



**The Web Server plugin
PRINTED MANUAL**

Web Server plugin

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1 Introduction

The "Web Server" plugin implements a simple but fast and robust webserver inside our data loggers. You do not need any third-party software (Microsoft IIS server, Apache Web Server, etc.) to get this webserver up.

This module has the following features:

- You can watch the parsed data from the data logger remotely, from any computer, tablet, or mobile device.
- The web server uses templates to build web pages. So, you may adjust it to your needs.
- The plugin can aggregate data from several data sources to a single page.
- The web page can draw charts for numerical values.
- You can build a custom dashboard. It is really customizable.
- A password can protect the webserver.
- Each user will have an individual dashboard.

2 System requirements

The following requirements must be met for "Web Server" to be installed:

Operating system: Windows 2000 SP4 and above, including both x86 and x64 workstations and servers. The latest service pack for the corresponding OS is required.

Free disk space: Not less than 5 MB of free disk space is recommended.

Special access requirements: You should log on as a user with Administrator rights in order to install this module.

The main application (core) must be installed, for example, Advanced Serial Data Logger.

3 Installing Web Server

1. Close the main application (for example, Advanced Serial Data Logger) if it is running;
2. Copy the program to your hard drive;
3. Run the module installation file with a double click on the file name in Windows Explorer;
4. Follow the instructions of the installation software. Usually, it is enough just to click the "Next" button several times;
5. Start the main application. The name of the module will appear on the "Modules" tab of the "Settings" window if it is successfully installed.

If the module is compatible with the program, its name and version will be displayed in the module list. You can see examples of installed modules on fig.1-2. Some types of modules require additional configuration. To do it, just select a module from the list and click the "Setup" button next to the list. The configuration of the module is described below.

You can see some types of modules on the "Log file" tab. To configure such a module, you should select it from the "File type" list and click the "Advanced" button.

