

WIS FAMILY DATASHEET



Technical Features CONECTABLE PLC 12/24Vdc WIS

MODEL TYPE	WIS PLC Series	
Input Voltage	12 to 24Vdc (Polarity protection)	
Input rated voltage	11.4 to 25.4 Vdc	
Rated Power	30 W	
I max. at 24Vdc	1.5A	
Size	107x46x127	
CPU	Arduino MKR 1010	MKR-ESP32
Clock Speed	32.768kHz(RTC), 45MHz	40MHz
Memory	256KB(internal) - CPU Flash Memory 32KB - SRAM	448 KB - ROM 520 KB - SRAM 16 KB - SRAM in RTC
Communications	WiFi - 802.11b/g/n Bluetooth Low Energy Ethernet Serial TTL - RS485 - I2C - SPI	
Product Name	WIS-MKR1010-A1	WIS-ESP32-A1
Reference	4000003853	4000003857
Additional Communications:	LoRa	NB-IoT
CPU - Arduino MKR	WIS-MKR-LORA-A1	WIS-MKR-NB-IoT-A1
Reference	4000003854	4000003855
CPU - ESP32	WIS-ESP32-LORA-A1	WIS-ESP32-NB-IoT-A1
Reference	4000003858	4000003859

General Features

Power supply voltage	DC power supply	12 to 24Vdc
Operating voltage range	DC power supply	11.4 to 25.4Vdc
Power consumption	DC power supply	30 W MAX.
USB Consideration	Only meant for uploading or debugging, not always connected as a serial in a project!	
Insulation resistance	20MΩ min.at 500Vdc between the AC terminals and the protective earth terminal.	
Dielectric strength	2.300 VAC at 50/60 Hz for one minute with a leakage current of 10mA max. Between all the external AC terminals and the protective ground terminal.	
Shock resistance	80m/s ² in the X, Y and Z direction 2 times each.	
Ambient temperature (operating)	0° to 60°C	
Ambient humidity (operating)	10% to 90% (no condensation)	
Ambient environment (operating)	With no corrosive gas	
Ambient temperature (storage)	-20° to 60°C	
Power supply holding time	2ms min.	
Weight	350g max.	

INPUTS (x8)

Analog/Digital Input (x4)	As Analog Input: 0 to 10 Vdc Rated Voltage: 10Vdc 12-bit resolution As Digital Input: 5 to 24 Vdc Rated Voltage: 24Vdc
Digital Input (x4)	5 to 24Vdc I max 12 mA at 24Vdc Galvanic Isolation Rated Voltage: 24 Vdc

OUTPUTS (x5)

Analog Output (x1)	0 to 10Vdc I max: 10 mA at 10Vdc Rated Voltage: 10Vdc 10-bit resolution
Digital Isolated Output (x4)	12 / 24Vdc I max: 70 mA Galvanic Isolation Diode Protected for Relay Rated Voltage: 24Vdc

Multifunction PINS

2x 3.3Vdc / 5 Vdc* (Can work as Interrupt Pins)

Expandability

Ethernet - RS485 - Serial TTL - I2C - WiFi - BLE

Notes

RS485 and Serial TTL cannot work at the same time (Selected by Switch)

For Wi-Fi communication, the WIS PLC series provide an external antenna.



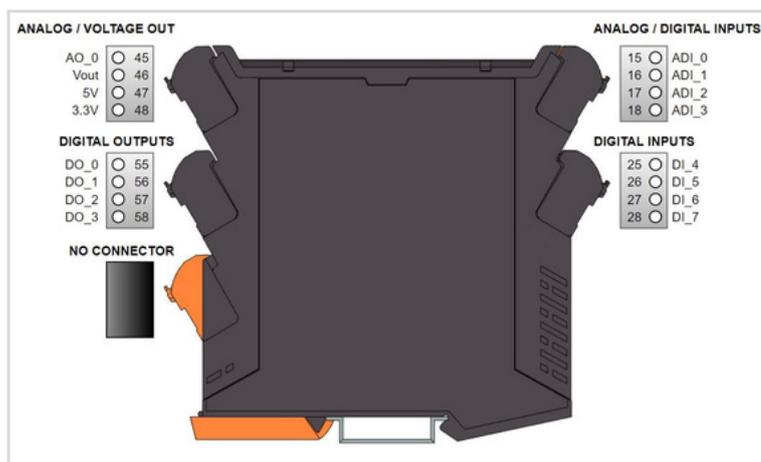
Prerequisites Software:

- Arduino IDE Platform Version 1.8.15 or above
- USB Drivers for WIS-ESP32-A1 series

Prerequisites Hardware:

- External Power Supply unit (12/24Vdc)
- Micro USB type B to USB converter

LEFT SIDE CONNECTORS



RIGHT SIDE CONNECTORS



Performance Specifications

CPU BOARD	Arduino MKR1010 or ESP32
Control method	Stored program method
I/O control method	Combination of the cyclic scan and immediate refresh processing methods.
Programming language	Arduino IDE. Based on wiring (Wiring is an Open Source electronics platform composed of a programming language. "similar to the C")

Notes for Installation

- The installation position should be free from the following: dust or oil smoke, conductive dust, corrosive or flammable gas, high temperature, condensation, and rain.

- Besides, vibration and impact also affect the PLC normal operation and shorten its lifespan; electric shock, fire or misact also damages the product. During drilling or wiring, prevent the metal particles or wire segments from falling into the PLC casing, which may cause fire, fault or misact.

- After the PLC installation, clean the ventilation duct to prevent blocking, which may cause bad ventilation, or even fire, faults, or misact.

- Do not online connect, plug or unplug cables, which is apt to cause electric shock or damage the circuit. Installation and wire connection must be firm and reliable. Poor connection could cause misact.

- Use shielded twisted pair for the I/O of high frequency signal and analog signal to improve system IMS.

The installation environment should be free from dust, oil smoke, conductive particle, corrosive or flammable gases, high temperature, condensation and rain.

Besides, vibration and impact also affect the PLC normal operation and shorten its lifespan. It is recommended to install the PLC, together with the matching switches and contactors, in a dedicated electric cabinet and keep the cabinet ventilated.

Symbology

	Indicates that the equipment is suitable for direct current only, to identify relevant terminals
	Indicates that the equipment is suitable for alternating current only, to identify relevant terminals
	To identify the control by which a pulse is started.
	To identify an earth (ground) terminal in cases where neither the symbol 5018 nor 5019 is explicitly required.
	To identify the switch by means of which the signal lamp(s) is (are) switched on or off.
	CE marking indicates that a product complies with applicable European Union regulations
	UKCA marking indicates that a product complies with applicable United Kingdom regulations
	Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury
	To indicate hazards arising from dangerous voltages

Warnings

Unused pins should not be connected. Ignoring the directive may damage the controller.

Before using this product, it is the responsibility of the user to read the product's User Guide and all accompanying documentation.

Industrial Shields PLCs must be powered between 12Vdc and 24Vdc. If a higher voltage is supplied to the equipment can suffer irreversible damage.

Maintenance must be performed by qualified personnel familiarized with the construction, operation, and hazards involved with the control.

Maintenance should be performed with the control out of operation and disconnected from all sources of power.

The Industrial Shields Family PLCs are Open Type Controllers. It is required that you install the WIS IoT Device in a housing, cabinet, or electric control room. Entry to the housing, cabinet or electric control room should be limited to authorized personnel.

Inside the housing, cabinet, or electric control room, the Industrial Shields PLC must be at a minimum distance from the rest of the components of a minimum of 25 cm, it can be severely damaged.

Failure to follow these installation requirements could result in severe personal injury and/or property damage. Always follow these requirements when installing WIS family PLCs.

In case of installation or maintenance of the WIS please follow the instructions marked in the Installation and Maintenance section on the User Guide.

Do not disconnect equipment when a flammable or combustible atmosphere is present.

Disconnection of equipment when a flammable or combustible atmosphere is present may cause a fire or explosion which could result in death, serious injury and/or property damage.

This equipment does **not include galvanic isolation between the grounds** of the different systems. This means that if an external device or sensor that shares the same ground reference (GND) with the system is connected, any potential difference between these grounds could damage the connected components. To avoid issues with interference, ground loops, or damage to external equipment, ensure that all connected devices share the same ground reference or use systems with appropriate isolation. The recommendations in this case are:

- **Connection Review:** Verify that all ground connections are properly made and that there are no significant potential differences between them.
- **Use of Isolation:** Consider using **galvanic isolators** or **isolation transformers** if it is necessary to connect equipment with different ground references.

Technical Support

You can contact with us using the best channel for you:

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