



**Standard Software Training** 

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### • Purpose

• to present the Standard Software system and its functionality to end users (operators, technologists, automation department)

### Expectation

- To familiarize end users with automation system
- In the end you should be able to execute everyday tasks with new automation system



### Standard Software system design

- The automation control system is based on physical, procedural and recipe model of the plant
- The Standard Software system follows the ISA-88.01 standard used for controlling batch-oriented processes.

# **Automation system Concept**



### **Brewhouse Control Architecture**



# **Automation system Concept**



### **FV/Filter Control Architecture 1**



# **Automation system Concept**



### **FV/Filter Control Architecture 2**





### **PLC Profibus network**





### Introduction



- ISA S88 standard for batch control, represents a design philosophy for software, equipment and process flow
- Batch control ordered set of processing activities over a time using equipment to process finite quantities of input materials

# **ISA S88 Physical Model**



### **Physical model**



- Process cell (logical grouping of equipment)
  - required for production of one or more batches
- **Process unit** (technologically independent part of the control system)
  - contains or operates on a complete batch of material at some point in the processing sequence of that batch
- Control module
  - smallest part of the control system that can perform basic control as single entity.



### **Control module definition**

- smallest part of the control system that can perform basic control
- can be physical (valve, pump, measuring instrument, ...) but also software elements (PID regulator, ...)
- CM modes and states:
  - Automatic/Manual
    - Automatic commands for control (start/stop..) from PLC
    - Manual commands for control from the HMI
  - Maintenance all commands disabled (used during repair of equipment)
  - Standard/Simulation
    - Standard feedbacks for switch on or off expected and monitored
    - Simulation expected feedbacks are simulated
  - Fault/Alarm expected feedback not present, output state depends on CM type
  - Bypass interlock software interlock overridden, output activation allowed
  - Interlocked disables output activation on component



### **CM types in Standard Software**





### **Procedural model**



- Recipe Procedure strategy for a major processing action (making a batch)
- Unit procedure within unit ordered set of operations that causes a contiguous production sequence
- Recipe Operation ordered set of phases
  - processing sequence that takes the material being processed from one state to another, usually involving a chemical or physical change
- Phase smallest element that can accomplish process-oriented task
   Basic training

### **Definition ROP & Recipe procedure**

- Recipe operations or ROPs
  - operations which are a part of the procedure
  - assigned to units
  - each contains activations (activities) and transition conditions
- sequence performs process operations in an order defined by the procedure to perform a certain production activity
- procedure also contains the **values** of unit and recipe parameters
- a recipe is a set of values to be used with a certain procedure

POPID	Name_Lang1	Name_Lang2	Rev	Parameters						
KOP ID				Num	Name	ID	Egu	Min	Max	Default
1000	Start position		0.00	1				0,000	0,000	0,000
1001	Check start position		0.00	1	Control time	1	min	0,000	0,000	0,000
1002	Filling		0.00	1	Control time	1	min	0,000	0,000	0,000
1003	Emptying to Milling/Reject		0.00	1	Control time	1	min	0,000	0,000	0,000
1004	Standby		0.03	1	Control time	1	min	0,000	0,000	0,000



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# **ISA S88 Procedural Model**

### **Parameters**

- The course of the production process is defined by the values of **parameters** in different moments in time
- These parameters can be either Unit parameters, ROP parameters or Recipe parameters



- Parameters are defined as one of the following types:
  - Manual
  - Proc. Timer
  - Proc. Totalizer
  - ROP Timer
  - ROP Totalizer
  - Value
  - Selection
  - ParDiff
  - Par Set Dev



### **Standard Software applications**



- Process control and supervision
- Detailed overview of trends and message history
- Creating and editing of procedures and recipes
- Order management, reports
- Material management

Connection info Server group Production User montel	Server group Production  Language English	Config 🔌 Exit 💿 🐼 MONTELEKTRO 4/7/2016 9:02:13 AM
Materials     Materials     Sorts     Malt type     Bear Type     Compatibility     Mat BT	Sort: Malt type	Add 💽 Delete 😢 Save 🥥
	ID Name	Name
	O     None selected	
	1 Type 1	Type 1 L2
	2 Type 2	Type 2 L2

# **Starting WinCc Runtime**



- SIMATIC WinCC Explorer icon
  - Located on desktop
  - Starts WinCC Runtime containing the Human Machine Interface HMI



- Manual start:
  - Click on the activation button in SIMATIC explorer -





• To open the log on window, click on the headers's right corner where the currently logged-on user is displayed

### Log on window

System Login		System Login	
Login	ОК	Login	ОК
Password	Cancel	Password	Cancel
	Logout		Logout

• Log on, change or log off user in the Standard Software system

# **Operation Manager – Process screen**



• title, customer logo, supplier logo, the last active alarm, actual user name, alarm indicator, date, day and time

### • 2) Footer

• Contains shortcut buttons for most used functions

### 3) Sidebar (show)

- Direct navigation to process screens via buttons containing unit names
- Call the functions (access of material management, messages, recipes...)

### • 4) Working area

- Depends on the opened tab
- Process screen
  - Enables operators to click on every component and open





### Header – Process screen tab

Montelektro		Alm Ack OPC -	۹ 🕐 🖗	Date 3/25/2016 11:25:17 Al/ User
4	***	Reset Faults	Close Popups	Tooltips

### • Following commands are available in header:

Button name	Symbol	Button Description
Navigation button	MONITELEKTRO	Opens a navigation pop up window which includes links to all process screens.
Backward button	*	Opens the previous screen in the list of recently viewed screens.
Forward button	•	Opens the next screen in the list of recently viewed screens.
Alarm acknowledge button	Aim Ack	Acknowledges all displayed alarms.
Reset Faults button		Resets all faults.
OPC status	OK	Displays the SQL database connection status.
User login button	<u>R</u>	Opens the user login pop up window.
Exit runtime button	U	Exits runtime.
Close popups button	Close Popups	Closes all pop-up windows.
Close tooltips button	Tooltips 03-25-2016 11:47:34	Shows/Hides names of all components.
	montel	Shows date, time and currently logged on user.

# **Operation Manager – Navigation**



### Navigation between process cells

1. Select process cell in sidebar

### Navigation within process cell

- 2. Clicking on a process screen button in the sidebar
- 3. Clicking labeled buttons on screen itself







### **Navigation between process screens**

1. Click on the Montelektro logo on header

2. Select process screen button in the pop-up window



# **Operation Manager – System Screen**



- Screen shows configuration of automation system.
- The purpose of screen is more informative then operational.



# **Operation Manager – System Screen**



• Available commands on System screen:





- Restores all control modules parameterization from SQL database to specified PLC.
- Restores unit parameters from the database.
- Stores unit parameters (parameters not depending on recipe) and compatibility tables to database.
- Opens a window showing specific system parameters of the master computer. (Memory utilization, CPU utilization, Disk space, opened project, ...).

# **Operation Manager – Unit control**





Unit control window

- Normally placed on the bottom of the process screen
- Shows all general sequence information and it is used to control the unit
- Some process screens have more than one unit control window and operators are able to select which one will be shown on the screen
- **1. Unit**: contains number, name and status of the particular unit. The status is shown by different background color of the field:

Color	Status	Color	Status
Gray	Idle	Orange/Gray	Suspending
Green	Run	Orange/Green	Suspending from Restart
Red	Held	Purple	Completed
Red/Gray	Holding	Yellow	Aborted
Green/Gray	Restarting	Dark Green	Paused
Red/Green	Holding from Restart	Dark Green/Green	Pausing
Orange	Suspended		

# **Operation Manager – Unit control**





- **2. Recipe:** The field shows the actual active recipe for particular unit.
- **3. Batch**: The field shows active batch number in the unit. Batch number is automatically. incremented every time the unit starts. It is reset to zero at the beginning of year.
- **4. Message**: Message line shows the message to the operator. Message tells the operator which manual action has to be done or what condition is missing to start/continue process.
- 5. ROP: The sequential number, ID and name of the active Recipe Operation are displayed. Also the running time (mm:ss) is shown. On the right side of ROP name the icons for commands ROP + 1 and ROP – 1 are present.
- 6. **Phase**: The sequential number and name of the active Phase are displayed. On the right side of Phase name the icons for commands Phase + 1 and Phase 1 are present.



#### **Unit Commands**

- 7. Start
- 8. Hold
- 9. Restart
- 10. Confirm
- 11. Fault reset

**Pop-up Windows** 

- **12.** Unit Commands Window
- **13.** Unit Parameters Window
- 14. Recipe Parameters Window
- **15. ROP** Parameteres Window

# **Operation Manager – Unit commands Window**

 Contains the whole set of operator commands to unit (sequence).

**Functions:** 

- **1. Confirm:** Confirms the operator action.
- **2. Start:** Switches the unit to "Pausing" state.
- **3. Resume:** Switches the unit from "Pausing" state to "Run".
- **4. ROP-1:** Unit sequence jumps one ROP backward (previous ROP).
- **5. ROP+1:** Unit sequence jumps one ROP forward (next ROP).
- 6. Phase 1: Unit sequence jumps one phase backward (previous phase).
- 7. **Phase + 1:** Unit sequence jumps one phase forward (next phase).
- **8.** All auto: Switches all unit's Control Modules to automatic mode.
- **9. All manual:** Switches all unit's Control Modules to manual mode.
- **0. Reset:** Resets actual unit state "Completed" or "Aborted".
- **1. Show all:** Shows all control modules belonging to this unit.
- **2.** Load recipe: Selected recipe is loaded to the control program.
- **3. ROP jump:** Unit sequence jumps to the ROP pre-selected in the combo box above the button.

