

# Braumat Tipps and Tricks all Versions

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# 1 Contact Siemens

<https://support.industry.siemens.com/cs/start?lc=en-WW>

<https://support.industry.siemens.com/cs/products?mf=ps&lc=en-WW>

<http://support.automation.siemens.com>

<https://support.industry.siemens.com/cs/signin?retUrl=my/srm&info=System.LoginIsRequiredAddToMySupport&lc=en-CY>

[ad.support@siemens.com](mailto:ad.support@siemens.com)

[www.siemens.com/brewery](http://www.siemens.com/brewery)

☐ **Hotline, FAQ's**

**Internet:** [www.siemens.de/automation/support-request](http://www.siemens.de/automation/support-request)

<http://support.automation.siemens.com>

<https://support.industry.siemens.com/cs/start>

**Email:** [ad.support@siemens.com](mailto:ad.support@siemens.com)

☐ **Telephone: +49 911 895 7000**

☐ **Fax: +49 0180 50 50 223**

**For trainings:** <https://www.sitrain-learning.siemens.com/PLG/>

**General information:** [www.braumat.de](http://www.braumat.de)

<https://www.siemens.com/global/en/home/markets/food-beverage/breweries/braumat.html>

## 2 Recipe-Structure

**Area (different PCU's):**

**Brewhouse**

**Fermentation**

**Filtration**

**Recipe-Category, Recipe-Type**

**Production**

**CIP**

**Recipe-Nr, Master Recipe**

**Pils**

**Export**

**Singha**

**Sequence -> MTK, Lauter Tun, Fermentation-Tank, = Unit, RUP**

**MTK**

**Lauter Tun**

**Wort Kettle**

**Tank 1**

**Tank 2**

**FB1001 (Sequ 1), FB 1002 (Sequ 2) .....; always running all 1-Sec**

**DFM-Activation, Sequence-Timer, Permanent Condition, etc etc.**

**Steps: GOPs, EOP, ROPs, Phase, Control Strategy, SFC, SFC-Type**

**f.e. Start-up, Heating, Rest,**

**FC1001, FC1002, FC1003 etc 2999**

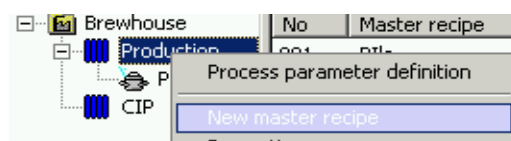
**Start Step-Time, activate ICM (Motor, Valve), check for next-Step-Condition (Transition)**

**Setpoints: DFM (Digital Function Module)**


**-> Setpoints, Timers, Decoders, Counter**

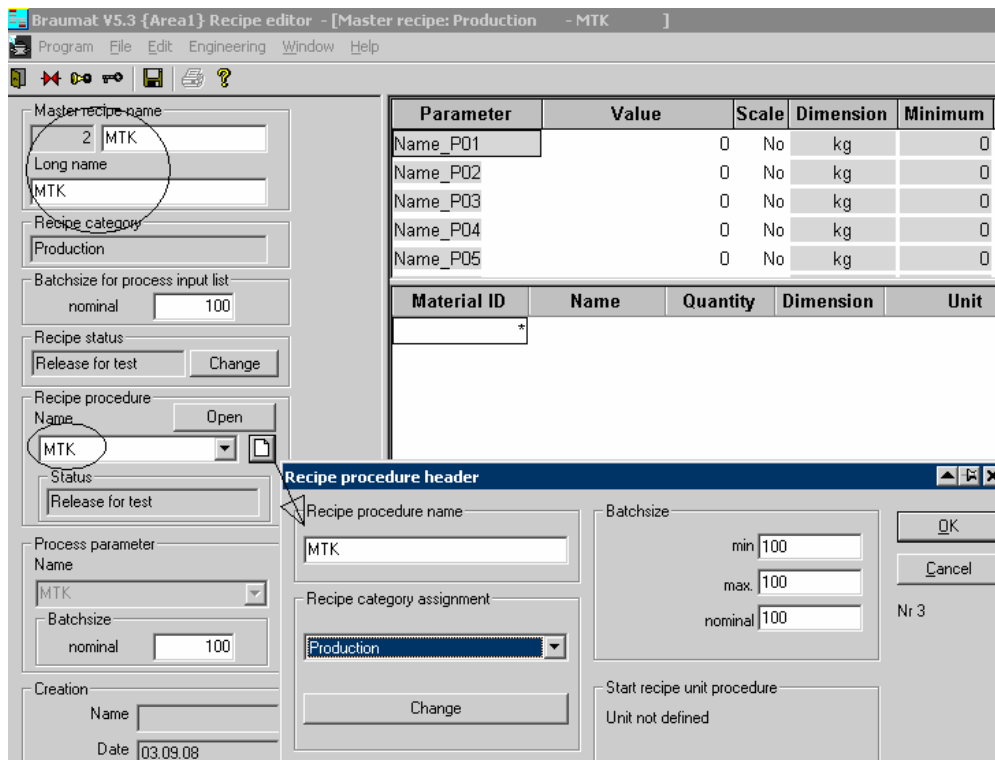
**Copy an existing Recipe to a new one**

**Make a new Master-Recipe**

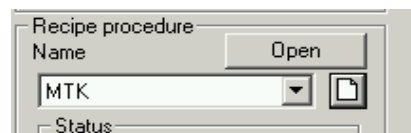


**but only the Header (first Page);**

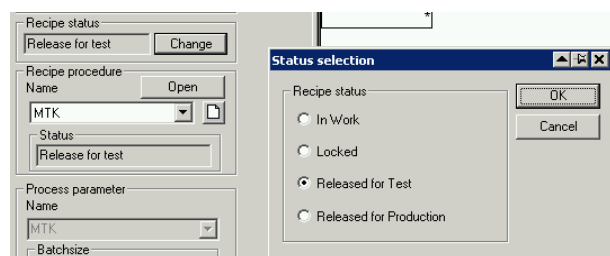
Press the button  to open the next window. Select Recipe-Category “Production” and save it.



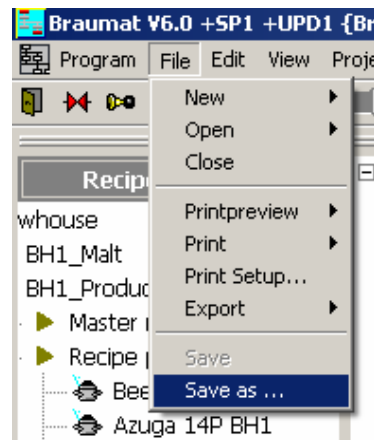
After close select again the “Recipe-procedure” to MTK like here:



Save and close the Recipe and select the Recipe-Status to “Released for Test”



Then open existing recipe and select “Save as” to the new recipe (at the end of the list) Save; Close Recipe and open again.



### Making a new Recipe

First go to Parameterization Sequencer

Define your Sequence-Name

Manual Group (Sequence 1 = Manual group 1 for example)

Time\_Rel (Flag for Monitoring-Time f.e. M 1.0; Enable the Timer used in FB1001... for to enable the Monitoring-Time)

Set the BA\_Year to “0”

Go to Parameterization DFM0.1

Define one counter (Name = Counter) with Art=0 and Increment of 1

Go to Parameterization DFM1.1 and DFM 1.2

Define one DFM1.1 for **Time** (Data-Set-Name) with Art=1 Up-Counter

Divider = 6 (all 6 seconds)

QBit: M 10.0 Enable the Timer used in FC1001... for to enable the Time)

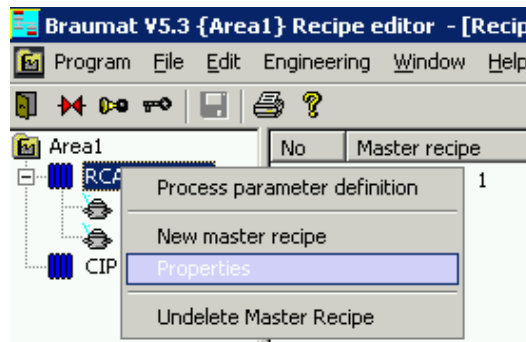
Define one DFM1.2 for **Setpoint** (Data-Set-Name = Level) with Art=4 Limit-Value

PSK = 5 for Hysteresis of 5

QDat: AIN,1, XIST: Source actual value of Analog In 4



Select Basic-Menu Process-Administration, **Recipe**, **Right click on RCAT1**



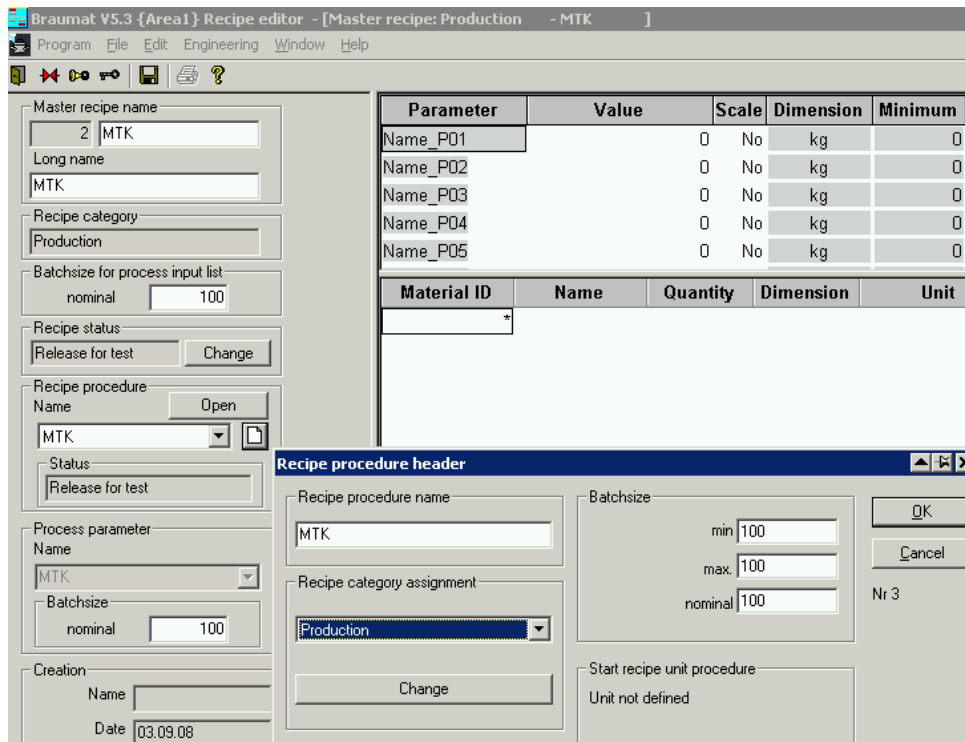
Rename to Production


Right click on Production

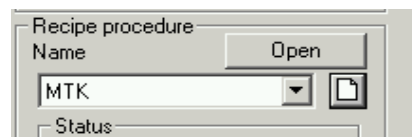


Select: New Master Recipe or double-click on a existing one

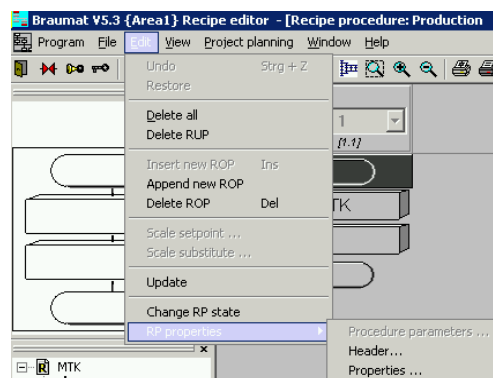
In the next Window make the Settings for a new Recipe like this



Press the button  to open the next window. Select Recipe-Category “Production” and save it. After close select again the “Recipe-procedure” to MTK like here:

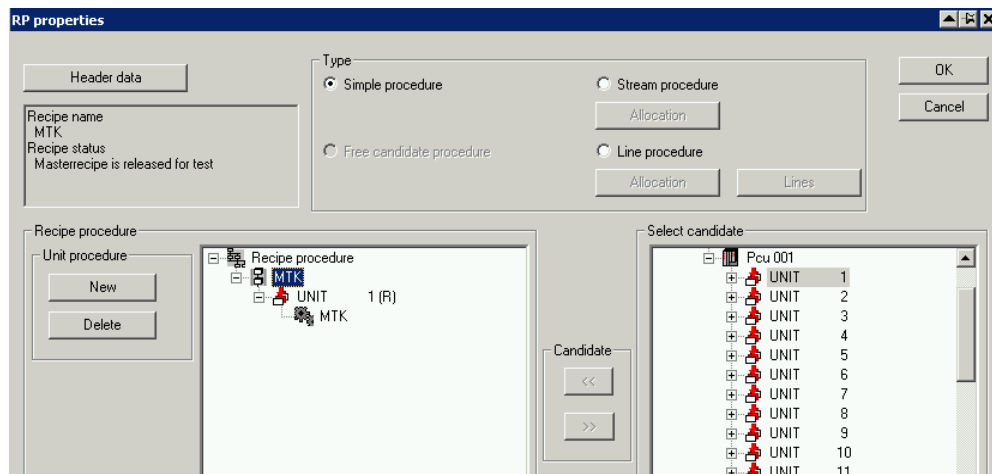


Then open the Recipe, a window will Pop up or you have to Select Edit,, RP-Properties, Properties:

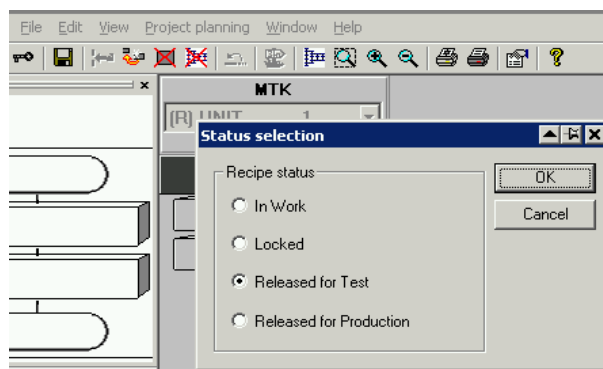


Select New and enter “MTK”;

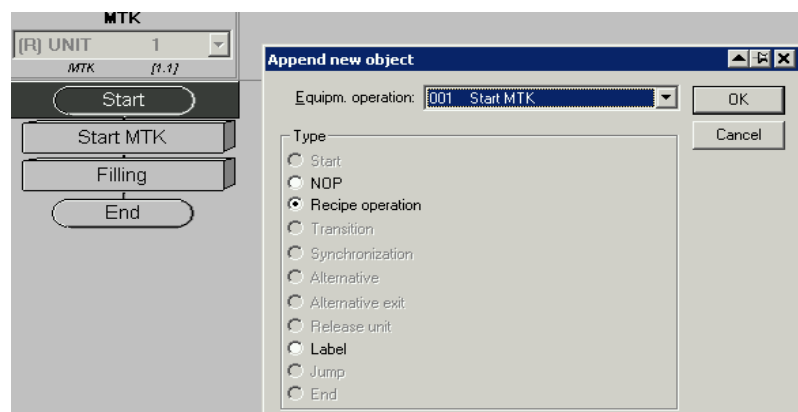
Then click on the left Side MTK and on the Right side Unit 1.  
Put the candidate by << to left and press ok.



Select Edit, change RP-Status and select Released for Test



Then select Edit and Append new ROP, Select "Start" if it is possible



If there is a NOP-Operation on Top, double click on it and select "Start"

Select the last Step, then again "Append new ROP"

Select Recipe-Operation 1 (1.EOP Refers to FC1001)

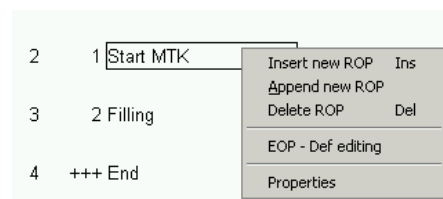
Select the last Step, then again “Append new ROP”

Select Recipe-Operation 2 (2.EOP Refers to FC1002)

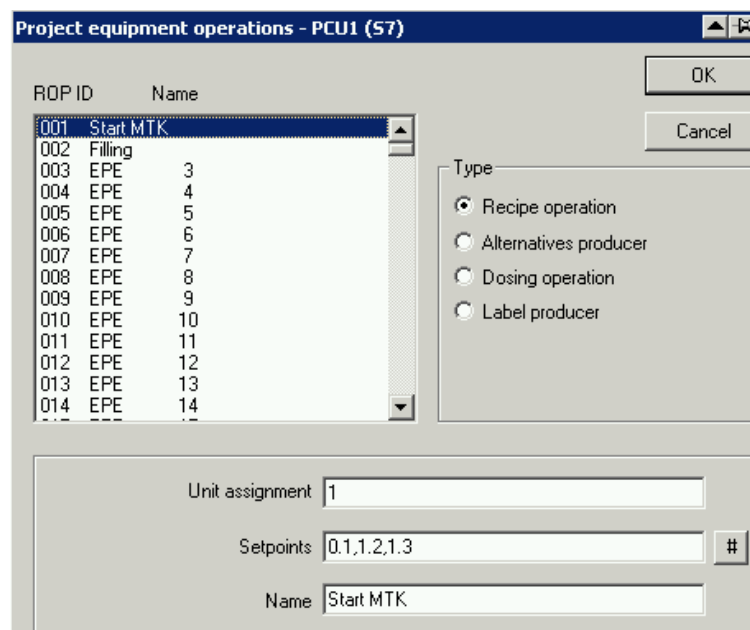
Select the last Step then again “Append new ROP” End

Delete with right click what you do not need

Then right click on the ROP and select EOP-Def editing like this



Make “Unit assignment” to 1 means Sequencer 1



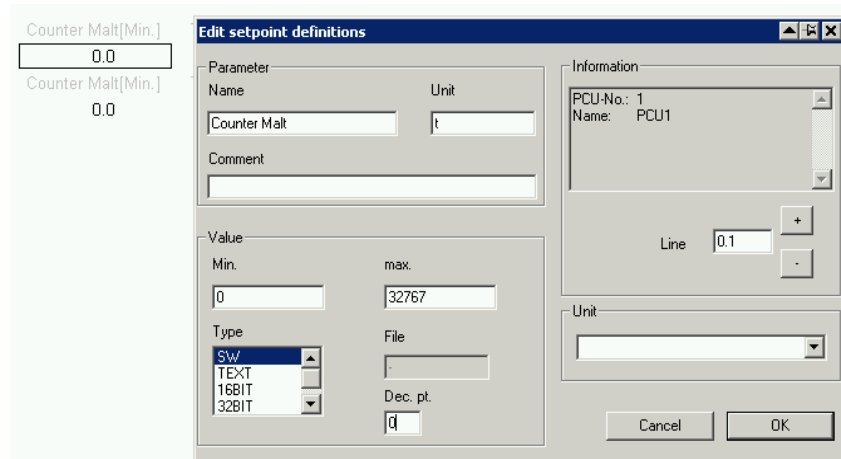
Press “#” to select the according DFM 0.1 (Counter), DFM1.1 (Time) and DFM 1.2 (Level)

Give a Name for the Step “Start MTK” for example

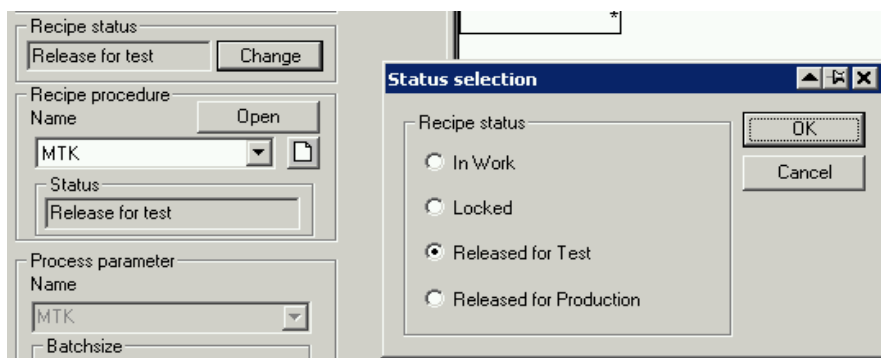
Do the same for the following step “Filling” for example

Right click on the DFM in the Recipe and select “edit SP-Def”

Fill the window like that for the counter and Time (Dec-pt = 1) and Temp (Dec-pt = 1)



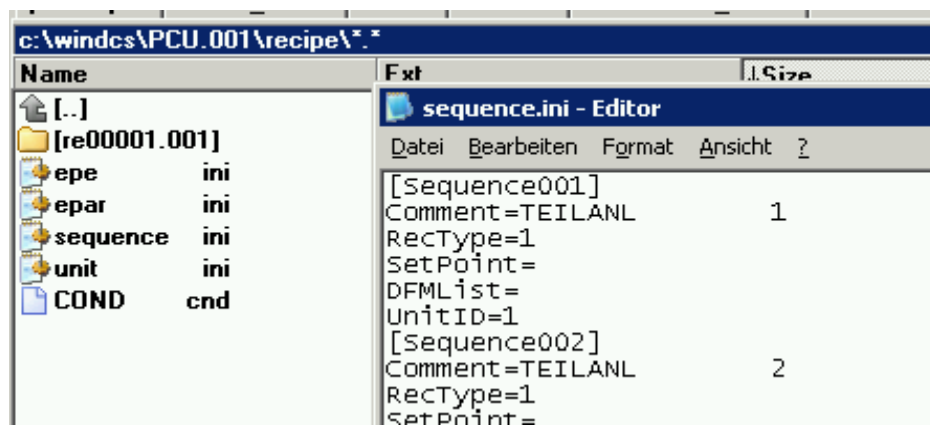
Save and close the Recipe and select the Recipe-Status to “Released for Test”



Save and exit Recipe-Editor

Go with the Explorer to d:\windcs\PCU.001\recipe\Sequence.ini and open Sequence.ini and Assign Sequence 001 to RecType 1 (Category from the Recipe Editor) and Save.

Do no forget to do the same for new Sequences!



RecType corresponds to the “1” for Production and “2” for CIP for Example (see below)



Go in the Basic-Menu to Process-Monitoring and Sequence-Control

Press the start-Button for the according Sequence 1

Enter Batch-Number and Ordernumber and select your Recipe (Masching)

Braumat V5.3 {Area1} - Process cell overview - Plant A											
Program Process cell Functions Options Acknowledge Help											
No	Sequence	Seq. Status	Display	Step	EOP	EOP Name	EOP Status	Time	Recipe	Batch	Order ID.
01	MTK	Start sequence	A+ 0	0	0	...	Idle	00:00:00	MTK	1	1
02	SEQUENCE	Idle	A- 0	0	0	...	Idle	00:00:00	...	0	0
03	SEQUENCE	Idle	A- 0	0	0	...	Idle	00:00:00	...	0	0
04	SEQUENCE	Idle	A- 0	0	0	...	Idle	00:00:00	...	0	0
05	SEQUENCE	Idle	A- 0	0	0	...	Idle	00:00:00	...	0	0
06	SEQUENCE	Idle	A- 0	0	0	...	Idle	00:00:00	...	0	0
07	SEQUENCE	Idle	A- 0	0	0	...	Idle	00:00:00	...	0	0
08	SEQUENCE	Idle	A- 0	0	0	...	Idle	00:00:00	...	0	0
09	SEQUENCE	Idle	A- 0	0	0	...	Idle	00:00:00	...	0	0

You can modify the list for the Sequence at Functions, Edit Process Cell view

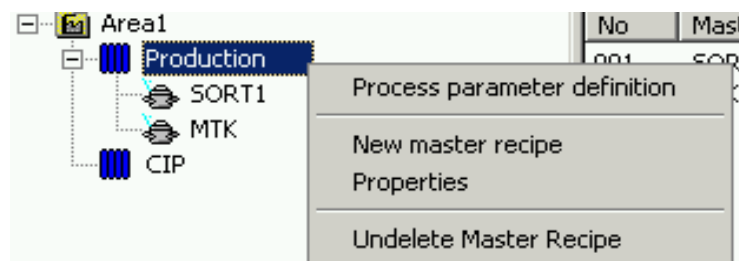
1 1 means PCU Nr. 1, Sequence-Nr 1

1 2 means PCU Nr. 1, Sequence-Nr 2

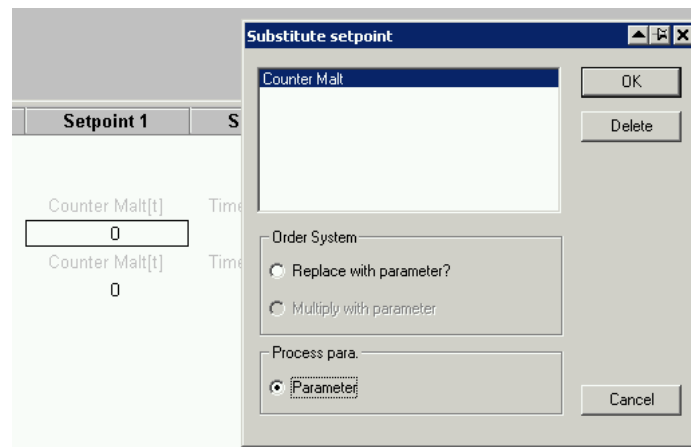
You can make groups in the File Functions, , Edit Process Cell (Bereich.txt)

### If you want to define Process-Parameters

Right click on on the Recipe-Category “Production” and select Process parameter definition

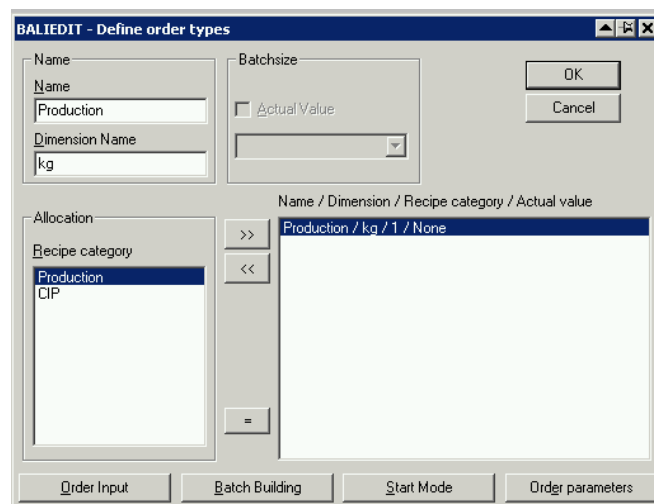


Then select the DFM's you need and shift them to the right side!  
 Then right-click on the DFM in the Recipe and select Substitute Setpoint and Process-Parameter.  
 But to Start the Recipe the Setpoint should be > 0!



### Order-System-Setup:

Open the batch-scheduler and select File Close  
 Then Select Project-Planning, "Order-Types"  
 Move what is in the right Window to the left and Edit Production on Top  
 Then Select at "Recipe-Category" Production and shift it to the right  
 Then it looks like this:



Now you can select Order-Input etc. and Setup all Parameter!

