

MT-1222e

MODBUS TCP Unit With 2 DI & 2 DO

■ Features

- Digital Input Module with 2 individual isolated channels.
- Digital Output Module with 2 individual isolated channels.
- Supports Automatic Logical Output Function.
- Supports configurable PWM Output Function.
- Supports LED indicators for communication and I/O channels.
- Supports dry and wet digital input types.
- Sink-type (NPN) digital output with overload protection.
- Build-in EEPROM.
- Build-in Watchdog function.
- ESD protection.
- Supports Modbus TCP protocol.
- Supports dynamic IP (DHCP) and static IP settings.
- Up to 20 Modbus TCP clients (Master).
- Up to 32 simultaneous requests per client (Master).
- Up to 4 whitelisted access control entries.



■ Introduction

The MT-1222e offers 2 individual isolated digital input channels and 2 individual isolated digital output channels. Each channel can connect to a different power level due to individual isolation. It also offers 4 LED indicators to monitor the digital I/O status. Either sink-type or source-type digital input can be selected via wire connections. Combining sink-type output and short circuit protection, the MT-1222e has industrial-grade safety design standards with 4 kV ESD protection and 3750 V_{DC} intra-module isolation. The MT-1222e supports Automatic Logical Output based on digital input status. This function is programmable. The PWM Output can be selected, and the PWM frequency is configurable. The MT-1222e supports the Modbus TCP protocol.

The MT-1222e supports both TCP and UDP transmission over Ethernet. To improve security and prevent unauthorized access, the module includes an IP whitelist access control mechanism, allowing connections only from specified IP addresses. It also offers flexible network configuration options, including DHCP for dynamic IP assignment and manual settings for static IP, ensuring compatibility with various network infrastructures.

■ Specifications

Digital Input

Number of Ports		2
Type	Dry contact	Source
	Wet contact	Sink/Source
Dry Contact	ON Voltage	Close to GND
	OFF Voltage	Open
	Effective Distance	Up to 500m
Wet Contact	ON Voltage	+3 to +50 V _{DC}
	OFF Voltage	+4 V _{DC} Max
Input Impedance		3 kΩ
LED Indicator		Yes

Digital Output

Number of Ports		2
Type		Sink (NPN)
Load Voltage		+3.5 to +50 V _{DC}
Maximum Load Current		700 mA/Channel
Power On Value		Yes
LED Indicator		Yes

Ethernet Interface

Port type		RJ-45 Connector
Number of Ports		1
Data Transfer Rate		Up to 100 Mbps
LED Indicator		Yes

Software Feature	
Protocols	Modbus TCP
Mode	Modbus TCP Server
	Automatic Logical Output Function
	PWM Output Function
Configuration Option	Windows Utility

Power	
Power Input	10 to 30 V _{DC}
Power Consumption	< 1W
LED Indicator	Yes, Pwr (Red)

Protection	
Power Isolation	Yes
Digital Input	±50 V _{DC} overvoltage protection
Digital Output	±60 V _{DC} overvoltage protection
	1.3 A (With short-circuit) overload protection
Intra-Module Isolation	3750 V _{DC} (Field-to-Logic)
ESD Protection (IEC 61000-4-2)	±4 kV Contact for each Terminal
	±8 kV Air for Random Point
Reverse Polarity Protection	Yes

Mechanical	
Dimensions (L x W x H)	114mm x 66 mm x 30 mm
Installation	DIN-Rail or Wall Mounting

Environment	
Operating Temperature	-25°C to 75 °C
Storage Temperature	-30°C to 85 °C
Humidity	10% to 95% RH, Non-condensing

