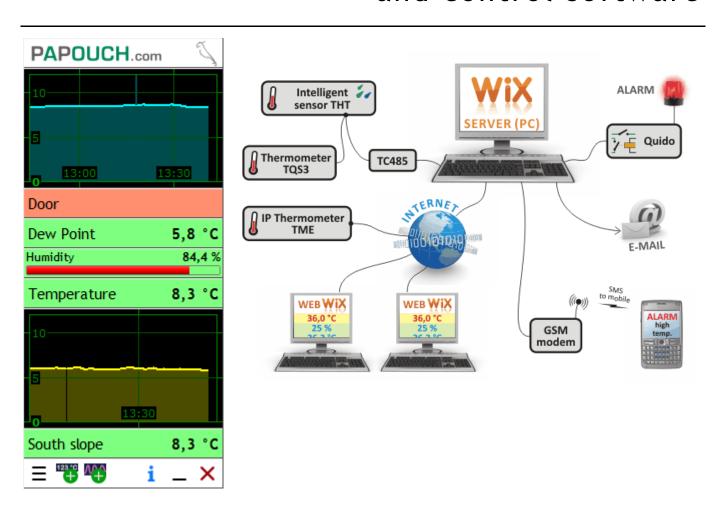


Wix

Universal monitoring and control software



Wix

Datasheet

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ABOUT WIX

Wix software can measure and control a wide range of devices - from thermometers and hygrometers, to anemometers, to inputs and outputs on Quido I/O modules or general MODBUS RTU devices. Depending on the monitored variable, various follow-up actions can be performed according to the current value - from simply alerting the user with an alert window, to switching an output on another Quido I/O module or sending an email, to sending an SMS alert directly to a mobile phone.

Wix can communicate with devices via RS232, RS485, USB and Ethernet (Internet).

Main functions

- Display of current values from connected devices.
 - Numeric value display.
 - o Display of a color bar (bar graph) with color according to the current value.
 - Display text according to the current value.
 - Chart view.
- Saving the measurement history to a text file for subsequent processing or evaluation.
- Actions on set events.
 - Sending an email
 - Switching off the output (relay) on the Quido
 - Resetting the counter on the Quido input
 - Sending SMS

System requirements

Operating system Wind	ows 7 or Windows 10
RAM	40 MB
Disk space	< 10 ME

For an up-to-date list of the devices Wix works with, visit en.papouch.com/wix.

INSTALLATION

No need to install Wix. Just copy it to your computer and run it. (To store the measured data, the program creates a subdirectory called Data and creates new files in it.)

When the program is first launched, Wix will try to connect to the server <u>papouch.com</u> and retrieve the outdoor temperature at our company's headquarters, which we measure <u>TH2E sensor</u>. If it succeeds (the computer with Wix has Internet connectivity), it will start displaying the measured temperature. This function serves as a demonstration of Wix's measurement capabilities, and allows us to test the program without having to own any compatible devices.

How to add a new device

The following example illustrates the addition of the <u>TH2E</u> smart sensor, which is a thermometer with hygrometer and Ethernet connection.

1) Press the button on Settings panel or right-click on the program window and select Add > Device.

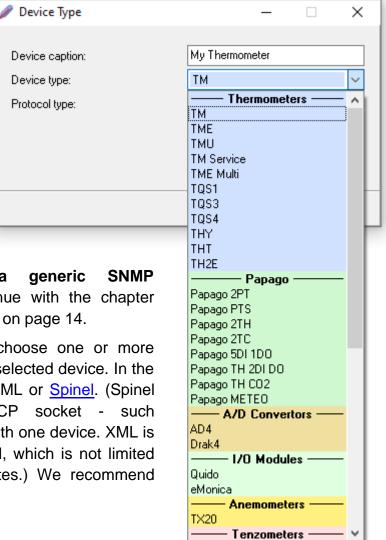
Window Device type

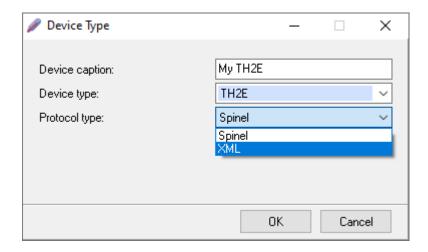
2) The Device Type window opens, where you first enter any Device Label and then select a Device Type from the list. In our case, we will select the TH2E sensor from the Thermometers section.

Do you want to add a generic Modbus device? Continue with the chapter How to add a new device with Modbus? on page 11.

Do you want to add a generic SNMP communicating device? Continue with the chapter How to add a new SNMP device? on page 14.

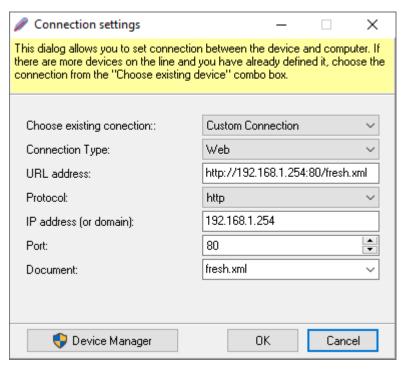
3) As a Protocol Type, you can choose one or more options to communicate with the selected device. In the case of TH2E, the choices are XML or <u>Spinel</u>. (Spinel means communication via TCP socket - such communication is only possible with one device. XML is communication over http protocol, which is not limited by the number of connected sites.) We recommend selecting XML.





Connection Settings window

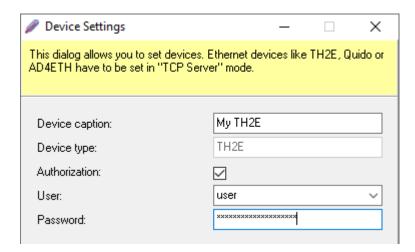
4) In the following *Connection Settings* window, you can select an existing connection method or add a new one.