At Order-parameters you can select DFM's which will be transferred (the Setpoint by starting the Order-System) to the Recipe (select Substitute Order-Parameter in the Recipe)

Close the Window, and Select Edit, "new Order" and Select the Recipe.

The screenshot shows a software window titled "BALIEDIT - New order". It contains several input fields and buttons. Under "Numbers", there are fields for "Order number" (00002) and "First batch number" (00001). The "Order" section includes a dropdown for "Order type" (Production) and a list for "Recipe" with items "SORT1 1" and "MTK". The "Start" section has fields for "Mode" (soon as possible), "Date" (03.09.08), "Cycle" (01:00:00), and "Time" (23:21:07). The "Batch Building" section includes a "Year" field (08), checkboxes for "Number of batches" (checked) and "Order size" (unchecked), and a box with the number "1" followed by "kg". At the bottom, there are "Parameters" and "Additional Order" buttons. "OK" and "Cancel" buttons are also present near the top right.

After you press ok, you have the Recipe in the List.

You can select it and release it, the Sequence will be started!

Here we go!

### online-recipe

for to see recipe online (key F9 in sequence-overview or from the faceplate) you need to define the Recipe-Type in the order system

Open the batch-scheduler and select File Close

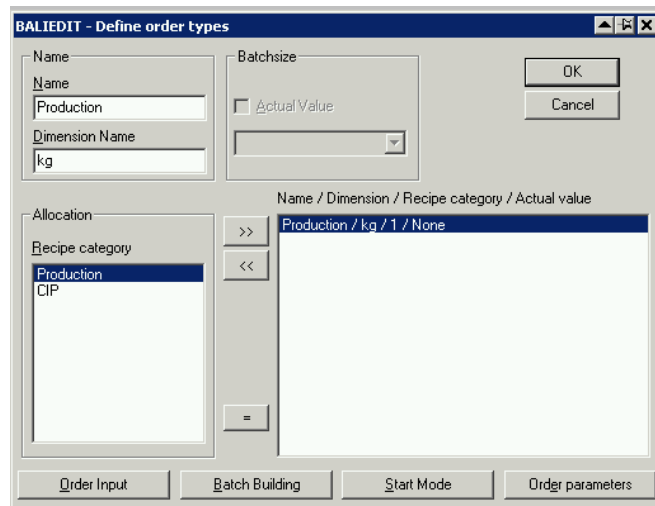
Then Select Project-Planning, "Order-Types"

Move what is in the right Window to the left and Edit Production on Top

Then Select at "Recipe-Category" Production and shift it to the right

Then it looks like this:





Now you can select Order-Input etc. and Setup all Parameter!

## Program-Structure

**FB1200** Cold Restart (never make a cold restart, all Parameters will be deleted!)

**FB1201** Warm Restart (here you program pre-setting-values)

### OB1

Call FB1220

### Braumat-Code

Call FB1221

BE

### OB35 (100 ms)

Call FB1222

Call FB1224 User-FC/FB (f.e. Call FC 410)

### Braumat-Code

Call FB1223

BE

### All 1-Second

FB1225

### **Unit-related (1 second)**

FB1001 Unit 1

FB1002 Unit 2

FB1003 Unit 3

FB1004 Unit 4

....

FB1064 Unit 64

### **Steps (GOPS)**

FC1001, 1001, Step 1,2 ....

### **Interlock**

FB1226...FB1233

### **Free Protocol**

### **Make a description of your Dbase-File in File FRPROT\FEPR\_DEF.DEF**

424

1 AUFTR\_NR CINT 5 Auftrags-Nr.

6 CHARG\_NR CINT 5 Chargen-Nr.

11 SZ\_JAHR CINT 2 Startzeit Jahr

13 SZ\_MONAT CINT 2 Startzeit Monat

15 SZ\_TAG CINT 2 Startzeit Tag

17 SZ\_STUNDE CINT 2 Startzeit Stunde

19 SZ\_MINUTE CINT 2 Startzeit Minute

21 SZ\_SEKUNDE CINT 2 Startzeit Sekunde

23 REZ\_TYP CHAR 16 Rezepttyp-Name

39 REZEPT CHAR 16 Rezept-Name

55 TEILTEL CINT 6 Teiltelegramm-Nr.

61 BEDIENER CHAR 16 [1,1,0,1,"bedien.txt"] //PCU1,Tt.1,1.DW, 1 Dataword

77 SORTE\_1 CHAR 16 [1,1,1,1,"sort1.txt"] //PCU1,Tt.1, 2.DW, 1 Dataword

93 SORTE\_2 CHAR 16 [1,1,2,1,"sort1.txt"] //PCU1,Tt.1, 3.DW, 1 Dataword

109 SORTE\_3 CHAR 16 [1,1,3,1,"sort1.txt"] //PCU1,Tt.1, 4.DW, 1 Dataword

125 DATEN1\_5 CINT 6 [1,1,4,1] //PCU1,Tt.1, 5.DW, 1 Dataword

131 DATUM\_S1 CHAR 16 [1,2,0,3,"DT1"] //PCU1,Tt.2, 1.DW, 3 Dataword

147 DATUM\_S2 CHAR 16 [1,3,0,3,"DT1"] PCU1,Tt.3,DW21

163 DATUM\_S3 CHAR 16 [1,4,0,3,"DT1"] PCU1,Tt.4,DW31

179 START\_ANS CHAR 16 [1,5,0,3,"DT1"] PCU1,Tt.5,DW41

195 START\_FIL CHAR 16 [1,6,0,3,"DT1"] PCU1,Tt.6,DW51

211 ENDE\_FIL CHAR 16 [1,7,0,3,"DT1"] PCU1,Tt.7,DW61

227 START\_VL CHAR 16 [1,8,0,3,"DT1"] PCU1,Tt.8,DW71

Etc

**call the FB580 for to Transfer the Data**

CALL FB 580, DB580

```
iPartTeleNr:=1 (here for next Block 2,3...)
iBatch  :=0      //Batch Data is coming from the current Data-Set
iOrder  :=0
iRecipe :=0
iRecType :=0
iDataDest :=1      //1. Dataword (-1=5DW)
iFunction :=7      // Function = 7, that is load block data word block
iANA     :=0
rRealInput :=0.000000e+000
iDBNr     :=10      //DB-Number
iStartDW  :=1      //Dataword
boRetVal  :=M2000.0 //Error return value; 0: no error; 1: Error
```

**next Data-Word, max 5!**

CALL FB 580, DB580

```
iPartTeleNr:=1 (here for next Block 2,3...)
iBatch  :=0      //Batch Data is coming from the current Data-Set
iOrder  :=0
iRecipe :=0
iRecType :=0
iDataDest :=2      //2. Datenwort (-1=5DW)
iFunction :=7      // Function = 7, that is load block data word block
iANA     :=0
rRealInput :=0.000000e+000
iDBNr     :=10      //DB-Number
iStartDW  :=3      //Dataword
boRetVal  :=M2000.0 //Error return value; 0: no error; 1: Error
```

**....more till max 5 Dataword**

then send it to IOS

CALL FB 580, DB580 //send Data

```
iPartTeleNr:=1
iBatch  :=0
iOrder  :=0
iRecipe :=0
iRecType :=0
iDataDest :=0
iFunction :=0
iANA     :=0
```

```

rRealInput :=0.000000e+000
iDBNr      :=0
iStartDW   :=0
boRetVal   :=M2000.0
=====

```

- **Telegram 6 must be enabled in a FIFO 1 and 4**
- **The according DEF file must be defined in "windcs\sys\protdida.txt" (you can take the preset values)**
- **The definition files must be created in "windcs\frprot" (see section 2.7).**  
**Fepr\_xxx.def      xxx = recipe type (range = 1 to 255)**  
**You can copy and edit the fepr\_def.def template file.**
- **You can have several different Protocols, depending from the recipe-type, defined in windcs\sys\protdida.txt**

**For making a Layout with MS-Access you need a full version of Access.**

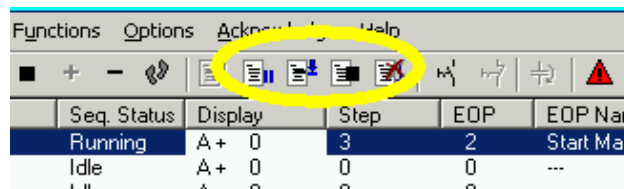
**For the Client to view the Data, the freeware Access runtime can be used.**

**Call the MSI setup file from CD for to install Access runtime for evaluation:**

‘...\sis\_sys.53\SISTAR.530\_V0503xxxx\MicrosoftMS\_AccessRuntime\_Office\_2003\Accessrt.msi’.

**More Hints**

## 2.1 Activate the S88-Commando:



Change in c:\windcs\sys\seqctrl.ini: [MainWin]; EOPAdmin=255 and restart Braumat.  
 Very nice Buttons specially the right makes "Step + 1", sometimes useful.

### Activate Change Protocol

With change protocol, all activities on the IOS are logged (change value etc)

change in file windcs\sys\PCU\_SERV.ini

at [Recipeserver(&SoftCP)]

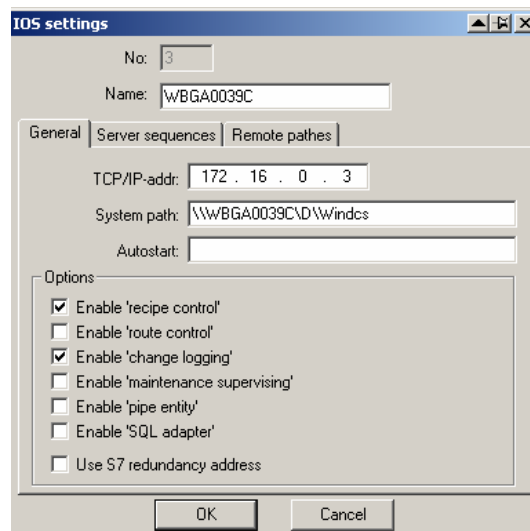
add **globlog.dll** like this

Ports=ta.dll,s7.dll,h1\_ndis.dll,recctrl.dll,balidata.dll,cas.dll,client.dll,**globlog.dll**

Change in logging.ini:

**EnableGlobalLogging=1.**

change here:



And then it works only on the recipe-Server!

### Trend Export to text-File

In Kurven.ini under Select:

\_trace=1;

\_Tracemode=A;

\_traceval=1;

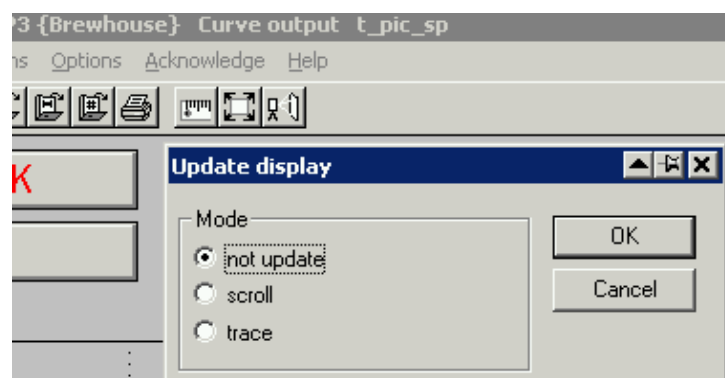
\_tracevalmode=A (or W)

Then in Folder \Tmp

kurven1.txt...

Data are generated when the Trend-Picture is opened.

But in Curves the Switch must be in "Options, Display Mode, not update"



### Changing the Menu, Add new Functions

In Texte.10\Menuv460.ini;

But you have to change the number on Top as well

## 2.2 Starting Programs Time-Planned or at the beginning (f.e. Trendmanager)

In PCU\_Serv.ini search and change to

```
;Start and Check for running of ProcessScheduler "ProSched.exe"
```

```
RunProcessScheduler=1
```

Then modify windcs\sys\ProSched.ini

```
[Global]
```

```
Processes=trendman
```

```
[trendman]
```

```
Application=d:\windcs\sys\trendman.exe
```

```
;Start this application if not running and check for running
```

```
Type=PERMANENT
```

```
;At own shutdown, shutdown although this application
```

```
ShutDown=1
```

## 2.3 Trigger the curves

- Declare measured value in "Trending definition"
- Chose iID is 54 for FB1054 and 59 for FB1059 but take care that this GroupID is not yet used by others.
- Restart the Trend manager only or restart Braumat completely.
- Then write codes in FB1054 (cip Filler, sequence 54) and in FB1059 (cip Filter, sequence 59)

Start and Stop of Curves

Call the **FC 695** for **Start of Logging**

and this for **Stop of logging**

```
CALL  "TRIGG_CURVE_GR_FC"
boRUN    :=TRUE
boACTSEQ :=TRUE
iID      :=1
iSEQID   :=0
byRECCAT :=B#16#0
byYEAR   :=B#16#0
iORDER_NO:=0
iBATCH_NO:=0
iRECIP_NO:=0
```

```
CALL  "TRIGG_CURVE_GR_FC"
boRUN    :=FALSE
boACTSEQ :=TRUE
iID      :=1
iSEQID   :=0
byRECCAT :=B#16#0
byYEAR   :=B#16#0
iORDER_NO:=0
iBATCH_NO:=0
iRECIP_NO:=0
```

but just once with a Flag (M102.2 or M102.3); ID = Group-Number.

So just put this to the Sequencer-FB:

```
CALL "TRIGG_CURVE_GR_FC"
  boRUN := "SEQU_Run" //M 102.1
  boACTSEQ := TRUE
  iID := xy //curve-group
  iSEQID := 0
  byRECCAT := B#16#0
  byYEAR := B#16#0
  iORDER_NO := 0
  iBATCH_NO := 0
  iRECIP_NO := 0
```

Then make a Trend-image and select according values

### **Some information about setting up a Server or a Client.**

Install Braumat from the CD on a new Server or Client (on C:\ or D:\-Drive or other)

Copy a running Windcs-Folder to \Windcs (overwrite all!) or just rename the original one and copy all \Windcs.

To register OCX call c:\windcs\sys\ocx\ register.bat

Adapt in c:\windcs\sys\trendman.ini if C:\Drive: 4\$\\PC-Name\C\WINDCS  
or D:\Drive 4\$\\PC-Name\D\WINDCS.

Start Braumat and go to Administration, Configuration and change the Site-Configuration, especially the name of your PC

Select in the PCU-Server whether it is a Server or Client.

Restart Braumat.

To **change Windcs from D:\ to C:\** or reverse change in Windows, System-Settings, System, Advanced, Enviroment-Variables, select down "Path" in the List and "Edit". Change C:\WINDCS\SYS to D:\WINDCS\SYS or reverse.

Then go to the windows-Directory search the file win.ini, open it and search Windcs and change C:\WINDCS\SYS to D:\WINDCS\SYS or reverse.

Restart Braumat.

### **To activate the Demo-Version**

Copy c:\windcs\sys\PROD\_DLL\ PROD32.DLL to c:\windcs\sys

After 8 hours you need a restart of Braumat. But there is not a message, the functions do not work any more.

How to **Stop Braumat** and all the Services in the background (to rename the directory Windcs for example)?

Call c:\windcs\sys\terminator.exe

## How to extend the number of Instances (for example Analogue Input)

Extend the DB to the according number of Data-Set by -Manager -Manager and download. If there is already a Parameterization, save the content first with the Excel-Productivity-Tool (after a upload of the DB).

Change the number of Instances in the DB online and offline.

Change the number of Instances in the files

c:\windcs\param.pcu\PARAMS7.010 for English S88

c:\windcs\param.pcu\PARAMS7.001 for English

c:\windcs\param.pcu\PARAMS7.000 for German

Here a example for the 3 Step-controller:

object ThreStep=DB744; (\*Three-position controller\*)

CID=CID\_DREIP;

max=96->change to 128 for example

offset=300;

## Fast ICM (50/100/200 msec)

In order to have a fast ICM with 100 ms Cycle-Time for Feedback and Output call

Call FC727 with ICM-Number in the FB1224

iMode := 35 (35=OB35 = 100 ms, 36=OB36 = 50 ms, 34=OB34 = 200 ms)

V7: FB1230: 200 ms

FB 1231: 500 ms

For PCUs <V7, the synchronization errors resulting from direct calls from the operating blocks OB33 and OB34 have to be unmasked according to the following PCU configuration:

AUF "SYS"

Call SFC 36 (Quittungsfehler ausblenden)

PRGFLT\_SET\_MASK := DBD160

ACCFLT\_SET\_MASK := DBD164

RET\_VAL := #iRetVal

PRGFLT\_MASKED := DBD168

ACCFLT\_MASKED := DBD172

CALL FC727 (...)

If an extra ICM call is removed, you will have to use the application "Parameterization" to switch back the ICM to cycle time in seconds:

- Set hidden attribute "T100MS" = 0.

## More Information in the faceplates

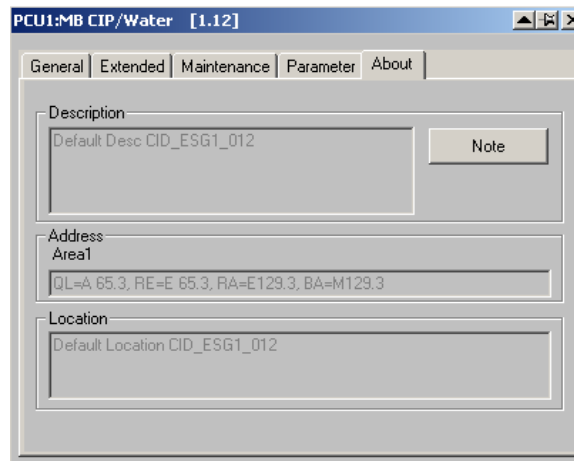
In the tab "About" configured information is displayed (Description, address, location).

This can be defined in the folders \windcs\pcu.00x\ Desc.10 and :\windcs\pcu.00x\Location.10 and :\windcs\pcu.00x\Address.10

ESG 1+2 for the ICM faceplate

Mess for the Analogue faceplate





### Set all ICM to Simulation Feedback

Write AFFE (Hex) to DB701, DW10.

Simulation with AFFE in DB701 does switch off transfer to the Output DB605.

### Cross-Communication with Braumat

Define in Netpro the Links for PCU1 for example

Lokale I	Partner	Partner	Typ	Aktiver Verbin	B	Subn	Lokale Schnitts
2	1	PCU02_BH2 / CPU 417-4	S7-Verbindung	ja	n	GL...	CP 443-1
3	1	PCU03_CE1 / CPU 417-4	S7-Verbindung	ja	n	GL...	CP 443-1
4	1	PCU04_CE2 / CPU 417-4	S7-Verbindung	ja	n	GL...	CP 443-1

For PCU 2

Lokale I	Partner	Partner	Typ	Aktiver Verbin	B	Subn	Loka
1	2	PCU01_BH1 / CPU 417-4	S7-Verbindung	nein	n	GL...	CP 4
3	2	PCU03_CE1 / CPU 417-4	S7-Verbindung	ja	n	GL...	CP 4
4	2	PCU04_CE2 / CPU 417-4	S7-Verbindung	ja	n	GL...	CP 4

And for PCU 3

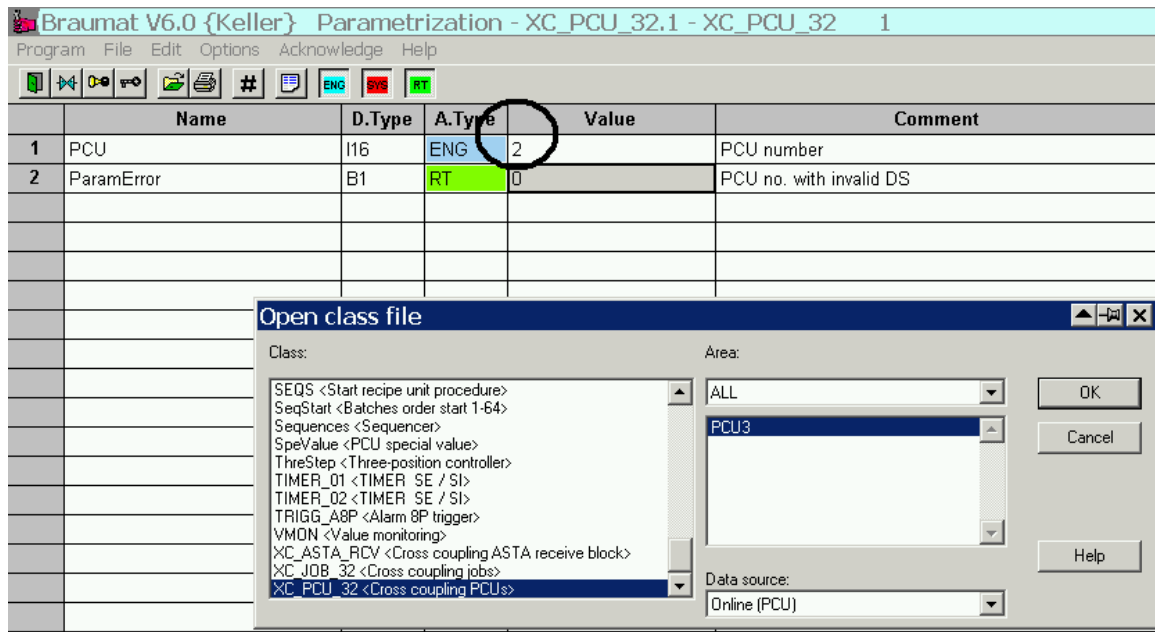
Lokale I	Partner	Partner	Typ	Aktiver Verbin	B	Sub
1	3	PCU01_BH1 / CPU 417-4	S7-Verbindung	nein	n	GL.
2	3	PCU02_BH2 / CPU 417-4	S7-Verbindung	nein	n	GL.
4	3	PCU04_CE2 / CPU 417-4	S7-Verbindung	ja	n	GL.

Set the PCU with the higher number to active.

Download Netpro to all machines

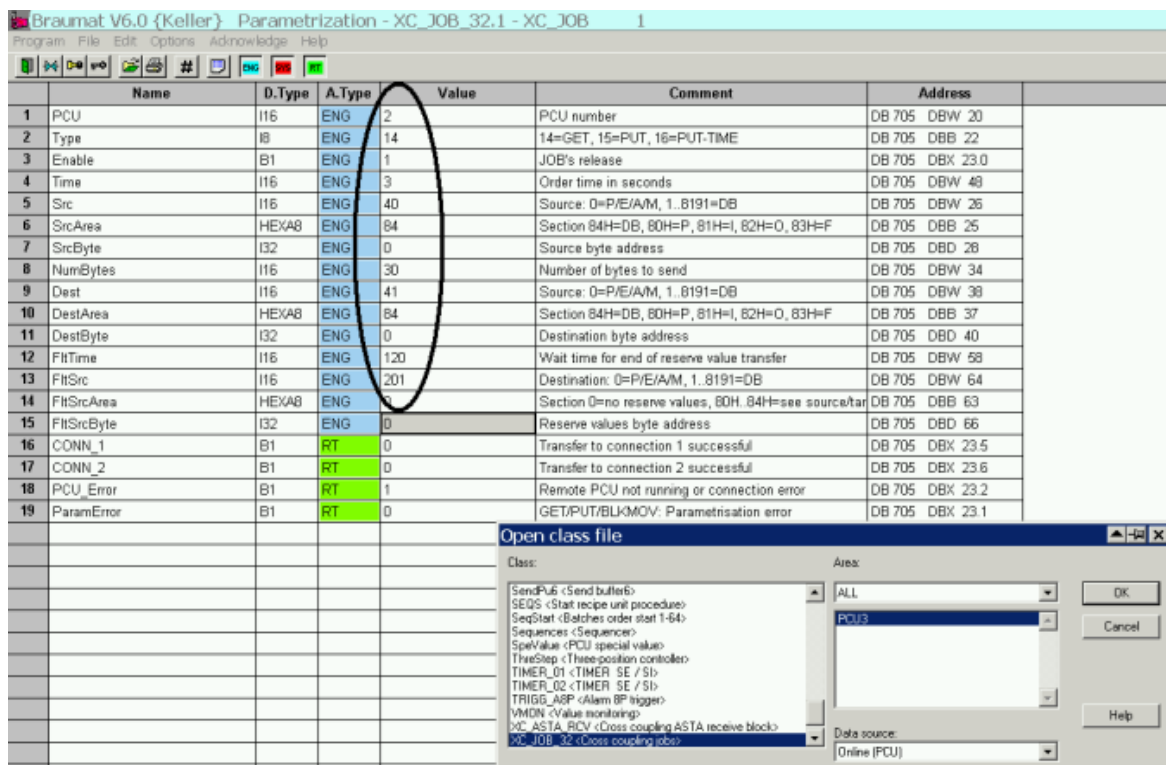
Now you need to setup the cross-communication in the Parameterization "XC\_PCU\_32"

.



Where as number “2” is the number of the Partner PCU (adapt to your configuration).  
You need to make this definition in both PCU.

Then go to XC\_JOB\_32 and fill the PCU-number, GET or PUT, and all the other data like in here:



in this example. Get from PCU 2 DB40, starting from byte “0” 30 bytes to DB41, DW0, all 3 second.  
You need to make this definition only on one PCU.

If you have problems, restart the S7-CPU

## 2.4 Making a new Structure (new function) in the Parameterization

Look in c:\windes\param.pcu\optionen\PARAMUSR.PCU for an example.  
Copy your File name.pcu to the according PCU-Directory. \PCU.00x

To evaluate set parameter in \sys\om.ini  
;Show OMs tracing dialog at the beginning (1) or don't show om-dialog (0)  
bTracingDialog=1  
;Tracing is enabled (only used if bTracingDialog=1) (1) or disabled (0)  
bTracingOn=1  
and reset if finished.