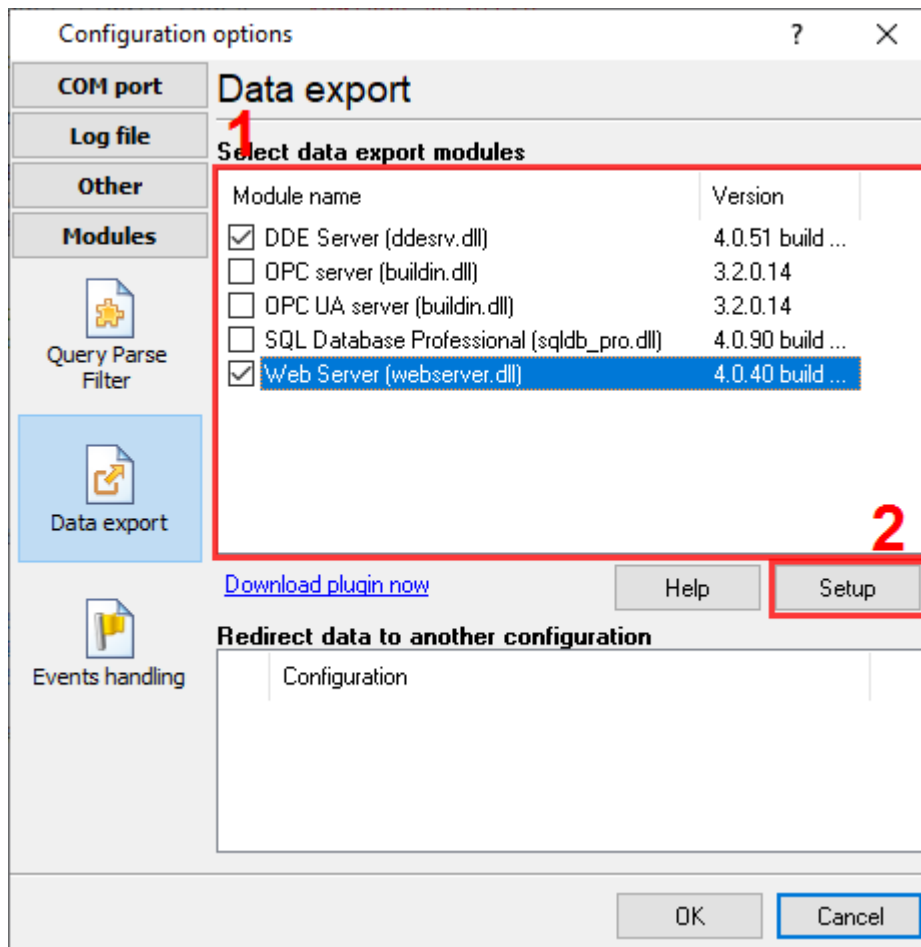


Fig. 1. Example of installed module

4 Glossary

Main program - it is the main executable of the application, for example, Advanced Serial Data Logger and asdlog.exe. It allows you to create several configurations with different settings and use different plugins.

Plugin - it is the additional plugin module for the main program. The plugin module extends the functionality of the main program.

Parser - it is the plugin module that processes the data flow, singling out data packets from it, and then variables from data packets. These variables are used in data export modules after that.

Core - see "Main program."

5 Web server

Listen port - the HTTP server uses this port to send data to the clients. The default value of this parameter is 80 for unsecured HTTP connections and 443 for secured HTTPS connections.

If another server already uses this port, you can specify any suitable value.

If you want to disable HTTP or HTTPS server, you may set the corresponding port number to 0 and restart the program.

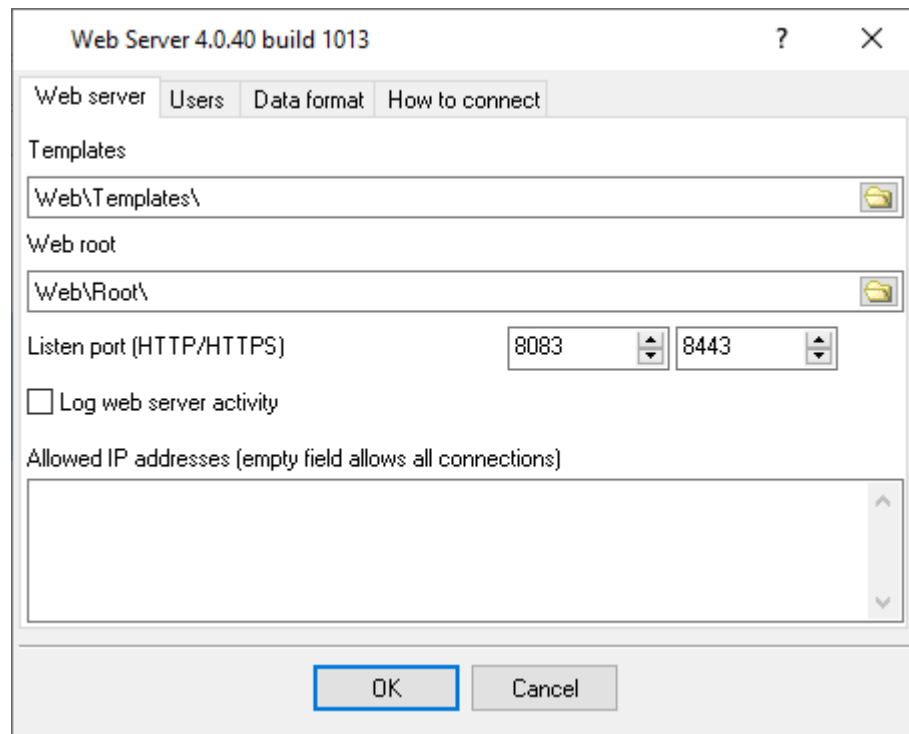


Fig. 1 Webserver settings

To access the server from the same computer where the program is running, you should type the following in the browser address line: `http://127.0.0.1`. If you specify a nonstandard port, specify it after a colon. For example, in the case of the above image:

`http://127.0.0.1:8081`
`https://127.0.0.1:8443`

To access the webserver:

1. Open the port specified in the settings in your firewall;
2. Instead of 127.0.0.1, specify the IP address of the computer in the network or its name if you access the server from the local area network.

