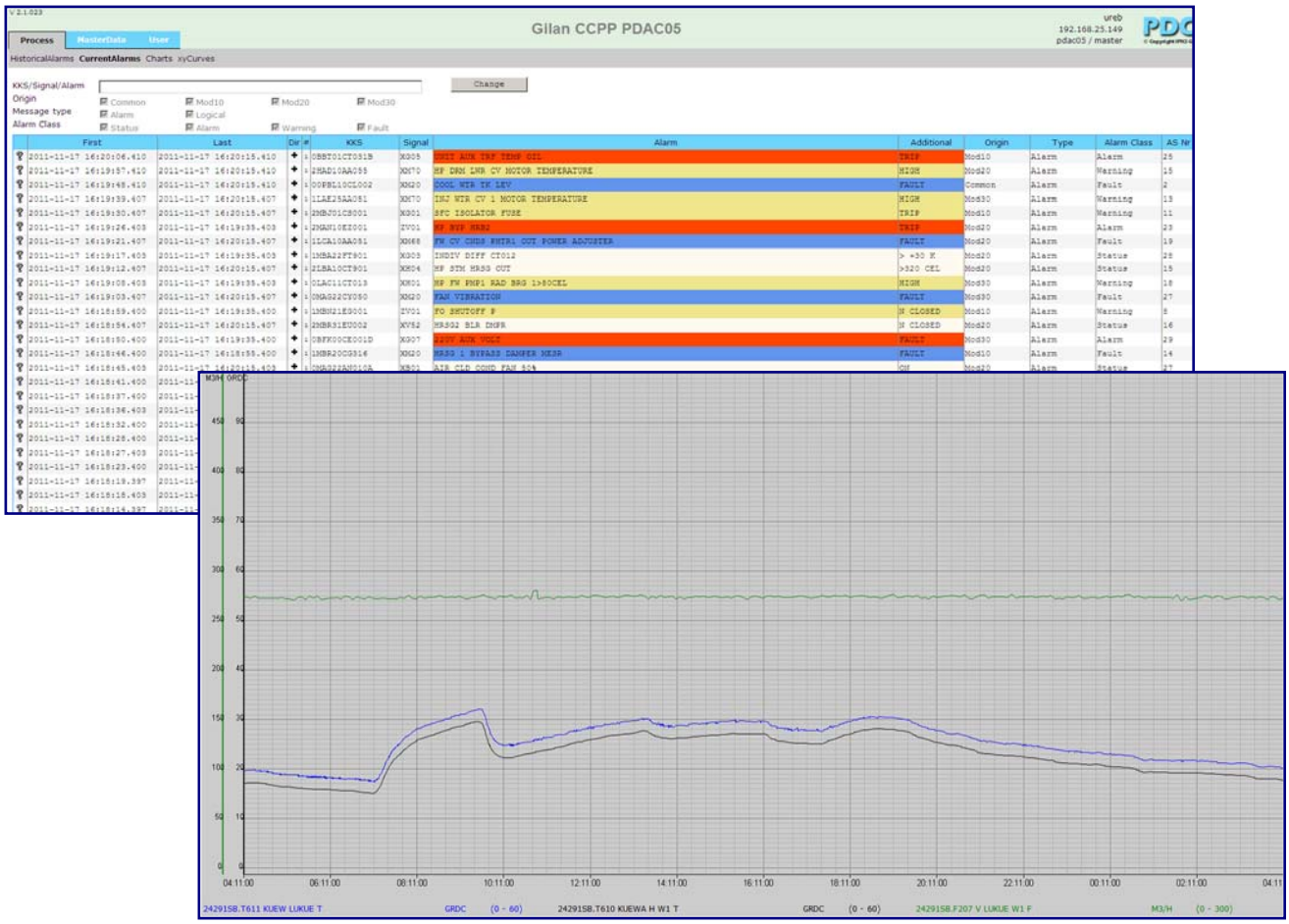
Informations-, Prozess- und Kommunikations-Systeme GmbH



PDC Server

Process Data Collection

Version 2.1

Manual

Publisher

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Version

The manual describes the PDC Server Software, version 2.0 and higher.

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2 Diagrams and Screenshots

3 Process Data Acquisition and Processing

3.1 Introduction

Only a long service life for a process control system ensures high profitability.
Process computers and operator stations on the process control level age fast due to fast-paced technological advancement of the hardware components and continuously improved functionality.
Today, the functionality of the process control level must be designed to provide:

- **ergonomic plant control**
- **modern data management and data backup**
- **modern data evaluation and visualization**
- **easy data exchange with other systems**

IPKS offers a variety of tools for the modernization of TELEPERM M / ME systems and the migration of OS / IS (OS265, MADAM S) systems to an up-to-date process control system. One of these tools for the "soft" conversion from an "old" system to a modern SCADA platform is the IPKS CS275 PDC Server (Process Data Collection).

The CS275 PDC Server can be integrated in the TELEPERM M / ME process control level with the OS (265, ...) and IS (MADAM S) systems and is capable of replacing functions presently provided by these systems.
The existing process control system remains unchanged.

The CS275 PDC Server acquires process data such as analog signals (chart values) and messages via the CS275 bus and stores this information in cyclic archives (Microsoft SQL Server tables).

Based on standard access methods for Microsoft SQL Server, a LAN connection (TCP/IP) can be used to access these tables.

Using a standard browser (such as Firefox), CS275 PDC Server gives you the possibility to view and acknowledge messages (coming, going, acknowledged) and display charts in chart windows.
The server's User Administration allows you to define access rights for individual users and monitor user access.

Messages and charts can be archived using standard backup equipment (DVD, central backup server).

Process data can be easily exported and integrated in other systems
(e.g., export to Excel tables).
It is also possible to connect evaluation systems (such as ACRON) to the PDC Server to allow further processing for:

- integration in plant reports and critical point analysis
- verification of compliance with legal requirements
- quality control, etc.

3.2 PDC Server

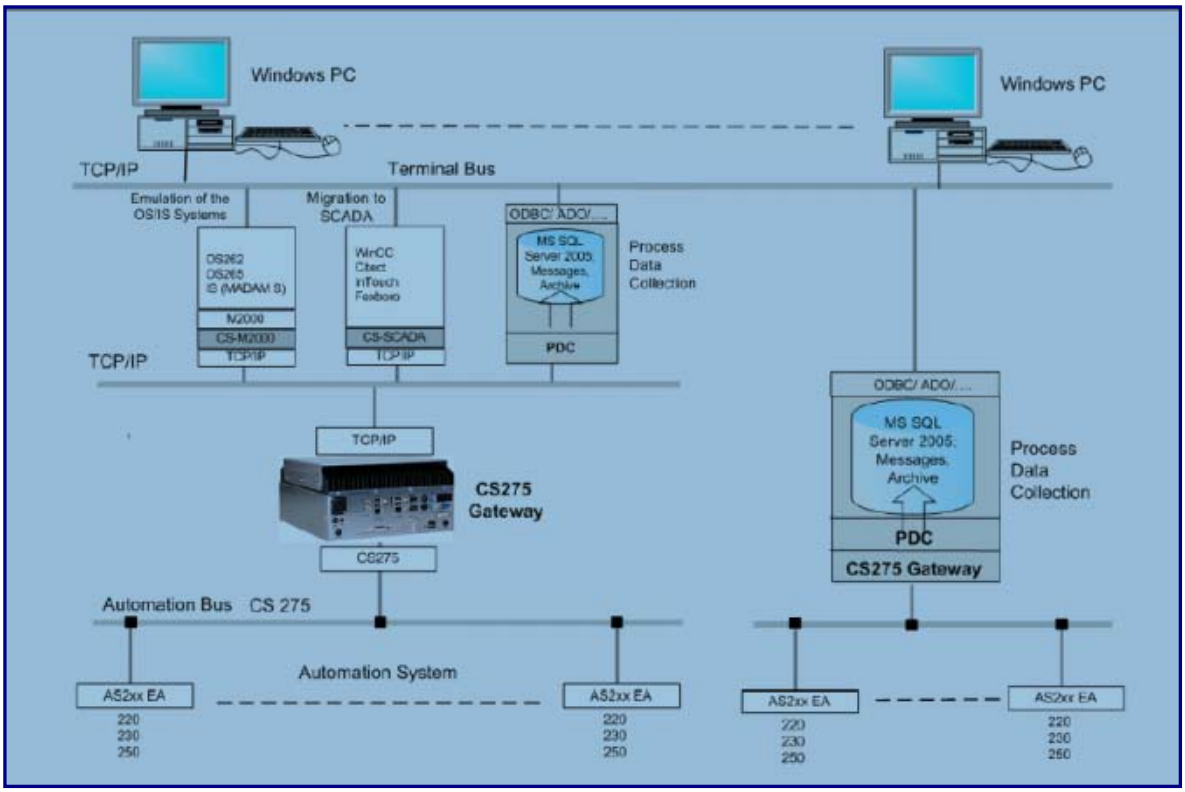


Figure 1: System arrangement

The CS275 PDC Server is a Windows server based on Windows operating system and MS SQL Server database.
Communication with the automation level is established by means of gateways connected to the CS275 bus.
The connection to the terminals of the operator control and monitoring level is established via LAN (TCP / IP). All that is needed on the operator terminal is a standard browser, such as Firefox.