- a. Select *Existing Connection > Custom Connection -* or New Connection select if you don't yet have any communication set up in Wix on the same communication link or the same IP address and port.
- b. Select Existing Connection > Existing Connection if you already have a previously defined connection on the same communication link or the same IP address and port.
- 5) It is possible to insert directly the address of the XML file with the actual data from the device as the *URL*, or to set the *Protocol*, *IP address (or domain)*, *Port* and *Document* items in and the *URL* will be built according to them.

Device Settings window

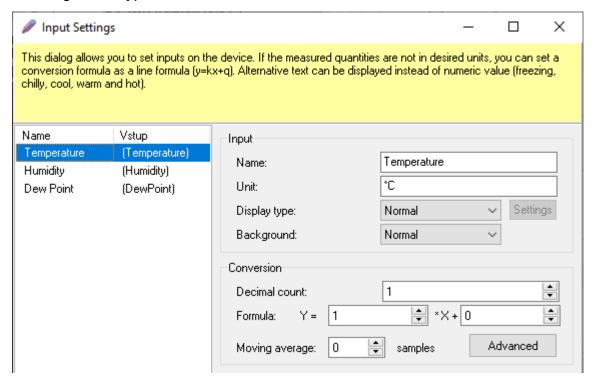
6) The *Device Settings* window sets the specific device that is connected through the connection we just set up in the previous window.



7) If your device connection is secured with a username and password, you can enter it here to give Wix access to your data. Check the *Authorization* box - this will open the *User* and *Password* fields.

Input Settings window

- 8) The *Input Settings* window sets the parameters of individual variables (inputs) from the device, as well as the Wix Conversion, which allows you to adjust the values by your own calibration using a line equation.
- 9) For each variable (input) it is possible to set the *Input Name*, *Unit*, *Display Type* and *Panel Background Type*.



10) The following items are available as Display Type:

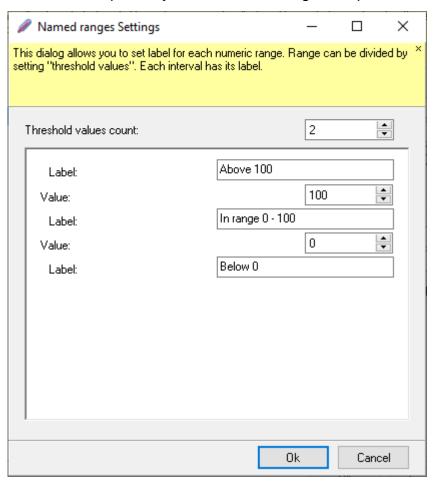
a. **Normal:** In this view, the name of the variable and the current value are displayed in the Wix taskbar.

Dew Point	8,7 °C
Humidity	81,9 %
Temperature	11,7 °C

b. Named ranges: This is the text that is displayed in the main window instead of the measured value. This function is useful for example for Quido. To prevent the door contact status from being displayed as 0 and 1, you set a label text. The door status can then be displayed as Closed door or Open door, for example.



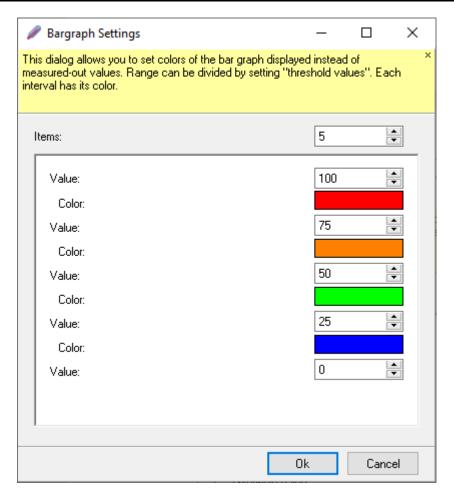
For analog variables such as temperature, the entire range can be divided not just into two, but into an "unlimited" number of parts and each part assigned a label text. For example: *very cold, frost, freezing, cold, pleasant, warm, hot.*



c. **Bargraph:** a horizontal bar of color - most commonly used, for example, as an indicator of file copy progress.



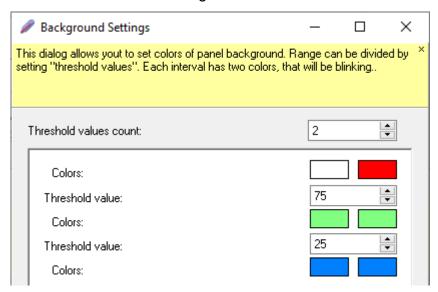
The Set button allows you to configure in more detail the range in which the bargraph should change its value. You can also set different colors for the bar-graph and assign them to different parts of the range. By the color and size, you can, for example, tell at a glance whether the voltage of the diesel generator is OK or whether there is a fluctuation.



11) You can select the following values as the Panel Background Type:

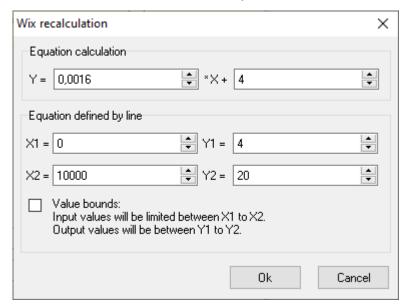
a. Normal

- b. **Custom color:** Here you can choose a custom background color for the panel with this variable.
- c. Flashing background: Use the Set button to open a dialog with color options. Different colors can be set for different ranges of values. In some ranges you can set two different colors so that the background flashes. In others you can leave both the same so the background does not flicker.



12) The parameters in the *Wix Conversion* section allow two types of mathematical adjustment of the measured value:

a. **Convert to a different range: for example,** if the connected device only shows a general value in the range 0 to 10000, you can use *Wix recalculation* to change the range to a more readable display. For example, if it's a level meter, you set the conversion and Wix will show the value converted to meters. By clicking on *Advanced*, you can define the calculation not only with an equation, but also with a line equation. The input range is X1-X2, the output range is Y1-Y2. The entered values are converted to a line equation.



b. **Averaging** using a *moving average*. Simply specify the number of samples to be used for the moving average.



13) This completes the process of adding a new device to Wix.