Log web server activity - if this option is active, the plugin logs errors, warnings, and info about new connections to the program's protocol file.

Web root - this folder will contain pages with reports the remote user will view. It must be possible to write to this folder. You can use this folder to store your page that the webserver can send to the remote client.

Templates - this folder contains page templates that the program will use to display pages in the browser. You should keep the file names of templates completely changing their contents.

Authentication - enable/disable password-protected access. If this option is disabled, everyone can get access. Otherwise, you should define a list of users in the table by clicking the "Add item" button below the table.

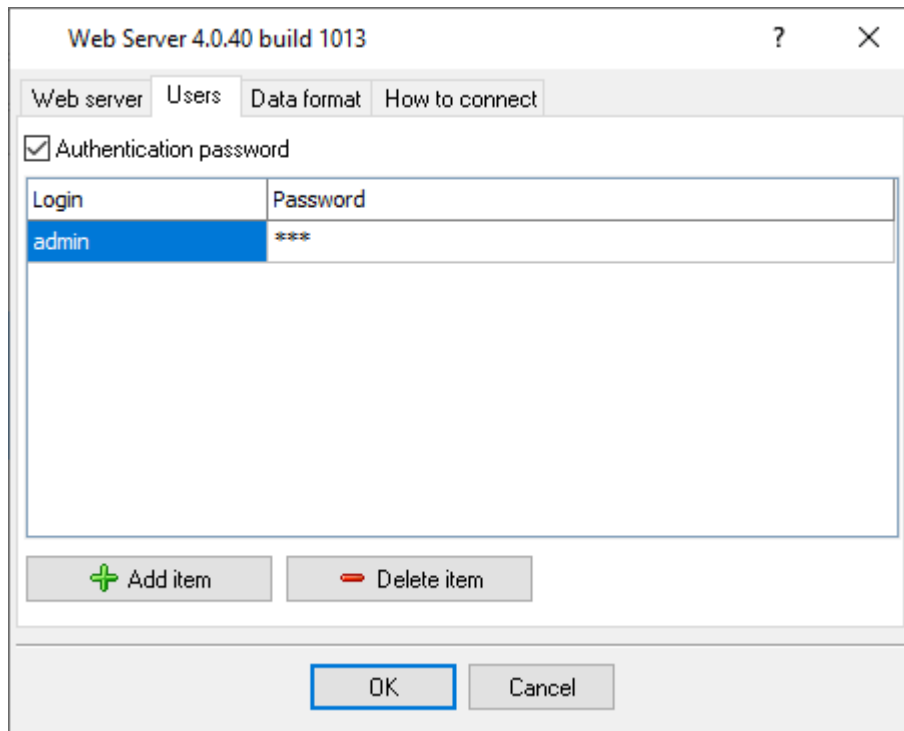


Fig. 2 Users

If you are going to provide access to the webserver via the Internet, it is recommended to specify the list of addresses access to the webserver is permitted from in the "**Allowed IP addresses**" field. If this field is empty, access from any remote computer will be allowed.

Data formats

In this section, you can specify the necessary data format for any data types. For example, you can set the date and time format (use the date and time divider different from the system one, or the text representation of logic values True/False).

If you use your data formats, the web page cannot correctly interpret number values. You cannot use most indicators on the web page.

