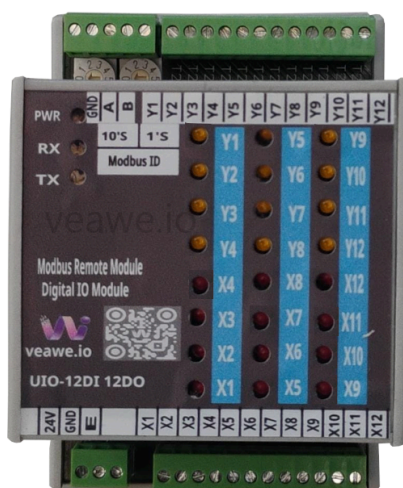


12-Channel Digital Input / 12-Channel Digital Output Modbus Remote I/O Module

Compact Modbus RTU remote I/O module with twelve digital inputs, RPM measurement, pulse counting, and twelve digital NPN outputs with output delay control.

12DI / 12DO Modbus Remote I/O Module

Compact Modbus RTU remote I/O module with twelve digital inputs with RPM measurement and pulse counting, and twelve digital NPN outputs with configurable ON/OFF delay control.



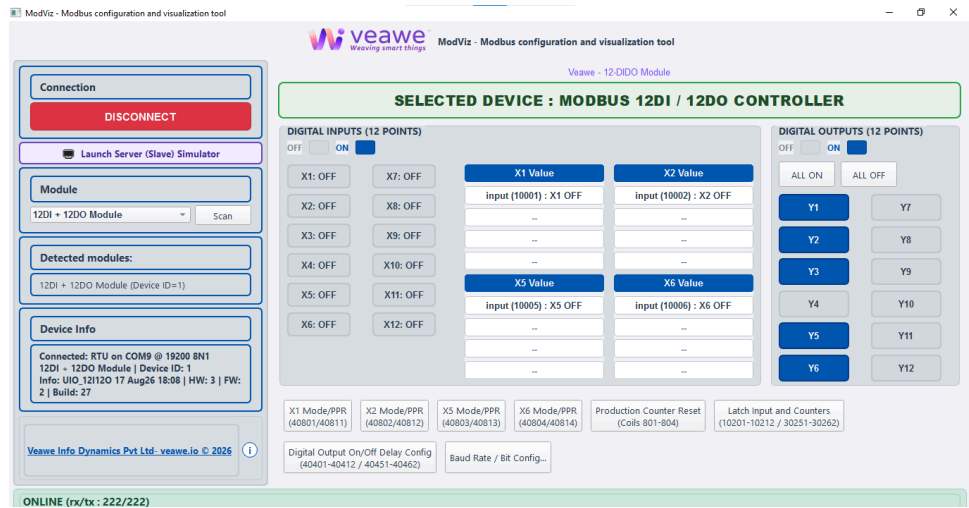
Key Features

- 12 Digital Inputs, 24V compatible
- 12 Digital NPN Outputs
- All inputs have latched status – Never miss an input change
- All inputs have individual counter functions with retentive memory storage
- 4 High speed production counter and RPM measurement
- Configurable digital output ON delay and OFF delay
- Modbus RTU over RS-485
- Rotary address switch for address selection from 1 to 99
- Wide supported baud rates from 300 to 115200
- DIN rail or wall mountable
- Dimensions: 110 mm × 140 mm × 85 mm (L × W × H)

ModViz – Modbus Configuration & Visualization Tool

ModViz is a powerful yet simple configuration and visualization tool designed to work seamlessly with **Veawe Modbus I/O modules**. It enables engineers, system integrators, and technicians to quickly configure, monitor, and test field devices through an intuitive graphical interface.

