# S3302U

# 16 Channels Isolated Digital Input Module

# User's Manual


# SHJ

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**S3302U** has total 16 channels isolated wet contact or dry contact or open-collector input, Each input channel also can work as 32-bit counter input, the maximum frequency is 200Hz for total 16 channels and 1000Hz for only one channel. Output BUS is full speed USB,compatibleUSB2.0.Can run operating system windows 98/ME/2000/XP/Server 2003/VISTA/Server 2008/Win7 32bit/64bit The modules are slave devices using the industry standard Modbus protocol.

**Highlights:**

- Isolated digital inputs can be configured as counter input, total 32 bits,1000Hz
- 32-bit counter be stored into FLASH when power off
- Can measure frequency from 0 to 200Hz,the resolution is 0.1Hz
- Accept reed and hall sensor output from water meter or other meters
- Static and lightning protection for each input
- The input channel number is configurable, can be set up from 1 channel through 16 channels, improve frequency for small count input
- Full speed USB, compatible USB2.0
- You can tell us your requirement. we will update our firmware even you received the modules ,you can update your modules via ISP through USB BUS.

**Application:**

- ✓ Remote data acquisition
- ✓ Process monitoring
- ✓ Industrial process control
- ✓ Energy management
- ✓ Supervisory control
- ✓ Security systems
- ✓ Laboratory automation
- ✓ Building automation
- ✓ Product testing
- ✓ Direct digital control

**Technical data:**

Input channel number---------- 16
Input range----------+4V~+36V
Input signal----------wet contact, dry contact, open-collector
Counter frequency----------100Hz@16channels;1000Hz@1channel
Counter length----------32-bit
Output BUS---------- USB with Standard Modbus protocol
Output Protection----------Lightning,static
Power input----------9~24V(AC/DC)
Power consumption----------63mA@24VDC
Ambient temperature:
Operation---------- -20~85℃(-13~185℉)
Storage---------- -40~100℃(-40~212℉)

Ambient humidity----------10%~90%RH
Material,enclosure----------Flame proof plastic
Enclosure rating----------IP31
Colour----------Ice Blue
Size----------100*69*25 mm

