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Introduction

Thank you for purchasing this product of NETIO products a.s. Before using your product, please read this User Manual (MAN) and the included Quick Installation Guide (QIG) to avoid problems with incorrect installation or use.

⚠️ Caution:

The product works with mains voltage. Mishandling may damage it or result in injury or death.

1 Safety notices

1. The manufacturer is not liable for any damage caused by incorrect use of the device or by operating it in an unsuitable environment.
2. The device is not rated for outdoor use.
3. Do not expose the device to strong vibrations.
4. Unauthorized modifications may damage the device or cause a fire.
5. Protect the device from liquids and excessive temperatures.
6. Make sure the device does not fall.
7. Only electrical appliances approved for use with the electrical network may be connected to the device.
8. Do not connect multiple devices in series.
9. The cable plug must be easily accessible.
10. The device is completely switched off only when unplugged.
11. If the device malfunctions, disconnect it from the electrical outlet and contact your vendor.
12. Do not cover the device.
13. Do not use the device if it appears to be mechanically damaged.
14. Make sure that the input and output cables are rated for the respective current.
2 General characteristics

PowerPDU 4PS
- Switched Power Outputs: 4
- Output Switching: ZVS (Zero Voltage Switching)
- Metered channels: 0
- DI (Digital Inputs): 0

PowerPDU 8QS
- Switched Power Outputs: 8
- Output Switching: ZVS (Zero Voltage Switching)
- Metered channels: 2 (1st Output + Total)
- Electricity consumption metering: [V, Hz, A, W, Wh, TPF, °]
- Measurement accuracy: <1%
- DI (Digital Inputs): 1 + 12V DC power output

Common
- LAN interface 10/100 Mbps (RJ-45)
- Built-in web server for device configuration and control
- Password-protected login into device configuration
- IOC (Independent Output Control)
- PowerUp state - (ON / OFF / LAST)
- Overvoltage protection
- Operating temperature range: -20°C to +65°C
- Supported protocols: DNS, NTP, DHCP, HTTP, uPNP
- Supported M2M protocols: Modbus/TCP, Telnet, SNMP, MQTT-flex, Http Push, XML, JSON, URL API

Figure 1 - PowerPDU 4PS

Figure 2 - PowerPDU 8QS
### 3 Specifications

| Power        | 100-240 V; 50/60 Hz; 10 A, IEC-320 C14 input - PowerPDU 4PS  
|             | 100-240 V; 50/60 Hz; 16 A, IEC-320 C20 input - PowerPDU 8QS |
| Switched outputs | 10 A in total / 10 A each output, 4x IEC-320 C13 - PowerPDU 4PS  
|             | 16 A in total / 10 A each output, 8x IEC-320 C13 - PowerPDU 8QS |
| Maximum line breaker capacity | C16A - PowerPDU 4PS  
|             | C16A - PowerPDU 8QS |
| Fuse        | Integrated, non-resettable |
| Surge protection | Type 3 (CAT III) |
| Power Output relays | Micro-disconnection (µ) (resistive load), SPST-NO |
|             | 1E5 switching cycles, max. 1.5 kV pulse voltage |
| Electrical load | PowerPDU 4PS / PowerPDU 8QS: ZVS (Zero Voltage Switching) |
|             | - most load types, such as switching power supplies compatible |
| Digital Input (DI) | PowerPDU 8QS only:  
|             | 1x Dry contact input (DI) |
|             | Aux. DC power 12V/0,05A max (+12V, GND) |
| Network interfaces | 1x Ethernet RJ-45 10/100 Mbit/s  
|             | Attention! Device connected over LAN must be connected in  
|             | network with same earth potential (PE). |
| Internal consumption | Max. 2W - PowerPDU 4PS  
|             | Max. 3W - PowerPDU 8QS |
| Environment | IP30, protection rating = class 1 |
|             | Operating temperature -20 °C to 65 °C / 10A  
|             | -20 °C to 50 °C / 16A |
|             | Device rated for pollution degree 2.  
|             | Designed for continuous operation in altitudes up to 2000 m.  
|             | Does not require additional cooling |
3.1 Features

**ZVS (Zero Voltage Switching)**

ZVS (Zero Voltage Switching) means switching the 110/230VAC output when the immediate voltage is zero.

ZVS is a good solution for switching on/off devices such as switching power supplies.

ZVS is not suitable for controlling inductive loads (transformers or motors), as it increases the probability of relay damage when such types of loads are frequently switched on/off.

NETIO products without energy metering support ZVS (Zero Voltage Switching) when switching 110/230V relay outputs.

ZVS is sufficient relay switching technology for most load types, such as switching power supplies in IT solutions.

**IOC (Independent Output Control)**

Independent Output Control function of the NETIO device uses an independent system that ensures a stable operation of the output even if the main system is being restarted, updated, or is booting.

Thanks to IOC, the controlled output can power devices that, for technical reasons, must be powered without interruption (such as servers). The output control is completely independent from the WiFi or LAN communication subsystem.

**PowerUp State**

The PowerUp State parameter (sometimes also called Cold start) defines the behavior of the 110/230V power output during the first milliseconds to seconds after powering up the device, before the LAN/WiFi communication with a master system is established.

For some applications, it is important to set the correct state of a power output immediately after power is turned on (or restored). With servers in particular it is important to avoid undesired momentary switching.

Possible settings for NETIO device

- On
- Off
- LAST state restores the last state before the power was disconnected
**Electrical measurements - only PowerPDU 8QS**

PowerPDU 8QS measures relevant electrical parameters on the first Output and all outputs together.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Range</th>
<th>Units</th>
<th>Resolution</th>
<th>Accuracy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voltage</td>
<td>90,0 - 250,0 V</td>
<td>V</td>
<td>0,1</td>
<td>&lt;1%</td>
</tr>
<tr>
<td>Frequency</td>
<td>45,0 - 65,0 Hz</td>
<td>Hz</td>
<td>0,1</td>
<td>&lt;1%</td>
</tr>
<tr>
<td>Current</td>
<td>0,005 - 16,000 A</td>
<td>A</td>
<td>0,001</td>
<td>&lt;1%</td>
</tr>
<tr>
<td>TPF (True Power Factor)</td>
<td>0,00 - 1,00</td>
<td>-</td>
<td>0,01</td>
<td>&lt;1%</td>
</tr>
<tr>
<td>Phase</td>
<td>0 - 360 °</td>
<td>°</td>
<td>0,01 °</td>
<td>&lt;1%</td>
</tr>
<tr>
<td>Output power</td>
<td>0 - 3600 W</td>
<td>W</td>
<td>1</td>
<td>&lt;1%</td>
</tr>
<tr>
<td>Energy</td>
<td>0 - 4294967296 Wh</td>
<td>Wh</td>
<td>1</td>
<td>&lt;1%</td>
</tr>
<tr>
<td>Reverse Energy</td>
<td>0 - 4294967296 Wh</td>
<td>Wh</td>
<td>1</td>
<td>&lt;1%</td>
</tr>
</tbody>
</table>
3.2 Drawings

PowerPDU 4PS

Figure 3 - PowerPDU 4PS front, dimensions [mm]

Figure 4 - PowerPDU 4PS - mounting holes for RM [mm]
PowerPDU 8QS

Figure 5 - PowerPDU 8QS - front, dimensions [mm]

Figure 6 - PowerPDU 8QS - bottom side, mounting holes for RM [mm]
3.3 Device description

PowerPDU 4PS

Front view
1. 1x RJ45 LAN jack
2. Output LEDs (lit green when the corresponding output is switched on)
3. RJ45 LEDs - device states (yellow and green)
4. Multifunction “SETUP” button

Rear view
5. IEC-320 C14 connector for the input power cable
6. Main switch
7. Switched sockets (IEC-320 C13)

Figure 7 - PowerPDU 4PS description
PowerPDU 8QS

1. 1x RJ45 LAN jack
2. RJ45 LEDs - device states (yellow and green)
3. Multifunction “TGL/RESET” button
4. M2M activity LED (red)
5. DI (Digital Input) connector (DI wired with GND) + auxiliary 12V DC power output
6. IEC-320 C20 connector for the input power cable
7. Switched sockets (IEC-320 C13)

*Figure 8 - PowerPDU 8QS description*
3.4 LED and button functions

LED indicators

<table>
<thead>
<tr>
<th>LED Indicator</th>
<th>Function</th>
</tr>
</thead>
</table>
| RJ45 - green  | Network Link (lit) + Activity (flashes)  
1x flash when the device starts  
3x flash when the internal system restarts |
| RJ45 - yellow | Flashing (2 sec lit, 1 sec dark) when the Eth cable is disconnected and the device is running (connected to power).  
Blink when some M2M communication is in progress. |
| M2M (red) - only PowerPDU 8QS | Blink when NETIO Cloud communication is in progress.  
Device Web administration / Mobile app is not indicated. |

SETUP button

<table>
<thead>
<tr>
<th>Function</th>
<th>Description</th>
</tr>
</thead>
</table>
| Switching all outputs | Output test:  
Press the SETUP button 3x rapidly.  
- If any of output is On (1) -> Off (0).  
- If all outputs are Off (0), All outputs -> On (1). |
| Restoring factory defaults | Disconnect the device from the power. Press and hold the button. Connect the device to the power grid (button is pushed) and wait at least 10 seconds until the yellow LED on the RJ45 jack flashes 3 times, release the button.  
The device reverts to factory settings. |

3.5 Minimum system requirements (for configuration)

A device with an Internet browser (Firefox, Chrome, Safari, Microsoft Internet Explorer, Opera, Mozilla etc.) that has JavaScript and cookies enabled.
3.6 Package contents

3.6.1 NETIO PowerPDU 4PS EU

- PowerPDU 4PS device
- Printed Quick Installation Guide (QIG)
- EU = Input power cable with a EU plug (cable type indicated on the paper box)

3.6.2 PowerPDU 8QS EU

- PowerPDU 8QS device
- Printed Quick Installation Guide (QIG)
- EU = Input power cable with a EU plug (cable type indicated on the paper box)
- Rack mount brackets with screws
- Mount set (4x bolt/washer/cage-nut)

Figure 9 - PowerPDU QIG
3.7 Optional accessories for PowerPDU 4PS

- **NETIO RM1 4C**
  Metal brackets to install one Power PDU 4C or PowerPDU 4PS device into a 1U space in a 19” rack frame. The package includes M6 screws to fasten the device in the 1U position.

