PG5 Starter Training

WebEditor 8 *Energy Meter application*

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Energy Meter application

Introduction

Material required

- Notebook or computer
- PCD1 E-Controller
- USB cable
- Training board
- Ethernet cable
- Energy Meter starter box

Software required

- PG5 Core at least Version 2.1.027
- Saia® WebEditor 5 (included in PG5 Core)
- Java at least Version XXX

Lessons required

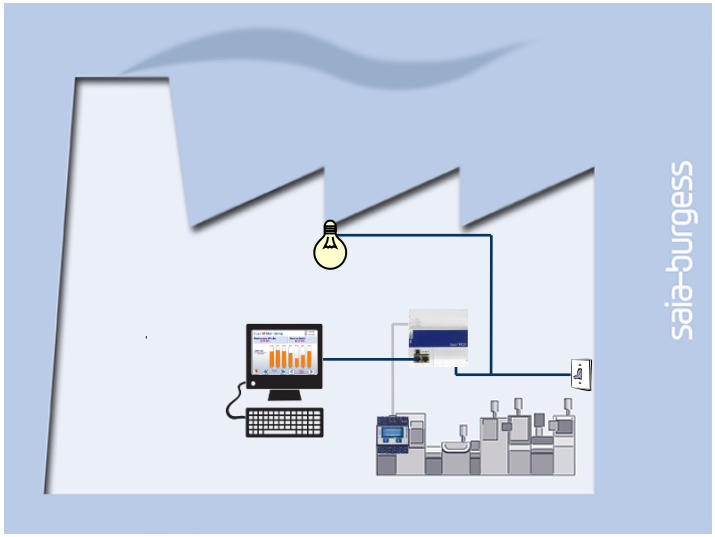
- Lesson 1
- Lesson 2
- Lesson 3 PG5 Core
- Lesson 4 WebEditor

Aims of the Energy Meter application

- Understanding S-Bus and commissioning

Energy Meter application

Introduction

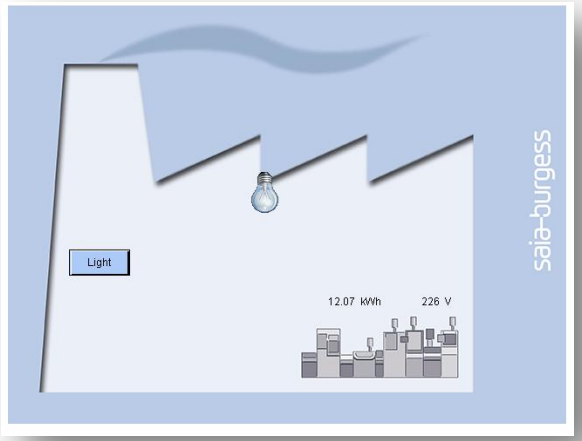


Explanation / Introduction

- Energy Meter status must be read and displayed on web visualization

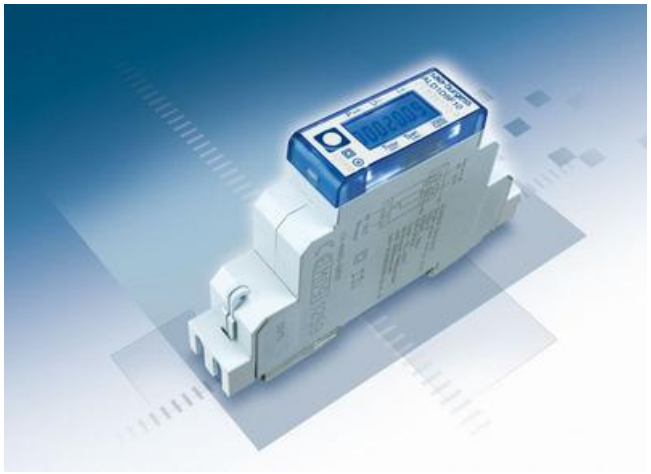
What is necessary to achieve this?