Based on today's standard technology the CS275 PDC Server can be scaled to application requirements and expanded
from a
simple (low cost) server system comprising
- 1 processor
- 1 hard disk
- etc.

to a
highly available server system comprising
- several processors
- redundant hard disk
- redundant power supply units
- etc.

3.2.1 Fields of application

The CS275 PDC Server can be used in different topologies of the process control system.

The existing process control system remains unchanged.
The following diagram shows a PDC Server used as central unit for one or more bus systems (i.e., for one or more plant sections). The PDC Server replaces different IS (MADAM S) systems and/or is used as "printer replacement" for the OS systems.

Local gateways communicate with the CS275 bus systems via direct cable connections. The CS275 PDC Server acquires the process data or printouts via a LAN connection (TCP/IP) to the gateways.

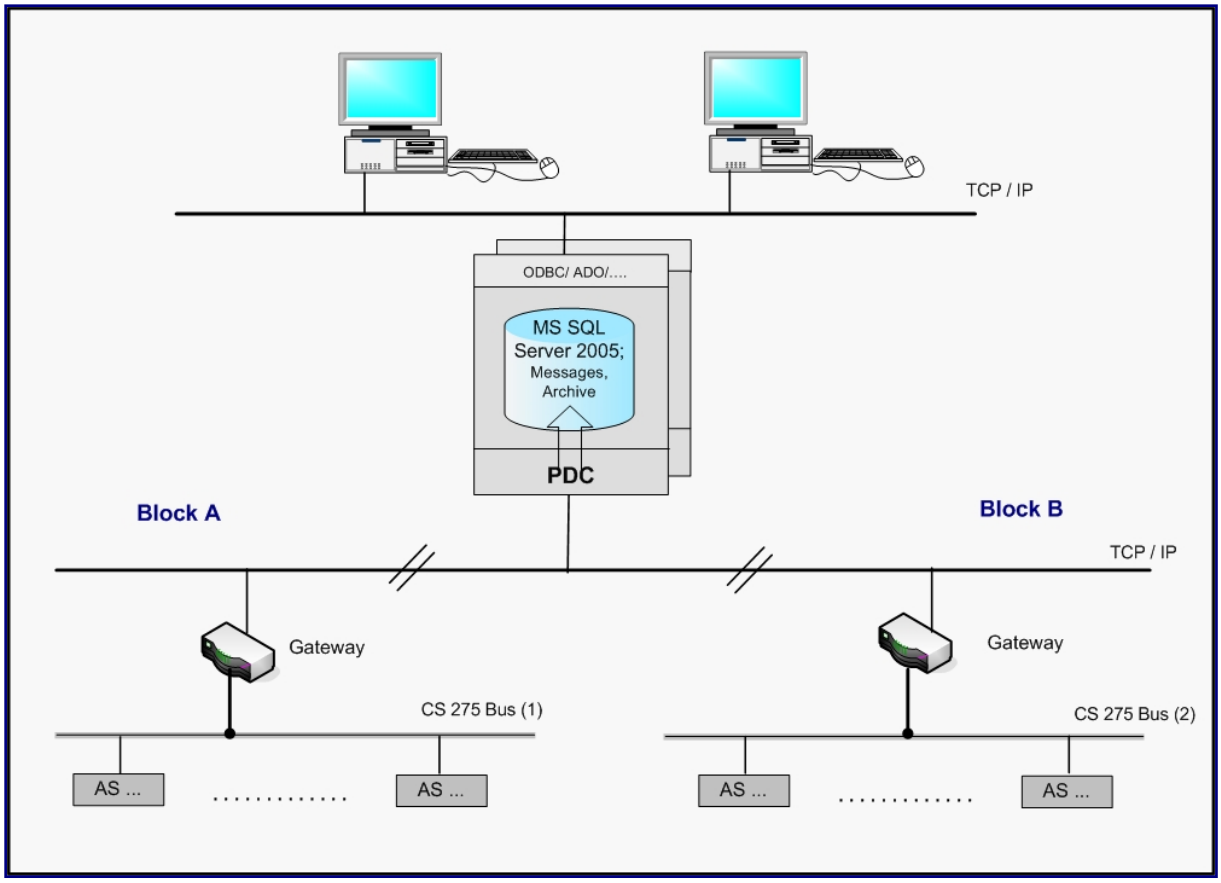


Figure 2: Remote CS275 bus connection

3.2.2 Connection to OS system printer interface

The messages and alarms of the OS systems are printed out on serial printers. For OS systems running on a SICOMP M2000 emulator, these serial printer outputs can be transmitted to the PDC server over a LAN (TCP/IP) network (see **Figure 3** below).
The printer outputs are formatted and redirected by a SICOMP M2000 emulator process and sent to the PDC Server via TCP/IP.
The PDC Server analyses the messages and saves them to the SQL Server database.

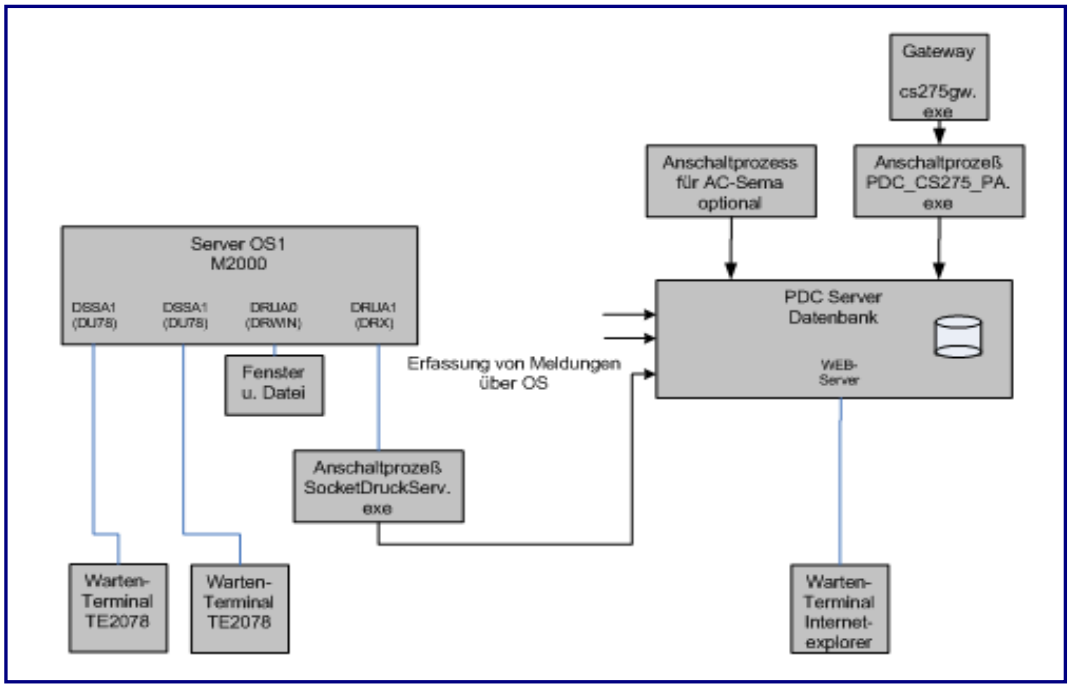


Figure 3: Printer output redirection with M2000

Print data redirection is activated by means of command line parameters in the M2000 parameter file mpar.sys.

```
;
device = 8020,DRWIN,"DRUA0"          ; Normal printer output in a window
;
device = 8500,DRX,"DRUA@"            ; Printer output redirection to PDC Server
;
```

3.2.3 Basic diagram of a PDC Server Connection

The following figure shows a PDC Server that communicates with the emulated OS systems over a LAN (TCP/IP) network.