- **NETIO RM2 2x4C**
  Metal brackets to install two pieces of PowerPDU 4C or PowerPDU 4PS devices into a 1U space in a 19” rack frame. The package includes M6 screws to fasten the devices in the 1U position.

- **NETIO RM3 4C vertical**
  Metal brackets to fasten one NETIO PowerPDU device (PowerPDU 4C or 4PS) to a vertical bar in a rack frame. In a 76cm or wider cabinet, the PowerPDU 4C/4PS can be fastened to the outer side of the vertical bars to occupy zero U space. The package includes M6 screws to fasten the device to the rack frame.

- **NETIO RM4 4C universal**
  Universal metal brackets to fasten one PowerPDU 4C or PowerPDU 4PS device e.g. to horizontal bars in a rack frame. The package includes M6 screws to fasten the device to the rack frame.

*Figure 10 - NETIO RMx accessories for PowerPDU 4PS*
4 Configuration and control

4.1 Connecting PowerPDU

NETIO PowerPDU use the Ethernet connection (RJ45) to network.

- Connect your NETIO device to a LAN with a network cable (RJ45).
- Plug the input cable plug into the electrical socket.
- PowerPDU 4PS: Switch on the device by the main switch.
- Wait about 30 seconds until the device starts and address is provided from a DHCP server.

Note: It is mandatory to have DHCP server in the network for the first connection to LAN and Setup. The IP can be switched to Static afterwards.

4.2 Detecting and configuring the IP address

If you have followed the instructions in the previous chapter, you know the NETIO device’s IP address, whether it was assigned by a DHCP server or configured manually. If you forgot the IP address, or if you have received a pre-configured device, you will need to find out its IP address.


![Figure 11 - NETIO Discover web interface](image)

To successfully discover the IP address, the controlling system must be in the same LAN as the NETIO device.

If the discovered IP address belongs to a different address range than that of your network, we recommend resetting the device to factory defaults (see chapter Restoring factory defaults) and then configuring it according to chapter Configuration and control.
To change the IP address, click the value in the MAC address column, uncheck Enable DHCP and specify the IP address, Subnet mask and Default gateway. After applying the settings, NETIO device will be accessible at the specified address.

Enter the IP address into a web browser or the NETIO Mobile app and log in to the device.

**Note:** If you can’t use MS Windows app, use NETIO Mobile2 App for Android. See details in the chapter [NETIO Mobile2 for Android](http://wiki.netio-products.com)

**Note:** For MAC or Linux users check [http://wiki.netio-products.com](http://wiki.netio-products.com)
4.3 NETIO Mobile2 for Android

NETIO Mobile2 application is for control NETIO devices produced after 2016.

Features:
- Switch On / Off / Restart each power socket on local network.
- Show power consumption on each power output (if supported).
- Searching NETIO devices in local network
- Install NFC enabled NETIO devices

4.4 Login to device web

To log in, use admin / admin
(default login username / password)
4.5 Restoring factory defaults

This operation deletes all user settings and restores the configuration to the factory defaults. It is useful when the device is in an unknown state or does not behave as described in this manual.

Procedure:
1. Turn off (unplug) the PowerPDU from power grid.
2. Press and hold the button.
3. Connect the device plug to the power grid (button is still pushed) and wait at least 10 until the yellow LED on the RJ45 jack flashes 3 times, release the button.
4. The device reverts to the factory settings.

⚠️ Forgotten password

The reset to factory defaults is also used when the password has been forgotten. After restoring the factory defaults, the username and password to access the PowerPDU will be “admin” / “admin”.

4.6 Controlling the output manually

The outputs can be switched on/off (toggled) by pressing the button quickly 3 times in a row.

1. Press the “SETUP” or “TGL/RESET” button three times fast to toggle the outputs.

Note: If at least one output is ON the “toggle” by button change all outputs to OFF. If all outputs are OFF the “toggle” change all to ON.
5 Web interface

5.1 Outputs

In the left menu, click Outputs. A screen showing the output appears. The output can be controlled directly with two buttons:

![PowerPDU 8QS interface](image)

*Figure 14 - Controlling the output*
1) The ON/OFF button controls the output directly. When the output is on, the button is green; when the output is off, the button is grey. When switching the output off, a confirmation dialog appears:

![Confirmation Dialog]

Click Turn Output Off to confirm the switch-off or Cancel to keep the output switched on. To suppress this dialog in the future, check Don’t ask me again.

2) The Reset button switches the output off and then back on. It is active only when the output is On. A confirmation is requested before the action is performed. The function is enabled only when the output is switched on. When the output is switched off, the Reset button is disabled.

![Confirmation Dialog]

Click Reset to confirm the action or Cancel to cancel it. To suppress this dialog in the future, check Don’t ask me again.

The Scheduler button enable/disable a Scheduler feature for the specific output. Details and setting are described below at chapter Outputs - Schedule.
5.1.1 Outputs - Energy measurements - PowerPDU 8QS only

PowerPDU 8QS measures the following electrical parameters every 500ms for Output 1 and for all outputs together. The values in the web interface are updated every 5 seconds.

![Figure 15 - Measured values - Output 1](image)

Load in watts [W] corresponds to the immediate current and voltage \( (P = U \times I \times TPF) \). It respects the direction - positive value if the connected device consume the energy or negative value if the connected device deliver the power back to the power grid (e.g. solar power system).

Current in amps [A] shows the immediate current flowing through the output. Always positive value.

Voltage in volts [V].

TPF (True Power Factor) shows the ratio of active and apparent power, or the ratio of resistance and impedance. TPF is the ratio of the active power to the apparent power at the power outlet. TPF shows what portion of apparent power is converted by the load to active power. TPF can be viewed as the sum of useful power and losses. TPF, unlike PF (Power Factor), also takes into account non-sinusoidal waveforms. Such distortions of the sinusoidal waveform are caused e.g. by switching power supplies.

Phase in degrees (°) is the value of a phase shift between current and voltage. Depends on a load type connected to output. The value 0° / 360° menas resistive load type.

Frequency in hertz [Hz].

Energy in watt-hours (Wh / kWh) is the cumulative energy consumed over a time interval. The value is the total consumption at the output since the last reset of the counter.

Reverse Energy in watt-hours (Wh / kWh) is the cumulative energy delivered back to grid over a time interval. The value is the total power supply at the output since the last reset of the counter.
Figure 16 - Measured values - All outputs

All outputs section contains values calculated for the whole device so these apply for the power input cable/connection. Values showing N/A are not available for this type of device. The “Total Energy NR” and “Total Reverse Energy NR” are the non-resettable (NR) counters counting energy since the device has been manufactured and first powered on.

By default, the cumulative Energy consumption/delivery and Total Energy consumption/delivery are counted from the time the NETIO device was first powered on. To reset all Energy counters, go to the Settings > System tab and click the Reset Power Consumption Counters button (see Figure 18). This restarts the measurements as of the current moment and the date/time shown change.

Figure 17 - Resetting the consumption counters
### 5.1.2 Outputs - General

Click the picture of the output to open detailed settings.

The **General** tab configures basic parameters for controlling the output.

![General output configuration](image)

**Figure 18 - General output configuration**

- **Output name** is shown above the two control buttons to improve clarity.
- **Short ON/OFF delay** is an integer specifying, in milliseconds, the duration for the Short OFF (power cycling) and Short ON actions. During this interval, any attempts to switch the output state via M2M API protocols are ignored.
- **Output PowerUp state** defines the state of the output whenever the device is powered up or restarted. The output can be switched on (ON), switched off (OFF), or set to the last state before the restart (LAST). The PowerUp setting is ignored if the Scheduler is enabled for specific output.
- **Output PowerUp interval** defines the interval in milliseconds after which the power output is turned on since the power is turned on (e.g. after the power outage). It is only applied if the “Output PowerUp state” is set to “ON” or “LAST” and the Output was on before.
**Energy NR** in watt-hours (Wh / kWh) is the cumulative energy consumed since the device has been manufactured. This counter cannot be resetted. *Only PowerPDU 8QS shows this value.*

**Reverse Energy NR** in watt-hours (Wh / kWh) is the cumulative energy delivered back to grid since the device has been manufactured. This counter cannot be resetted. *Only PowerPDU 8QS shows this value.*

Click **Save Changes** to save the settings.

To close the configuration dialog, click the ☒ symbol in the top right corner.
5.1.3 Outputs - Schedule

The Scheduler function can be used to switch the output on and off at specified times. Select a schedule to specify when the output should be turned on. After selecting a schedule, the on-times for the output according to that schedule are shown graphically. Check Enable schedule if you want enable scheduler and Click Save Changes to confirm changes. If the Scheduler is enabled the current interval is applied so the output state may change according to selected schedule.

The displayed schedule cannot be changed in the Output - Schedule view. To change a schedule, click Edit schedules. It opens the main tab Schedules (details in chapter Schedules).

To enable or disable the Scheduler for a given output, you may also click the Scheduler button next to that output. When the Scheduler function is disabled, the outputs stay in their current states. When it is enabled, the outputs are set according to the schedule.

The Scheduler button / icon next the output indicates Enabled (green) or Disabled (grey) Scheduler function.

Note: When the Scheduler feature is Enabled for specific Output then the PowerUp state is ignored on this Output. The output stays off after power up without Ethernet connection or until the time is synchronized from NTP server. The Scheduler is waiting for the valid time from NTP and this needs Ethernet/Internet connection. It is to respect schedule if state change occurred during the power outage and prevents against for example short power on "peek".

![Figure 19 - Configuring the Schedule](image-url)
5.2 Inputs - PowerPDU 8QS only

The PowerPDU 8QS has one input providing its status and S0 counter value.

5.2.1 Digital Input - Status and S0 Counter

In the left menu, click Inputs. A screen showing the inputs appears.

