

# How to output variable value on display

## Project for PR200-24.2

### Project overview

The example explains how to show the value of a variable on the device display. The project is created on the platform of the PR200 programmable relay and the I/O module MV110-8A.

In this project, you only need variables and a screen (display form) but no program in the main workspace. Start akYtec ALP and make sure that all necessary interface elements are visible (Fig. 1).

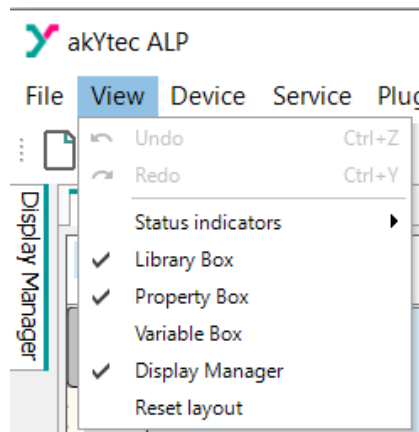



Fig. 1. “View” menu

First, the devices should be configured:

1. Open the PR200 front cover to access the RS485 interface cards on the left side of the middle PCB.
2. On the RS485 interface you want to use in Master mode, set the jumpers XP4 and XP5 to M position and close the cover.
3. Connect the PR200 to your PC and power it on.
4. Select the menu item *Device > Device configuration* or click the icon .
5. Select *Interfaces > RS485, Slot 1* and change the mode from *Slave* to *Master* (Fig. 2).

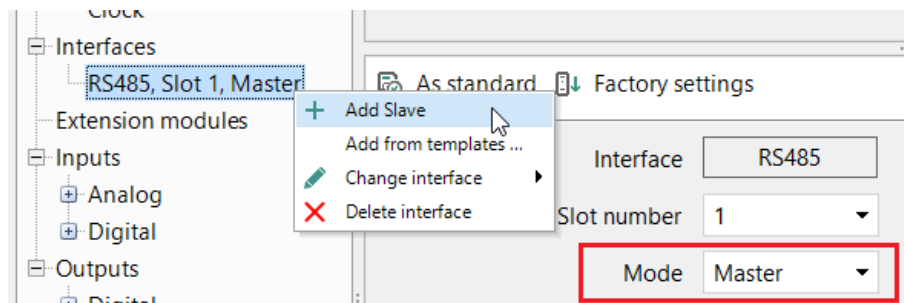


Fig. 2. Create master interface

6. Open the Master’s context menu, select *Add Slave* and give a name to the new slave. Make sure the Modbus address in the mask is the same as the device address.
7. Click on the new slave to open its configuration mask and create the desired number of variables (Fig. 3). The address of the device memory register whose value is to be used by the variable can be found in the table “Modbus registers” in the MV110-8A device manual.