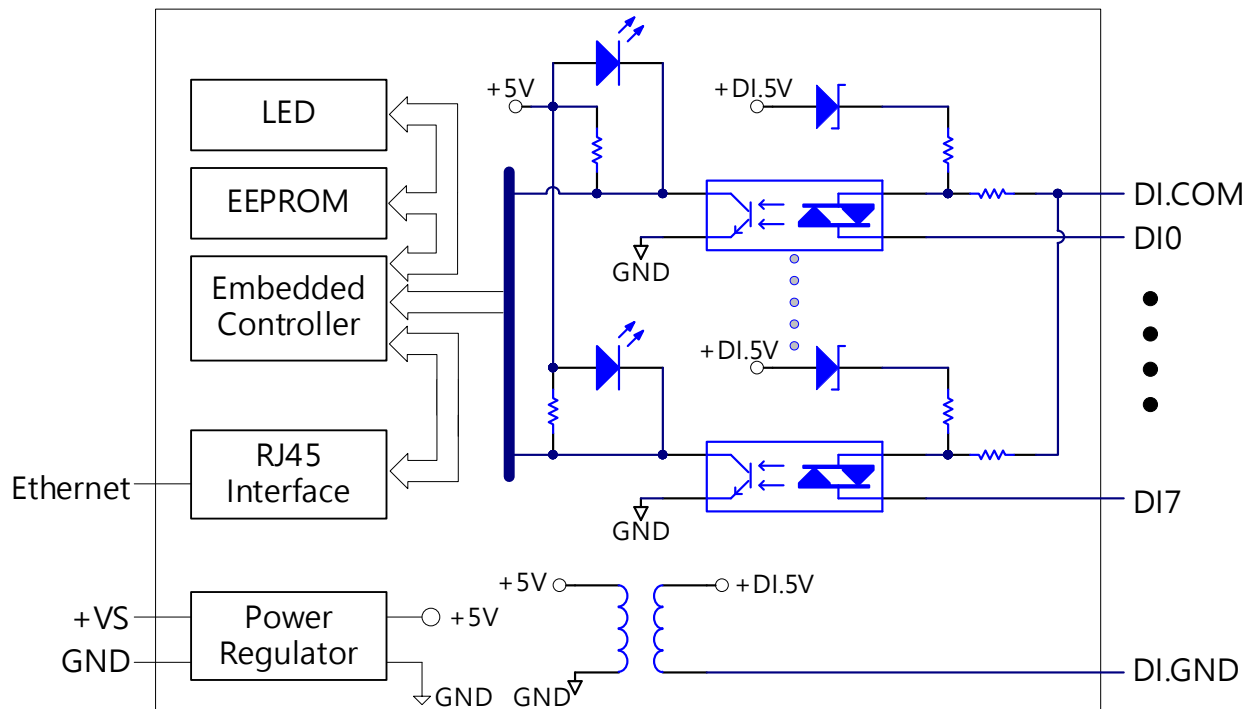
■ Automatic Logic Output function

Logic Mode	
Logic input	Digital Input channel x 2 (DI0, DI1)
Logic output	Digital Output channel x 2 (DO0, DO1)
Logic Function	AND/ OR/ XOR/ XNOR
Input condition setting	Normal/ Inverted / Don't Care