Figure 20 - Viewing the inputs

State
Current state of Digital Input:
- 0 / OFF / “open”
- 1 / ON / “closed”

S0 counter

S0 impulses are counted on each one Digital Input. It’s 32 bit non-resetable counter. Value is stored in the device even during power off.

Each one ON impulse have to be min 30ms long followed by min 30ms OFF state. It means max 16 impulses per second.
5.2.2 Inputs - General

Click the picture of the input to open detailed settings.

The General tab configures basic parameters of the input.

---

**Figure 21 - General input configuration**

The Digital Input name can be set to identify specific digital input.

Click Save Changes to save the settings.

To close the configuration dialog, click the symbol in the top right corner.
5.4 Open API: M2M Protocols

All M2M protocols use the same values for the *action* parameter to control the output. Allowed values are:

0 - turns the output off
1 - turns the output on
2 - short OFF - turns the output off for a short\(^1\) time (if the output was off, it will be turned on)
3 - short ON - turns the output on for a short\(^2\) time (if the output was on, it will be turned off)
4 - toggle - toggles the current output state
5 - no operation - leaves the output unchanged
6 - ignore - ignores the *action* attribute and only respects the *state* attribute - only for XML and JSON

Only one M2M protocol in addition to SNMP can be active at any time!

Following M2M API Protocols cannot run in parallel to NETIO Cloud Connection:

- MQTT-flex
- Netio Push

The notification message appears if you try to enable unsupported combination.

---

\(^1,2\) The short-off/short-on duration can be also specified in the command issued over the respective M2M protocol. If unspecified, the “Short ON/OFF delay” value is used.
5.4.1 M2M API Protocol - XML over HTTP

![Image of XML API protocol configuration]

**Figure 22 - XML API protocol configuration**

<table>
<thead>
<tr>
<th><strong>Enable XML API</strong></th>
<th>Enables M2M XML API functions in the system.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Port</strong></td>
<td>Read-only value. Indicates the port where the device currently listens for M2M XML API commands. This port is the same for all http based M2M API protocols and web administration and can be changed in Settings / System (chapter System).</td>
</tr>
<tr>
<td><strong>Enable READ-ONLY</strong></td>
<td>Enables Read-Only access via M2M XML API for monitoring. You may also fill in the username and password for this mode.</td>
</tr>
<tr>
<td><strong>Enable READ-WRITE</strong></td>
<td>Enables Read/Write access for monitoring (reading values) and writing (output control). You may also fill in the username and password for this mode.</td>
</tr>
<tr>
<td><strong>Username</strong></td>
<td>Username for the respective access mode (Read-Only/ReadWrite). <strong>Note</strong> - this is unrelated to the username for accessing the NETIO 4x web administration interface. When left empty, the protocol will not require any authentication.</td>
</tr>
<tr>
<td><strong>Password</strong></td>
<td>Password for the corresponding username (Read-Only/ReadWrite).</td>
</tr>
</tbody>
</table>
Save Changes

Saves the changes.

When the XML API is enabled, other M2M protocols are disabled except SNMP. After clicking Save changes, the notification message about the deactivation of the other protocol appears.

For an example of reading the output state using XML API, click the "Test XML API - Open XML API file (read password required)" link.

After entering the username and password, you will receive an xml file with the NETIO device current state.

URL for downloading/uploading the netio.xml file: http://<NETIO Device IP>/netio.xml

e.g. http://192.168.64.11/netio.xml

Note: Measurement data available only for PowerPDU 8QS.

Example of the netio.xml file

```xml
<?xml version="1.0" encoding="utf-8"?>
<Agent>
    <Model>8QS</Model>
    <DeviceName>PowerPDU-8QS</DeviceName>
    <OemID>600</OemID>
    <VendorID>0</VendorID>
    <Version>3.1.6</Version>
    <XmlVer>2.4</XmlVer>
    <SerialNumber>24A42C3992EB</SerialNumber>
    <MAC>24:A4:2C:39:92:EB</MAC>
    <Uptime>2188320</Uptime>
    <Time>2021-07-15T16:42:28+01:00</Time>
    <NumOutputs>8</NumOutputs>
    <NumInputs>1</NumInputs>
</Agent>
<GlobalMeasure>
    <OverallPowerFactor>0.59</OverallPowerFactor>
    <TotalPowerFactor>0.59</TotalPowerFactor>
    <Voltage>241.64</Voltage>
    <OverallPhase>317.95</OverallPhase>
    <TotalPhase>317.95</TotalPhase>
    <Frequency>50.02</Frequency>
    <TotalLoad>4</TotalLoad>
    <TotalCurrent>25</TotalCurrent>
    <TotalEnergy>4976</TotalEnergy>
    <TotalReverseEnergy>745</TotalReverseEnergy>
    <TotalEnergyNR>129657</TotalEnergyNR>
    <TotalReverseEnergyNR>59785</TotalReverseEnergyNR>
    <EnergyStart>2021-04-15T14:08:20+01:00</EnergyStart>
</GlobalMeasure>
<Outputs>
    <Output>
        <ID>1</ID>
```
<Name>Power output 1</Name>
<State>0</State>
<Action>6</Action>
<Delay>5000</Delay>
<PowerFactor>1.00</PowerFactor>
<Phase>0.00</Phase>
<Load>0</Load>
<Current>0</Current>
<Energy>3347</Energy>
<ReverseEnergy>635</ReverseEnergy>
<EnergyNR>114532</EnergyNR>
<ReverseEnergyNR>66440</ReverseEnergyNR>
</Output>

<Output>
<ID>2</ID>
<Name>Power output 2</Name>
<State>0</State>
<Action>6</Action>
<Delay>5000</Delay>
</Output>

<Output>
<ID>3</ID>
<Name>Power output 3</Name>
<State>1</State>
<Action>6</Action>
<Delay>5000</Delay>
</Output>

<Output>
<ID>4</ID>
<Name>Power output 4</Name>
<State>1</State>
<Action>6</Action>
<Delay>5000</Delay>
</Output>

<Output>
<ID>5</ID>
<Name>Power output 5</Name>
<State>1</State>
<Action>6</Action>
<Delay>5000</Delay>
</Output>

<Output>
<ID>6</ID>
<Name>Power output 6</Name>
<State>1</State>
<Action>6</Action>
<Delay>5000</Delay>
</Output>

<Output>
>ID>7</ID>
<Name>Power output 7</Name>
<State>1</State>
<Action>6</Action>
<Delay>5000</Delay>
</Output>

<Output>
<ID>8</ID>
The following example XML files for controlling the device can be downloaded directly from the web administration:

- Set output 1 to ON
- Set output 1 to OFF
- Toggle output 1

Click Download XML Schema (XSD) to download the .xsd schema file.

The Upload XML file to the device button opens the following dialog for testing:

![Upload XML file dialog](image)

- **Host** - URL of the .xml file.
- **Port** - port number used by the XML API protocol.
- **Username and Password** - Username and password configured for the XML API protocol in the READ-WRITE section.
- **Request #1,2,3** - select .xml file(s) with commands to perform.
- **Send file** - send the selected file(s).
- **Response** - response to the submitted command.
- **Close** - closes the dialog window.

*Figure 23 - Upload XML file dialog*
For the specifications of the M2M XML API protocol, visit the Support > Download section of our website and see the following document:

**XML - description of NETIO M2M API interface - PDF**

For more information and a practical demonstration of using the XML protocol with NETIO smart sockets, see the following Application Note:

**AN20 XML HTTP(s) protocol to control NETIO smart power sockets 110/230V**
### 5.4.2 M2M API Protocol - JSON over HTTP

**Enable JSON API**
Enables M2M JSON API functions in the system.

**Port**
Read-only value. Indicates the port where the device currently listens for M2M JSON API commands. This port is the same for all HTTP-based M2M API protocols and web administration and can be changed in Settings / System (chapter System).

**Enable READ-ONLY**
Enables Read-Only access via M2M JSON API for monitoring. You may also fill in the username and password for this mode.

**Enable READ-WRITE**
Enables Read/Write access for monitoring and output control. You may also fill in the username and password for this mode.

**Username**
Username for the respective access mode (Read-Only/ReadWrite). Note: this is unrelated to the username for accessing the NETIO device web administration. When left empty, the protocol will not require any authentication.

**Password**
Password for the corresponding username (Read-Only/ReadWrite).

**Save Changes**
Saves the changes.
When the JSON API protocol is enabled, other M2M protocols are disabled except SNMP. After clicking **Save changes**, the notification message about the deactivation of the other protocol appears.

For an example of reading the output state using JSON API, click the **"Test JSON API: Open JSON API file (read password required)"** link.

After entering the username and password, you will receive a JSON file with the NETIO device current state.

URL for downloading/uploading the netio.json file: [http://<NETIO Device IP>/netio.json](http://<NETIO Device IP>/netio.json)
e.g. [http://192.168.64.11/netio.json](http://192.168.64.11/netio.json)

**Note:** Measurement data available only for PowerPDU 8QS.

Example of the netio.json file

```
{
    "GlobalMeasure": {"Voltage": 241.25, "TotalCurrent": 25, "OverallPowerFactor": 0.62, "TotalPowerFactor": 0.62, "OverallPhase": 320, "TotalPhase": 320, "Frequency": 50.05, "TotalEnergy": 4977, "TotalReverseEnergy": 745, "TotalEnergyNR": 129658, "TotalReverseEnergyNR": 59785, "TotalLoad": 4, "EnergyStart": "2021-04-15T14:08:20+01:00"},
    "Outputs": [
        {"ID": 1, "Name": "Power output 1", "State": 0, "Action": 6, "Delay": 5000, "Current": 0, "PowerFactor": 1.00, "Phase": 0.00, "Energy": 3347, "ReverseEnergy": 635, "EnergyNR": 114532, "ReverseEnergyNR": 66440, "Load": 0},
        {"ID": 2, "Name": "Power output 2", "State": 0, "Action": 6, "Delay": 5000},
        {"ID": 3, "Name": "Power output 3", "State": 1, "Action": 6, "Delay": 5000},
        {"ID": 4, "Name": "Power output 4", "State": 1, "Action": 6, "Delay": 5000},
        {"ID": 5, "Name": "Power output 5", "State": 1, "Action": 6, "Delay": 5000},
        {"ID": 6, "Name": "Power output 6", "State": 1, "Action": 6, "Delay": 5000},
        {"ID": 7, "Name": "Power output 7", "State": 1, "Action": 6, "Delay": 5000},
        {"ID": 8, "Name": "Power output 8", "State": 0, "Action": 6, "Delay": 5000}
    ]
}
```
"Inputs": [
  {
    "ID": 1, "Name": "Input 1", "State": 1, "S0Counter": 1246810
  }
]

The following example json files for controlling the device can be downloaded directly from the web administration:

- Set output 1 to ON
- Set output 1 to OFF
- Toggle output 1

The Upload JSON file to the device button opens the following dialog for testing:

- **Host** - URL of the .json file.
- **Port** - port number used by the JSON protocol.
- **Username and Password** - username and password configured for the JSON protocol in the READ-WRITE section.
- **Request #1,2,3** - select .json file(s) with commands to perform.
- **Send file** - send the selected file(s).
- **Response** - response to the submitted command.
- **Close** - closes the dialog window.