### **In V7 these objects need this header**

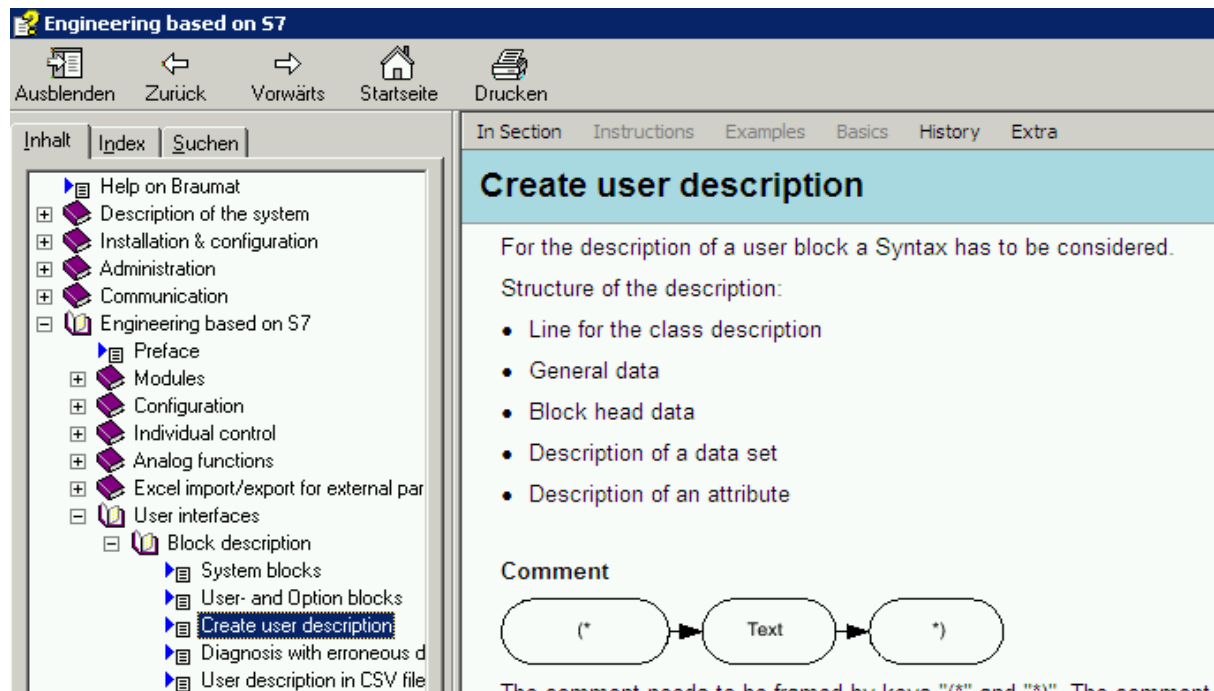
object AIN\_ext=DB727>(\*Measuring value\*)

CID=2001;  
max=512;  
offset=300;  
length=108;

number=DBW8;  
filename=mess;  
classtype=1;  
version=0x08000000;

the last 2 lines are new!

Here in the manual you find more information about the feature:



## 2.5 New Message-class with values

For user-specific messages, a separate alarm-module is available that can be supplied with additional values.

Input the Message-Text in MELDUSR.TXT. Call FC713

More settings in \WINDCS\SYS\MELDCLASS.INI

Search for FC713 in the manual for more information

## 2.6 Finish Windows-Shell and return to Braumat

Call \Windcs\sys\EndExpl.exe

## 2.7 Making an automatic Backup of the S7 to Braumat

C:\Windcs\sys\TRANSBST.EXE /u:upload

in c:\windcs\TRANS\upload.tris are all files to be backed up

/U:<file name> Upload with Config file <file name >

/D:<file name> Download with Config file <file name >

/S Program execution with hidden window

Example: D:\Windcs\sys\TRANSBST.EXE /U:S7PCU001.tris

You can trigger now this command with the Tool prosched.exe and prosched.ini (look “[Starting Programs Time-Planned](#)”)

## 2.8 Messages on the client

Change in PCU\_serv.ini

[Remote]

;Show messages of remote PCU-Servers

ShowRemoteMsg=1

## 2.9 Having less Messages in the PCU\_Server

Too many Alarms prevent the Operator from locking to the Messages.

Here you can filter messages:

In Parameterization in Dis\_MSG (Disable Messages) you can remove the whole going-messages.

In Parameterization in PCU\_Gen with hidden attributes you have more switches

## 2.10 Filter Messages of certain PCU on IOS, no Alarm in Client-IOS

In d:\windcs\sys\PCU\_SERV.INI there are switches

;Messages from this PCUs will not be displayed

NoMsg=5

*means send Messages of PCU 5*

;List of computers that are to receive telegrams of type x

7=IOS11

*means send Messages to Client 11*

## 2.11 Synchronize the Time on several PCU by a IOS < V7.0

Use the function windcs\sys\transtime.exe with the transtime.ini-File and input all PCU in the ini.file.  
With that function, you send the Time from IOS to PCU.

Transtime is activated by transtime.ini

Note: Telegram type 7 should be deleted in the FIFOs of the according PCU and also in Area.ini

It is also not practical to transfer the time via PCU cross-coupling or to forward telegram 7 to other IOSs on the IOS level using 'pcuserv.ini'.

Starting 'Transtime.exe' via the PCU\_Server and Scheduler

Contents of 'Pcu\_serv.ini':

[Pcu\_serv]

;Start and Check for running of ProcessScheduler "ProSched.exe"

RunProcessScheduler=1

Contents of 'ProSched.ini' - TimeMaster

[Global]

Processes=TransTime

[TransTime]

Application=d:\windcs\sys\Transtime.exe

Type=PERMANENT

ShutDown=0

StartDay=81

StartTime=10:06:19

## 2.12 Synchronisation of time between IOS < V7.0

Start XNETTIME.exe on each relevant Server and Client. Modify the file xnettime.ini with according Server. On the Time-server XNETTIME.exe is not necessary.

Autostart XNETTIME.exe using the Siteconfig-Tool or with the function prosched.exe

Or

Use the function net.exe time \\IOS0x /set/yes to get the time from the Time-Server, whereas IOS0x is the name of the Time-Server.

In all 'Time – Slave' IOSs, the time and date are read cyclically from a 'Time – Master' IOS via the 'Net-Time' protocol.

This takes place with the Batch-File 'Time.bat', which is called from BRAUMAT Scheduler 'ProSched.exe' in a predefined time cycle:

Contents of 'Time.bat':

```
@Echo off
```

```
Net.exe time \\<PCNameTimeMaster> /SET /YES
```

<PCNameTimeMaster> should be replaced with the computer name of the ,Time – Master' IOS.

The associated call in 'ProSched.ini' for this is:

```
[Global]
```

```
Processes=Time,...
```

```
[Time]
```

```
Application=d:\windcs\sys\Time.bat
```

```
Type=HOURLY
```

```
ReqTime=00:10 ;to be started each hour at xx:10
```

In this case, 'Time.bat' is called hourly from 'ProSched.exe', at 10 minutes past every hour.

## 2.13 The IOS01 computer clock is jumping about x minutes.

The time in the PLC is different from the time in the IOS. You can download the time by User-manager, Date Time.

Or you remove the Time-synchro 7 in the Fifo in the Paramerization "Fifo", Global Value.

### Time-Synchronization in Version > V7.0

Select the App "**BM-Config**", Braumat Basic configuration

Select "change system time" to allow Braumat to change the System time!

Go to the App **Siteconfig**

Select on (Time)-Server (IOS01) and set this as "Time master" (it will send Time to the PCU)

Select at all other Server (also in other Area): Retrieve system time from Time master

Select at all Clients: Retrieve system time from Time master

Select at all PCU: Retrieve system time from Time master

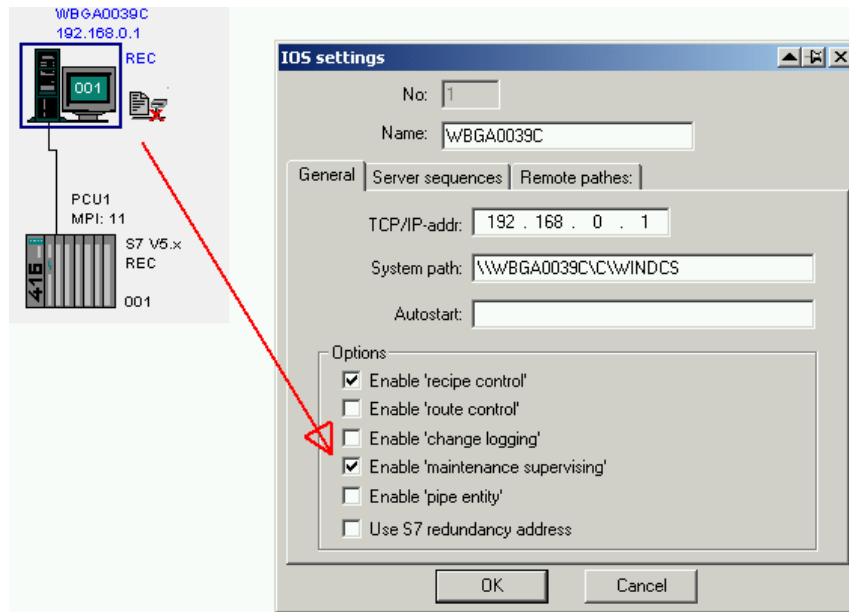
Remove Telegram 7 in the Fifo!

Link the other Areas by Multi-Client-Functionality.

In order to have Time-synchronization, you have to login as Braumat and not as Administrator that it works.

**If you want to use the Maintenance-Information (hrs-Counter, switch-counter) and get an Alarm**

Activate in the Configuration



Then define a time in mainssupv.ini

There are Alarm-Messages generated and additional files only with the Maintenance-Alarms are stored in

**.../Windcs/pcu.xxx/MAINT/maint\_YYYY\_MM/maint\_YYYY\_MM\_DD.TXT**

Very useful for to verify what Unit needs maintenance!

## 2.14 Installation on Windows 7

If you install Braumat on Windows 7, you have to switch off UAC, otherwise you will have problems. How? Make a command-line (Start, execute) and input UAC. Then switch it off by putting the slider completely down. Then install Braumat.

More on here:

<http://windows.microsoft.com/en-US/windows7/Turn-User-Account-Control-on-or-off>

Ok, if you have Ultimate Edition or Enterprise Edition of Windows 7 you can install Vietnamese language and get Braumat run in that language as well (see attachment how it looks), supposed your first Windows 7 was English.

Free download of language-packs under

<http://windows.microsoft.com/en-US/windows/downloads/languages-xp>



## 2.15 How do I map different ICM assignment (inputs / outputs)?

Sometimes it is necessary to deviate from the standard addressing (ICM 1.1 = I 64.0 E / Q 64.0). You have to do this

Different inputs:

Open the SIMATIC Manager, FC700, and change it as follows:

```
Network 4 : ICM1 Input
-----
CALL "ESG_IN_OUT_FC"          FC726          -- E/A-Rangieru
boIN := TRUE
iESGGr:=1
//boESG1 := TRUE

Network 5: User-Interface after ICM1-Input
-----
A    "1856HV37RE"             I10.0          -- Absperrk1.
=    "ESG_RE".aboESG1[8]       DB603.DBX10.7
BEU
```

Map at the marked point the input to the corresponding data in DB603.

The original input can then be used elsewhere.

For other ICM groups go to corresponding network 9, 13, 17

Do not remove the BEU!

Different outputs:

Open the SIMATIC Manager, FC701, and change it as follows:

```
Network 4: ICM1 Output
-----
CALL "ESG_IN_OUT_FC"          FC726          -- E/A-Rangierung ESG
boIN := FALSE
iESGGr:=1
//boESG1 := TRUE

Network 5: User-Interface after ICM1-Output
-----
A    "ESG_QL".aboESG1[8]       DB605.DBX10.7
=    Q    10.0
BEU
```

Map at the marked point on the Output to the corresponding data in DB605.

The original output can then NOT be used otherwise.

For other ICM groups go to corresponding network 9, 13, 17  
Do not remove the BEU!

**Version 7: This mapping can be done now direct in the Paramerization of ICM, AVA, AOUT and TIMER.**

## **2.16 Start a process-picture or a application: userstart.exe**

The application userstart.exe allows you to start a process-picture or any application with any IOS command like changing a data word

Modify the 'USERSTART.INI' Datei:

[IOS1]

;Data-Source is PCU 1, DB709 DW 2.

DataSource = 1,0,709,2

;StartApplication: here you define the application in your case the Media Player

StartApplication = C:\Program Files\Windows Media Player\wmplayer.exe

;StartList: here you have the video-file in a text-file in the folder \windcs\sys

StartList = files.txt

;termination-Button

beenden = 1

;0 = no Alarm, 1 = MsgBox

ErrorHandling = 1

;if the pointer is wrong in DW2, take line 1 of text-file

Default = 1

To activate that function you can use prosched.ini-file

By starting a window is opening with the corresponding data and application.

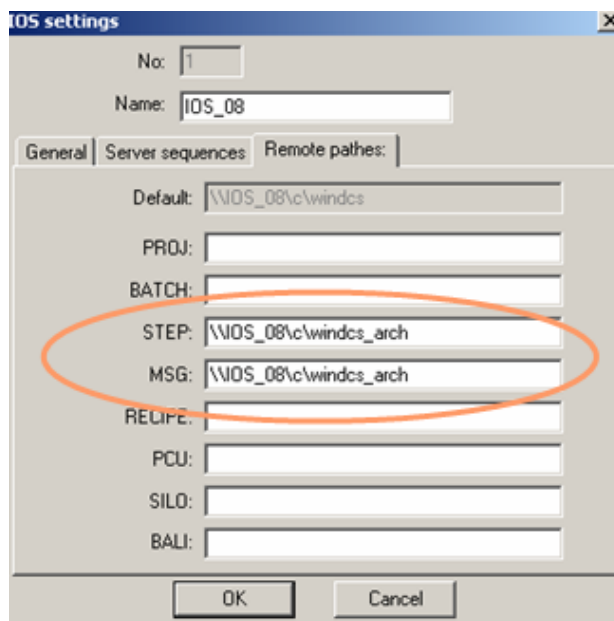
## **2.17 Engineering languages**

The engineering languages can be defined with the 'SiteCfg' Tool in the menu Area-plant settings.

The plant texts are located in '...\windcs\PCU.nnn\texte\...' for different languages. Further information is given in the manual '02\_Inst-Config.pdf', in subsections 'Modifying factory settings' as well as 'PC definitions'.

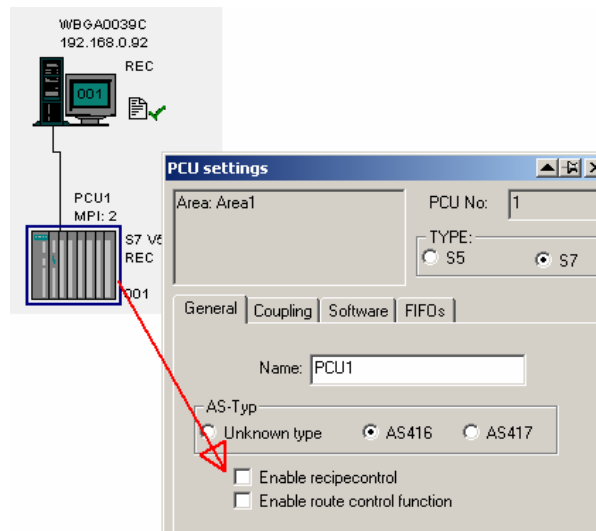
## 2.18 Different location for archive - data

- BRAUMAT provides optional directories for different types of data.
- The remote path settings are managed in the “Configuration” program.
- If you would like to change the default path “c:\windcs” you can enter your new path via “Configuration” dialogue



**Braumat is not starting as a Recipe-Server, because one PCU is not present**

You can switch of recipe-Server-Function for the PCU not present in the function Administration, Configuration:

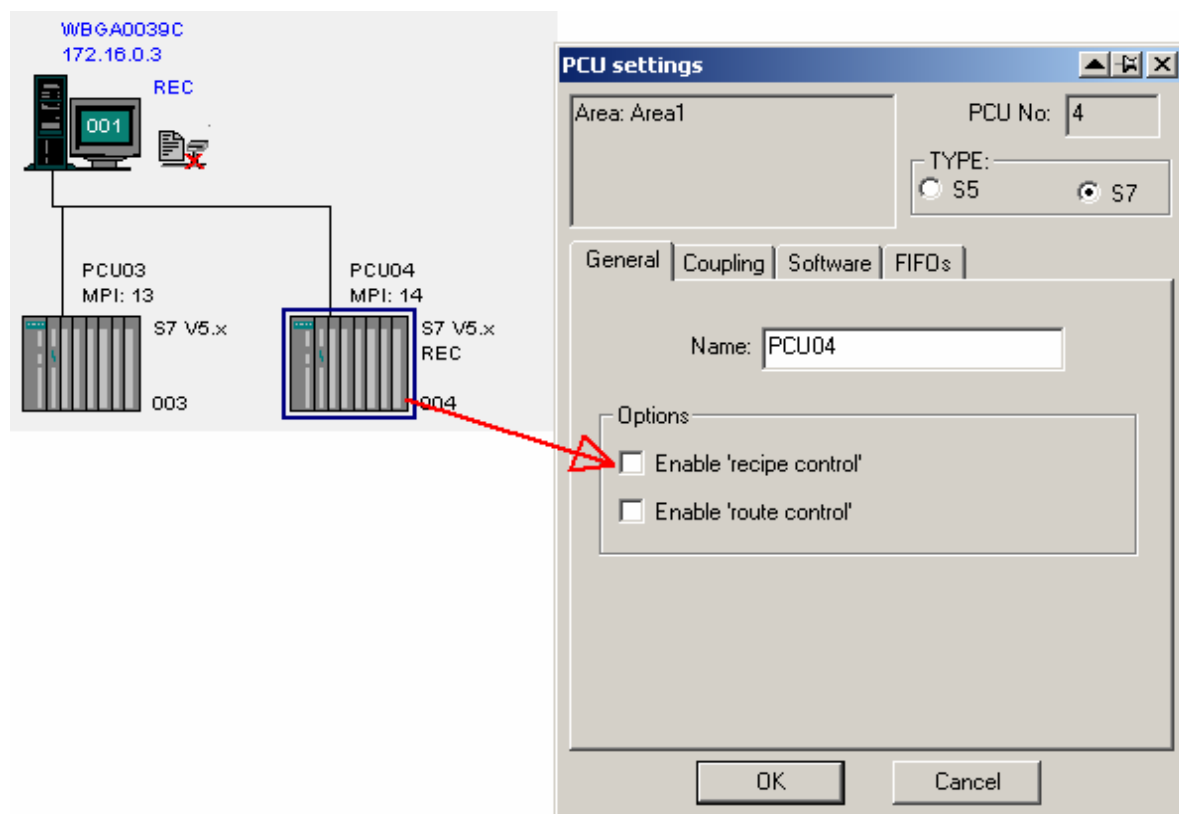


Restart Braumat and it should work.

**You can integrate a S7-400 to Braumat without the need to have any Braumat-Software in the PLC**

You can visualize all values in the Graphics and change them.

Integrate a new S7-416 with the Function Administration, Configuration like this:



Then open the file \windcs\sys\area.ini and write “Sistar=0 “to the PCU S7\_400

[PCU04]

Name=PCU04

EnableRecipeControl=0

Family=S7

IP\_Addr=192.168.0.2

l2\_addr=2

Sistar=0

SW\_Recipe=V5

Communication can be by Ethernet or MPI!

## 2.19 How to make Braumat more save against Virus-Attacks

In the Standard-Installation Braumat is not very save against Virus-Attacks, because it is running with full Administrator-rights.

How to change this?

You need SIMATIC Net as driver instead of Soft-CP (is shipped with Simatic-Manager).

Remove the Share from the complete drive and put a share only on \windcs and \Temp and \Tmp.

Then make a new User only with User-rights (not Administrator-rights).

Restart with new User.

**Version 7:** Above mentioned precautions are the standard in Braumat 7 now

## 2.20 Minimum Safety-Interlocks

In the FB1226...FB1233 (ICM-group 1,2..).

Minimum is:

- Inlet-Valve of Tank closed if Tank is full
- Pumps must have open valve at the Inlet. If the valve is the outlet of the Tank, check Low-Level sensor as well.
- No Steam-Heat-Exchanger on, if the Pump is not running.

Interlock of Production and CIP (interlock the sequence with Sequence-running-flag )

ON M 657.7    SEQU016\_ATS //CIP running for MTK

O M 656.0    SEQU001\_ATS            //MTK is running allready

= M 640.0    SEQU001\_DB   //MTK

**More:**

Switch Valves delayed of if there is a pump for to avoid Pipe-noise.

CIP: Switch next Step with conductivity delayed because it falls sometimes and raises again.

CIP Pre-Run: Take Fresh water if Staple-Water Tank is empty

CIP Return: Go to Drain if the Tanks are full

## **2.21 Analog Measurement-Values by ASI-Bus or other Profibus-Source**

The values can be transferred manually in FC700 End of Netzwerk 21. to DigitalVALPEW or DigitalVal.

## **2.22 Braumat and Real (Version < 7.0)**

Braumat uses in most cases Integer, and you define the comma for the Output (in the Graphics and recipe).

However you can show Real in the Graphics with the function Val and then you select real.

If you get a Real-value from the Profibus PA for example, you can transfer this value in this way to the Analogue Input:

```
// AI xy from Profibus PA in Real
// -----
L   PID 512 // value from Hardware
L   1.000000e+001 //multiply with 10 to get one comma
*R
RND
T   "MESS".au[1].iDigValue // converted value
```

## 2.23 Version 7: Much more REAL is possible in Version 7 in the Parameterization

### How to make a backup of Braumat

Use the Software “Totalcmd“ ([www.ghisler.com](http://www.ghisler.com)) it is more easy than with the Windows Explorer.

Make a new folder Windcs\_4\_5\_13 whereas the extension can be the date.

Mark all (Ctrl + A) of \Windcs or the name of your project and Copy all (F5) or copy, paste to the new folder.

You will not have a problem, although the System is running.

If you do not need the Archive-Data refrain from \FRPROT, \meld, \SRPROT, \Trend, and \Logging and the file will be less big.

## 2.24 Using the Backup Windcs instead of the running system

Start c:\windcs\sys\Terminator.exe

Rename the windcs-folder new to old and backup to Windcs.

Start again

If it does not work, restart the computer without Braumat as shell. Look in the documentary how to remove the shell or use the tool “Autolog” from [www.braumat.de](http://www.braumat.de).

## 2.25 More Analog-Switches delayed using the Modul VMON

VMON-Function gives you 4 more analogue-switches each can be delayed, a very useful tool. And you can compare 2 values.

The block is disabled by default. The block VMON (FB750) should be called from the scheduler. The activation may be done in class “Schedule <Schedule List>” in data record 54 or 60 set to enable. And Input Function 750 and DB750 and Tec-FB, u-copy.

TimeSlice	USINT	SYS	9	Time slice number
ExecType	ENUM	SYS	Tec-FB, u-copy	Execution type
Function	INT	SYS	750	Function number
DataBlockFirst	INT	SYS	750	(Instance) datablock
DataBlockLast	INT	SYS	0	(Instance) datablock
Parameter	WORD	SYS	W#16#0000	Optional parameter
UsedTime	INT	RT	1	Elapsed time [msec]

# 3 How to improve the Performance of engineering

Engineering-costs is a very sensitive issue. May be some of these hints help to improve the speed of engineering.

## Change files directly

Braumat is based on many text-files and Dbase-Files, which can be edited manually very easy.

**BUT** open this file afterwards in Braumat-Textparameterization and save to have the right format and for to synchronize on the other Server.

## Change of dBase-Files

For the Dbase-Files you can use Excel, or the Total-Commander-plugin “dbaseview.zip” (Freeware, also change the file with that).

If you change with **Excel** (possible) take care not to change the column-width (you destroy the file). And to extend, only insert new lines but not append!

## Which files are used for what?

For recipe-Editing a lot of files are in \WINDCS\PCU.00x\recipe\. Or you change something in the recipe or another application, and check with Total-Commander “search file”, extended, not older than 1 minute...;

Also the Text-Files in \WINDCS\PCU.00x\texte can be edited externally, but to get them to the right format open them in Braumat and just save them. In this case the Format will be checked.

## Braumat-Excel-Database and Productivity-Tool

Using the Braumat-Excel-Database from \WINDCS\EXCEL\ helps a lot to speed up engineering and to work with several programmers at the same time. But you need first to upload (if you have new Blocks in the PLC already) the DB-Blocks from the PLC by the Application in Administration, File-Transfer, PCU->IOS, DB709-750.

Then you Start \WINDCS\EXCEL\macro.xls. Leave it open in the background

Start Start \WINDCS\EXCEL\Param\_PCU00x.xls

**Import Data** from Braumat by pressing Alt + F8 or Extras, Macro, Macros. Import one Table.

Now you can do your complete planning of the Plant (in the Folder Sequences) and all Braumat Modules are available. Also for recipe-system it is very useful and speeds up time a lot (Tab epe.ini, epar.ini, sequence.ini). But take care if you Export it is overwriting Recipe-parameters! So to be sure Import first to Excel.

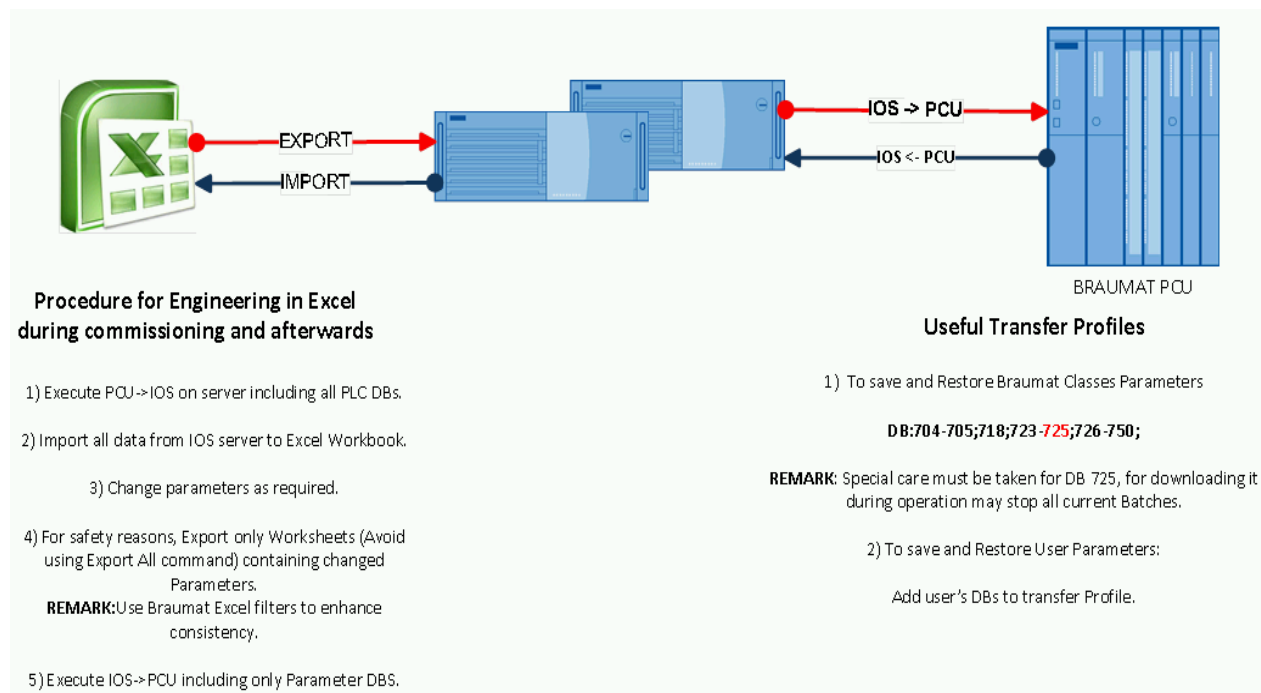
Also the Special-values (SpeValue) can be Setup here. I recommend to Preset all values to “sec” and “KT” and “2005” (5 sec) first.