Molt 9	Pilos 1
Mait s RM	MH
Start	Abort
Hold	Restart
Fault reset	Confirm
ROP - 1	ROP + 1
Phase - 1	Phase + 1
All auto	All manual
Reset	Show all
	•
	Load Recipe
	•
	ROP iuma



### **Operation Manager – Unit parameters Window**

- Window shows particular unit "Unit parameters".
- Unit parameters do not depend on the actual recipe.
- Window explanation:
- 1. Consecutive parameter number
- 2. Internal control program parameter ID
- 3. Parameter name
- 4. Parameter setpoint value: This parameter can be changed inside predefined limits
- 5. Parameter actual value
- 6. Parameter engineering unit





### **Operation Manager – Recipe parameters** Window

- Window shows particular unit "ROP parameters".
- ROP parameters are parameters specific for actual operation.
- Window explanation:
- 1. Consecutive parameter number
- 2. Internal control program parameter ID
- 3. Parameter name
- 4. Parameter setpoint value: This parameter can be changed inside predefined limits
- 5. Parameter actual value
- 6. Parameter engineering unit





### **Operation Manager – Unit ROP parameters Window**

- Window shows particular unit "ROP parameters".
- Window explanation:
- 1. Consecutive parameter number
- 2. Internal control program parameter ID
- 3. Parameter name
- 4. Parameter status; red if parameter actual value is not OK for "ROP end condition"
- 5. Parameter setpoint value: this parameter can be changed inside predefined limits
- 6. Parameter actual value
- 7. Parameter engineering unit







### **Control modules**

- Smallest part of the control system that can perform basic control
- Can be physical but also software elements (e.g. valve, pump, measuring instrument, PID regulator...)
- Clicking a CM on the process screen opens its operator dialog box
- Operation modes:
  - Automatic: module takes commands from the control software and no operator actions are possible.
  - **Manual:** operator completely controls the module from the HMI system ignores the commands from the control program.
  - Local: the module is controlled by meaning of field control buttons.
  - **Maintenance:** the module is blocked for control and no alarms are shown in the system. It is used when maintenance personnel performs work on the module.
  - **PID manual**: module ignores set point value and gives fixed output set by operator.
  - **Simulation mode:** all module feedbacks are simulated (use only for temporary solution i.e. valve positioner need to be replaced). Module can be switched to simulation mode only by password level 50 (maintenance) or higher.
- 31 Basic trainings interlocks: all software interlocks are by-passed.

# CM Type 01: Valve ON/OFF with Actuator

Mode of operation:

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Meaning

Manual mode ON

Interlock Bypass

Local Mode ON

Maintenance

Simulation mode ON



- This CM represents the valve with one solenoid. It can be equipped with 2 position feedback switches (opened and closed). In the case a switch does not exist, the feedback is simulated by control system.
- Operation modes:
  - Automatic, manual, local, maintenance, simulation, bypass interlocks.

P11_AV_10_TL	01 🗙	Button	Action
		Auto	Switch the module to automatic mode.
NE	4	Man	Switch module to manual mode.
	$\triangleleft$	Open	Opens the valve
luto (	Man	Close	Closes the valve
Auto		Fault reset	Resets the fault on the CM once
Open	Close		the fault is gone.
Fault R	eset	Maintenance	Switch ON/OFF maintenance mode.
Maintenance		Simulation	Switch ON/OFF simulation mode.
Simulation			
ByPass Interlock		Bypass Interlock	Switch ON/OFF bypass interlock mode.

Priority

2

3

4

5

6

#### Alarm status &

#### Additional information symbols:

Color	Symbol	Meaning
Red		CM is alarm status
Red		CM in alarm that has to
(flashing)		be reset (Fault reset
		button)
Symbol	Meaning	
М	Manual mod	e ON
L.	Local Mode	ON
	Interlock (Ha	rdware or Software)

Status of the modul:

Color	Actuator color	Symbol	Meaning	Color	Sy
Gray	Gray		Closed	Blue	
Green	Green		Opened	Cyan	
White	Gray		Closing	Yellow	
White	Green		Opening	Magenta	
Gray	Green		Closed and opening	Orange	
Green	Gray		Opened and closing		
White	Gray		Undefined position		
Yellow	Gray		Automation error		

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# CM Type 02: Motor ON/OFF



- This CM represents the direct controlled motors and pumps. It can be equipped with run feedback switch, ready switch and safety switch (CIB). In the case switch does not exist the feedback is simulated by control system.
- Operation modes:
  - Automatic, manual, local, maintenance, simulation, bypass interlocks.

Status of the modul:

Color	Symbol	Meaning
Gray	M	Stopped
Green	M	Running
Gray/White		Stopping
Green/White		Starting
White		Undefined state
Yellow		Automation error

#### Mode of operation:

Color	Symbol	Meaning	Priority
Blue	M	Manual mode ON	2
Cyan	M	Simulation mode ON	3
Yellow	M	Interlock Bypass	4
Magenta		Local Mode ON	5
Orange	M	Maintenance	6

🔺 P11_D_11_42	×	Button	Action
		Auto	Switch the module to automatic mode.
G	<u>۱</u>	Man	Switch module to manual mode.
M	}	Start	Starts the motor.
Auto	Man	Stop	Stops the motor.
Auto		Fault reset	Resets the fault on the CM once
Start	Stop		the fault is gone.
Fault Re	eset	Maintenance	Switch ON/OFF maintenance mode.
Maintenance		Simulation	Switch ON/OFF simulation mode.
Simulation			
ByPass Interlock		Bypass Interlock	Switch ON/OFF bypass interlock mode.

#### Alarm status &

Color	Symbol	Meaning
Red	M	CM is alarm status
Red		CM in alarm that has to
(flashing)		be reset (Fault reset
		button)
Symbol	Meaning	
М	Manual mode ON	
L.	Local Mode ON	
	Interlock (Hardware or Software)	

# **CM Type 03: PID regulator**

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- This CM represents the PID regulator.
- Operation modes:
  - Automatic, manual, PID manual

🔺 P11_F	TX_08_1	TL_107_PID		Button	Action
	w.	+0.00 bl/b	+100	0 Auto	Switch the module to automatic
		10.00 1011	- +90,	Man	Switch module to manual mode
	X:	0.00 hl/h		IVIAII	Switch module to manual mode.
	Y: [	0.00 %		Start	Starts the PID regulator.
+0.0	+	-50.0	+100.0	Stop	Stops the PID regulator.
Au	ito	Man		Fault reset	Resets the fault on the CM once the fault is gone.
St	art	Stop		PID manual	Switch PID manual mod ON/OFF.
	Fault	: Reset		Slidebar-vertical	Manually set PID setpoint.
	nuar		► 10.0	Slidebar-horizon al	t Manually set PID output value.

#### Status of the modul:



#### Mode of operation:

Color	Symbol	Meaning	Priority
Blue	PID	Manual mode ON	2

#### Alarm status &

Color	Symbol	Meaning	
Red	<b>PID</b>	CM is alarm status	
Red		CM in alarm that has to	
(flashing)		be reset (Fault reset	
		button)	
Symbol N	leaning		
MN	Manual mode ON		

# **CM Type 05: Proportional Valve**

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- This CM represents the proportional valve with one solenoid. It can be equipped with 2 position feedback switches (opened and closed). In the case a switch does not exist, the feedback is simulated by control system.
- Operation modes:
  - Automatic, manual, local, maintenance, simulation, bypass interlocks.

#### Status of the modul:

Color	Symbol	Meaning
Gray	0,0 %	Closed
Green	100,0 %	Opened
Gray/White		Closing
Green/White		Opening
Yellow		Automation error

#### Mode of operation:

Color	Symbol	Meaning	Priority
Blue	0,0 %	Manual mode ON	2
Cyan	0,0 %	Simulation mode ON	3
Yellow	0,0 %	Interlock Bypass	4
Magenta		Local Mode ON	5
Orange	0,0 %	Maintenance	6

P11_CV_	_08_TL_107	×	Button	Action
		-	Auto	Switch the module to automatic mode.
Ŕ	Set 0.0 %	_	Man	Switch module to manual mode.
+0.0		+100.0	Fault reset	Resets the fault on the CM once the fault is gone.
	+50.0	_	Maintenance	Switch ON/OFF maintenance mode.
Aut	to Man		Simulation	Switch ON/OFF simulation mode.
	Fault Reset		Bypass Interlock	Switch ON/OFF bypass interlock mode.
Mainten	ance 🔲		Slidebar -	Manually set proportional valve
Simulatio	on 🔲		horizontal	output value.
ByPass I	nterlock 🔲			

#### Alarm status &

Color		Symbol	Meaning
Red		Ŕ	CM is alarm status
Red			CM in alarm that has to
(flashing)	)		be reset (Fault reset
			button)
Symbol	Ν	leaning	
М	N	lanual mod	e ON
L.	Local Mode ON		ON
Interlock (Ha		iterlock (Ha	rdware or Software)

# **CM Type 06: Digital Switch**

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- This CM represents the digital switches. Module contains only one digital input.
- Operation modes:
  - Automatic, simulation

🔺 P11_5I_10_D5_43 🛛 🗙	Button	Action
	Simulate Act.	Switch the module status to activated
	Simulate Deact.	Switch the module status to deactivated.
	Fault reset	Resets the fault on the CM once the fault is gone.
	Simulation	Switch ON/OFF simulation mode.
Activated status		
Simulate Act, Simulate Deac,		
Fault Reset		
Simulation		

#### Status of the modul:

Color	Symbol	Meaning
Gray	$\bigcirc$	Closed
Green	0	Opened
Red	•	

#### Mode of operation:

Color	Symbol	Meaning	Priority
Blue	$\bigcirc$	Manual mode ON	2

#### Alarm status

Color	Symbol	Meaning
Red	$\bigcirc$	CM is alarm status
Red		CM in alarm that has to
(flashing)		be reset (Fault reset
		button)

# **CM Type 09: Analog Measurement**



- This CM represents the analog transmitter. Module contains only one analog input.
- Operation modes:
  - Automatic, simulation

🔺 P11_TTX	_09_BL_202	Button	Action
		Fault reset	Resets the fault on the CM once
+100.0			the fault is gone.
		Simulation	Switch ON/OFF simulation mode.
	$\bigcirc$	Slidebar – vertical	Manually set actual engineer value
+50.0 -			
	Actual reading		
	0.0 %		
	Actual eng. value		
+0.0	0.0 ℃		
	Fault Reset		
Simulation			
<u>,</u>			

#### Status of the modul:

Color	Symbol	Meaning
Gray	$\bigcirc$	Closed
Green	0	Opened
Red	•	

#### Mode of operation:

Color	Symbol	Meaning	Priority
Blue	$\bigcirc$	Manual mode ON	2

#### Alarm status

Color	Symbol	Meaning
Red	$\bigcirc$	CM is alarm status
Red		CM in alarm that has to
(flashing)		be reset (Fault reset
		button)

# **CM Type 11: Motorized valve**

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- This CM represents the motorized valve. It can be equipped with 2 position feedback switches (opened and closed). In the case switch doesn't exist the feedback is simulated by control system.
- Operation modes:
- Automatic, manual, local, maintenance, simulation, bypass interlocks.