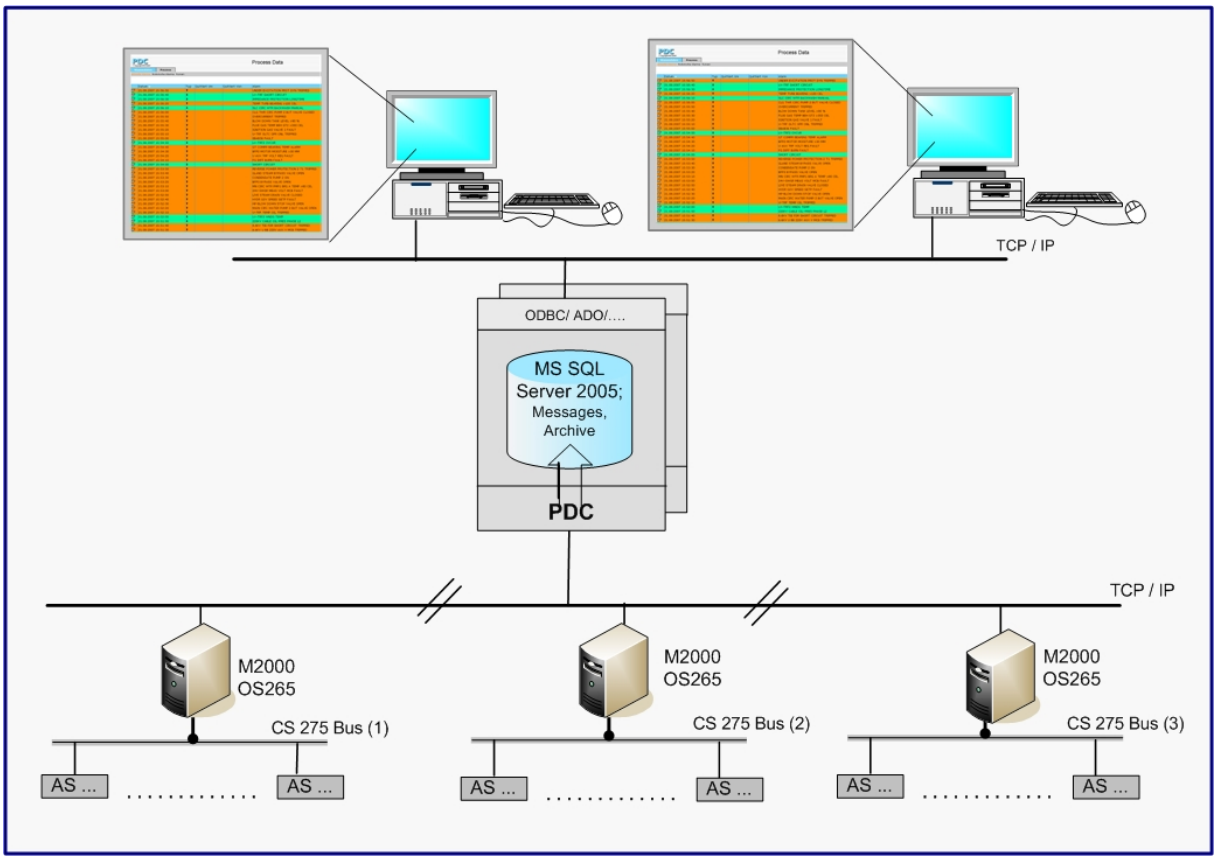


Figure 4: Messages from the OS systems (printer output from M2000 emulations)

Please note:
If the connection between the PDC Server and the OS systems is established by printer interfaces only, then merely messages and alarms can be transmitted.

The messages and alarms can be visualized and archived but not acknowledged by the PDC Server.

4 Operator Control on the IS (PDC) Servers

4.1 Operator Control Concept

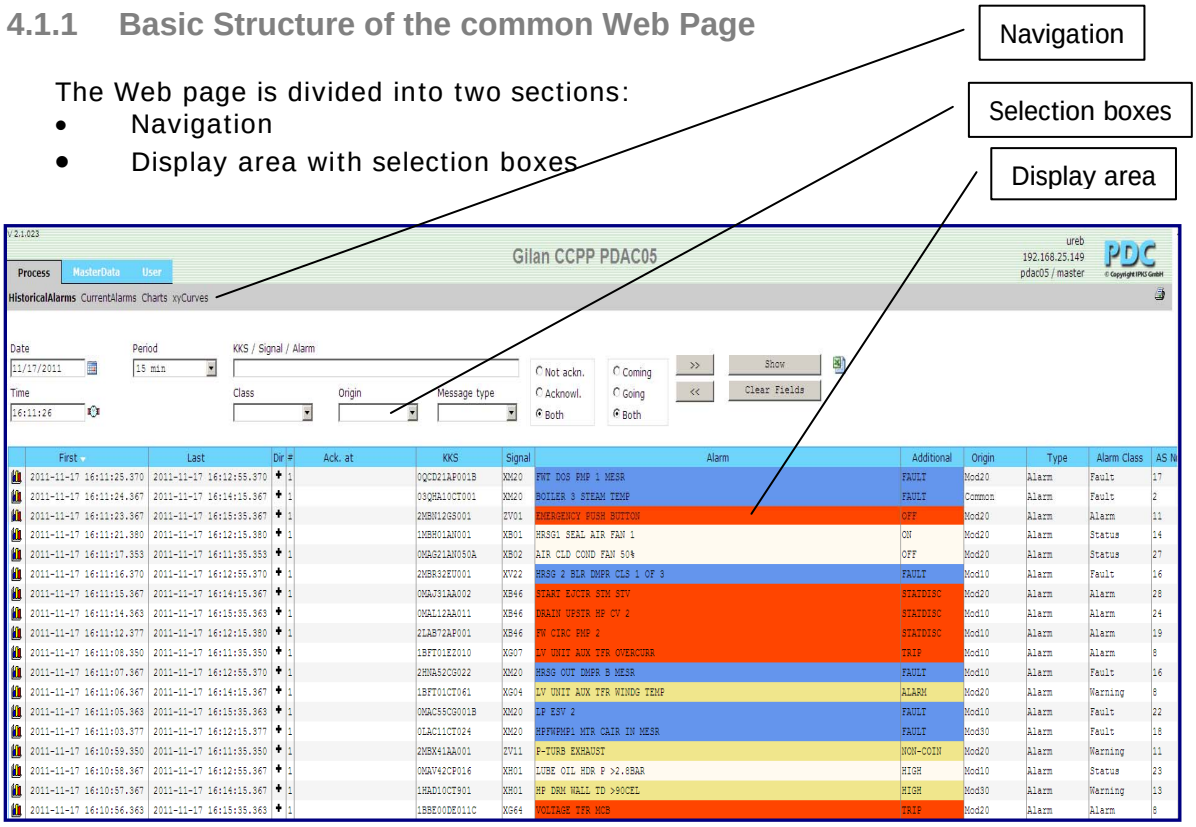
The implemented operator control concept is based on modern monitoring and control techniques for power station processes.

Note! Recommended display graphic resolution: 1920 x 1080 (pixel)

4.1.1 Basic Structure of the common Web Page

The Web page is divided into two sections:

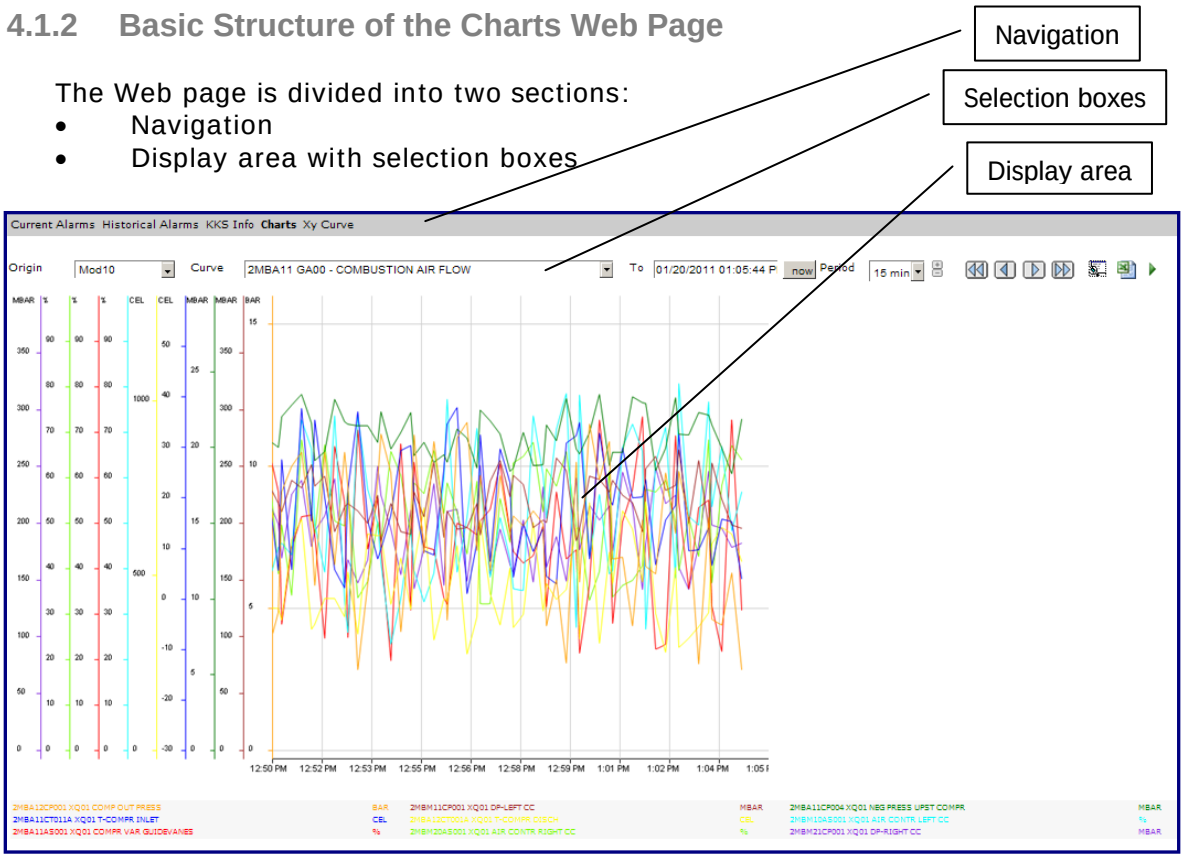
- Navigation
- Display area with selection boxes



4.1.2 Basic Structure of the Charts Web Page

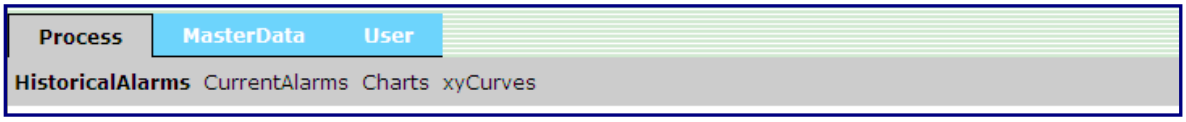
The Web page is divided into two sections:

- Navigation
- Display area with selection boxes



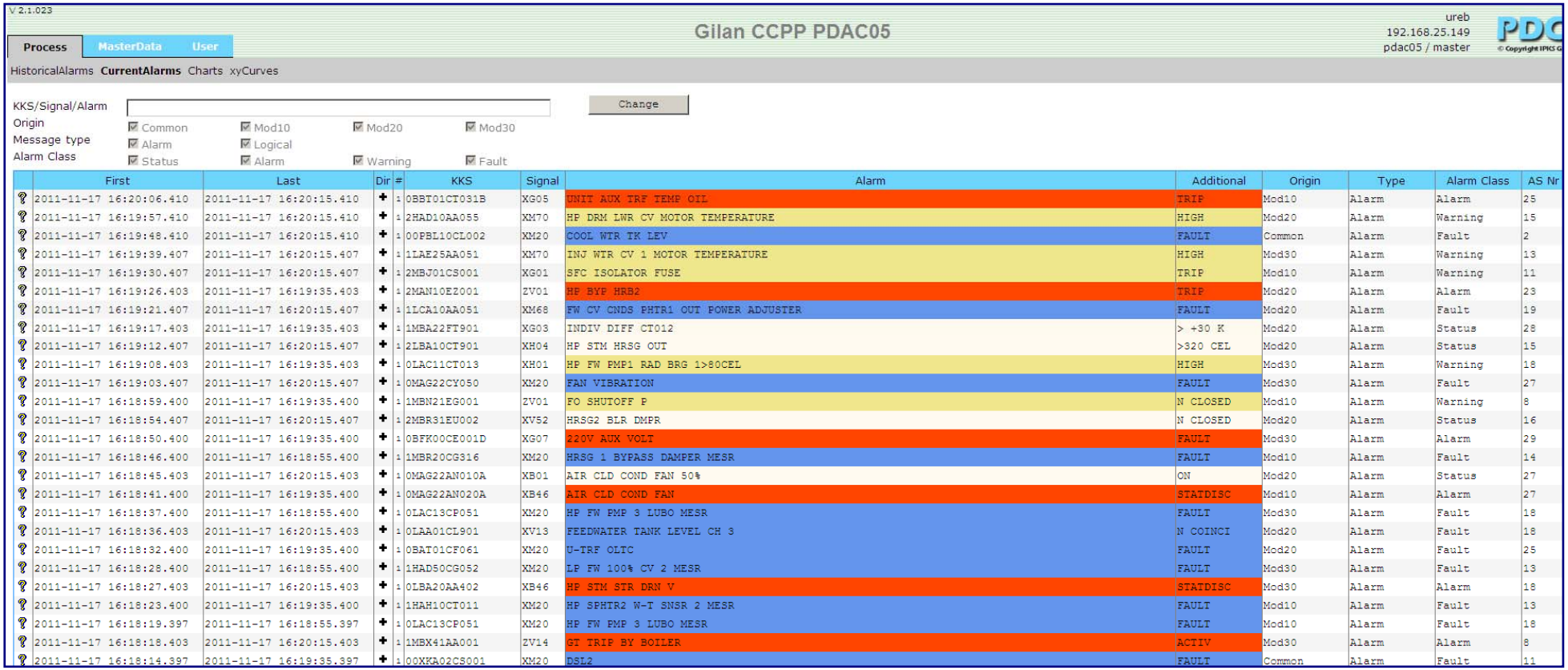
4.1.3 Navigation, Page Selection

The Navigation section contains the tabs for selecting the individual Web pages.