**Export Data** to Braumat by pressing Alt + F8 or Extras, Macro, Macros. Export one Table.

Then you need to download the Data to the PLC by the Application in Administration, File-Transfer, IOS->PCU, DB709-750.

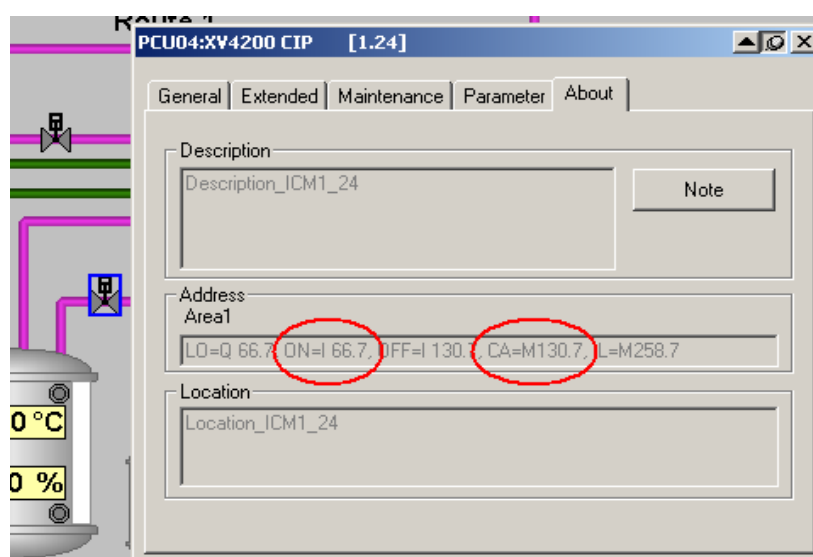


If several programmers are working on a project, it helps also to synchronize the Data if each Sequence has its own DB for necessary fags.

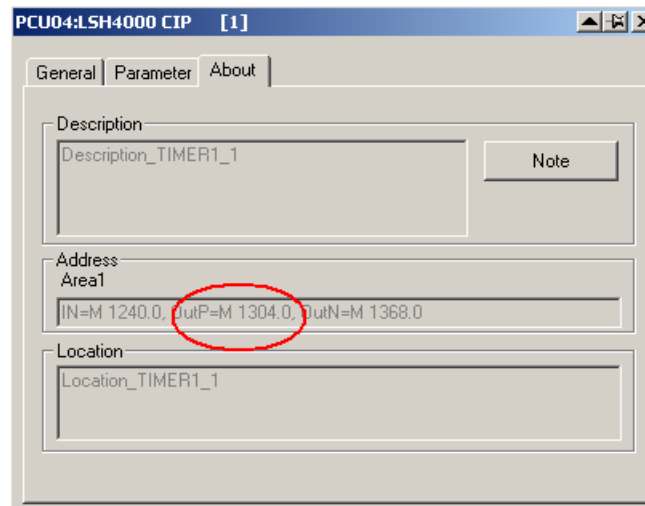


## How to find the corresponding Flags for an ICM in the Screen?

You have a easy access to all Braumat-Addresses of Input and ICM in here:

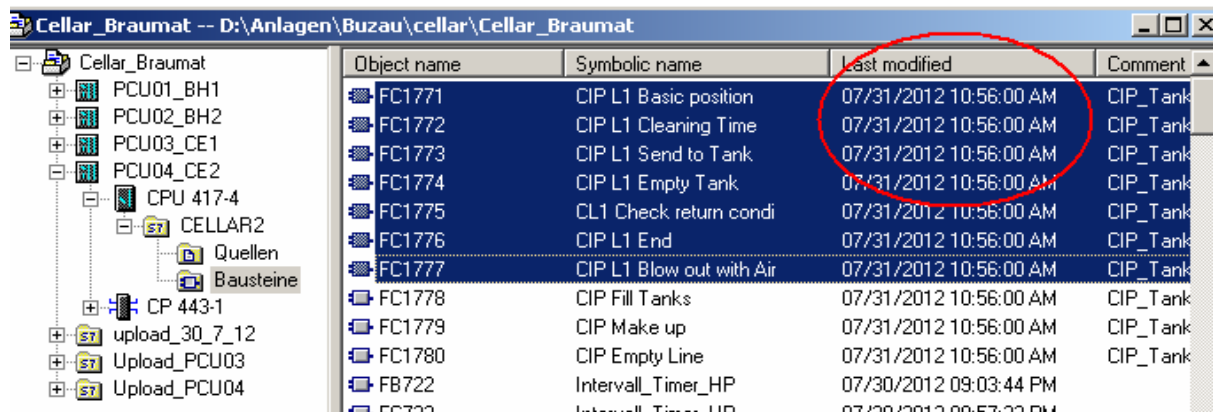


The same in the Timer-Faceplate:



## Simatic-Manager

Sort the files in Simatic-Manager by “Last modified” and you always have the last changed Block on top. But you need to remove some column with “options, customize, columns” first.



## Export Symbolic-List to a Textfile

You can export the Symbolic-list (Simatic-Manager, Symbol-Table, Export to \*.seq-file), change (by Excel or Notepad++) and Import. But before that you have to delete the complete Symbolic-File first (so make a backup of the project first). And Import by Simatic-Manager, Symbol-Table, Import).

How many errors? Take care, also the warnings will have effect so it should be 0 Error, 0 warnings!

Ok, with Excel it is a bit different. Excel will remove the first column if there is nothing. So write anything in the first column (new line and put a x) before saving. You can remove the first line after that with Notepad and Import to Simatic-Manager. Works fine!

## Braumat-Calculator

The Braumat-Calculator (can get from me) helps also to find the according address and DW very fast. Just Input the number of Sequence or DFM and you get the according address.

Braumat-Calculator				
give the number of the Element in the green Input-field and you get the flag but you can also copy the symbolic and change the number				
Input-field				
Function	Flag-Start	Number	Flag	Symbolic
SEQU Perm.Cond	640	1 M	640.0	SEQU001_#
SEQU Running	656	1 M	656.0	SEQU001_Run
Start Sequ (ASTA)	672	1 M	672.0	ASTA_001
Dekoder 0	688	1 M	688.0	DEC0.1
Dekoder 1	696	1 M	696.0	DEC1.1
Dekoder 2	704	1 M	704.0	DEC2.1
Manual-Group	712	1 M	712.0	MAN001
Counter DFM0 Input	984	1 M	984.0	DFM001_CNT
DFM0 Result	728	1 M	728.0	DFM0.001
DFM1 Result	760	1 M	760.0	DFM1.001

## More Tools

**Notepad++** is a amazing Freeware where you have a lot of Tools to make Braumat-life more easy.

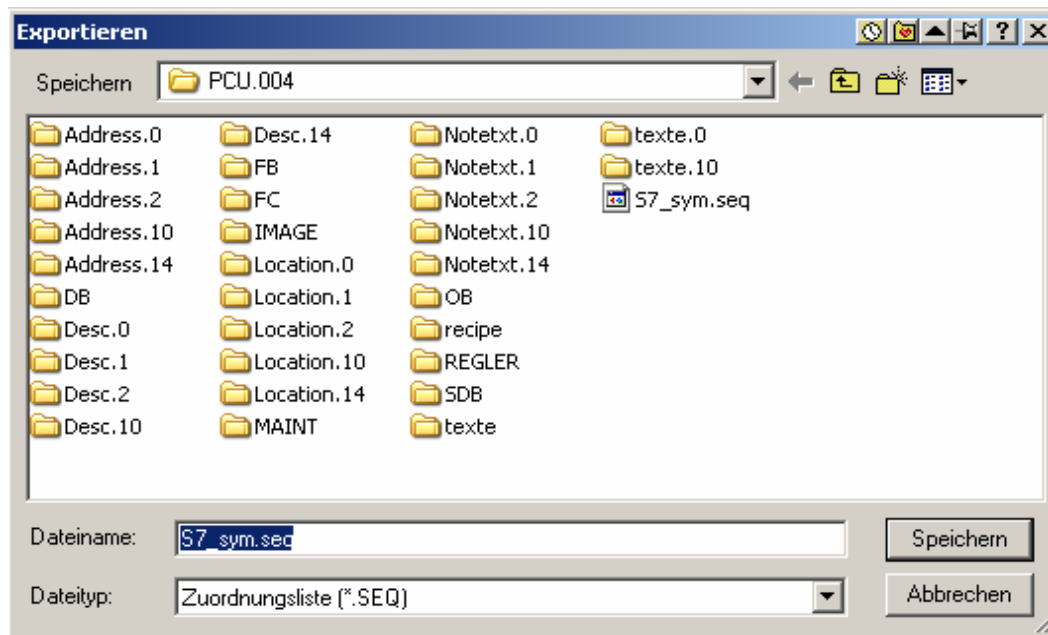
For example “replace in Files” to replace a symbol in all pictures

Or the column-Mode to extract or change only some columns of the file (Recipe-files like sequence.ini, epe.ini etc)

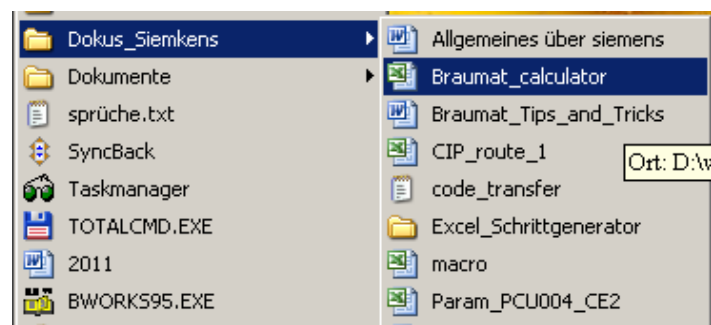
Or you can records keystrokes and let them run many times and much more.

You can easy copy Step7-Code to Notepad++ and change and copy back.

I keep the Symbolic-List (located in \Windcs\PCU00x\s7\_sym.seq allways open in Notepad++ to find fast (Ctrl + F) the according Symbol / Adres. Export from time to the Symbolic-List of the Simatic-Manager to Braumat



You can make a **Desktop-Folder** with all the files (link) relevant for the project (xls...) and shift them to the Start-Menu for fast access. Also “Last Documents” of Windows (Start, Documents...) helps a lot.

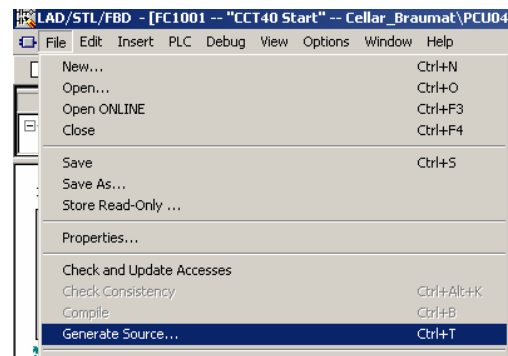
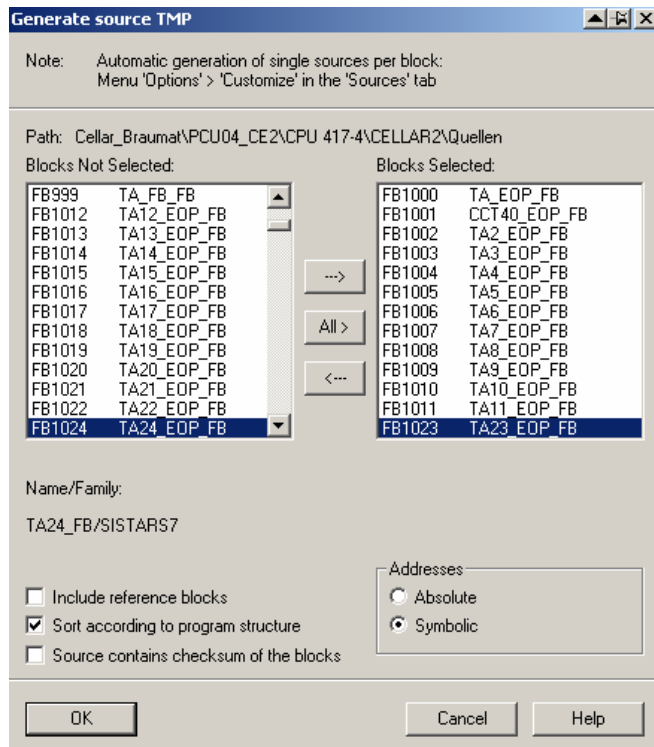


If **more than one programmer** works on a S7-Project, use DB.DBX for flags instead of the assignment-list for better synchronisation. For example each Unit has it's own DB. Then you are free to synchronize easy.

**Program interlocks** (full vessel / empty vessel close according valve, pump on only if valves are open etc) not in the program but in the Interlock FBs 1226-1233. It saves code and makes the programming more transparent.

### If you have a new project but use the Software of another project

You can speed up the engineering by generation the User-Blocks of the old Project to Source in Symbolic (generate Source in Simatic-Manager, but in Symbolic). Then change only the address in the Symbolic-table to the new address and translate. Wow! All with the new addresses now. After that you can also modify the symbolic in the list etc. Good luck!



### Export Symbolic-List to Braumat

**You need to export the Symbolic-List if there have been many changes to Braumat.** You can export the Symbolic-list (Simatic-Manager, Symbol-Table, Export to \*.seq-file) and save it to windcs\PCU00x\ with Name "s7\_sym.seq".

If you have a language-depending engineering, you also need to export to windcs\PCU00x\Texte.x

### Synchronize Symbolic-List with Braumat

You have a very good Tool called S7-Symbols sync in Braumat to realize this. You select the Modul you want to synchronize (ICM etc) and the you see the differences. This works with the exported Symbolic-List in windcs\PCU00x\ or windcs\PCU00x\Texte.x

## 3.1 Replace Hard-Disk of PC

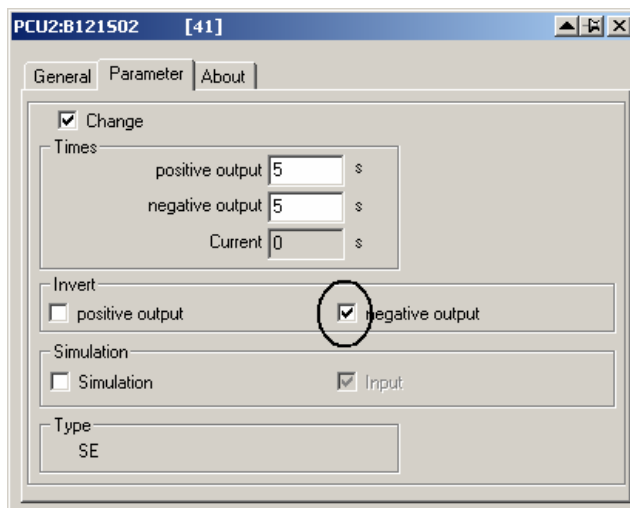
Backup: Use Acronis-Boot-CD and a USB-Harddisk: Backup all Partitions you need from the other Server.

Restore: Use Acronis-Boot-CD and the USB-Harddisk: Restore all Partitions you need.

Start NewSID (Freeware from SYSINTERNALS) and change IP-Adress of the Network

## 3.2 Delay off-Signal of Timer

You have a switch-off-Delay if you Invert the negative Output and check for the negative Impulse.



### 3.3 Full & Empty-Signals

Normally Empty-Signal = 1 if sensor is covered, that means "0" if empty

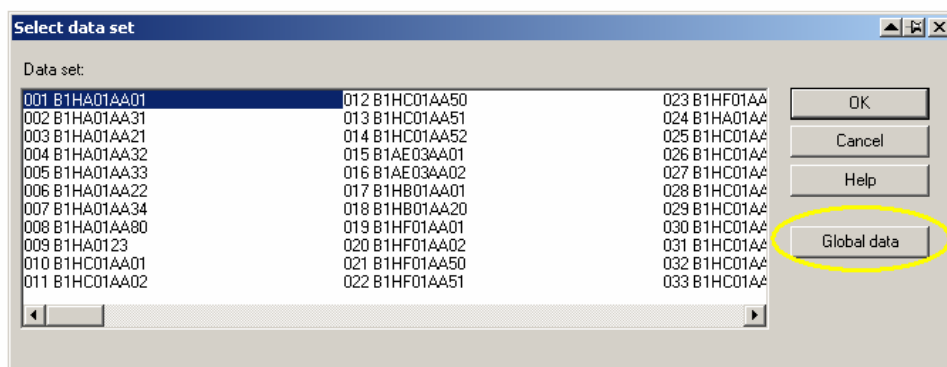
Normally Full-Signal = 0 if sensor is covered, that means "0" if full

### 3.4 How to deactivate cross-communication?

Go to XC\_PCU\_32 in the Parameters and remove the according PCU-number.

### 3.5 How to get more Instances of a Class (e.g. PID etc.)?

If you open Parametrization you have the number of ICM on global Data.



Here you can extend the number of ICM, same for analogue etc.

Then take a look in the manual for the according addresses or take my Braumat-calculator

### 3.6 Analogue-Values in Real

You can get the Analogue-Values in Real by Loading "MESS".au[1].rXist

Also the AFIX provides Real

Display Real on Screen with the function VAL (Integer or real value)

Version 7: much more real is available.

### 3.7 If a sequence should always run program like this

in the according FB 100x (Network 2 or 3)

```
//start Sequ if not started restart
AN  "SEQU_Run"
FP  M 30.0 //use one flag for impulse
SPBN a001
R   "SEQ".u.STATUS.boMan
L   1
T   "SEQ".u.iNewStep
L   1 //check this in the Parameters!
T   "SEQ".u.byRecType
L   1 //check this in the Parameters!
T   "SEQ".u.iRecipe
L   37
T   "SEQ".u.iBatch
L   1234
T   "SEQ".u.iOrder
a001: NOP 0
```

or you use the SEQS (Sequence-Start) Type 4

```
AN  "SEQU_Run"
S   "ASTA_013"
A   "SEQU_Run"
R   "ASTA_013"
```

### 3.8 Trends on Client

To see trends on client modify the file \Windcs\sys\trendman.ini

Server=1\$\IOS01\D\Windcs

Whereas IOS01 is the Server with the according curves


And modify Client\_noWrite=1

### 3.9 Trending call in the process-Image

It is possible to call the Trend-function from the process-picture by a button. Most easy it can be done with week-curves, which is nice because you do not need to select Batch and Order-Nr.

You can make a week-trending picture and access the Batch-Trending Tags as well. So you do not need to make extra definitions for a week-archive.

This is the function in Image Design using the function “PC-program Start”  
Kurven.exe p MTK1.ltb \$BYEAS 0 \$BORNS \$BBANS 'MTK1-Trends'  
or like this: Kurven.exe c BH1 LT.ltw - -,0

For the symbol use a Bitvariable linked to any flag for example this symbol: KURV\_SYM.BMP 

### 3.10 A ICM generates an Alarm, because the Feedback is going away for a short time (Seat flushing).

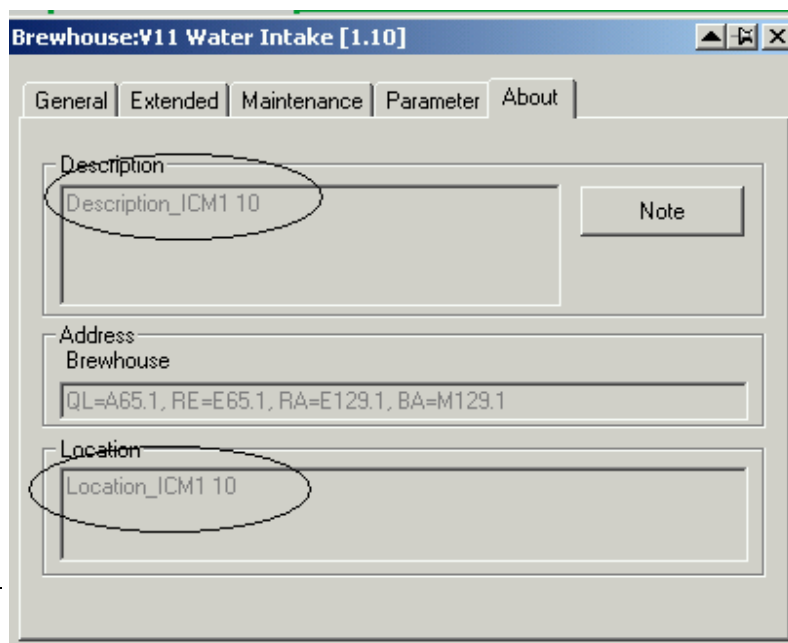
You can avoid this if you Input in the Paramerization a time-value 0-15 sec at Error-Time in the Dataset. If you Input 4 you see 44, but that’s because the second “4” is the actual value.

**If you want to know the Step-Number and Basic Operation number in the GOP**

Make like this

```
T  #iStep          //Step-No. of the sequence
TAK
T  #iBOP           //Basic Operation number
```

**Display of “more Info” in the ICM-Faceplate**



You can copy and paste the Symbolic of Step 7 for ICM to the Excel-Sheet in \Windcs\Excel\ and Export. Take Folder ICM and column “Location” and Description



### Max number of windows

Can be setup and should in the file \windcs\sys\sys.ini

;Maximum account of SISTAR-Windows or 0, when there should be no limit

WndMax=8.

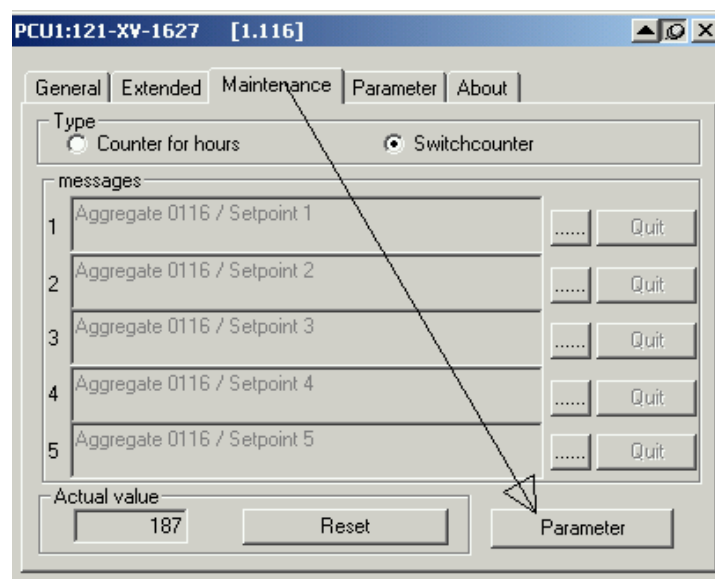
for example 8

### Multi-Client-selection windows is not popping up prior to start a applikation

Press CTRL-key + application to get it back.

### There is a Message-window coming when I open a ICM-Faceplate

The Error may occur due to the Maintenance-Database. How to solve it? Go to the highest number of ICM in the Screen (or define one ICM 4.255 etc) and open that go to Maintenance, select Parameter and close.



And then press “ok”. Better now?

---

### 3.11 Read-only-PCU, no write to PCU

Change in \Windcs\sys\Sys.ini in the according IOS

```
[Trans_NT]
;List of "read only" PCUs
NoWrite=1,2
```

### 3.12 Hold and Release in the process-Image



For to display flashing Hold in the screen (may be next to Sequence-Faceplate) select Flag R\_Held of the Unit-Faceplate

For to release from Hold show with another Button R\_Restart-Flag of the Unit. May be with Operator-Level “-1” to avoid a window popping up.

For to show whether there is a Stop of the Sequence show flag R\_Running of the Unit flashing

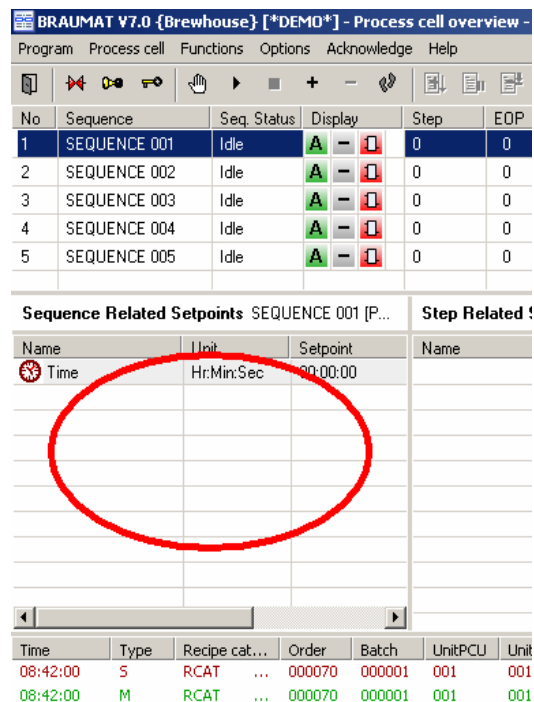
To advise the Operator about necessary action, you can make another symbol with flashing Operator-Request linked to Flag OpReq of the Unit.

A separate Button for to show the Icon of the Unit-Faceplate is very useful

In the Software outside the Unit check for AN "SEQ".au[x].CTRL.boHeld for the Held-Signal.

### 3.13 Synchronization of 2 IOS takes too long

You can modify the file d:\WINDCS\ETC\SYNCHRO.DEF to speed up synchronization



**BRAUMAT V7.0 [Brewhouse] [\*DEMO\*] - Process cell overview -**

Program Process cell Functions Options Acknowledge Help

No	Sequence	Seq. Status	Display	Step	EOP
1	SEQUENCE 001	Idle	A - [Red Icon]	0	0
2	SEQUENCE 002	Idle	A - [Red Icon]	0	0
3	SEQUENCE 003	Idle	A - [Red Icon]	0	0
4	SEQUENCE 004	Idle	A - [Red Icon]	0	0
5	SEQUENCE 005	Idle	A - [Red Icon]	0	0

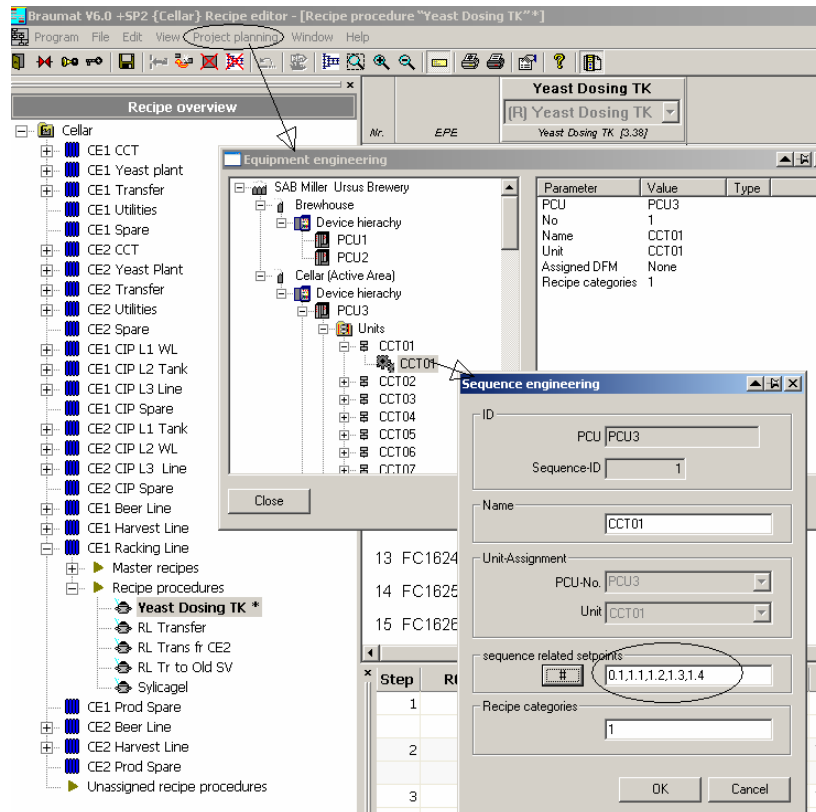
  

Sequence Related Setpoints SEQUENCE 001 [P...			Step Related
Name	Unit	Setpoint	Name
Time	Hr:Min:Sec	00:00:00	

Time	Type	Recipe cat...	Order	Batch	UnitPCU	Unit
08:42:00	S	RCAT ...	000070	000001	001	001
08:42:00	M	RCAT ...	000070	000001	001	001

Setpoints at the left side of the Sequences overview window are defined in Recipe, Project-Planning, Equipment-data, Device-Hierarchy, Unit, open the “+” and then right click. Here you can define what you want to see on the left side or when the sequence is in Stop. Could be all Unit-related DFM.



