

WISE-4671

Advanced Industrial Cat.NB1/Cat.M1 Wireless I/O Module Startup Manual

Overview

Thank you for purchasing the WISE-4671 module. This quick start guide is intended to help you with deploying the module. It includes information on the power requirements and application wiring. Should you require more instructions, please refer to the user manual.

Input Power Requirements

The WISE-4671 has two pairs of external power inputs:

1. +Vs and -Vs (for line power or battery recharge)
2. Solar panel+ and solar panel- (for battery recharge)

Both power inputs support a standard industrial unregulated 24 V_{DC} power supply. This series of modules also accept +10 to +50 V_{DC} power input and 200-mV peak-to-peak power ripple. The immediate ripple voltage should be between +10 and +50 V_{DC}.

Solar panel voltage range is between 17-21V_{DC}.

Battery Power

For modules with a lithium-ion battery, please note that the operating temperature is 0 ~ 60 °C (32~140 °F). For safety reasons, when the temperature is in the range of 45 ~ 60 °C (113 ~ 140 °F), the battery can only be recharged to 20%.

For more information on this and other Advantech products, please visit our website at:

<http://www.advantech.com>

For technical support and service:

<http://support.advantech.com/>

This startup manual is for WISE-4671 Series.

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Packaging List

- 1 x WISE-4671 Wireless Module
- 1 x Waterproof Antenna
- 1 x Mounting Bracket
- 1 x WISE-4671 Startup Manual
- 1 x China RoHS Declaration

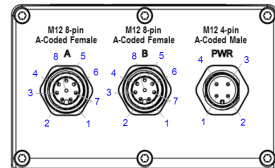
Note: One of the below I/O module should be selected and ordered respectively to be paired with WISE-4671.

Selected I/O Module to be paired with WISE-4671:

- WISE-S614 4AI/4DI with M12 Connectors
- WISE-S614T 4AI/4DI with Terminal Block
- WISE-S615 4RTD with M12 Connectors
- WISE-S617 2AI/2DI/1DO/1RS-485 with M12 Connectors
- WISE-S617T 2AI/2DI/1DO/1RS-485 with Terminal Block
- WISE-S672 6DI/1RS-485/1RS-485 or RS-232 with M12 Connectors

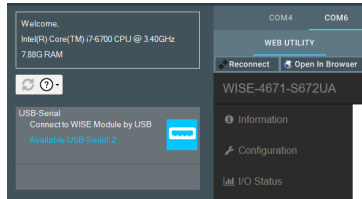
Quick Start for WISE-4671 Series

1. Download and install the USB driver.
2. Download and install WISE Studio from https://support.advantech.com/support/DownloadSRDetail_New.aspx?SR_ID=1-1MJJSJKX&Doc_Source=Download.
3. To power the module, connect a DC power source to the +Vs and -Vs pins. The device can also be powered by internal rechargeable battery by turning the battery switch on the side of the device.
4. Connect the module to your computer via the micro-USB port.
5. Open WISE Studio and click **Go To Configuration**.



Quick Start for WISE-4671 Series (Cont.)

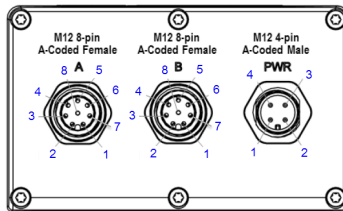
- Press **Connect** to link WISE-4671 and you will see the web configuration page.
- Use web configuration in WISE Utility or press **Open in Browser** to open the web configuration in any browser (Google Chrome is recommended).



- Click **Information** to check whether your module has successfully connected to a Cat.NB1/Cat.M1 network.