5 PDC Server: Operation and Visualization

5.1 Current Alarms



First	Last	Dir	#	KKS	Signal	Alarm	Additional	Origin	Type	Alarm Class	AS Nr
2011-11-17 16:20:06.410	2011-11-17 16:20:15.410	+	1	0BBT01CT031B	XG05	UNIT AUX TRF TEMP OIL	TRIP	Mod10	Alarm	Alarm	25
2011-11-17 16:19:57.410	2011-11-17 16:20:15.410	+	1	2HAD10AA055	XM70	HP DRM LWR CV MOTOR TEMPERATURE	HIGH	Mod20	Alarm	Warning	15
2011-11-17 16:19:48.410	2011-11-17 16:20:15.410	+	1	00PBL10CL002	XM20	COOL WTR TK LEV	FAULT	Common	Alarm	Fault	2
2011-11-17 16:19:39.407	2011-11-17 16:20:15.407	+	1	1LAE25AA051	XM70	INJ WTR CV 1 MOTOR TEMPERATURE	HIGH	Mod30	Alarm	Warning	13
2011-11-17 16:19:30.407	2011-11-17 16:20:15.407	+	1	2MBJ01CS001	XG01	SFC ISOLATOR FUSE	TRIP	Mod10	Alarm	Warning	11
2011-11-17 16:19:26.403	2011-11-17 16:19:35.403	+	1	2MAN10EZ001	ZV01	HP BYP HRB2	TRIP	Mod20	Alarm	Alarm	23
2011-11-17 16:19:21.407	2011-11-17 16:20:15.407	+	1	1LCA10AA051	XM68	FW CV CNDS PHTR1 OUT POWER ADJUSTER	FAULT	Mod20	Alarm	Fault	19
2011-11-17 16:19:17.403	2011-11-17 16:19:35.403	+	1	1MBA22FT901	XG03	INDIV DIFF CT012	> +30 K	Mod20	Alarm	Status	28
2011-11-17 16:19:12.407	2011-11-17 16:20:15.407	+	1	2LBA10CT901	XH04	HP STM HRSG OUT	>320 CEL	Mod20	Alarm	Status	15
2011-11-17 16:19:08.403	2011-11-17 16:19:35.403	+	1	0LAC11CT013	XH01	HP FW PMP1 RAD BRG 1>80CEL	HIGH	Mod30	Alarm	Warning	18
2011-11-17 16:19:03.407	2011-11-17 16:20:15.407	+	1	0MAG22CY050	XM20	FAN VIBRATION	FAULT	Mod30	Alarm	Fault	27
2011-11-17 16:18:59.400	2011-11-17 16:19:35.400	+	1	1MBN21EG001	ZV01	FO SHUTOFF P	N CLOSED	Mod10	Alarm	Warning	8
2011-11-17 16:18:54.407	2011-11-17 16:20:15.407	+	1	2MBR31EU002	XV52	HRSG2 BLR DMPR	N CLOSED	Mod20	Alarm	Status	16
2011-11-17 16:18:50.400	2011-11-17 16:19:35.400	+	1	0BFK00CE001D	XG07	220V AUX VOLT	FAULT	Mod30	Alarm	Alarm	29
2011-11-17 16:18:46.400	2011-11-17 16:18:55.400	+	1	1MBR20CG316	XM20	HRSG 1 BYPASS DAMPER MESR	FAULT	Mod10	Alarm	Fault	14
2011-11-17 16:18:45.403	2011-11-17 16:20:15.403	+	1	0MAG22AN010A	XB01	AIR CLD COND FAN 50%	ON	Mod20	Alarm	Status	27
2011-11-17 16:18:41.400	2011-11-17 16:19:35.400	+	1	0MAG22AN020A	XB46	AIR CLD COND FAN	STATDISC	Mod10	Alarm	Alarm	27
2011-11-17 16:18:37.400	2011-11-17 16:18:55.400	+	1	0LAC13CP051	XM20	HP FW PMP 3 LUBO MESR	FAULT	Mod30	Alarm	Fault	18
2011-11-17 16:18:36.403	2011-11-17 16:20:15.403	+	1	0LAA01CL901	XV13	FEEDWATER TANK LEVEL CH 3	N COINCI	Mod20	Alarm	Fault	18
2011-11-17 16:18:32.400	2011-11-17 16:19:35.400	+	1	0BAT01CF061	XM20	U-TRF OLTC	FAULT	Mod20	Alarm	Fault	25
2011-11-17 16:18:28.400	2011-11-17 16:18:55.400	+	1	1HAD50CG052	XM20	LP FW 100% CV 2 MESR	FAULT	Mod30	Alarm	Fault	13
2011-11-17 16:18:27.403	2011-11-17 16:20:15.403	+	1	0LBA20AA402	XB46	HP STM STR DRN V	STATDISC	Mod30	Alarm	Alarm	18
2011-11-17 16:18:23.400	2011-11-17 16:19:35.400	+	1	1HAH10CT011	XM20	HP SPHTR2 W-T SNSR 2 MESR	FAULT	Mod10	Alarm	Fault	13
2011-11-17 16:18:19.397	2011-11-17 16:18:55.397	+	1	0LAC13CP051	XM20	HP FW PMP 3 LUBO MESR	FAULT	Mod10	Alarm	Fault	18
2011-11-17 16:18:18.403	2011-11-17 16:20:15.403	+	1	1MBX41AA001	ZV14	GT TRIP BY BOILER	ACTIV	Mod30	Alarm	Alarm	8
2011-11-17 16:18:14.397	2011-11-17 16:19:35.397	+	1	00XKA02CS001	XM20	DSL2	FAULT	Common	Alarm	Fault	11

Figure 5: Current alarms

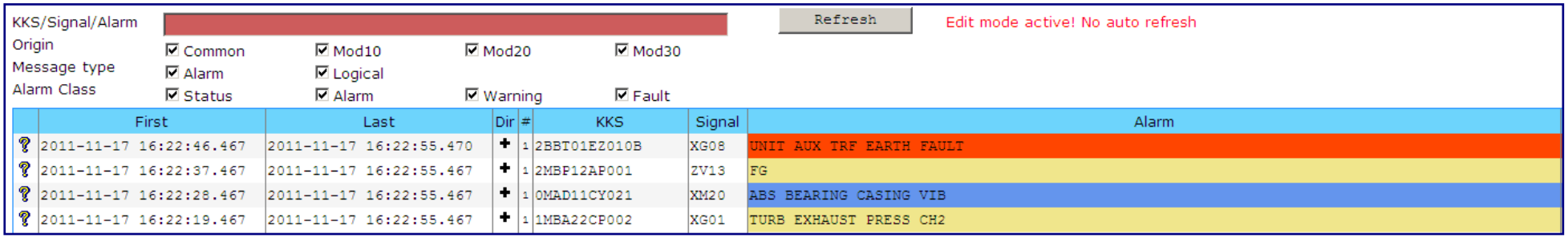
The CurrentAlarms window displays the 200 most recent alarms. The list is continuously updated in the background. Alarms of different alarm classes are shown in different colors provided different alarm class colors have been allocated, see chapter MasterData, section AlarmClasses.

Columns and symbols

	Changeover to 'HistoricalAlarms' window restricted to the respective KKS/Signal/Alarm combination
First/Last occurrence	Date and time of the corresponding alarm
#	Number of chatter alarms within a defined period
Dir.	Type of alarm: **(+)** coming or **(-)** going (direction)
KKS	Power plan identification
Signal	Signal identifier (always preceding the alarm text)
Alarm /	Alarm text / additional text
Additional	short description of the alarm, as stored in the database
Origin	The plant section or system that transmits the alarm
Type	The message type (control system error or message, MKS message)
Alarm class	Classification according to the degree of severity
AS no.	The AS that initiated the alarm (if configured)
	Click the Printer symbol in the window's head section to send the contents of the list(s) to a printer.

The alarms to be displayed in a current alarm list can be restricted by allocating the alarms to different sorting criteria. Sorting criteria can be the class, origin and message type of an alarm, but also a text that an alarm contains.

To allocate alarms to specific sorting criteria, click the **Change** button to switch to Edit mode:



Define the individual alarms by selecting/deselecting the options for the sorting criteria **Origin**, **Message type** and **Alarm Class**.

To sort alarms by partial text, enter the character string that an alarm must contain in the entry box with the red background. Texts separated by a space character can be used as OR function for the KKS, Signal and Alarm columns. If spaces in the specified character string shall be taken into account, the character string must be enclosed in double quotes (e.g., "RG AHK").

You can make use of the following placeholders when sorting alarms by partial text:

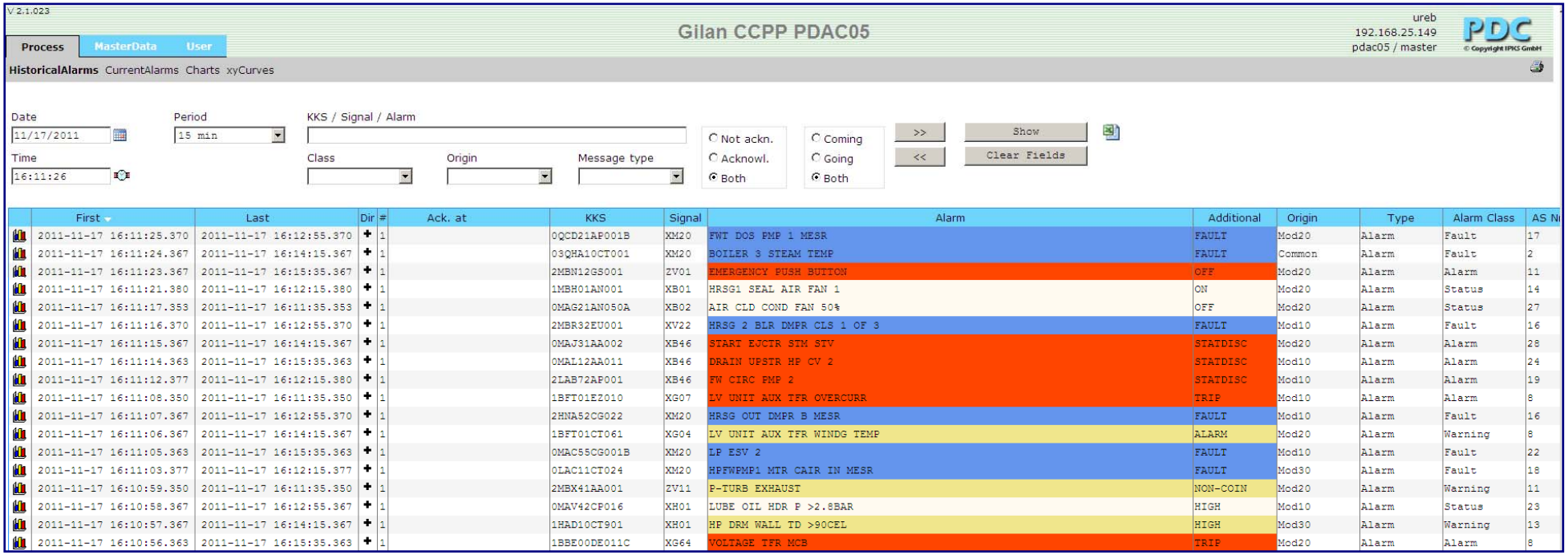
%	replaces a character string of zero or more optional characters
_ (underscore)	replaces an individual optional character
[...]	replaces an individual character in a range ([a-f], [0-9]) or quantity ([2adg]) of characters
[^...]	replaces an individual character that is **not** part of the specified range or quantity

No distinction is made between upper-case and lower-case letters.

