Technical Features Gateberry

MODEL TYPE	Gateberry (UPS Smart Shield, Real Time Clock (RTC), RS-485, I2C and Expansion Board for Raspberry Pi)
Input Voltage	12 to 24Vdc (Protected against reverse polarity)
Input rated voltage	24 Vdc
Rated Power	30 W
I max.	3.5 A
Size	Check the dimensions figure
Compatibility	All Raspberry Pi 4 models
Communications & Accessories	RS-485, I2C (3.3V), RTC, Raspberry Pi connectors

General Features

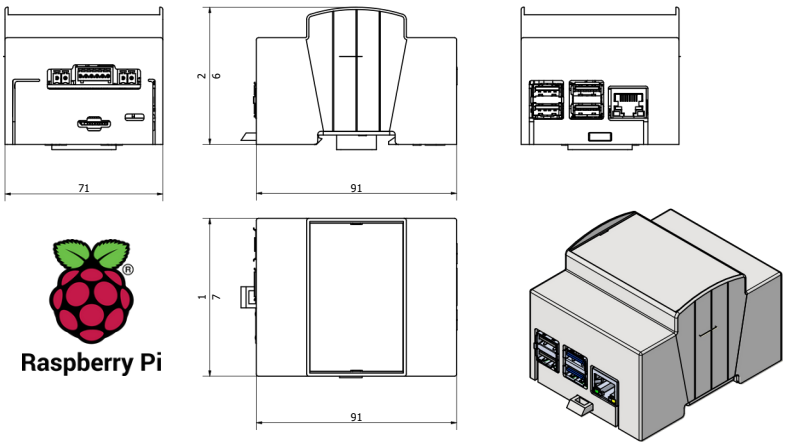
Power supply voltage	Screw terminal	12 to 24 Vdc
	I max USB	500 mA
Power consumption	DC power supply	20 W MIN 30 W MAX
Average input current	0.5 A	
Dielectric strength	200 Vdc for 2 seconds	
Shock resistance	50 m/s² in the X, Y and Z direction 3 times each, complying with the IEC-60068-2-27:2008 standard.	
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	

Expansion Board Slot

Customize one additional communication expansion on your Gateberry:

- SARA-R412M-02B-03 4G LTE:
  - **Model:** SARA-R412M-02B-03
  - **Type:** 2G EGPRS, GSM/4G LTE, M1/NB1 (Narrow-Band)
  - **Key Features:** LTE FDD Bands (2/3/4/5/8/12/13/20/26/28), 2G Bands (850-1900MHz), LTE Category M1/NB1, GPRS Multi-slot class 33, EGPRS multi-slot class 33, etc.
- LoRa:
  - **Model:** RN2483 (for Europe/Asia), RN2903 (for NA/Australia)
  - **Type:** LoRa
  - **Key Features:** On-board LoRaWAN protocol stack, ASCII command interface over UART, Castellated SMT pads for easy PCB mounting, Device Firmware Upgrade (DFU) over UART, etc.
- LARA-R2 4G LTE-E :
  - **Model:** LARA-R2 series
  - **Type:** LTE Cat 1 / 2G
  - **Key features:** Supports LTE Cat 1 and 2G connectivity, High-speed data rates up to 10.3 Mbps (downlink) / 5.2 Mbps (uplink), Embedded TCP/UDP stack, IPv4/IPv6 dual-stack support, Embedded TLS 1.2 protocol for enhanced security, etc.
- CANBus:
  - **Model:** MCP2515
  - **Type:** CAN V2.0B
  - **Key Features:** Speed of up to 1 Mb/s, Receive buffer with masks and filters, High-speed SPI interface (10 MHz), Supports extended frame formats, etc.
- GPS:
  - **Model:** u-blox LEA-6S
  - **Type:** GPS receiver module
  - **Key Features:** Supports GPS L1 band (1575.42 MHz), High sensitivity with a cold start time of < 35s, Low power consumption, Built-in RTC for quick satellite acquisition, etc..

Overall device dimensions



Raspberry Pi 4 Pinout Connector

	NC	1	2	Vin	
SDA	GPIO 2	3	4	Vin	
SCL	GPIO 3	5	6	GND	
TX	GPIO 4	7	8	GPIO 14	D
	GND	9	10	GPIO 15	R
TERM_TX	GPIO 17	11	12	NC	
DE/RE	GPIO 27	13	14	GND	
	NC	15	16	GPIO 23	To Attiny
	NC	17	18	GPIO 24	From Attiny
MOSI	GPIO 10	19	20	NC	
MISO	GPIO 9	21	22	GPIO 25	INT
SCLK	GPIO 11	23	24	GPIO 8	CS
	GND	25	26	NC	
	NC	27	28	NC	
RX	GPIO 5	29	30	GND	
	NC	31	32	NC	
	NC	33	34	GND	
	NC	35	36	GPIO 16	AN
RST	GPIO 26	37	38	GPIO 20	PWM
	GND	39	40	GPIO 21	INT

I2C | RS-485 | UPS | RTC | EXP BOARD

USB Port Power Limit

The total power consumption of connected USB devices must not exceed 500 mA. At this limit, the USB voltage remains stable at 4.2V. The UPS board ensures a minimum supply voltage of 4.9V to the Raspberry Pi.



Performance Specifications

Raspberry Board	Raspberry Pi 4 B
I/O control method	Combination of the cyclic scan and immediate refresh processing methods.
Programming language	Linux applications: Bash Scripts, Python, C++, Node-Red and more!.
CPU	Broadcom BCM2711, Quad core Cortex-A72 (ARM v8) 64-bit SoC @ 1.5GHz
Website	https://www.raspberrypi.org/

Raspberry Access

How to access to the Raspberry PLC:

- Linux users: using ssh specifying the IP address.
- Windows users: we recommend to use PuTTY ssh client. The IP address have to be specified.
  - You can download the latest release of PuTTY here: https://www.chiark.greenend.org.uk/~sgtatham/putty/latest.html

UPS Shield

This PLC has integrated an UPS Shield, a device which provides an anti-voltage drop protection system designed to avoid data corruption when the current is suddenly cut off.

RTC

The Gateberry has integrated the DS3231 Real Time Clock model which is powered by a button battery (CR1216 or CR1220).

References

The references are: 02400XY00100

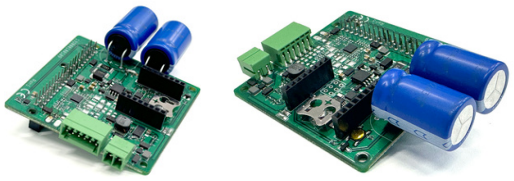
X stands for RAM Size:

- X = 1: Model without RPI
- X = 2: Model 2GB RAM
- X = 3: Model 4GB RAM
- X = 4: Model 8GB RAM

Y stands for Expansion Board Slot:

- Y = 0: No Expansion Board Slot
- Y = 3: With Expansion Board Slot

UPSBerry



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 Gateberry 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 housting, 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 Raspberry family PLCs.

In case of installation or maintenance of the PLC 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.

Inside the encapsulated, there are supercapacitors if 25F which can be dangerous. Be careful with them.

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.

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 explicily required.
⊗	To identify the switch by means of which the signal lamp(s) is (are) switched on or off.
CE	CE marking indicates that a product complies with applicable European Union regulations
⚠	Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury
ϟ	To indicate hazards arising from dangerous voltages

Technical Support

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

support@industrialshields.com

www.industrialshields.com

Visit our Blog, Forum or Ticketing system

Use our chat service

Check the user guides

Visit our Channel

DataSheet Rev. 20250320