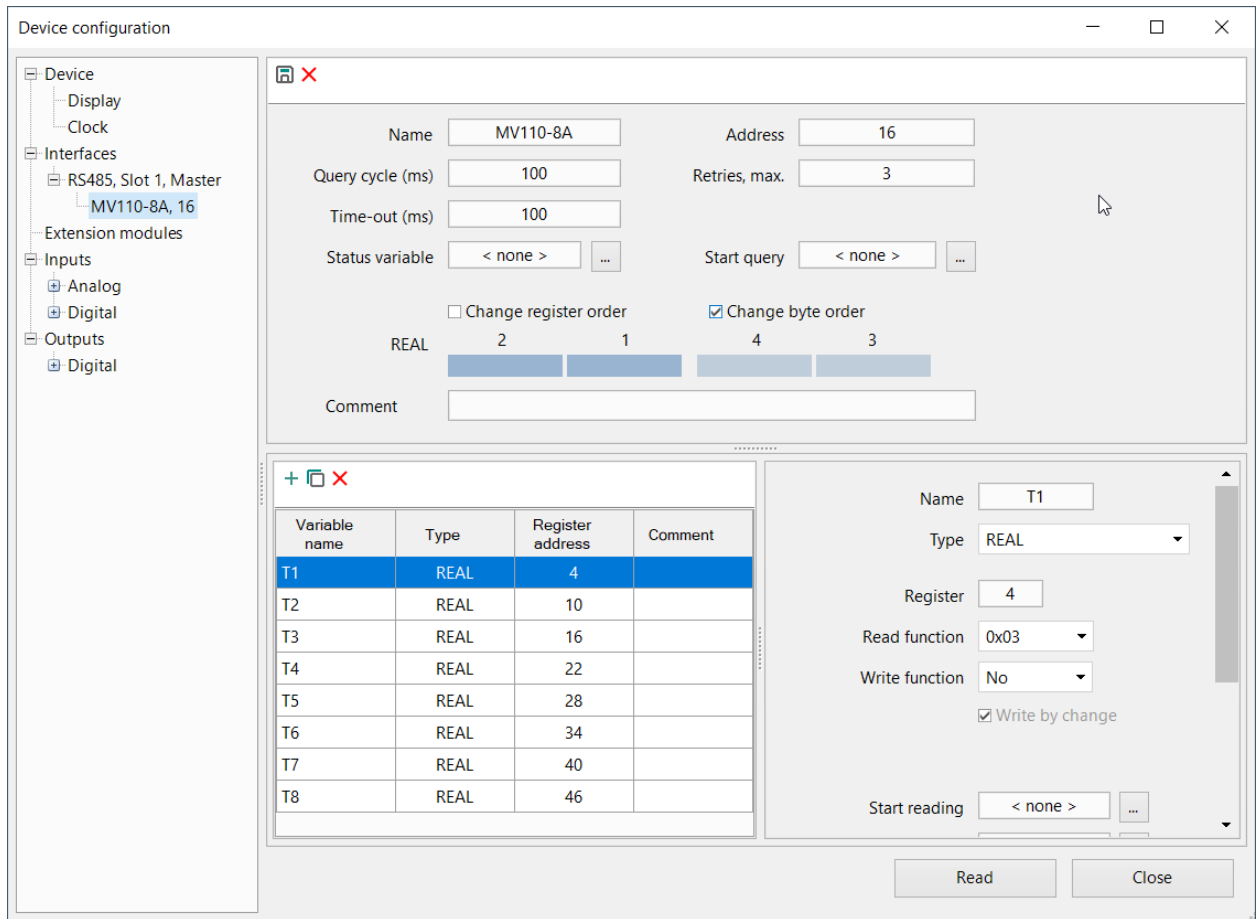


Fig. 3. Create network variables

The network variables created in this mask can be viewed and edited in the Variable Table (menu *Device* > *Variable Table*) on the tab *Network, Slot 1* (Fig. 4).

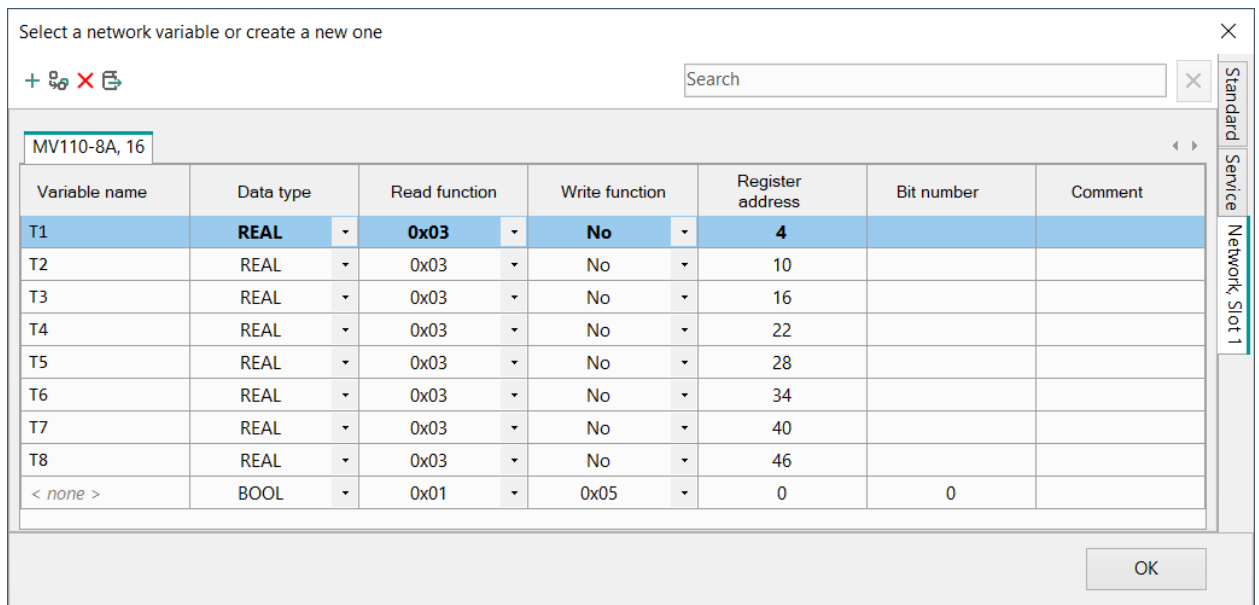


Fig. 4. Variable Table

To organize the output of variables to display, open the Display Manager on the left edge of the window and open the initial screen (display form *Form 1*).