![Figure 25 - Upload JSON file dialog](image)

---

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For more information about the M2M JSON API, visit the Support > Download section of our website and see the following document:

JSON - description of NETIO M2M API interface - PDF

For more information and a practical demonstration of using the JSON protocol with NETIO smart sockets, see the following Application Note:

AN21  JSON HTTP(s) protocol to control NETIO 110/230V power sockets (3x REST API)
5.4.3 **M2M API Protocol - URL API (http get)**

![URL API protocol configuration](image)

**Enable URL API** Enables M2M URL API functions in the system.

**Port**
Read-only value. Indicates the port where the device currently listens for M2M URL API commands. This port is the same for all http based M2M API protocols and web administration and can be changed in Settings / System (chapter System).

**Enable READ-WRITE** Enables READ-WRITE access.

**Password**
Password to authenticate HTTP GET communication (pass attribute in the request).

**Save Changes**
Saves the changes.

URL API protocol does not contain energy measurement data and counters. URL API also do not provide information about current output states. This protocol is recommended to Outputs control only.

When the URL API is enabled, other M2M protocols are disabled except SNMP. After clicking **Save changes**, the notification message about the deactivation of the other protocol appears.
For an example of toggling output no. 1 using the M2M URL API, click the link under Test URL API.

This opens a new browser tab and invokes the following HTTP GET request:
http://<NETIO Device IP>/netio.cgi?pass=<Password>&output1=4
e.g. http://192.168.64.11/netio.cgi?pass=netio&output1=4

For more information about the M2M URL API, visit the Support > Download section of our website and see the following document:
URL API - description of NETIO M2M API interface - PDF

For more information and a practical demonstration of using the URL-API protocol with NETIO smart sockets, see the following Application Note:
AN19 URL API (http GET) protocol to control NETIO 4x power sockets/outlets 110 / 230V
5.4.4 M2M API Protocol - Telnet

Enable Telnet
Enables M2M Telnet functions in the system.

Port
Specific port for Telnet only, range 1 - 65535. Be aware, that you should enter value, which is not already occupied by another M2M protocol or web interface.

Enable READ-ONLY
Enables Read-Only access via M2M Telnet API for monitoring. You may also fill in the username and password for this mode.

Enable READ-WRITE
Enables Read/Write access for monitoring and output control. You may also fill in the username and password for this mode.

Username
Username for the respective access mode (Read-Only/ReadWrite). Note - this is unrelated to the username for accessing the NETIO device web administration. When left empty, the protocol will not require any authentication.

Password
Password for the corresponding username (Read-Only/ReadWrite).

Save Changes
Saves the changes.
Telnet protocol does not contain energy measurement data and counters. This protocol is recommended to Outputs control only.

When the Telnet is enabled, other M2M protocols are disabled except SNMP. After clicking Save changes, the notification message about the deactivation of the other protocol appears.

Start Telnet connection to a NETIO device IP address and its Telnet port
When the connection is established, the NETIO device returns the following response and is ready to receive commands.

Telnet welcome message

```
100 HELLO 489F6C4F - K SHELL V2.1
```

Note: The Telnet connection is automatically terminated after 60 seconds of inactivity. It is possible to use the `noop` command to keep the connection alive for the next 60 seconds.

Command set

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>login &lt;username&gt;</td>
<td>Log in a user. Replace &lt;username&gt; and &lt;password&gt; by the equivalent attributes defined in the Telnet protocol configuration (Figure 28)</td>
</tr>
<tr>
<td>&lt;password&gt;</td>
<td></td>
</tr>
<tr>
<td>Example</td>
<td>log in with username netio and password netio: login netio netio</td>
</tr>
<tr>
<td>quit</td>
<td>Log out and terminate Telnet connection.</td>
</tr>
<tr>
<td>noop</td>
<td>Keep the Telnet connection alive for the next 60 seconds. No-operation</td>
</tr>
<tr>
<td>port list [xxxx]</td>
<td>Control/monitor of all outputs based on the parameters xxxx (described below) for each output. All parameters x must have valid value otherwise the command will not be accepted (e.g. port list 10x1 is invalid). If no parameters are provided, then it returns states of all outputs.</td>
</tr>
</tbody>
</table>
Outputs are numbered from the left to right (1-2-3-4).

Control all outputs (1 and 4: ON, 2 and 3: OFF):
port list 1001
250 OK

Returns state of output:
port list
250 1001
(outputs 1 and 4 are ON, 2 and 3 OFF)

port <output> <action>
Control the output.
<output> is replaced by the output number (1)
<action> is replaced by a parameter described below
If no <action> is provided, the state of the output is returned.

input list
Returns state of input.
input list
250 10
(input is ON)

Each command must be followed by CR and LF characters (hexadecimal 0D and 0A). Typically, you can use Enter in the terminal.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Turn OFF</td>
</tr>
<tr>
<td>1</td>
<td>Turn OFF</td>
</tr>
<tr>
<td>2</td>
<td>Short OFF delay (restart)</td>
</tr>
<tr>
<td>3</td>
<td>Short ON delay</td>
</tr>
<tr>
<td>4</td>
<td>Toggle (invert the state)</td>
</tr>
<tr>
<td>5</td>
<td>No change</td>
</tr>
</tbody>
</table>

Parameters <action> for port command
Command examples

Switch power output 1 to ON:

```
port 1 1
```

Switch power output 1 to OFF:

```
port 1 0
```

Toggle power output 1:

```
port 1 4
```

Status codes

<table>
<thead>
<tr>
<th>Status code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>110 BYE</td>
<td>Connection terminated by client after command quit</td>
</tr>
<tr>
<td>130 CONNECTION TIMEOUT</td>
<td>No command submitted for longer than 60 seconds. The Telnet connection is terminated.</td>
</tr>
<tr>
<td>250 OK</td>
<td>The command is accepted.</td>
</tr>
<tr>
<td>500 INVALID VALUE</td>
<td>The command parameter is not valid.</td>
</tr>
<tr>
<td>501 INVALID PARAMETR</td>
<td>The command parameter is not valid.</td>
</tr>
<tr>
<td>502 UNKNOWN COMMAND</td>
<td>The command is not valid.</td>
</tr>
<tr>
<td>505 FORBIDDEN</td>
<td>An attempt to make an action with not sufficient permission (i.e.: control output with read only user, try to monitor output state with non-logged user, where ReadOnly user is password protected etc.)</td>
</tr>
<tr>
<td>510 OUT OF RANGE</td>
<td>Specified value is not valid (i.e. trying to control port 4 on device, which has only 1 socket)</td>
</tr>
</tbody>
</table>
For more information about the Telnet protocol, visit the Support > Download section of our website and see the following document:
Telnet - description of NETIO M2M API interface - PDF

For more information and a practical demonstration of using the Modbus/TCP protocol with NETIO smart sockets, see the following Application Note:
AN10 Telnet control of electrical power sockets (M2M API - KSHELL)

NETIO AN10: Telnet control of electrical power sockets (M2M API - KSHELL)
5.4.5 **M2M API Protocol - Modbus/TCP**

Enable Modbus/TCP

Enables M2M Modbus/TCP functions in the system.

**Port**

Specific port for Modbus/TCP only, range 1 - 65535. The device do **NOT** alerts you if you specify a port number that is already occupied.

**Last access IP**

Read-only value indicating the IP address from which the last Modbus/TCP command was received. The “Refresh” button updates this value.

**Enable IP filter**

To improve security, the IP filter can be used to specify a range of IP addresses from which Modbus/TCP commands are accepted. Commands from addresses outside of this range will be ignored.

**Save Changes**

Saves the changes.

**Figure 28 - Modbus/TCP protocol configuration**

Note: Measurement available only for PowerPDU 8QS.
When the Modbus/TCP is enabled, other M2M protocols are disabled except SNMP. After clicking **Save changes**, the notification message about the deactivation of the other protocol appears.

