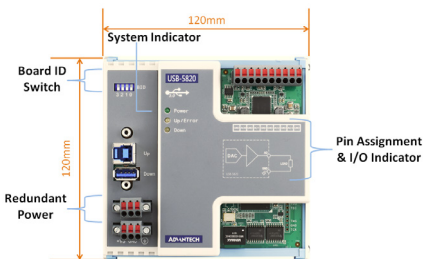
### CE

This product has passed the CE test for environmental specifications when shielded cables are used for external wiring. We recommend the use of shielded cables. Such cables are available from Advantech. Please contact your local supplier for ordering information.

## Power

USB-5820 modules feature two power input terminals with an input power range of 10 ~ 30 V<sub>DC</sub> and power redundancy support. For modules connected to two power input sources, if one source is inactive or interrupted, the other power source can immediately assume supply operations. Accordingly, USB-5820 modules can operate with a single power source. (The modules can also be powered via USB if no device is connected to the downstream port.)

## Layout/Dimensions



## LED Indicators

### Power

State	Description
Off	Module is not powered on
Green	Module is powered on using either USB bus power or external power

### Up/Error

State	Description
Green	Upstream port is connected. Module is functioning normally
Red	Upstream port is not connected/disconnected. Module function is halted

### Down

State	Description
Off	Downstream port is not connected
Blue	Downstream port is connected

## Pin Assignment

Signal Name	Description
Analog Output	GND A00 GND A01 GND GND A02 GND A03 GND
A/O < 0 ~ 3 >	Analog output channels 0 through 3
GND	Ground

## Board ID Switch

USB-5820 modules feature a built-in DIP switch that is used to define the board ID for each module. When multiple modules are installed on the same system, the board ID switch can be used to identify each module's device number. Every module in the system should be assigned different device numbers. The default board ID value is 0. When configuring the board ID to any other value, refer to the settings in the following table:

Switch	Description				
SW1	Board ID switch. Refer to the table below for board ID configuration.				
	Board ID	1	2	3	4
	0	↑	↑	↑	↑
	1	↑	↑	↑	↓
	2	↑	↑	↓	↑
	3	↑	↑	↓	↓
	4	↑	↓	↑	↑
	5	↑	↓	↑	↓
	6	↑	↓	↓	↑
	7	↑	↓	↓	↓
	8	↓	↑	↑	↑
	9	↓	↑	↑	↓
	10	↓	↑	↓	↑
	11	↓	↑	↓	↓
	12	↓	↓	↑	↑
	13	↓	↓	↑	↓
14	↓	↓	↓	↑	
15	↓	↓	↓	↓	

Default setting is 0