Color	Actuator color	Symbol	Meaning
Gray	Gray		Closed
Green	Gray		Opened
White	Gray		Closing
White	Green		Opening
Gray	Green		Closed and opening
Green	Gray		Opened and closing
Gray	Green		Undefined position
Green	Gray		Automation error
White	Gray		
Yellow	Gray		



#### Alarm status &

#### Additional information symbols:

Color	Symbol	Meaning	
Red		CM is alarm status	
Red		CM in alarm that has to	
(flashing)		be reset (Fault reset	
		button)	
Symbol	Meaning		
М	Manual mode ON		
L.	Local Mode ON		
<u> </u>	Interlock (Hardware or Software)		

#### Mode of operation:

Color	Symbol	Meaning	Priorit
Blue		Manual mode ON	2
Cyan		Simulation mode ON	3
Yellow		Interlock Bypass	4
Magenta		Local Mode ON	5
Orange		Maintenance	6

# CM Type 13: Valve (double solenoid) with actuator

- This CM represents the valve with two solenoids. It can be equipped with 2 position feedback switches (opened and closed). In the case switch doesn't exist the feedback is simulated by control system.
- Operation modes:
- Automatic, manual, local, maintenance, simulation, bypass interlocks. Status of the modul:

Color	Actuator color	Symbol	Meaning
Gray	Gray		Closed
Green	Gray		Opened
White	Gray		Closing
White	Green		Opening
Gray	Green		Closed and opening
Green	Gray		Opened and closing
Gray	Green		Undefined position
Green	Gray		Automation error
White	Gray		
Yellow	Gray		

Mode	of o	peration
------	------	----------

Color	Symbol	Meaning	Priorit
Blue		Manual mode ON	2
Cyan		Simulation mode ON	3
Yellow		Interlock Bypass	4
Magenta		Local Mode ON	5
Orange		Maintenance	6

P11_AV_01_M_14		Button	Action
		Auto	Switch the module to automatic mode.
		Man	Switch module to manual mode.
		Open	Opens the valve
Auto	Man	Close	Closes the valve
Open	Close		
Cher		Fault reset	Resets the fault on the CM once
3(0)	þ		the fault is gone.
Fault R	eset	Maintenance	Switch ON/OFF maintenance mode.
Maintenance 📃 🗌		Simulation	Switch ON/OFF simulation mode.
Simulation 🗾			
ByPass Interlock		Bypass Interlock	Switch ON/OFF bypass interlock mode.

#### Alarm status &

Color	Symbol	Meaning		
Red		CM is alarm status		
Red		CM in alarm that has to		
(flashing)		be reset (Fault reset		
		button)		
Symbol	Meaning			
M	Manual mode ON			
L	Local Mode ON			
	Interlock (Hardware or Software)			



# CM Type 15: Two Way Flap (double solenoid)



- This CM represents two way flap with two solenoids. It can be equipped with 4 position feedback switches (2 for opened and 2 for closed). In the case switch doesn't exist the feedback is simulated by control system.
- Operation modes:
  - Automatic, manual, local, maintenance, simulation, bypass interlocks.

Status of the modul:

Color	Actuator color		Symbol	Meaning	
Green	Green	Gray		Open way 1	
Green	Gn/Wh	Green		Opening way 1 and opened way 2	
Green	Gn/Wh	Gray		Opening way 1	
Green	Green	Gn/Wh		Opening way 2 and opened way 1	
Green	Gray	Gn/Wh		Opening way 2	
Green	Gray	Green		Open way 2	
White	White	White		undefined	
Yellow	Yellow	Yellow		undefined	
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#### Mode of operation:

Color	Symbol	Meaning	Priority
Blue		Manual mode ON	2
Cyan		Simulation mode ON	3
Yellow		Interlock Bypass	4
Magenta		Local Mode ON	5
Orange		Maintenance	6

A P11_AV_11_MZ	_34 🗙	Button	Action
		Auto	Switch the module to automatic mode.
		Man	Switch module to manual mode.
		Open	Opens the valve
Auto	Man	Close	Closes the valve
Open Wav1 Open Wav2			
Sto	p	Fault reset	the fault is gone.
Fault R	Reset	Maintenance	Switch ON/OFF maintenance mode.
Maintenance		Simulation	Switch ON/OFF simulation mode.
Simulation			
ByPass Interlock		Bypass Interlock	Switch ON/OFF bypass interlock mode.

#### Alarm status &

Color	Symbol	Meaning	
Red		CM is alarm status	
Red		CM in alarm that has to	
(flashing)		be reset (Fault reset	
		button)	
Symbol	Meaning		
Μ	Manual mode ON		
L	Local Mode ON		
	Interlock (Hardware or Software)		

# **CM** Type 16: Totalizer



• This CM represents pulse counting. Module contains only one digital input.

- Operation modes:
  - Automatic, simulation, pulse bypass (integration of continous measurement instead of pulses)

A P11_PC_08_TL_107	Button	Action
	Reset	Reset the totalized value
	Fault reset	Resets the fault on the CM once the fault is gone.
Totalized Value	Simulation	Switch ON/OFF simulation mode.
0.00 hi	Pulses Bypass	Switch ON/OFF pulses bypass.
Reset		
Fault Reset		
Simulation 🗾		
Pulses Bypass 🔽 🕨		

#### Status of the modul:

Color	Symbol	Meaning
Gray	0,00	Automatic
Cyan	0,00	Simulation mode
Yellow	0,00	Pulses bypass

#### Alarm status



# **CM** Type 17: Digital Output



- This CM represents one digital output.
- Operation modes:
  - Automatic, manual, maintenance, activated, deactivated

🔺 P11_5I_04_BT_13		Button	Action		
		Auto	Switch the module to automatic mode.		
_	_	Man	Switch module to manual mode.		
FILTER CONTROLLER CHOC		On	Switch module ON.		
		Off	Switch module OFF.		
		Maintenance	Switch ON/OFF maintenance mode.		
Auto	Man				
ON	OFF				

#### Status of the modul:

Color	Symbol	Meaning
Gray		
Green		
Red		
Yellow		

#### Mode of operation:



Maintenance

#### Alarm status

Color	Symbol	Meaning
Red		CM is alarm status
Red		CM in alarm that has to
(flashing)		be reset (Fault reset
		button)

# **CM Type 21: Double Seat Valve**

AUTOMATICN AND ELECTRICAL ENGINEERING LTD

- This CM represents the valve with one solenoid for valve activation and two solenoids for seats. It can be equipped with 2 position feedback switches (opened and closed). In the case switch doesn't exist the feedback is simulated by control system.
- Operation modes:
  - Automatic, manual, local, maintenance, simulation, bypass interlocks. Status of the modul: Mod

Meaning

Closed

Opened

Closing

Opening

Closed and opening

Opened and closing

Undefined position

Automation error

Color

Blue

Cyan Yellov

Mage

Orang

Symbol

ne	🟓 P11_	AV_18_W_19	×	Bu	tton			Action
)				Au	to		Switch mode.	the module to automatic
ed				Ма	n		Switch	module to manual mode.
				Ор	en		Opens	the valve
itch	A	uto Ma	n l	Clo	ose		Closes	the valve
ed	LiftA	Low.A LiftB	Low.B	Lift	t A		Lift sea	t A.
		Fault Reset		L٥١	wer A		Lowers	seat A.
	Mainte	enance		Lift	tΒ		Lift sea	t B.
	ByPass	s Interlock j		L٥١	ower B		Lower seat B.	
				Fau	ult reset		Resets	the fault on the CM once
				Ма	intenance		Switch	ON/OFF maintenance
e of c	operati	ion:		Sin	nulation		Switch	ON/OFF simulation mode.
Sy	/mbol	Meaning	Priority	Ву	pass Inter	lock	Switch	ON/OFF bypass interlock
		Manual mode ON	2		Color	Sy	mbol	Meaning
		Simulation mode ON	3		Red			CM is alarm status
v		Interlock Bypass	4		Red			CM in alarm that has to
nta		Local Mode ON	5		(flashing)			be reset (Fault reset
ge		Maintenance	6		Symbol	Mear	ning	button)
Alar	m stat	tus &		÷	М	Mani	al mode	
	litional	information a	wash e k		1			
Add	illional	information s	sympols	SI	m	Interl	ock (Ha	rdware or Software)
				_			,	,

Color

DarkGreen

Green/White

Green/White

White

Yellow

DarkGreen/White

DarkGreen/White

Green

# CM Type 29: Analog Value



- This CM represents the Input/Output analog value.
- Operation modes:
  - Automatic, simulation