The software can be downloaded from <https://veawe.io/modviz/>



Ordering Information

Product Code	Description
UIO-12DI-12DO	12-Channel Digital Input / 12-Channel Digital Output Modbus Remote I/O Module
UIO-24DI-24DO	24-Channel Digital Output and Input Modbus Remote I/O Module
UIO-24DI	24-Channel Digital Input Modbus Remote I/O Module
UIO-24DO	24-Channel Digital Output Modbus Remote I/O Module
UIO-4DI-4DO	4-Channel Digital Output and Input Modbus Remote I/O Module
UIO-8DI	8-Channel Digital Input Modbus Remote I/O Module

Applications

- Reading 12 digital PNP input signals and simultaneously controlling 12 NPN outputs from a single Modbus module
- Counting pulses from flow meters, encoders, and proximity sensors with retentive memory
- Measuring production rates and machine RPM using 4 high speed counter channels
- Driving relays, solenoids, and indicator lamps with configurable per-channel ON/OFF delay
- Building compact Modbus I/O expansion for PLCs and SCADA systems where both input and output are needed
- Replacing traditional timer relays with software-configurable delay logic on each output channel

Specifications

Parameter	Value
Mounting	DIN rail or wall mountable
Dimensions	110 mm × 140 mm × 85 mm (L × W × H)

Electrical Specifications

Parameter	Value
Supply Voltage	15–24V DC
Digital Output Rating	24VDC 500mA max, NPN Control
Digital Input Voltage	15–24V DC, PNP Inputs
Communication Port	RS-485

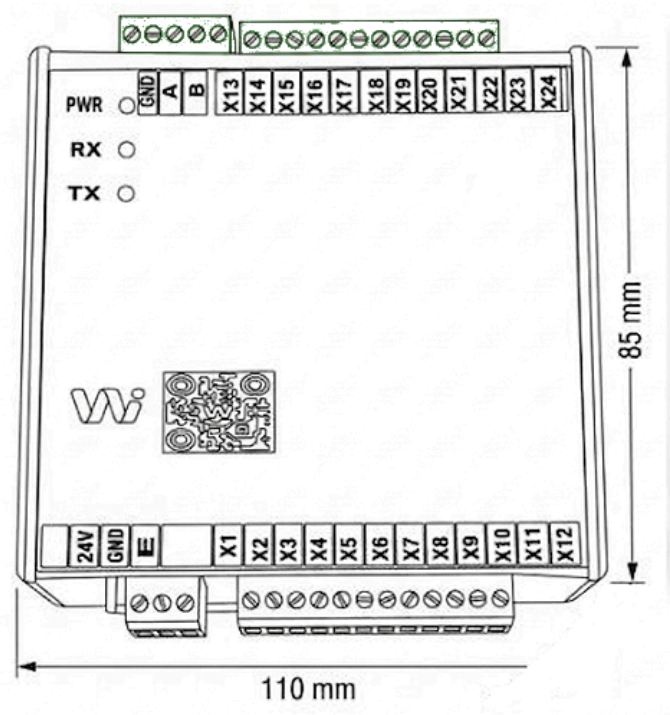
Input/Output Specifications

Parameter	Value
Digital Input Channel Count	12
Input Type	Digital PNP, 24V compatible
Digital Output Channel Count	12
Output Type	Digital NPN
Slow Counter Speed	Up to 1 kHz
High Speed Counter Channels	4 (X1, X2, X5, X6)
Counter Memory	Retentive on power cycles
ON/OFF Delay Resolution	10 ms (1 count = 10 ms)
Maximum Output Delay	655.35 seconds (65535 counts)

Isolation & Protection Specifications

Parameter	Value	Notes / Description
Supply Reverse Polarity Protection		
Supply Isolation		
Transient Voltage Clamping		
EMC & Immunity Standards		
RS-485 Bus ESD Protection		