- Program produced in Lessons 3 and 4
- Ethernet connection to Saia® PCD1 E-Controller
- Monitor with web browser
- Energy Meter box



Energy Meter application

Introduction Energy Meter

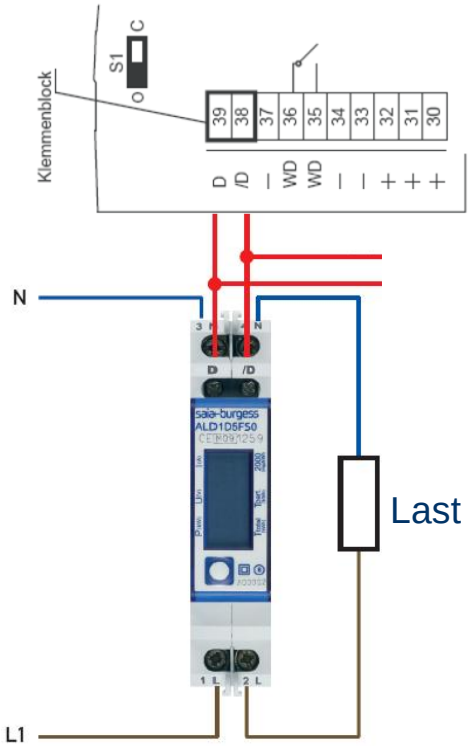


Saia® Energy Meter

- The Energy Meter measures the electricity consumed by devices connected to the Energy Meter.
- The Energy Meter has an S-Bus connection to the PCD.
- The PCD reads data from the Energy Meter via S-Bus and can process it in the application program.

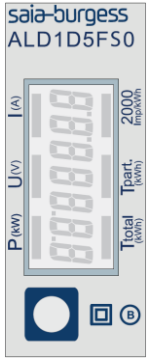
Energy Meter application

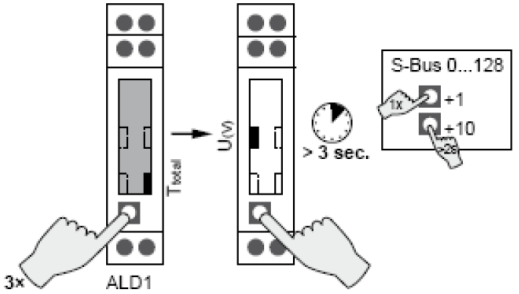
Connect Energy Meter



S-Bus Energy Meter

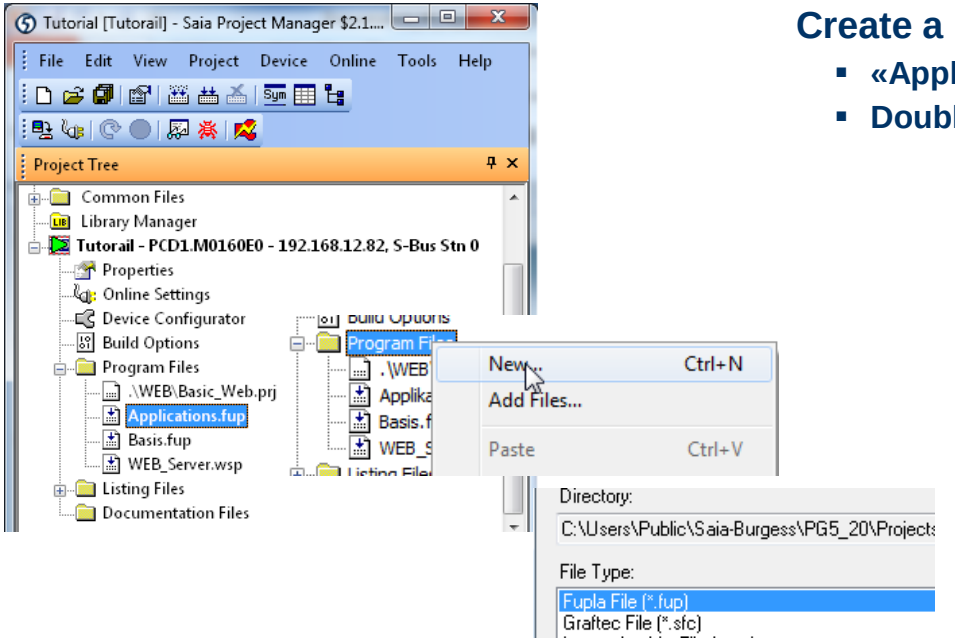
- The Energy Meter is a counter for electricity
- Energy data is transferred via the S-Bus field bus to a controller
- For clear identification of the meter in the S-Bus network, it needs a unique address
- Once the S-Bus meter has been connected to the mains, the address can be set
- S-Bus address 1 is set as illustrated below