By default, a new project is created with one screen. If required, the number of screens can be increased by adding new ones and defining the transitions (jumps) between them. For our task, one screen is enough.

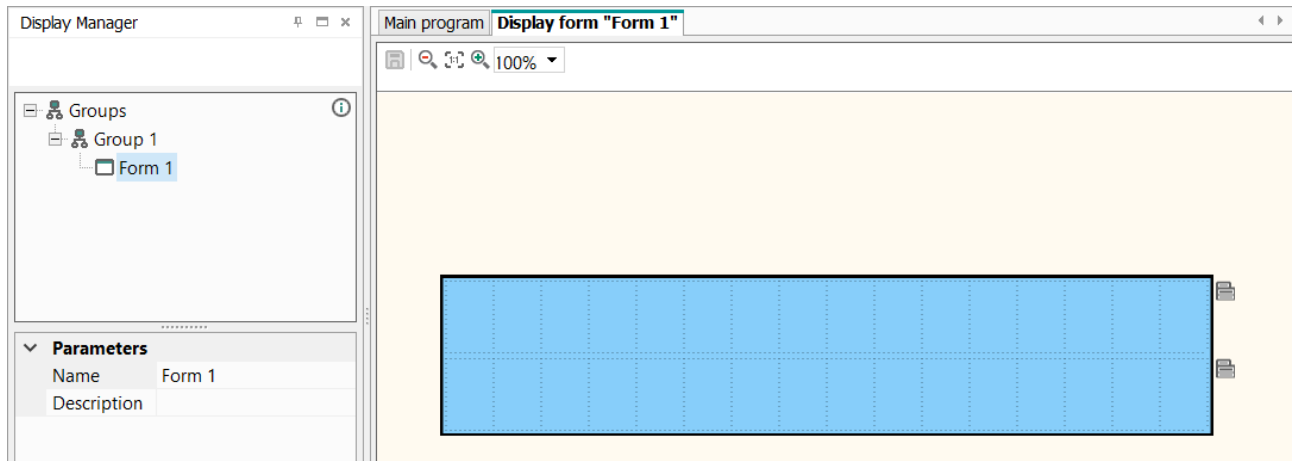


Fig. 5. Display Manager

Double-click the screen *Form 1* to open it in the Display Editor (Fig. 5). Two rows of your future screen appear in the middle of the workspace, each of 16 cells for the output characters.

In the Library Box (Fig. 6) you can see program elements that can be used on a screen.

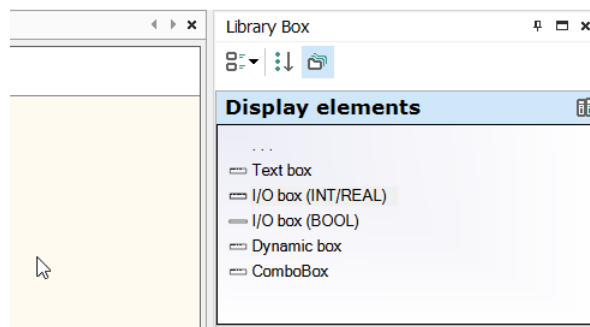


Fig. 6. Library Box

Select *I/O box (INT/REAL)* and drag-and-drop it on the first row of the screen. The element enables the display output of INT and REAL variables and values entered with device function buttons.

Now you can configure the I/O box parameters in the Property Box (Fig. 7).