Note: Successive space characters in a text will be displayed as one space character in the alarm list. If you want to use a character string with successive space characters, replace the enclosed spaces with the "**%**" placeholder.

The alarm list will not be updated while you are in Edit mode. Click the **Refresh** button to return to the update mode.

5.2 Historical Alarms



	First	Last	Dir	#	Ack. at	KKS	Signal	Alarm	Additional	Origin	Type	Alarm Class	AS N
	2011-11-17 16:11:25.370	2011-11-17 16:12:55.370	+	1		0QCD21AP001B	XM20	FWT DOS PMP 1 MESR	FAULT	Mod20	Alarm	Fault	17
	2011-11-17 16:11:24.367	2011-11-17 16:14:15.367	+	1		03QHA10CT001	XM20	BOILER 3 STEAM TEMP	FAULT	Common	Alarm	Fault	2
	2011-11-17 16:11:23.367	2011-11-17 16:15:35.367	+	1		2MBN12GS001	ZV01	EMERGENCY PUSH BUTTON	OFF	Mod20	Alarm	Alarm	11
	2011-11-17 16:11:21.380	2011-11-17 16:12:15.380	+	1		1MBH01AN001	XB01	HRSG1 SEAL AIR FAN 1	ON	Mod20	Alarm	Status	14
	2011-11-17 16:11:17.353	2011-11-17 16:11:35.353	+	1		0MAG21AN050A	XB02	AIR CLD COND FAN 50%	OFF	Mod20	Alarm	Status	27
	2011-11-17 16:11:16.370	2011-11-17 16:12:55.370	+	1		2MBR32EU001	XV22	HRSG 2 BLR DMPR CLS 1 OF 3	FAULT	Mod10	Alarm	Fault	16
	2011-11-17 16:11:15.367	2011-11-17 16:14:15.367	+	1		0MAJ31AA002	XB46	START EJCTR STM STV	STATDISC	Mod20	Alarm	Alarm	28
	2011-11-17 16:11:14.363	2011-11-17 16:15:35.363	+	1		0MAL12AA011	XB46	DRAIN UPSTR HP CV 2	STATDISC	Mod10	Alarm	Alarm	24
	2011-11-17 16:11:12.377	2011-11-17 16:12:15.380	+	1		2LAB72AP001	XB46	FW CIRC PMP 2	STATDISC	Mod10	Alarm	Alarm	19
	2011-11-17 16:11:08.350	2011-11-17 16:11:35.350	+	1		1BFT01EZ010	XG07	LV UNIT AUX TFR OVERCURR	TRIP	Mod10	Alarm	Alarm	8
	2011-11-17 16:11:07.367	2011-11-17 16:12:55.370	+	1		2HNA52CG022	XM20	HRSG OUT DMPR B MESR	FAULT	Mod10	Alarm	Fault	16
	2011-11-17 16:11:06.367	2011-11-17 16:14:15.367	+	1		1BFT01CT061	XG04	LV UNIT AUX TFR WINDG TEMP	ALARM	Mod20	Alarm	Warning	8
	2011-11-17 16:11:05.363	2011-11-17 16:15:35.363	+	1		0MAC55CG001B	XM20	LP ESV 2	FAULT	Mod10	Alarm	Fault	22
	2011-11-17 16:11:03.377	2011-11-17 16:12:15.377	+	1		0LAC11CT024	XM20	HPFWPMP1 MTR CAIR IN MESR	FAULT	Mod30	Alarm	Fault	18
	2011-11-17 16:10:59.350	2011-11-17 16:11:35.350	+	1		2MBX41AA001	ZV11	P-TURB EXHAUST	NON-COIN	Mod20	Alarm	Warning	11
	2011-11-17 16:10:58.367	2011-11-17 16:12:55.367	+	1		0MAV42CP016	XH01	LUBE OIL HDR P >2.8BAR	HIGH	Mod10	Alarm	Status	23
	2011-11-17 16:10:57.367	2011-11-17 16:14:15.367	+	1		1HAD10CT901	XH01	HP DRM WALL TD >90CEL	HIGH	Mod30	Alarm	Warning	13
	2011-11-17 16:10:56.363	2011-11-17 16:15:35.363	+	1		1BBE00DE011C	XG64	VOLTAGE TFR MCB	TRIP	Mod20	Alarm	Alarm	8

Figure 6: Historical alarms

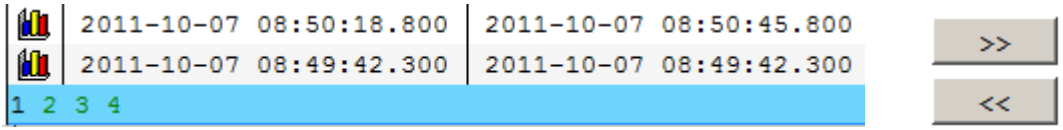
All past alarms are displayed in the HistoricalAlarms window. These historical alarms can be viewed page by page for a minimum **time lag** of 5 minutes to a maximum time lag of 6 month, starting with the specified **data** and **time**.

Columns and symbols

	Changeover to 'Charts' window, time stamp and origin (plant section) are transferred
First/Last-occurrence	Date and time of the corresponding alarm
Dir.	Type of alarm: **(+)** coming or **(-)** going (direction)
#	Number of chatter alarms within a defined period
Ack. at	Date and time of acknowledgement
KKS	Power plant identification
Signal	Signal identifier (always preceding the alarm text)
Alarm /	Alarm text / additional text
Additional	short description of the alarm, as stored in the database
Origin	The plant section or system that transmits the alarm
Type	The message type (control system error or message, MKS message)
Alarm class	Classification according to the degree of severity
AS no.	The AS that initiated the alarm (if configured)
	Click the Printer symbol in the window's head section to send the contents of the list(s) to a printer.

Alarms of different alarm classes are shown in different colors provided different alarm class colors have been allocated, see chapter MasterData, section AlarmClasses.

The number of the alarm page currently displayed is highlighted in the bottom bar of the window. To navigate through the alarm pages, click the number of the page you want to view, or click one of the double arrows in the window's head section.



The alarms to be displayed in a historical alarm list can be restricted by allocating the alarms to different sorting criteria. Alarms with the status **Unacknowledged** and **Acknowledged** can be displayed separately or together. The same applies to **Coming** and **Going** alarms.

Sorting criteria can be the **class**, **origin** and **message type** of an alarm, but also a text that an alarm contains. To sort alarms by partial text, enter the character string that an alarm must contain in the **KKS / Signal / Alarm** entry box. Texts separated by a space character can be used as OR function for the KKS, Signal and Alarm columns. If spaces in the specified character string shall be taken into account, the character string must be enclosed in **double quotes** (e.g., "RG AHK"). **No** distinction is made between upper-case and lower-case letters.

You can make use of the following placeholders when sorting alarms by partial text:

%	replaces a character string of zero or more optional characters
_ (underscore)	replaces an individual optional character
[...]	replaces an individual character from a range ([a-f], [0-9]) or quantity ([2adg]) of characters
[^...]	replaces an individual character that is **not** part of the specified range or quantity

No distinction is made between upper-case and lower-case letters.

Note: Successive space characters in a text will be displayed as one space character in the alarm list. If you want to use a character string with successive space characters, replace the enclosed spaces with the "**%**" placeholder.