Energy Meter application

Project Manager



Create a new Fupla file

- «Applications.fup»
- Double click to open the file

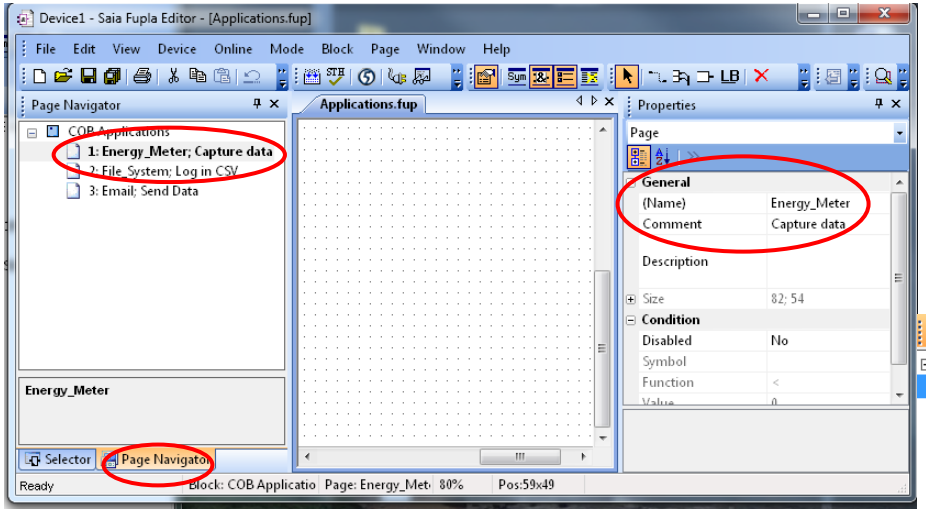
If this step has already been done in another application tutorial, it may be skipped.

Energy Meter application

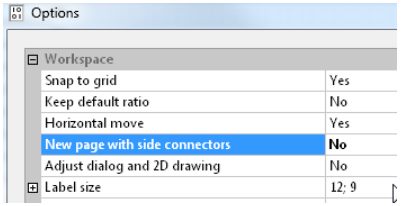
Project Manager

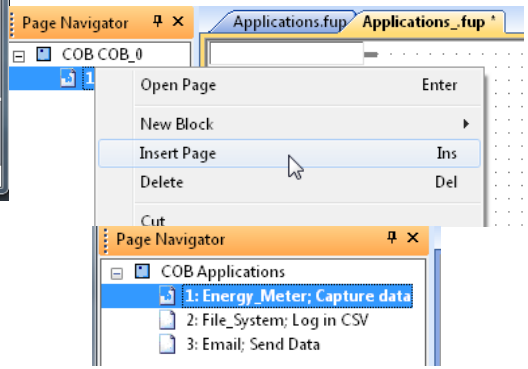
Create a new Fupla page

- Select tab «Page»
- Right click and Insert Page
- Rename the page as Energy_Meter
- Change the comment to Capture Data



If you do not want connectors to be created automatically in a new Fupla page, this can be disabled with: View → Options → New page with side connectors = No





Energy Meter application

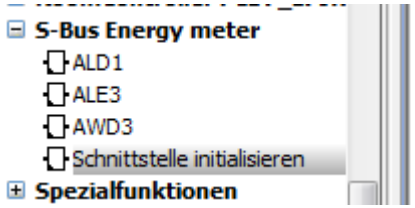
Program reading of Energy Meter

Read Energy Meter via S-Bus

- Before you can read the Energy Meter via S-Bus, it is first necessary to initialize the interface on the PCD.
- The PCD can then use an FBox to read data from the connected Energy Meter
- The PG5 provides ready-made modules for this purpose, which we place in our project