**Modbus/TCP function and registers overview**

<table>
<thead>
<tr>
<th>Function</th>
<th>Register</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0x01</td>
<td>102</td>
<td>101</td>
<td>Read 1st output state (101 when Wire address used)</td>
</tr>
<tr>
<td>0x01</td>
<td>103</td>
<td>0/1</td>
<td>Read 2nd output state</td>
</tr>
<tr>
<td>0x01</td>
<td>104</td>
<td>0/1</td>
<td>Read 3rd output state</td>
</tr>
<tr>
<td>0x01</td>
<td>105</td>
<td>0/1</td>
<td>Read 4th output state</td>
</tr>
<tr>
<td>0x01</td>
<td>106</td>
<td>0/1</td>
<td>Read 5th output state</td>
</tr>
<tr>
<td>0x01</td>
<td>107</td>
<td>0/1</td>
<td>Read 6th output state</td>
</tr>
<tr>
<td>0x01</td>
<td>108</td>
<td>0/1</td>
<td>Read 7th output state</td>
</tr>
<tr>
<td>0x01</td>
<td>109</td>
<td>0/1</td>
<td>Read 8th output state</td>
</tr>
<tr>
<td>0x02</td>
<td>802</td>
<td>0/1</td>
<td>Read 1st input state</td>
</tr>
<tr>
<td>0x03</td>
<td>1</td>
<td>Uint16</td>
<td>Number of digital inputs</td>
</tr>
<tr>
<td>0x03</td>
<td>2</td>
<td>Uint16</td>
<td>Number of digital outputs</td>
</tr>
<tr>
<td>0x03</td>
<td>3</td>
<td>Uint16</td>
<td>Number of metered digital outputs</td>
</tr>
<tr>
<td>0x03</td>
<td>102</td>
<td>Uint16</td>
<td>1st output state</td>
</tr>
<tr>
<td>0x03</td>
<td>103</td>
<td>Uint16</td>
<td>2nd output state</td>
</tr>
<tr>
<td>0x03</td>
<td>104</td>
<td>Uint16</td>
<td>3rd output state</td>
</tr>
<tr>
<td>0x03</td>
<td>105</td>
<td>Uint16</td>
<td>4th output state</td>
</tr>
<tr>
<td>0x03</td>
<td>106</td>
<td>Uint16</td>
<td>5th output state</td>
</tr>
<tr>
<td>0x03</td>
<td>107</td>
<td>Uint16</td>
<td>6th output state</td>
</tr>
<tr>
<td>0x03</td>
<td>108</td>
<td>Uint16</td>
<td>7th output state</td>
</tr>
<tr>
<td>0x03</td>
<td>109</td>
<td>Uint16</td>
<td>8th output state</td>
</tr>
<tr>
<td>0x03</td>
<td>202</td>
<td>Uint16</td>
<td>&quot;Short&quot; delay of 1st output [s*10]</td>
</tr>
<tr>
<td>0x03</td>
<td>203</td>
<td>Uint16</td>
<td>&quot;Short&quot; delay of 2nd output [s*10]</td>
</tr>
<tr>
<td>0x03</td>
<td>204</td>
<td>Uint16</td>
<td>&quot;Short&quot; delay of 3rd output [s*10]</td>
</tr>
<tr>
<td>0x03</td>
<td>205</td>
<td>Uint16</td>
<td>&quot;Short&quot; delay of 4th output [s*10]</td>
</tr>
<tr>
<td>0x03</td>
<td>206</td>
<td>Uint16</td>
<td>&quot;Short&quot; delay of 5th output [s*10]</td>
</tr>
<tr>
<td>0x03</td>
<td>207</td>
<td>Uint16</td>
<td>&quot;Short&quot; delay of 6th output [s*10]</td>
</tr>
<tr>
<td>0x03</td>
<td>208</td>
<td>Uint16</td>
<td>&quot;Short&quot; delay of 7th output [s*10]</td>
</tr>
<tr>
<td>0x03</td>
<td>209</td>
<td>Uint16</td>
<td>&quot;Short&quot; delay of 8th output [s*10]</td>
</tr>
<tr>
<td>0x04</td>
<td>1</td>
<td>Uint16</td>
<td>Power grid frequency [Hz*100]</td>
</tr>
<tr>
<td>0x04</td>
<td>2</td>
<td>Uint16</td>
<td>Voltage [V*10] - RMS</td>
</tr>
<tr>
<td>0x04</td>
<td>3</td>
<td>Uint16</td>
<td>OverAll TruePowerFactor * 1000</td>
</tr>
<tr>
<td>0x04</td>
<td>4</td>
<td>Uint16</td>
<td>All outputs current [mA] (double)</td>
</tr>
<tr>
<td>0x04</td>
<td>5</td>
<td>Uint16</td>
<td>All outputs power [W] (double)</td>
</tr>
<tr>
<td>0x04</td>
<td>6</td>
<td>Int16</td>
<td>All outputs Phase shift <a href="double">*100</a></td>
</tr>
<tr>
<td>0x04</td>
<td>101</td>
<td>Uint16</td>
<td>All outputs current [mA]</td>
</tr>
<tr>
<td>0x04</td>
<td>102</td>
<td>Uint16</td>
<td>1st output current [mA]</td>
</tr>
<tr>
<td>0x04</td>
<td>201</td>
<td>Uint16</td>
<td>All outputs power [W]</td>
</tr>
<tr>
<td>0x04</td>
<td>202</td>
<td>Uint16</td>
<td>1st output power [W]</td>
</tr>
<tr>
<td>0x04</td>
<td>301</td>
<td>Uint16</td>
<td>All outputs energy counter - 2 upper bytes [Wh]</td>
</tr>
<tr>
<td>0x04</td>
<td>302</td>
<td>Uint16</td>
<td>All outputs energy counter - 2 lower bytes [Wh]</td>
</tr>
<tr>
<td>0x04</td>
<td>303</td>
<td>Uint16</td>
<td>1st output energy counter - 2 upper bytes [Wh]</td>
</tr>
<tr>
<td>0x04</td>
<td>304</td>
<td>Uint16</td>
<td>1st output energy counter - 2 lower bytes [Wh]</td>
</tr>
<tr>
<td>Code</td>
<td>Type</td>
<td>Description</td>
<td></td>
</tr>
<tr>
<td>---------</td>
<td>---------</td>
<td>--------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>0x04 401</td>
<td>uInt16</td>
<td>All outputs TPF [-]</td>
<td></td>
</tr>
<tr>
<td>0x04 402</td>
<td>uInt16</td>
<td>1st output TPF [-]</td>
<td></td>
</tr>
<tr>
<td>0x04 501</td>
<td>Int16</td>
<td>All outputs Phase shift [° *100]</td>
<td></td>
</tr>
<tr>
<td>0x04 502</td>
<td>uInt16</td>
<td>1st output Phase shift [° *100]</td>
<td></td>
</tr>
<tr>
<td>0x04 601</td>
<td>uInt16</td>
<td>All out. reverseEnergy counter - 2up.bytes [Wh]</td>
<td></td>
</tr>
<tr>
<td>0x04 602</td>
<td>uInt16</td>
<td>All out. reverseEnergy counter - 2lo.bytes [Wh]</td>
<td></td>
</tr>
<tr>
<td>0x04 603</td>
<td>uInt16</td>
<td>1st out. reverseEnergy counter - 2up.bytes [Wh]</td>
<td></td>
</tr>
<tr>
<td>0x04 604</td>
<td>uInt16</td>
<td>1st out. reverseEnergy counter - 2lo.bytes [Wh]</td>
<td></td>
</tr>
<tr>
<td>0x04 803</td>
<td>uInt16</td>
<td>1st digital input S0 counter - 2 upper bytes</td>
<td></td>
</tr>
<tr>
<td>0x04 804</td>
<td>uInt16</td>
<td>1st digital input S0 counter - 2 lower bytes</td>
<td></td>
</tr>
<tr>
<td>0x04 1001</td>
<td>uInt16</td>
<td>All outputs energy NR counter - 2 upper bytes [Wh]</td>
<td></td>
</tr>
<tr>
<td>0x04 1002</td>
<td>uInt16</td>
<td>All outputs energy NR counter - 2 lower bytes [Wh]</td>
<td></td>
</tr>
<tr>
<td>0x04 1003</td>
<td>uInt16</td>
<td>1st output energy NR counter - 2 upper bytes [Wh]</td>
<td></td>
</tr>
<tr>
<td>0x04 1004</td>
<td>uInt16</td>
<td>1st output energy NR counter - 2 lower bytes [Wh]</td>
<td></td>
</tr>
<tr>
<td>0x04 1101</td>
<td>uInt16</td>
<td>All out. reverseEnergy NR counter - 2up.bytes [Wh]</td>
<td></td>
</tr>
<tr>
<td>0x04 1102</td>
<td>uInt16</td>
<td>All out. reverseEnergy NR counter - 2lo.bytes [Wh]</td>
<td></td>
</tr>
<tr>
<td>0x04 1103</td>
<td>uInt16</td>
<td>1st out. reverseEnergy NR counter - 2up.bytes [Wh]</td>
<td></td>
</tr>
<tr>
<td>0x04 1104</td>
<td>uInt16</td>
<td>1st out. reverseEnergy NR counter - 2lo.bytes [Wh]</td>
<td></td>
</tr>
<tr>
<td>0x05 102</td>
<td>0/1</td>
<td>Turn On/Off 1st output (Write)</td>
<td></td>
</tr>
<tr>
<td>0x05 103</td>
<td>0/1</td>
<td>Turn On/Off 2nd output</td>
<td></td>
</tr>
<tr>
<td>0x05 104</td>
<td>0/1</td>
<td>Turn On/Off 3rd output</td>
<td></td>
</tr>
<tr>
<td>0x05 105</td>
<td>0/1</td>
<td>Turn On/Off 4th output</td>
<td></td>
</tr>
<tr>
<td>0x05 106</td>
<td>0/1</td>
<td>Turn On/Off 5th output</td>
<td></td>
</tr>
<tr>
<td>0x05 107</td>
<td>0/1</td>
<td>Turn On/Off 6th output</td>
<td></td>
</tr>
<tr>
<td>0x05 108</td>
<td>0/1</td>
<td>Turn On/Off 7th output</td>
<td></td>
</tr>
<tr>
<td>0x05 109</td>
<td>0/1</td>
<td>Turn On/Off 8th output</td>
<td></td>
</tr>
<tr>
<td>0x06 102</td>
<td>uInt16</td>
<td>Set action to 1st output</td>
<td></td>
</tr>
<tr>
<td>0x06 103</td>
<td>uInt16</td>
<td>Set action to 2nd output</td>
<td></td>
</tr>
<tr>
<td>0x06 104</td>
<td>uInt16</td>
<td>Set action to 3rd output</td>
<td></td>
</tr>
<tr>
<td>0x06 105</td>
<td>uInt16</td>
<td>Set action to 4th output</td>
<td></td>
</tr>
<tr>
<td>0x06 106</td>
<td>uInt16</td>
<td>Set action to 5th output</td>
<td></td>
</tr>
<tr>
<td>0x06 107</td>
<td>uInt16</td>
<td>Set action to 6th output</td>
<td></td>
</tr>
<tr>
<td>0x06 108</td>
<td>uInt16</td>
<td>Set action to 7th output</td>
<td></td>
</tr>
<tr>
<td>0x06 109</td>
<td>uInt16</td>
<td>Set action to 8th output</td>
<td></td>
</tr>
<tr>
<td>0x06 202</td>
<td>uInt16</td>
<td>Set &quot;Short&quot; delay of 1st output [s*10]</td>
<td></td>
</tr>
<tr>
<td>0x06 203</td>
<td>uInt16</td>
<td>Set &quot;Short&quot; delay of 2nd output [s*10]</td>
<td></td>
</tr>
<tr>
<td>0x06 204</td>
<td>uInt16</td>
<td>Set &quot;Short&quot; delay of 3rd output [s*10]</td>
<td></td>
</tr>
<tr>
<td>0x06 205</td>
<td>uInt16</td>
<td>Set &quot;Short&quot; delay of 4th output [s*10]</td>
<td></td>
</tr>
<tr>
<td>0x06 206</td>
<td>uInt16</td>
<td>Set &quot;Short&quot; delay of 5th output [s*10]</td>
<td></td>
</tr>
<tr>
<td>0x06 207</td>
<td>uInt16</td>
<td>Set &quot;Short&quot; delay of 6th output [s*10]</td>
<td></td>
</tr>
<tr>
<td>0x06 208</td>
<td>uInt16</td>
<td>Set &quot;Short&quot; delay of 7th output [s*10]</td>
<td></td>
</tr>
<tr>
<td>0x06 209</td>
<td>uInt16</td>
<td>Set &quot;Short&quot; delay of 8th output [s*10]</td>
<td></td>
</tr>
</tbody>
</table>
For more information about the M2M Modbus/TCP protocol, visit the Support > Download section of our website and see the following document:

Modbus / TCP - description of NETIO M2M API interface - PDF

For more information and a practical demonstration of using the Modbus/TCP protocol with NETIO smart sockets, see the following Application Note:

AN27: Modbus/TCP with NETIO 4x - Control and measure LAN power sockets

NETIO AN27:  Modbus/TCP with NETIO 4x
Control and measure LAN power sockets
5.4.6 M2M API Protocol - MQTT-flex

![MQTT-flex protocol configuration](image)

**Enable MQTT-flex**
Enables MQTT-flex functions in the system.

**MQTT-flex Config:**
Text area for entering the MQTT-flex configuration.

**Save Changes**
Saves the changes.

When the MQTT-flex is enabled, other M2M protocols are disabled except SNMP. After clicking Save changes, the notification message about the deactivation of the other protocol appears.

NETIO device uses json to define the MQTT-flex structure (MQTT-flex Config). Both subscribe and publish topics can be defined. Publish topics may include actions that initiate a transmission.
MQTT-flex configuration example:

```json
{
    "broker": {
        "clientid": "netio${DEVICE_SN}" ,
        "keepalive": 30,
        "password": "",
        "port": 1883,
        "protocol": "mqtt",
        "ssl": false,
        "type": "generic",
        "url": "broker.hivemq.com",
        "username": ""
    },
    "publish": [
        { 
            "events": [ 
                { 
                    "source": "OUTPUTS/1/STATE",
                    "type": "change"
                },
                { 
                    "source": "OUTPUTS/2/STATE",
                    "type": "change"
                },
                { 
                    "source": "OUTPUTS/3/STATE",
                    "type": "change"
                },
                { 
                    "source": "OUTPUTS/4/STATE",
                    "type": "change"
                },
                { 
                    "source": "OUTPUTS/5/STATE",
                    "type": "change"
                },
                { 
                    "source": "OUTPUTS/6/STATE",
                    "type": "change"
                },
                { 
                    "source": "OUTPUTS/7/STATE",
                    "type": "change"
                },
                { 
                    "source": "OUTPUTS/8/STATE",
                    "type": "change"
                },
                { "period": 3600,
                "type": "timer"
            }
        ]
    }
}
```
"payload": "${INOUT_STATUS}",
"qos": 0,
"retain": false,
"topic": "devices/${DEVICE_NAME}/messages/devicebound/"
]
},
"subscribe": [
{
"action": "${payload}",
"qos": 0,
"target": "REST_JSON",
"topic": "devices/${DEVICE_NAME}/messages/events/"
}]
}

For more information about the M2M MQTT-flex API, visit the Support > Download section of our website and see the following document:

MQTT-flex - description of NETIO M2M API interface - PDF

There are wide options for subscribe and publish sections and its possibilities expand over the time.

You will find details and examples at our online resource center:

For more information and a practical demonstration of using the MQTT protocol with NETIO smart sockets, see the following Application Note:

AN40 Getting started with PowerCable MQTT-flex via HiveMQ MQTT broker to mobile App
5.4.7 M2M API Protocol - Netio Push

Enable Netio Push
Enables Netio Push functions in the system.

Target host HTTP server:
Defines the parameters of the target:
- http / https to specify the protocol
- Target URL
- Port
- Username and Password
Example: https://username:password@test.example.com:80/push

Push Period
Period for the automatic sending of data (Push), in seconds.

Auto Push (delta)
Data will be immediately sent (Push) if a measured value exceeds this limit.
Parameter - at this time, only Current
Value - limit value for the selected parameter

Protocol
Selects the payload format.
- JSON
- XML
When the Netio Push is enabled, other M2M protocols are disabled except SNMP. After clicking Save changes, the notification message about the deactivation of the other protocol appears.

Data (payload - JSON/XML) are automatically periodically sent to the target address using HTTP(s), depending on the configured push period.

**Output control over the NETIO PUSH - JSON**

Device is periodically connecting to the Target host http(s) server within push period (default 60seconds). It means the output can be switched only when the TCP/IP connection is established. In default once every 60 seconds.

If the response from Target host is error code 200 (OK) and the payload contains valid NETIO JSON structure with control command then the Output will be set accordingly. This way is possible to control device even if this is in private network behind NAT.

The NETIO JSON structure is described in section [M2M API Protocol - JSON (REST M2M API)](https://example.com).

For more information about the M2M HTTP(s) Push API, visit the Support > Download section of our website and see the following document:
[HTTP(s) Push JSON - description of NETIO M2M API interface - PDF](https://example.com)
5.4.8 M2M API Protocol - SNMP

Enable SNMP
Enables M2M SNMP API functions in the system. The port is 161.

SNMP version
1.2c - unsecured, unencrypted
3 - secured

Location
Define system location (sysLocation).

Community READ (v1,2 only)
Also called the “community string” in SNMP. Similar to a username/password combination. Needed for reading information from NETIO device over SNMP.

We recommend to use “pure” ASCII characters (that is, to avoid accented and special characters, such as @, &, and so on, if possible).

Community WRITE (v1,2 only)
Also called the “community string” in SNMP. Similar to a username/password combination. Needed for writing commands to NETIO device over SNMP.

We recommend to use “pure” ASCII characters (that is, to avoid accented and special characters, such as @, &, and so on, if possible).

Security name (v3 only)
A string representing the name of the user.
### Security level (v3 only)
authPriv / authNoPriv / noAuthNoPriv

### Auth protocol (v3 only)
Authentication Protocol - An indication of whether messages sent on behalf of this user can be authenticated, and if so, the type of authentication protocol used. This can take one of the two values: SHA / MD5

### Auth key (v3 only)
Authentication protocol password - The (private) authentication key for use with the authentication protocol. This is a string password for MD5 or SHA depending on the choice above.

### Priv protocol (v3 only)
Privacy protocol - An indication of whether messages sent on behalf of this user can be protected from disclosure, and if so, the type of privacy protocol which is used. This takes the value AES (DES not supported).

### Priv key (v3 only)
Privacy protocol password. If messages sent on behalf of this user can be encrypted/decrypted with AES, the (private) privacy key for use with the privacy protocol.

### Save Changes
Saves the changes.

### Download MIB file
Use this button to download MIB.

The MIB can be downloaded from a device web administrator as described above.

Following standard MIBs are also required:
- SNMPv2-SMI
- SNMPv2-TC

### Monitoring (read)

$x =$ Output/Input number

<table>
<thead>
<tr>
<th>Object OID</th>
<th>Type</th>
<th>Value example</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>netioOutputID.x.0</td>
<td>INTEGER</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>1.3.6.1.4.1.47952.1.1.1.1.x.0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>netioOutputName.x.0</td>
<td>STRING</td>
<td>output_1</td>
<td>Based on user defined name</td>
</tr>
<tr>
<td>1.3.6.1.4.1.47952.1.1.2.x.0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>netioOutputState.x.0</td>
<td>INTEGER</td>
<td>off(0), on(1)</td>
<td></td>
</tr>
<tr>
<td>1.3.6.1.4.1.47952.1.1.3.x.0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>netioOutputStateString.x.0</td>
<td>STRING</td>
<td>&quot;off&quot;, &quot;on&quot;</td>
<td></td>
</tr>
<tr>
<td>1.3.6.1.4.1.47952.1.1.4.x.0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>netioOutputLoad.x.0</td>
<td>INTEGER</td>
<td>24</td>
<td>[W]</td>
</tr>
<tr>
<td>1.3.6.1.4.1.47952.1.1.25.x.0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>netioOutputEnergy.x.0</td>
<td>INTEGER</td>
<td>13</td>
<td>[Wh]</td>
</tr>
<tr>
<td>1.3.6.1.4.1.47952.1.1.26.x.0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>netioOutputEnergyStart.x.0</td>
<td>DateAndTime</td>
<td>2017-6-23,5:47:3.0,+0:0</td>
<td>Initial date and time. UTC based</td>
</tr>
<tr>
<td>1.3.6.1.4.1.47952.1.1.27.x.0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>netioOutputCurrent.x.0</td>
<td>INTEGER</td>
<td>195</td>
<td>[mA]</td>
</tr>
<tr>
<td>1.3.6.1.4.1.47952.1.1.28.x.0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Description</td>
<td>Type</td>
<td>Value</td>
<td>Notes</td>
</tr>
<tr>
<td>----------------------------------------------------------------</td>
<td>----------</td>
<td>-------------</td>
<td>----------------------------------------------------------------------</td>
</tr>
<tr>
<td>Current power factor * 1000</td>
<td>INTEGER</td>
<td>534</td>
<td></td>
</tr>
<tr>
<td>Voltage in the power grid [mV]</td>
<td>INTEGER</td>
<td>239100</td>
<td></td>
</tr>
<tr>
<td>Frequency in the power grid [mHz]</td>
<td>INTEGER</td>
<td>49900</td>
<td></td>
</tr>
<tr>
<td>[mA]</td>
<td>INTEGER</td>
<td>195</td>
<td></td>
</tr>
<tr>
<td>Total TPF *1000 Not available in PowerPDU 8QS</td>
<td>INTEGER</td>
<td>534</td>
<td></td>
</tr>
<tr>
<td>Total Load [W]</td>
<td>INTEGER</td>
<td>24</td>
<td></td>
</tr>
<tr>
<td>Total Energy [Wh]</td>
<td>INTEGER</td>
<td>13</td>
<td></td>
</tr>
<tr>
<td>Initial date and time. UTC based</td>
<td>DateAndTime</td>
<td>2017-6-23,5:47:3.0,+0:0</td>
<td></td>
</tr>
<tr>
<td>Total Phase * 100 Not available in PowerPDU 8QS</td>
<td>INTEGER</td>
<td>27581</td>
<td></td>
</tr>
<tr>
<td>Total Reverse Energy [Wh]</td>
<td>INTEGER</td>
<td>6664</td>
<td></td>
</tr>
<tr>
<td>[Wh]</td>
<td>INTEGER</td>
<td>72987</td>
<td></td>
</tr>
<tr>
<td>[Wh]</td>
<td>INTEGER</td>
<td>8877</td>
<td></td>
</tr>
<tr>
<td>Based on user defined name</td>
<td>STRING</td>
<td>Input 1</td>
<td></td>
</tr>
<tr>
<td>[Based on user defined name]</td>
<td>INTEGER</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>[Based on user defined name]</td>
<td>STRING</td>
<td>off</td>
<td></td>
</tr>
<tr>
<td>[Based on user defined name]</td>
<td>INTEGER</td>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>
Control (write)

