

MR-1222a

2 channels DI & 2 channels DO Unit

■ 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.
- Short circuit protection.
- 4 kV ESD protection.
- 3750 V_{DC} intra-module isolation.
- Supports Modbus RTU protocol.



■ Introduction

The MR-1222a 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 MR-1222a has industrial-grade safety design standards with 4 kV ESD protection and 3750 V_{DC} intra-module isolation. The MR-1222a 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 MR-1222a supports the Modbus RTU protocol.

■ 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

Serial Interface

Console Port		RS-485(D+, D-), RS-232(GND, Tx, Rx)
Number of Ports		2
Serial Standards		RS-485, RS-232
Data Transfer Rate		Up to 115.2 kbps
Data Format		(N, 8, 1), (N, 8, 2), (E, 8, 1), (O, 8, 1)
LED Indicator		Yes, Tx (Yellow), Rx (Green)

Software Feature	
Protocols	Modbus RTU
Mode	Modbus RTU Slave
	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

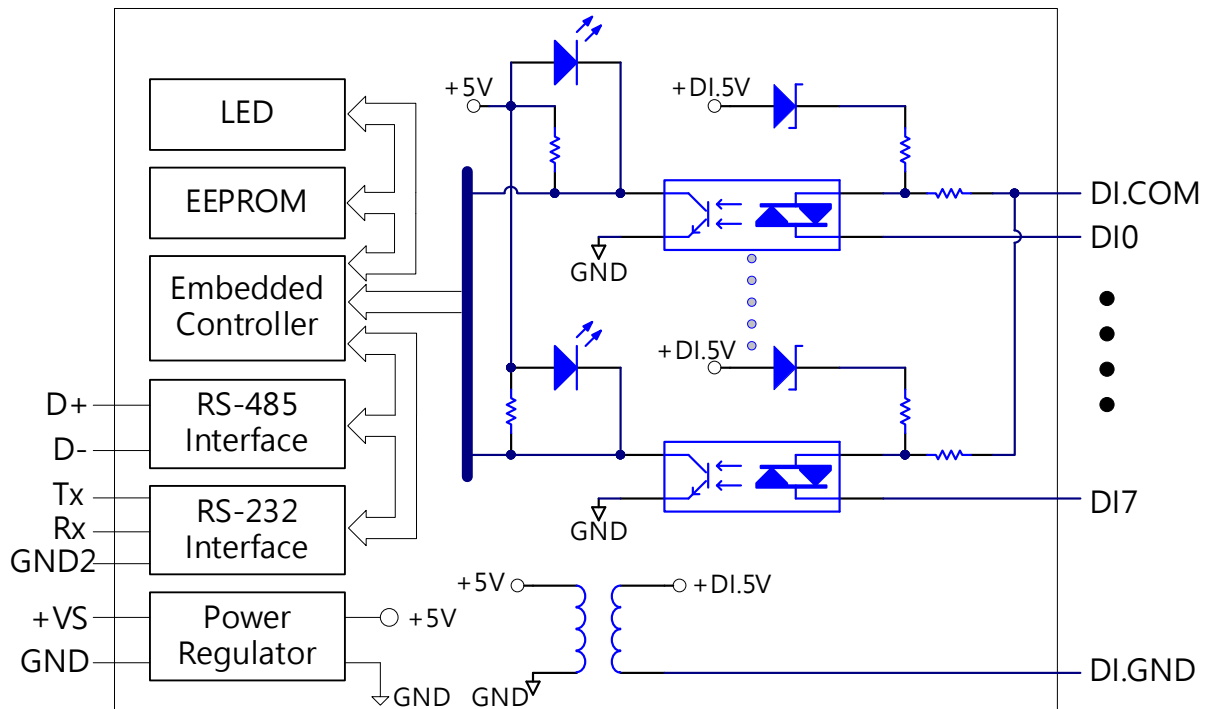
■ Automatic Logic Output function

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

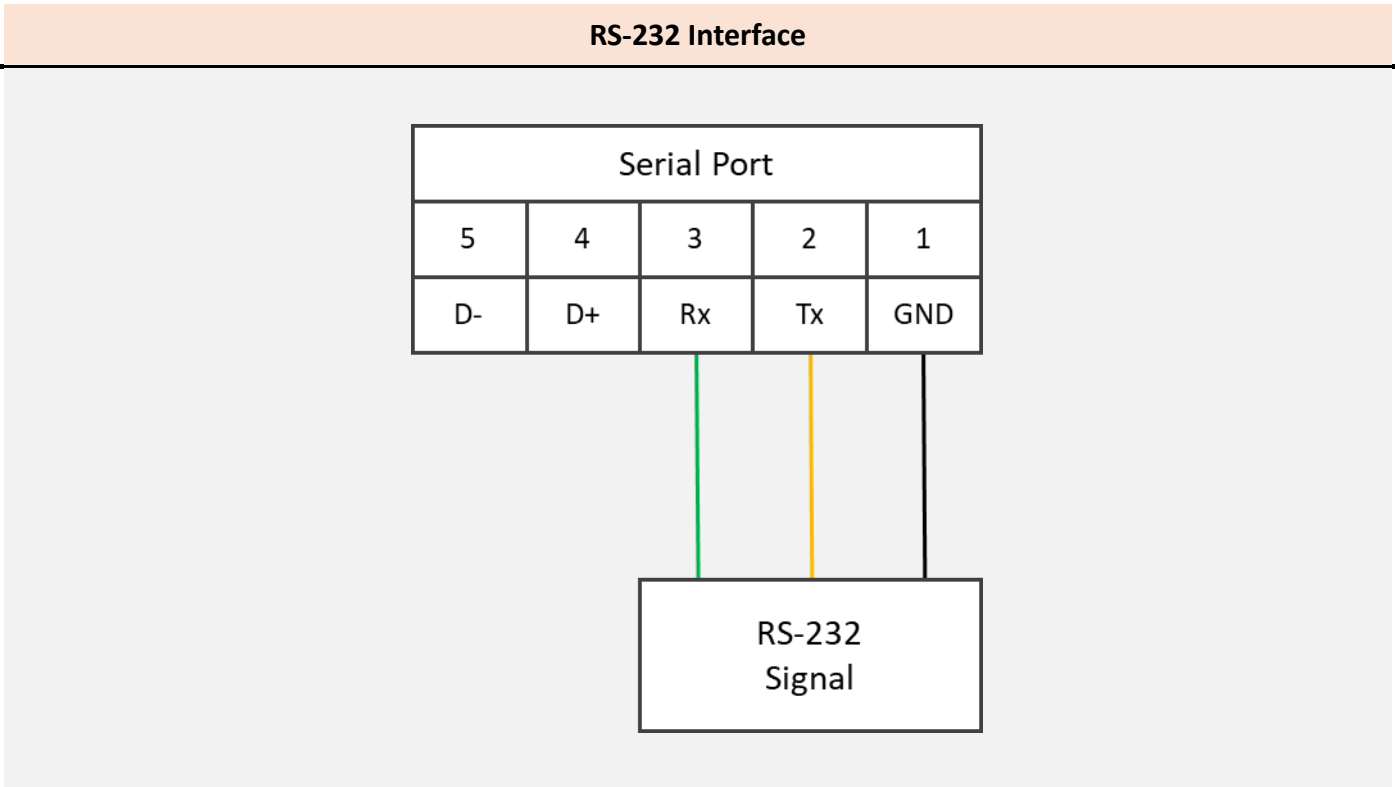
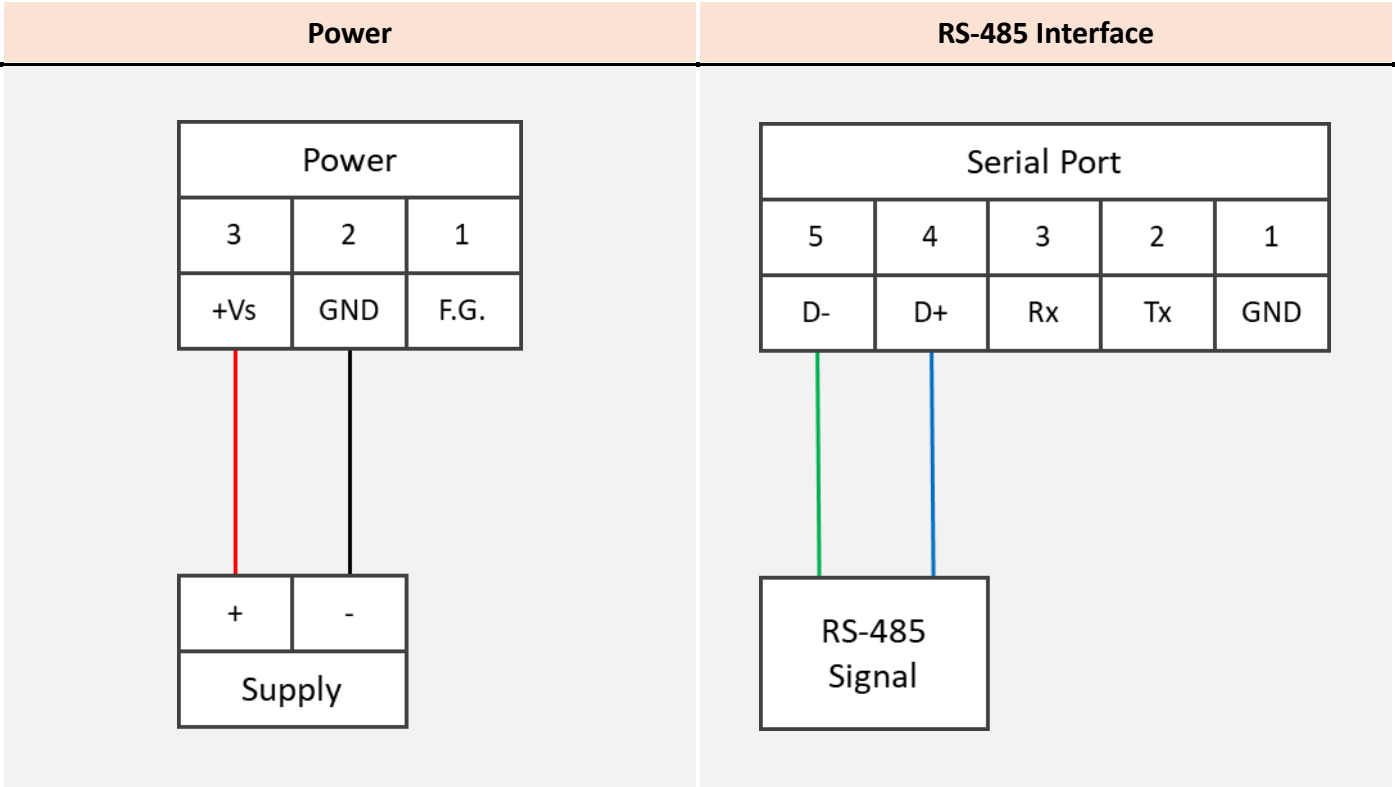
■ PWM Output function

