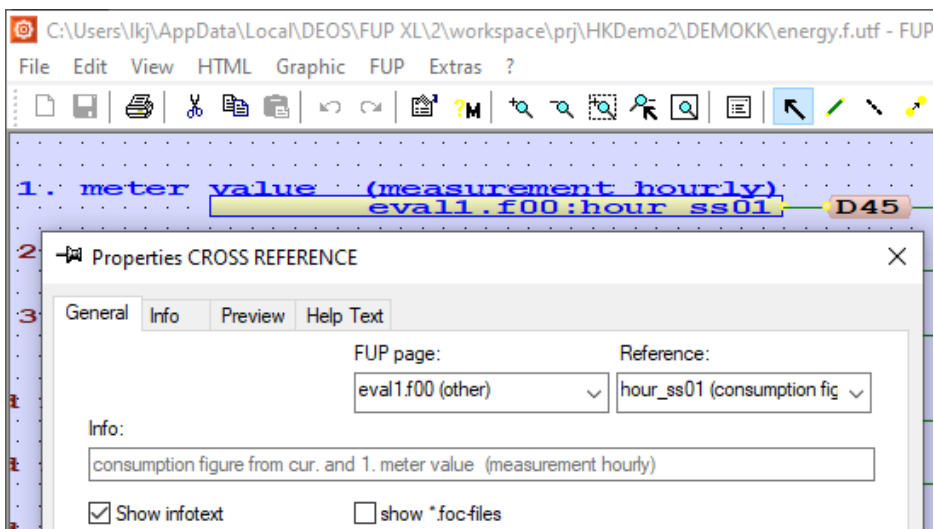


## TT230802 – FUP - Compare Energy Consumption

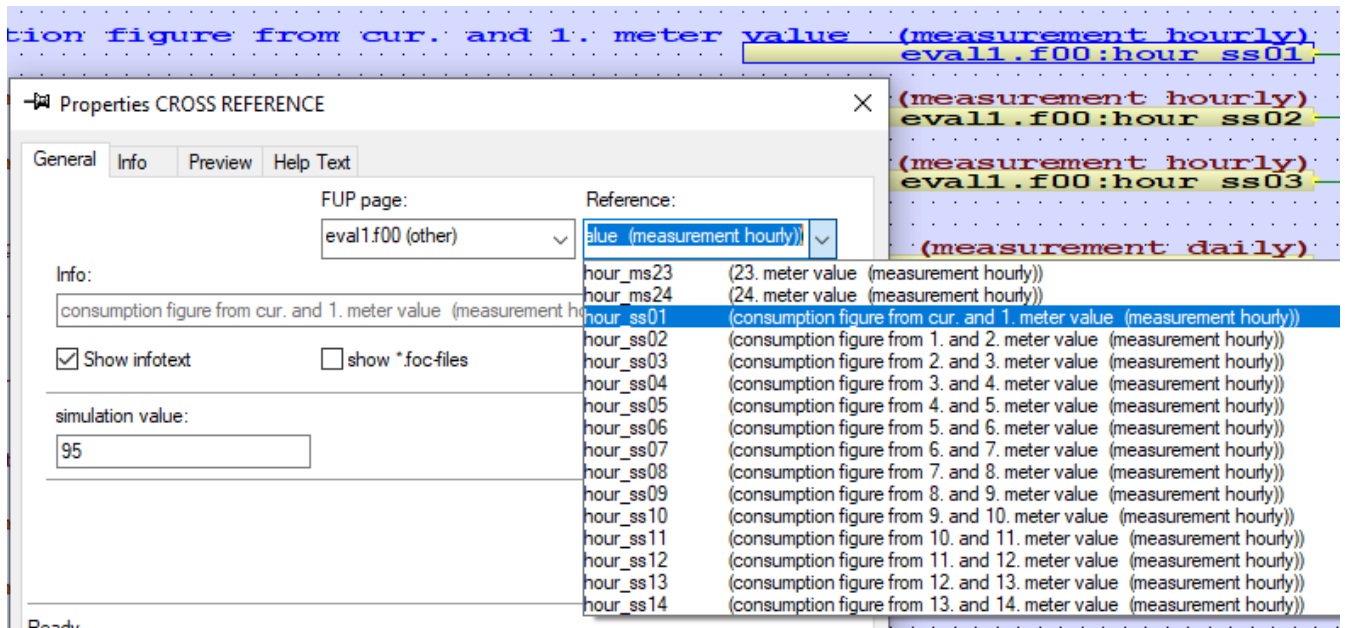
1. In TT190906, we showed you how to setup and use the energy analysis macro “eval1”.