Application Wiring

Pin Assignment of WISE-S600 I/O Module with M12 Connectors



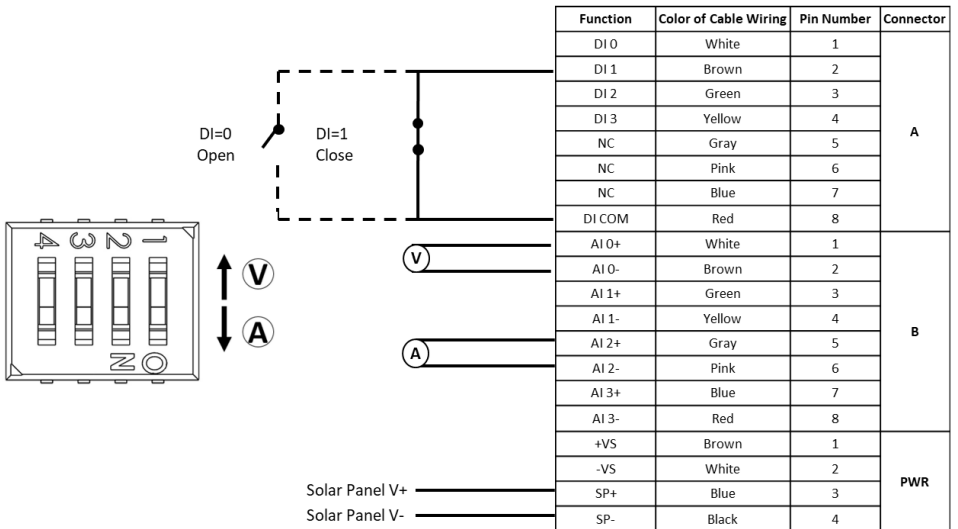
M12 Connector	Model Name	M12 Cable	WISE-S672	WISE-S614	WISE-S615	WISE-S617
	Pin Number					
	PCB P/N					
A	1	White	DI 0	DI 0	RTD0+	AI 0+
	2	Brown	DI 1	DI 1	RTD0-	AI 0-
	3	Green	DI 2	DI 2	RTD0 COM	+12V Out0
	4	Yellow	DI 3	DI 3	NC	+12V Out GND
	5	Gray	DI 4	NC	RTD1+	AI 1+
	6	Pink	DI 5	NC	RTD1-	AI 1-
	7	Blue	NC	NC	RTD1 COM	+12V Out1
	8	Red	DI COM	DI COM	NC	+12V Out GND

Application Wiring (Cont.)

M12 Connector	Model Name	M12 Cable	WISE-S672	WISE-S614	WISE-S615	WISE-S617
	Pin Number					
	PCB P/N					
B	1	White	DATA0-	AI 0+	RTD2+	DI 0
	2	Brown	DATA0+	AI 0-	RTD2-	DI 1
	3	Green	RS-232 TX	AI 1+	RTD2 COM	DI COM
	4	Yellow	RS-232 RX	AI 1-	NC	DO 0
	5	Gray	DATA1-	AI 2+	RTD3+	DO GND
	6	Pink	DATA1+	AI 2-	RTD3-	RS-485 D+
	7	Blue	NC	AI 3+	RTD3 COM	RS-485 D-
	8	Red	RS-232 GND	AI 3-	NC	RS-485 GND
PWR	1	Brown	+VS	+VS	+VS	+VS
	2	White	-VS	-VS	-VS	-VS
	3	Blue	SP+	SP+	SP+	SP+
	4	Black	NC	SP-	SP-	SP-

Application Wiring of WISE-S600 Series I/O Module with M12 Connectors

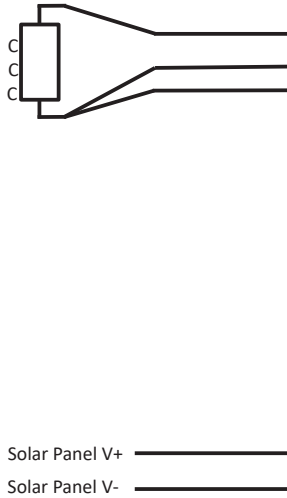
WISE-S614 (4AI/4DI)



Application Wiring (Cont.)