### 3.14 Changing the size of the Picture

The size of the picture can be modified by the Tool "Image Design-Size".

Image Design-Size is integrated in the system. To activate change in \windcs\sys\Image Design.ini [Options]

Image DesignSize = 1

Then there is the feature is available in picture-construction, Tools



### 3.15 Standard-Configuration for the Fifos

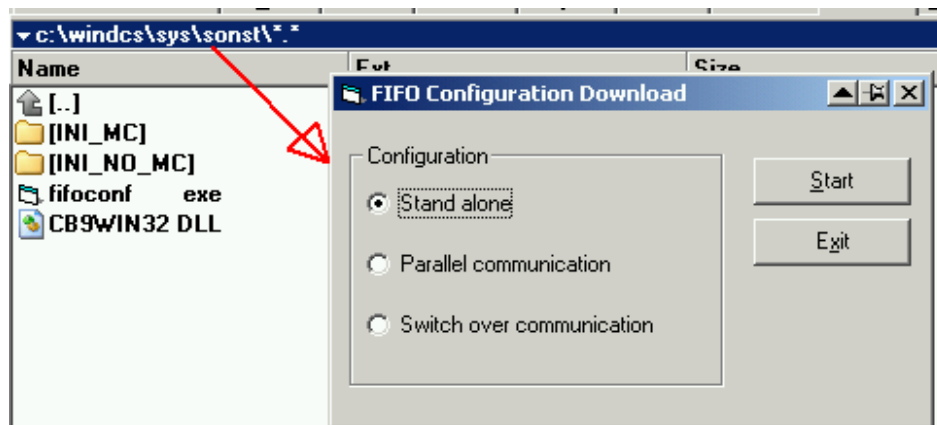
With this Configuration, the Standards are activated:

Fifo 1 + 4 (=Server 1+2): 3+7

Fifo 2 + 5: In here System puts telegrams according to Recipe-Server, don't change!

Fifo 3 + 6 (=Server 1+2): 5+6+14+18

Configure the Fifos for several configurations



You can use the File fifoconf.exe to do that.

### 3.16 Copy Graphics to all relevant IOS

Switch in \Windcs\sys\biko.ini

;Copy files to all GP\_PROJ paths after saving files

CopyFilesToAll=1

### 3.17 If a Output(ICM) is not activated

Set line 1 in ICM-Parameters to “0“. Sometimes it helps

Braumat V6.0 SP2 {Brewhouse / Cellar} Parametrización - ICM1.147 - Extractor					
Programa Archivo Editar Opciones Acuse Ayuda					
	Nombre	Tipo D.	Tipo or.	Valor	Comentari
1	STAT	116	RT	40	Bits de estado de ESG

### 3.18 Add a new class in the Excel-Engineering-Sheet

If you want to add a new class in the Excel-Engineering-Sheet (Param\_PCU001\_1.xls) you can implement them very easy by yourself (Braumat is a open system!).

Simply make a new sheet, name it “Poly” or other name of the Instance.

Copy an existing content from another Instance.

Modify the symbolic, names and presetting according the Parameterization of the instance.

Names must be correct, so maybe you copy from ParamS7.010 (or your language-file).

Finished!

Already you can import / export.

If you want to have it included in “Import all, Export all”, then open \Windcs\Excel\macro.xls; Macro, Modify.

Then extend the new function to the list you see with the same parameters ,2 ,0).

If you switch on the \sys\tracesvr.exe you will get Messages if there are errors.

### 3.19 How to integrate a new OCX in Braumat Image-Design

- You generate the Code by VB or Visual C or whatever.
- Copy the according GUID for this in \windcs\sys\ocx\sisctrls.ini
- Like that: Guilherme\_special ;{D33A5C15-13FD-11D7-97E9-000476135A6D}
- This number is generated from Visual Studio and might be seen with the according name in the registry Class\_ID; That means you register it and look in the registry for the according GUID. Or google for OCX GUID
- Then you register the ocx with a batch like that:  
regsvr32 /s Guilherme\_special.ocx
- Then you integrate this OCX in Braumat with Image Design, Controls, add any one, press button “others” and select your OCX.
- For communication to the PLC datalink.ocx is very useful, but not supported any more although it is working fine.

### 3.20 TCP/IP-connection between IOS is unstable

IP-Masks are ok (255.255.255.0) and unique?

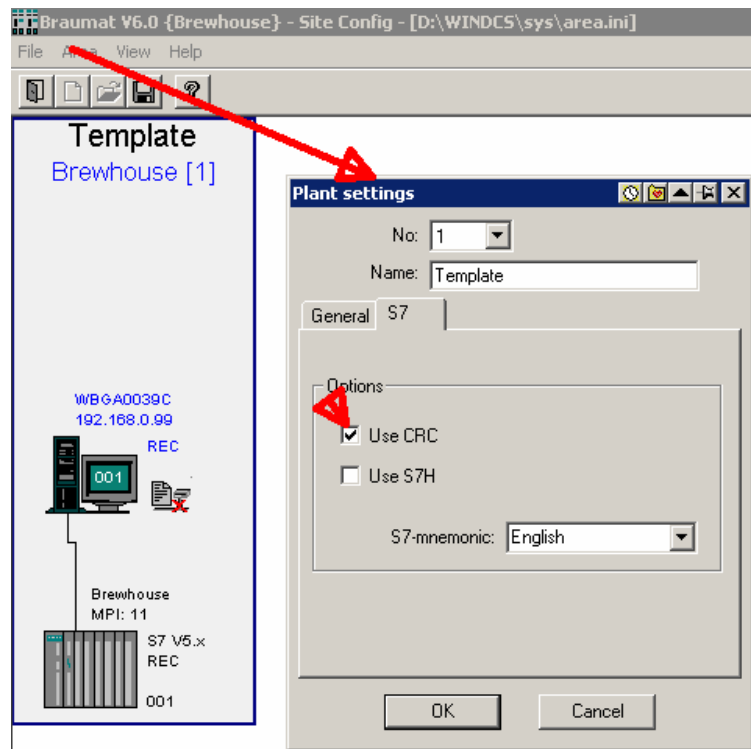
Is there a Domain-Server? Does he work properly?

Are Firewalls switched off?

The host-Table (in c:\WINDOWS\system32\drivers\etc\hosts) can help in heterogeneous networks to speed-up build of communication. BUT the file has to be unique in the complete plant! Otherwise you will get strange problems!

### 3.21 Braumat with a PCU-H (417-4HT14-0AB0)

You have to set the USE-CRC-flag in the Site-config if you are using just 1 PCU



If you have 2 redundant CPU you have to assign “Use S7H” as well.

### 3.22 Switching between Braumat V5.x or V6.0 and V7

In the System-Path of windows (System-settings, System, extended settings, extended, Enviroment-Variable, Path) D:\windcs\sys has to be at the beginning.

#### To activate Braumat V6.0

Prior to start Braumat V6.0 Start x:\Windcs\SYS\ocx\register.bat and start Braumat V6.0

#### To activate Braumat V7.0

Start x:\Windcs\SYS\ocx\unreg.bat from Braumat V6.0

Rename \Windcs to \\_Windcs for example

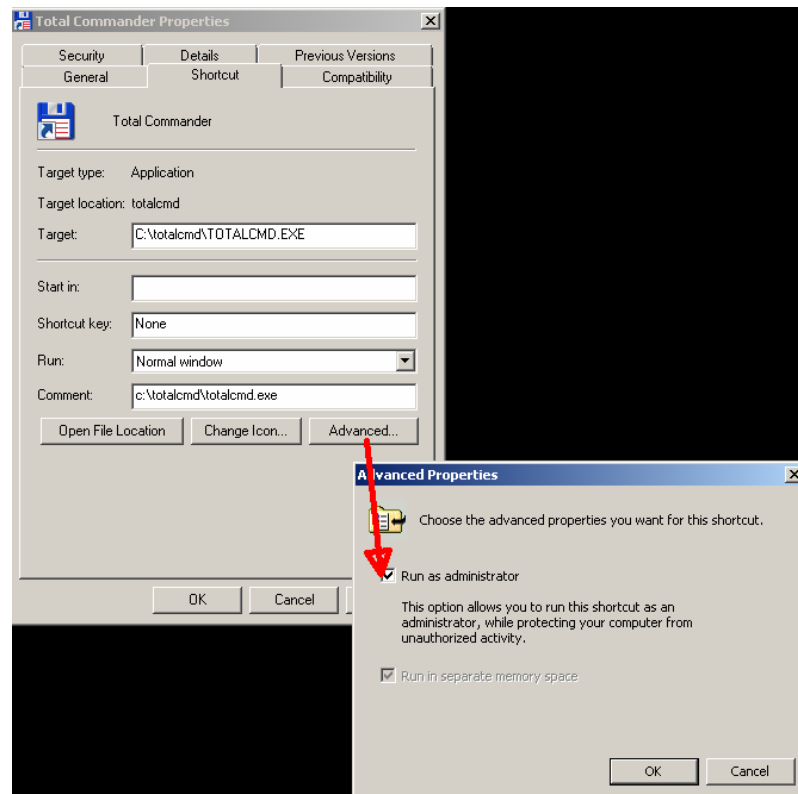
Then Start \Program Files\Siemens\Braumat\sys\register.bat and start Braumat V7.0

And vice versa to go to Braumat V6.x

**New!** For Autostart of Braumat you have to Input in the Registry only newmenu.exe without Windcs\sys!

### 3.23 Register OCX with Admin-Rights

For to register OCX in Windows 7 call Total-commander in Admin-Mode (Properties, Compatibility, Admin)



### 3.24 Disable manual switch to the next Step for critical technical configurations (V7.0)

In case some steps are very critical (pressure cooking), manual change of the Step could have disastrous consequences you can lock the manual change of the Step with this switch.

Set "SEQ".u.CTRL.xSuppressOpStepChange to "1"

No manual change of the step is possible.



### 3.25 Transfer Real to Analog Input

L Real-value from Profibus

L 1.000000e+001

\*R

RND

T "MESS".au[1].iDigValue

### 3.26 Resize pictures .bik

Here (above) you find also the Tool to resize pictures .bik “process diagram conversion”

But the background-picture \*.bmp has to be resized manual.

### 3.27 Material-Sequences

In the recipe you have the function Material-Sequences. It is possible to define only the successor. The predecessor is coming automatic depending from the definition of the successor (f.e. after water all material is possible)

### 3.28 More hints for V7.0

- You have a Braumat-User-Account; Login with this name
- When login as Administrator no “synchro time” is possible. Only when login as User
- A old Project can be converted to V7.0; the dll's are deleted, the Text is extended to 32 sign, recipe is adapted etc.
- Windows UAC can be on level 3.
- 1,7 MB of memory is now necessary, more than the CPU 414 can manage. The BRL-Objects need a lot of memory!
- Cross-communication old-PCU and new is working.
- In the application siteconfig input the correct Software of the AS. It can be a Version 4.6!
- Enginerring-Lizens is linked to one PC.
- For each PCU you need a Lizens-key on each Server
- In PCU-serv.ini you can adjust that 32 characters should be visible.
- With Unit -OCX you can also generate very individualistic Faceplate for the Unit.

- Lean 1 PCU, 1 Server 50% more cheap; A Client is possible
- Changing the Main-Menu can be done in \Program Files\Siemens\Braumat\Texte.1\BM\_AppCenter.ini

### 3.29 Line-Recipe is very useful in the Tank-farm, if you have similar Tanks.

For that you have to modify the file  
windcs\recipe\project\BOPASS.DBF

NO_REF_LIN	PCU_REF_L	BOP_REF_L	NO_PAR_LIN	BOP_PAR_L
1	3	1	2	21
1	3	2	2	22
1	3	3	2	23
1	3	4	2	24
1	3	5	2	25
1	3	6	2	26
1	3	1	3	41
1	3	2	3	42
1	3	3	3	43
1	3	4	3	44
1	3	5	3	45
1	3	6	3	46
1	3	1	4	61
1	3	2	4	62

In this case Unit 1 GOP 1 corresponds to Unit 2 GOP 21

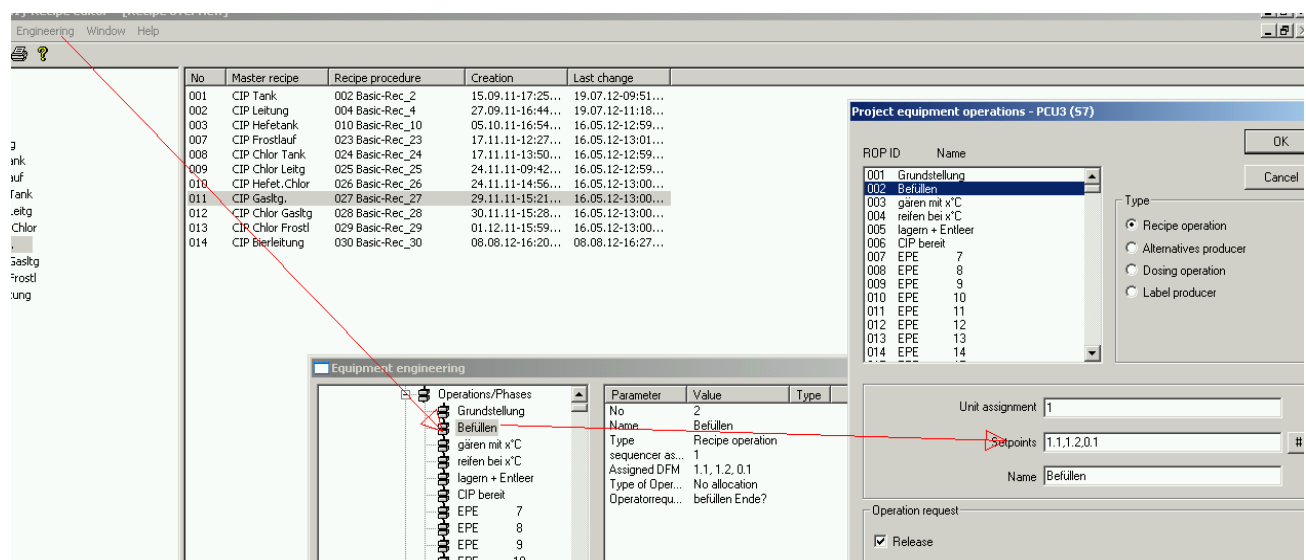
In this case Unit 1 GOP 2 corresponds to Unit 2 GOP 22

In this case Unit 1 GOP 1 corresponds to Unit 3 GOP 41

And the file windcs\recipe\project\SECTASS.DBF

Lister (baseview) - [C:\DOCUME~1\STEFAN~1\LOCAL5~1\Temp\_tc\SECTASS.DBF]					
Datei Bearbeiten Optionen Codierung Hilfe					
NO_REF_LIN	PCU_REF_L	SECT_REF_L	NO_PAR_LIN	PCU_PAR_L	SECT_PAR_L
▶ Ref-Line 1	3	Ref-Unit 1	in Line 2	PCU 3	according Unit 2
1	3	1	3	3	3
1	3	1	4	3	4
1	3	1	5	3	5
1	3	1	6	3	6
1	3	1	7	3	7
1	3	1	8	3	8
1	3	1	9	3	9
1	3	1	10	3	10
1	3	1	11	3	11
1	3	1	12	3	12

Then you make for all relevant EOPs the DFM-Definition in the recipe

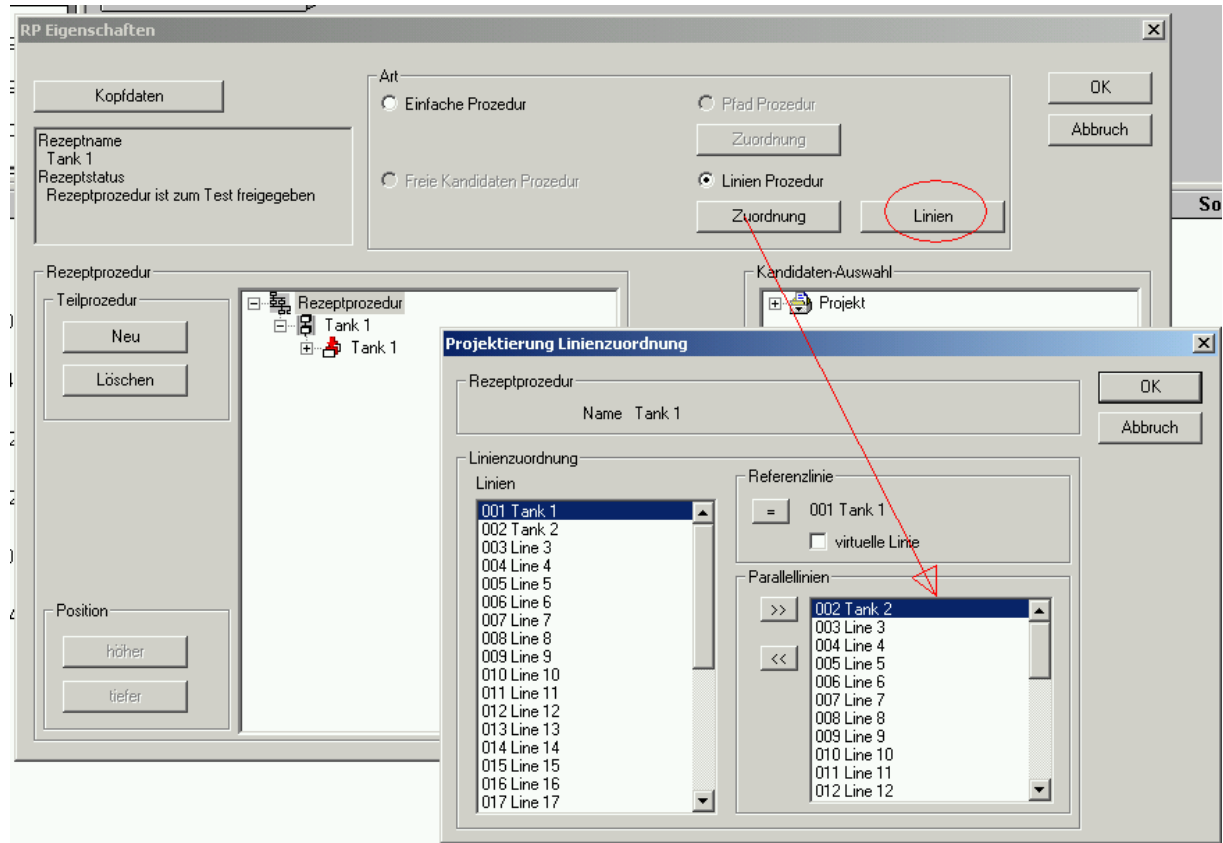


Then you first Input the name of the Lines (Tank 1, 2...)

Then you define a Reference-Line (Tank 1) and all the parallel Lines

You Input only Recipe Tank 1.

When saving all the other recipes are generated.  
Good luck!



## 4 Triggering of “User step protocol” entries FC 771

To enable a detailed evaluation of the recipe setpoints/actual values in the step log tables of a connected SQL database at a later time, for example, additional step telegrams can be triggered by calling the new

**FC 771            "BmTriggerUsrStepLogFC"**

in the EOP FCs or UNIT FBs at any time.

### Cross-communication

If it is not working restart PCU's on both sides.

Here one example for the configuration of Braumat of S7-connections

PCU 5

to PCU 6: local ID 6; Partner ID 5; passive

PCU 6

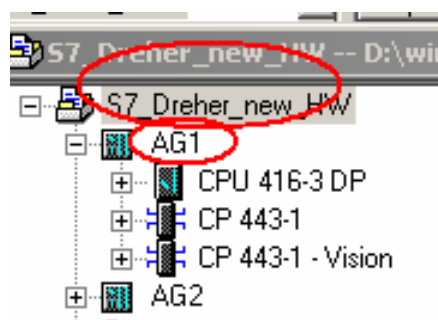
to PCU 5: local ID 5; Partner ID 6; active

### Synchronize process-images on all servers

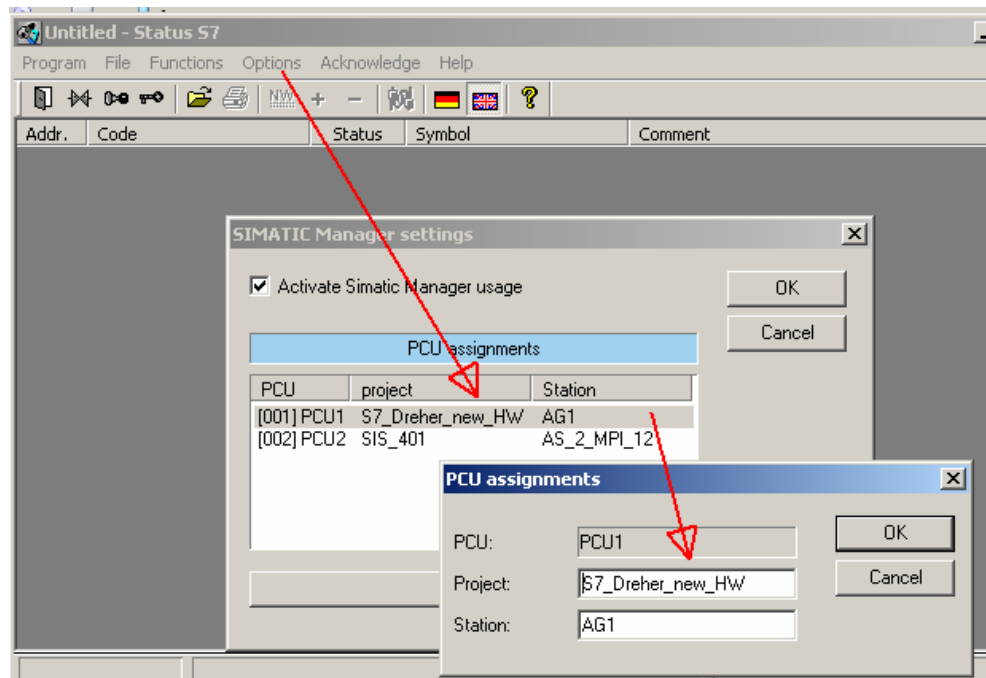
Referees to the file \Windcs\ETC\SYNCHRO.DEF and se in \sys\biko.ini CopyFilesToAll=1

### Start the Step7-Simatic-Manager in Braumat for Transition-Diagnostics etc.

- Copy the Step7-project to \name of Braumat-Project Folder
- Take the name from the project



And write it in the Application Status here for all PCU



Change in status.ini

[S7]

;Using the KOP,FUP, AWL Editor of STEP7 for status diagnostic

UseStep7App=1

EnableStep7App=1

Keep in mind that the client could change the code!

I big blocks like FB1226 are monitored for Status, it takes a while until they are opened.

### Call Step-7-Status Programm in picture

Specify Programm-call in process-image with Status\_S7.exe 3 FC153 1 (PCU, Block Network).

### Delay Step-Time

In the sequence a delay-step-Time can be defined in Unit-Parameter Delay\_SP (Param-Nr. 81); This is start at every now step and the result is flag M 101.1 TVERZ.

## Display of the missing condition for the Transition or Interlock by color

In order to have to Display of the missing condition for the Transition or Interlock by color you have to set in status.ini

[Settings]

;Change Color for Negativ-Status

SetColorText\_Neg=1

The screenshot displays the 'Mexico Centro (Beer Processing)' software interface. The main window shows a process diagram with various tanks and pipes. A 'Unit control' window is open, showing the 'Yeast Prop.T-1301' unit. The 'Status' is set to 'Running' (green). A 'Recipe editor' window is also open, showing the 'YEAST PROP.' recipe. The 'Status' column in the recipe editor shows 'Running' (green) for the 'YEAST PROP.' step. Red arrows point from the 'Running' status in the unit control to the 'YEAST PROP.' step in the recipe editor, and from the 'YEAST PROP.' step to the 'YEAST PROP.' step in the recipe editor.

Ad...	Code	Status	Symbol	Comment
0138	A	M	1705.2	DFM4.139
013C	A	M	1833.2	DFM8.139
0140	AN	M	102.2	EopStart

Nr.	EOP-Info	PCU4 / 70 Yeast Prop.T-1301	Nr.
26	FC1520(520)	Wait_Sync	6
27	FC1521(521)	Tank cooling	7
28	FC1522(522)	Sync and Rec...	8
29	FC1523(523)	*Start YEAST L...	9
30	FC1524(524)	Tank pressuri...	
31	FC1525(525)	Waiting for ye...	
32	FC1526(526)	Waiting for wort	
33	FC1527(527)	Wort filling	
34	FC1528(528)	End of wort fil...	
35	FC1529(529)	YEAST PROP.	
36	FC1530(530)	Yeast storage	
37	FC1531(531)	Tank pressuri...	

Here you can see the Transition with color, very useful!  
And you can call the graphical recipe as well.