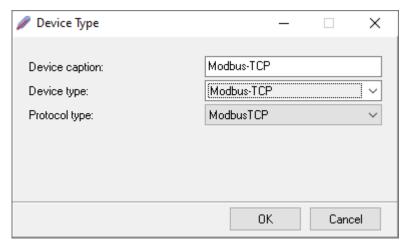
All variables provided by the device are automatically added to the Wix main dashboard.

How to add a new device with Modbus?

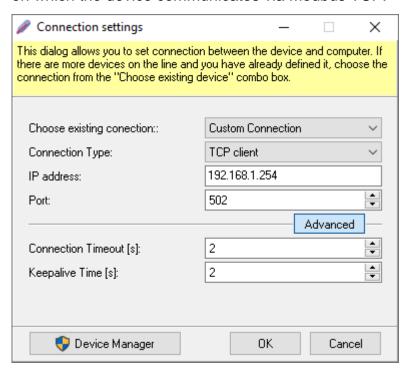
Modbus communication is not available in the free version of Wix.

Devices with Modbus TCP

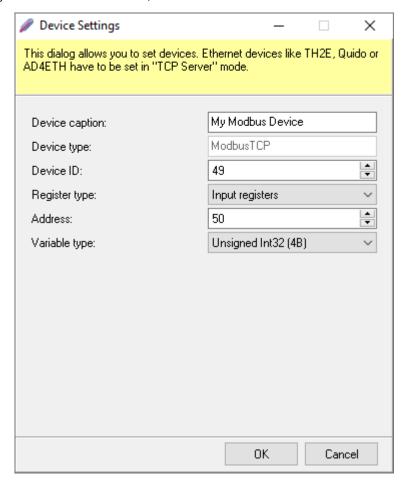
1) Select Modbus-TCP as Device Type.



2) In the next *Connection Settings* window, enter the *IP address* of your device and the *Port* on which the device communicates via Modbus TCP.



3) In the next window, set the device ID and the Modbus register to be read from the device.



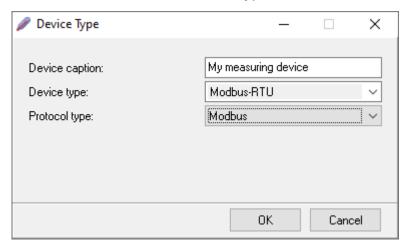
- Device ID: Device identifier according to the device manual. 49 is usually the default setting.
- Register type: type of Modbus registers in the device. Select one of the following options:
 - a. Holding registers
 - b. Input registers
 - c. Discrete inputs
 - d. Coils
- **Address** is the address within the selected *Registry Type*. The first register has the number 0. The register will be read from this address and also one or more subsequent addresses depending on how long the *Value Type is* selected.
- Variable type must be selected according to the type of the stored variable. The
 specific type is specified in the device manual. Note that an inaccurately selected
 Value Type may cause incorrect data to be displayed! Wix cannot recognize that
 the user has selected the wrong Value Type! The following options are available
 as Value Type:
 - a. Signed Int16 (one register) 16bit signed number
 - b. Unsigned Int16 (one register) 16bit unsigned number
 - c. Signed Int32 (two registers) 32bit signed number

12

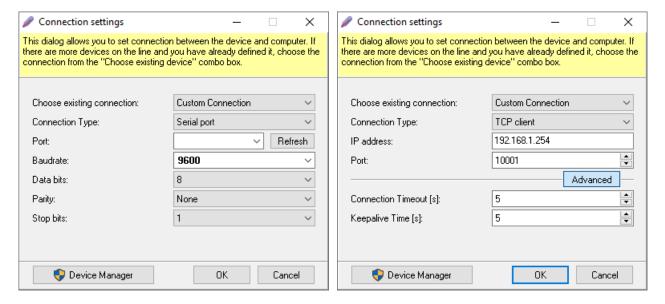
- d. Unsigned Int32 (two registers) 32bit unsigned number
- e. Float (two registers) 32bit decimal number
- f. Signed Int32 Swapped (two registers) 32bit signed number with registers in reverse order
- g. Unsigned Int32 Swapped (two registers) 32bit unsigned number with registers in reverse order
- h. Float Swapped (two registers) 32bit decimal number with registers in reverse order
- 4) Continue with the settings under the heading Input Settings window on page 7.

Devices with Modbus RTU

1) Select Modbus-RTU as Device Type.



2) The next *Connection Settings* window changes according to the *Connection Type* selected. Modbus RTU can be on *Serial line*, *TCP* network or via *USB*. Depending on the *Connection Type* selected, enter the communication parameters of the device, which are listed in the device manufacturer's manual.

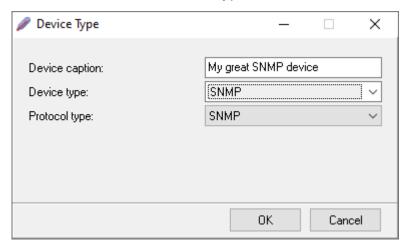




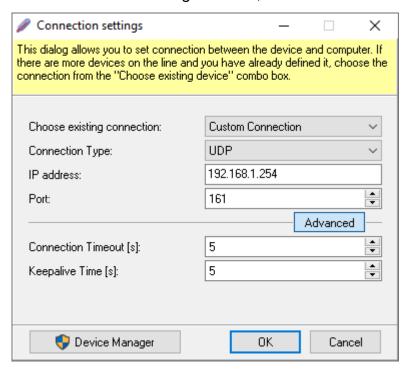
3) Continue with the Device Settings window described in 3) on page 12.

How to add a new SNMP device?

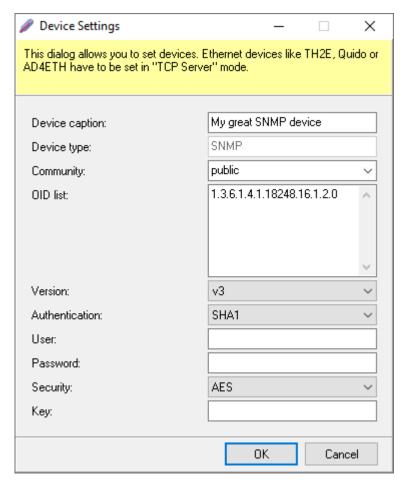
1) Select SNMP as the Device Type.