🔺 P11_M54_WT 🛛 🗙	Button	Action
+999999.0	Fault reset	Resets the fault on the CM once the fault is gone.
	Simulation	Switch ON/OFF simulation mode.
	Operator entry	Manually set actual engineer value.
+500000.0		
· Operator endy · 0.0 kg		
+0.0 Actual eng. value		
Fault Reset		
Simulation		

Status of the modul:

Color	Symbol	Meaning
Gray	<b>0</b> hl	Automatic
Yellow	<b>0</b> hl	Low/High warning
Gray/Cyan	0 hl	Simulation

Alarm status



# CM Type 34: Motor VS Gen

- This CM represents the motors and pumps that can run with various range of speed. It can be equipped with run feedback switch, ready switch and safety switch (CIB). In the case switch doesn't exist the feedback is simulated by control system.
- Operation modes:
  - Automatic, manual, local, maintenance, simulation, bypass interlocks. Status of the modul:

Color	Symbol	Meaning
Gray	M	Stopped
Green	M	Running
Gray/White		Stopping
Green/White		Starting
White		Undefined state
Yellow		Automation error

#### Mode of operation:

Color	Symbol	Meaning	Priority
Blue	M	Manual mode ON	2
Cyan	M	Simulation mode ON	3
Yellow	M	Interlock Bypass	4
Magenta		Local Mode ON	5
Orange	M	Maintenance	6

🔺 P11\_VSD\_08\_24

-60

Auto

Simulation

 $(\mathbf{M})$ 

-100

Set

#### Act. Set 0 % +100 +60 -20 Start Starts the motor. +20 Stop Stops the motor. Man Fault reset Resets the fault on the CM once the fault is gone. Switch ON/OFF maintenance Maintenance Fault Reset mode. Maintenance E Switch ON/OFF simulation mode. Simulation Г Bypass Interlock Switch ON/OFF bypass interlock **ByPass Interlock** mode.

Button

Auto

Man

X

+0 %

#### Alarm status &

Additional information symbols:

Color	Symbol	Meaning		
Red	M	CM is alarm status		
Red		CM in alarm that has to		
(flashing)		be reset (Fault reset		
		button)		
Symbol	Meaning			
M	Manual mode ON			
L	Local Mode ON			
	Interlock (Ha	rdware or Software)		



mode.

Action

Switch the module to automatic

Switch module to manual mode.

# CM Type 35: Analog Output



- This CM represents the analog output value. Module contains only one analog output.
- Operation modes:
  - Automatic, simulation



Button	Action
Auto	Switch the module to automatic mode.
Man	Switch module to manual mode.
Maintenance	Switch ON/OFF maintenance mode.
ByPass Interlock	Switch ON/OFF bypass interlocks mode.

#### Status of the modul:

Color	Symbol	Meaning
Gray	<b>0</b> hl	Automatic
Gray/Orange	0 hl	Maintenance
Gray/Yellow	0 hl	ByPass Interlock

#### Alarm status

Color	Symbol	Meaning
Red	<b>0</b> hl	CM is alarm status
Red (flashing)		CM in alarm that has to be reset (Fault reset button)



Button	Action	Explanation	Enabled	Password level
Auto	Switch the module to automatic mode.	CM is controlled by program and no operator action is permitted.	Always.	10 – Operator
Man	Switch module to manual mode.	Module is controlled by operator from the HMI.	When control is not disabled from the control program (status 'Manual disabled').	10 - Operator
Open	Opens the valve		Module is in manual mode and there is no interlock.	10 – Operator
Close	Closes the valve		Module is in manual mode and there is no interlock.	10 – Operator
Fault reset	Resets the fault on the CM once the fault is gone.	The button is blinking red when there is the condition for fault reset.	Always.	10 – Operator
Maintenance	Switch ON/OFF maintenance mode.	Maintenance mode is ON when the box is checked.	Always.	50 – Maintenance
Simulation	Switch ON/OFF simulation mode.	Simulation mode is ON when the box is checked.	Always.	50 – Maintenance
Bypass Interlock	Switch ON/OFF bypass interlocks mode.	Bypass interlocks mode is ON when the box is checked.	Always.	50 – Maintenance



### Alarms screen

	🖬 🚨 🕭 👧 🛇 <	e de			
Block: 5 ▼2 Unit ▼3 BI▲1 Process value: 6	User Administration	▲4 Value input	Process value: 8	Process value: 7	
07/04/16 10:08:24 🔢 P31_TTX_26_W_12		FV 12 temperature	Low limit alarm	Tank room	
07/04/16 10:08:24 🔛 P31_TTX_26_W_12	FV12	FV 12 temperature	Low limit warning	Tank room	
07/04/16 10:08:24 B P31_TTX_26_W_12	FV12	FV 12 temperature	High limit warning	Tank room	
07/04/16 10:08:24 🔢 P31_TTX_26_W_15	FV15	FV 15 temperature	Low limit alarm	Tank room	
07/04/16 10:08:24 B P31_TTX_26_W_15	FV15	FV 15 temperature	High limit warning	Tank room	
07/04/16 10:08:24 B P31_TTX_26_W_15	FV15	FV 15 temperature	Low limit warning	Tank room	
07/04/16 10:08:24 🔢 P31_TTX_26_W_15	FV15	FV 15 temperature	Analog measurment fault	Tank room	
07/04/16 10:08:24 🔢 P31_TTX_26_W_15	FV15	FV 15 temperature	High limit alarm	Tank room	
07/04/16 10:08:24 🔢 P31_TTX_26_W_18	FV18	FV 18 temperature	High limit alarm	Tank room	Fron
07/04/16 10:08:24 B P31 TTX 26 W 18	FV18	FV 18 temperature	Low limit warning	Tank room	Apr 2016
07/04/16 10:08:24 🗄 P31_TTX_26_W_18	FV18	FV 18 temperature	Low limit alarm	Tank room	Apr 2016 Apr
07/04/16 10:08:24 🔢 P31 TTX 26 W 18	FV18	FV 18 temperature	Analog measurment fault	Tank room	Sun Mon Tue We
07/04/16 10:08:24 B P31 TTX 26 W 18	FV18	FV 18 temperature	High limit warning	Tank room	27 28 29 30
07/04/16 10:08:24 🔢 P31 TTX 26 W 21	FV21	FV 21 temperature	Low limit alarm	Tank room	3 4 5 6
07/04/16 10:08:24 P31 TTX 26 W 21	FV21	EV 21 temperature	Low limit warning	Tank room	10 11 12 13
07/04/16 10:08:24 P31 TTX 26 W 21	FV21	FV 21 temperature	High limit alarm	Tank room	17 18 19 20
07/04/16 10:08:24 P31 TTX 26 W 21	FV21	EV 21 temperature	High limit warning	Tank room	24 25 26 27
07/04/16 10:08:24 P31 TTX 26 W 21	EV21	EV 21 temperature	Analog measurment fault	Tank room	1 2 3 4
07/04/16 10:08:24 E P31 SI 24 HL 301	CT301	CT 301 high level probe	Alarm	Tank room	
07/04/16 10:08:24 P31 SI 24 HL 304	CT304	CT 304 high level probe	Alarm	Tank room	To:
07/04/16 10:08:24 E P31 St 24 H 309	CT309	CT 309 high level probe	Alarm	Tank room	
07/04/16 10:08:24 III P31 St 24 11 402	CT402	CT 402 low level probe	Alarm	Tank room	Apr 2016 Apr
07/04/16 10:08:24 🔢 P31 St 24 HL 403	CT403	CT 403 high level prohe	Alarm	Tank room	Sun Mon Tue We
07/04/16 10:08:24 III P31 St 24 II 407	CT407	CT 407 low level probe	álarm	Tank room	27 28 29 30
07/04/16 10:08:24 III P31 ST 24 HI 408	CT408	CT 408 high level probe	álarm	Tank room	3 4 5 6
07/04/16 10:08:24 III P31 ST 24 II 410	CT410	CT 410 low level nrohe	álarm	Tank room	10 11 12 13
07/04/16 10:08:24 III P31 St 24 H 411	CT411	CT 411 birth level prohe	álarm	Tank room	17 18 19 20
07/04/16 10:08:24 E P31 St 24 11 412	CT412	CT 412 low level probe	álarm	Tank room	24 25 26 27
07/04/16 10:09:24 P21 LTX 26 W 52	EV52	EV 52 loval	Analog measurment fault	Tank room	1 2 3 4
07/04/16 10:00:24 E P21 D 24 4220	Oreen beer line 2	Chiller 2 glycol pump	Safety switch opened	Tank room	
07/04/16 10:08:24 II P31 D 24 4220	Green beer line 2	Chiller 2 glycol pump	Run feedback timeout	Tank room	
07/04/16 10:08:24 III P31 D 24 4220	Green heer line 2	Chiller 2 glycol pump	MCC not ready	Tank room	
07/04/16 10:09:24 III P21 D 24 04	Litilities	CT 400 odde conditioned hear to filter nume	MCC not ready	Litilitie	Data Bl
07/04/16 10:00:24 III 0310 24 04	Litilities	CT 400 cdds conditioned beer to filter pump	Safaty switch opened	Litilities	Date III
07/04/16 10:09:24 19 131_0_24_04	L trilition	CT 400 odds conditioned beer to filter purp	Pup feedback timeout	Litilities	
07/04/16 10:00:24 19 021 0 24 02	Utilities	CT 400 odds Collardoned beer to hiter pump	Pup feedback timeout	Utilities	Data 9 cm
07/04/16 10:08:24 E P31 D 24 02	Litilities	CT 400 odds CIP return pump	Safaty awitch append	Litilities	
07/04/16 10:08:24 III P31_0_24_02	Utilities	CT 400 odds CIP return pump	MCC pot roady	Litilities	
07/04/16 10:00:24 10 001 AV 06 14:060	EV/06	EV.6 alveal value	Condends for dt	Table soons	
07/04/16 10:00:24 E P31_AV_20_W_002	FV00	EV 6 giycol valve	Closing timesuit	Tark room	
07/04/16 10:00:24 III P31_AV_20_W_002	EV/06	EV 6 alveol volvo	Ocening timeout	Tank room	
07/04/16 10:00:24 P31_AV_20_V/_002	EV00	EV 9 alveol valve	Closing timeout	Tank room	All alar
07/04/10 10:00:24 E P31_AV_20_W_062	F 100	EV 8 giycui valve	Closing timeout	Tark room	
07/04/10 10:00:24 E PSI_AV_26_W_082	FV00	EV o glycul valve	Constituents for the	Tank room	
07/04/16 10:00:24 P31_AV_26_W_082	FV10	EV 10 alvel valve	Closing timoguit	Tank room	
Ready		4/7/2	016 2:40:07 PM Pending: 268 To ack	mowledge: 244 Hidden 0 List: 268	

