

Solar_HMI070WM

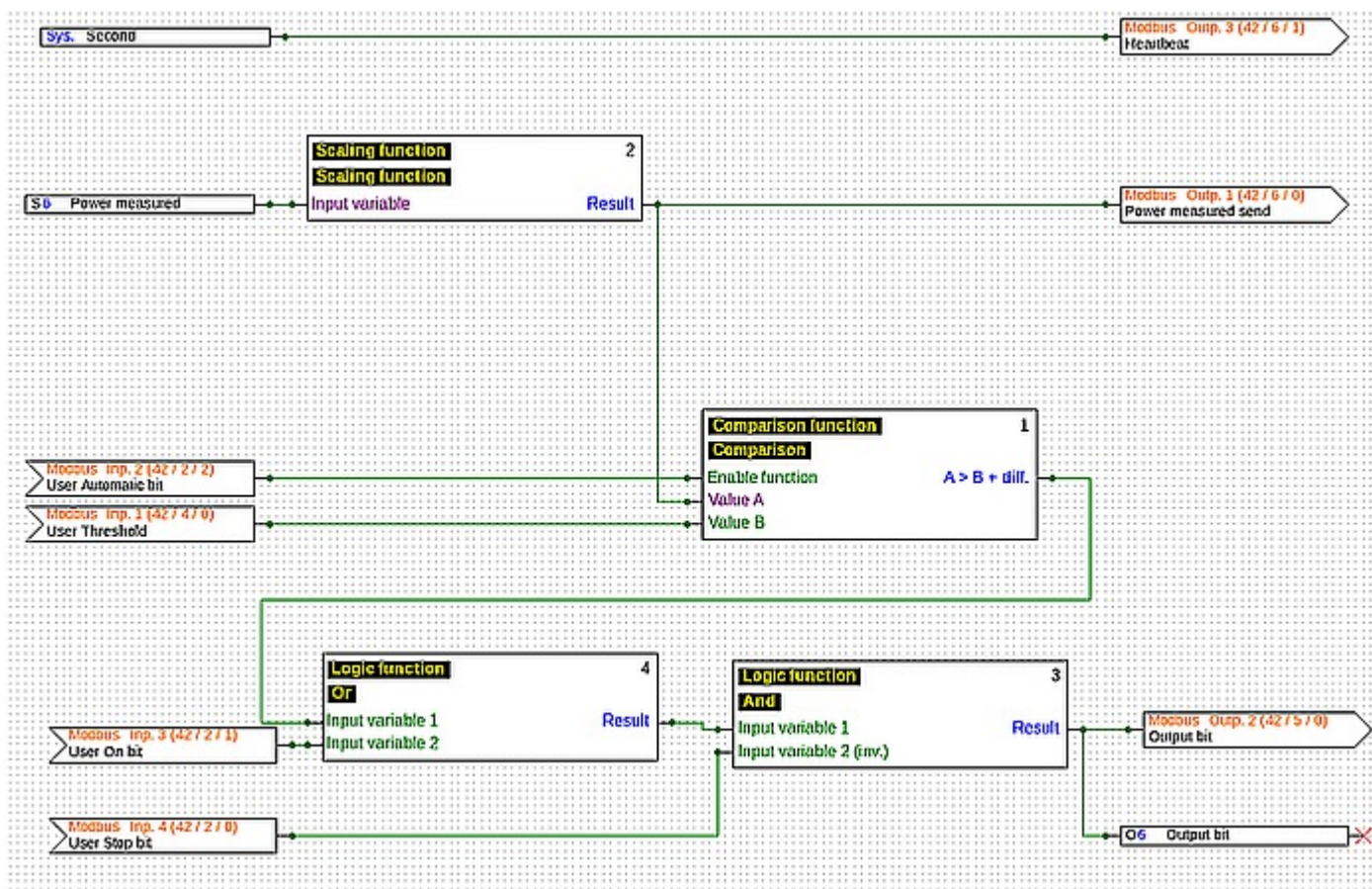
V1.0 - First Issue

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Software EA HMI070-16ATCS

The HMI project essentially consists of two main pages: the start screen and the main screen. A small animation runs on the start screen and waits until the PLC is ready and sends the first data. The performance data is visualized in a diagram on the main page. The threshold value for automatic mode can be set using a slider. In addition, the output can be activated and deactivated manually. The following chapters describe in more detail how the individual points have been implemented.