2) In the Connection Settings window, select the IP address and Port your device is on.



3) In the device settings window, the OIDs that Wix should work with are entered, as well as the SNMP version and authorization.



SNMP versions available: v1, v2c, v3

The Authorization choices are None, MD5 and SHA1.

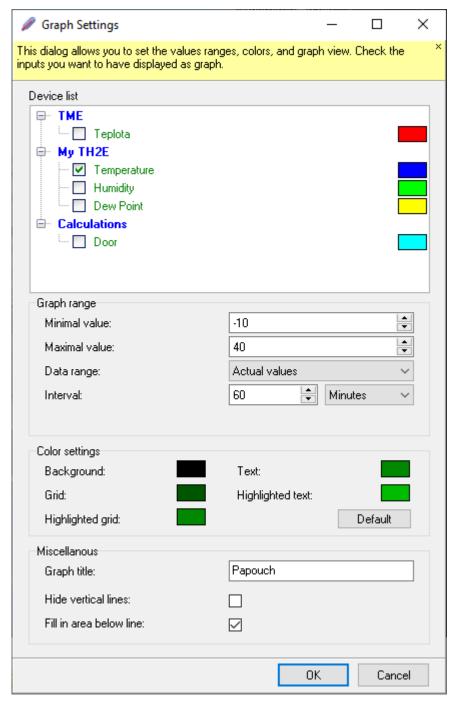
Security can be selected from None, DES, 3DES and AES.

4) Continue with the settings under the heading Input Settings window on page 7.

How to add a chart?

(You must have at least one device set up in Wix before adding a chart.)

- 1) Press the button or right-click on the program window and select Add/Graph.
- 2) The Chart Settings window opens, where you first select one or more devices to be displayed in the chart and assign different colors to them.



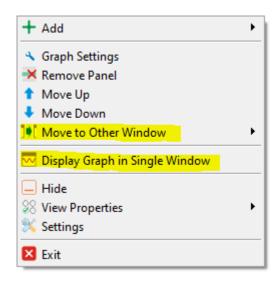
- 3) You can set a vertical span as the *Chart Range* and also a horizontal time span. The *time span* is entered in seconds, minutes, hours or days.
- 4) As a Time Range chart you can choose from the following options:
 - a. Actual values: measurements for the last Time span will be displayed.

b. **History records:** in this case, historical data from a fixed period of time will be displayed.



5) This completes the addition of the chart.

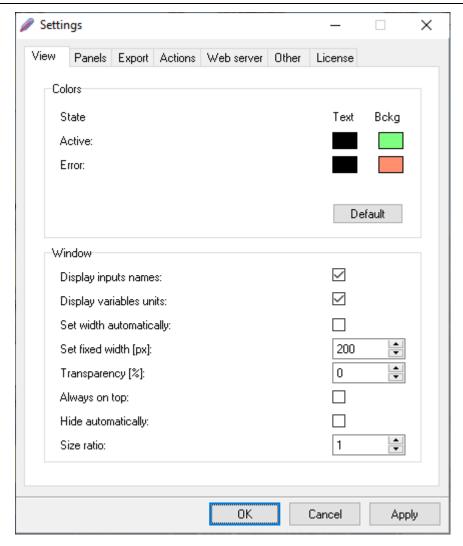
<u>Hint</u>: It is possible to separate the graph from other variables in a separate window. Just right-click on the chart and select *Show chart in separate window* or *Move to another window* (meaning another Wix window). The chart will be separated and you can work with the chart in its own window.



SETTINGS

Wix settings can be accessed via the tool's icon on the taskbar or via the *Settings* item in the context menu. The different setting areas are organized into panels.

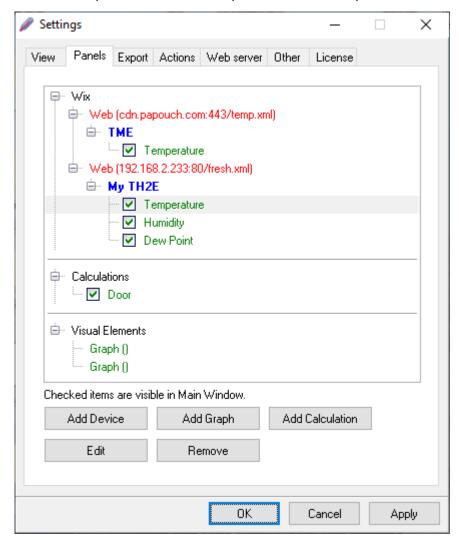
View



In addition to the colors and basic display parameters of the Wix main window, don't overlook the **Size ratio** item - this value allows you to magnify the main window display. This is handy for displaying on terminals or for readability from a distance.

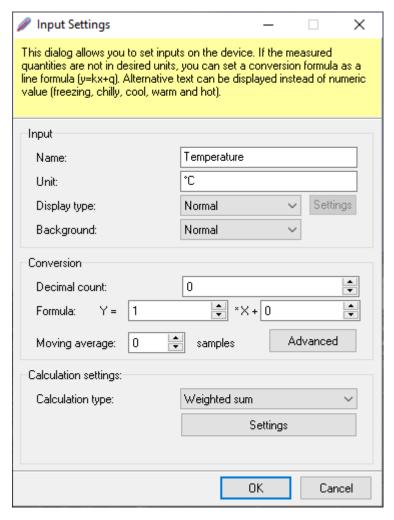
Panels

All module settings that appear in the main Wix window are available here. There is an option to *Add Device* or *Add Chart*. These options are described in the previous chapter. An interesting item is the *Add Calculation* option, which is an operation on the inputs or values.