Mechanical Dimensions



Terminal Details

Top Connector – RS-485

Pin	1	2	3	4	5
Signal	A	B	Shield	NC	NC

Bottom Connector – Power

Pin	1	2
Signal	24V	GND

Digital Input Connector

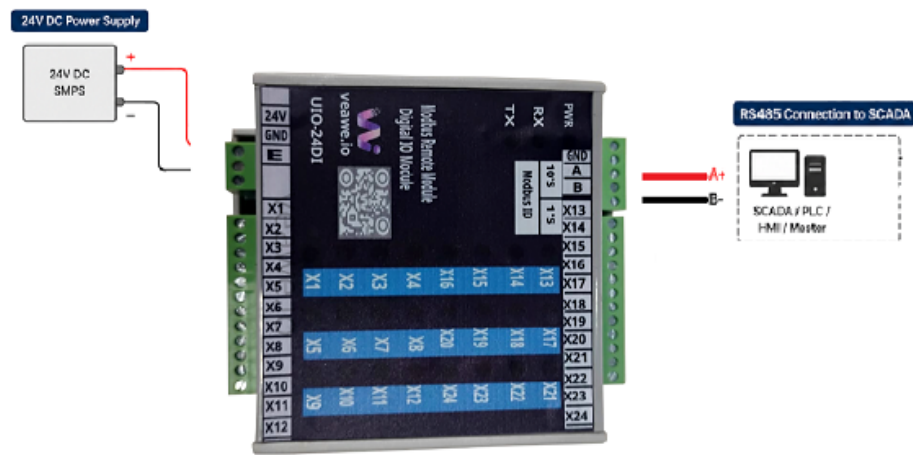
Pin	Signal
1–12	X1–X12

Digital Output Connector

Pin	Signal
1–12	Y1–Y12

Wiring Diagrams

Note: All images and connection diagrams shown are for illustrative purposes only and may differ from the actual product.



Communication Interface

Protocol	Physical Layer	Default Baud Rate	Default Format
Modbus RTU	RS-485	19200	8N1

Basic Process Registers

Signal	Address	Type	Description
DI1–DI12	10001–10012	Bit	DI1 to DI12 live digital input status
DO1–DO12	00001–00012	Bit	DO1 to DO12 output control and status

Supported Modbus Function Codes

Read	Write
01 – Read Coils	05 – Write Single Coil
02 – Read Discrete Inputs	06 – Write Single Register
03 – Read Holding Registers	15 – Write Multiple Coils
04 – Read Input Registers	16 – Write Multiple Registers

Register Map Overview

Function	Address Range	Type	Description
Discrete Inputs	10001–10012	Bit	DI1 to DI12 live digital input status
Discrete Inputs	10201–10212	Bit	DI1 to DI12 latched status, auto-clears on read
Coils	00001–00012	Bit	DO1 to DO12 digital output control and status
Coils	00251–00262	Bit	Reset DI1 to DI12 slow counters
Coils	00401–00412	Bit	Pending DO1 to DO12 delay status and override
Input Registers	30251–30262	int16	DI1 to DI12 slow counter values (1 kHz)
Input Registers	30801–30804	int16	X1, X2, X5, X6 RPS values
Input Registers	30811–30814	int16	X1, X2, X5, X6 RPM values
Input Registers	30821–30828	int32	X1, X2, X5, X6 production counters
Holding Registers	40401–40412	int16	DO1 to DO12 ON delay
Holding Registers	40451–40462	int16	DO1 to DO12 OFF delay
Holding Registers	40801–40804	int16	HSC1 to HSC4 mode
Holding Registers	40811–40814	int16	HSC1 to HSC4 PPR
Holding Registers	40101	int16	Modbus server (slave) address