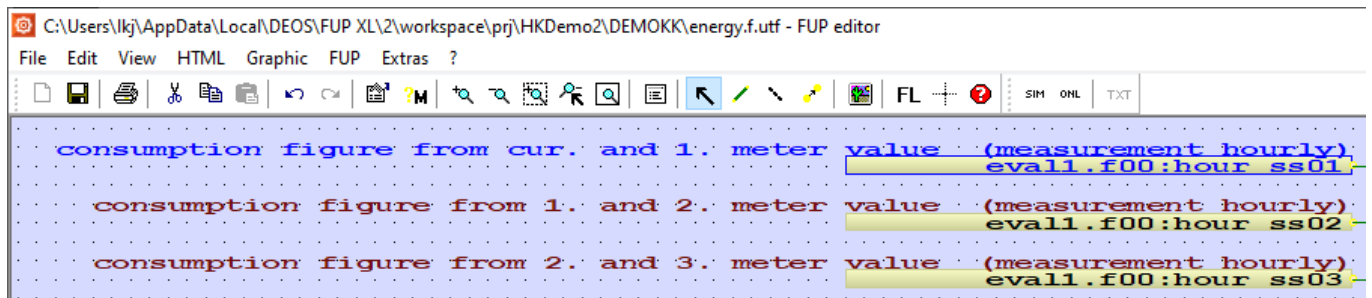
2. In this document, we will show you how to make use of this macro in your own FUP page, to compare the hourly, daily, and monthly energy consumptions, etc.
3. First, we will get the current hour energy consumption from the “eval1” macro. In your FUP page, add a “Cross Reference”. Link it to “eval1.f00” and “hour\_ss01”. This is the energy consumption for “Current Hour”.



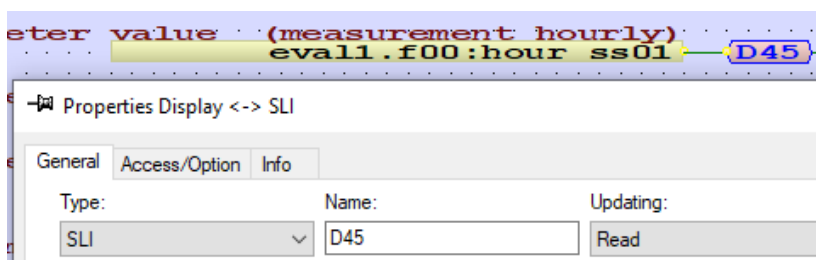
4. You will notice that there are many references in the “eval1” macro. Now we will talk about some of them that are useful in this Technical Tip.



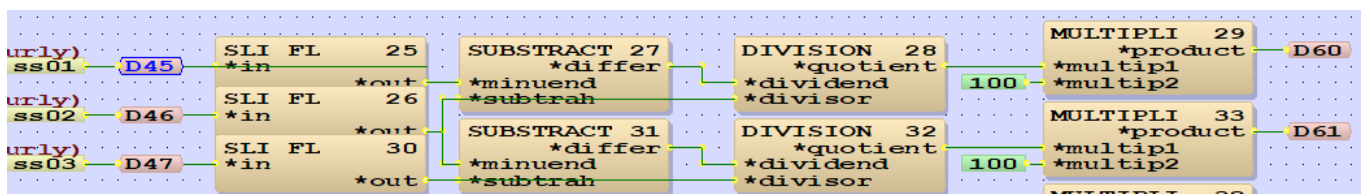
5. For example, the “hour\_ssxx” are the hourly energy consumption. “hour\_ss01” is the energy consumption for current hour, “hour\_ss02” is the consumption for last hour, and “hour\_ss03” is the consumption for 2 hours ago.