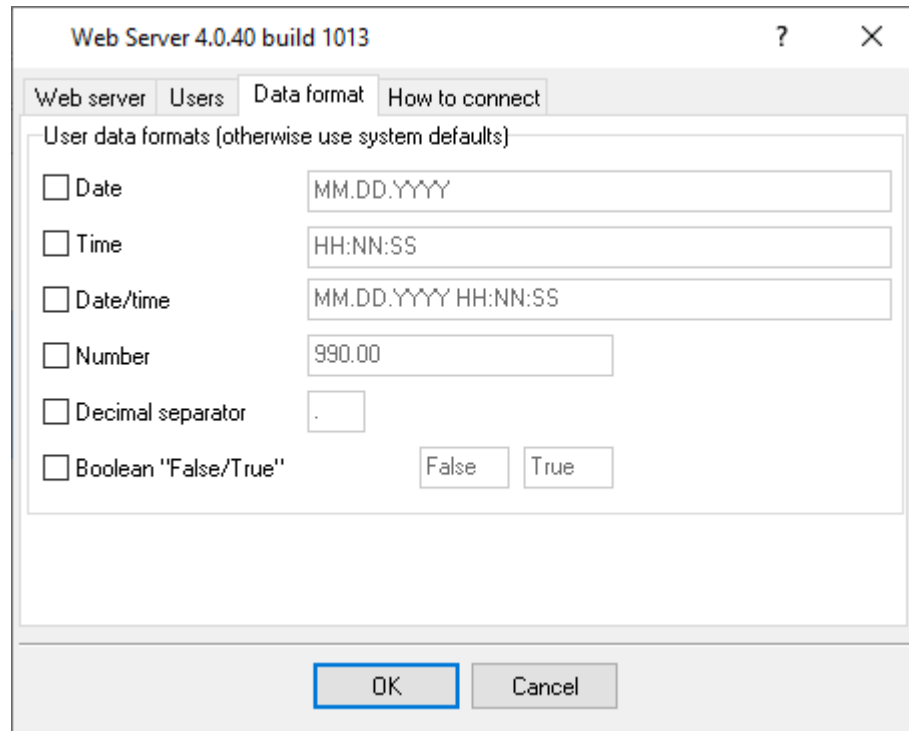


Fig. 3 Data formats

SSL certificates

If you want to use secure HTTPS connections on the webserver, you need to prepare SSL certificates and place them in the plugin's folder.

ServerCert.pem - The certificate file. This file may have ".crt" extension. In this case, you should rename it. The content of this file looks like:

```
-----BEGIN PRIVATE KEY-----
MIIEvwIBADANBgkqhkiG9w0BAQEFAASCBBKkwggSlAgEAAoIBAQC7cU1VSx12jQxp
v2cAmS4Pz8D5EHRG3ryEXgOusVMo6DNdNl348qrf+k3RWRkmotpRnoz50osCGJPN
Qka74hOsd3X6/crfkloWuelhS4UBj9I3vpsrSzF1U7DXZ4A09bfr607Ys07eKktF
...(skipped data)...
SzPxf/LWL3Hp+/S5TxX7NsF86p3HtFBOhVc6/IXZeRnPWu9aXA+yYAavtCZISN
pazWnNjpLza9m/SNuZYLpWdjJ8VgSJYXfSX/bp3vazhSk+XDN6XDi2w66abjs0iy
tQAjomYkWOzajADU++xW8ULw9w==
-----END PRIVATE KEY-----
```

ServerKey.pem - The server private key file. The file should be generated without a password or the fixed "password" password. This file may have ".key" extension. In this case, you should rename it. The content of this file looks like:

```
-----BEGIN CERTIFICATE-----
MIIFnJCCBIagAwIBAgIRALZ/5GGugq242V6H3nntnmMwDQYJKoZIhvcNAQELBQAw
TDELMakGAlUEBhMCTFYxDALBgNVBAcTBFFpZ2ExETAPBgNVBAoTCEdvR2V0U1NM
MRswGQYDVQQDEExJHb0dlldFNtTCBSU0EgRfYgQ0EwHhcNMjAxMDAyMDAwMDAwWhcN
MjExMTAyMjM0OTU5WjAYMRYwFAYDVQQDDA0qLmFnZ3NvZnQuY29tMIIBIjANBgkq
hkiG9w0BAQEFAAOCAQ8AMIIBCgKCAQEau3FNVUsZdo0Mab9nAjkuD8/A+RB6xt68
...(skipped data)...
uClfWrOozk5KNMpM6OYShlrGRSnBOZa5wuNzq+ss8jpaB5GD8zsQCA+te5L/zx5R
```



```
v9s=  
-----END CERTIFICATE-----
```

The program contains self-signed certificates for the "127.0.0.1" host address.