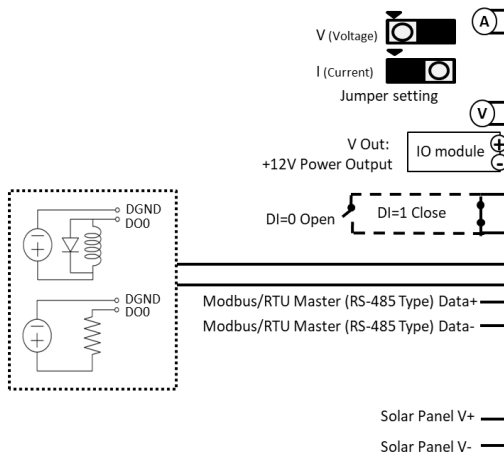
WISE-S615 I/O Application Wiring

RTD
 PT100 (385) : -200~+600 °C
 PT100 (392) : -200~+600 °C
 PT1000 : -40 ~+160 °C



Pin Name	Color of Cable Wiring	Pin Number	Connector
RTD 0+	White	1	A
RTD 0-	Brown	2	
COM 0	Green	3	
NC	Yellow	4	
RTD 1+	Gray	5	
RTD 1-	Pink	6	
COM 1	Blue	7	
NC	Red	8	
RTD 2+	White	1	B
RTD 2-	Brown	2	
COM 2	Green	3	
NC	Yellow	4	
RTD 3+	Gray	5	
RTD 3-	Pink	6	
COM 3	Blue	7	
NC	Red	8	
+Vs	Brown	1	PWR
-Vs	White	2	
Solar Panel V+	Blue	3	
Solar Panel V-	Black	4	

WISE-S617 (2AI/2DI/1DO/1RS-485)

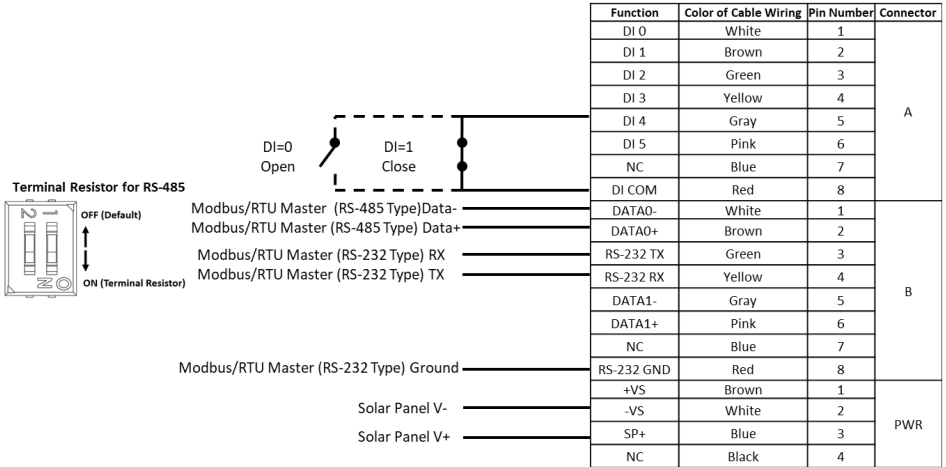


Function	Color of Cable Wiring	Pin Number	Connector
AI 0+	White	1	A
AI 0-	Brown	2	
+12V Out0	Green	3	
+12V Out GND	Yellow	4	
AI 1+	Gray	5	
AI 1-	Pink	6	
+12V Out1	Blue	7	
+12V Out GND	Red	8	
DI 0	White	1	B
DI 1	Brown	2	
DI COM	Green	3	
DO 0	Yellow	4	
DO GND	Gray	5	
RS-485 D+	Pink	6	
RS-485 D-	Blue	7	
RS-485 GND	Red	8	
+VS	Brown	1	PWR
-VS	White	2	
SP+	Blue	3	
SP-	Black	4	