Example: The text string "Tapping ManualCommand Operation" would not produce a result, whereas the string **"Tapping%ManualCommand%Operation"** would deliver the following lines:

	First	Last	Dir	#	Ack. at	KKS	Signal	Alarm
	2011-11-17 16:11:25.370	2011-11-17 16:12:55.370	+	1		0QCD21AP001B	XM20	FWT DOS PMP 1 MESR
	2011-11-17 16:11:24.367	2011-11-17 16:14:15.367	+	1		03QHA10CT001	XM20	BOILER 3 STEAM TEMP
	2011-11-17 16:11:23.367	2011-11-17 16:15:35.367	+	1		2MBN12GS001	ZV01	EMERGENCY PUSH BUTTON
	2011-11-17 16:11:21.380	2011-11-17 16:12:15.380	+	1		1MBH01AN001	XB01	HRSG1 SEAL AIR FAN 1
	2011-11-17 16:11:17.353	2011-11-17 16:11:35.353	+	1		0MAG21AN050A	XB02	AIR CLD COND FAN 50%
	2011-11-17 16:11:16.370	2011-11-17 16:12:55.370	+	1		2MBR32EU001	XV22	HRSG 2 BLR DMPR CLS 1 OF 3
	2011-11-17 16:11:15.367	2011-11-17 16:14:15.367	+	1		0MAJ31AA002	XB46	START EJCTR STM STV

5.3 Charts

Figure 7: Selected charts

In the MasterData window (Chart Definition), process values are combined into charts and allocated to a plant section. The charts assembled for a specific plant section can be viewed in the Charts window:

Select the plant section from the **Origin** list box and then select an allocated chart in the **Curve** list box. Specify the curve's end time in the **To** field and its time interval in the **Period** field. The chart window displays the curve on a grey grid.

A click on the **Now** button enters the current time of the current day as the chart's end time. To regenerate the chart diagram, click the **Show** button. You can use the scroll buttons to quickly change the period of the chart display: click the **double arrow** buttons to move the curve forward or back by a whole period, or click the **single arrow** buttons to move the curve forward or back by half a period.

The chart values can be exported to **Excel** files. You can also switch the chart display to update mode where the end time is constantly adjusted to the current time, thus providing continuous updating of the charts.
Click the Printer symbol in the window's head section to send the contents of the list(s) to a printer.

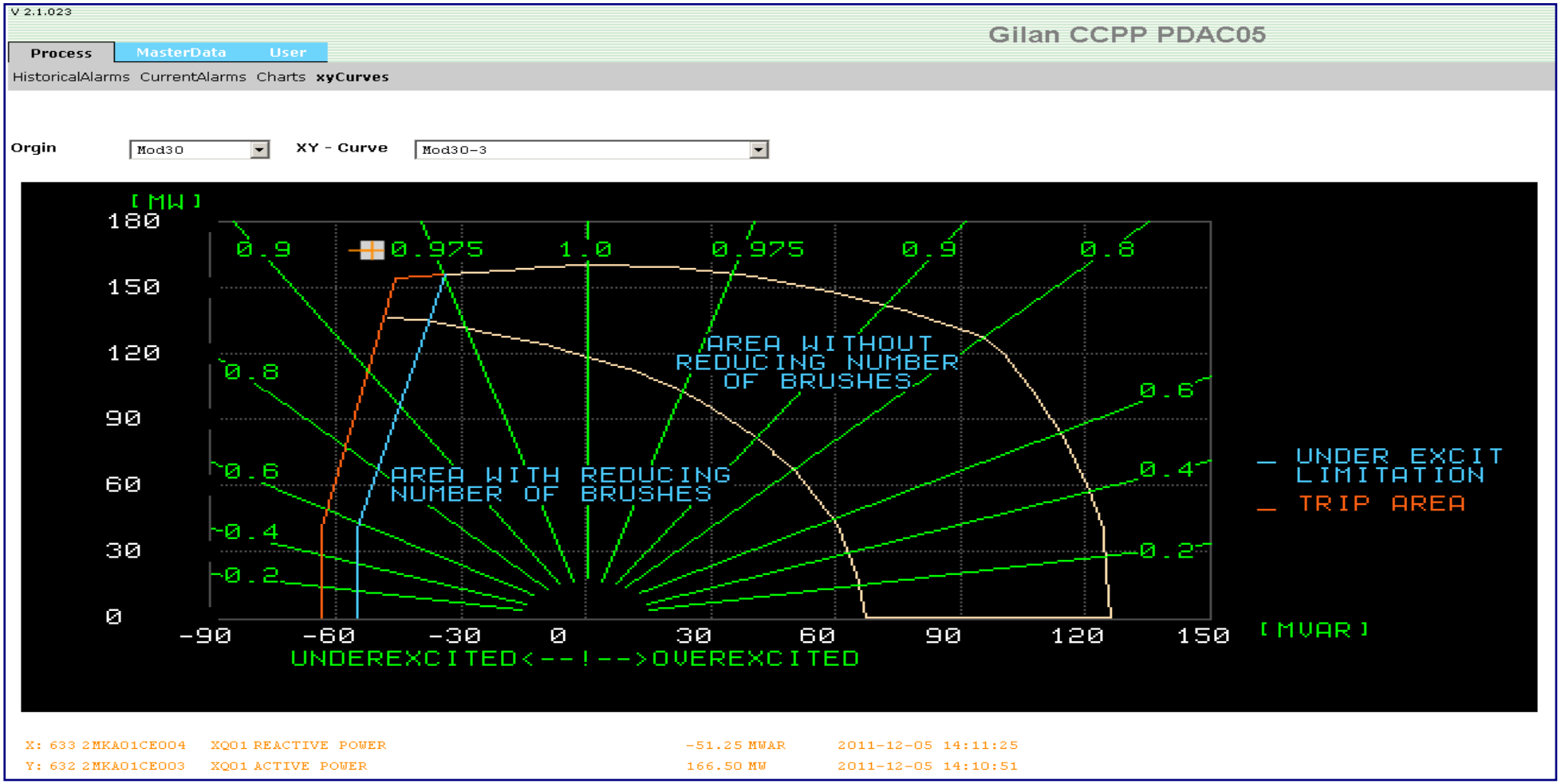
The legend (that may consist of several lines) at the bottom of the window shows the AKZ and a description of the displayed process value in the color of the corresponding chart, as well as the unit and the range.

The X-axis shows the time values of the charts, with the end time of the charts displayed on the far-right of the window.

The number of Y-axes is determined by the number of different units and ranges. Y-axes for individual process values are shown in the color of the corresponding chart. If several process values can be combined on one axis, the axis is shown in black color.

The Y-axes will be scaled to the background grid of the chart window. If necessary, the ranges of the X-axes are "spread" to achieve a sound "value-to-grid" display (steps of 5, 10, 50, etc.). However, as this can lead to a relocation of individual curve positions, the curve window may look somewhat different than in the previous program version (V2.0.160).

5.4 xyCurves



Operating points are displayed by the intersection of two analogue values in a coordinate system.
The characteristics are predefined.
At most four operating points can be displayed at the same time in a coordinate system.
The update of the operating points will be made every *n* seconds.
The coordinate system, the characteristics and the analogue values can be projected freely.

6 Master Data

6.1 Modules

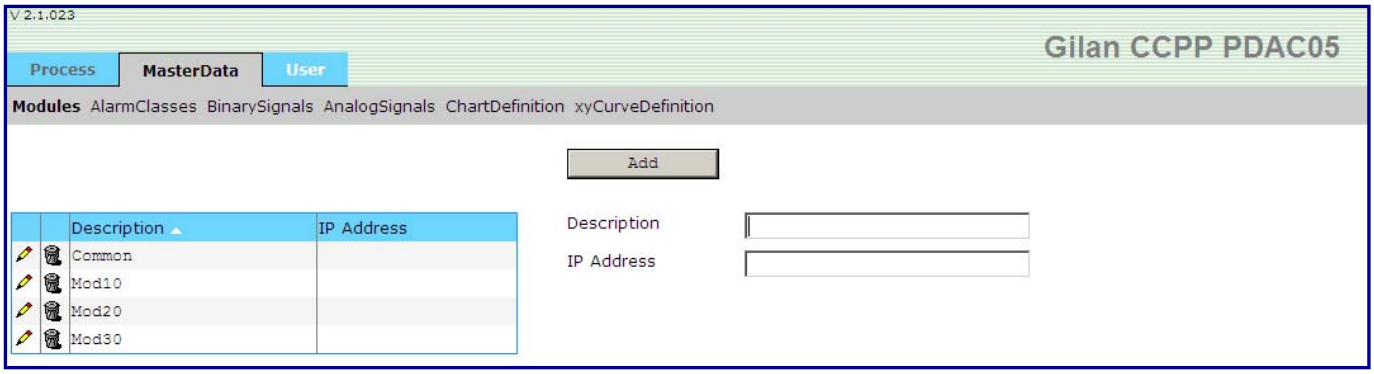


Figure 8: MasterData - Modules

The **Modules** window allows you to define new plant sections (origin) or to change or delete existing plant sections.