PLC sketch



PLC overview

This project uses UVR610S Modb from Technische Alternative RT GmbH. The UVR610S is a universal controller with 6 inputs and 10 outputs, ideal for tasks in building automation and energy management. It provides a modbus RTU master interface. The controller is programmed with the help of the programming and planning software TAPPS2. For details and programming help, please refer to TA's support:

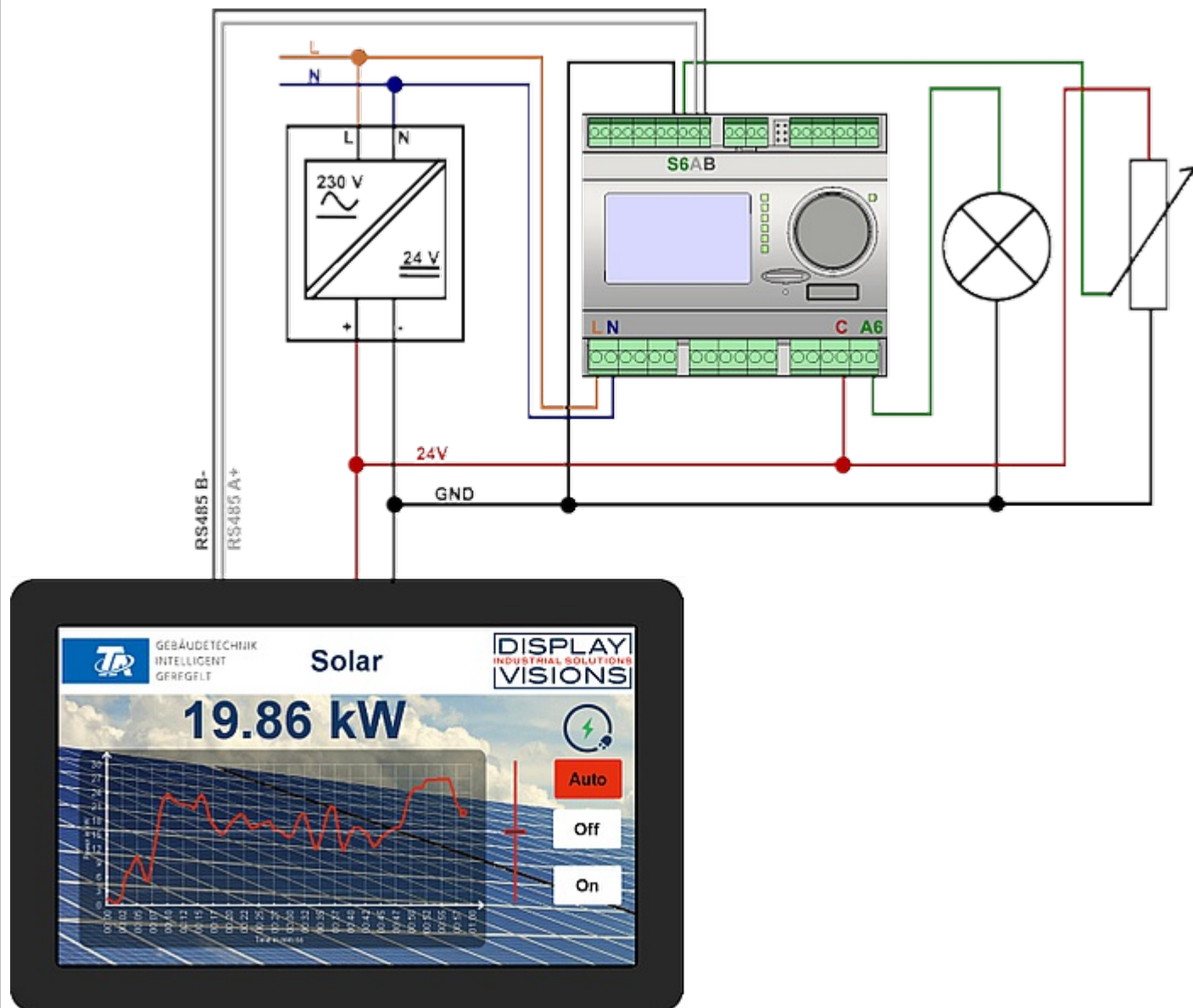
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<https://www.ta.co.at/en/x2-freely-programmable-controllers/uvr610s-with-modbus-interface>

General

This project shows how to connect DISPLAY VISIONS' EA HMI070WM-16ATCS with TA's UVR610S modb PLC. We simulate a solar system, that turns on power at a specific threshold.

The following is the schematic diagram:



HMI concept

The HMI display is operated as a Modbus slave. The PLC sends and receives data and evaluates it. All logic is contained in the PLC. Only connection monitoring is located in the display itself. All functions are described in the macros.