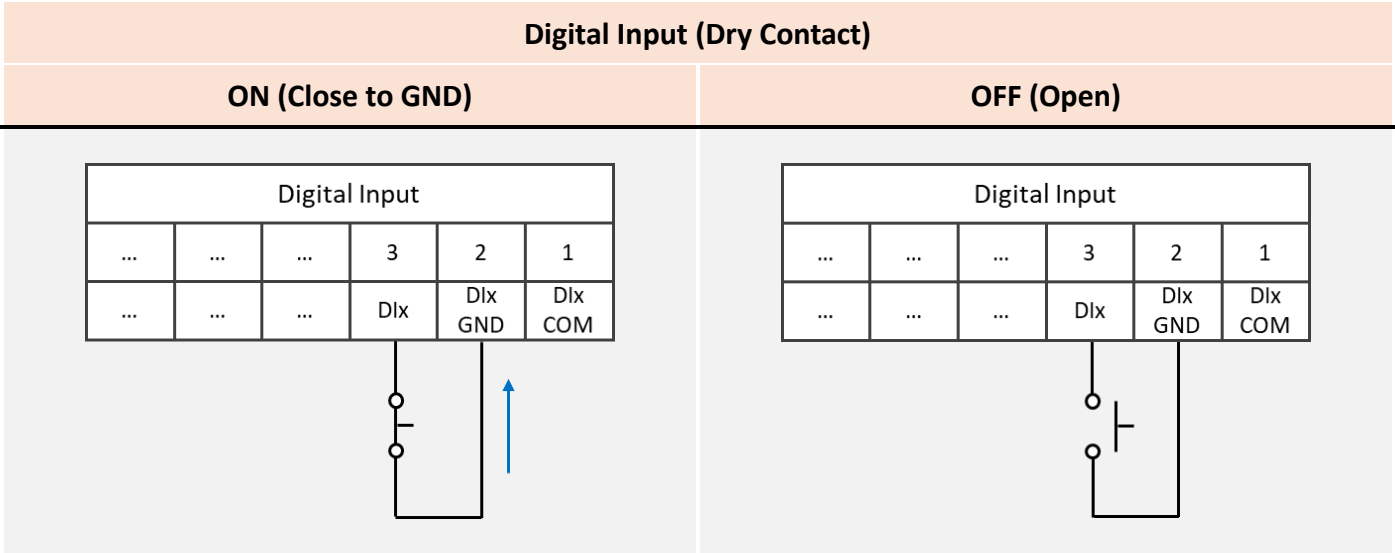
PWM Mode	
PWM output	Digital Output channel x 2 (DO0, DO1)
PWM Frequency	Up to 10 kHz
PWM Duty cycle	Fixed at 50%