6. Now connect each of them to a “Display” and change the “Type” to SLI.



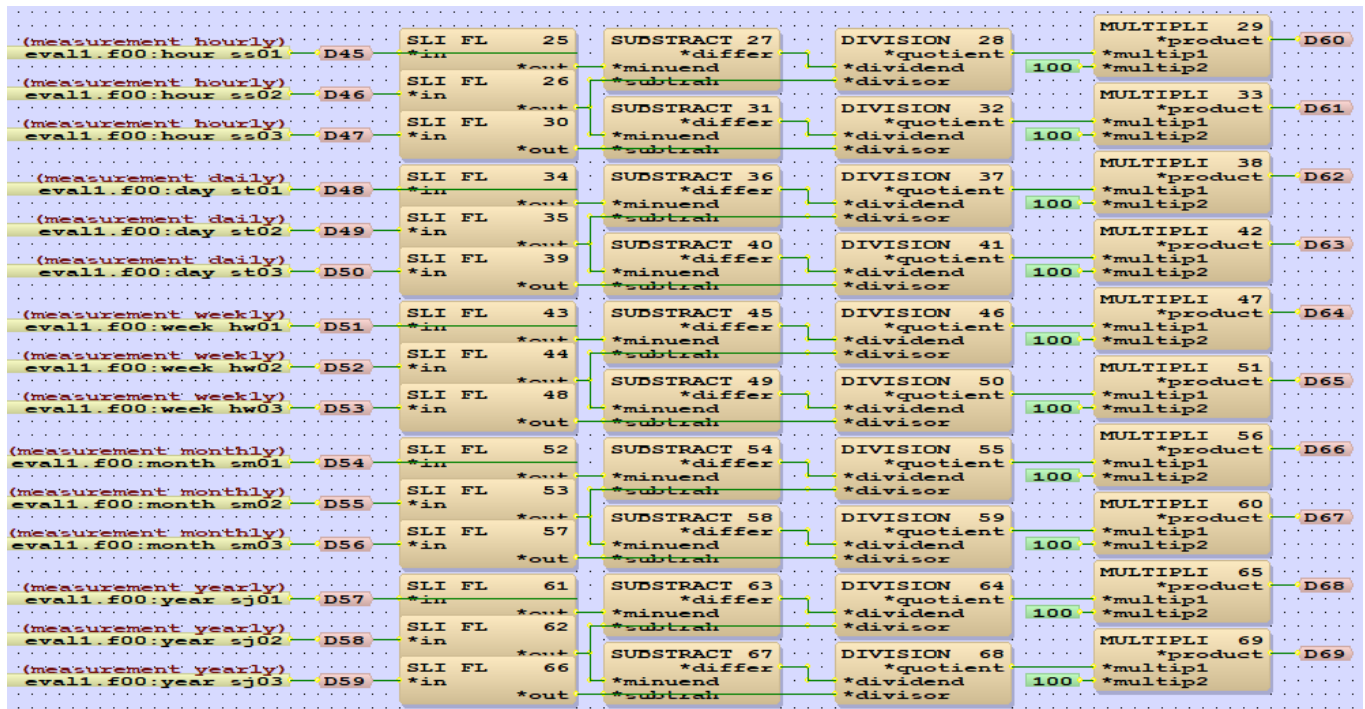
7. Now we want to compare the usages between them, so we add some calculations, like below.