 Alarm information consists of:

Date filter

Date & unit filter

All alarms

- 2016 -

▼ 2016 ▼ Tue Wed Thu Fri Sat

- Alarm acknowledged or not information
- Alarm appearance date and time
- Alarm description
- Area to which the alarm belongs
- Alarm tag name (for software specialist)

- Displays active or not confirmed alarms in entire system.
- Alarm types:
  - **High priority alarms** are shown in red color and their appearance means that something is wrong in process
  - Low priority alarms are shown in yellow color and their appearance means that system has the message or warning for operator

# **Operation Manager - Alarms**



### **Alarms toolbar**

**Commands explanation:** 

- 1. Message list: Shows currently active messages
- 2. Short-term archive list: Shows archived messages (short-term)
- 3. Long-term archive list: Shows archived messages (long-term)
- 4. Acknowledge central signaling services
- 5. **Single acknowledgment**: acknowledges a single message
- 6. **Group acknowledgmenet**: acknowledges a group of messages
- 7. Autoscroll
- 8. Selection dialog: Creates a filter for message displaying
- **9. Printing**: Sends a message log for printing
- **10. First message**: Shows the first message
- **11. Previous message**: Shows the previous message
- **12.** Next message: Shows the next message
- **13.** Last message: Shows the last message
- **14.** Loop in alarm
- **15. Sort dialog**: Sorts message dialog by specified filters
- **16. Time base dialog**: Changes the system time base
- **17. Previous page**: Shows previous message page
- 18. 49 Naxit page: Shows next message page





### **Alarm filtering options**

**Commands explanation:** 

- 1. Displays messages between selected date
- 2. Displays messages between selected dates and for specific unit.
- 3. Displays all messages





# **Operation Manager - Trends**



### Trends screen



- Each process screen contains a desired number of Trend buttons.
- Each trend button opens a specific screen that contains predefined analog measurements.
- Trend itself shows dependence of particular process value, measurement on the time.
- The trend screen, once open, shows the last two hours for defined values.
- Scrolling through time, zooming and printing are standard trend screen features.

# **Operation Manager - Trends**





Commands explanation:

- 1. Trend window properties
- 2.
- 3.
- 0.
- 4.
- 5.
- 6.
- 0.
- 7. Zoom trend
- 8. Scroll through timeline
- 9.
- 10. Define time interval
- 11. Pause trends
- 12. Print trend window
- 13. Export trends
- 14. Show ruler
- 15. Set statistics range





### **Adding trends**

- Historical trend properties window is called via icon on trend screen header.
- Trend tab allows adding and removing trends.
- To add a trend, click the button (1), then click in the field "Tag name": browse button (2)
- Select a tag from *TrendArchive* and click ok

Toolbar Ì Stat	us Bar	Online Configuration	Export
Frends General	Font Tree	d Window Time Axes	Value Axe
			1 1 1 1 1 1 1 1
Frends:		Object name:	
✓ 1. MECH - level transm	itter mechamas	1. MECH - level transmitte	r mechamasher
2. MECH - temperature	e transmitter wa	Trend window:	
S. MECH - HOW transm	itter mixed wate	Trend window 1	<u> </u>
		Time axis:	
		Time axis 1	•
Selection of Archives/T	205	Transportant and the second	2
	ays		
►			
ierarchy: StGeorge_BH_21	37-MASTER::Tren	dArchive\	
WINCC-VIEW-11	Tag name	C	TAL
🗄 🚊 StGeorge_BH_2137-M	14' *		
		Y   Y	1 1 1 1 1
TrendArchive	01_WT2	30001.ActEng	A., C., 2.,
TrendArchive		30001.ActEng	A., C., 2., A., C., 2.,
TrendArchive	P01_WT20	30001.ActEng S201.ActEng 3761.ActEng 0680.ActEng	A., C., 2., A., C., 2., A., C., 2., A., C., 2., A., C., 2.,
	P01_WT24	30001.ActEng 3201.ActEng 3761.ActEng 3680.ActEng 8700.ActEng	A., C., 2., A., C., 2., A., C., 2., A., C., 2., A., C., 2., A., C., 2.,
L. TrendArchive	P01_WT24	30001.ActEng 3761.ActEng 3761.ActEng 0680.ActEng 8700.ActEng 0680.ActEng 0680.ActEng	A., C., 2., A., C., 2., A., C., 2., A., C., 2., A., C., 2., A., C., 2., A., C., 2.,
TrendArchive	P01_WT24     P01_WT24     P01_LT02     P01_LT02     P01_TT24     P01_FT02     P01_TT08     V	0001.ActEng S201.ActEng 0680.ActEng 0680.ActEng 0680.ActEng 0680.ActEng	A., C., 2., A., C., 2., A., C., 2., A., C., 2., A., C., 2., A., C., 2., A., C., 2.,
TrendArchive	P01_WT24     P01_AWZ24     P01_AWZ24     P01_AWZ24     P01_AWZ24     P01_AWZ24     P01_TT24     P01_TT24     P01_FT02     P01_TT08     I	00001.ActEng escot.ActEng 0680.ActEng 0680.ActEng 0680.ActEng	A., C., 2., A., C., 2., Help
TrendArchive	P01_WT2           P01_AM2           P01_LT02           P01_TT24           P01_FT02           P01_TT08	00001.ActEng ES201.ActEng 0680.ActEng 0680.ActEng 0680.ActEng 0680.ActEng	A., C., 2., A., C., 2., A., C., 2., A., C., 2., A., C., 2., A., C., 2., A., C., 2., H., C., 2.,
TrendArchive	Po1_WT2           PO1_MT2           PO1_TO2           PO1_TT24           PO1_FT02           PO1_FT02           PO1_TT08           >	00001.ActEng ES201.ActEng 0680.ActEng 0680.ActEng 0680.ActEng 0680.ActEng 0680.ActEng	A., C., 2., A., C., 2., A., C., 2., A., C., 2., A., C., 2., A., C., 2., A., C., 2., Help
TrendArchive	POI_WT2!           POI_POI_TAV2.           POI_TO2           POI_TT2	0001.ActEng           05001.ActEng           0500.ActEng           0680.ActEng           0680.ActEng           0K           Cancel           Dot.Width:           0	A., C., 2., A., C., 2., A., C., 2., A., C., 2., A., C., 2., A., C., 2., A., C., 2., H., C., 2., Help
Oot type:     O - None     Dot:color:     Fill	POI_WT2     POI_T02     P	0001.ActEng           05001.ActEng           0500.ActEng           0680.ActEng           0           0           0           0           Extended	A., C., 2., A., C., 2., A., C., 2., A., C., 2., A., C., 2., A., C., 2., H., C., 2., H., C., 2., H., C., 2., Help
Oot type:     O - None     Dot:color:     Fill     Boo	POI_WT2     POI_T02     P	0001.ActEng       05001.ActEng       0500.ActEng       0680.ActEng       0680.ActEng       0000.ActEng       0       0       0       0       0	A., C., 2., A., C., 2., A., C., 2., A., C., 2., A., C., 2., A., C., 2., H., C., 2., H., C., 2., H., C., 2., Help

### Value axes tab

- To add a new axis, click button (1).
- Change parameters according to the new trend:
  - 2. Object name set axis name
  - 3. Label set new label
  - 4. Value from set tag low limit
  - 5. Value to set tag high limit
  - 6. Decimal places set number of decimal places
- Return to *Trends* tab and set new trend options:
  - 7. Object name set trend name
  - 8. Value axis select new axis defined in previous step
  - 9. Effects set trend line appearance
- Click *Apply* (10) to confirm changes.