You can use an OpenSSL distribution to prepare your own self-signed certificates.

The disadvantage of using self-signed certificates is that you have to trust them in your web browser. You can also purchase trusted SSL certificates from an authorized reseller to remove that warning.

If your purchased SSL certificate does not work:

1. You can enable logging of webserver messages and look at the program's protocol file about detected problems.
2. You can try to install the certificate into your system. Rename it to the ".crt" file and double click on the certificate file name in Windows Explorer.

6 Web page

By default, the loaded web page is empty. First of all, you should add a tab on it by clicking the "Add page" button (fig. 1). Then you can add widgets on the created web page by clicking the "Add widget" button (fig. 2).

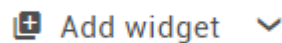
A button with a plus sign icon and the text "Add page".A button with a plus sign icon and the text "Add widget" followed by a downward arrow icon.

Fig. 1, 2 Buttons

To remove a widget from the page, you should drag and drop it over the "Drop widget" button (fig. 3).

A button with a trash can icon and the text "Drop widget".

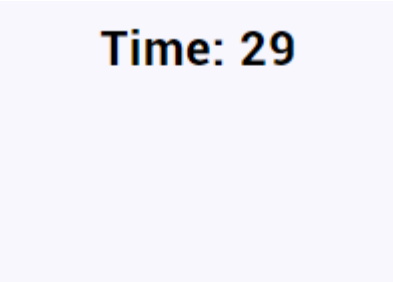
Fig. 3 The 'Drop' button

To edit previously added widget, move the cursor to the right upper corner of the widget. The button with dots "..." will appear. Click on this button and select "Edit" in the drop-down menu.

Widgets

You can add the following widgets on the web page:

1. Text - it is a simple text widget where you can configure a text size.



Time: 29

Fig. 4 Text widget

2. Numeric - it is a widget block that can display a numeric value and a horizontal gauge for it.



Fig. 5 Numeric widget

3. Gauge - It is a simple radial gauge.



Fig. 6 Simple gauge (180 degrees)