\( x = \) Output number

<table>
<thead>
<tr>
<th>Object OID</th>
<th>Type</th>
<th>Value</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>netioOutputAction.0</td>
<td>INTEGER</td>
<td>0</td>
<td>Turn OFF</td>
</tr>
<tr>
<td>1.3.6.1.4.1.47952.1.1.1.5.x.0</td>
<td>(i)</td>
<td>1</td>
<td>Turn ON</td>
</tr>
<tr>
<td>1.3.6.1.4.1.47952.1.1.1.5.x.0</td>
<td></td>
<td>2</td>
<td>Short OFF delay (restart)</td>
</tr>
<tr>
<td>1.3.6.1.4.1.47952.1.1.1.5.x.0</td>
<td></td>
<td>3</td>
<td>Short ON delay</td>
</tr>
<tr>
<td>1.3.6.1.4.1.47952.1.1.1.5.x.0</td>
<td></td>
<td>4</td>
<td>Toggle (invert the state)</td>
</tr>
<tr>
<td>1.3.6.1.4.1.47952.1.1.1.5.x.0</td>
<td></td>
<td>5</td>
<td>No change</td>
</tr>
</tbody>
</table>

For more information about the M2M SNMP API, visit the Support > Download section of our website and see the following document:

**SNMP API - description of NETIO M2M API interface - PDF**

**Note:** There are differences compare to description in PDF:

- PowerPDU can be controlled over SNMP v1/2c
- All Objects/OIDs have added ".0" at the end (the tables on previous page contain correct/full Objects/OIDs).

Please contact NETIO support in case of questions.

For more information and a practical demonstration of using the SNMP protocol with NETIO smart sockets, see the following Application Note:

**SNMP management of 110/230V power outlets from the command line in Windows and Linux**
5.5 NETIO Cloud

Netio Cloud is a service provided by NETIO Products a.s. and allow easy central remote control and monitoring of the NETIO devices. What can you do in NETIO Cloud?

Output control
- On/Off switch.
- Reset button (Short Off for defined time).
- Show power consumption [kWh] per output (metered device only)

Settings
- Output name can be modified.
- Outputs can be placed to any of groups.
- Short OFF (restart) interval for reset can be set up.

NETIO Cloud is a paid service, but the current customers will gain some free credits with each device added to their NETIO Cloud account.

Figure 32 - NETIO Cloud
Connection to NETIO Cloud can be configured on Cloud tab.

**Figure 33 - Cloud configuration**

<table>
<thead>
<tr>
<th><strong>Enable NETIO Cloud</strong></th>
<th>Check to enable NETIO Cloud.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Status</strong></td>
<td><strong>Off</strong>: NETIO Cloud disabled</td>
</tr>
<tr>
<td></td>
<td><strong>Disconnected</strong>: Device not connected to Cloud</td>
</tr>
<tr>
<td></td>
<td><strong>Cloud connect failed...reconnecting</strong>: Device it trying to connect to Cloud</td>
</tr>
<tr>
<td></td>
<td><strong>Connected</strong>: Device connected to NETIO Cloud</td>
</tr>
<tr>
<td></td>
<td><strong>Connected and synchronised</strong>: Device connected to NETIO Cloud and account information synchronized</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Last update</strong></th>
<th>Date and time of the last update.</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th><strong>Added to account</strong></th>
<th>Account name to what this device is assign.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Device UID</strong></td>
<td>Unique device ID.</td>
</tr>
<tr>
<td>----------------</td>
<td>------------------</td>
</tr>
<tr>
<td><strong>Save Changes</strong></td>
<td>Saves the changes.</td>
</tr>
<tr>
<td><strong>Registration token</strong></td>
<td>Enter the registration token from NETIO Cloud web - shown when “ADD DEVICE” button used. Then press “Add device” button.</td>
</tr>
<tr>
<td><strong>Remove device</strong></td>
<td>If this device is connected to NETIO Cloud use this button to remove/disconnect it from NETIO Cloud.</td>
</tr>
<tr>
<td><strong>Account info</strong></td>
<td>Use “Reload” button to refresh account information.</td>
</tr>
<tr>
<td><strong>Credit</strong></td>
<td>Value of the available credit for Cloud account.</td>
</tr>
<tr>
<td><strong>Account log</strong></td>
<td>Log of the Cloud account events.</td>
</tr>
</tbody>
</table>
5.6 Users

When several users use the NETIO device, it is advisable to assign them different accounts with the necessary privileges. In the left menu, select Users.

![User Management Interface](image)

**Figure 34 - Adding and managing users**

**Username**

The username. The NETIO device must always have an “admin” account with administrator privileges; this account cannot be deleted or disabled. The device supports up to 5 user accounts. The username must start with a letter and may only contain numbers and letters without accents.

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Username</td>
<td>The username. The NETIO device must always have an “admin” account with administrator privileges; this account cannot be deleted or disabled. The device supports up to 5 user accounts. The username must start with a letter and may only contain numbers and letters without accents.</td>
</tr>
<tr>
<td>Current password</td>
<td>When changing the password, the current (old) password must be entered.</td>
</tr>
<tr>
<td>Password</td>
<td>New password for the given account. The password can be up to 15 characters long and may consist of alphanumeric characters and the following special characters: __, ; * () [] {} $ % @ ^ + -~</td>
</tr>
<tr>
<td>Confirm password</td>
<td>Enter the password again.</td>
</tr>
<tr>
<td>Privileges</td>
<td><strong>administrator (full access):</strong> User with full privileges.</td>
</tr>
</tbody>
</table>
user (may only control outputs): User that can control the outputs but cannot change system settings.

guest (may only observe status): User that cannot change any settings, may only monitor the current output state.

Click “more/less” to display detailed privileges.

<table>
<thead>
<tr>
<th>Create User</th>
<th>Opens a dialog to enter the parameters of a new user account.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Save changes or Create User</td>
<td>Saves the changes.</td>
</tr>
</tbody>
</table>

Only an administrator or a user with the “manage users” privilege may change the passwords of other users.

Note: User based account can be used for access to NETIO Mobile2 App.
5.7 Schedules

Schedules can specify when should an output be switched on or when is an action valid. To manage schedules, select Schedules in the left menu.

By default, NETIO PowerPDU contains one schedule: Always. To create a new schedule, click Create schedule. Specify the schedule name and set the intervals when the output should be switched on.

Note

For an output to be controlled according to the schedule, the schedule needs to be selected for that particular output at the Schedule tab in the output configuration.

Figure 35 – Adding a custom schedule

A new interval can be quickly created by marking the corresponding slots by clicking and dragging with the left mouse button. An existing interval can be shortened or extended by dragging either end of the interval. To delete an interval, click it with the right mouse button. To create an interval encompassing an entire day, click the box next to that day in the All day column. By clicking and dragging, intervals (including all-day ones) can be created for several days at the same time.

In this quick way, intervals can be created with a granularity of 10 minutes. To specify the times for an existing interval more precisely, click it with the left mouse button to open the start and end time settings. There it is possible to specify the time up to the second. To save the new values, click OK.

To create a new interval by entering the precise times, click an empty space within the respective day with the left mouse button.
Figure 36 - Adding an interval with a precision to the second

⚠️ Deleting a schedule

By deleting a schedule, all Schedulers for specific outputs with this schedule are automatically disabled. The states of the respective outputs are unchanged; however, from that moment on, the outputs are under manual control.
5.8 Settings

NETIO PowerPDU can use the Ethernet connection (RJ45).

To ensure correct operation as intended, the device settings need to be properly configured. Select **Settings** in the left menu to display a sub-menu with product settings.

### 5.8.1 Network Configuration

This section allows configuring the IP parameters of the PowerDIN 4PZ network interface, which are essential for correct network operation. One of the options Wi-Fi / Ethernet or both can be configured depending on chosen connectivity.

#### Figure 37 - Network configuration - Ethernet

<table>
<thead>
<tr>
<th>MAC address</th>
<th>Ethernet address of the Ethernet network adapter. Unique for each device. Also corresponds to the NETIO device serial number.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Status</td>
<td>Connection status</td>
</tr>
<tr>
<td>Use DHCP</td>
<td>When selected, the device attempts to obtain network configuration from a DHCP server. If your network does not use DHCP, set the parameters statically.</td>
</tr>
</tbody>
</table>
**Set static IP address**

Manual configuration of network parameters. Select this option if your network does not have a DHCP server.