Detailed Register Tables

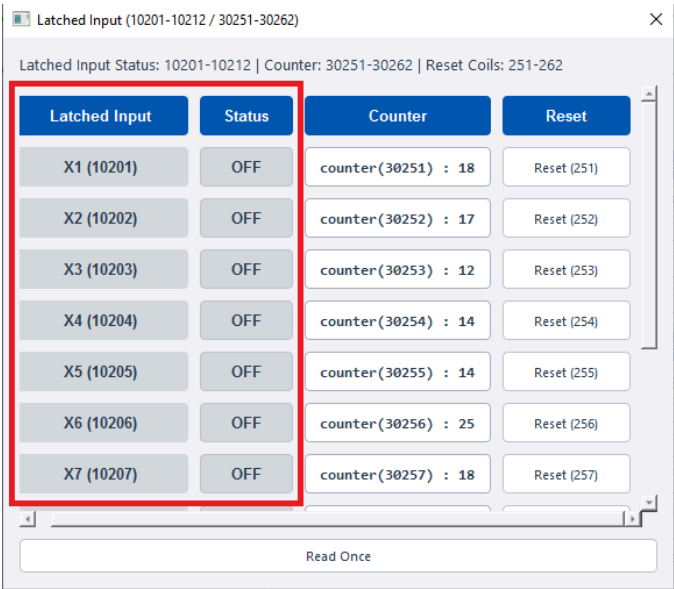
Discrete Inputs (1xxxx)

Digital Live Input Status

Address	Type	Description
10001–10012	Bit	DI1 to DI12 live digital input status

Digital Latched Input Status

Address	Type	Description
10201–10212	Bit	DI1 to DI12 latched status, auto-clears on read



Latched input status stays high even after the input goes low and auto-clears only after the master reads this bit. This ensures no input state change is missed by the controller.

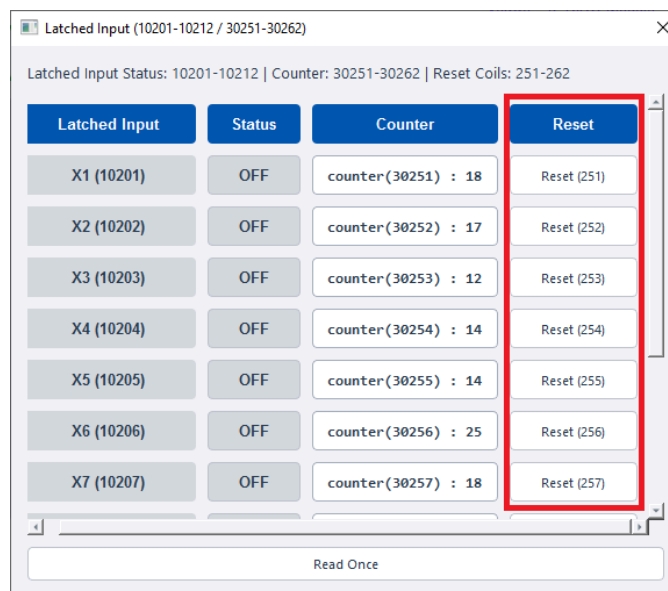
Coils (0xxxx)

Digital Output Control

Address	Type	Description
00001–00012	Bit	DO1 to DO12 digital output control and status

Slow Counter Reset

Address	Type	Description
00251–00262	Bit	Reset DI1 to DI12 slow counter



Writing 1 to the coil resets the corresponding slow counter value. This bit is self-clearing and the reset value is not stored on power cycle.

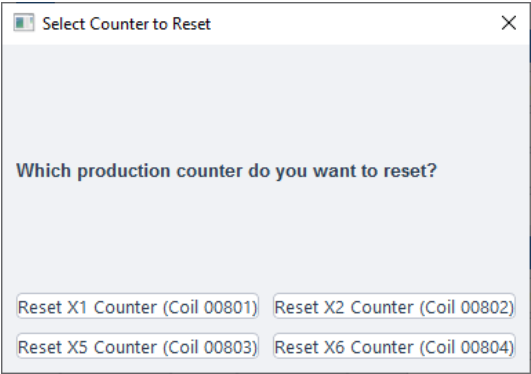
Pending Output State

Address	Type	Description
00401–00412	Bit	Pending DO1 to DO12 state while ON/OFF delay timer is active

Writing 1 to a pending coil overrides the delay timer and immediately switches the output ON.