Energy Meter application

Program reading of Energy Meter

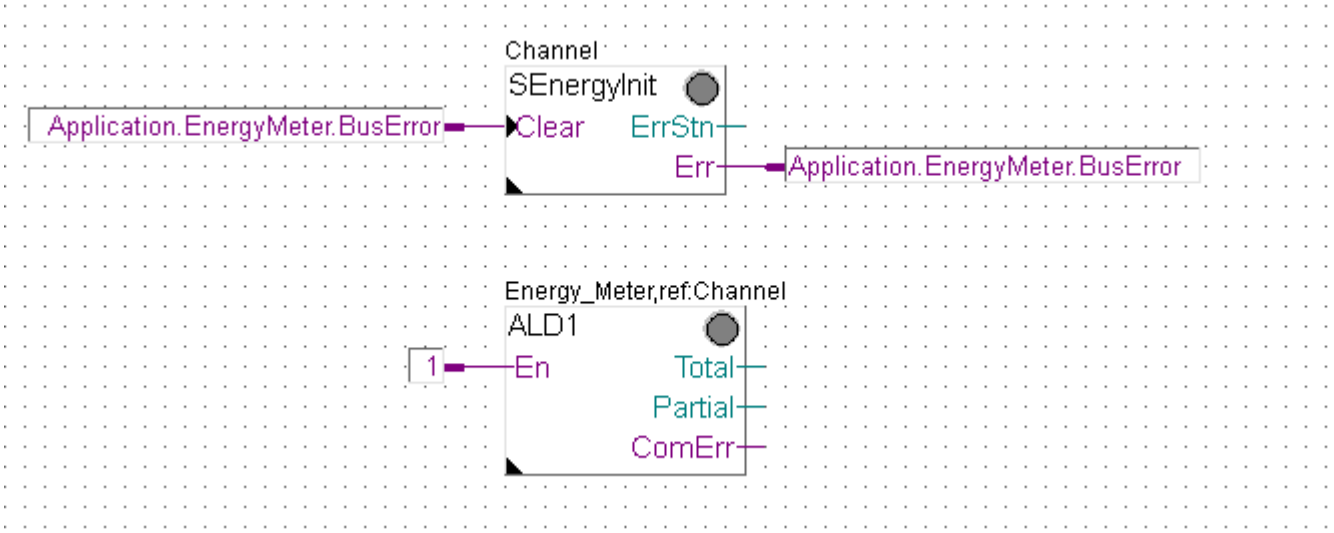


Initialize S-Bus interface for meter

- Position FBox SEnergyInit
- Place initialization FBox above all subsequent FBoxes on the Fupla page, as it must be processed first
- Designate input and output symbols as shown

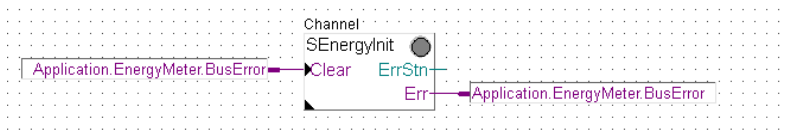
Insert S-Bus meter FBox

- Position FBox ALD1 (single-phase Energy Meter)
- Designate FBoxes as shown



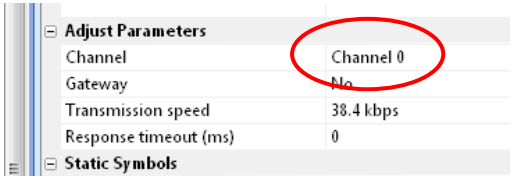
Energy Meter application

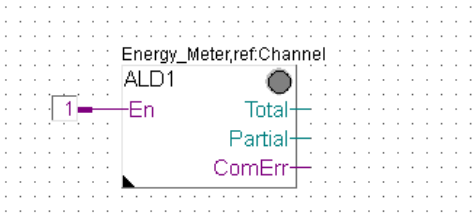
Program reading of Energy Meter



Configure initialization (SEnergyInit)

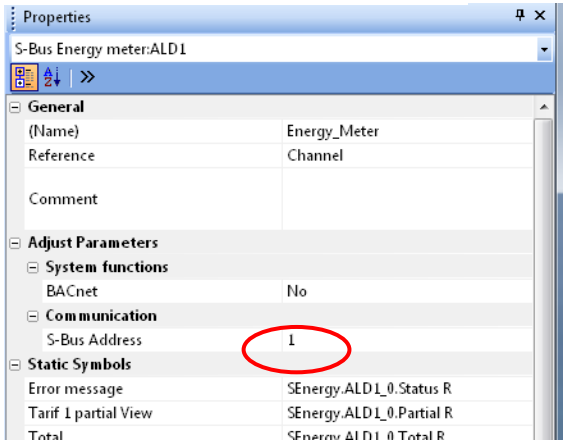
- Select FBox SEnergyInit
- In Options, set Channel0





Configure Energy Meter FBox (ALD1)

- Set S-Bus Address 1 (same as on meter)