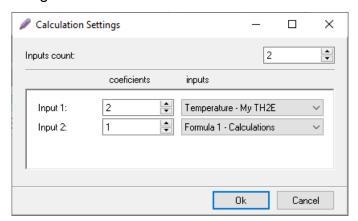
Calculations

The calculation is displayed in Wix like any other input value (for example, temperature from a thermometer). It has *Name*, *Unit*, *Display type*, *Background*, *Conversion* (see Input Settings window on page 7).

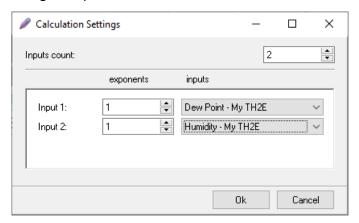


The input values for the calculation can be any value from the connected devices or some other calculation. The following options can be selected as Calculation *Type*:

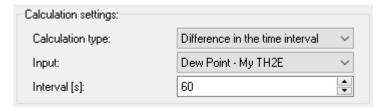
1) Weighted sum



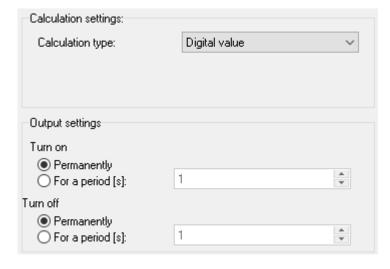
2) Weighted product



3) Difference per time interval



4) Digital value



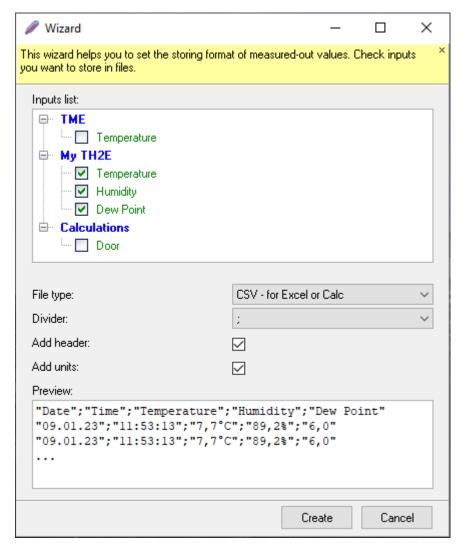
Export: storing values - logging

The storage configuration is accessible through any Wix panel. In the *Settings* context menu, go to the *Export* tab. There is a list of the current tasks. Tasks that are active have a box checked at the beginning of the row.

You can edit jobs with the *Edit* button or add a new task with the *Wizard* or *Add* buttons.

Export Wizard

After pressing this button, the *Wizard* window opens first, where it is first necessary to select the input variables to be stored in the file.

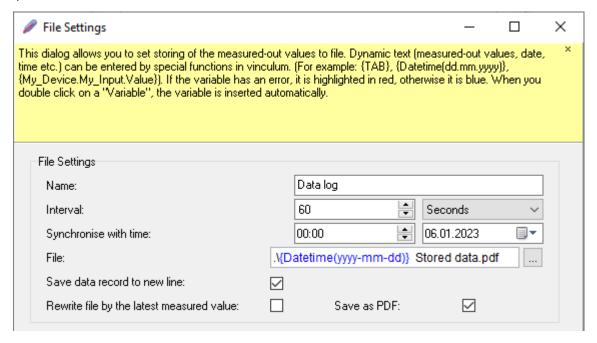


Then select the *File Type* and the method of separating records in the text file by selecting *Divider*. All changes are immediately reflected in the preview at the bottom of the window.

In the wizard, continue with the *Create* button, which opens the custom log storage configuration, as described below.

Export settings

In the upper part of the window, you set the name of the task (*Name*), the save interval (*Interval*) and the location of the file on the disk, etc.



<u>Tip:</u> If you want to keep only the last recorded value in the file, check the option Store only the last measured value.

Name: the name of the task in the task list.

Interval: The interval for storing values in milliseconds, seconds, minutes, hours, or days.

Synchronize with Time: Enter the time from which the set storage interval is calculated. (This is useful when storing over longer time intervals, for example when a regulation requires at which minute to store a temperature record.) For example, if the record is to be saved every hour at the seventh minute, fill in the time as follows:



File name and location: in the example in the figure, the file name is a variable with date and time in *yyyy-mm-dd* format (blue) and fixed text (black). The available variables are described later in this chapter. The *Find* button can be used to select the location of the file.

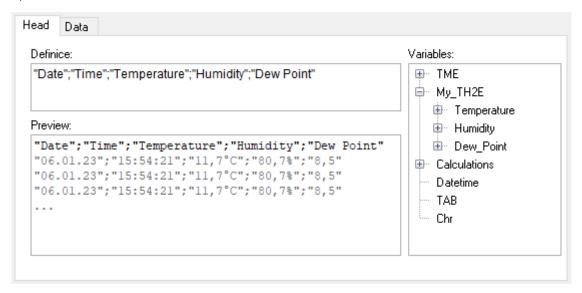
Save record to next line: a line break will be inserted before each record.

Store only the last measured value: only the last measurement will always be in the file.

Save as PDF: The data ready for saving will be converted to PDF format.

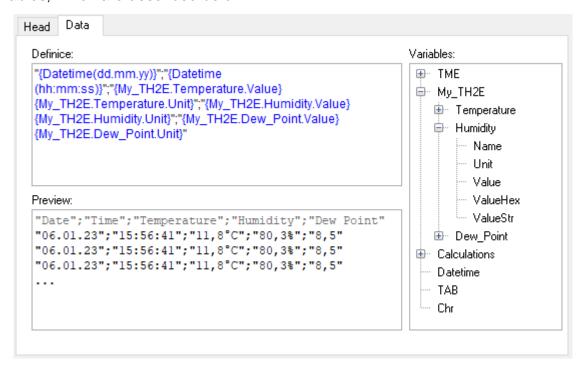
Header

The header text is set on the *Head* tab. In the header, it is possible to use variables from the *Variables*, which are described below.



Data

The text formatting of a single record is set on the *Data* page. The text can use variables from the *Variables*, which are described below.



