Unipi Neuron L513

**PRODUCT DESCRIPTION**
Unipi Neuron L513 is a programmable logic controller (PLC) designed for automation, control, regulation and monitoring. The L513 is the largest model of the Neuron 500 line and aside from a set of digital and relay I/Os it features the highest number of analog I/Os of all Neuron controllers. That makes it suitable for complex projects including measurements and control of analog components. The controller is also equipped with three RS485 serial interfaces a 1-Wire interface for connection of digital temperature or humidity sensors.

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

**FEATURES**
**Inputs/outputs**
- 16 × digital input incl. counter
- 4 × digital output
- 10 × relay output
- 9 × analog input
- 9 × 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
- Opensource 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**
- 3 × 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 (MQRF, LoRa, wMBus, ZigBee, EnOcean and more)
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• Communication
  Ethernet 1 × 10/100 Mbit Ethernet
  Serial/bus channels 3 × RS485, 1 × I²C
  RS485 1.1, 2.1, 3.1 transmission speed 134 baud, . . . 115200 baud
  RS485 galvanic isolation Yes
  RS485 biasing resistors Yes, 560Ω
  RS485 terminating resistor Built-in attachable, 120Ω
  I²C galvanic isolation Yes
  I²C output voltage Vcc 5 V
  I²C max. current Vcc 50 mA
  I²C connector 3 × pole, max. 1.5 mm²
  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, 6 × 2
  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 6200Ω
  Delay 0→1/1→0 20 μs / 60 μs

• Digital outputs
  Nr. of outputs × groups 4 × 1
  Common connector DIGND
  Galvanic isolation No
  Type of output NPN transistor (open collector)
  Optional functions PWM
  Switchable voltage 5–50 V DC
  Switchable current contin/contine 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 × 4
  Galvanic isolation Yes
  Type of contact Normally open (SPST)
  Switchable voltage 250 V AC / 50 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 shorting 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
  0–20 mA
  0–10 V / 0–2.5 V
  0–20 mA
  0–1960Ω
  0–100 kΩ
  Galvanic isolation No
  Resolution 12 bits
  Conversion speed 10 μs
  16 bits — U, I
  24 bits — R
  Input resistance 66 kΩ — U
  100 kΩ — I
  444 kΩ — U
  100 kΩ — I
  Resistance measurement method —
  2/5wire

• Analog outputs
  Nr. of outputs × groups 1 × 1
  Common connector AGND
  Available functions
  AO 0–10 V / 0–20 mA
  Resistance measurement:
  0–2 kΩ
  Pr(Ni1000)
  0–10 V
  Galvanic isolation No
  Max. voltage/current 10 V / 20 mA
  12 bits
  Resolution 12 bits
  Conversion speed 1 ms
  300 μs
  Resistance measurement method 2wire

• Power supply
  Rated voltage - SELV 24 V DC
  Power consumption Typ. 9 W
  Max. 18 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)
  20
  Operation position Horizontal
  Installation On 35mm DIN rail into distribution box (holder included)
  Connection Pluggable terminal blocks
  Wire gauge Max. 2.5 mm²

• Dimensions and weight
  Dimensions 210 × 90 × 60 mm
  Weight 516 g

• Standards compliance
  EN ISO 16484-2
  EN 60730-1
  EN 60555-1