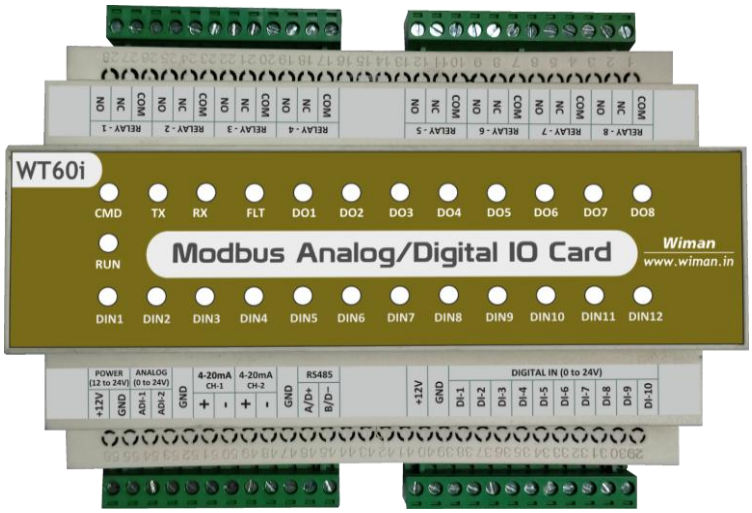
MODEL: IO - Data Registers (MODULE TYPE = 32)



IO SPECIFICATION:

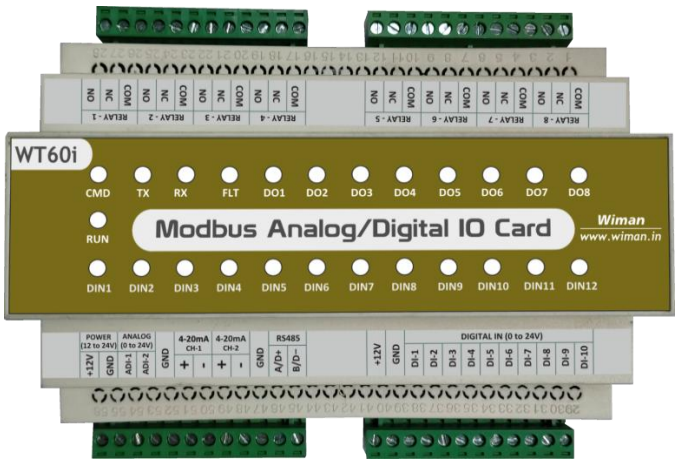
S.No	I/O SPECIFICATION	No's
1	DIGITAL INPUT	10
2	DIGITAL OUTPUT	8
3	ANALOG INPUT (0 -10V)	2
4	CURRENT INPUT (4-20ma)	2

DEVICE SPEC:

Category	Parameters	Specifications
Power	Power Supply	DC 12 to 24 V
	Power Consumption	Not specified
LED Indicators	CMD LED	Command / status indication
	TX LED	Indicates data transmit
	RX LED	Indicates data receive
	FLT LED	Fault indication
	DO1–DO8 LEDs	Status of digital outputs
	DIN LEDs	Status of digital inputs
Local I/O Specification		
Digital Inputs	Number of Channels	12 Channels
	Input Type	Voltage Input
	Input Range	0 to 24 V
Digital Outputs	Number of Channels	8 Channels
	Output Type	Digital (Relay / Transistor as per model)
	Output Control	Modbus Coils
Analog Inputs (Voltage)	Number of Channels	2 Channels
	Input Type	Voltage Input
	Input Range	0 to 10 V (supports up to ~24 V internally)
Analog Inputs (Current)	Number of Channels	2 Channels
	Input Type	Current Input

	Input Range	4 to 20 mA
Optional Features	Watchdog Timer	Yes (Configurable via Modbus)
	Output State Mask	Yes
Resolution	ADC Resolution	Not specified
Accuracy	Accuracy	Not specified
Linearity	Linearity	Not specified
Input Offset	Offset Error	Not specified
Isolation	Isolation Method	Not specified
	Isolation Voltage	Not specified
I/O Terminals	Terminal Type	Screw Terminals
Communication	Interface / Protocol	RS485, Modbus RTU
Configuration	Device ID, Baud, Parity, Scaling	Configurable via Holding Registers
Environment & Approvals		
Operating Temperature	Range	Not specified
Storage Temperature	Range	Not specified
Humidity	Operating Humidity	Not specified
Mounting	Mounting Type	DIN Rail Mounting
Dimensions (mm)	H × W × D	Not specified
Approvals	Certifications	Not specified

CONNECTION DIAGRAM:



Digital Outputs – Coils				
Read Coil → 0x01				
Write Single Coil → 0x05				
Write Multiple Coils → 0x0F				
Coil Address	**Description**	**Type**	**Access**	**Meaning**
1	Digital Output 1	Bit	R/W	0 = OFF, 1 = ON
2	Digital Output 2	Bit	R/W	0 = OFF, 1 = ON
3	Digital Output 3	Bit	R/W	0 = OFF, 1 = ON
4	Digital Output 4	Bit	R/W	0 = OFF, 1 = ON
5	Digital Output 5	Bit	R/W	0 = OFF, 1 = ON
6	Digital Output 6	Bit	R/W	0 = OFF, 1 = ON
7	Digital Output 7	Bit	R/W	0 = OFF, 1 = ON
8	Digital Output 8	Bit	R/W	0 = OFF, 1 = ON