Production Counter Reset

Address	Type	Description
00801–00804	Bit	Reset production counter for high speed counters X1, X2, X5, X6

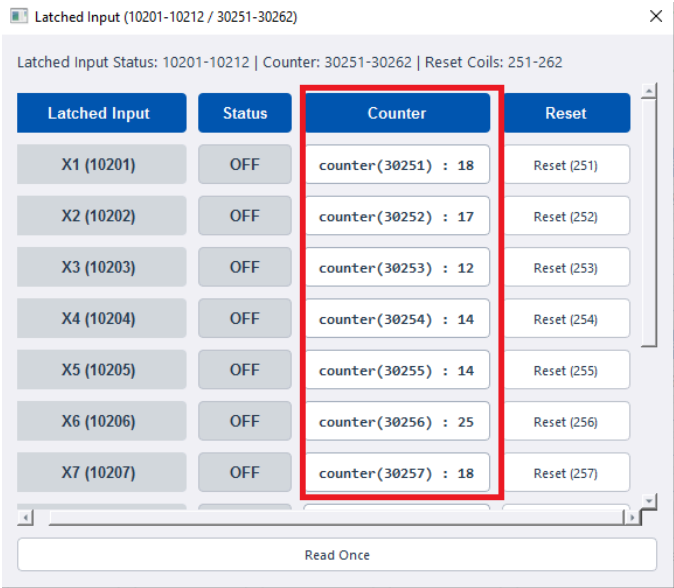


Writing 1 to the coil resets the corresponding retentive production counter value. This bit is self-clearing.

Input Registers (3xxxx)

Digital Inputs Slow Counter Values

Address	Type	Description
30251–30262	int16	DI1 to DI12 slow counter, up to 1 kHz (Retentive memory on power cycles)



DI state changes are counted and stored in these registers. Counter values are retained across power cycles.

High Speed Counter Values

Address	Type	Description
30801–30804	int16	X1, X2, X5, X6 RPS value
30811–30814	int16	X1, X2, X5, X6 RPM value
30821–30828	int32	X1, X2, X5, X6 production counter (Retentive memory on power cycles)

X1 Mode/PPR (40801 / 40811)

X1 mode (40801):

0 - Discrete Input

1 - RPM / RPS

2 - Production Counter

Write Mode

Pulses per revolution (40811):

1

Write PPR

Holding Registers (4xxxx)

Digital Output Delay Configuration

Address	Type	Description
40401–40412	int16	DO1 to DO12 ON delay
40451–40462	int16	DO1 to DO12 OFF delay

Digital Output On/Off Delay (12 Channels)

On Delay: 40401-40412 | Off Delay: 40451-40462 (per digital output)

Use row Write to update one channel only.

Digital Output	On DO Reg	On Delay (1 = 10ms)	Off DO Reg	Off Delay (1 = 10ms)	Write
DO1	40401	100	40451	0	Write
DO2	40402	0	40452	0	Write
DO3	40403	0	40453	0	Write
DO4	40404	0	40454	0	Write
DO5	40405	0	40455	0	Write
DO6	40406	0	40456	0	Write
DO7	40407	0	40457	0	Write
DO8	40408	0	40458	0	Write
DO9	40409	0	40459	0	Write

Read Once

Write All

Delay Resolution: 1 = 10 ms, 100 = 1 second. Maximum value: 65535 = 655.35 seconds.

Communication Settings

Address	Type	Description
40101	int16	Modbus server (slave) address (switch value)
40102	int16	Baud rate selection
40103	int16	Serial format selection
40106	int16	Watchdog interval. Example: 10 = 1 second
40107	int16	Watchdog action. 0 = Modbus Watchdog Disabled, 1 = Reset Outputs on Modbus Watchdog Expire

Modbus Address (40101)

This is set using the rotary or DIP switches.

