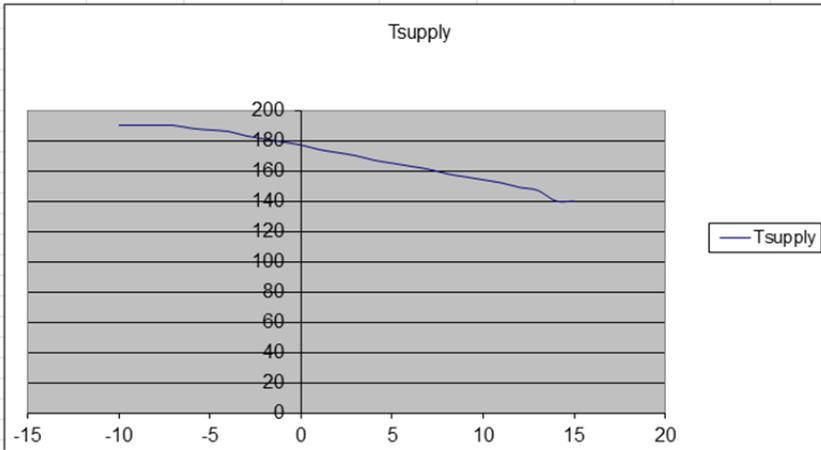


Supply temp from outdoor temp

For plants where the supply temperature is controlled dependent on the outdoor temperature, a configuration for the supply temperature must be created where the plant looks up the value in a table. Furthermore this value may be corrected by a factor dependent on the weekday and time of the day. And for the simulation right now, the value should be the current measurement from SCADA system.

The task is to implement the production strategy as described in the spreadsheet below:

Outdoor	Tsupply	Heure	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
-15	190	00:00	-4	-4	-4	-4	-4	-2	-2
-14	190	01:00	-3	-3	-3	-3	-3	-4	-4
-13	190	02:00	-1	-1	-1	-1	-1	-2	-2
-12	190	03:00	5	5	5	5	5	0	0
-11	190	04:00	5	5	5	5	5	0	0
-10	190	05:00	5	5	5	5	5	0	0
-9	190	06:00	5	5	5	5	5	1	1
-8	190	07:00	3	3	3	3	3	2	2
-7	190	08:00	2	2	2	2	2	2	2
-6	188	09:00	0	0	0	0	0	2	2
-5	187	10:00	0	0	0	0	0	1	1
-4	186	11:00	0	0	0	0	0	1	1
-3	183	12:00	0	0	0	0	0	1	1
-2	181	13:00	0	0	0	0	0	1	1
-1	179	14:00	0	0	0	0	0	1	1
0	177	15:00	0	0	0	0	0	1	1
1	174	16:00	0	0	0	0	0	1	1
2	172	17:00	0	0	0	0	0	1	1
3	170	18:00	0	0	0	0	0	1	1
4	167	19:00	0	0	0	0	0	1	1
5	165	20:00	0	0	0	0	0	0	0
6	163	21:00	-2	-2	-2	-2	-2	0	0
7	161	22:00	-4	-4	-4	-4	-4	0	0
8	158	23:00	-4	-4	-4	-4	-4	0	-4
9	156								
10	154								
11	152								
12	149								
13	147								
14	140								
15	140								
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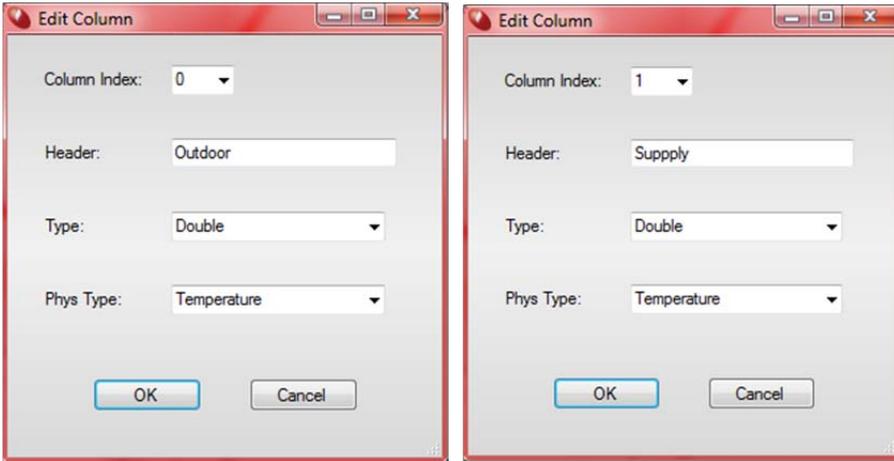