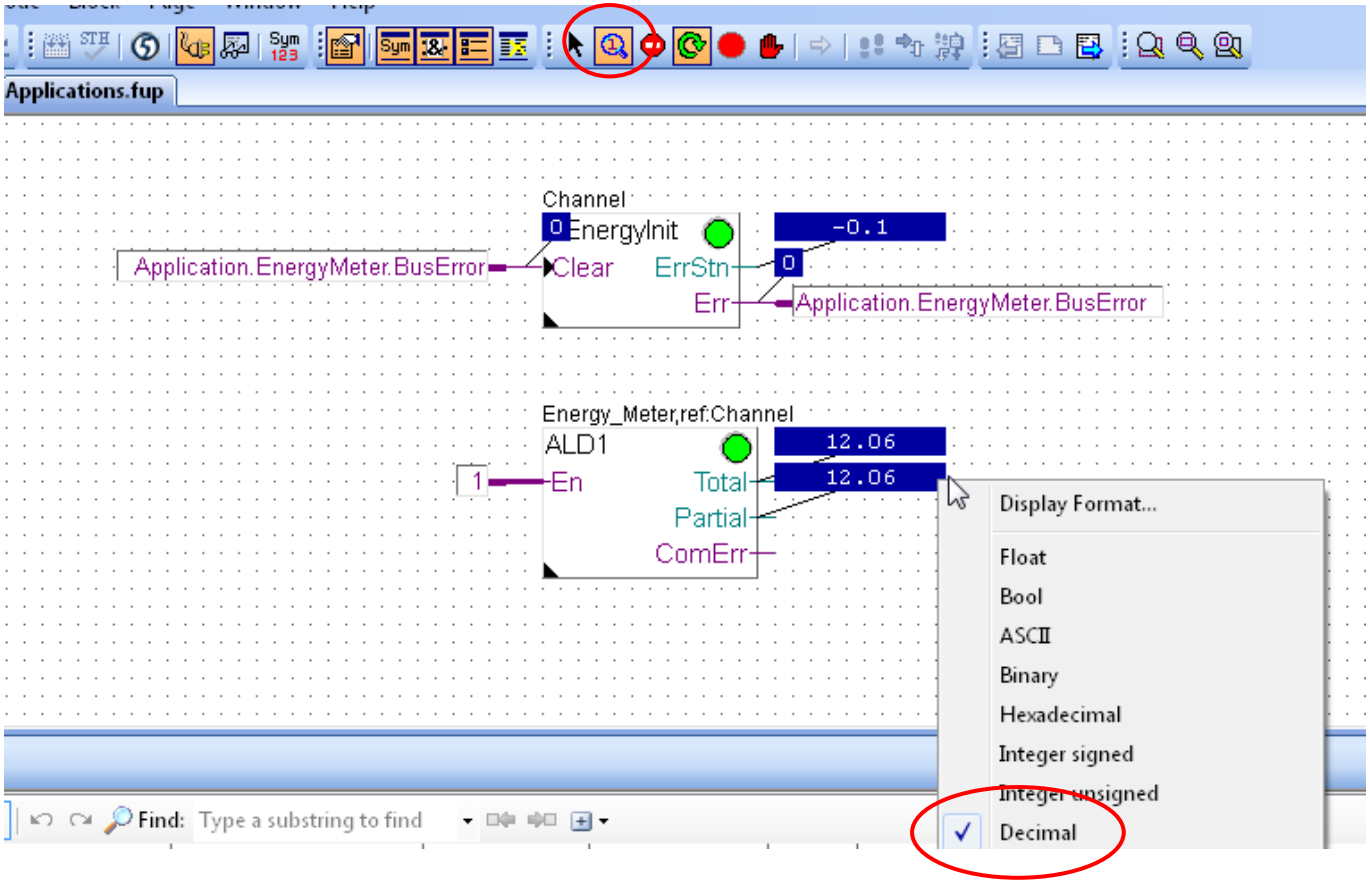
Save, build and download program

Energy Meter application

Test the connection

Values read from the meter can be displayed visually in the Saia® Fupla Editor

- **Right click on values to change number format**



Energy Meter application
Create the web project

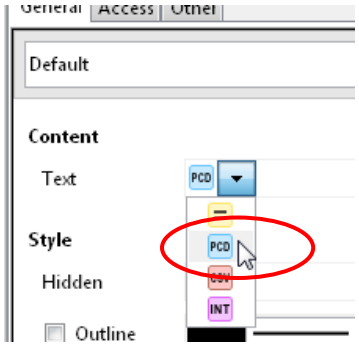
It should be possible to display current voltage and energy values

