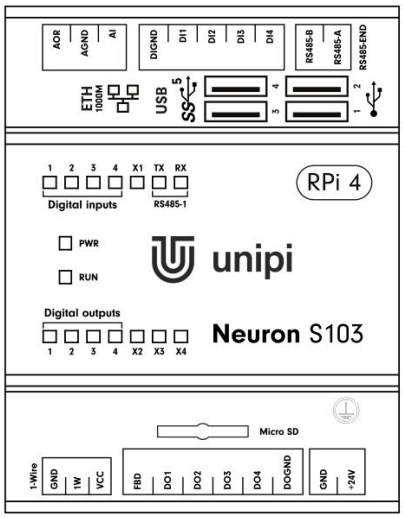
Unipi Neuron S103

PRODUCT DESCRIPTION

Unipi Neuron S103 is a programmable logic controller designed for automation, control, regulation and monitoring. The S103's universal architecture includes digital and analog I/Os, making it suitable for simple installations. The controller also features a single RS485 serial interface and a 1-Wire interface for connecting digital humidity or temperature sensors.



Raspberry Pi 4

Raspberry Pi 3B+

mervis
software included

COMPUTING MODULE

- Raspberry Pi 4, options 2 / 4 / 8 GB RAM (quad-core 1.5 GHz CPU), or
- Raspberry Pi 3 Model B+, 1 GB RAM (quad-core 1.4 GHz CPU)

FUNCTIONALITY

Smart home control (lighting, doors, smart locks, irrigation etc.), automation, remote online supervision, monitoring and regulation, HVAC control, SCADA, sensors, IoT/IIoT

FEATURES

Inputs/outputs

4 × digital input incl. counter
4 × digital output
1 × analog input
1 × analog output

Communication interfaces

1 × RS485
1 × 1-Wire bus
1 × 10/100/1000 Mbps Ethernet
2 × USB 2.0, 2 × USB 3.0 (RPi4), or
4 × USB 2.0 (RPi3B+)

Software

- Powered by OS Linux
- Mervis – IDE (IEC 61131-3), HMI editor, proxy server, cloud database, SCADA, a wide range of supported protocols
- Commercial solutions– REXYGEN, CODESYS
- Open-source solutions – Node-RED, openHAB, Homebridge, FHEM, PiDome, DomotiGa, Domoticz, Pimatic and many others
- Custom SW implementation – EVOK open API, Modbus TCP interface, SysFS

Other features

- Built-in webserver
- Special functions – Direct Switch, MasterWatchdog, user LEDs
- Durable aluminium chassis (IP20)
- Available in an OEM variant
- Custom development available (IQRF, LoRa, wM-Bus, ZigBee, EnOcean and more)

Unipi Neuron S103

Installation and operating conditions

Control type by purpose	Operating control
Control type by design	Independently mounted control
Operating conditions	0 °C ... +55 °C, relative humidity 10 % ... 95 %, without aggressive substances, condensing vapour and fog
Storage conditions	-25 °C ... +70 °C, relative humidity 10 % ... 95 %, without aggressive substances, condensing vapour and fog
Degree of protection IP (IEC 529)	IP 20
Operation position	Horizontal inside vertical enclosure
Installation	On 35mm DIN rail into distribution box (holder included)
Connection	Pluggable terminal blocks
Wire gauge	Max. 2.5 mm², AWG14
EMC immunity zone	B (IEC 61000-6-2 compliant)
Protection class	III
Overvoltage category	II
Pollution degree	2
Automatic action control type	1
Software function class	A
Control function class	A

Power supply

Rated voltage - SELV	24 V DC (±5%)
Power consumption	Typ. 3 W Max. 12 W
Reverse polarity protection	Yes

Dimensions and weight

Dimensions	72 × 90 × 55.5 mm (without DIN rail)	4 DIN modules
Weight	191 g	

Communication

	RPi4	RPi3B+
Ethernet speed	1 × 10/100/1000 Mbps	
Ethernet throughput	1 × 1Gbit	1 × 300 Mbps
Serial/bus channels	1 × RS485, 1 × 1-Wire	
RS485 transmission speed	2400 baud ... 115 200 baud	
RS485 galvanic isolation	Yes (Basic)	
RS485 biasing resistors	Yes, 560 Ω	
RS485 terminating resistor	Builtin attachable, 120 Ω	
1-Wire galvanic isolation	Yes (Basic)	
1-Wire output voltage Vcc	5 V DC	
1-Wire max. current Vcc	50 mA	
1-Wire connector	3 × pole, max. 1.5 mm², AWG16	
WiFi	IEEE 802.11 b/g/n/ac	IEEE 802.11b/g/n
Bluetooth	5.0, Low Energy (BLE)	4.2, Low Energy (BLE)
WiFi/Bluetooth antenna	Internal	
USB	2× USB 2.0, 2× USB 3.0	4 × USB 2.0

Digital inputs

No. of inputs × groups	4 × 1
Functions of inputs	Counter, Direct Switch
Input type	SINK
Input terminal	DI
Common ground	DIGND
Maximum voltage for log. 0	3 V DC
Minimum voltage for log. 1	7 V DC
Maximum voltage	35 V DC
Non-defined state	3-7 V DC
Input resistence for log. 1	6 200 Ω
Voltage drop on DI diode	1.2 V
Minimum pulse length	20 µs
0–>1 / 1–>0 delay	Typ. 20 µs / 60 µs
Maximum CNT counter input frequency	10 kHz
Galvanic isolation	Yes (Basic, between the groups)
Insulation voltage	1500 V (pulse)

Digital outputs

No. of inputs × groups	4 × 1
Functions of inputs	PWM
Output type	SINK (NPN – open collector)
Output terminals	DO
Common ground	DOGND
Switching voltage	5-50 V DC
Switching current continuous/pulse	750 mA / 1 A
Max. total group load	1 A
Inductive load handling	Integrated FBD diode (optional)
Switching period (open/close)	Typ. 130 ns / 20 ns
Maximum PWM resolution	16 bits
Maximum PWM frequency	200 kHz
Galvanic isolation	No

Analog inputs

No. of inputs × groups	1 × 1
Input terminals	AI
Common ground	AGND
Input modes	0–10 V DC voltage meas. 0–20 mA current meas.
Maximum input voltage	12 V DC
Input resistance (voltage meas.)	66 kΩ
Input resistance (current meas.)	100 Ω
Accuracy	±0.5 %
Resolution	12 bits
Conversion time	10 µs
Protection type	Integrated overvoltage
Galvanic isolation	No

Analog outputs

No. of inputs × groups	1 × 1
Output terminals	AOR
Common ground	AGND
Input modes	0–10 V DC voltage source 0–20 mA current source 0–1960 Ω resistance meas.
Output voltage range	0–10 V DC
Output current range	0–20 mA
Maximum output current	20 mA
Output accuracy	±0.5 %
Resolution	12 bits
Conversion	1 ms
Protection type	Integrated overvoltage
Galvanic isolation	No

Directive compliance

EMC:	2014/30/EU
RED:	2014/53/EU
RoHS:	2015/863/EU
WEEE:	2012/19/EU

Standards compliance

EN 60730-1