Baud Rate Register (40102) and Serial Format Register (40103)

Value	Baud Rate	Value	Baud Rate	Value	Format
0	300	7	9600	0	8N1
1	600	8	14400	1	8E1
2	1200	9	19200	2	8O1
3	1800	10	38400	3	8N2
4	2400	11	57600	4	8E2
5	4800	12	62500	5	8O2
6	7200	13	115200		

Baud Rate / Bit Setting Config

Baud / Bit Config

Device ID (switch value) (40101): 0

Baud Rate (40102): 0 - 300

Bit Setting (40103): 0 - 8N1

Write

Watchdog Config

Modbus Watchdog Interval (40106) (1=0.1Sec): 0

Modbus Watchdog Action (40107): 0 - Modbus Watchdog Disabled

Write

Read Config

Close

Default: 19200 baud, 8N1.

Default Settings

Setting	Default
Slave Address	As per switch position
Baud Rate	19200
Serial Format	8N1

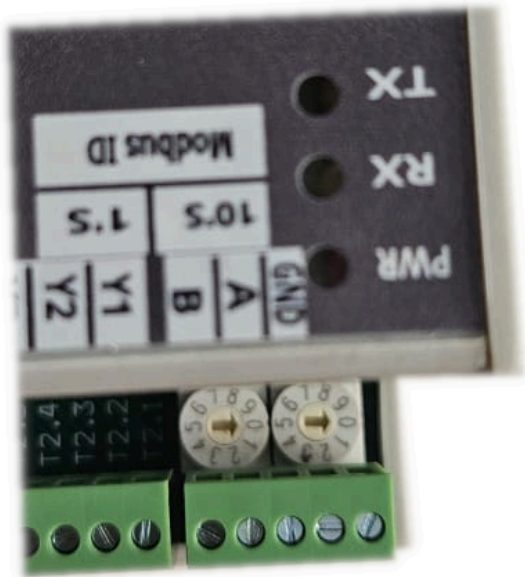
Configuration Settings

Default Mode

Default mode is useful when communication settings are unknown.

When the rotary address switch is set to 00:

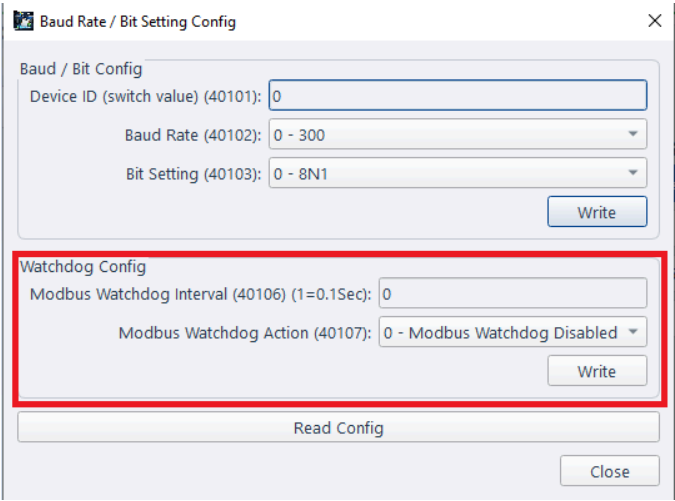
- Server address = 1
- Baud rate = 19200
- Serial format = 8N1



Changing to default mode does not overwrite stored settings. Stored settings remain unchanged until written through Modbus.

Watchdog Action

The Bus Watchdog automatically resets all outputs to their initial safe state if communication with the Modbus client is lost. This helps ensure safe operation during cable disconnection, client failure, or other communication faults.



Configurable timeout: 1 to 600 seconds (100 ms resolution).

LED Indications and Diagnostics

LED	Description
Power	Module power ON indication
Tx	RS-485 transmit activity
Rx	RS-485 receive activity
X1–X12	Digital input status
Y1–Y12	Digital output status

Revision History

Revision	Date	Changes
Rev 1.0	2026-08-10	Initial datasheet, HW Version = 3, FW Version = 2

Get the latest version of this datasheet : [click here..](#)

Support

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