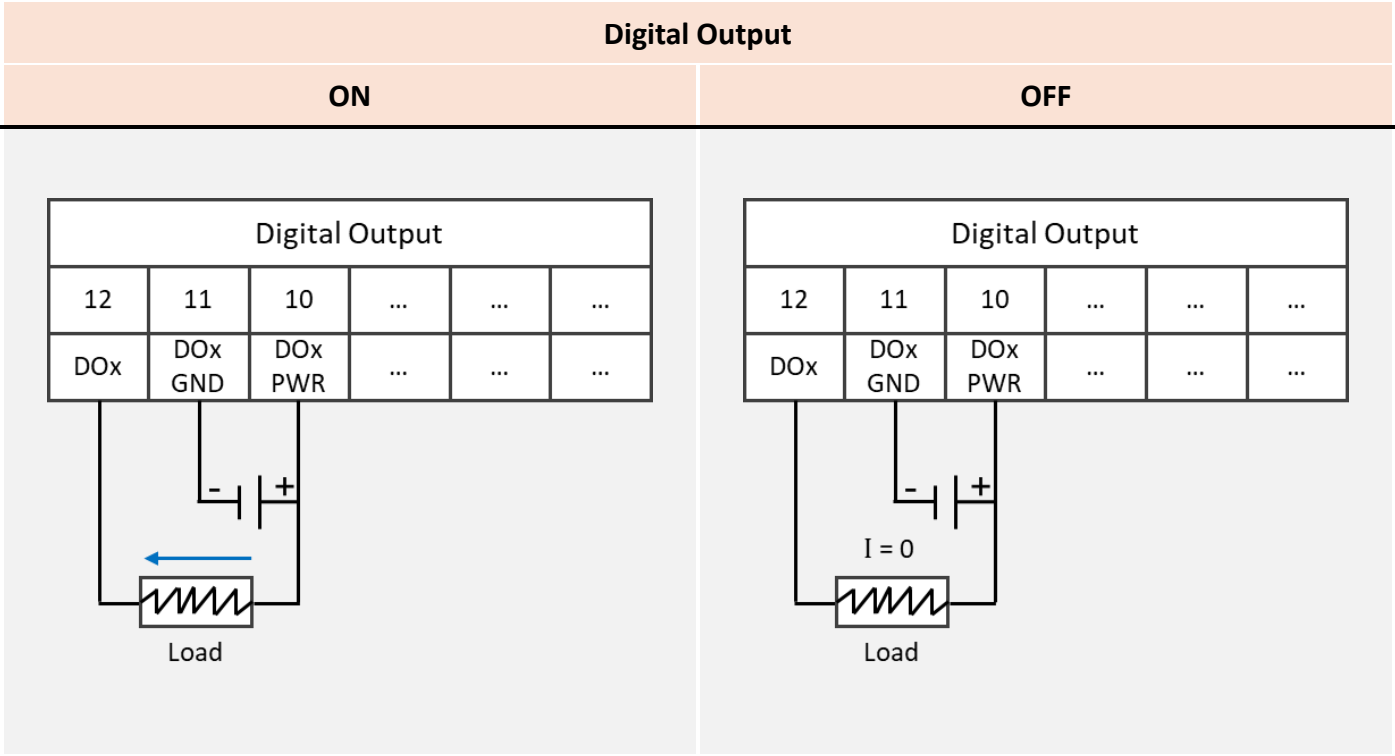
■ Internal I/O Structure



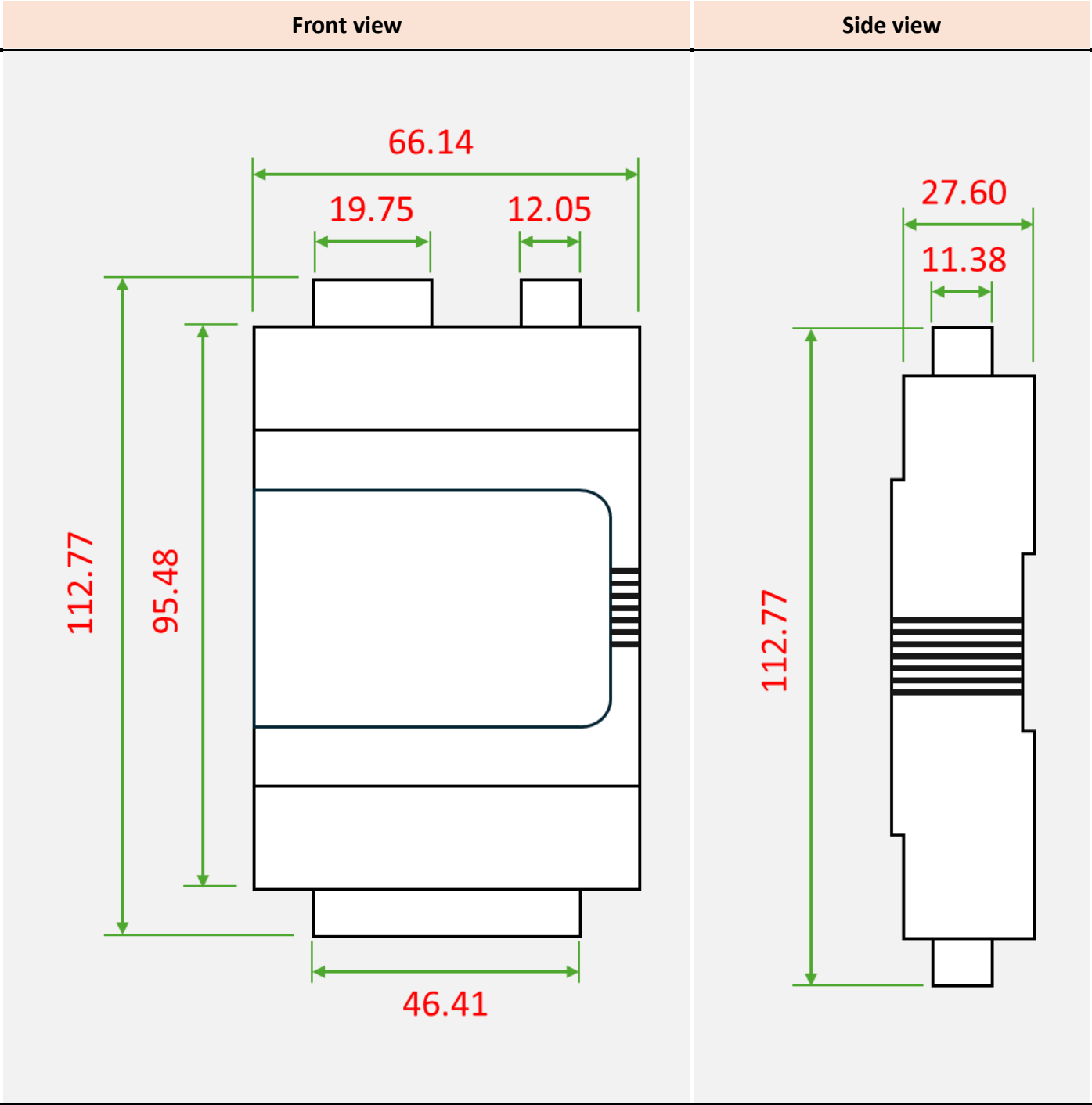
■ Terminal Assignments







■ Dimensions



Unit: mm

■ Appendix



全智升科技股份有限公司



+886-3-582-8498



SALES@ai-up.com.tw



<https://www.AI-UP.com.tw>



Rm. 424, Building 52, No. 195, Section 4,
Zhongxing Road, Zhudong Township,
Hsinchu County 310, Taiwan