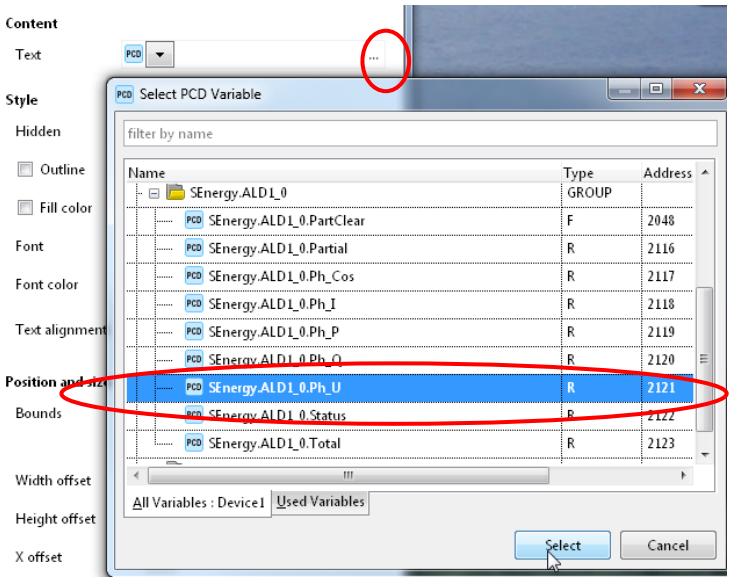
- **Open the old web project from Lesson 4**

Energy Meter application
Display meter values on web

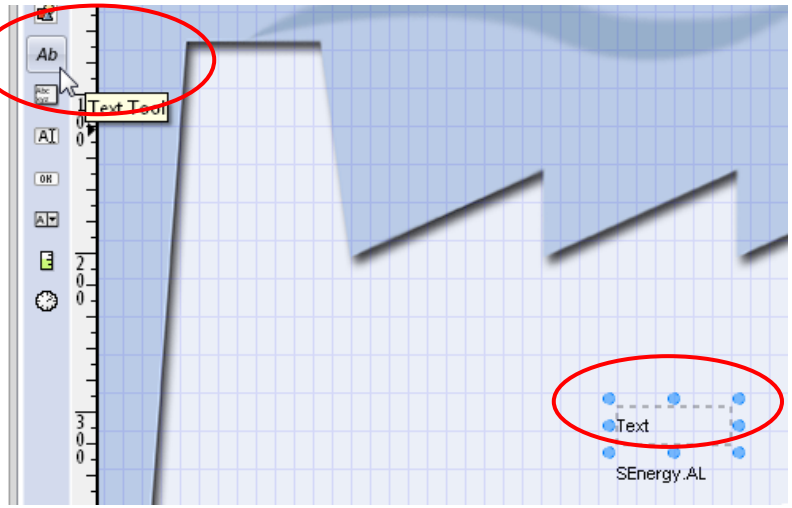
Insert text for voltage

- Insert a text box with the Text Tool
- Open options by clicking on text field
- Select type “PCD Variable” (instead of static text, PCD variable content will be visualized)
- Select variables SEnergy.ALD1_0.Ph_U (voltage)