Description of registers / variables:

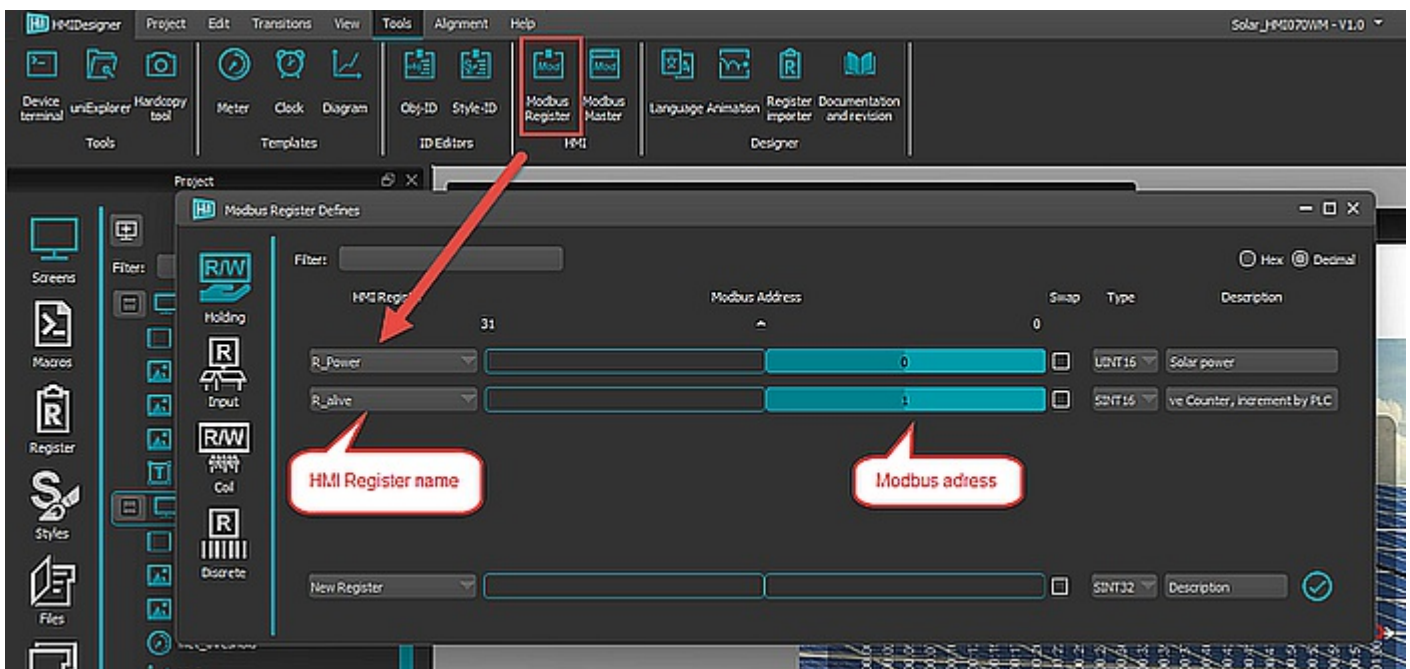
HMI Register	Modbus Type	Modbus address	Description
R_Power [ID: 50]	Holding	0 (UINT16)	Solar Power, measured by PLC
R_alive [ID: 199]	Holding	1 (UINT16)	Second counter, PLC increments

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R_threshold [ID: 51]	Input	0 (UINT16)	Mode Auto: Set by user for turning on power												
R_output [ID: 53]	Coil	<table><tr><td>Address</td><td>Bit</td><td>Description</td></tr><tr><td>0</td><td>0</td><td>Output on/off</td></tr></table>		Address	Bit	Description	0	0	Output on/off						
Address	Bit	Description													
0	0	Output on/off													
R_output_user [ID: 52]	Discrete	<table><tr><td>Addres</td><td>Bit</td><td>Description</td></tr><tr><td>0</td><td>0</td><td>User: Output off</td></tr><tr><td>1</td><td>1</td><td>User: Output on</td></tr><tr><td>2</td><td>2</td><td>User: Output auto</td></tr></table>		Addres	Bit	Description	0	0	User: Output off	1	1	User: Output on	2	2	User: Output auto
Addres	Bit	Description													
0	0	User: Output off													
1	1	User: Output on													
2	2	User: Output auto													
R_alive_old [ID: 198]	-----	-----	Stores old heartbeat value												

HMI Modbus Register

Several registers are required for data exchange with the PLC. These are created in Modbus Register Tool.



HMI Startanimation

The animation is divided into two animations. They were created in the integrated animation editor.

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