Toolbar Status Bar	Online Confi Exp	ort
rends General Font	Trend Window ( 7 )s   Value	Axes
rends:	Object name:	
1. MECH - level transmitter mecha	mas Temporary trend	_
2. MECH - temperature transmitte	<sup>r wa</sup> Trend window:	
3. MECH - flow transmitter mixed v	Vate Trend window 1	-
I emporary trend	Time axis:	
	Time axis ( 8 )	•
	Value axis:	
	Value axis 4	-
	Label:	
•		
Data connection	Tag name:	
1 - Archive	StGeorge BH 2137-MASTER:	P
		21
Effects		-
Trend type:	Trend color:	
1 - Connect dots linearly		
Line style:	Line weight:	
0 - Solid		
Dot type:	Dot width:	
0 - None		
Dot color; Fill color;		
000	Limit Values	1





### **Recipe editor screen**

MBatchManager 3.4.4. montel@Produc	ction Connected to Master										×
SQL status :	Active server :	Master	Server group Production	•	Language English	•	Log	Reload 🧿	Exit	٢	MONTELEKTRO     4/1/2016 - 8:55:03 AM
ProcessCells     (1) - Production     (2) - Roburgion     (2) - Roburgion     (3) - Mall Sides     (1) - Production     (3) - Mall Sides     (3) - Mall Sides     (3) - Mall Sides     (4) - Mall Sides     (5) - Mall Sides     (6) - Mall Sides     (7) - Mall Sides     (7) - Mall Sides     (9) - Mall Sides     (9) - Mall Sides     (1) - Mall Sides     (1) - Mall Sides     (3) - Mal	Process cell Name : Number : Master PLC number :	Revraterials a	89								
Log window           Se [Message]           4/1/2015 8 44.09 AM - Loaded RecipeCat           4/1/2015 8 44.09 AM - Loaded UniProced           4/1/2015 8 44.09 AM - Loaded UniProced           4/1/2015 8 44.09 AM - Loaded UniProced           4/1/2015 8 44.09 AM - Loaded Masteriaci           4/1/2016 8 44.09 AM - Loaded Masteriaci           4/1/2016 8 44.09 AM - Loaded UniProced	sgories for ProccessCell 1 ures for MasterRecipe 1 ures for MasterRecipe 2 pies for RecipeCategory 1 sgories for ProccessCell 2 ures for MasterRecipe 1 ures for MasterRecipe 2 ures for MasterRecipe 3 ures for MasterRecipe 3										<u> </u>

- Called by the Recipe Editor button from the system header.
- The recipe that we create is consisted from recipe operations (ROPs) that are grouped into unit procedures.
- Recipe form is defined by order of recipe operation (ROPs) execution.

# **Operation Manager – Recipe Editor**



### **Recipe editor screen**

- 1. Main command and info area:
  - a) SQL status area
  - b) Redundancy state area
  - c) Server group area
  - d) Language area
  - e) Commands area
  - f) Clock and logo
- 2. Log area:
  - a) Severity of the message:
    - 🧹 Informational
    - 👗 Succesful
    - 🚳 Warning
    - Error
  - b) Message text
- 3. Object hierarchy area:
  - a) Process cell
  - b) Recipe categories
  - c) Master recipes
  - d) Unit procedures
- 4. Data view area



# **Operation Manager – Recipe Editor**



### **Recipe editor data views**

- 1. Main command and info area:
  - Shown at startup or on selectiong node
     *ProcessCells*
- 2. Process cell view:

.

- Managing master recipes:
  - a) Add
  - b) Copy
  - c) Delete

### 3. Master recipe view:

Window areas:

- 1. Master recipe details
- 2. Recipe included units
- 3. Units that can be included

Button functions:

57 Advanced training

- a) Add
- b) Remove
- c) Copy
- d) Export master recipe to excel
- 5. Unit procedure view: Button functions:

UIII	piùcedule view.	$\sim$	Add
\//in	dow areas:	a)	Add
V V I I I	dow aleas.	b)	Remove
1.	Available ROPs	,	
0	Calcoted DODa	C)	Move above selection
∠.	Selected ROPS	d)	Move below selection
_3	ROP Parameters	u)	NOVE DEIOW SELECTION





### **Production Scheduler screen**

Reload	b Contraction of the second se	ve 🕲 Undo 🖷	Break Lock	F Reload Cor	nfig										- ~ Co
	a)	(b)	(c)		d)	(e)	(f)	(g)	( h)	(i)	(i)	(k)		A (m)	
Brew	Number Re	cipe	Wort type	Prestart tim	e	Start time	Wort Destination A	Wort Destination B	Lot Number A	Lot Number B	Yeast Dos. Rate	Tank Volume	Split Volume	Start Type	Last Before CIF
RBN11	1027 03:	01:01 - CF Wort	RBHCF	2011-10-10	14:45:00 2	2011-10-10 16:15:00	3: 003 • WR03 💌	0: Not selected	RWR1100112	0	0	0	0	2: Time 💌	
BBN1	1028 03:	01:01 - CF Wort 01:02 - Strona H.,		2011-10-10	17:45:00 2 18:45:00 2	2011-10-10 19:15:00	3: 003 - WR03 -	U: Not selected 💌	BBFH11119	0	0	0	0	2: Time 💌	
	03:	01:01 - CF Wort	RBHCF	2011-10-10	23:45:00 2	2011-10-11 01:15:00	4: 004 - WR04 💌	0: Not selected	RWR1100113	0	0	0	0	2: Time 💌	
			<b>_</b>		20	1	•	•			4-	14		•	
Schedule	fetched		_	_		_		_	_	_	_	_	Lasi	t updated: 2011	./10/10 - 21:20:1
<ul> <li>Schedule</li> </ul>		ition u	sed to	)	_								Lasi	t updated: 2011	./10/10 - 21:20:5
• Schedule Ap	fetched plica	ition u	sed to	)	_		-	-	_		_	_	Last	t updated: 2011	/10/10 - 21:20:5
• schedule Ap scł	<sup>fetched</sup> plica nedu	ition u le bat	sed to	)									Lasi	t updated: 2011	./10/10 - 21:20:5
<ul> <li>Schedule</li> <li>Ap</li> <li>Sch</li> <li>Mair</li> </ul>	fetched plica nedu	ition u le bat	sed to	2.	Main	n command	area:	_			_	_	Lasi	t updated: 2011	/10/10 - 21:20:5
<ul> <li>Schedule</li> <li>Ap</li> <li>SCI</li> <li>Mair</li> <li>a)</li> </ul>	fetched plica nedu n comm Re	i <b>tion u</b> le bat nand area	sed to ches. a:	2.	Main a)	n command Brew nu	area: umber						Lasi	t updated: 2011	/10/10 - 21:20:5
<ul> <li>Schedule</li> <li>Ap</li> <li>SCI</li> <li>Mair</li> <li>a)</li> <li>b)</li> </ul>	fetched plica nedu n comm Re Edi	i <b>tion u</b> le bat nand area load	sed to ches. a:	2.	Main a) b)	n command Brew nu Recipe	area: umber						Lasi	t updated: 2011	/10/10 - 21:20:5
<ul> <li>schedule</li> <li>Ap</li> <li>scł</li> <li>Mair</li> <li>a)</li> <li>b)</li> <li>c)</li> </ul>	fetched plica nedu n comm Re Edi Sa'	tion u le bat nand area load it ve	sed to ches. a:	2.	Main a) b) c)	n command Brew nu Recipe Wort typ	area: umber pe						Last	t updated: 2011	/10/10 - 21:20:5
<ul> <li>Schedule</li> <li>Ap</li> <li>Scł</li> <li>Mair</li> <li>a)</li> <li>b)</li> <li>c)</li> <li>d)</li> </ul>	fetched plica nedu n comm Re Edi Sa Un	i <b>tion u</b> le bat nand area load it ve do	sed to ches. a:	2.	Main a) b) c) d)	n command Brew nu Recipe Wort typ Milling s	area: umber pe start time						Las	t updated: 2011	/10/10 - 21:20:5
<ul> <li>Schedule</li> <li>Ap</li> <li>Sch</li> <li>Mair</li> <li>a)</li> <li>b)</li> <li>c)</li> <li>d)</li> <li>e)</li> </ul>	fetched plica nedu n comm Re Edi Sa Un Bre	ition u le bat nand area load it ve do eak Lock	sed to ches. a:	2.	Main a) b) c) d) e)	n command Brew nu Recipe Wort typ Milling s Premas	area: umber be start time hing start t	iime					Lasi	t updated: 2011	/10/10 - 21:20:5
<ul> <li>Schedule</li> <li>Ap</li> <li>SCI</li> <li>Main</li> <li>a)</li> <li>b)</li> <li>c)</li> <li>d)</li> <li>e)</li> <li>f)</li> </ul>	fetched plica nedu n comm Re Edi Sa Sa Un Bre Re	tion u le bat nand area load t ve do cak Lock load Con	sed to	2.	Main a) b) c) d) e) f)	n command Brew nu Recipe Wort typ Milling s Premas Wort de	area: umber be start time hing start t	time					Las	t updated: 2011	/10/10 - 21:20:5

# **Operation Manager – Batch Manager**



### **Scheduler screen – queueing new batches**

- Way one:
  - Write batch data directily in the grid on the first empty line
- Way two:
  - Use "add new batch form"
    - Selected number of Batches is entered in the grid.
    - Start time is calculated automatically for every batch based on selected Batch Rhythm while all other data remains unmodified for other Brew.
    - As not every Wort Destinations combination is allowed, the application checks the validity.

