*https://wiki.teltonika-networks.com/view/TRB500_DNP3*

# TRB500 DNP3



The information in this page is updated in accordance with firmware version **TRB5_R_00.07.07**

**Note: Firmware versions before TRB5_R_00.07.04.4 will not be supported by devices from batch 09 and higher.**.

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## Summary

**Distributed Network Protocol 3 (DNP3)** is a set of communications protocols used between components in process automation systems. It is primarily used for communications between a client station and Remote Terminal Units (RTUs) or Intelligent Electronic Devices (IEDs).

This manual page provides an overview of the DNP3 functionality in TRB500 devices.

**Note:** DNP3 is additional software that can be installed from the **System → Package Manager** page.

## DNP3 Parameters

DNP3 parameters are held within **indexes**. The index numbers and corresponding system values are described in the table below:

| required value | index | group type |
|---|---|---|
| Uptime | 0 | Counter |
| Signal Strength | 1 | Octet String |
| Modem temperature (in 0.1 °C) | 2 | Octet String |
| Hostname | 3 | Octet String |
| Operator | 4 | Octet String |

| | | |
|---|---|---|
| Router Serial Number | 5 | Octet String |
| LAN MAC Address | 6 | Octet String |
| Router name | 7 | Octet String |
| Network state | 9 | Octet String |
| Connection state | 10 | Octet String |

# TCP Client

A client in DNP3 is a component that communicates (requests data) with a single outstation via a communication channel. By default, the client list is empty. To add a new client, click the 'Add' button.

After clicking 'Add' you will be redirected to the newly added client's configuration page.

## TCP Client Configuration

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The **TCP Client Configuration** section is used to configure the parameters of a DNP3 Outstation that the Client (this TRB500 device) will be querying with requests. The figure below is an example of the TCP Client Configuration and the table below provides information on the fields contained in that section:

| Field | Value | Description |
|---|---|---|
| Enable | off \| on; default: **off** | Turns communication with the outstation device on or off. |
| Name | string; default: **none** | Name of the TCP client, used for easier management purposes. |
| IP address | ip; default: **none** | DNP3 Outstation IP address. |
| Port | integer [0..65535]; default: **none** | DNP3 Outstation Port. |
| Local Address | integer [0..65535]; default: **none** | Clients Link-Layer address. |
| Remote Address | integer [0..65535]; default: **none** | Outstation Link-Layer address. |
| Period | integer [1..60]; default: **none** | Interval at which requests are sent to the outstation device. |
| Timeout | integer [1..60]; default: **none** | Maximum response wait time. |
| Save to flash | off \| on; default: **off** | When enabled, stores request information in device flash. |

### Requests Configuration

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A DNP3 **request** is a way of obtaining data from DNP3 Outstations. The client sends a request to an outstation specifying the function codes to be performed. The outstation then sends the requested data back to the DNP3 client.

The Request Configuration list is empty by default. To add a new Request Configuration look to the Add New Instance section. Enter a custom name into the 'New Configuration Name' field and click the 'Add' button:

The new Request Configuration should become visible in the list:

| Field | Value | Description |
|---|---|---|
| Name | string; default: **Unnamed** | Name of this Request Configuration. Used for easier management purposes. |
| Start Index | integer [0..65535]; default: **none** | Start index of the data subarray. |
| End Index | integer [0..65535]; default: **none** | End index of the data subarray. |
| Data Type | Binary \| Double Binary \| Counter \| Frozen Counter \| Analog \| Octet String \| Analog Output Status \| Binary Output Status; default: **Binary** | Data object group of the requested index(-es). |
| Enabled | off \| on; default: **off** | Turns the request on or off. |
| Actions | - interactive button | Deletes request configuration. |

### Request Configuration Testing

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This section is used to check whether the configuration works correctly. Simply click the 'Test' button and a response should appear in the box below. The last value represents the configured request data. A successful response to a test may look something like this:

# DNP3 Outstation

An outstation in DNP3 is a component that communicates with a single client via a communication channel. It makes measurements of the physical world and then sends them to a client upon request (solicited) or on its own accord (unsolicited). Occasionally a client requests that it do something by sending it a control. This provides the user with the possibility to get system parameters.

The figure below is an example of the DNP3 Outstation window section and the table below provides information on the fields contained in that window:

| Field | Value | Description |
|---|---|---|
| Enable | off \| on; default: **off** | Turns DNP3 Outstation on or off. |
| Local Address | integer [0..65535]; default: **none** | Outstation Link-Layer address. |
| Remote Address | integer [0..65535]; default: **none** | Client Link-Layer address. |
| Unsolicited enabled | off \| on; default: **none** | Enables the transmission of unsolicited messages. |
| Protocol | TCP \| UDP; default: **TCP** | Protocol used for DNP3 communications. |
| Port | integer [0..65535]; default: **none** | Port used for DNP3 communications. |
| UDP response address | ipv4; default: **none** | UDP response address. |
| UDP response port | integer [0..65535]; default: **none** | UDP response port. |
| Allow Remote Access | off \| on; default: **off** | Allows remote DNP3 connections by adding an exception to the device's firewall on the port specified in the field above. |