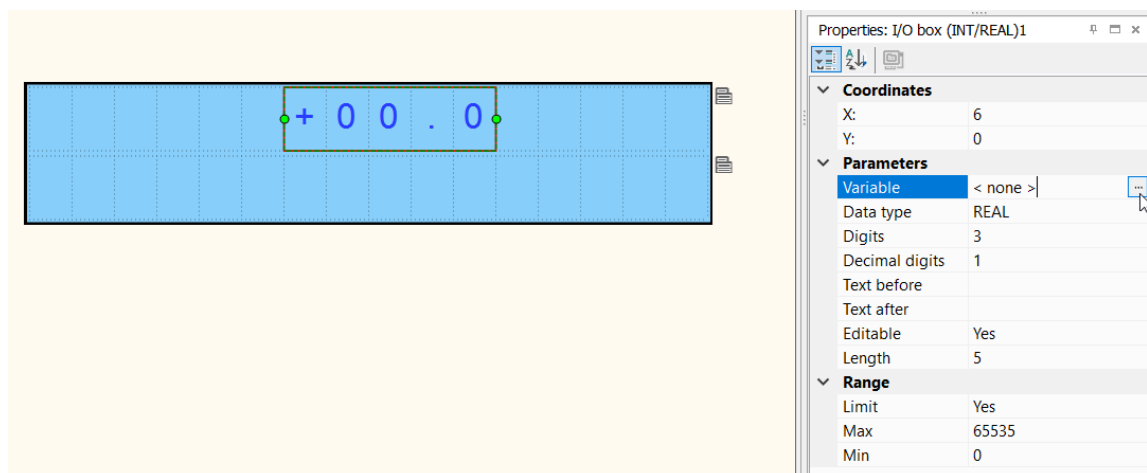



Fig. 7. Property Box

1. Click on the row *Variable* and then on the  icon to select the variable from the Variable Table (tab *Network, Slot 1*) to be displayed (*T1*).
2. Check whether the data type in the next row is *REAL*.
3. In the row *Digits*, specify the total number of digits to be displayed.

4. In the row *Decimal digits*, specify the number of digits after the decimal point. The value will be displayed in XXX.Y format.
5. In the rows *Text before* and *Text after*, specify the texts that should appear to the left and right of the variable value. Use spaces for better legibility.
6. Set *Editable* to *No* because the value of the sensor output signal cannot be changed by user using the function buttons.
7. In the row *Length*, set the width of the element (total number of displayed characters) to 16, i.e. the maximal width. This can be done also by dragging the green points.
8. The *Range* parameters are do not need to be set.

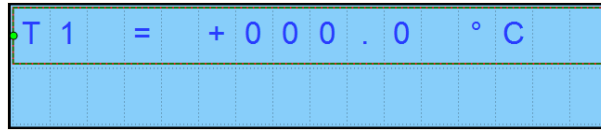


Fig. 8. T1 variable displayed

To make further work easier, you can copy-paste this element. Note that the new element is pasted in the same row above the copied element. Drag it to the next row and adjust the settings. The link to the variable will not be copied.

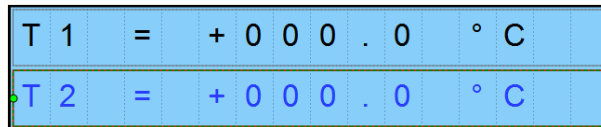


Fig. 9. T1 and T2 variables displayed

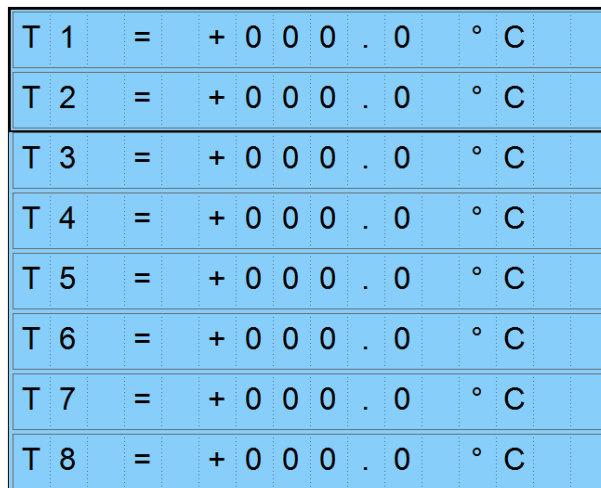




Fig. 10. Complete screen

Table 1. Project network variables

Name	Type	Description
<i>T1</i>	REAL	Sensor 1 / Temperature
<i>T2</i>	REAL	Sensor 2 / Temperature
<i>T3</i>	REAL	Sensor 3 / Temperature
<i>T4</i>	REAL	Sensor 4 / Temperature
<i>T5</i>	REAL	Sensor 5 / Temperature
<i>T6</i>	REAL	Sensor 6 / Temperature
<i>T7</i>	REAL	Sensor 7 / Temperature
<i>T8</i>	REAL	Sensor 8 / Temperature

Table 2. Function buttons

Function buttons	Action
	Scroll down through screen rows
	Scroll up through screen rows

Save the project and transfer it to the connected PR200 to check the correctness of the program.

If it is correct, connect the RS485 Master interface of the PR200 and RS485 interface of the MV110-8A (Slave only), provided that the eight temperature sensors are already connected to module inputs.