12 Sch	eduleMe													- 🗆 🗵
CRE	load 📄 Edit [	引 Save 💧 Undo  📍 Bre	ak Lock	C Reload Config										À Config
Sched	Scheduled items History items													
										↓ A	📿 Au	to size columns		
	Brew Number	Recipe	Wort type	Prestart time	Start time	Wort Destination A	Wort Destination B	Lot Number A	Lot Number B	Yeast Dos. Rate	Tank Volume	Split Volume	Start Type	Last Before CIP
	RBN110880	03:01:02 - Heineken 💌	RBHHN	2011-10-12 16:30:00	2011-10-12 18:00:00	6: 112 - PFV12 💌	2: 002 - WR02 💌	RBASCKS	ZBAWNS	23	12	0	1: Asap 💌	
	RBN110881	03:01:01 - CF Wort	RBHCF	2011-10-12 17:00:00	2011-10-12 18:30:00	6: 112 - PFV12 💌	2: 002 - WR02 💌	RBASCKS	ZBAWNS	32	17	0	1: Asap 💌	
1	-	03:01:02 - Heineken 💌	RBHHN	2011-10-12 17:30:00	2011-10-13 19:00:00	7: 121 - PFV21 🔄	1. 2. 002 WD0'-	RBASCKS	ZBAWNS	25	50	0	2: Time 💌	
		03:01:01 - CF Wort	RBHCF	2011-10-12 18:00:00	2011-10-13 19:30:00	6: 112 - PFV12	> 3: 003 - WR03	RBASCKS	ZBAWNS	52	100	0	2: Time 💌	
		03:01:02 - Heineken 💌	RBHHN	2011-10-12 18:30:00	2011-10-13 20:00:00	6: 112 - PFV12 🔄	5: 111 - PFV11	RBASCKS	ZBAWNS	22	200	0	2: Time 💌	
		03:01:06 - Amstel	RBHAM	2011-10-12 19:00:00	2011-10-12 20:30:00	8: 122 - PFV22 🔄	7: 121 - PFV21	OT1	LOT2	50	250	0	2: Time 💌	
		03:01:06 - Amstel	RBHAM	2011-10-12 19:45:00	2011-10-12 21:15:00	8: 122 - PFV22 🔄	> 8: 122 - PFV22 9: 211 - EST11	OT1	LOT2	50	250	0	2: Time 💌	
		03:01:06 - Amstel	RBHAM	2011-10-12 20:30:00	2011-10-12 22:00:00	8: 122 - PFV22 🔄	10: 212 - FST12	OT1	LOT2	50	250	0	2: Time 💌	
		03:01:06 - Amstel	RBHAM	2011-10-12 21:15:00	2011-10-12 22:45:00	8: 122 - PFV22 👱	12: 214 - FST14	OT1	LOT2	50	250	0	2: Time 💌	
		03:01:06 - Amstel	RBHAM	2011-10-12 22:00:00	2011-10-12 23:30:00	8: 122 - PFV22 🔄	13: 231 - FST31 14: 232 - FST32	OT1	LOT2	50	250	0	2: Time 💌	
		03:01:02 - Heineken 💌	RBHHN	2011-10-12 15:30:00	2011-10-12 17:00:00	5: 111 - PFV11	15: 233 - FST33						-	
*		-					17: 241 - FST41						-	
							18: 242 - FST42 19: 243 - FST43							
							20: 244 - FST44							
							22: 252 - FST52							
							23: 253 - FST53 24: 254 - FST54							
							25: 311 - BFX11							
	chedule is locked	for edit					27: 313 - BFX13					Last upd	ated: 2011.10	.12 - 16:18:50 .:
							28: 314 - BFX14 29: 321 - BFX21	-						
							30: 322 - BFX22							

# **Operation Manager – Batch Manager**



### Scheduler – insert/delete queued batch

- 1. Insert queued batch:
  - Ne batches can be inserted between queued batches
  - Right mouse click on the gray field
  - Select "insert above" or "insert below"
- 2. Delete queued batch:
  - Right mouse click on the gray field
  - Select "Delete Batch"

12 Scl	heduleMe		
CR	eload 📄 Edit 👔	3 Save 🔚 Undo 🦷 Br	eak Lock
Sched	duled items Histo	ry items	
: 🗣	•		
	Brew Number	Recipe	Wort type
	RBN110880	03:01:02 - Heineken 💌	RBHHN
	RBN110881	03:01:01 - CF Wort	RBHCF
		03:01:02 - Heineken 💌	RBHHN
	Insert above	01 - CF Wort 📃	RBHCF
	Insert below	02 - Heineken 👤	RBHHN
		06 - Amstel 👱	RBHAM
	Delete Batch	06 - Amstel 📃 💌	RBHAM
		03:01:06 - Amstel	RBHAM
		03:01:06 - Amstel	RBHAM

# **Operation Manager – Batch Manager**



### **Scheduler – Modifying Batches**

### 1. Modifying running batch:

- The Batch that is running (colored green) cannot be modified directly in the grid.
- Use the "Edit form" for modification.
  - left mouse click on grey filed left to the grid
- Select "insert above" or "insert below"

### 2. Modifying "Next to start" batches:

- The Batch transferred to the PLC and not started yet, is marked with yellow color.
- Edit parameters of such a batch by using the edit form.
- Edited batch is marked with red color.
- Action can be canceled with "Undo" command.
- If changes are saved, Batch will change color in next few moments, when the request is transferred to the PLC.
- Yellow marked Batches cannot be deleted from the Scheduler. To delete this batch, it is necessary to change the start time and start type (in the case start type is ASAP) and save the changest.

12 Sch	eduleMe																
C Rel	load 📝 Edi	: 🕒 Save 💧 Undo 🎙	Brea	ak Lock	GReload Conf	ig											À Confi
Schedu	led items																
		a second													↓ A	â 🕑 Au	to size columns
	Dou <mark>b</mark> le row to c	click on batch	W ty	Vart ype	Prestart time	Start time	Wort Destination	A	Wort Destinatio	n B	Lot Number A	Lot Number B	Yeast Dos. Rate	Tank Volume	Split Volume	Start Type	Last Before CIP
•			RE	BHHN	2011-07-28 14:29:29	2011-07-28 15:59:29	0: Not selected	-	0: Not selected	•	2	rw	3	2	1	1: Asap	
	REN al12	03:01:01 - CF Wort	▼ RE	BHCF	2011-07-28 17:30:00	2011-07-28 19:00:00	0: Not selected	•	0: Not selected		3	11	3	2	1	1: Asap	
	JBH110623	03:02:90 - CIP Brewhouse	-		2011-07-28 00:00:00			•		•						1: Asap	
7	RBN110713	03:01:01 - CF Wort	▼ RE	BHCF	2011-07-28 16:25:00	2011-07-28 20:00:00	0: Not selected	Ŧ	0: Not selected	•	6	rw	3	2	1	2: Time	
		03:01:02 - Heineken	▼ RE	BHHN	2011-07-29 00:31:00	2011-07-29 02:01:00	0: Not selected	-	0: Not selected	¥	66	rw	3	2	1	1: Asap	
		03:01:01 - CF Wort	▼ RE	BHCF	2011-07-29 06:30:00	2011-07-29 08:00:00	0: Not selected	Ŧ	0: Not selected	•	7	rw	3	2	1	1: Asap	
		03:01:02 - Heineken	▼ RE	BHHN	2011-07-29 12:30:00	2011-07-29 14:00:00	0: Not selected	۳	0: Not selected	¥	8	rw	3	2	1	1: Asap	
		03:01:01 - CF Wort	▼ RE	BHCF	2011-07-29 18:30:00	2011-07-29 20:00:00	0: Not selected	-	0: Not selected	•	9	rw	3	2	1	1: Asap	1 6
		03:01:02 - Heineken	▼ RE	BHHN	2011-07-30 00:30:00	2011-07-30 02:00:00	0: Not selected	•	0: Not selected	•	10	rw	3	2	1	1: Asap	
		03:01:03 - Tiger	▼ RE	BHTIG	2011-07-30 06:30:00	2011-07-30 08:00:00	0: Not selected	Ŧ	0: Not selected	¥	11	nw	3	2	1	1: Asap	
		03:01:01 - CF Wort	▼ RE	BHCF	2011-07-30 12:30:00	2011-07-30 14:00:00	0: Not selected	-	0: Not selected	-	12	2	3	4	5	1: Asap	
		03:01:03 - Tiger	▼ R	BHTIG	2011-07-30 13:30:00	2011-07-30 15:00:00	0: Not selected	Ŧ	0: Not selected	¥	13	3	2	2	2	1: Asap	
		03:01:01 - CF Wort	▼ RE	BHCF	2011-07-30 18:30:00	2011-07-30 16:00:00	23: 253 - FST53	-	22: 252 - FST52	•	14	4	3	3	1	1: Asap	
		03:01:02 - Heineken	▼ RE	BHHN	2011-07-30 18:31:00	2011-07-30 20:00:00	0: Not selected	-	0: Not selected	•	4	rw	3	2	1	2: Time	
		03:01:02 - Heineken	<b>T</b> RE	BHHN	2011-07-30 18:35:00	2011-07-28 18:00:00	1:001-WR01	Ŧ	0: Not selected	-	gigfhf	2	2	2	2	1: Asap	
*			-	-				-		-			1				

### **Operation Manager – Reports**



### **Reports Screen**



- Report selection screen buttons:
  - 1. Batch list: Opens Microsoft excel sheet with Batch repots
  - 2. ROP Report: Opens Microsoft excel sheet with ROP reports (Step Protocol)

# **Operation Manager – Reports**



### **Reports – Batch list**

- Batch List shows list of batches executed in certain period. The list could be sorted using following filters::
  - 1. Time period ("Date From", "Date To")
  - 2. Process Cell
  - 3. Recipe Category
  - 4. Master Recipe
  - 5. Unit
  - 6. Order ID
- Click on the button "Generate" creates an excel file including all executed Batches:
  - Batch Start Time
  - Batch End Time
  - Batch Duration in this Unit (hh:mm)
  - Order Id
  - Batch ID
  - Unit name
  - Process Cell Name
  - Recipe Category
  - Recipe Name