**Wiring diagram and description:**

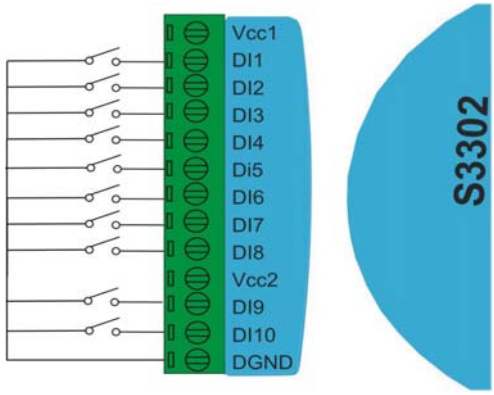


**Figure 1 Dry contact input**

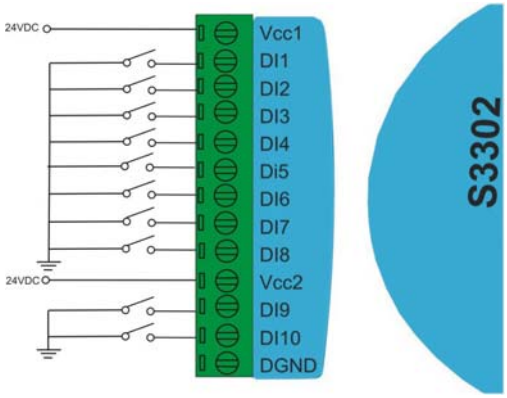


**Figure 2 wet contact input**

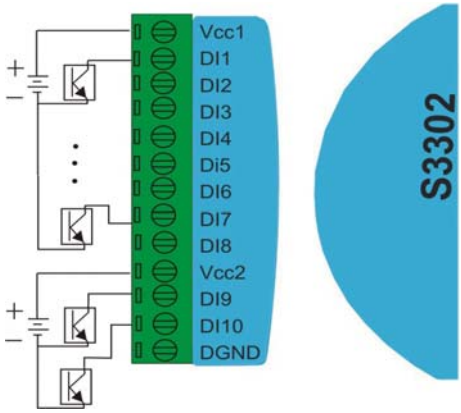


**Figure3 open-collector input**

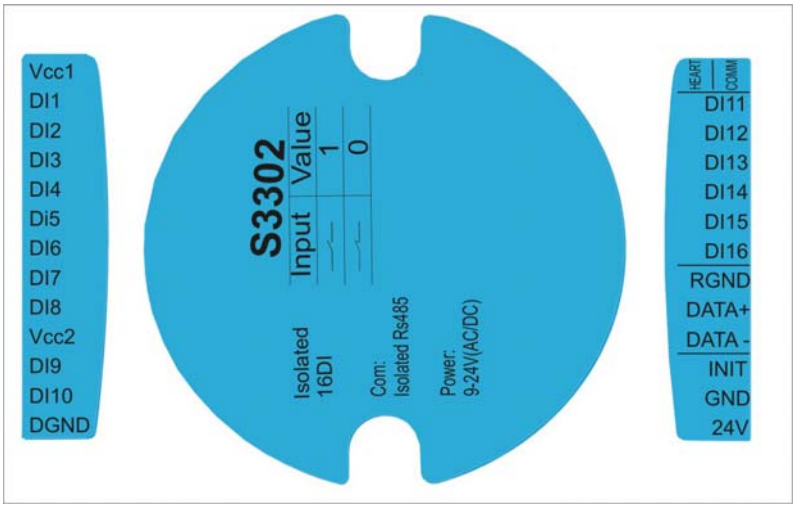


**Figure 4 terminal definition**

1、Input wiring

Vcc1: Power source input for digital input 1 through 8

DI1 ~ DI8: Digital input channel 1 through 8

Vcc2: Power source input for digital input 9 through 16

DI9~DI16: Digital input channel 9 through 16

DGND: common for digital input 1 through 16, available in dry input mode

2、 Power wiring

DC: 24V, positive end

GND, negative end

AC: 24V, hot line

GND, neutral line

3、USB wiring

DATA+: connect to UD+ end of USB

DATA-: connect to UD- end of USB

RGND: GND of USB

4、 Reset parameter to default

Put the jumper between GND and INIT ,the following parameters back to default.

- Address of device: 254
- Baudrate: 19200
- Channel: enable all channels
- Filtering: 200us for frequency input

5、 LEDs indication

Heart: Flashing when the system is working

Comm: Flashing when serial port communication is working

**Modbus register list:** **Note: * means default value**

<table>
<tr><th rowspan="2">Address</th><th rowspan="2">Bytes</th><th colspan="2">Value range</th><th rowspan="2">Description</th><th rowspan="2">Property</th></tr>
<tr><th>Min</th><th>Max</th></tr>
<tr><td>0-3</td><td>4</td><td>1</td><td>4294967295</td><td>Serial number,unique for each product</td><td>R</td></tr>
<tr><td>4-5</td><td>2</td><td>100</td><td>65535</td><td>Firmware version number</td><td>R</td></tr>
<tr><td>6</td><td>1</td><td>1</td><td>254</td><td>Device address</td><td>R/W</td></tr>
<tr><td>7</td><td>2</td><td>3302</td><td>3302</td><td>Product model</td><td>R</td></tr>
<tr><td>8</td><td>1</td><td>1</td><td>255</td><td>Hardware version</td><td>R</td></tr>
<tr><td>9</td><td>2</td><td>12</td><td>1152</td><td>Baudrate setting<table><tr><th>Value</th><th>Buadrate</th></tr><tr><td>12</td><td>1200</td></tr><tr><td>24</td><td>2400</td></tr><tr><td>48</td><td>4800</td></tr><tr><td>96</td><td>9600</td></tr><tr><td>192*</td><td>19200</td></tr><tr><td>384</td><td>38400</td></tr><tr><td>576</td><td>57600</td></tr><tr><td>1152</td><td>115200</td></tr></table>For example:write 96 to register 9 to set the baudrate 9600.</td><td>R</td></tr>
<tr><td>10-99</td><td>-</td><td>-</td><td>-</td><td>Reserved</td><td>-</td></tr>
<tr><td>100</td><td>2</td><td>0</td><td>65535</td><td>Status for digital input channel 1 through 16, 0 = contact active,1 = contact inactive.Bit0 correspond to channel 1,bit1 correspond to channel 2 etc.</td><td>R</td></tr>
<tr><td>101</td><td>2</td><td>0</td><td>65535</td><td>High word for counter input 1</td><td>R/W</td></tr>
<tr><td>102</td><td>2</td><td>0</td><td>65535</td><td>Low word for counter input 1,value of counter = （101）*65536 + （102）</td><td>R/W</td></tr>
<tr><td>103</td><td>2</td><td>0</td><td>65535</td><td>High word for counter input 2</td><td>R/W</td></tr>
<tr><td>104</td><td>2</td><td>0</td><td>65535</td><td>Low word for counter input 2,value of counter = （103）*65536 + （104）</td><td>R/W</td></tr>
</table>