Variables

Variables are used in the header text and in the data. These are variables from connected devices in different formats and some other variables. Double-clicking on a variable in the list assembles the variable and inserts it in compound brackets at the cursor location in the *Definition* text box.

- *Name:* The name of the variable as it is displayed in the main panel.
- Unit: The unit of the quantity according to the setting.
- Value: value as a string without a unit.

- ValueHex: Value as a hexadecimal number.
- ValueStr: Value as output text from Input Setup > Display Type > Text Representation (even if the display on the main panel is numeric).
- Datetime: Insert the format string for the date and time¹ in brackets. So, for example, a
 variable with the date and time in standard format according to <u>ISO 8601</u> would look like
 this:

{Datetime(yyyy-mm-dd'T'hh:mm:ss.zzz'Z')}

...and its output will be this text:

2020-12-16T10:54:34.613Z

- TAB: Tab indentation.
- Chr: Insert the ASCII decadic code of the character to be inserted into the brackets. So, for example, you would insert a line like this: {Chr(10)}

Actions: action settings

Action means any of the following activities:

- Send email
- Send SMS (via external GSM modem)
- Set the digital output of the <u>Quido I/O module</u>
- Set analog output
- Reset counter on input I/O module Quido
- Set display (display on character <u>TDS LED display</u>)
- Export data to web (Send data as http GET to remote server)
- Run batch file (Run bat, exe, etc. with specified parameters)
- Play audio file
- Save record to file

Action configuration is accessible through any Wix panel. In the *Settings* context menu, go to the *Actions* tab. There is a list of current actions. Actions that are active have a box checked at the beginning of the row.

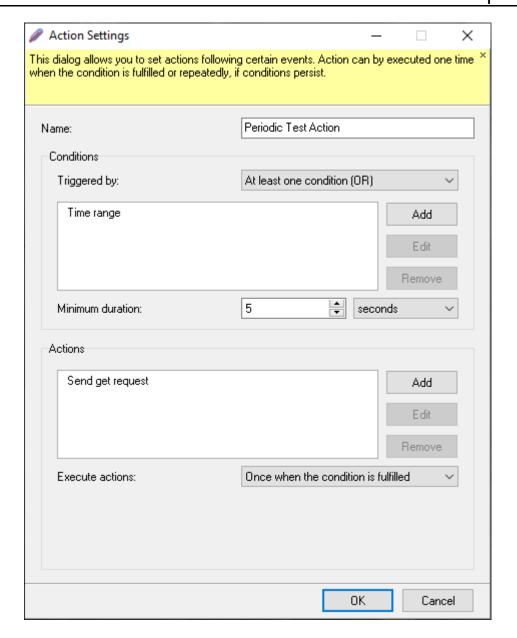
You can edit actions with the *Edit* button or add a new one with the *Add* button.

In addition to the name (*Label*), an action has two basic groups of settings, *Conditions* and *Actions*.

en.papouch.com 25

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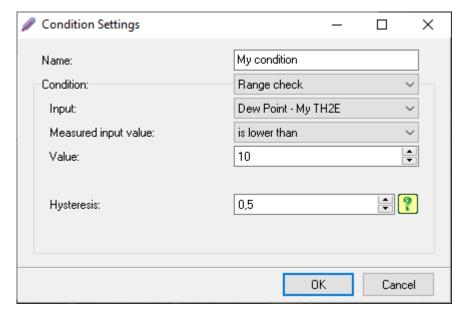
¹ Text inserted in single quotes is inserted unchanged, as seen in the example on the letters T and Z. An overview of all date and time format options is available in English here: http://docwiki.embarcadero.com/Libraries/Sydney/en/System.SysUtils.FormatDateTime



Conditions

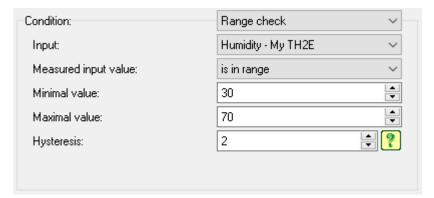
The conditions specified here must be met to trigger the action. Either *All conditions (AND)* or *At least one condition (OR)* must be met. You can also set the *Minimum validity period* that the specified conditions must last for the specified actions to be triggered. The time can be specified in milliseconds, seconds, minutes, hours, or days.

To add a condition, use the Add button, or edit using Edit.

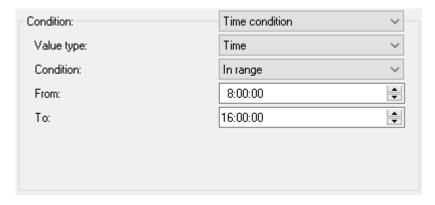


The condition may consist of one of the following:

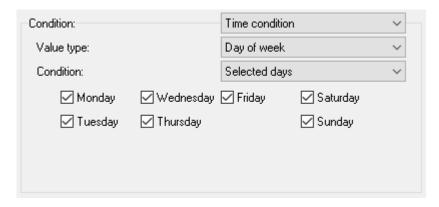
• Exceeded value: options available as *Measured input value are greater than, less than, in range* and *out of range*.



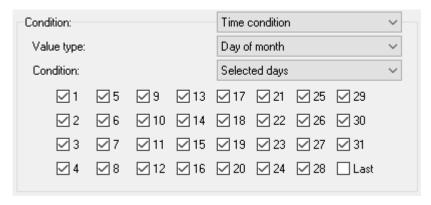
- Input error: Entry *Error* and *Entry OK* options are available as an entry condition.
- Time condition
 - The current time is within or outside the specified range



A specific day or days of the week



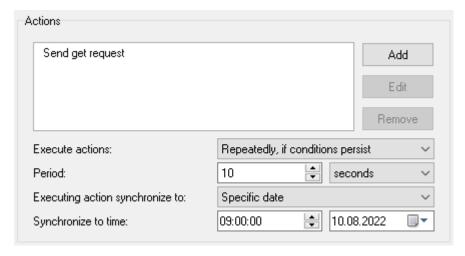
o A day or days of the month, or the last day of the month



- A specific month or months
- Always true (This condition is used together with the periodic triggering of actions a timer can be obtained. With one-time action triggering, the action is only ran when the program starts.)