### Batch List

 Process Cell
 All

 Unit
 All

 Recipe category
 All

 Recipe
 All

 Order ID
 All

Date from:	01.03.2016.
Date to :	29.03.2016.
Batch Type:	All

Start Lime	End lime	Duration	Order ID	Batch ID	Unit	Process Cell	Recipe category	Recipe
18.03.2016. 16:17	21.03.2016.11:16	66.59	2016	1	iviait intake	Raw materials area	Production	RMH
21.03.2016.09:11	21.03.2016. 11:47	2:35	2016	7	Malt Silos 3	Raw materials area	Production	RMH
21.03.2016.11:42	21.03.2016.11:45	0:02	2016	7	Malt Intake	Raw materials area	Production	RMH
21.03.2016.11:54	21.03.2016.11:55	0:01	2016	8	Malt Intake	Raw materials area	Production	RMH
21.03.2016.11:55	22.03.2016. 16:22	28:26	2016	8	Malt Silos 1	Raw materials area	Production	RMH
21.03.2016. 13:09	21.03.2016.13:14	0:04	2016	9	Malt Intake	Raw materials area	Production	RMH
21.03.2016.13:09			2016	9	Malt Silos 5	Raw materials area	Production	RMH
21.03.2016. 13:15	21.03.2016. 13:16	0:00	2016	10	Malt Intake	Raw materials area	Production	RMH
21.03.2016. 13:16			2016	10	Malt Silos 2	Raw materials area	Production	RMH
21.03.2016. 13:17	21.03.2016.13:18	0:00	2016	11	Malt Intake	Raw materials area	Production	RMH
21.03.2016.13:17	24.03.2016.14:07	72:49	2016	11	Malt Silos 3	Raw materials area	Production	RMH
21.03.2016. 13:18	21.03.2016.13:19	0:01	2016	12	Malt Intake	Raw materials area	Production	RMH
21.03.2016. 13:19			2016	12	Malt Silos 4	Raw materials area	Production	RMH
21.03.2016. 13:21	21.03.2016. 13:22	0:01	0	0	Malt Intake	Raw materials area	Production	RMH
21.03.2016. 13:22	21.03.2016.13:23	0:00	2016	13	Malt Intake	Raw materials area	Production	RMH
21.03.2016. 13:23	21.03.2016. 13:25	0:01	2016	14	Malt Intake	Raw materials area	Production	RMH
21.03.2016.13:24			2016	14	Malt Silos 6	Raw materials area	Production	RMH
21.03.2016. 13:26	21.03.2016. 13:27	0:01	2016	15	Malt Intake	Raw materials area	Production	RMH
21.03.2016. 13:26	21.03.2016.13:29	0:03	2016	15	Malt Silos 7	Raw materials area	Production	RMH
21.03.2016. 13:29	21.03.2016. 13:30	0:00	2016	16	Malt Intake	Raw materials area	Production	RMH
21.03.2016. 13:30	24.03.2016.11:47	70:16	2016	16	Malt Silos 7	Raw materials area	Production	RMH
21.03.2016. 13:33	21.03.2016. 13:34	0:00	2016	17	Malt Intake	Raw materials area	Production	RMH
22.03.2016. 15:04	22.03.2016.15:06	0:02	2016	18	Milling	Raw materials area	Production	RMH
22.03.2016. 15:42	22.03.2016. 15:44	0:02	2016	19	Milling	Raw materials area	Production	RMH
22.03.2016. 15:46	22.03.2016.16:16	0:29	2016	20	Milling	Raw materials area	Production	RMH
22.03.2016. 16:21	22.03.2016. 16:21	0:00	2016	21	Malt Intake	Raw materials area	Production	RMH

# **Operation Manager – Reports**



### **Reports – ROP report (step protocol)**

- ROP report shows list of ROPs executed in certain period. The list can be sorted using following filters::
  - 1. Time period ("Date From", "Date To")
  - 2. Process Cell
  - 3. Recipe Category
  - 4. Master Recipe
  - 5. Order ID
  - 6. Batch ID
  - 7. Unit
- Click on the button "Generate" creates an excel file including all ROPs for selected Batch:
  - Start Time
  - ROP ID
  - ROP sequential number in master recipe
  - ROP name
  - Master recipe setpoint, Actual recipe setpoint and Parameter actual value at the end of Operation
  - Unit state changing events (unit start, stop, hold, restart...)

rocess Cell		3	Brewhouse					[	Date:	27.09.2008
nit		20	Mash filter							
ecipe categ	JOIN	40	Cues							
ecipe		10	Cuca							
rder ID		0								
IICH ID		4								
Time	ROPID	ROP seq.	ROP name	Par.	Pa rameter name	Rec. Set.	Set	Actual	Egu	Event
			Claripopinon				_			1011111010
15:25	1181	1								ROP start
15:25	1181	1								Unit started
15:25	1181	1								Unit Running
15:27	1181	1		1	C ontro I tim e	0,00	0,00	1,30	min	
15:27	1181	1			Buffertank level	70,00	70,00	0,06	%	
15:27	1181	1	Check start conditions		Sparging water level	80,08	80,00	81,86	%	
15:27	1181	1			Vent time mash side	5,00	5,00	0,00	sec	
15:27	1181	1			Vent time wort side	1,00	1,00	0,00	sec	
15:27	1181	1			Vent time buffertank	2,00	2,00	0,00	Sec	
15:27	1181	1			Venting mash side: valve position	50,00	50,00	0,00	%	
15:27	1181	1			Volume in next vessel	285,00	285,00	0,00	hl	
15:27	1182	2								ROP start
15:31	1182	2		1	C ontro I tim e	0,00	0,00	4,10	min	
15:31	1182	2		2	Filter inlet pressure	500,00	500,00	165,86	mbar	
15:31	1182	2		12	Mash pump speed - filter not full	62,00	62,00	62,00	%	
15:31	1182	2		13	Mash pump speed - filter full	59,00	59,00	62,00	%	
15:31	1182	2		16	Membrane discharge: valve position	100,00	100,00	100,00	%	
15:31	1182	2	Filing		Buffertank level	70,00	70,00	1,13	%	
15:31	1182	2			Sparging water level	80,08	80,00	82,02	%	
15:31	1182	2			Vent time mash side	5,00	5,00	0,00	sec	
15:31	1182	2			Vent time wort side	1,00	1,00	0,00	sec	
15:31	1182	2			Vent time buffertank	2,00	2,00	0,00	Sec	
15:31	1182	2			Venting mash side: valve position	50,00	50,00	50,00	%	
15:31	1182	2		_	Volume in next vessel	285,00	285,00	0,00	hl	
15:31	1183	3			1					ROP start
16:02	1183	3		1	C ontro I tim e	0,00	0,00	30,80	min	
16:02	1183	3		2	Filter inlet pressure	550,00	550,00	430,68	mbar	
16:02	1183	3			Flow setpoint	270,00	270,00	171,06	hl/h	
16:02	1183	3		6	M in. step time	240,00	240,00	240,03	sec	
16:02	1183	3		. 12	Mash pump speed - filter not full	64,00	64,00	88,07	%	
16:02	1183	3		13	Mash pump speed - filter full	61,00	61,00	88,07	%	
16:02	1183	3	Filtration	16	Membrane discharge: valve position	36,00	36,00	100,00	%	
16:02	1183	3			Buffertank level	70,00	70,00	67,99	%	

**ROP Report** 

### **Operation Manager – Event logs**



### Log screen



- Log selection screen buttons:
  - 1. CM Command Log: Opens the sreen where control modules commands log is displayed.
  - 2. Unit Command Log: Opens the screen where unit commands log is displayed.

# **Operation Manager – Event logs**



### Log reports



- Displaying list of commands executed on control module (Command log) or unit (Unit command log) in manual mode in certain period
- Time range settings:
  - 1. set Start month
  - 2. set Start year
  - 3. set Start day
  - 4. set End month
  - 5. set End year
  - 6. set End day
  - 7. CM Command Log
  - 8. Unit Command Log .

# **Operation Manager – Material editor**

### Material editor screen

- Defines specific material lists in form of selection tables.
- Compatibility tables can be generated to define whether a specific material type is appropriate for a specific brew
- 1. Main command and info area:
  - a) Connection info area
  - b) Server group area
  - c) Language area
  - d) Config
  - e) Exit button
  - f) Time & Date
- 2. Object hierarchy area:
  - a) Sorts
  - b) Compatibility
- 3. Data view area:
  - Browsing object hierarchy changes data view area accordingly
  - There are five data views as follows:
    - Blank view
    - Sorts view
    - Material type view
  - 67 Advanced training
    - Compatibility table definition view



# **Operation Manager – Material editor**



### **Material editor**

- Blank view
  - Shown on startup or on selecting node *Materials* (1)
- Sorts view
  - Consists of control buttons for adding, deleting or editing particular material types.
  - By click on the *"Edit"* or *"Add"* button, an extended dialog (2) appears giving the possibility to edit an existing or creating a new sort.
  - In order to create a new sort, a unique name has to be given in English (a) and local language (b)
  - An existing selection table can be chosen or a new one can be added (c).
  - To save the new sort, the "*Save*" button (d) should be pressed.
  - To delete a sort , a specific material type has to be selected and the *"delete"* button (e) has to be pressed

### • Material type view

- Lists the selection possibilities defined under one material type (3)
- Add a row (f)
- Delet a row (g)
- Save the new sort (h)
- Compatibility tables view
  - Displays existing compatibility tables





### Compatibility table definition view

- Once a table is created, it can be edited by left click on the table name in the hierarchy area
- In the table compatibility definition view window, links between different materials types can be defined
- Once defined, relations can be saved (I) and written to PLC (m)

# Standard Software backup procedure - SQL



SQL Backup

- Start Microsoft SQL Server Managenent Studio 2014 (1)
- Type the correct server name (2) and click Connect (3)
- Right click on the *Charles\_Wells* Database (4)
- Select Tasks(5) Back Up...(6)
- Click on *Add (6)* if there is no actual backup to select
- Select the file name and root (7) and click *OK* (8)
- Type the backup name with extension \*.bak (9) and click ok (10)
- The SQL backup is complete

间 Back Up Database - Ch	narles_Wells	
Select a page	🕵 Script 🔻 🚺 Help	
Media Options Backup Options	Source Database:	Charles_Wells
	Recovery model: Backup type:	SIMPLE
	Copy-only backup Backup component:	
	Files and filegroups:	
	Back up to:	Disk 9
Connection	D:\MSSQL\BACKUP\CW2014.ba	ak Add
Server: zg-013 Connection: MONTELEKTRO\Danijel.Kv View connection		Contents
Progress		
Ready		10 OK Cancel



### **Standard Software Backup**



- Go to the location on the Master hard drive containing the *Charles Wells* folder (1)
- Right click on the Charles Wells folder and make an archive of the entire folder (2)
- Repeat the same for *view node*.

## Contact



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# Thank you for your attention!