

### Product Features

- 24 V DC Input Supply
- 24 PNP Digital Input and 24 NPN Digital Outputs
- Modbus RS-485 Protocol Interface and RS232 Command Interface
- Convenient address selection rotatory switch from 1 – 99 Address
- Dimension – 110 mm x 140 mm x 85 mm

## Modbus Command Details

### Coils (Read / Write)

- 0x1 (1) - Digital Output Y1 Status and Control.  
Setting this bit to 1 will Switch ON Output Y1 and 0 will switch OFF
- 0x2 (2) - Digital Output Y2 Status and Control.  
Setting this bit to 1 will Switch ON Output Y2 and 0 will switch OFF
- :
- 0x18 (24) - Digital Output 24 Status and Control.  
Setting this bit to 1 will Switch ON Output Y24 and 0 will switch OFF

### Discrete Inputs (Read Only)

- 0x1 (1) - Input X1 Status.  
1 indicates Input X1 is High and 0 indicates Low
- 0x2 (2) - Input X2 Status.  
1 indicates Input X2 is High and 0 indicates Low
- :
- 0x24 (24) - Input X24 Status.  
1 indicates Input X24 is High and 0 indicates Low

### Input Registers (Read Only)

- 0x1 (1) - 1 ~ 16 Digital Input Status
- 0x2 (2) - 17 ~ 24 Digital Inputs and 1 ~ 8 Digital Outputs
- 0x3 (3) - 9 ~ 24 Digital Outputs

### Baud settings

#### Default Values

- Station Address – As per address switch 1 ~ 99,
- **Baud 19200, 8N1**

### Holding Registers (Read/Write)

- 0x65 (101) - Device Address as per the address switch – (Read Only for Devices with Address switch)
- 0x66 (102) - Baud Rate
  - 0 – 300
  - 1 – 600
  - 2 – 1200
  - 3 – 1800
  - 4 – 2400
  - 5 – 4800
  - 6 – 7200
  - 7 – 9600
  - 8 – 14400
  - 9 – 19200
  - 10 – 38400
  - 11 – 57600
  - 12 – 62500
  - 13 – 115200
  - Default. 9 – 19200**
- 0x67 (103) - Parity, Stop Bit
  - 0 – 8 N 1
  - 1 – 8 E 1
  - 2 – 8 O 1
  - 3 – 8 N 2
  - 4 – 8 E 2
  - 5 – 8 O 2
  - Default. 0 – 8 N 1**

**Default Mode Switch**

Default mode is handy when the serial communication setting are forgotten.

Setting the Address switch to 00 will put the device in default mode

- Address Set to 00 – Default mode ON
  - Slave Address – 1, Baud 19200, 8N1
- Address Set to non 00 – Default mode OFF
  - As per the saved configuration values.

Note:

No parameter selection is changed just by entering the default mode. All the parameters remains same including the communication settings unless changed by the master or if there is a corruption in data error indicated in normal mode the device will try to recover to Factory settings.

**This mode can be used to read the present settings and/or change the settings**

Diagnostics

- Tx LED - Quick Blink Indicates Tx Data in Normal operation
- Rx LED - Quick Blink Indicates Rx Data in Normal operation
- Power LED - Power Supply Status
- X1 ~ X24 LED- Input is read high
- Y1 ~ Y24 LED- Output Y1 is ON

**Electrical Details**

- Power Supply : 12V to 24 V DC
- Digital Input : 12 to 24V DC PNP
- Digital output : 12 to 24V DC NPN, 500mA @ Individual Output

Top Connector Power and IO 3.81mm PBT

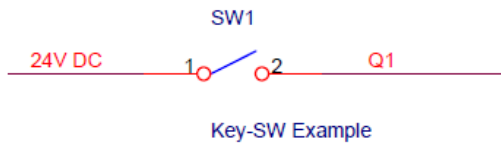
24V	GND	E
1	2	3

Bottom Connector RS485

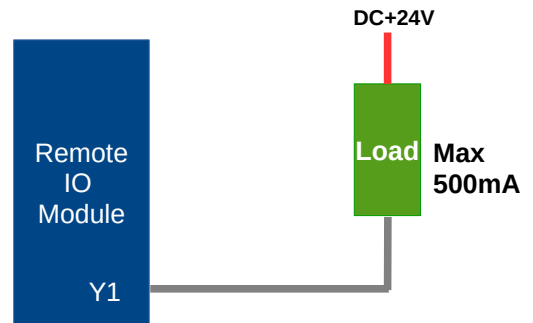
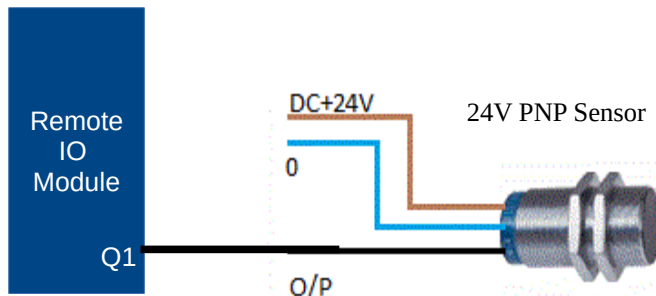
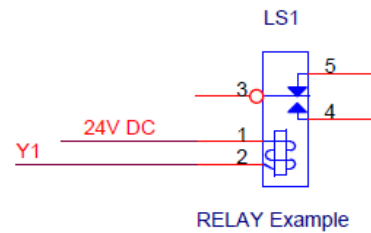
A1+	B1-	E/Gnd	A2/Tx	B2/Rx
1	2	3	4	5
RS485		RS232		

Connection Example

**Input Connection**



**Output Connection**



## RS232 Command Interface

**Key press status is received from the IO Module's RS232 Port automatically when a key is pressed.**

Key Press status format - DnnSqq\r

**To switch an output on/off issue the below commands from CPU Module**

Output ON command            -    DnnLyyON\r  
  Response from module       -    DnnLyyON\r  
Output OFF command           -    DnnLyyOFF\r  
  Response from module       -    DnnLyyOFF\r  
Output Query command         -    DnnLyyQS\r  
  Response from module       -    DnnLyyON\r OR DnnLyyOFF\r

Where D - Letter D  
      nn - Device ID from 00 ~ 99 as per the address selection  
      S - Letter S  
      qq - Key ID from 1 ~ 24 of key X1 ~ Q24  
      yy - Output ID from 1 ~ 24 of key Y1 ~ Y24  
      \r - Carriage return character, 0x0D (13)

CPU Query command - QS\r  
Reply with below response

D01\_24I24O 26 Mar 17 12:01

Where  
  01                         -    Device ID  
  24I24O                   -    Device model  
  26 Mar 17 12:01         -    Device version