### **Programming Horn**

```
O M 99.4 //Alarm sequ
O M 99.5 //Alarm ICM
O M 99.7 //Alarm Mess
AN M 134.7 //Alarm Horn
S M 134.7 //Alarm Horn
R M 99.4
R M 99.5
R M 99.7
```

//;

```
A M 134.7 //Alarm Horn
```

```
L S5t#20s //Reset after a time
```

```
SD T 99 //Time Horn off Auto
```

```
A T 99 //Time Horn off Auto
```

```
R M 134.7 //Alarm Horn
```

//;

```
A M 107.3 //Summary horn flag acknowledge
```

```
R M 134.7 //Alarm Horn
```

```
A M 107.2 //Summary ICM alarm acknowledge
```

```
S M 107.1 //Summary alarm-flag ICM, AIN, ALARM, SEQU
```

### **Call Exec-FB or FC from Screen**

in the Accumulator 1 the Interface-value is transferred for evaluation

### **A setpoint in the recipe editor can be write-protected**

by adjusting '-e' in the recipe editor.

Example: 2.123-e,3.12

### **Reset the Alarms at the beginning of a Unit**

```
A M 102.2
```

```
R DB725.DBX 101.4 //"SEQ".u.STATUS.boMsgError
```

```
R DB725.DBX 103.5 //"SEQ".u.STATUS.boMsgSystem
```

```
R DB725.DBX 103.6 //"SEQ".u.STATUS.boMsgWarning
```

```
R DB725.DBX 103.7 //"SEQ".u.STATUS.boMsgOperating
```



## Braumat-Shortcuts

- If ICM is in manual you can switch on/off directly without the window by click on the object and press “CTRL” at the same time
- You can open the Image-design directly from the Process-Image by “CTRL” + Doppelclick on the picture.
- You can open the Image-design Text-file from the Image-design by “CTRL” + Tab-key Doppelclick on the picture. But you have to close the picture first in order to change it.

## No checkbox “change picture” at Smart Unit

Open \sys\controls.ini

[SmartUnit]

;Disable MessageBox on picture change

**AskForPictureChange=0**

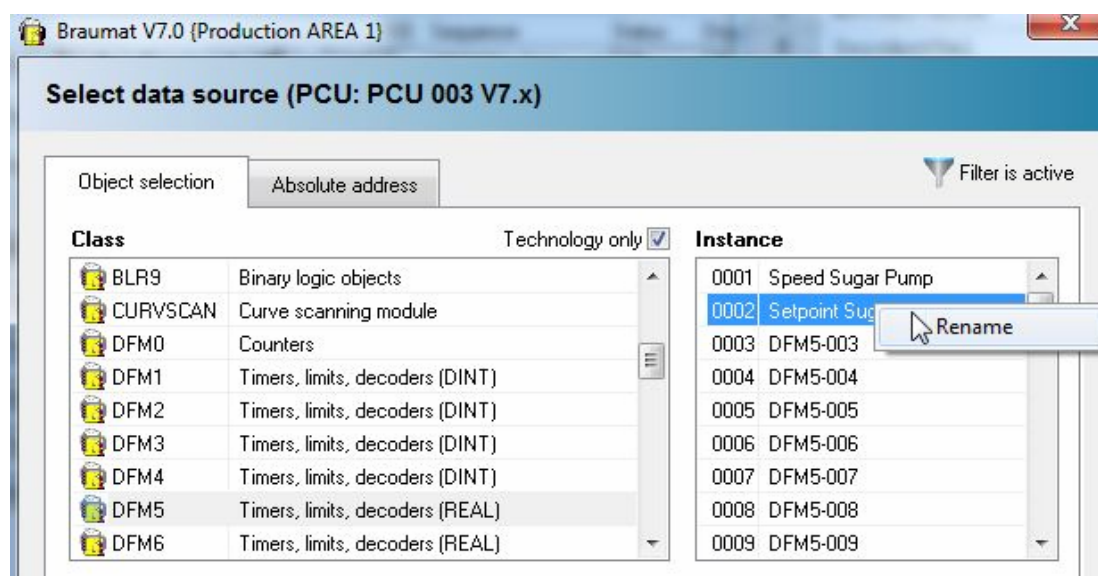
## Security-Topics

Braumat can run as Guest without Administrator-rights.

## Route Control

If you are in the online-view of Route control you can right click on a element an jump in the picture where the element is located.

Parameterization



The Instance-Name can be changed directly in here.

## **SQL-Server**

To activate SQL-Server in a Braumat-System a license must be installed. Then in Site-Configuration, Server, „SQL-Server“ must be checked. With click on that Button a window pops up and the address of the partner can be adapted and data to be send to SQL.

On the SQL-Server an Adapter-Software has to be installed to view and adjust the Data going to SQL. On that Server MS-SQL-Software can be installed for evaluation or Crystall-reports.

## 5 Replay-Mode, Video-Mode

- The Video-Mode can be used from V7.1 SP1. It runs as well with old PCU-Version V 5.3 or V6.0 etc.
- It has to be activated in the Site-configuration by “Log Process-data” and “Show Process-Data” at IOS and PCU!
- **In the Image-Design the Pull-Down-Menu “Tools”, get tags for the recording-function“ has to be activated in order to get the necessary database.** It can be filtered which pictures are relevant for to be logged.
- After restart of Braumat in the PCU-Server, Display “coupling-status” a S7-Logging-port is coming up and shows how many tags are logged.
- In runtime of the Process-Image, the Video-Mode can be activated by the pull-down-menu.
- In the Order-System, history, Batch, right click a time-stamp can be setup in order to start the according Video.
- In the Message-System, right click on a message a time-stamp can be setup in order to start the according Video.
- The size of the Archive can be modified by the function site-configuration, settings, “days for log”. 90 days might be a reasonable value.
- The data can be stored on a separate disk.

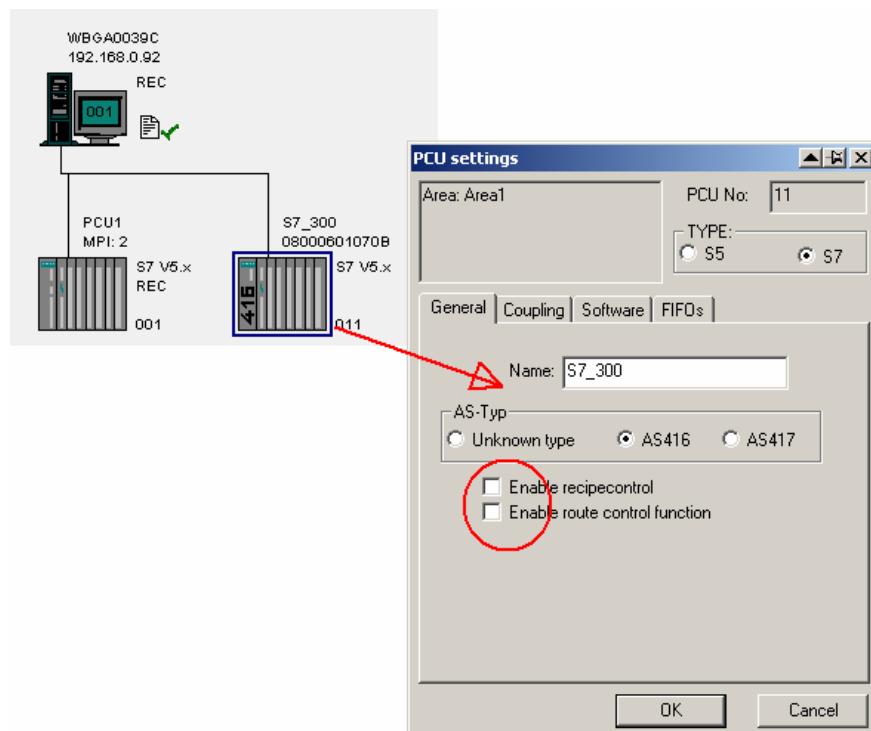
### 5.1 Seat lifting Block

In order to use that function, an ICM must be defined as seat-lifting block in the Parameterization. Then in the Picture this valve can be setup as seat-lifting block.

## 5.2 Run Braumat with S7-300

You can integrate a S7-300 to Braumat without the need to have any Braumat-Software in the PLC. You can visualize all values in the Graphics and change them.

Integrate a new S7-416 with the Function Administration and configuration like this:



Then open the file `\windcs\sys\area.ini` and write “Sistar=0 “to the PCU S7\_300

[S7\_300]

Name=S7\_300

EnableRecipeControl=0

Family=S7

IP\_Addr=192.168.0.2

l2\_addr=2

SW\_Recipe=V5

**Sistar=0**

Communication can be by Ethernet or MPI!

### 5.3 Monitor and control a S7-400-PCU with Braumat-OS without Braumat-Software in the PCU

You can integrate a S7-400 to Braumat without the need to have any Braumat-Software in the PLC. You can visualize all values in the Graphics and change them.

Integrate a new S7-416 with the Function Administration, Configuration.

Uncheck Recipe-control

Then open the file \windcs\sys\area.ini and write "Sistar=0" to the corresponding PCU

[PCUx]

Name=remote\_PCU

EnableRecipeControl=0

Family=S7

IP\_Addr=192.168.0.2

l2\_addr=2

SW\_Recipe=V5

Sistar=0

### 5.4 DFM-calls on FB100x is obsolete

With this call "UC FB715" or UC "TA\_CALL\_DFM\_FB" the call of the FC736 etc. for DFM is not necessary any more.

In Version V7.0 there the User-Block FC 2715 can be used.

### 5.5 Telegram-forwarding to another Area (in Case only on Area has RCS)

Change in PCU\_serv.ini

[protocol]

30=PC-Name of RCS-server; this has to be setup on NOT-RCS-server

...

36=PC-Name of RCS-server; this has to be setup on NOT-RCS-server

Enable=1

Test on RCS-server Window 2nd Tab

In order to ensure RCS-Server switch over.

In the Servers where no RCS is running

PCU\_serv.ini in Server X: the first Server of the other Area

PCU\_serv.ini in Server Y: the second Server of the other Area

## 5.6 Upgrade SQL to new version

Delete Folder \Spooler.cis\dbf (it will be generated again!).

Test SQL by

## 5.7 Virtualization

For installation use ISO-files or USB. But USB might be linked only to one VMWare!! You have to remove always until you can connect it to another one.

Upload/Download right side Storage, right click "open Files".

Datastore for ISOs and upload

Open VMWare: open Console

CD-Symbol for to mount ISO-File

## Synchronize pictures with other IOS

Please set in Biko.ini:

CopyFilesToAll=1

## 5.8 Change name of the IOS for display in the message-line

In the file <projekt>\texte.0\ios.txt the names for Display in the messages could be defined.

## 5.9 RCS-Activation

Select RCS in the Site-Config for the according PCU

Install RCS-Software and insert in a new Database the PCUs you use (ID=PCU-Nr).

Activate RCS

Call FC820

TR\_CE\_ICM=TRUE in FB1200, 1201, 1220, 1225

Change in \Windcs\sys\pcu\_serv.ini at Recipe-server, ports add "RCS\_PORT.DLL"

Call in FB100x

In the FIFO (1 for Server 1, 4 for Server 2) add the telegram types 30,31,33,34,36

**//no way detected**

U(

L "SEQ".u.iROUT\_ID

L 0

>I

)

U "SEQ".uRCS.QREQ

U "SEQ".uRCS.REQ

UN "SEQ".u.CTRL.boRestart

S "SEQ".u.CTRL.boPaused

// RCS-Alarm --> stop recipe

U "SEQ".uRCS.QERR

U "SEQ".uRCS.REQ

UN "SEQ".uRCS.ACK

S "SEQ".u.CTRL.boPaused

//sequence stopped

UN "SEQ.RUN."

R "SEQ".uRCS.REQ // Way off

R "SEQ".uRCS.RON

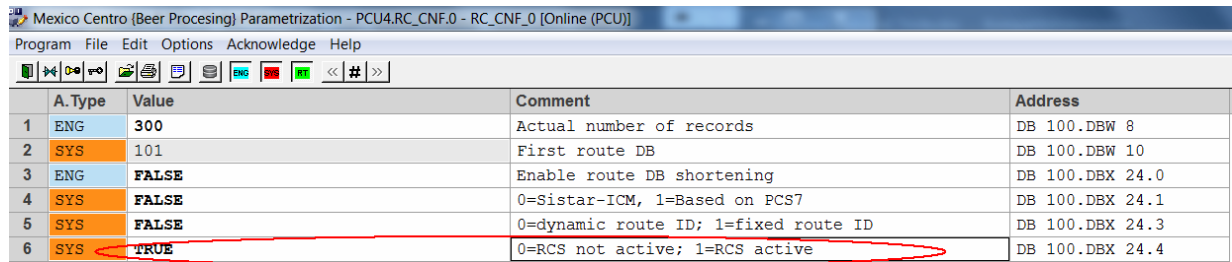
SPB r001

L 0

T DB725.DBD 400 // Modes off

r001: NOP 0

There is a main-switch for RCS in RC\_CNF\_0 Global data



	A. Type	Value	Comment	Address
1	ENG	300	Actual number of records	DB 100.DBW 8
2	SYS	101	First route DB	DB 100.DBW 10
3	ENG	FALSE	Enable route DB shortening	DB 100.DBX 24.0
4	SYS	FALSE	0=Sistar-ICM, 1=Based on PCS7	DB 100.DBX 24.1
5	SYS	FALSE	0=dynamic route ID; 1=fixed route ID	DB 100.DBX 24.3
6	SYS	TRUE	0=RCS not active; 1=RCS active	DB 100.DBX 24.4

## 5.10 How the performance of Braumat can be tested and increased?

- Press Strg (Ctrl) + Shift during opening a picture and the times are displayed for all steps to open a picture.
- Check the Trace-Server for error-messages.
- Ensure the Network of the PCUs is physically separated from the network of the IOS.
- Check the cables, Router and firewalls, to be correct.
- The fire-wall in the switches can slow down the network, maybe in the Process-bus it is not necessary?
- In Site-Config: Link 50 % of the clients to Server 1 and 50 % of the clients to Server 2. Open Site-configuration, Client, Tab Server Sequences and select for one group Server 1 and vice versa.
- Reduce the number of open window in \Project\sys\sys.ini  
;Maximum account of SISTAR-Windows to a reasonable value maybe 7;
- Reduce the number of Sequences in the PCU to running sequences + 10 % in parameterization, Sequences, Global data, number of...
- Do the same for PID, AVA, AOUT and ICM 1-4; Switch off complete ICM-groups if not needed.



- Take care not to log the Analogue-Values too fast in the Trend-definition. For temperature 10 seconds is enough etc.
- Cross-Communication: reduce number of Jobs (only one DB Send/Receive), reduce time for Jobs, 3-4 seconds,
- Windows-Colours: Resolution high colour is enough!
- Put User-Functions in FB1225 1 sec. or FB1001.....
- Take a look in Windows with the command “msconfig” which programs are loaded during startup. All are really necessary? But some services etc are necessary!
- New S7 CPUs are faster. But in this case the CP has to be changed as well. Most fast is the configuration that the communication is on the CPU-module.
- In serious cases it is possible to let the Trend-Manager and curves run only on one Server. In a virtual system, the logging of trends on one server is enough. Because a VM-Ware hardly crashed, only the complete PC.
- In the Windows Task-manager you can see which programs take a lot of performance.
- In the Hardware-Configuration the Network-Resources can be set to 50%. But it will use only the Resources needed for communication (not 50!).
- Ensure that the virus-scanner are not working continuously over the network.
- Use ping 192.168.0.1 -t to request permanent responses. If there are time-out, something is not correct on the network. The time should be always <1ms
- Use tracert 192.168.0.1 to check all router and switches on performance. There should be no time-out.

## 6 The trigger for the curves does not work properly

Maybe some trending from the wrong area are requested?

### 6.1 How to have save Remote-Access on Braumat

In order to have save Remote-Access on Braumat it is recommended to connect an Office-PC to Internet and **not** the BRAUMAT-Bus.

- Remote Access on this PC by Teamviewer, Cisco-Anyconnect, Sinema etc.
- From this Office-PC by (an extra network-card?) one Network-cable to Braumat-PC, but a Firewall (Software or Hardware) in between.
- Remote-Control to Braumat by MS Remote Desktop or UltraVNC. File-transfer is possible.
- For more security call prior to remote-session, plug in the cable and unplug after finish session.

### 6.2 How to integrate own functions in Braumat

In order to a description for a DB in the Parameterization, open in \PCU.00x a textfile with the extension .pcu

```
object Name=DBxyz>(*Name*)
  CID=1920;
  max=128
  offset=100;
  length=100
  number=DBW8;
  filename=Name Textfile;
{
  Number of      (1,DBW8,I16,RD);          (*Number of*)
struct
Braumat_V7 (1, DBX43.7, B1)      (*Braumat_V7 = 1 read/write*)
Name      (2,DBB4, I8);          (*Describion Integer 8*)
Word      (3,DBW4, I16);          (*Describion Integer 16*)
Sequence  (4, DBB0, ENUM_P:SEQUENCE, 0, 128) (*Sequencer Textfile from 0-128*)
ZSW, RT   (5,DBW16 , HEXA,RD )    (* ZSW Status word of Simocode Read only*)
}

ZSW, RT      only display
ZSW, SYS     only display when button Sys
```

## 6.3 How to use a Braumat V7-Reference

In Braumat V7 the address-pointer for a source is now 64 bit. In this way you can get the address:

```
: CALL BmGetRefValDIntFC(Ref := u.refQDat, RET_VAL := xRetVal, Result := diValue);
```

```
// Take value if it is valid
```

```
UN  xRetVal;
```

```
SPB  ERTA;
```

```
L   diValue;
```

```
T   #u.diValueAV;
```

```
L   #u.diValueSP;
```

```
==D;
```

```
=   #u.xResult;
```

```
ERTA: SPA  ENDE;
```

Important: the consumer of the reference must know which data type he expects for further use. If the above reference points to a REAL attribute, for example, the BmGetRefValDIntFC automatically converts to DINT.

## 6.4 How to get an old free protocol mdb-Database on new Braumat-versions

Install an office 2003 and convert the database to a new file. Rename this file to MS to PI\_charg32.mdb; Start MS-Access from the main-menu with the database PI\_charg32.mdb. Maybe some adaption might be necessary.

- Due to the changed license structure and the path separation "System" and "Project" the integrated MS-Access macros had to be adapted in the provided example MDB "<syspath>\!BM\_Proj\Access32\PI\_CHA32.MDB" can be adapted.

- Existing project-specific MS-Access applications for "Free Protocols" from earlier BRAUMAT versions must be manually upgraded with the current MS-Access macros.

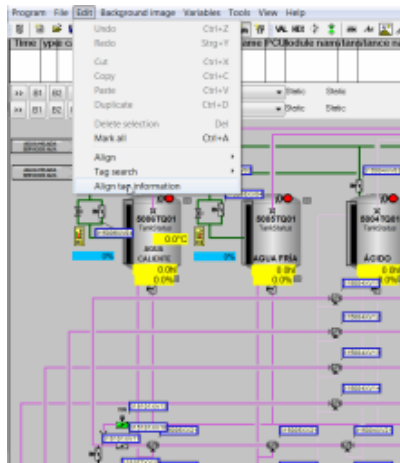
- The full product MS-Access is required for this.

## 6.5 If the Area-Selection disappeared

In Sys.ini Section PC there is a switch ShowAreaDlg=1 or by starting the Application and press Strg + Click;

## 6.6 Align the Tag-Info

To align the Tag-Info switch to Tag-Info and mark all and select edit, Align Tag info

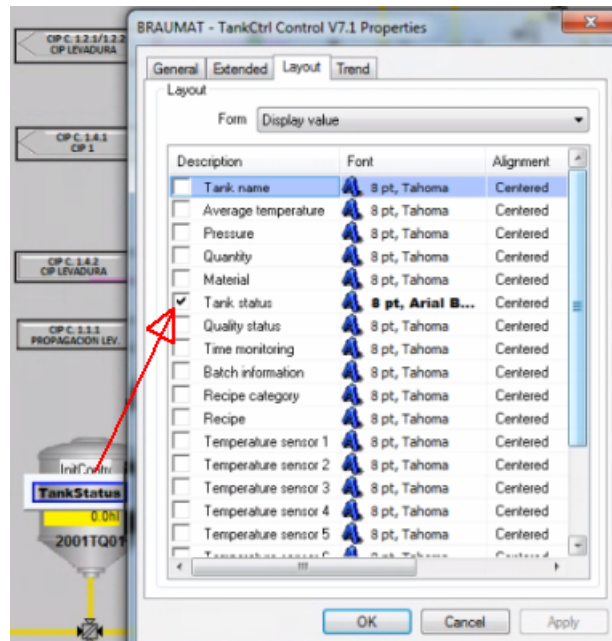


## 6.7 Change PCU-number in Process-Images

In Version V6 the Tool BikoUpgrader.exe can be used.

In V7 it can be done by replace-function: Replace PCU,2,x by PCU,2,y

## 6.8 TANK STATUS



In this way the status of the Tank is displayed in the process-image and by click more details are coming up.

```
L 1 //Status of the Tank according to the List..
T "TANK".au[x].iTankStPv
SET
= "TANK".au[x].xMonQualityOp //starting according Monitoring-Times, but the tank needs to be
in that Status!
R "TANK".au[x].xMonCleanOp
R "TANK".au[x].xMonSterileOp
```

The according Status can be found in d:\Windcs\texte.x\TankStatus.txt

- 1 Clean
- 2 Sterile
- 3 Filling
- 4 Filled
- 5 CO2 preloading
- 6 Emptying
- 7 CO2 preloaded
- 8 Empty
- 9 CIP
- 10 Ready to fill
- 11 Ready to empty
- 12 Ready for CIP

More

```
= "TANK".au[112].rQuantityTotal // Correct Total Tank quantity
= "TANK".au[112].xSetMat // Set Material value and Transfer Material-Number to Source
= "TANK".au[110].xReset //Reset all
```

Only if line 9 and 14 are equal and it is Approved the Quality-Time will be started

9	TankStatusAct	ENUM	RT	Estéril	Tank status
10	QualityStatusAct	ENUM	RT	Approved	Quality status
11	MaterialAct	DINT	RT	0	Material ID
12	FullDetectorRef	GRES	ENG	TIMER_01,33,In	Full detector
13	EmptyDetectorRef	GRES	ENG	TIMER_01,33,In	Empty detector
14	MonTankStatus1	ENUM	ENG	Estéril	Tank status comparison value 1 (Operator/quality t...

Example for Parameters

8		39	TANK 039	0	0	1	1	1	0	10.000	60	(NULL)	(NULL)	(NULL)	1	2
9		40	TANK 040	0	0	1	1	1	0	10.000	60	(NULL)	(NULL)	(NULL)	1	2
10	E	41	Yeast Prop. T 1	1	0	11	2	0	0	5.000	60	(NULL)	TIMER_01,33,In	TIMER_01,33,In	1	2
11	E	42	Yeast Prop. T 2	0	0	1	1	1	0	10.000	60	(NULL)	(NULL)	(NULL)	1	2
12	E	43	Yeast Prop. T 3	0	0	1	1	1	0	10.000	60	(NULL)	(NULL)	(NULL)	1	2

**Note:** Tankstatus can be changed directly in "TANK".au[1].iTankStatusAct and the pulse for "TANK".au[1].xSetMat is not necessary.

That Impulse will change the Brand as well, and that is allowed only when the Tank is empty!!!!

## 6.9 Integrated delay-Time in EOP

Often a delay-time is used to switch on something delayed etc. Braumat is shipped with a delay-Unit for each unit or to have a minimum Time for a Step.

Start delay time:

L 3 //Time in sec

T DB725.DBW 184 // "SEQ".u.iSPDlyTm Setpoint Time

The result-flag is M 101.1

## 6.10 Free Recipe-based brew-report (from V8.0 on)

Single-value (overwrite the same) or Multiple-value

Names and Unit can be edited

also values for the Units values can be defined.

Esport / Import to Excel is possible.

In recipe EOP right click then list will pop up;

Setpoint or actual-value

for each Setpoint different Parameters

User-Id for a User-defined value independent from EOP

RUP-Start / Ende;

Order-System: right Mouse-click -> Charge report

## 6.11 How to make a monitoring-function?

**In order to switch on ICM from several Units ore making Sub-operations you can program in FB 100x like that:**

```
A  "Unit106 DB".Bool48      //activation-flag
JCN end4

A  "DFM8.171"
=  "312322XV07-CMD"         //action

end4: AN  "Unit106 DB".Bool48      //reset at the end
FP  "Unit106 DB".Bool108      //reset by pulse
R   "312322XV07-CMD"
```

That means in this way the output and flags can be activated from different Units. <

### **Flag always “1”**

If you need a flag which is always “1” take M 108.1;

### **Copy a data-set in Parameters.**

It is possible to copy a dataset in the Parameters, with pull-down “Edit” “copy to” or “copy from”

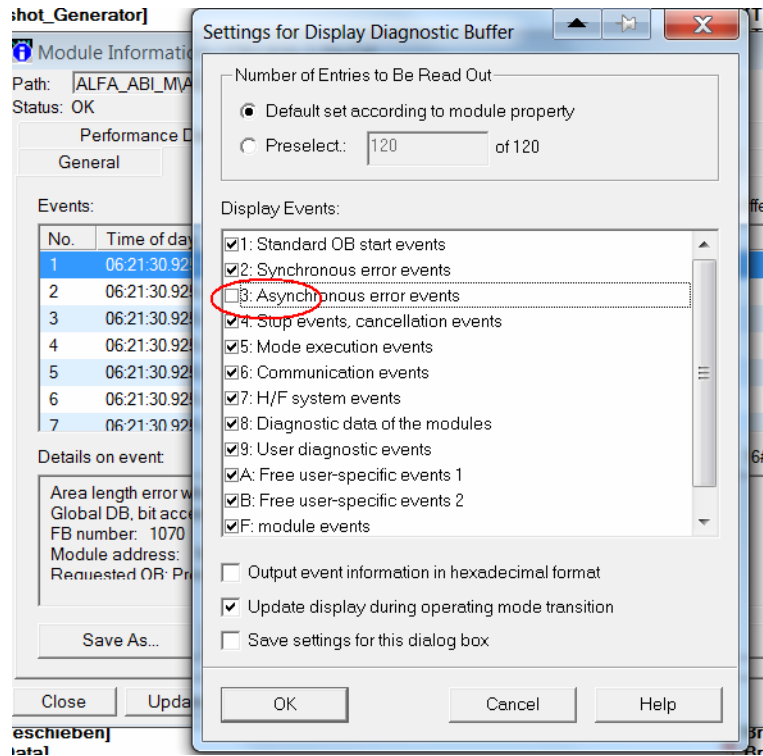
## 6.12 Backup and Analysis (25.3.2019)

To ensure quality and safety, a regular backup is mandatory. Maybe at the weekend when production is down this is possible.

- Braumat: Transfer all DBs from PCU to IOS;
- Simatic-Manager: Backup all Blocks of all PCU.
- New cross-reference generated for all PCUs
- CPU Error-check all PCUs
- Reorganisation of the project
- Clean up not used folder

- Compare all online / offline
- Check Traceserver

To get the faults, the I/O-Alarms of the CPU can be filtered by removing at Setting “asynchronous” errors. And then the program-errors pop-up.