Digital Inputs – Discrete Inputs			
Read Input Status → 0x02			
Address	**Digital Input**	**Type**	**Access**
10001	DI-1	Bit	R
10002	DI-2	Bit	R
10003	DI-3	Bit	R
10004	DI-4	Bit	R
10005	DI-5	Bit	R
10006	DI-6	Bit	R
10007	DI-7	Bit	R
10008	DI-8	Bit	R
10009	DI-9	Bit	R
10010	DI-10	Bit	R
10011	DI-11	Bit	R
10012	DI-12	Bit	R

Input Registers (0x04) – Read-Only Data				
Address	**Register Name**	**Type**	**Access**	**Description**
30001	S/W Version / Module Type	Unsigned int	R	High byte = firmware, Low byte = 101
30002	Digital Inputs (Packed)	Unsigned int	R	DI status in bits (16-MSB → 1-LSB)
30003	Analog Input-1	Float	R	0 – 29.99 V
30005	Analog Input-2	Float	R	0 – 29.99 V
30011	4–20 mA CH-1	Float	R	4 – 19.99 mA
30013	4–20 mA CH-2	Float	R	4 – 19.99 mA

Read Holding Register - 0x03						
S.No	**Address (Dec)**	**Register Name**	**Type**	**Min**	**Max**	**Access**
1	40001	Digital Outputs	unsigned int	0	N/A	R
2	40002	IO Change Status	unsigned int	0	1	R
3	40003	Input-1	unsigned int	0	1	R
4	40004	Input-2	unsigned int	0	1	R
5	40005	Input-3	unsigned int	0	1	R
6	40006	Input-4	unsigned int	0	1	R
7	40007	Input-5	unsigned int	0	1	R
8	40008	Input-6	unsigned int	0	1	R
9	40009	Input-7	unsigned int	0	1	R
10	40010	Input-8	unsigned int	0	1	R
11	40011	Input-9	unsigned int	0	1	R
12	40012	Input-10	unsigned int	0	1	R
13	40013	Input-11	unsigned int	0	1	R
14	40014	Input-12	unsigned int	0	1	R
15	40015	Output-1	unsigned int	0	1	R
16	40016	Output-2	unsigned int	0	1	R
17	40017	Output-3	unsigned int	0	1	R
18	40018	Output-4	unsigned int	0	1	R
19	40019	Output-5	unsigned int	0	1	R

20	40020	Output-6	unsigned int	0	1	R
21	40021	Output-7	unsigned int	0	1	R
22	40022	Output-8	unsigned int	0	1	R
23	40023	Analog Input-1	float	0	29.99	R
24	40025	Analog Input-2	float	0	29.99	R
25	40027	4-20ma ch-1	float	4	19.99	R
26	40029	4-20ma ch-2	float	4	19.99	R

Communication Parameters (R/W)			
Address	**Parameter**	**Range**	**Description**
40101	Device ID	1–247	Modbus slave address
40102	Baud Rate	0–7	2400 → 115200
40103	Data Bits	0	8-bit
40104	Parity	0–2	None / Even / Odd
40105	Stop Bits	1–2	1 or 2 stop bits
40106	Inter-char Delay	2–10	Unit = 10 ms

Watchdog & Output Control			
Address	**Register Name**	**Type**	**Description**
40201	Watchdog Timer	Unsigned int	Seconds (0 = disabled)
40202	Output State Mask	Unsigned int	Default output state

Coil Write Examples:

Action	Relay Index	Description	Command String
Turn ON	Relay 0	Sets Digital Output 1 ON	<DEVCMD: MBCMD=320F0000000101010000 >
Turn OFF	Relay 0	Sets Digital Output 1 OFF	<DEVCMD: MBCMD=320F0000000101000000 >
Turn ON	Relay 1	Sets Digital Output 2 ON	<DEVCMD: MBCMD=320F0001000101010000 >
Turn OFF	Relay 1	Sets Digital Output 2 OFF	<DEVCMD: MBCMD=320F0001000101000000 >
Turn ON	Relay 2	Sets Digital Output 3 ON	<DEVCMD: MBCMD=320F0002000101010000 >
Turn OFF	Relay 2	Sets Digital Output 3 OFF	<DEVCMD: MBCMD=320F0002000101000000 >
Turn ON	Relay 3	Sets Digital Output 4 ON	<DEVCMD: MBCMD=320F0003000101010000 >
Turn OFF	Relay 3	Sets Digital Output 4 OFF	<DEVCMD: MBCMD=320F0003000101000000 >

Action	Description	Command String
All Relays ON	Turns ON all 8 digital outputs	<DEVCMD: MBCMD=320F0000000801FF0000 >
All Relays OFF	Turns OFF all 8 digital outputs	<DEVCMD: MBCMD=320F0000000801000000 >

RELAY CARDS:

NAME	ADDRESS 4x0000
Digital Outputs	1
IO Change Status	2
Input-1	3
Input-2	4
Input-3	5
Input-4	6
Input-5	7
Input-6	8
Input-7	9
Input-8	10
Input-9	11
Input-10	12
Input-11	13
Input-12	14
Output-1	15
Output-2	16
Output-3	17
Output-4	18
Output-5	19
Output-6	20
Output-7	21
Output-8	22
Analog Input-1	23
Analog Input-2	25
4-20ma ch-1	27
4-20ma ch-2	29