To do this the following steps must be completed:

- Create a table with the outdoor – supply temperature relation
- Create a time series with the correction factor
- Setup measurements for actual supply temperature and outdoor temperature prognosis

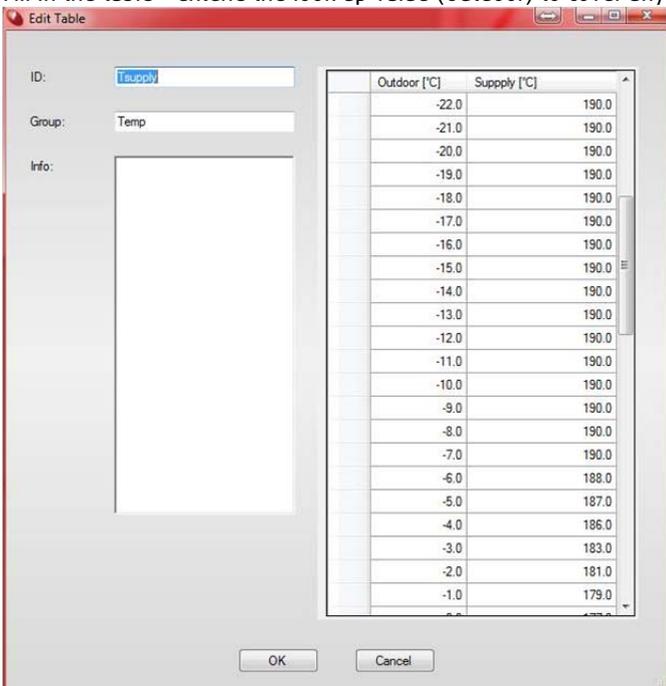
Outdoor – Supply temperature table.

From the menu Edit > Tables create a new table. In the new table right click the column header and select “Add Column”



Create 2 columns for this table – Outdoor temperature and Supply temperature.

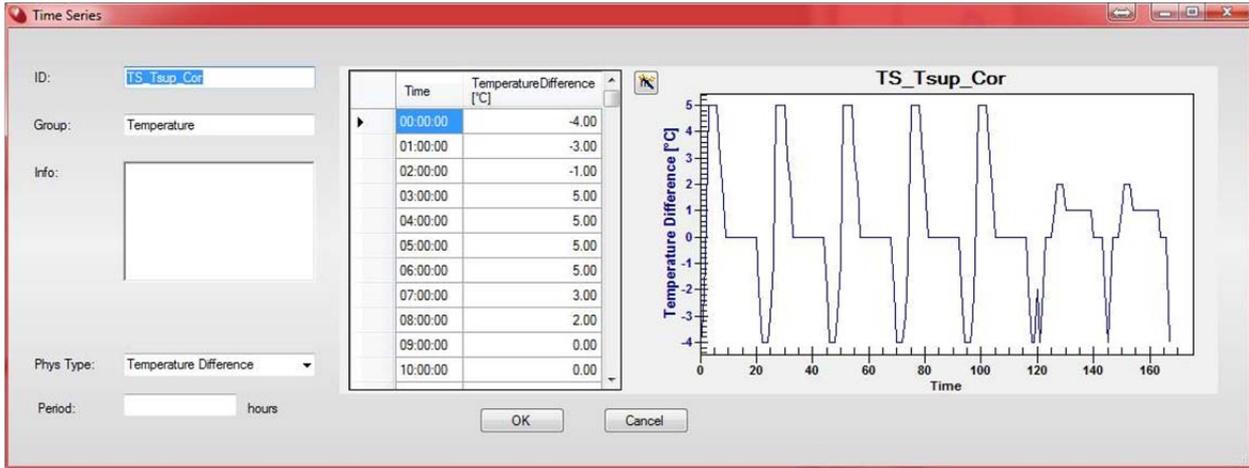
Fill in the table – extend the look up value (Outdoor) to cover any possible value (I.e. -40 and +40degree):



The Outdoor temperature value must be an integer from the measurement.