## 7 Not enough decoders? 11.2.2018

Especially if Matrix function is used, decoders might not be enough. In that case it helps to multiplex the Decoder that means to use the same Decoder-number in parameters and to call FC 636 with the according DFM directly before using the Decoder-flags.

### Copy / Paste in Parameters

Is possible, if it is the same Datatype!

## 7.1 Recipe-System: Release a Unit and resume later on

Two batches require subsystem 3 (e.g. heater) several times at different times in their sequence.

Subsystem 3 can be released and used by subsystem 2, although it will be in recipe subsystem 1 again at a later point in time and is required by it. Subsystem 2 does not have to wait for Unit occupied in a different recipe

enable this function in the file "<proj-path\recipe\project\plant.ini":

```
[ReleasePlantSection]
```

```
Enable=1
```

A release Unit step must be inserted in the basic recipe editor.

The release of a plant section is only possible in two cases:

- There is a synchronization before and after the release.
- Before the release there is a recipe operation and after the release there is a synchronization with Type AND.

OR synchronization are not allowed before and after a release Unit.

## 8 Send / Receive with 3rd Party devices

```
CALL "AG_SEND"           // FC 5
ACT  := "CLCK_0_5HZ"
ID   := 6
LADDR := W#16#3FFB
SEND  := P#DB4106.DBX0.0 BYTE 28
LEN   := 28
DONE  := #Temp1
ERROR := #Temp2
STATUS := #Temp3

CALL "AG_RECV"           // FC 6
ID   := 2
LADDR := W#16#3FFB
RECV  := P#DB4093.DBX0.0 BYTE 28
NDR   := #Temp4
ERROR := #Temp5
STATUS := #Temp6
LEN   := #Temp7
```

### 8.1 Display manual valve with feedback close and Alarm open /

*I want to create new Braumat object with three states. For instance - in the plant there is manual valve with two sensor going to Braumat. First sensor is confirmation of valve position opened. The second sensor is confirmation of valve position closed.*

*So, in the process picture i should put an object with 3 states:*

- 1) Green - (sensor\_opened = 1 and sensor\_closed = 0)*
- 2) Gray - (sensor\_opened = 0 and sensor\_closed = 1)*
- 3) Red - (sensor\_opened = 1 and sensor\_closed = 1) or  
(sensor\_opened = 0 and sensor\_closed = 0)*

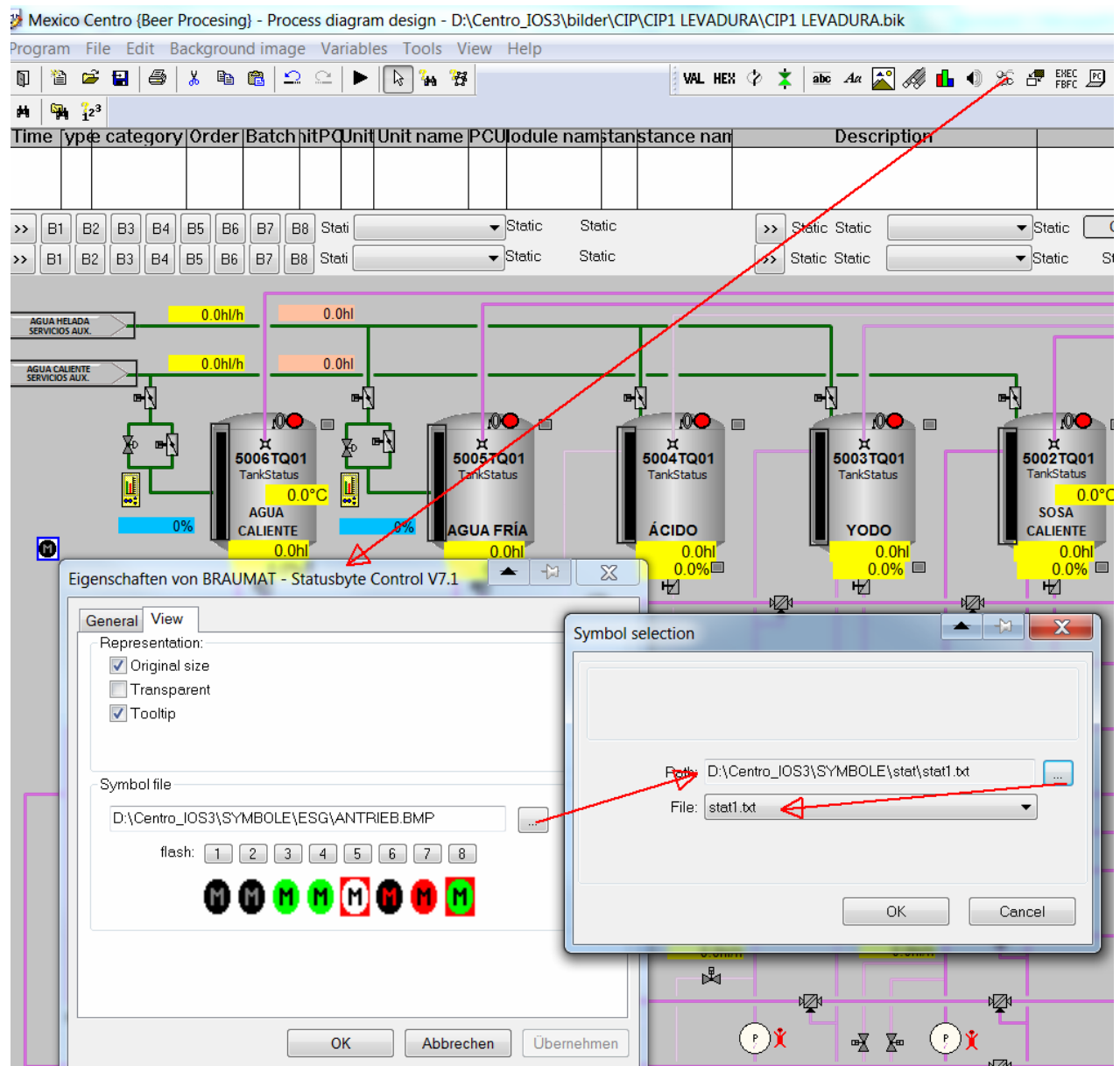
*There a two ways to realize that:*

*First you take 3 Symbols: one Manual-Valve with Feedback on to display: "Open"*

*Then one symbol next to it e.g. Text "CL" for close with Feedback closed*

*Then one more symbol next to it e.g. Text "F" for to display the faults.*

The other version is by status byte:



In Stat1.txt the names for the 3 symbols have to be Green/grey/red are listed

\\windcs\sybole\stat\ sym\_close.bmp

\\windcs\sybole\stat\sym\_open.bmp

\\windcs\sybole\stat\sym\_fault.bmp

*Then the according number 0/1/2 has to be transferred by Step7-code in the address mentioned in statusbyte:*

Eigenschaften von BRAUMAT - Statusbyte Control V7.1

General View

Src. type

☐ Object name ☒ direct address

Source

Area: Beer Processing (Local area)

PCU no. 4

Data type Datablock

Block-No. 10

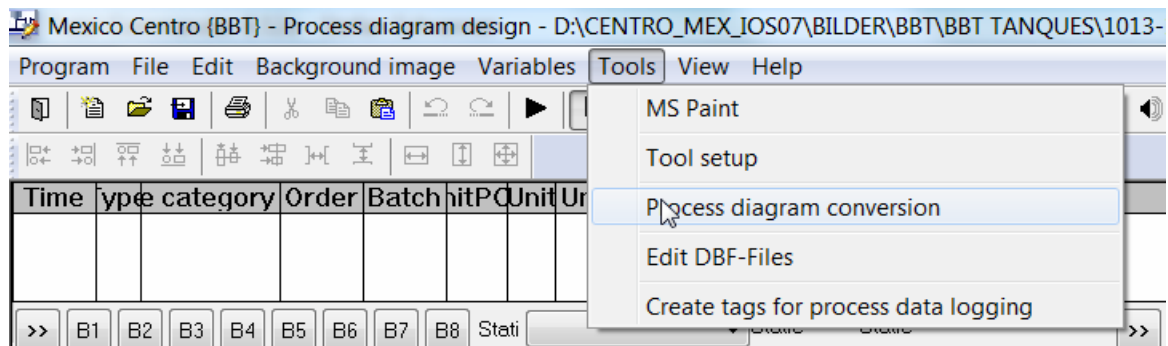
Databyte No. 10

OK Abbrechen Übernehmen

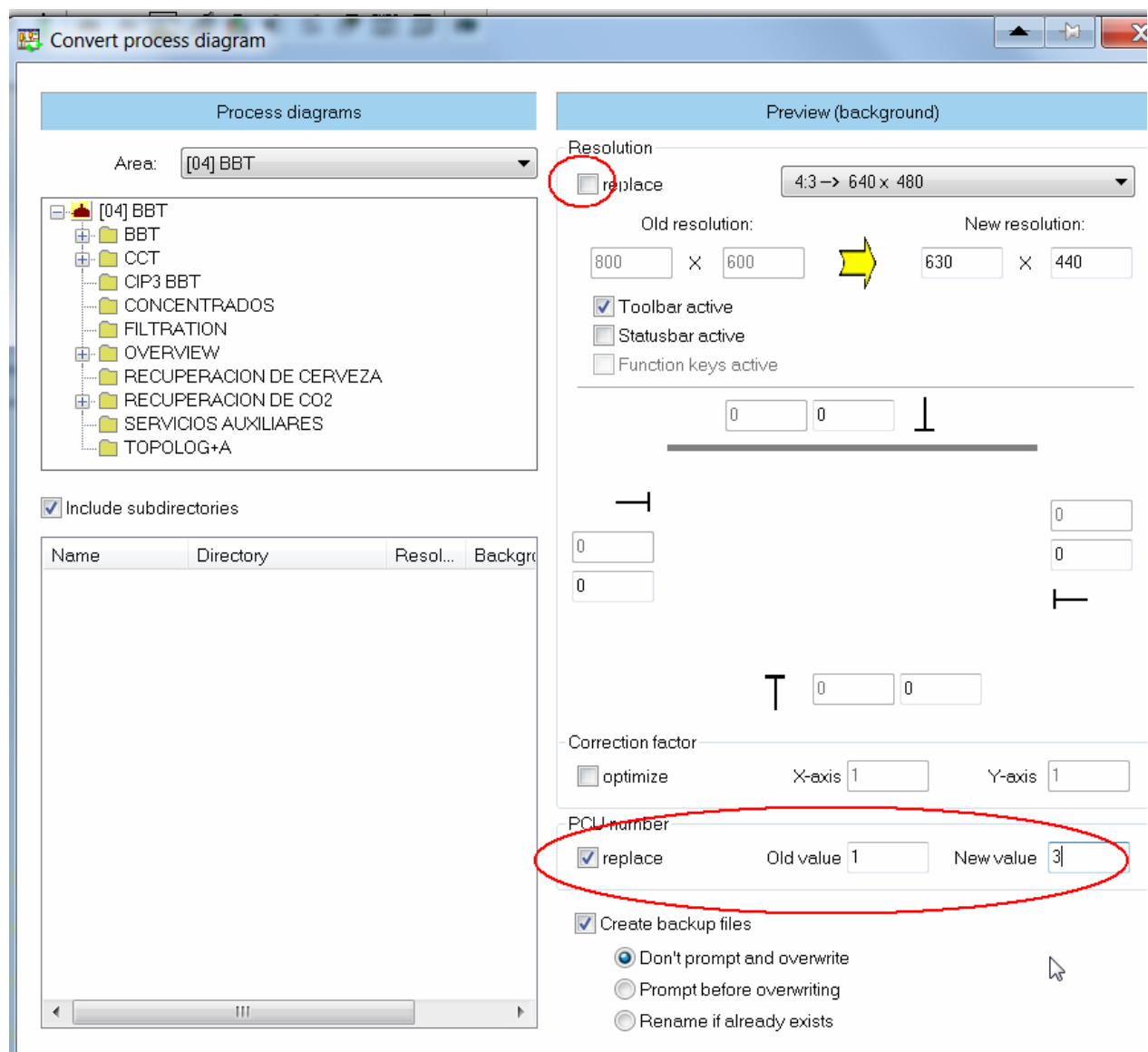
*0 = feedback closed*  
*1 = feedback open*  
*2 = Fault*



## 9 Changing the PCU-number of an image

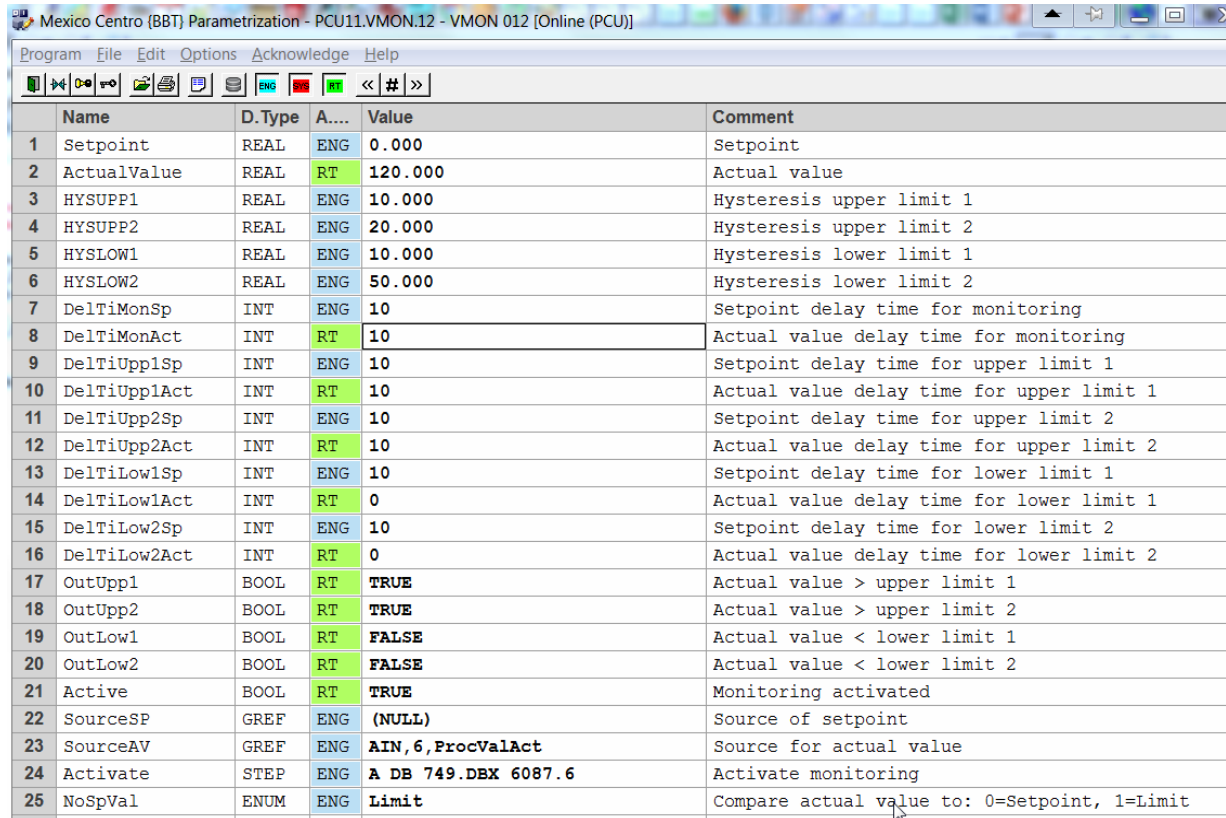


In image design select this



And here input the old an new PCU, uncheck replace.

## 9.1 Interlock by flow control of the pumps



	Name	D.Type	A...	Value	Comment
1	Setpoint	REAL	ENG	0.000	Setpoint
2	ActualValue	REAL	RT	120.000	Actual value
3	HYSUPP1	REAL	ENG	10.000	Hysteresis upper limit 1
4	HYSUPP2	REAL	ENG	20.000	Hysteresis upper limit 2
5	HYSLOW1	REAL	ENG	10.000	Hysteresis lower limit 1
6	HYSLOW2	REAL	ENG	50.000	Hysteresis lower limit 2
7	DelTiMonSp	INT	ENG	10	Setpoint delay time for monitoring
8	DelTiMonAct	INT	RT	10	Actual value delay time for monitoring
9	DelTiUpp1Sp	INT	ENG	10	Setpoint delay time for upper limit 1
10	DelTiUpp1Act	INT	RT	10	Actual value delay time for upper limit 1
11	DelTiUpp2Sp	INT	ENG	10	Setpoint delay time for upper limit 2
12	DelTiUpp2Act	INT	RT	10	Actual value delay time for upper limit 2
13	DelTiLow1Sp	INT	ENG	10	Setpoint delay time for lower limit 1
14	DelTiLow1Act	INT	RT	0	Actual value delay time for lower limit 1
15	DelTiLow2Sp	INT	ENG	10	Setpoint delay time for lower limit 2
16	DelTiLow2Act	INT	RT	0	Actual value delay time for lower limit 2
17	OutUpp1	BOOL	RT	TRUE	Actual value > upper limit 1
18	OutUpp2	BOOL	RT	TRUE	Actual value > upper limit 2
19	OutLow1	BOOL	RT	FALSE	Actual value < lower limit 1
20	OutLow2	BOOL	RT	FALSE	Actual value < lower limit 2
21	Active	BOOL	RT	TRUE	Monitoring activated
22	SourceSP	REF	ENG	(NULL)	Source of setpoint
23	SourceAV	REF	ENG	AIN, 6, ProcValAct	Source for actual value
24	Activate	STEP	ENG	A DB 749.DBX 6087.6	Activate monitoring
25	NoSpVal	ENUM	ENG	Limit	Compare actual value to: 0=Setpoint, 1=Limit

Activate a VMON by the feedback of the Pump, configured as “Limit” and with the Source of actual value of the Flow.

Programm like that for the ICM to generate a fault:

```
A  "VMON".au[12].boValOutLow2
AN  "BmMsgCmd".abo[1035] //Message : Pump xy flow Alarm
S   "BmMsgCmd".abo[1035]
S   "ICM4".au[85].xErrMem //ICM-Alarm

AN  "ICM4".au[85].xErrMem //Acknowledge was done
R   "BmMsgCmd".abo[1035] //Reset Alarm
```

There is no interlock necessary anymore

No Interlock of Main-ICM for Seat-flushing

If the Main ICM is interlocked, Seat-Flushing is not possible.  
To avoid that program like that

```
AN  CMD_BSL_FLT.BSL01 //Interlock
    ON  "ICM1".au[203].xManualMode //no Interlock if in Automatic
    =   "ICM1.203-ILock"
```

In automatic Route-control or the program ensures safe switching of the valve, so that ensures enough interlock. No additional interlock is necessary in that case.  
But for security this should be used only for the valves with Seat-lifting blocks.  
Additionally the flag for CIP-running can be used.

```
AN  CMD_BSL_FLT.BSL01 //Interlock
O
A M x.y //CIP running or pulses are active
AN  "ICM1".au[203].xManualMode //no Interlock if in Automatic
=   "ICM1.203-Ilock"
```

Drain Vessel before start CIP

In order to start CIP the vessel should be empty but often liquid from the wall cover the empty-sensor.  
A short opening of the Drain-valve (3 sec) can help to start CIP.

In the according EOP

```
L   3 //3 seconds opening
```

```
T   "SEQ".u.iSPDlyTm
```

```
L   "SEQ".u.iDlyTm          // "SEQ".u.iDlyTm //actual value Time
```

```
L   "SEQ".u.iSPDlyTm        // "SEQ".u.iSPDlyTm
```

```
<I
```

```
AN  "TIMER1".au[45].xOutNeg //empty sensor
```

```
AN  "EopStop"
```

```
=   "BBTXX_USR".CA.boxxxxXV27 //Drain valve
```



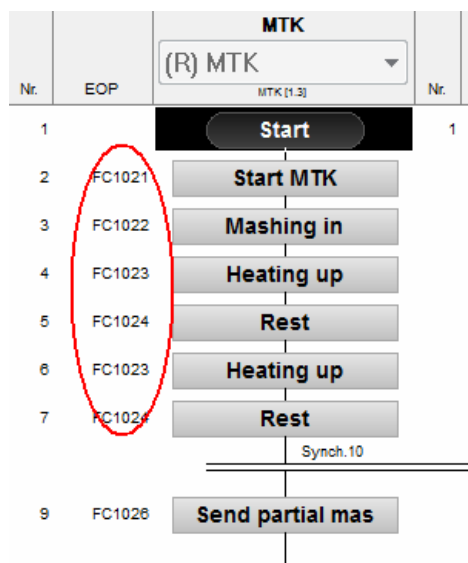
## 9.2 Set Unit to A- by Alarm

Use a Impulse and Reset

R M 102.0 //A+

R DB725.DBX 102.0 // "SEQ".u.STATUS.boSeq\_NotHeld

## Display of EOP-number in the graphical recipe



Change in editrec.ini

[Version3]

;Add columns for step number (=1) and basic operation number (=2) in graphic display

AddCol=2

;Mode for the display of the basic operation number (0=only the number; 1=display plc-block; 2 = display number and plc-block)

GopNrDisplayMode=1

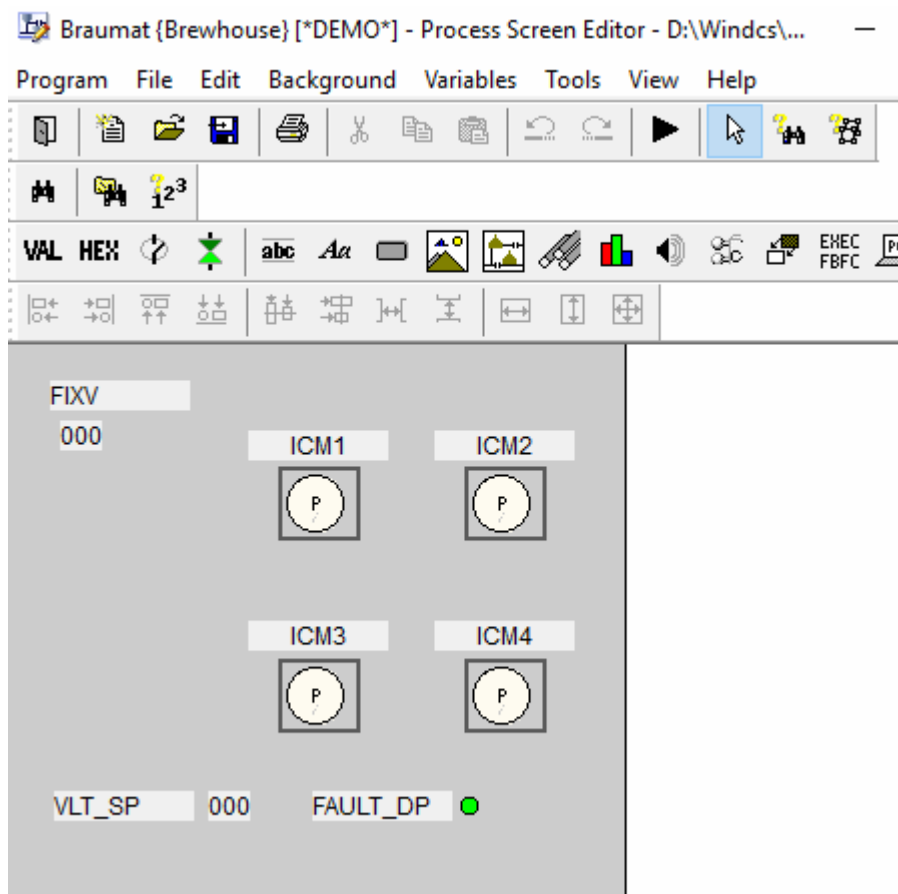
## 10 User defined Faceplate

**Create** a process image “.bik” that will be used as a faceplate.

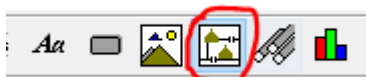
Same faceplate can be used with different index, meaning the data will that is shown in faceplate can be dynamic.

There are different Variants of addressing in faceplate:

- Direct object address
- Indirect addressing (can be used with “.DBF”)
- PCU/Instance Addressing (Makes Instance number of all objects = index number)



**Insert** a user defined faceplate with “Dynamic process image” control



## User Defined Faceplate

PCU1 - instance addressing

instance 1

instance 2

instance 50

Dynamic process image

Representation:

Area: (local area)

Picture path: aceplate\PCU1\_USER\_FP\_instance.bik

Caption: USR\_FP

Key combination:

Instantiation:

☒ active

Variant: PCU/Instance Addressing

PCU: Brewhouse

Instance: 1

Control Dialog

☐ Modal

☒ Fixed dialog size

Dialog position: 0,0

Position

OK

Cancel

# 11 Second Server does not start

Copy Fifos DB670-676 and DB690-696 to PCU if CPU is in Stop and no production.

Code-Card Reader

## 4.3 Code Card Reader

It is also possible to use the keyboard with magnet card reader as an option instead of entering the password.

As long as there is a valid magnet card in the reading device, the password is not queried. However, if the card is removed, no operation will be possible!

The following has to be adjusted after the keyboards are connected:

- Adjustments in SYS.INI:  
[PC]  
CODE32.DLL=CDCARD32.DLL  
The operation levels are adjusted as usual.
- If a card is inserted which has not been entered in the internal card list, this number will be entered in the CODES.INI file temporarily under:  
[Info]  
CardID=<Card number>
- This number can be copied as a real card input and supplied with levels accordingly (Example):  
[Users]  
9712101000008240|9604=<Name>, <Min.Level>, <Max.Level>

From now on the card level is considered when the card is inserted.

BLR-Objects

There is a predefinition for the objects

ICM1 BLR 1

ICM2 BLR 2

ICM3 BLR 3

ICM4 BLR 4

Sequencer-Permanent conditon BLR 5: 1..128

BLR 129-255 are free

BLR 6 to 9, which are intended for use as step enabling conditions. They are not processed cyclically and need to be called by the following if used outside the Recipe-EOPs

CALL "BmGetBlrResultFC"(  
    BlrIDB     := 2111,  
    BlrInstance := 42,  
    RET\_VAL    := xRetVal,  
    Result     := xResult);

## 12 S7-1500-Tips

To activate EOPs call them  
Convert FB100x-> FC300x

- It is not allowed, to add Parameter to the Unit-FBs
- all System-DBs should be downloaded completely in one Block

New User-defined reports V8.0

A report file (\*.dbf") is created in the archive path in the "Report" subdirectory for each batch  
Value type = Multiple value → 1 Data set (overwrite mode)

- Value type = Single value → Multiple data sets (insert mode)
- Value type = Total value → 1 Data set (several values are summed)

The step protocols and other telegram types of BRAUMAT/SISTAR serve as data sources for the KOP data.

The delivery includes a set of KOP definition lists in the form of CSV files

The source definitions are assigned to one of the lower-level RP objects RUP (recipe unit procedure), ROP (recipe operation) or setpoint.

