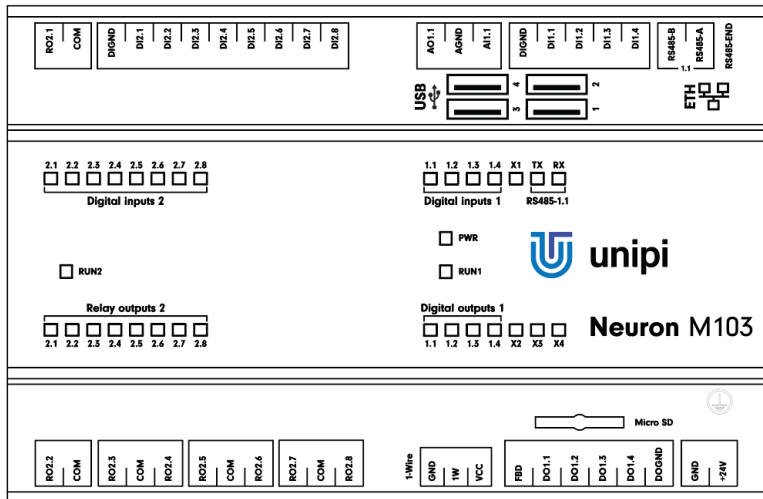


# Unipi Neuron M103

## PRODUCT DESCRIPTION

Unipi Neuron M103 is a programmable logic controller designed for automation, control, regulation and monitoring. The M103 is an entry model of the Neuron M line and features a basic set of digital, relay and analog I/Os suitable for a wide range of applications. The controller is also equipped with a single RS485 serial interface and a 1-Wire interface for connection of digital temperature or humidity sensors.



## COMPUTING MODULE

Raspberry Pi 3 Model B  
(quad-core 1.2 GHz CPU, 1 GB RAM)

## FEATURES

### Inputs/outputs

- 12 × digital input incl. counter
- 4 × digital output
- 8 × relay output
- 1 × analog input
- 1 × analog output

### 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– CODESYS, REXYGEN
- 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

## FUNCTIONALITY

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

### Communication interfaces

- 1 × RS485
- 1 × 1-Wire bus
- 1 × 10/100Mbit Ethernet
- 4 × USB 2.0

### 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 M103

## • Communication

|                            |                                    |
|----------------------------|------------------------------------|
| Ethernet                   | 1 × 10/100 Mbit Ethernet           |
| Serial/bus channels        | 1 × RS485, 1 × 1-Wire              |
| RS485 transmission speed   | 134 baud .. 115 200 baud           |
| RS485 galvanic isolation   | Yes                                |
| RS485 biasing resistors    | Yes, 560 Ω                         |
| RS485 terminating resistor | Built-in attachable, 120 Ω         |
| 1-Wire galvanic isolation  | Yes                                |
| 1-Wire output voltage Vcc  | 5 V                                |
| 1-Wire max. current Vcc    | 50 mA                              |
| 1-Wire connector           | 3 × pole, max. 1.5 mm <sup>2</sup> |
| WiFi                       | IEEE 802.11b/g/n                   |
| Bluetooth                  | 4.2, Low Energy (BLE)              |
| WiFi/Bluetooth antenna     | Internal                           |
| USB                        | 4 × USB 2.0                        |

## • Digital inputs

|  |  |
|--|--|
| Nr. of inputs × groups                 | 4 × 1, 8 × 1                                       |
| Common connector                       | DIGND  |
| Galvanic isolation                     | Yes  |
| Functions of inputs                    | Counter (w/o memory), signalization, Direct Switch |
| Max. frequency of counter input signal | 10 kHz   |
| Input voltage of log. 0                | Max. 3 V DC  |
| Input voltage of log. 1                | Min. 7 V DC  |
| Max. input voltage                     | 35 V DC  |
| Input resistance                       | 6 200 Ω  |
| Delay 0→1/1→0                          | 20 μs / 60 μs                                      |

## • Digital outputs

|                                    |                                 |
|------------------------------------|---------------------------------|
| Nr. of outputs × groups            | 4 × 1                           |
| Common connector                   | DOGND                           |
| Galvanic isolation                 | No                              |
| Type of output                     | NPN transistor (open collector) |
| Optional functions                 | PWM                             |
| Switchable voltage                 | 5–50 V DC                       |
| Switchable current continual/pulse | 750 mA / 1 A                    |
| Max. total current DO 1.1–1.4      | 1 A                             |
| PWM max. frequency                 | 200 kHz                         |
| PWM max. resolution                | 16 bits                         |

## • Relay outputs

|                             |                      |
|-----------------------------|----------------------|
| Nr. of outputs × groups     | 1 × 2, 2 × 3         |
| Galvanic isolation          | Yes                  |
| Type of contact             | Normally open (SPST) |
| Switchable voltage          | 250 V AC / 30 V DC   |
| Switchable current          | 5 A                  |
| Short time overvoltage      | 5 A                  |
| Current via common conn.    | 10 A                 |
| Time to switch on/off       | 10 ms                |
| Mechanical lifetime         | 5 000 000 cycles     |
| Electrical lifetime         | 100 000 cycles       |
| Protection against shortage | No                   |
| Inductive load protection   | Not included         |
| Isolation voltage           | 4 000 V AC           |

## • Analog inputs

|                               |                        |
|-------------------------------|------------------------|
| Nr. of inputs × groups        | 1 × 1                  |
| Common connector              | AGND                   |
| Available functions           | 0–10 V<br>0–20 mA      |
| Galvanic isolation            | No                     |
| Resolution                    | 12 bits                |
| Conversion speed              | 10 μs                  |
| Input resistance              | 66 kΩ – U<br>100 Ω – I |
| Resistance measurement method | –                      |

## • Analog outputs

|                               |  |
|-------------------------------|--|
| Nr. of outputs × groups       | 1 × 1  |
| Common connector              | AGND   |
| Available functions           | AO 0–10 V / 0–20 mA<br>Resistance measurement: 0–2 kΩ Pt/Ni1000) |
| Galvanic isolation            | No   |
| Max. voltage/current          | 10 V / 20 mA   |
| Resolution                    | 12 bits  |
| Conversion speed              | 1 ms   |
| Resistance measurement method | 2wire  |

## • Power supply

|                             |                       |
|-----------------------------|-----------------------|
| Rated voltage - SELV        | 24 V DC               |
| Power consumption           | Typ. 5 W<br>Max. 14 W |
| Reverse polarity protection | Yes                   |

## • Installation and operating conditions

|                                   |  |
|-----------------------------------|--|
| Operating conditions              | 0 °C .. + 55 °C, relative humidity 10 % .. 95 %, without aggressive substances, condensing vapour and fog    |
| Storing 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   |
| Installation                      | On 35mm DIN rail into distribution box (holder included)   |
| Connection                        | Pluggable terminal blocks  |
| Wire gauge                        | Max. 2.5 mm <sup>2</sup>   |

## • Dimensions and weight

|            |                  |
|------------|------------------|
| Dimensions | 140 × 90 × 60 mm |
| Weight     | 325 g            |

## • Standards compliance

|                          |
|--------------------------|
| IEC 60950-1: 2005(ed.2)  |
| EN 62311: 2008           |
| EN 60730-1 ed.3:2012     |
| EN 301 489-1             |
| EN 301 487-17 Ver. 3.1.1 |
| EN 300 328 Ver 2.1.1     |
| EN 301 893 V2.1.1        |
| RoHS                     |
| WEEE                     |