Continue…

| Address | Bytes | Value range | | Description | Property |
|---|---|---|---|---|---|
| | | Min | Max | | |
| 105 | 2 | 0 | 65535 | High word for counter input 3 | R/W |
| 106 | 2 | 0 | 65535 | Low word for counter input 3,value of counter = （105）*65536 + （106） | R/W |
| 107 | 2 | 0 | 65535 | High word for counter input 4 | R/W |
| 108 | 2 | 0 | 65535 | Low word for counter input 4,value of counter = （107）*65536 + （108） | R/W |
| 109 | 2 | 0 | 65535 | High word for counter input 5 | R/W |
| 110 | 2 | 0 | 65535 | Low word for counter input 5,value of counter = （109）*65536 + （110） | R/W |
| 111 | 2 | 0 | 65535 | High word for counter input 6 | R/W |
| 112 | 2 | 0 | 65535 | Low word for counter input 6,value of counter = （111）*65536 + （112） | R/W |
| 113 | 2 | 0 | 65535 | High word for counter input 7 | R/W |
| 114 | 2 | 0 | 65535 | Low word for counter input 7,value of counter = （113）*65536 + （114） | R/W |
| 115 | 2 | 0 | 65535 | High word for counter input 8 | R/W |
| 116 | 2 | 0 | 65535 | Low word for counter input 8,value of counter = （115）*65536 + （116） | R/W |
| 117 | 2 | 0 | 65535 | High word for counter input 9 | R/W |
| 118 | 2 | 0 | 65535 | Low word for counter input 9,value of counter = （117）*65536 + （118） | R/W |
| 119 | 2 | 0 | 65535 | High word for counter input10 | R/W |
| 120 | 2 | 0 | 65535 | Low word for counter input 10,value of counter = （119）*65536 + （120） | R/W |
| 121 | 2 | 0 | 65535 | High word for counter input 11 | R/W |
| 122 | 2 | 0 | 65535 | Low word for counter input 11,value of counter = （121）*65536 + （122） | R/W |
| 123 | 2 | 0 | 65535 | High word for counter input 12 | R/W |
| 124 | 2 | 0 | 65535 | Low word for counter input 12,value of counter = （123）*65536 + （124） | R/W |
| 125 | 2 | 0 | 65535 | High word for counter input 13 | R/W |
| 126 | 2 | 0 | 65535 | Low word for counter input 13,value of counter = （125）*65536 + （126） | R/W |
| 127 | 2 | 0 | 65535 | High word for counter input 14 | R/W |

| | | | | | |
|---|---|---|---|---|---|
| 128 | 2 | 0 | 65535 | Low word for counter input 14,value of counter = （127）*65536 + （128） | R/W |
| 129 | 2 | 0 | 65535 | High word for counter input 15 | R/W |
| 130 | 2 | 0 | 65535 | Low word for counter input 15,value of counter = （129）*65536 + （130） | R/W |
| 131 | 2 | 0 | 65535 | High word for counter input 16 | R/W |
| 132 | 2 | 0 | 65535 | Low word for counter input 16,value of counter = （131）*65536 + （132） | R/W |
| 133 | 1 | 1 | 100 | Respond delay for serial communication, the units is ms and default is 10ms | R/W |
| 134 | 2 | 1 | 30000 | Filter time for counter input, the units is 10us and the default is 200us | R/W |
| 135 | 1 | 0 | 255 | Disable/enable input,0 = disable and 1 = enable.Bit0 correspond to input1, Bit1 correspond to input 2 and so on. | R/W |
| 136 | 1 | 0 | 255 | Disable/enable input,0 = disable and 1 = enable.Bit0 correspond to input9, Bit1 correspond to input 10 and so on. | R/W |
| 137 | 1 | 0 | 1 | Input status selection.0 = ON/OFF,1 = OFF/ON, default is ON/OFF | R/W |