**IP address**

Choose an unused IP address in your network's address range.

**Net mask**

Set the network mask according to your network's address range.

**Default gateway**

Address of the network gateway. Corresponds to the address of your router's LAN interface.

**DNS server**

IP address of the domain name server. It is usually the same as the gateway address, as long as the DNS function is enabled on the router. If unsure, enter a public DNS server, such as: 8.8.8.8

**Hostname**

Name of the device in the local network. It is generated from the Device name (unsupported characters are replaced).

**Save Changes**

Saves the changes.

⚠️ **Caution**

After changing the network configuration, it may be necessary to re-discover the NETIO device at its new address. The discovery procedure is described in section Detecting and configuring the IP address.
5.8.2 Date / Time

In the Settings menu on the left, select Date/Time.

**Use NTP server**
When selected, the device’s clock is periodically synchronized with a NTP server. If you do not have your own NTP server in your network, use e.g. tik.cesnet.cz

**Set time manually**
Select if you do not wish to use a NTP server.

**Date**
Current date and time on the NETIO device’s clock. Can be modified if necessary.

**Synchronize with this computer**
Check this box to copy the current date and time from your computer to NETIO device’s internal clock.

**Timezone**
Set the time zone to govern the time settings.

**Save Changes**
Saves the changes.
5.8.3 Firmware

The Firmware section allows updating the firmware of your device. The current firmware version is shown in the footer of each page.

![Firmware section](image)

**Figure 39 - Details about the installed firmware**

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Firmware version</td>
<td>Installed firmware version.</td>
</tr>
<tr>
<td>Build date</td>
<td>Creation date of the installed firmware version.</td>
</tr>
<tr>
<td>Model</td>
<td>Model designation.</td>
</tr>
<tr>
<td>Revision</td>
<td>Revision number.</td>
</tr>
<tr>
<td>Firmware Package</td>
<td>Click Browse to select a firmware file to install. Then click Install Firmware to start the installation.</td>
</tr>
</tbody>
</table>

Where to find the right fw?
Go to the product page on our website (link below), select your product and scrool down the page.

Figure 40 – WEB of NETIO products - Link to Firmware download

Caution
Before installing firmware, read carefully the instructions at our website, make sure that you are upgrading from the correct version, and follow the prescribed procedure.

Downgrade to a lower firmware version may cause the device to reset to factory defaults. This will disconnect the device from your Wi-Fi network. For this reason, we strongly discourage from downgrading the firmware remotely, without physical access to the device. Before downgrading the firmware, always consider if it is really necessary and if needed, contact technical support: support@netio.eu
5.8.4 System
This section allows performing basic settings and viewing basic parameters of the device.

![System settings](image)

**Figure 41 - System settings**

<table>
<thead>
<tr>
<th><strong>Uptime</strong></th>
<th>Time since the last restart of the device.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Firmware version</strong></td>
<td>Currently installed firmware version and a link to the Firmware tab.</td>
</tr>
</tbody>
</table>
| **Device name** | Shown in NETIO Discover and under the device logo in the web administration (in the figure above: PowerPDU-8QS under the PowerPDU logo in the top left corner).

The device “Hostname” is generated from this Device name (unsupported characters are replaced). |
<p>| <strong>HTTP port</strong> | Current http port for web administration and http based M2M API protocols (XML, JSON, URL API). If the port number is different from 80, it has to be specified in the web browser after the NETIO device IP address, e.g.: 192.168.0.99:888 |
| <strong>Enable Periodic device restart</strong> | Enables automatic restarting of the device. |</p>
<table>
<thead>
<tr>
<th><strong>Restart period</strong></th>
<th>Specifies the interval for automatic device restarts. The restart does not affect the state of the output.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Debug Log</strong></td>
<td>Adds a DebugLog section with diagnostic values to XML and JSON M2M API.</td>
</tr>
<tr>
<td><strong>Save Changes</strong></td>
<td>Saves the changes.</td>
</tr>
<tr>
<td><strong>Locate</strong></td>
<td>Identifies a particular device. When clicked, the yellow LED no. 1 starts flashing with pauses.</td>
</tr>
<tr>
<td><strong>Reset Power Consumption Counter</strong></td>
<td>Resets the electricity consumption counters.</td>
</tr>
<tr>
<td><strong>Factory Reset Defaults</strong></td>
<td>Resets NETIO device to factory defaults. Follow section 4 to make the device operational again.</td>
</tr>
<tr>
<td><strong>Export and import device configuration</strong></td>
<td>Can be used to back-up and restore device configuration. Do not modify the exported file!</td>
</tr>
<tr>
<td></td>
<td>“Export configuration” - shows a confirmation dialog for exporting the device configuration and downloading it to your computer.</td>
</tr>
<tr>
<td></td>
<td>“Browse” - opens a dialog to select a configuration file for import into the device.</td>
</tr>
<tr>
<td></td>
<td>“Import configuration” - shows a confirmation dialog for importing the device configuration. After the import, the device restarts and the imported configuration takes effect.</td>
</tr>
</tbody>
</table>
5.9 Log

In the left menu, select Log.

Figure 42 - Event log

- **Refresh**: Reloads the log to show the most recent entries.
- **Export to file**: Exports the log in the html format.
- **Clear log**: Clears the log records.

The log contains 40 most recent events only and is cleared when the device is restarted.
Sources (types) of log entries:

<table>
<thead>
<tr>
<th>Source</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>System</td>
<td>Event generated by the system itself, e.g. WiFi reconnect</td>
</tr>
<tr>
<td>WebApi</td>
<td>Event related to a request from the web interface, e.g. User logged in</td>
</tr>
<tr>
<td>XML</td>
<td>M2M XML protocol</td>
</tr>
<tr>
<td>JSON</td>
<td>M2M JSON protocol</td>
</tr>
<tr>
<td>M2M URL</td>
<td>M2M URL API protocol</td>
</tr>
<tr>
<td>Modbus</td>
<td>M2M Modbus/TCP protocol</td>
</tr>
<tr>
<td>MQTT</td>
<td>M2M MQTT protocol</td>
</tr>
<tr>
<td>SNMP</td>
<td>M2M SNMP protocol</td>
</tr>
<tr>
<td>Web server</td>
<td>Web server, e.g. Client disconnected</td>
</tr>
<tr>
<td>Cloud</td>
<td>NETIO Cloud</td>
</tr>
</tbody>
</table>
6 DECLARATION OF CONFORMITY

Manufacturer: NETIO products a.s.
Address: U Pily 3/103
143 00 Praha 4, Czech Republic
Product: NETIO PowerPDU 4PS

This declaration of conformity is issued under the sole responsibility of the manufacturer.
Object of the declaration: "NETIO PowerPDU 4PS controlled and monitored over the LAN network".

RTTED:
The product mentioned above to which this declaration relates is in conformity with the essential requirements and other relevant requirements of the R&TTE Directive (1999/5/EC).

LVD:
The product mentioned above to which this declaration relates is in conformity with the essential requirements and other relevant requirements of the Directive 2006/95/EC.
The product mentioned above is in conformity with the following standards and/or other normative documents:
EN 60950-1
EN 62368

RoHS:
The product mentioned above to which this declaration relates is in conformity with the essential requirements and other relevant requirements of the Directive 2011/65/EU (restriction of the use of certain hazardous substances in electrical and electronic equipment).
The product mentioned above is in conformity with the following standards and/or other normative documents:
EN 50581: 2012

Czech Republic, Prague, December, 20, 2019
Jan Řehák, Chief of the board
DECLARATION OF CONFORMITY

Manufacturer: NETIO products a.s.
Address: U Pily 3/103
143 00 Praha 4, Czech Republic
Product: NETIO PowerPDU 8QS

This declaration of conformity is issued under the sole responsibility of the manufacturer.
Object of the declaration: “NETIO PowerPDU 8QS controlled and monitored over the LAN network”.

RTTDE:
The product mentioned above to which this declaration relates is in conformity with the essential requirements and other relevant requirements of the R&TTE Directive (1999/5/EC).

LVD:
The product mentioned above to which this declaration relates is in conformity with the essential requirements and other relevant requirements of the Directive 2006/95/EC.
The product mentioned above is in conformity with the following standards and/or other normative documents:
EN 60950-1
EN 62368

RoHS:
The product mentioned above to which this declaration relates is in conformity with the essential requirements and other relevant requirements of the Directive 2011/65/EU (restriction of the use of certain hazardous substances in electrical and electronic equipment).
The product mentioned above is in conformity with the following standards and/or other normative documents:
EN 50581: 2012

Czech Republic, Prague, April 19th, 2021
Jan Řehák, Chief of the board
## 7 Products overview

<table>
<thead>
<tr>
<th>Product</th>
<th>LAN (RJ45)</th>
<th>WiFi / Antenna</th>
<th>IQRF 868MHz</th>
<th>Output Type</th>
<th>Switched outputs</th>
<th>Metered outputs</th>
<th>DI Inputs</th>
<th>Power In</th>
<th>NFC</th>
<th>Industrial features</th>
<th>Power-Up state</th>
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<td>-</td>
<td>-</td>
<td>C13</td>
<td>4</td>
<td>4</td>
<td>-</td>
<td>110/230V / 10A</td>
<td>-</td>
<td>ZCS, RS232</td>
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<td>2x (50)</td>
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## Product features

<table>
<thead>
<tr>
<th></th>
<th>Web</th>
<th>HTTPS</th>
<th>Scheduler function</th>
<th>IP Watadog function</th>
<th>Lua scripting</th>
<th>Telnet</th>
<th>Modbus/TCP</th>
<th>XML over HTTP</th>
<th>JSON over HTTP</th>
<th>URL API (http get)</th>
<th>SNMP (v1/v3)</th>
<th>Http(s) Push XML / JSON</th>
<th>MQTT</th>
<th>MQTT-flex</th>
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<tbody>
<tr>
<td>PowerPDU 4C</td>
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