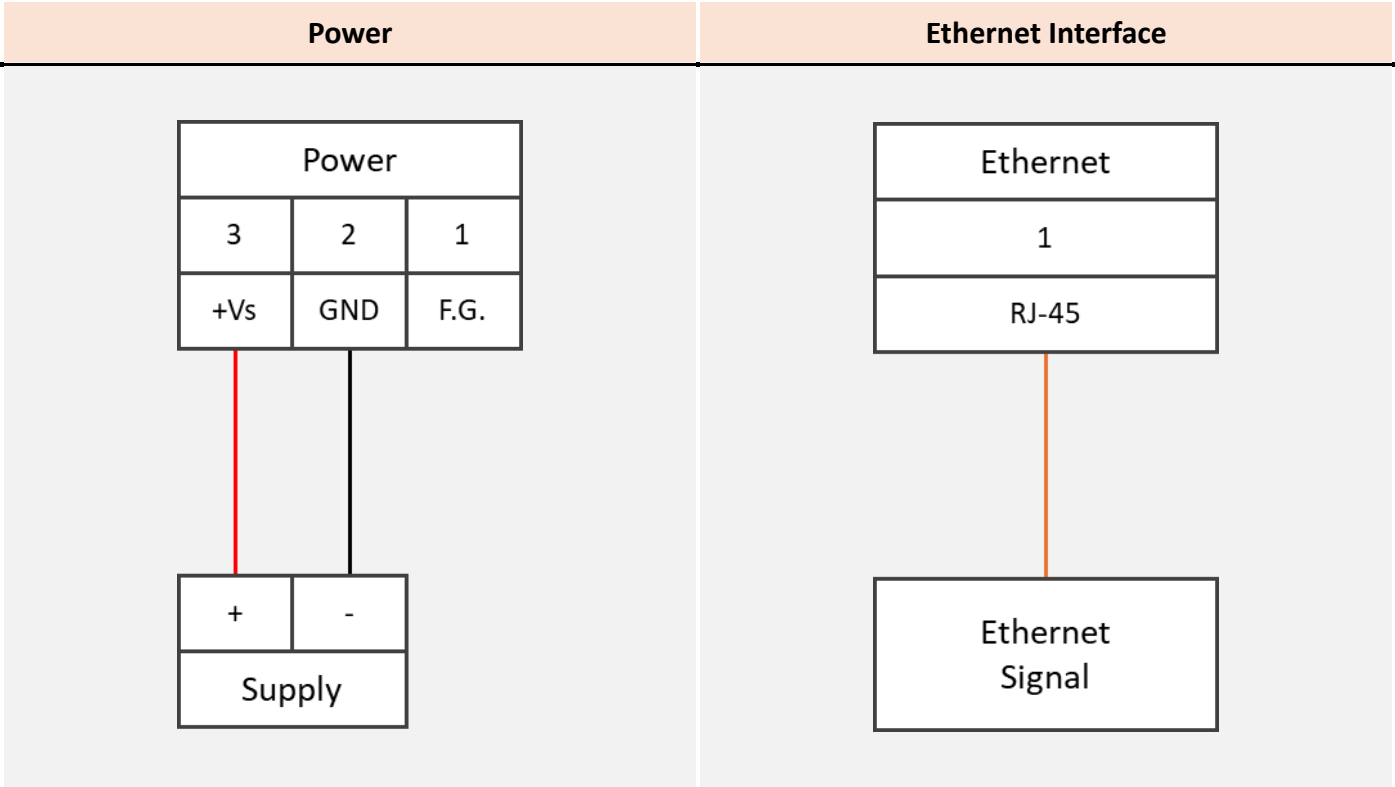
■ PWM Output function

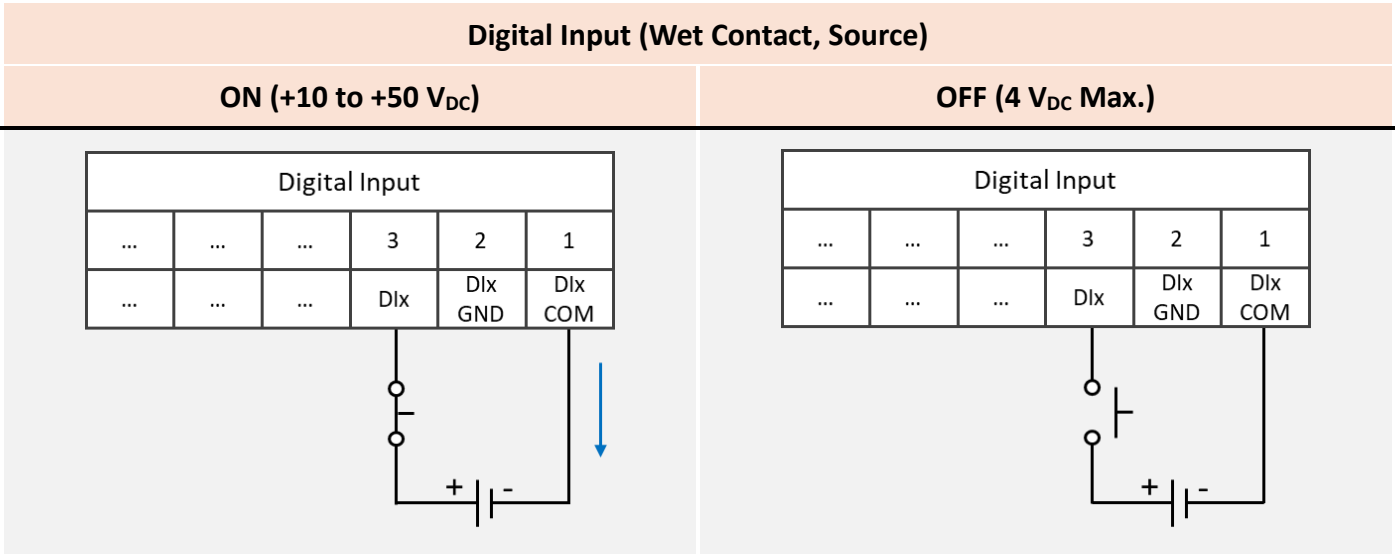
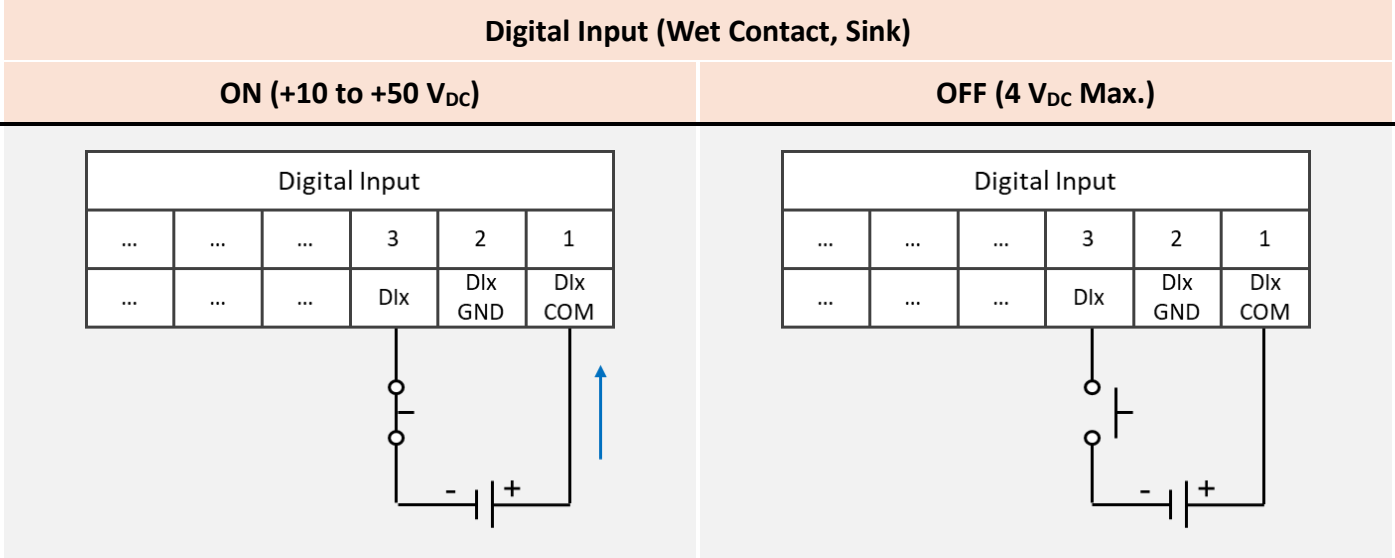