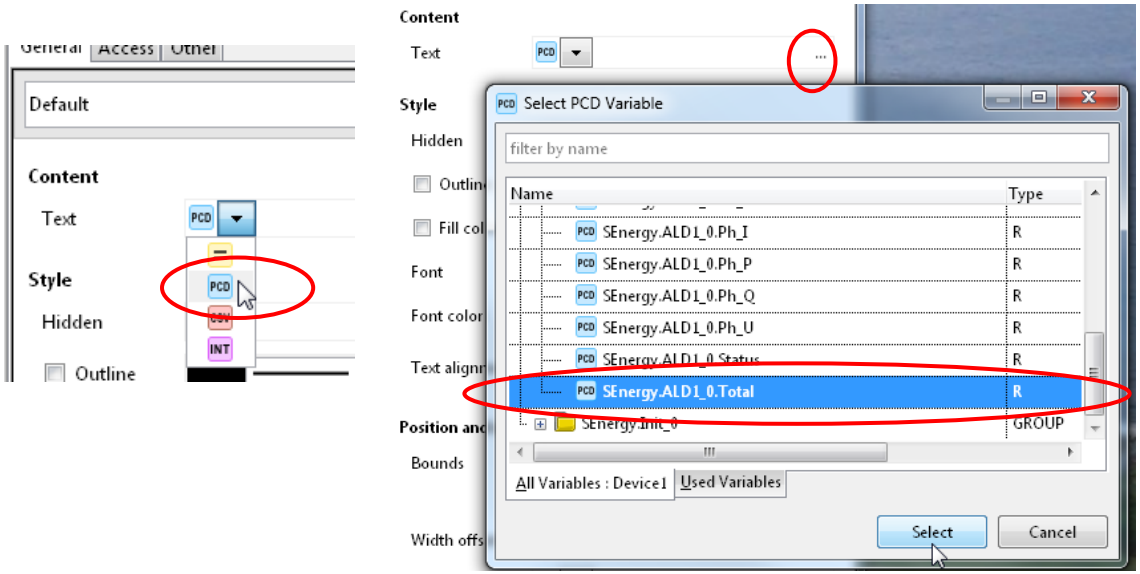


Energy Meter application
Display meter values on web



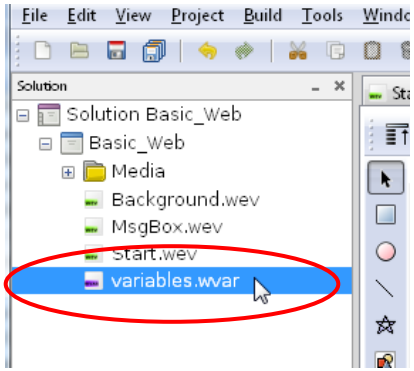
Insert text for energy

- Insert a second text box with Text Tool
- Open options by clicking on text field
- Select type “PCD Variable” (instead of static text, PCD variable content will be visualized)
- Select variables SEnergy.ALD1_0.Total (energy)



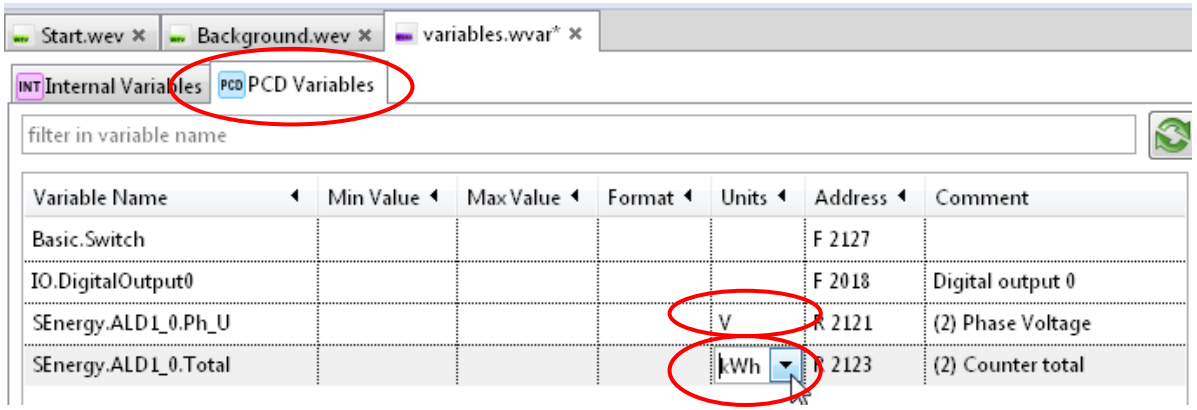
Energy Meter application

Adjust unit

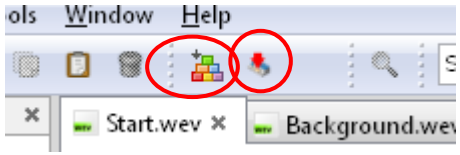


Variables list

- Physical units can be defined in the variable list
- Double click to open list
- Open PCD Variables tab
- Set the appropriate unit in the PCD Variables list
- Save and close the list of variables



Energy Meter application
Download project



Compile the WebEditor project

- Save and compile the web project
- Download the web project
- Close the WebEditor

Energy Meter application
Open visualization in browser