Supply temperature correction time series:

The supply temperature correction factor is described with a time series that corrects the value from the table above. This correction is defined as a Temperature Difference Time series.

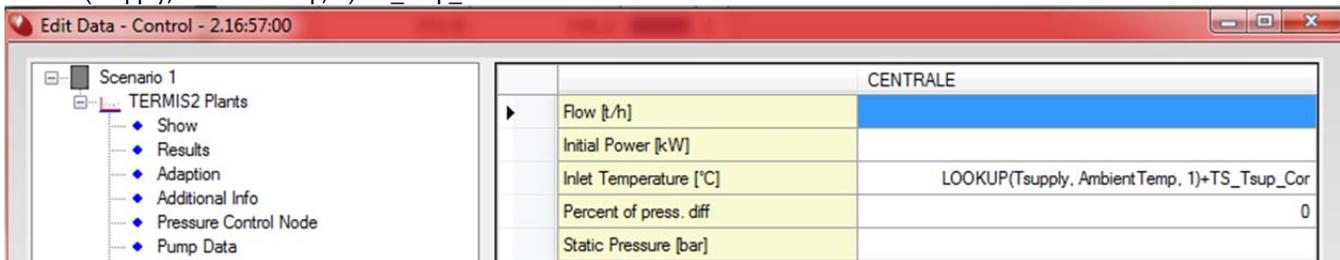


TS_Tsup_Cor is a Time Series with correction factor.

PLANT INLET TEMPERATURE

The plant inlet temperature must be a formula using the outdoor temperature as a lookup function from a table and adding the correction factor(s) from time series. I have made an example (attached) which you can extend from. The formula looks like this:

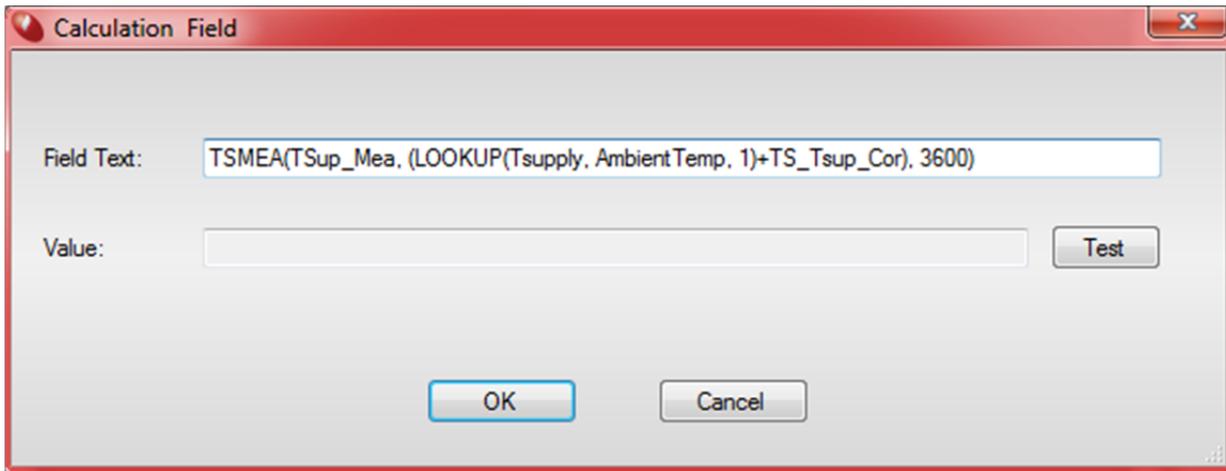
`LOOKUP(Tsupply, AmbientTemp, 1)+TS_Tsup_Cor`



Where the AmbientTemp is the outdoor temperature forecast value.

But all this is only for the future – right now the model should use the current measurement . Therefore we need to put the lookup function inside a TSMEA function that right now uses the current SCADA value and then in the future (after 3600 seconds) adapts to the lookup function:

`TSMEA(TSup_Mea, (LOOKUP(Tsupply, AmbientTemp, 1)+TS_Tsup_Cor), 3600)`



The resulting inlet temperature is a time series where history and now is the measurement and the future is as predicted based on the forecast (AmbientTemp).

