

USB Multifunction Digital I/O Module - Isolated Model JI-4040

Jupiter Instruments

Ver 1.5

Electrical Specifications

5/2/2011 Edition

| Digital I/O | |
|-------------------------------------|--|
| Channel Count | 36 Input/output (Four 8-bit and two 2-bit ports) |
| Power-on State | Default to inputs, pull-up/pull-down (100 K ohms) |
| Data Transfers | Programmed I/O |
| Special Function Port (SFP) | |
| Number of SFPs | Two independent ports (2-bit) |
| Function Modes: | |
| Event Counter | |
| Count | 16-bits with overflow flag |
| Trigger | Configurable: Rising/falling edge and 1-bit input qualifier |
| Pulse width | >100 ns minimum |
| Pulse/Period Timer | |
| Timer | 16-bits with a programmable 8-bit prescaler |
| Base Clock | 10 MHz |
| Configuration | Rising/falling edge combinations |
| Pulse Width | >100 ns minimum |
| Measurement Range | 100 ns to 1.677 s with overflow flag |
| CLK Generator | |
| Configuration | t_{HIGH} & t_{LOW} 16-bit timers with an 8-bit prescaler |
| Base Clock | 10 MHz |
| Frequency Range | 0.298 Hz to 5.00 MHz |
| Duty cycle | Programmable: ($2^{16} - 1$) steps from 0.0015% to 99.84% |
| Pulse Generator | |
| Configuration | t_{HIGH} 16-bit timer with an 8-bit prescaler |
| Base Clock | 10 MHz |
| Pulse Width Range | 100 nS to 1.67 S |
| I/O Characteristics | |
| I/O Voltage | Selectable: 5.0V, 3.3V, 2.5V, 1.8V, and Adj. |
| V_{IH} High-level input voltage | 2.0 V min @ $V_{bus} = 3.3$ V 1.7 V min @ $V_{bus} = 2.5$ V 1.2 V min @ $V_{bus} = 1.8$ V |
| V_{IL} Low-level input voltage | 1.5 V max @ $V_{bus} = 5.0$ V 0.8 V max @ $V_{bus} = 3.3$ V 0.7 V max @ $V_{bus} = 2.5$ V 0.6 V max @ $V_{bus} = 1.8$ V |
| I_I Input current | +/- 2 uA max @ $V_{bus} = 1.8$ V to 5.0 V |
| I_O Output current | +/- 32 mA max @ $V_{bus} = 5.0$ V +/- 24 mA max @ $V_{bus} = 3.3$ V +/- 8 mA max @ $V_{bus} = 2.5$ V +/- 4 mA max @ $V_{bus} = 1.8$ V |
| V_{IMAX} Max. input voltage range | -0.5 V to 6.5 V |
| ESD protection | 4000V Human-Body Model (A114-A) |

Electrical Specifications (continued)

| Power | |
|----------------------------|--|
| Power source | USB supplied (std.) or external 5.0 V supply (ext) |
| Vbus Voltages | |
| 5.0V | 4.6 V min to 5.1 V max, 300mA max (std*) or 1250mA (ext**) |
| 3.3V | 3.2 V min to 3.4 V max, 300mA max (std*) or 600mA (ext**) |
| 2.5V | 2.4 V min to 2.6 V max, 300mA max (std*) or 400mA (ext**) |
| 1.8V | 1.75 V min to 1.85 V max, 300mA max (std* or ext**) |
| Current consumption | USB Idle: 135 mA typ. |
| Power connector (external) | 2.1mm ID, 5.5mm OD (CUI PJ-102A) |
| PC Interface | |
| Communication | USB 2.0 Full Speed |
| Connector | Standard type B socket |
| | |

* Combined I/O source and Vbus current cannot exceed 300 mA.

** Combined I/O source and Vbus current cannot exceed maximum external rating.

Mechanical and Environmental Specifications

| Mechanical | |
|-----------------------|--|
| Dimensions | Board only: 3.9" x 0.5" x 4.7" (WxHxL) |
| | Enclosure: 4.1" x 1.1" x 5.5" (WxHxL) |
| Weight | Board only: 0.1 lbs |
| | Enclosure: 0.9 lbs |
| Environmental | |
| Operating Temperature | Board only: 0C to 70C |
| | Enclosure: 0C to 60C |
| Storage Temperature | -40C to 70C |
| | |