The generation and display of the batch reports is carried out in the batch management application.

d:\WINDCS\_DEMO\_NEW\_V71\Report\BatchReport\Template\BM\_BH\_RecProcReport\_00001.xls  
m

After the batch sequence, a batch report can be created for each recipe procedure using prepared MS Excel report templates.

This is done directly in the archive view of the "Batch management" application by right-clicking on the desired batch.

Recommended Windows Settings

fixed Swap file size (12 Gybte?)

Deactivate windows energy saving options

Use entries in the "hosts" file of the operating system for project related IP-addresses and host names

The standard location of the file is "C:\Windows\System32\drivers\etc"

SOFTNET-IE S7 (SIMATIC NET) is used for PCU Communication

### Switch value with Setpoint-DFM

With the Setpoint-DFM it is possible to switch between two values, e.g. a fixed value for the VLT and "0" for to start from "0".

### No Acknowledge ICM Alarm on all PCUs

PCU\_SERV.INI

[Trans\_NT]

;List of PCUs without ICM-acknowledge NoAck=1,2,8

### "Read only" PCUs on Client or Server

PCU\_SERV.INI

[Trans\_NT]

List of "read only" PCUs  
NoWrite=1,2,8

## 12.1 Having specific pictures and Text-files on specific IOS

If one Client requires specific pictures, main menu or ini-files, on the Server on Windcs\IOS.00x the folder \Bilder and PCU.00x\Texte and Texte.x can be specific for this Client.  
The Batch-list settings is not yet IOS-specific.

### **Increase the size of the picture for a message-face-plate, without re-scaling the image**

In order to implement a message-faceplate without re-scaling the image, open the picture by paint and and shift the lower border to the desired size. Then input this new size in the bik-File.

### **Protecting the PCU-Software of and the Versions**

With <https://www.auvesy.com/versiondog.html> it is possible to monitor Versions and to protect the Software of Cyber-attacks, because all is monitored very accurately. If there is a difference between offline and online it will be indicated by a message.

### **Red-colour for “Hold-Signal”**

In order to have a good visible “Hold-Button”, in the file seqctrl.ini and display hold with red colour

copy Icons to d:\windcs\Icons\  
adapt the symbols you like

change in in seqctrl.ini  
[Mainwin]  
UseIconDirectory=1

in controls.ini  
[Unit\_Ctrl]  
UseIconDirectory=1

### **Comma in Paramterization in V8.x**

In V8.x it is possible to assign a comma if linked to a real-value.  
That can be assigned in the Excel-Paramerization as well: #Dep=0,1,2,3

### **PLCSIM advanced**

This Software keeps the parameters although it was switched off.  
The communication in system-settings PG-Interface has to be setup properly PLCSIM TCP/IP.

At start virtual S7 a name has to be specified. Runtime Manager-Port 50000.  
PLCSIM Virtual Eth.Adapter is only if Hardware is used as well.

In order to speed up performance reduce instances or use a Tool who is doing that (contact me!).

## Floating License

In order to have the floating-license, select File, Settings, connection and allow remote connections on Server (with Engineering) and Client .

Then go on Client Edit, Connect computer, and select the Server with the Engineering-license. Check always display nav. window and add to search list.

## 12.2 Automatic Switch over Recipe-Server

In order to have an automatic switch-over of the recipe-server change this...

Change in \sys\recipe.ini

;Cycle time for synchronization supervising (0=switched off)  
SupervisingTime=30

[ServerSupervising]  
;Enable recipe server supervising  
Enable=1  
;Cycle time of the supervising telegrams [seconds]  
CycleTime=10  
;Number of missing telegrams till server supervising generate a message  
ReactionCycle=24  
;Time [seconds] till the server failure message will be repeated  
RepeatTime=300  
;Waiting time till server supervising begin after start of Pcu-Server  
WaitTime=240  
;Automatic Server activation  
AutomaticServerActivation=1

### Order-system only for specific Recipe-Types

It is possible to call the order-system (Bali) from process-image only for specific recipe-categories. e.g. baliedit.exe Order 0 16 means show all order with Recipe-type 16;

### Occupy Orders or remove Order-numbers in the Order-system 20.1.2020

Open Order-system, close Order-List, Iosen, open “engineering” and then Order / Batch-numbers. There is possible to delete or define the numbers.

### One IOS is not switching to Recipe-Server 4.2.2020

If it is TCP/IP with ping Address the Network-response-time can be tested. Should be 1 ms or below.

Checking the Fifo 2/5, whether it can be reset. Maybe restarting the PCU can help. If not possible downloading the Fifo DB 671/691 during run.

Checking the Sendpuffer 2/5, about the Block-size and maybe reinitialize. Maybe restarting the PCU can help. If not possible downloading the send-buffer DB675, DB694 during run.

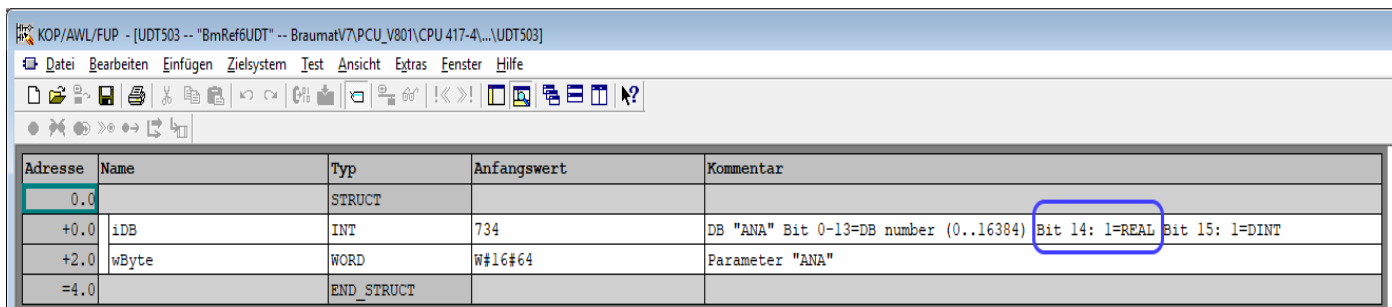
## 12.3 Increase performance of a Braumat-system



In the PCU-Server, Display coupling, the time can be seen, how long it takes to transfer Data.  
 Testing the network can be done with ping Adr -t; Then it is continuously sending and there should be no time-out.  
 Decrease the number of instances of Units, PIDs, Analog, VMONs etc.

## 12.4 DINT or REAL?

At a S7-DINT or S7-REAL bit pattern you can recognize at bit 14 and 15 whether it is real or DINT.  
 Bit 14 = 1 is Real  
 Bit 15 = 1 is DINT



Adresse	Name	Typ	Anfangswert	Kommentar
0.0		STRUCT		
+0.0	iDB	INT	734	DB "ANA" Bit 0-13=DB number (0..16384) Bit 14: 1=REAL Bit 15: 1=DINT
+2.0	wByte	WORD	W#16#64	Parameter "ANA"
=4.0		END_STRUCT		

## 12.5 Getting Free-Protocols generated from Step-protocols

- In order to have this, in the file SRPROT5.ini a switch Activate has to be activated
- The file \FRPROT\Genfpr.dbf a filter has to be made for what is needed.
- There is a definition-file genfpr.def definitions can be made
- An Access-Database genfpr.mdf servers for engineering but is not necessary.
- Also the file SR\_FRPR.ini is relevant

## 12.6 Reset horn

The horn is reset only in the area in which the picture is called. So the specific sequence-overview or image has to be open.

Open process-image in den Main-Menu in a specific area  
 For this, call lzsys.exe /A:3 picture-name whereas it refers to Area 3.

### Upgrade Braumat

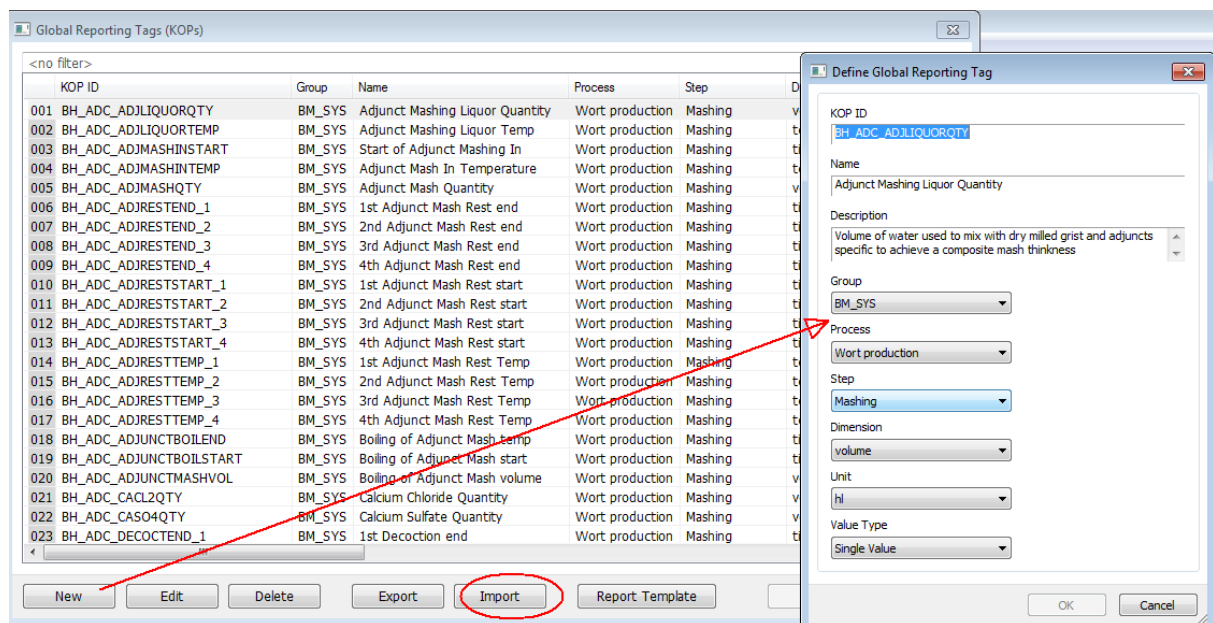
For a BRAUMAT OS upgrade you always need the licenses for the PCUs (1 license per server, i.e. with a redundant server pair always 2 PCU licenses per PCU).  
 When upgrading from V6.0 to V8.0 you first need the upgrade licenses from V6.0 to V7.0 and then the licenses V7.x to 8.0.  
 The required Softnet licenses are integrated from V8.0 on, not before. It must be purchased separately for version < V8.x.

### Step-Protocol modify order-number charge-number

search for the corresponding file. The folder structure is year, Recipe-type, Order-Blocks.  
 Change the file name and copy to appropriate folder.  
 e.g. S2000131.DBF should be change to charge-number 595: change name to S2000595.DBF  
 Change inside the dBase-File the order and charge number (Libre Office etc).  
 Copy the file from Folder ANR00150 to ANR00600;

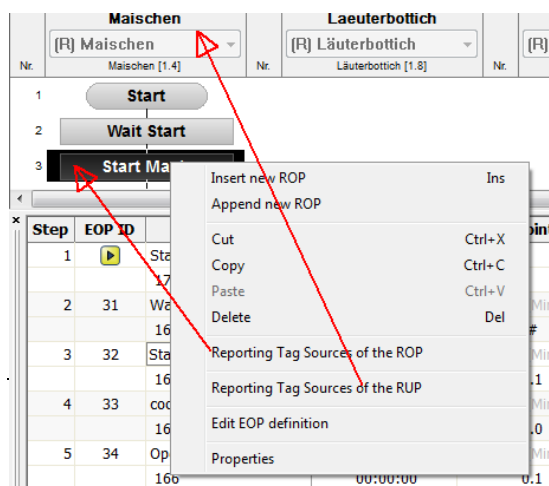
## 12.7 Generate new protocol V8.0

Import in global reporting Tags all preset Tags from system, for Brewhouse, Cold-Block and Filtration.



### Define Setpoint related KOPs

Step	EOP ID	Name/ROP ID	Time	Setpoint 1	Setpoint 2	Setpoint 3	Setpoint 4
1		Start					
		176					
2	31	Wait Start	Time	Zeit [Min.]	Maische [Min]	LI 201 [hl]	RV204 [Min.]
		169	00:00:00	#			
3	32	Start Mash	Time	Zeit [Min.]	Mais		
		168	00:00:00	0.1			
4	33	cool / submit to CW	Time	Zeit [Min.]	Mais		
		167	00:00:00	1.0			
5	34	Open water	Time	Zeit [Min.]	Mais		
		166	00:00:00	0.1			
6	35	Waterpu. On	Time	Zeit [Min.]	Mais		



define ROP or RUP-related KOPs like Start/End-Time duration.

2 Wait Start

3 Start Mash

Step	EOP ID	Name/ROP ID
1		Start 176
2	31	Wait Start 169
3	32	Start Mash 168
4	33	cool / submit to CW 167
5	34	Open water 166
6	35	Waterpu. On 165
7	36	Mash pump on 9
8	37	Crush Roller I on

KOP ID	ROP ID	PCU	Unit
BH_MTO_RUPSTART	168	PCU1 [1]	Maischen [4] Start Ma
BH_MTK_RUPEND	168	PCU1 [1]	Maischen [4] Start Ma

New Edit Delete

Define Reporting Tag Source

Global Reporting Tag  
Start of RUP [BH\_MTO\_RUPSTART]

Source  
Recipe procedure  
Brew House [126]

Unit/EOP  
Maischen [4]/Start Mash [32]

Value  
Starting time  
Starting time  
Time end  
Duration  
Product  
EOP Name  
Unit name

OK Cancel

all these options are available.

2 Wait Start

3 Start Mash

Step	EOP ID	Name/ROP ID
1		Start 176
2	31	Wait Start 169
3	32	Start Mash 168
4	33	cool / submit to CW 167
5	34	Open water 166
6	35	Waterpu. On 165
7	36	Mash pump on 9
8	37	Crush Roller I on

KOP ID	ROP ID	PCU	Unit
BH_MTO_RUPSTART	168	PCU1 [1]	Maischen [4] Start Ma
BH_MTK_RUPEND	168	PCU1 [1]	Maischen [4] Start Ma

New Edit Delete

Define Reporting Tag Source

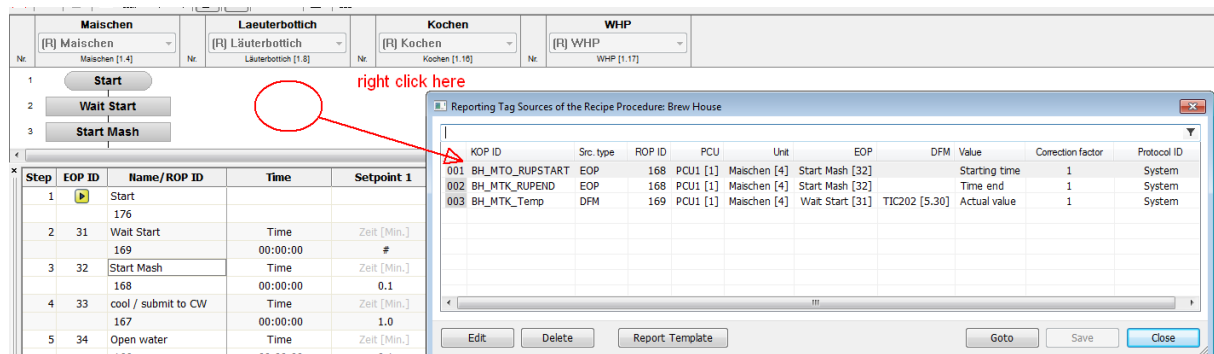
Global Reporting Tag  
Start of RUP [BH\_MTO\_RUPSTART]

Source  
Recipe procedure  
Brew House [126]

Unit/EOP  
Maischen [4]/Start Mash [32]

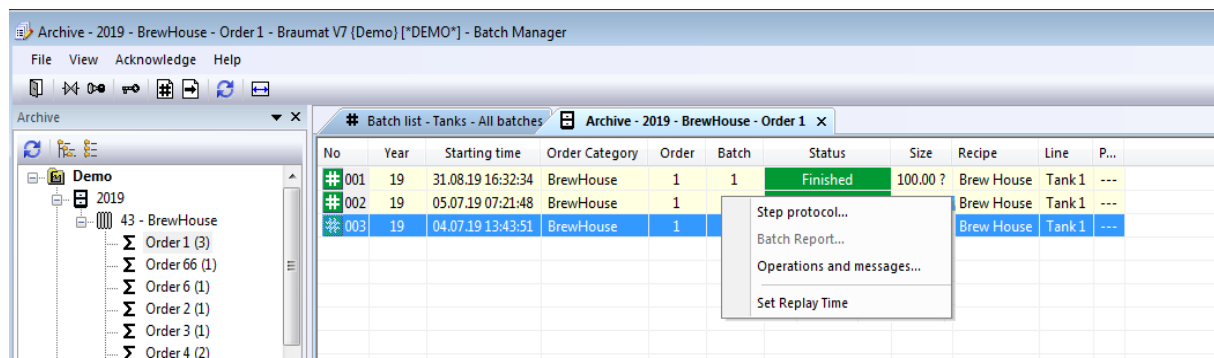
Value  
Starting time  
Starting time  
Time end  
Duration  
Product  
EOP Name  
Unit name

OK Cancel



here is a cross-reference where the tags are used.

With ID a PCU-based trigger can be used to have a protocol in between.

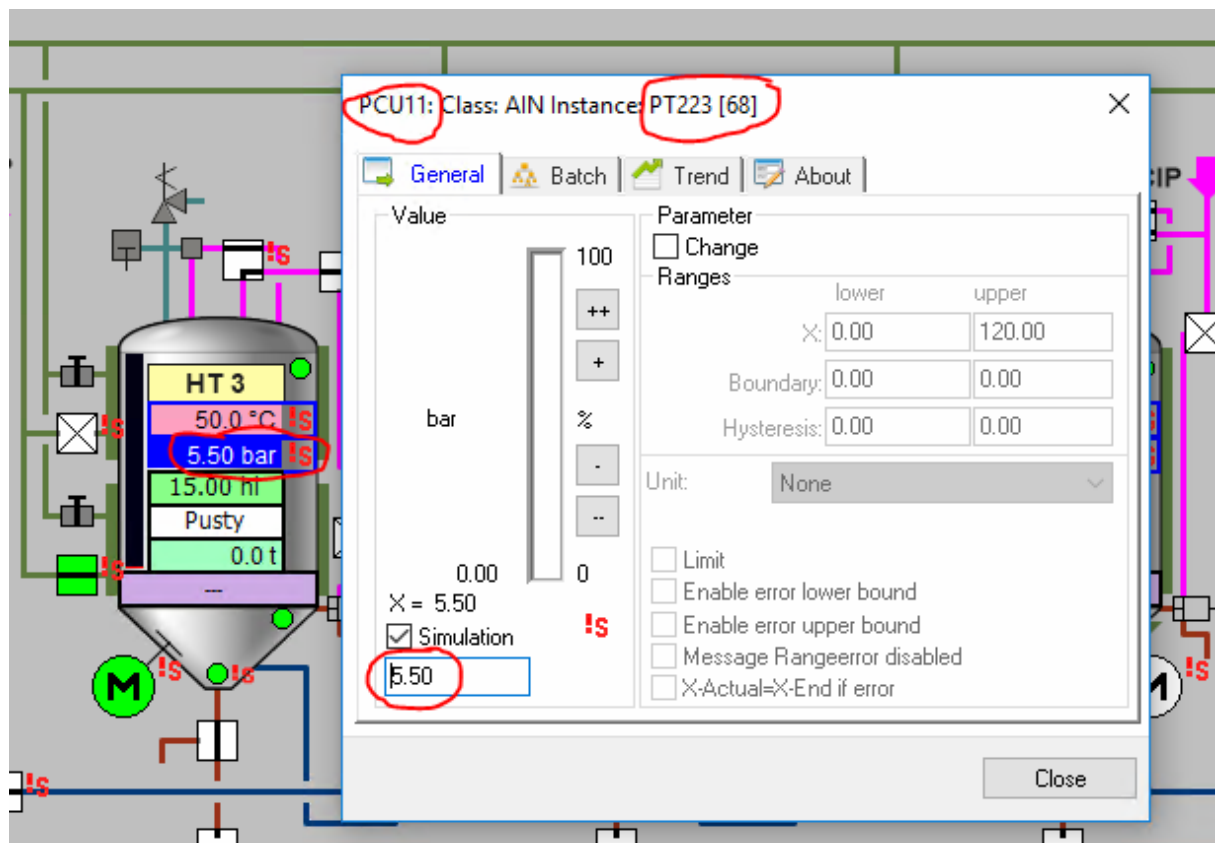


Here the protocol can be activated.

## 12.8 How to transfer analogue values to RCS and display it?

There are about 100 tanks and each tank has pressure transmitter inside.

We need to send this analog value from specific tank to the route in RCS, for example as in the screen below:



So we just load AIN value (PCU11) to PE (Master Route is in PCU14)

FB1225 : User interface OB32

Comment:

Network 1: First network

```

UC    FB    410
CALL  "BmExecPulseFC"                FC774
      RET_VAL:=#status                #status
CALL  "InterlockMarks"                FC3711

CALL  "BmExecSlbFC"                  FC773
      RET_VAL:=#status                #status

UC    FC    3402

L      "AIN".au[68].rProcValAct        DB727.DBD7566
T      "RC_PE_FIELD".au[68].rActValue  DB97.DBD2326
T      "RC_PE_FIELD".au[68].rValue     DB97.DBD2312

```

In RCS engineering we defined PE as in the screen below:

HT3_68	68	PCU11	Mode 30	False	1
HT3LV2	380	PCU11	xLV2	Open	False
HT3LV2	380	PCU11			
HT3RV2	383	PCU11			
HT3RV2	383	PCU11			
HT3ALV1	519	PCU10			
HT3ALV1	519	PCU10			
HT3K1	520	PCU10			
HT3K1	520	PCU10			
HT3LV1	521	PCU10			
HT3LV1	521	PCU10			
HT3RV1	522	PCU10			
HT3RV1	522	PCU10			
HT3RV4	523	PCU10			
HT3RV4	523	PCU10			

**Properties**

Route Parameter Element

Use of Route Parameter Element

Mode: Mode 30

index: 1

SumTyp:

General Values of Parameter Element

Name: HT3\_68

No.: 68

Automation System: PCU11

External Value: ☒

Comment

And then this pressure value is transferred to this PE and it is working.

017	PCU10	(17)	---	(U)	(U)
018	PCU14	(18)	CIP U1 CKT - CIP/ CIR	(0)	(0)
019	PCU14	(19)	CIP U1 CKT - Linia drozdzy	(0)	(0)
021	PCU14	(21)	CIP U2 CKT - Tanki CKT 41- 60	(0)	(0)
022	PCU14	(22)	CIP U2 CKT - Tanki HT,VH,RB,HB..	(0)	(0)

Modes		Elements							
Element	PCU	No.	Op. Mode	Feedback	U01	X02	C		
SAT1CIR1	PCU10 (10)	719	Auto	Close	d?				
CURR2P2	PCU10 (10)	821	Auto	Off	d?				
GOA_HRZNI5	PCU10 (10)	546	Auto	TRUE	a?				
GOA_HRZNI7	PCU10 (10)	548	Auto	TRUE	a?				
GOA_HRZHK6	PCU10 (10)	551	Auto	FALSE	a?				
Tank_Status_PCU10(Linia1CKT)	PCU10 (10)	1	Auto	0.00 ---					
TANK_ID_PCU10(Linia1CKT)	PCU10 (10)	2	Auto	0.00 ---					
HT3LV2	PCU11 (11)	380	Auto	Close	d?				
HT3PV1	PCU11 (11)	382	Auto	Close	d?				
HT3RV2	PCU11 (11)	383	Auto	Close	d?				
HT3V4	PCU11 (11)	388	Auto	Close	d?				
HTHK1	PCU11 (11)	410	Auto	Close	d?				
HT3RW1	PCU11 (11)	797	Auto	On	d?				
LS+223	PCU11 (11)	7	Auto	FALSE					
LS-223	PCU11 (11)	42	Auto	FALSE					
GOA HFNI1	PCU11 (11)	519	Auto	FALSE	a?				
HT3_68	PCU11 (11)	68	Auto	5.50 bar					
CU2RV1V1	PCU14 (14)	54	Auto	Close	d?				
CU2RR1V1	PCU14 (14)	55	Auto	Close	d?				
GOA HR7NI1	PCU14 (14)	521	Auto	FALSE	a?				

In order to have in the master route-DB the actual values of the external PEs from the slave routes, the correct FC 810 has to be called on the slave side. Then the value is found in here "auExtPeActVal".

<pre> IFPE: CALL "RC_IF_PE"       ID      :=1       FACTOR  :=1.000000e+000       DIS_ACTV:=FALSE       ACT_VAL :=#rActVal       DEF_VAL :=0.000000e+000       EN_DEF  :=FALSE       QRET_VAL:=#RetVal       QVALUE_I:=#Value_I       QVALUE_D:=#Value_D       QVALUE_R:=#Value_R       QINDEX  :=#Index       QEXT    :=#IsExt       QSUMMED :=#IsSum       QERR    :=#HasError       QBA_ID  :=#BatchId       QROUTE  :=#Route       QFUNC_ID:=#FuncId       QMODE_NO:=#ModeNo        CALL "RC_EXT_PE"       ROUTE_ID:=1       EXT_1_I :=#rActVal       EXT_2_I :=0.000000e+000       EXT_3_I :=0.000000e+000       EXT_4_I :=0.000000e+000       EXT_5_I :=0.000000e+000 </pre>	<pre> FC810      -- Route Control: Interface PE  #rActVal  #RetVal #Value_I #Value_D #Value_R #Index #IsExt #IsSum #HasError #BatchId #Route #FuncId #ModeNo  FC835      -- Route Control: External PE  #rActVal </pre>
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## 12.9 How to reset the password?

The original password is

Name: su and Password: su;

If it does not work, rename the file d:\windcs\sys\PASSWD.DAT

Or in V7: d:\windcs\Admin\bm\_users.dat

## 12.10 Communication with S5-Pheriphery

IM463-2 communicates with S5-rack. Communication is achieved with link between IM463-2 <-> IM314 cards. On the rack of IM314 there are input&output cards as configured on the HW Configuration of IM463-2.

CPU communicates with the S5 IO ET200M via it's own DP interface directly.

## 12.11 Material

Material check

The "BmRcMaterialIfFC [FC836]" block is the user interface for executing the material functions for a route. The block has the current material ID,

## 13 Internet-Links, Hotline

### Hotline:

[www.siemens.de/automation/support-request](http://www.siemens.de/automation/support-request)

[ad.support@siemens.com](mailto:ad.support@siemens.com)

<http://support.automation.siemens.com>

### More:

<https://www.automation.siemens.com/mcms/food-beverage/industry/beverage-industry/brewery/products-systems/Pages/Default.aspx>