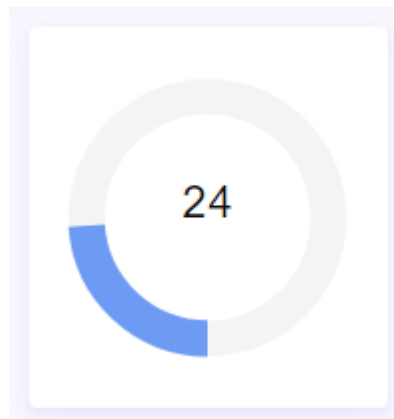
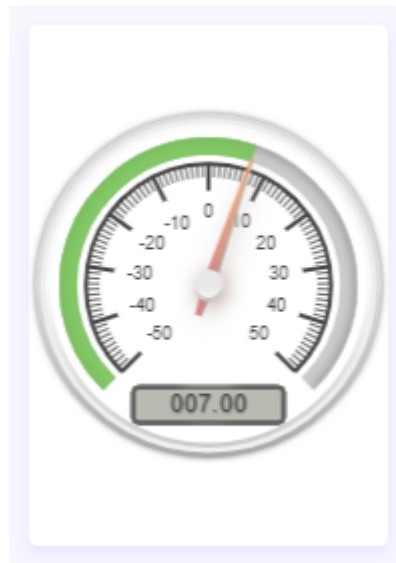
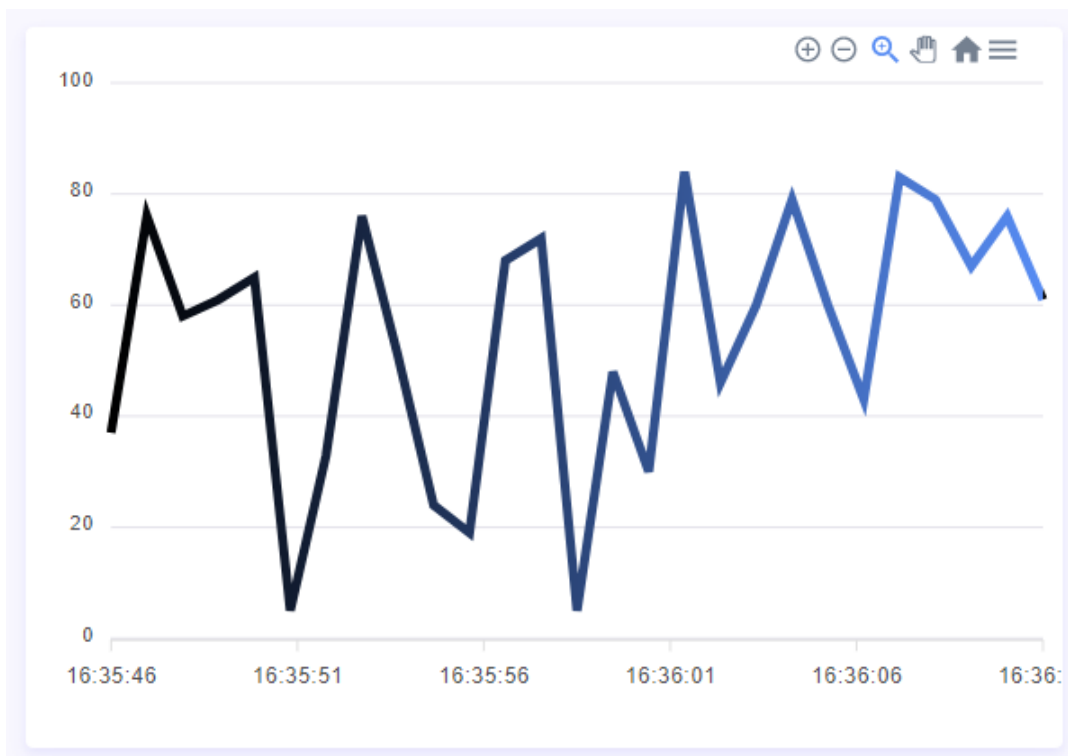


Fig. 7 Simple gauge (360 degrees)

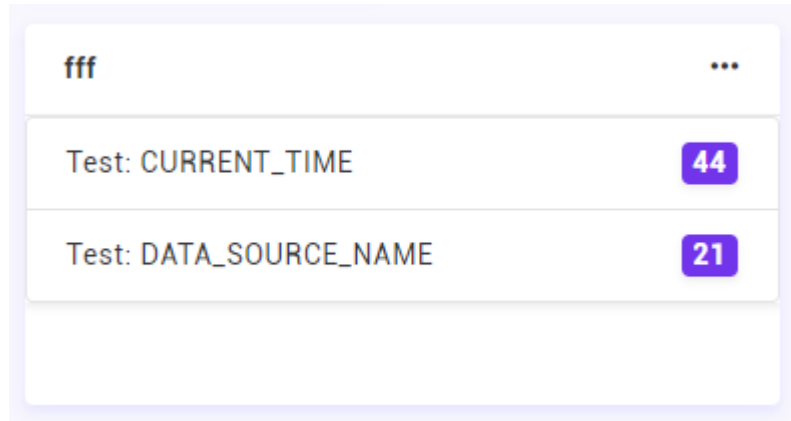
- Gauge (advanced) - it is a widget block that can display several radial, vertical or horizontal gauge types. You may define warning and alarm limits for each gauge.