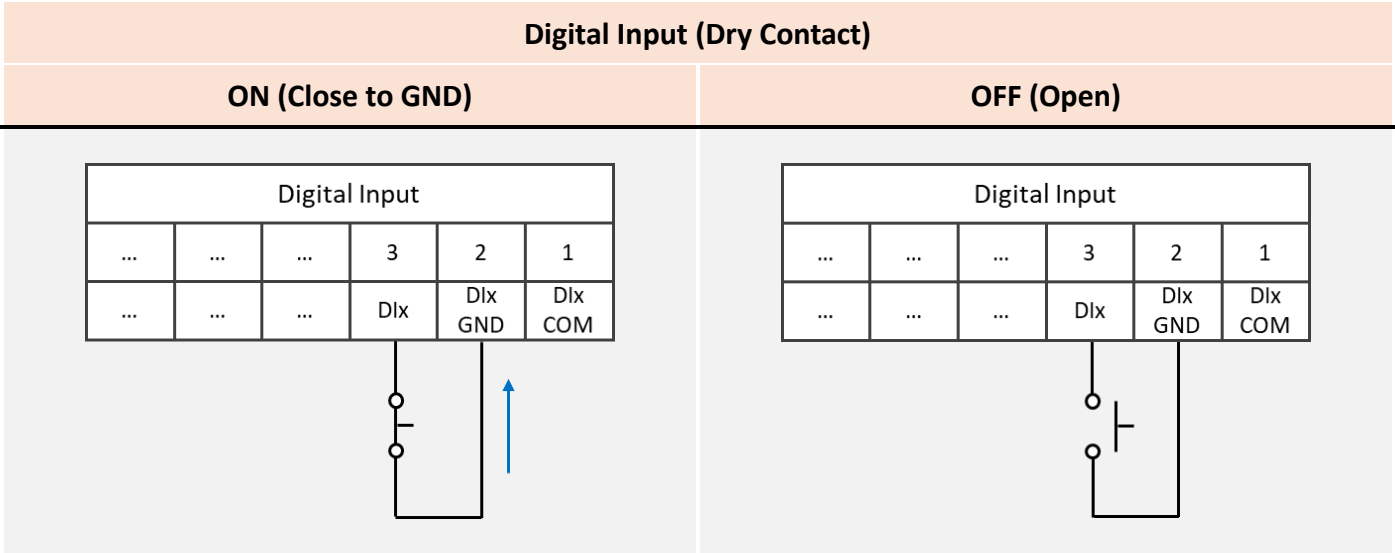
PWM Mode	
PWM output	Digital Output channel x 2 (DO0, DO1)
PWM Frequency	Up to 10 kHz
PWM Duty cycle	Fixed at 50%

