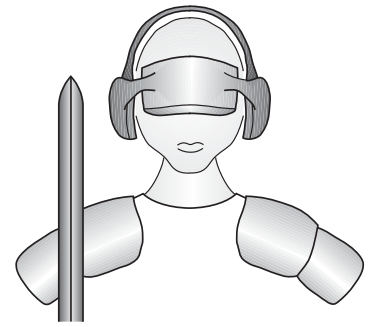


IOW56-DG

USB to SPI and I2C Dongle based on IO-Warrior56



Code Mercenaries

1. Features

- USB interface
- USB V1.1/2.0 full speed device
- 50, 100, or 400 kHz I2C (IIC / TWI) master
- SPI master up to 8 MBit/sec
- Throughput up to 60 kbyte/s
- Based on IO-Warrior56
- Supports clock stretching on I2C
- Multi master capable I2C
- 5 V and 3.3 V available for external circuit
- Uses standard system drivers
- Standard form factor, no blocked ports
- Extended temperature: -10 to +85°C

1.1 Variants

The standard IOW56-DG is shipped as a kit containing an assembled and tested PCB, a two part dongle case, and a ten wire cable to solder to the dongle as required for the target application.

1.2 Custom variants

OEM versions with specialized cables or custom modifications are possible

2. Functional overview

IOW56-DG packages a standard IO-Warrior56 in a small form factor dongle case with a 3.3 V voltage regulator.

The SPI and I2C signals of the IO-Warrior56 are made available externally through solder pads to allow application specific cabling to be attached. All software and tools for IO-Warrior56 are also usable for the dongle.

The I2C interface works as a bus master, supports clock stretching handshake and multi master configurations.

SPI works as a master with clock rates up to 8 MHz (cable length may be critical at higher clock rates).

For compatibility with low voltage slaves the internal pull up resistors of IOW56 can be switched off by software command. Pull up control is independent for SPI and I2C.

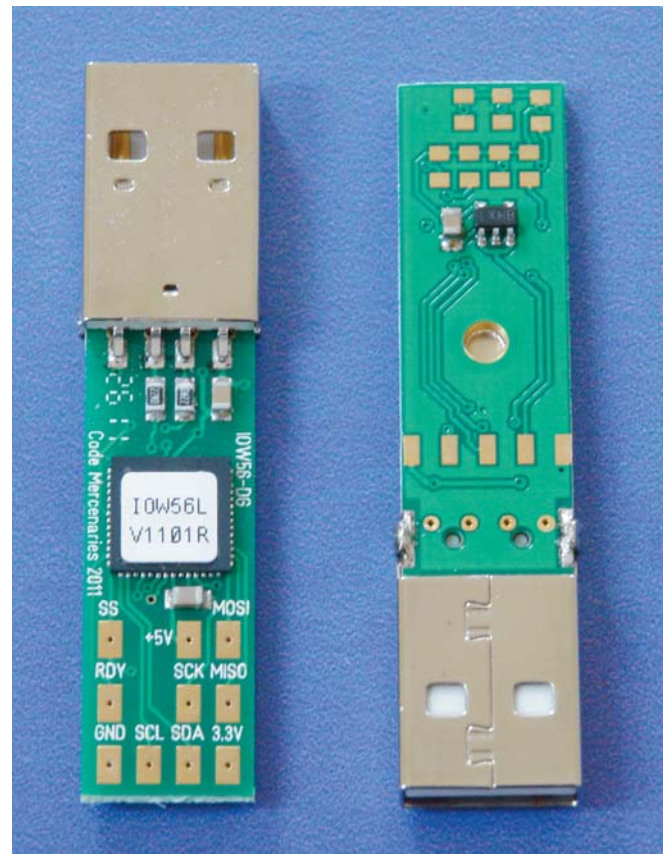
3. Connecting the cable

The function of the signals is marked on the board next to the solder pads for the cable:

SS	SPI - Slave Select, active low
+5	5V from USB, max. 100 mA
MOSI	SPI - Master Out Slave In
RDY	SPI - /DRDY
SCK	SPI - Serial clock
MISO	SPI - Master In Slave Out
GND	Ground
SDA	I2C SDA signal
SCL	I2C SCL signal
3.3	3.3V output, max. 50 mA

Solder the cable to the pads as required for your application.

The 5 V and 3.3 V supplies are meant to be used exclusive of each other. If both are used at the same time the combined current may not exceed 100 mA.



Dongle shown from both sides.

IOW56-DG

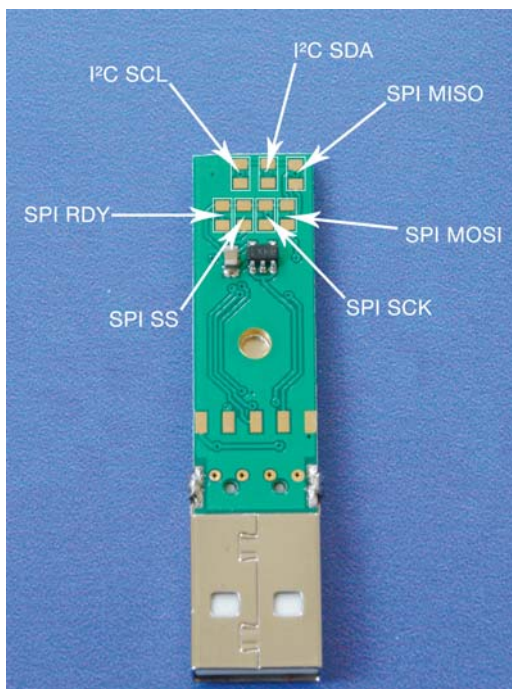
3.1 Compatibility with 3.3 V slaves

If a 3.3 V slave is to be connected the internal pull up resistors of the IOW56 should be switched off by software on enabling the I2C or SPI function.

This requires external pull up resistors which may be added either on the slave side or soldered to the lower side of the dongle PCB. It is recommended to add protection diodes so the slave does not get exposed to 5 V on the signal lines before the SPI or I2C function of the IOW56 is initialized.

There are landing pads for pull up resistors connecting to 3.3 V on the lower side of the dongle PCB

3.2 Pull Up resistor positions



4. Software/Programming support

The IO-Warrior SDK is used with the dongle. The SDK, additional software, and the data sheet for the IOW56 are available on our website.

5. FCC / CE

The IOW56-DG is sold as kit. As such it can not be FCC or CE approved.

Code Mercenaries has exerted greatest care in designing this module to minimize RF emission and assure stable operation. Though the use of proper cable materials and correct integration into a device is crucial to assure product safety and interference free operation.

The integrator who assembles the module into a device has to take care for appropriate testing and safety measures.

6. Ordering information

The standard packaging for IOW56-DG is a blister pack containing the parts for one unit.

The order code is:

IOW56-DG

Bulk packs with the parts for 10 units in a bag are available under the order code:

IOW56-DG10

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