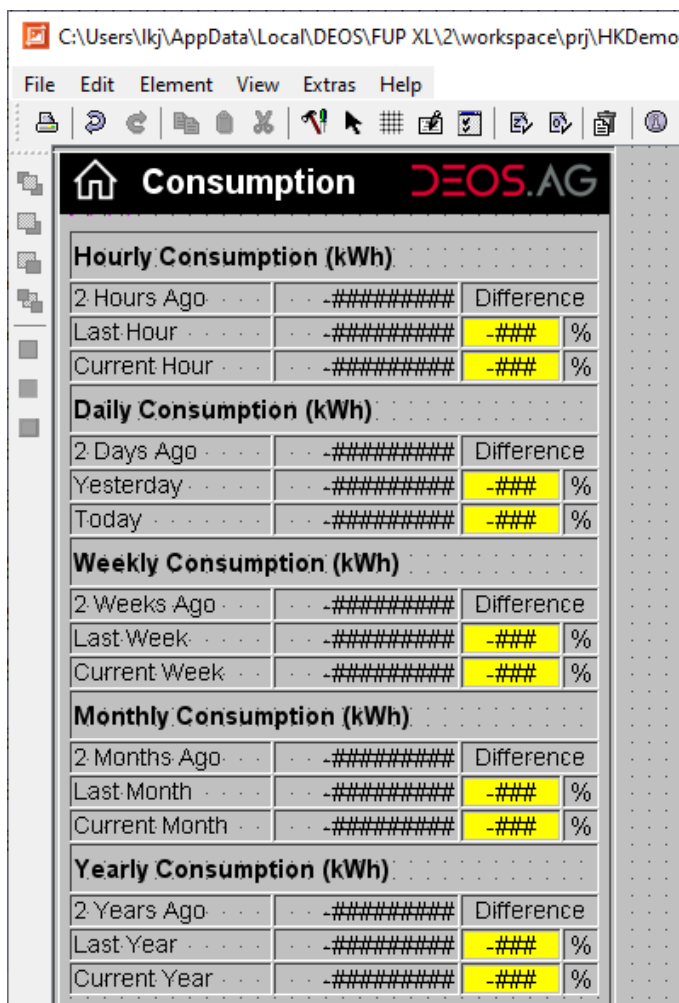
8. In addition to hourly consumptions, we also use some other references in this example.

- Daily – day\_stxx
- Weekly – week\_hwxx
- Monthly – month\_smxx
- Yearly – year\_sjxx

9. Copy the blocks for the hourly consumptions, and paste them to create the daily, weekly consumptions, etc.



10. Please note that this is an example only. In real project, you have to consider the division of 0, otherwise you may get a “NaN” value (or a very large number) if it is divided by 0.
11. Now we create a graphic page like below and link graphic elements to the corresponding “Display” in the FUP page.



12. The “Difference” here we compare the hourly consumption for “Last Hour” to that of “2 Hours ago”, and show the percentage different between them. We use different background colors to easily identify whether the consumption is higher, lower, or similar to the previous hour.

**Consumption**

### Hourly Consumption (kWh)

2 Hours Ago	#####	Difference	
Last Hour	#####	###	%
Current Hour	#####	###	%

### Daily Consumption (kWh)

2 Days Ago	#####	Difference	
Yesterday	#####	###	%
Today	#####	###	%

### Weekly Consumption (kWh)

2 Weeks Ago	#####	Difference	
Last Week	#####	###	%
Current Week	#####	###	%

### Monthly Consumption (kWh)

**Properties**

Properties	Value	Preview
Foreground color	-16777216	
Background color	-256	
Minimum limit value	0	0
Foreground color when value fell below Min	-16777216	
Background color if the value falls below the min value	-16711936	
Maximum limit value	10	10
Foreground color if the max value was exceeded	-16777216	
Background color if the max value was exceeded	-65536	

13. Here is the resulting graphic page for the custom FUP page. Green color means the consumption is lower than the previous period, red color means it's higher than the previous period, yellow color means higher but within than 10%.

**Consumption**

### Hourly Consumption (kWh)

2 Hours Ago	100	Difference	
Last Hour	100	0	%
Current Hour	63	-37	%

### Daily Consumption (kWh)

2 Days Ago	659	Difference	
Yesterday	2728	314	%
Today	2020	-26	%

### Weekly Consumption (kWh)

2 Weeks Ago	9576	Difference	
Last Week	6065	-37	%
Current Week	4748	-22	%

### Monthly Consumption (kWh)

2 Months Ago	54991	Difference	
Last Month	53651	-2	%
Current Month	4748	-91	%

### Yearly Consumption (kWh)

2 Years Ago	648448	Difference	
Last Year	649348	0	%
Current Year	171324	-74	%

14. You may notice that all the current periods (e.g. today) are most likely lower than the previous periods. It is because the current period is the energy consumption up to that moment. In this case, up to 4pm for today only. It will continue to increase until the end of today.