Actions

If the Actions are met, the actions set here are triggered.



In addition to specific actions, **periodic triggering** settings are also available. *Actions can be triggered* either *Repeatedly, if conditions persist* or *Once when condition is fulfilled*.

If Periodic triggering is selected, you can specify a specific *Period* in milliseconds, seconds, minutes, hours or days.

Periodic triggering can be synchronized to a specific time.

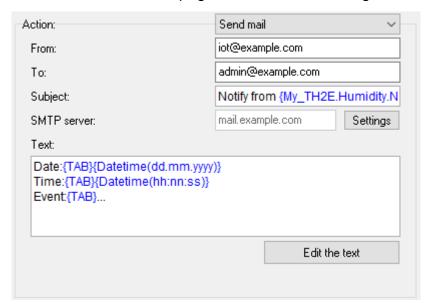
Add an action using the Add button, or edit it using Edit.

Test the correct settings: in the action settings windows there is also a *Test action* button, which can be used to test the set action during editing to see if it is set correctly.

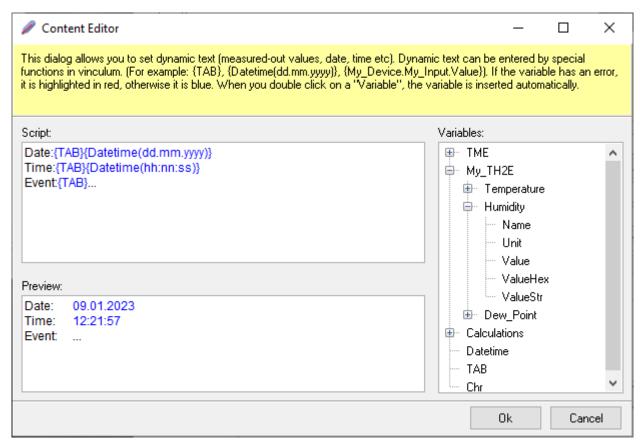


1) Send email

Sends an email via the specified SMTP server. The SMTP server must be able to log in without SSL authorization. The message text and subject are constructed from the Variables described on page 24 under the heading Variables.

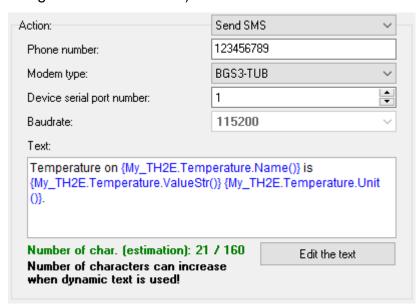


The editor is accessible under the Edit Text button.



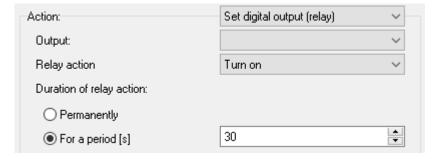
2) Send SMS

Sends SMS via a modem connected to the computer's serial port. SMS are sent to the specified *Phone number. TC35i, TC65i, EGS5-T, BGS5-232, BGS3-TUB* or *Other* can be selected as *Modem Type*. (If you select *Other*, it is possible to specify a custom Communication Rate according to the type of modem connected. Wix will try to control it using the AT commands.)



3) Set digital output (relay)

Turns ON an output of <u>I/O module Quido</u>. The output can be switched on for the duration of the action (*Always*) or only for the specified time (specified in seconds - the maximum is 120 sec).



4) Set analog output

Sets the specified *Output value* on the D/A module output <u>DA2ETH</u> or <u>DA2RS</u>. The output value is specified in increments from 0 to 10000.



5) Reset Quido counter

This action resets the pulse counter on the selected Quido I/O input.



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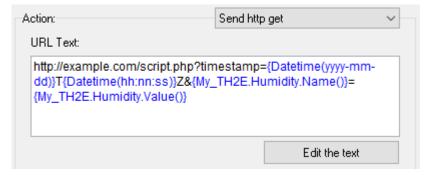
6) Show value on external display

This action transfers one of the Wix measured values to the segmented LED display <u>TDS</u> RS or <u>TDS</u> ETH.

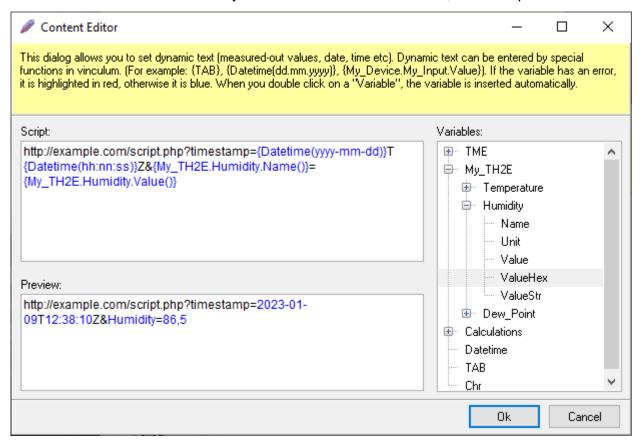


7) Send http get

This action can send data as http GET to a remote server.

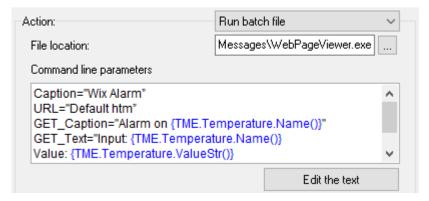


The entire address can be freely defined in the *URL Text* field, for example as follows:



8) Run batch file

This option hides the possibility to run any file (bat, exe, etc.) with the specified parameters.



The following **example use case** will trigger the Wix component that is designed to pop up notification windows. The window that opens when the action is triggered looks like this (the title is flashing):



Enter the following path as Location and filename: Messages\WebPageViewer.exe

The batch file parameters for the above example are as follows:

```
Caption="Wix Alarm"
URL="Default htm"
GET_Caption="Alarm on {TME.Temperature.Name()}"
GET_Text="Input: {TME.Temperature.Name()}
Value: {TME.Temperature.Value()}
Date: {Datetime(d.m.yyyy)}
Time: {Datetime(hh:nn:ss)}"
Width=400
Height=250
```

The meaning of the parameters can be seen from the example in the window. (*Width* is the width of the window, *Height* is the height.)