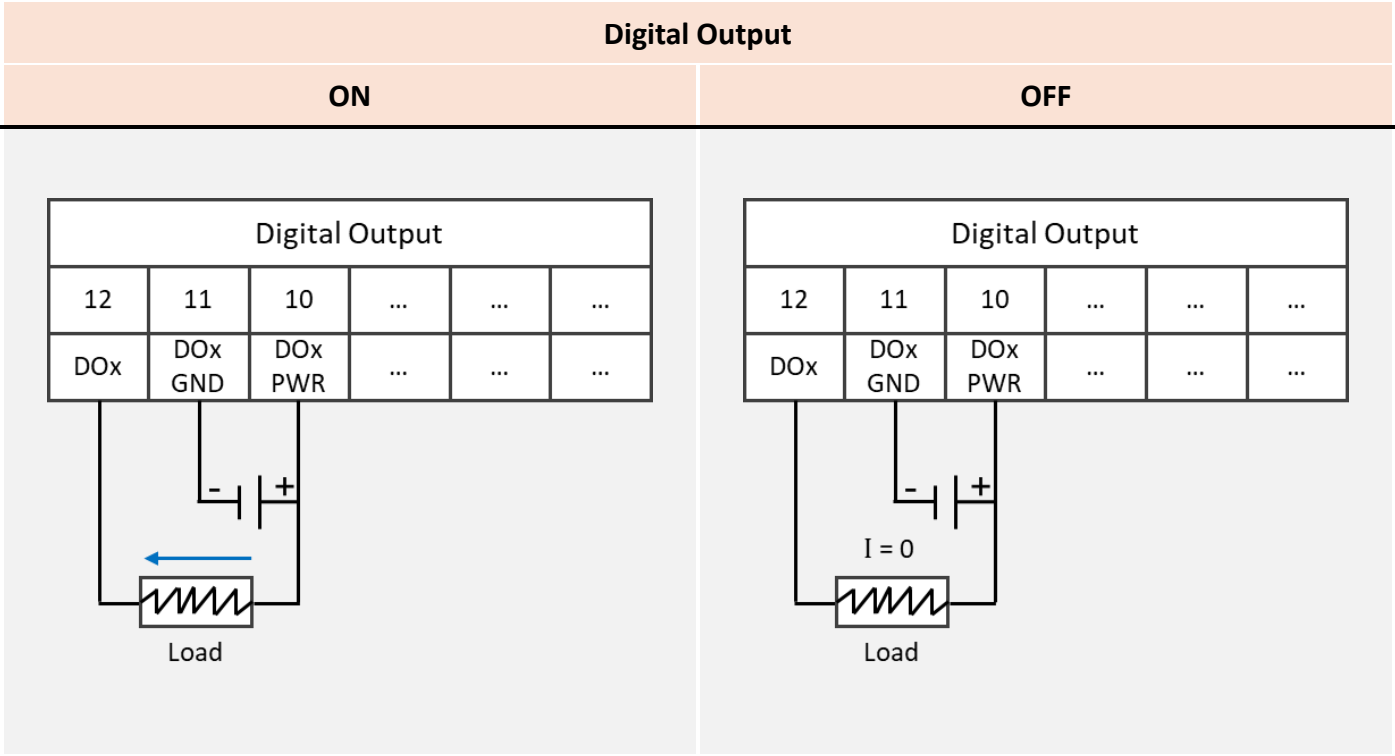
■ Internal I/O Structure



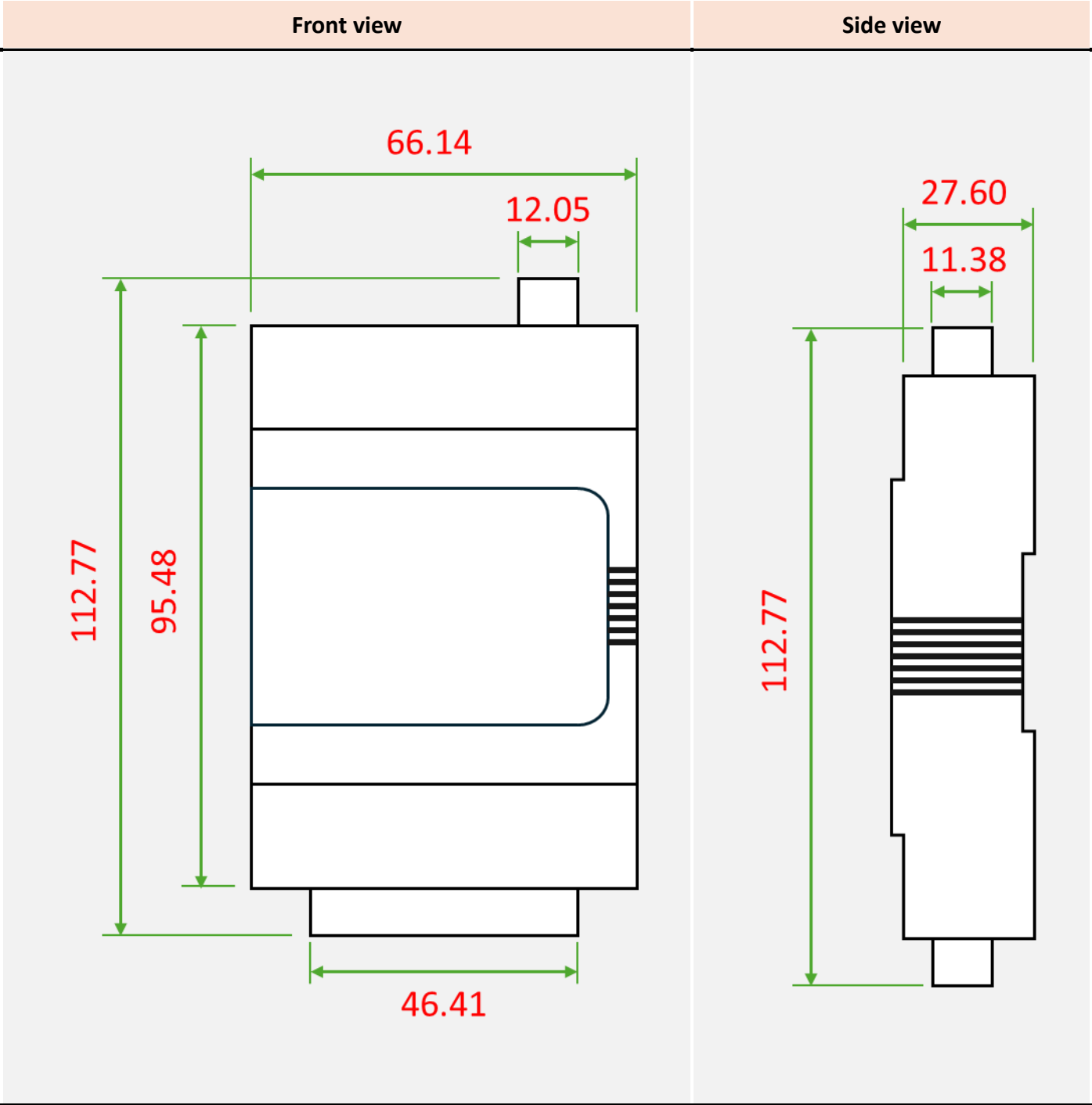
■ Terminal Assignments







■ Dimensions



Unit: mm

■ Appendix



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