**Fig. 8 Advanced gauge**

- Chart - this widget type allows you to display different chart types. The chart may contain up to 100 data points. Please, note that drawing of many charts may require many CPU resources.

**Fig. 9 Chart**

- List - this widget allows displaying several values in one group.

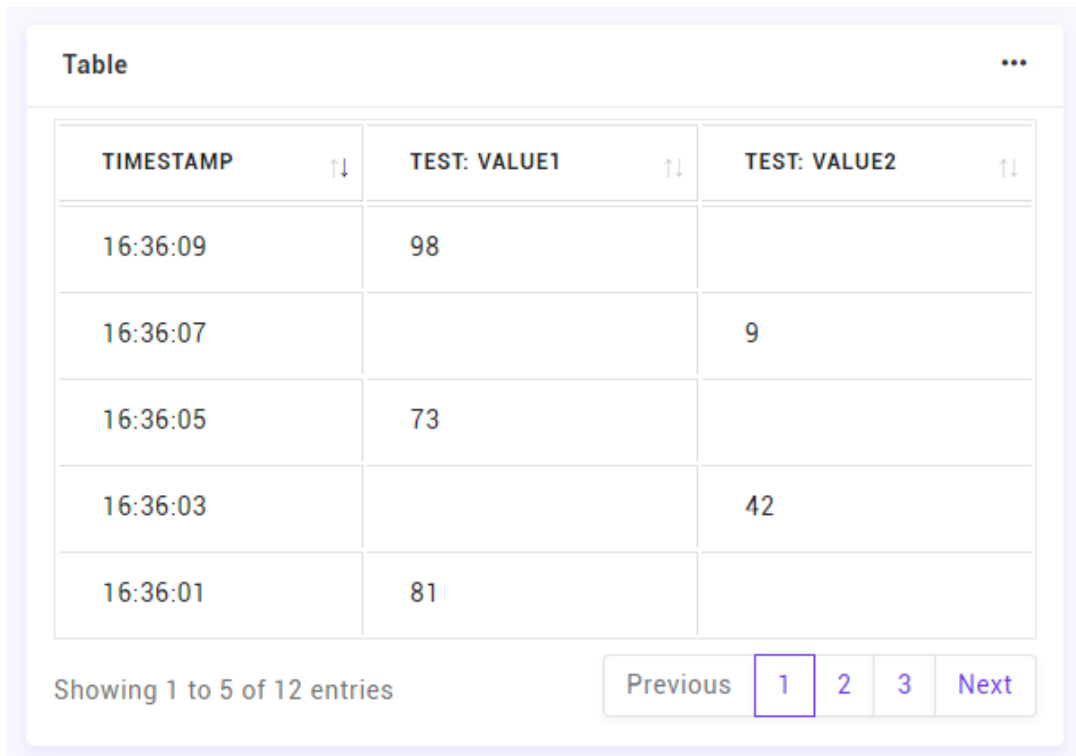


The screenshot shows a 'List' widget with a title 'fff' and a menu icon. It contains two entries, each with a test name and a value in a purple box:

Test Name	Value
Test: CURRENT_TIME	44
Test: DATA_SOURCE_NAME	21

Fig. 10 List

7. Table - a table in this widget contains a history of values for a selected variable (up to 1000 data values).



The screenshot shows a 'Table' widget with a title 'Table' and a menu icon. It contains a table with three columns: 'TIMESTAMP', 'TEST: VALUE1', and 'TEST: VALUE2'. The table has 6 rows of data. Below the table, there is a pagination control showing 'Showing 1 to 5 of 12 entries' and buttons for 'Previous', '1', '2', '3', and 'Next'.

TIMESTAMP	TEST: VALUE1	TEST: VALUE2
16:36:09	98	
16:36:07		9
16:36:05	73	
16:36:03		42
16:36:01	81	

Fig. 11 Table