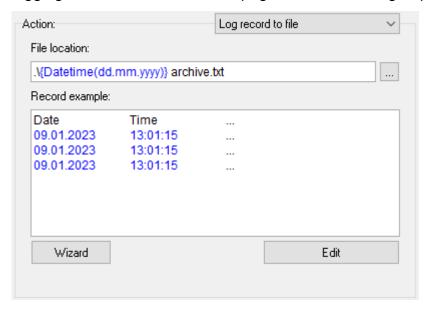
9) Play sound

This action can (a) play the sound once, (b) start playing the sound repeatedly, or (c) stop playing the sound.



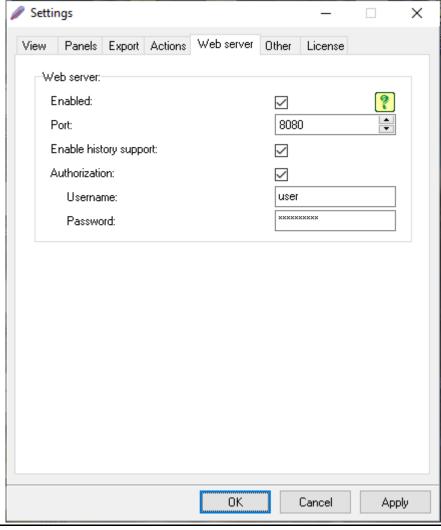
10)Log record to file

This action saves the data to a text or CSV file once. The setup principle is identical to logging to a file as described on page 21 from heading Export: storing values – logging.



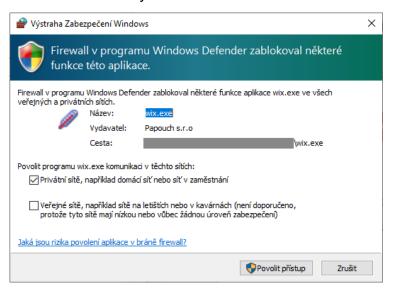
Web server

The web server will make a simple web interface available at the address of the computer running Wix, with a preview of the current values currently displayed in Wix.

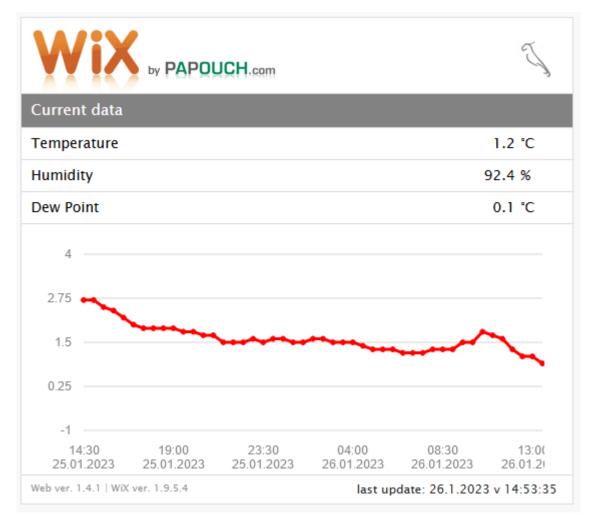


The server is activated with the *Active* checkbox. Set the *Port* as required, as well as the Site Connection *Authorization* (basic base64 authorization without SSL).

When the web server is activated, the system will ask you to open the firewall for this site, because the site will also be available to other computers on the network. Consult your network administrator to see if this is allowed on your network.



The Wix web interface looks like this:

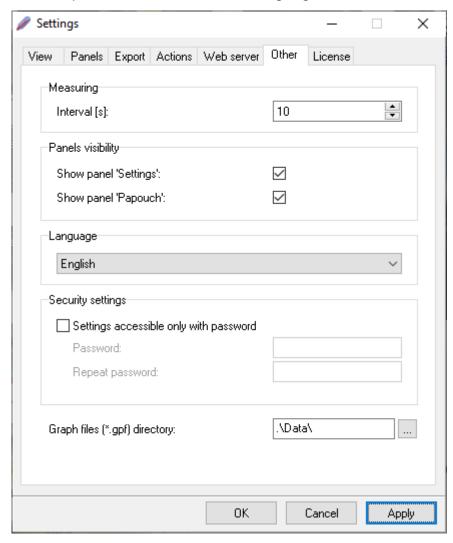


After saving the settings, the website is accessible from a computer running Wix at http://localhost:8080 (if you have set port 80, you do not need to specify the number).

It can be accessed from computers on the network at the IP address of the computer with Wix and on the configured port. So, for example http://10.142.20.30:8080.

Other settings

There are some additional settings such as the global *Measuring Interval*, which is valid for the whole Wix, and also the option to set the Interface *Language*.



The options Show panel 'Papouch' and Security settings are not available in the free version.

The free version also displays the *Notify me when free version limit is exceeded* checkbox. If you add additional devices beyond the free version limit, a notification is displayed. If the box is not checked, over-limit devices and inputs do not work without notification.

License

Here you will see information about the current license and version of the program. Below is a comparison window to compare between the free version and the full version of Wix.





Differences between paid and free versions

There are the following differences between the free download version and the paid version:

	Free version	Paid version
Maximum number of devices	5	Unlimited
Maximum number of inputs	10	Unlimited
General devices with Modbus TCP	No	Yes
General devices with Modbus RTU	No	Yes
General devices with SNMP	No	Yes
Option to hide the Papouch panel in the main window	No	Yes
Option to lock access to settings	No	Yes

Papouch s.r.o.

Industrial data transmission, line and protocol converters,

RS232/485/422/USB/Ethernet/GPRS/WiFi, measuring modules, intelligent temperature sensors, I/O modules, electronic applications according to requirements.



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