NOTE: PIN RS-485 GND is reserved to

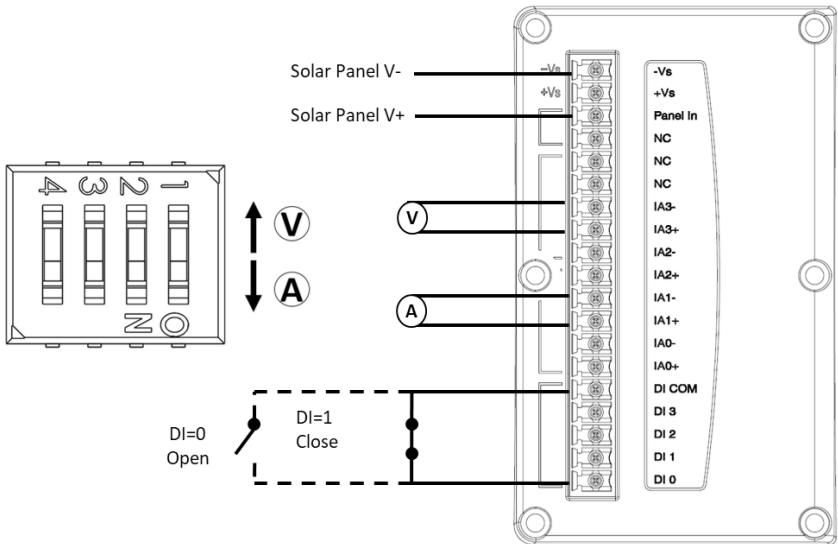
Application Wiring (Cont.)

WISE-S672 (6DI/1RS-485/1RS-485 or 1RS-232)



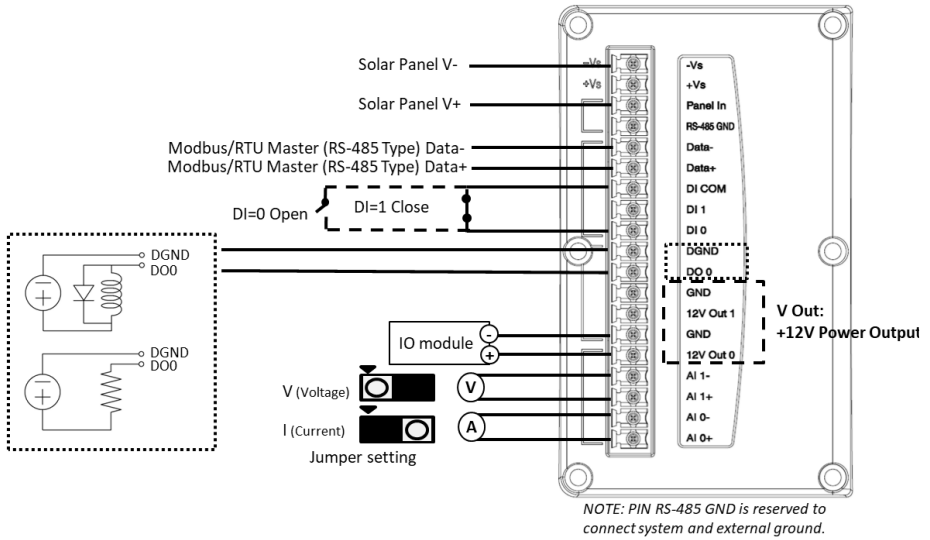
Application Wiring of WISE-S600T Series I/O Module with Terminal Block

WISE-S614T (4AI/4DI)



Application Wiring (Cont.)

WISE-S617T (2AI/2DI/1DO/1RS-485)



Notes

- Install the CP210x USB to UART controller driver.
- USB does not power the module.

Module Configuration

Advantech's WISE-4671 NB-IoT /LTE-M wireless I/O module can be configured to support either NB-IoT or LTE-M using the WISE Studio utility via a USB port. For advanced industrial applications, WISE-4671 can be equipped with optional GPS, a solar rechargeable battery, and an IP65-rated enclosure to protect from water and dust ingress. The WISE-4671 wireless I/O module features an intelligent modular design that supports various I/O configurations according to usage requirements. This allows users to easily integrate their desired I/O module (WISE-S672, WISE-S614 etc.) with the WISE-4671 module.

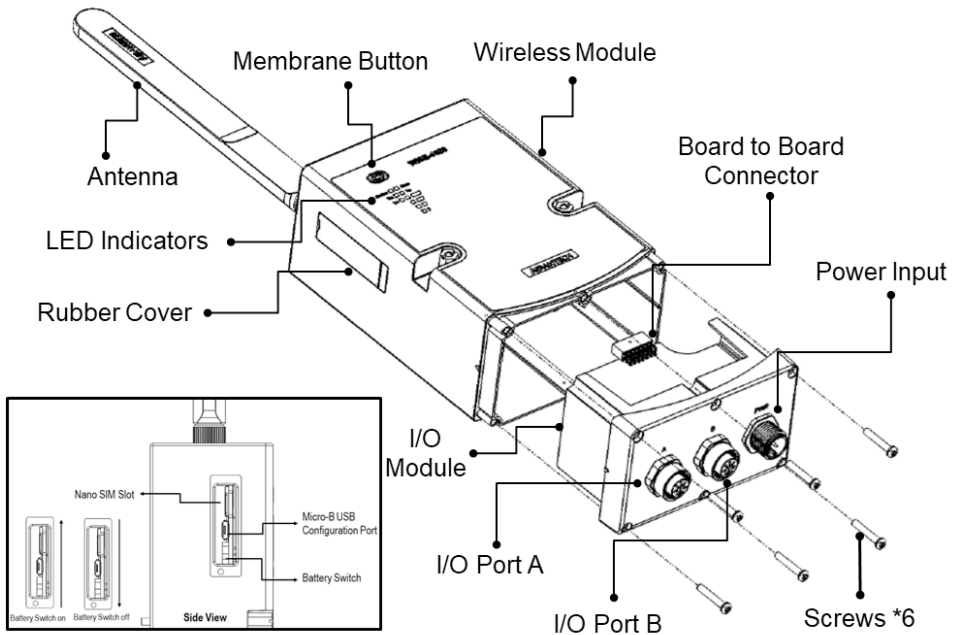
There are three ways to power up the WISE module, battery power, solar panel power and line power.

Open the rubber cover on the side of the WISE module and you can see a battery switch for turning on/off the battery power.

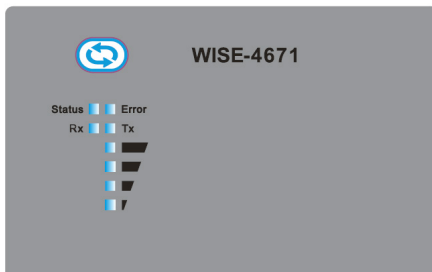
For solar power, it is not only to recharge the battery but also to power up the device.

Refer to the application wiring section for solar panel power and line power pin assignment.

Also, there is a USB port for the device configuration via WISE Studio but note that the WISE device cannot be powered via USB.



Note: Turn off the device when swapping the I/O module to avoid hardware damage.



Led Indicators

The LED indicators are described as follows:

	LED	Color	Indication		Behavior
Upper Board (RF)	Status	Green	Blink	2 Hz	No NB-IoT network connection.
				0.5 Hz	NB-IoT network connection is successfully initialized.
	RF RX	Green	On		Receiving data via the NB-IoT network.
			Off		Idle
	RF TX	Yellow	On		Sending data via the NB-IoT network.
			Off		Idle
	Error	Red	Blink	2 Hz	a. RF related error with 4th (Full) signal strength LED 2 Hz blinking. b. I/O related error with 3rd (Good) signal strength LED 2 Hz blinking.
				0.5 Hz	a. Battery related Error.b. Low battery voltage ($v \leq 20\%$)
			Off		No error
	Signal Strength	Green	ON (normal)		<ul style="list-style-type: none"> • 4 ON: Full signal (RSRP Index > 56)(-85 dBm < RSRP) • 3 ON: Good signal (RSSP Index >= 47)(-94 dBm ≤ RSRP ≤ -85 dBm) • 2 ON: Okay signal (RSRP Index >= 37)(-104 dBm ≤ RSRP ≤ -95 dBm) • 1 ON: Poor signal (RSRP Index >= 0)(RSRP ≤ -105 dBm) • ALL OFF: No signal (Not registered to network, or registration denied)
			ON (if Press Membrane Button)		Main battery remain capacity <ul style="list-style-type: none"> • All OFF – $v \leq 20\%$ • 1 ON – $20\% < v < 40\%$ • 2 ON – $40\% \leq v < 60\%$ • 3 ON – $60\% \leq v < 80\%$ • 4 ON – $v \geq 80\%$