Newly created alarms, process values and chart definitions are always allocated to such a plant section.

When the PDC Server is installed, the plant sections from the existing TELEPERM M system will be transferred (migrated). External systems installed at a later time can be implemented.

For external signalizing (e.g. horn), a plant section can be provided with an IP address that can be used to trigger a signal by transmitting a corresponding message (see Alarm classes).

6.2 Alarm Classes

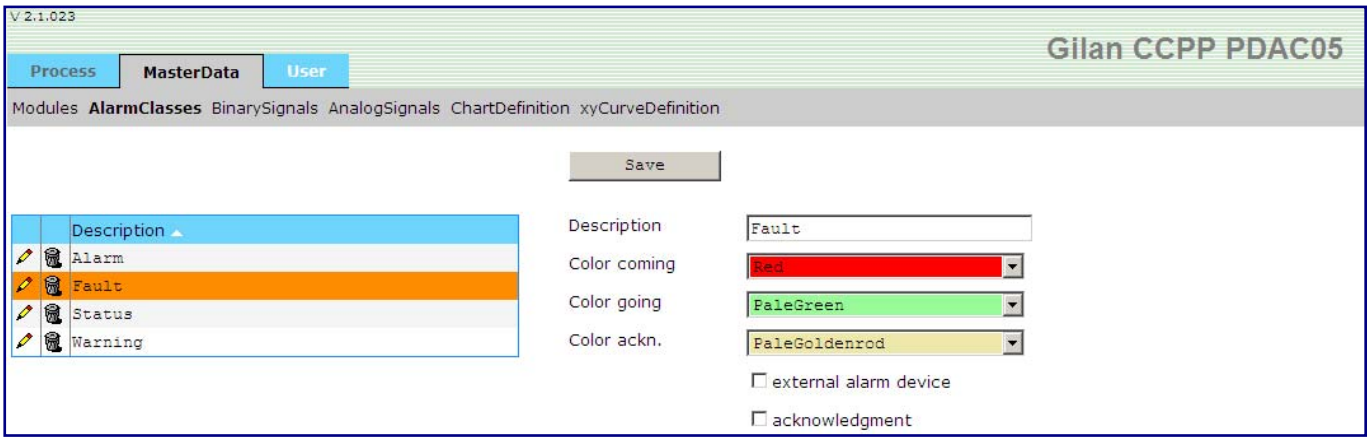
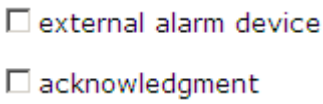


Figure 9: MasterData – Alarm Classes

Use the AlarmClasses window to define new alarm classes or to change or delete existing alarm classes.

The colors of the alarm lines are defined in the allocated alarm class.

When the PDC Server is installed, the alarm class definitions from the existing TELEPERM M system will be transferred (migrated). You can create a new alarm class and allocate it when the alarm is defined (see Alarms).



Alarm classes that are used for external signalizing (e.g. horn) and/or for signals that require acknowledgement, can be designated accordingly.

It is possible to trigger external signalizing via the IP address of the allocated plant section (see **Modules**).

Note:

External signalizing or acknowledgement are not relevant for alarms that are acquired via an OS printer interface or the printer interface of an external system as both takes place on the OS or the external system.

6.3 Binary Signals

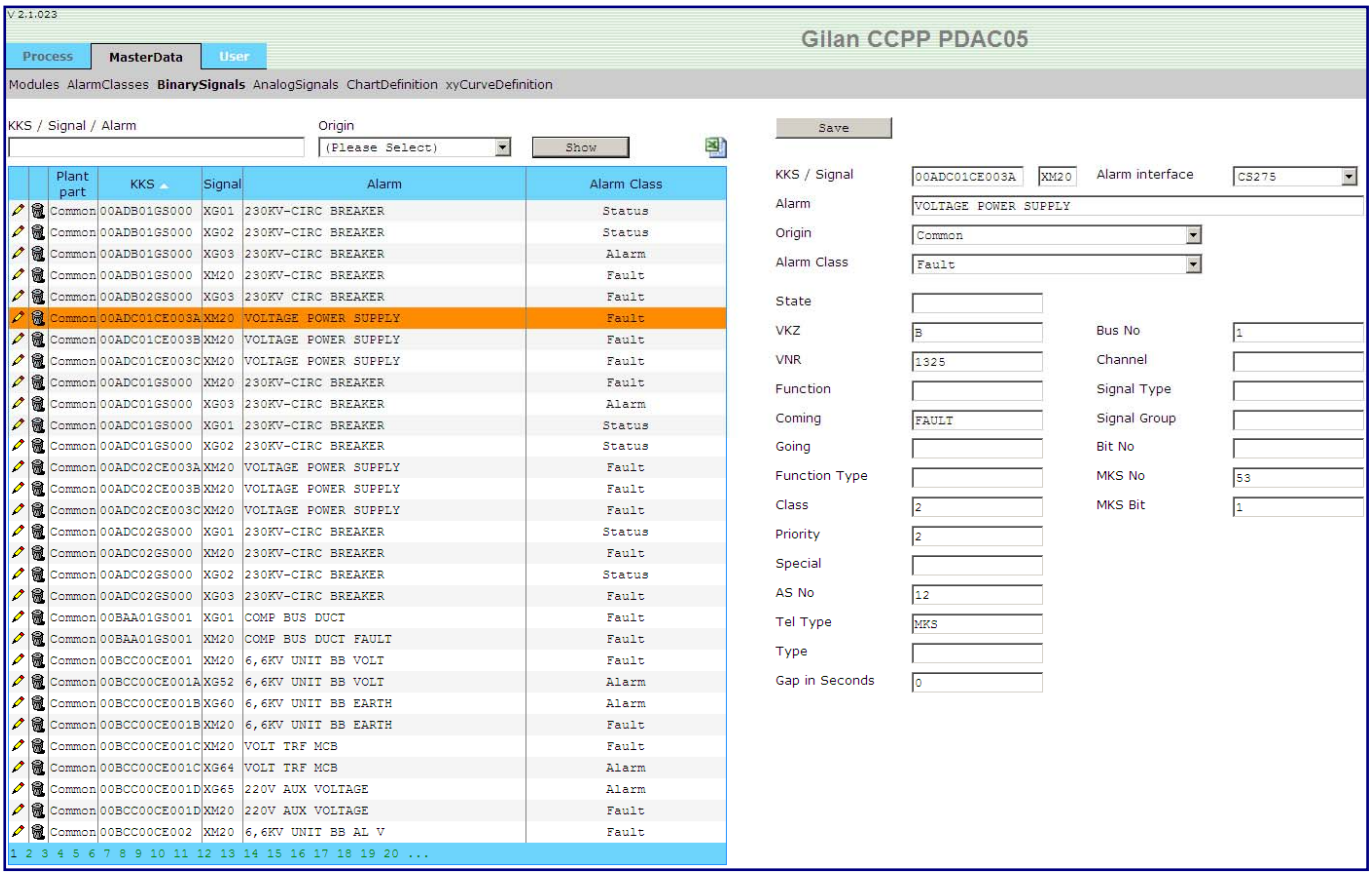


Figure 10: MasterData – Binary Signals

Use the **BinarySignals** window to define new alarms or to change or delete existing alarms.

When the PDC Server is installed, the alarm definitions from the existing TELEPERM M system will be transferred (migrated).

List view – columns and symbols

Edit or delete a selected alarm

Plant part	Plant section or system that transmits the alarm
KKS	Power plant identification
Signal	Signal identifier
Alarm	Alarm text; short description of the alarm, as stored in the database
Alarm class	Classification according to the degree of severity

Click the Printer symbol in the window's head section to send the contents of the list(s) to a printer.

Selecting a plant section from the **Origin** list reduces the alarm list accordingly.

To regenerate the alarm list, click the **Show** button.
The alarm list can be exported to an **Excel** file.

KKS / Signal / Alarm

Texts separated by a space character can be used as OR function for the **KKS**, **Signal** and **Alarm** columns.

If spaces in the specified character string shall be taken into account, the character string must be enclosed in double quotes.

You can make use of the following placeholders when sorting alarms by partial text:

%	replaces a character string of zero or more optional characters
_ (underscore)	replaces an individual optional character
[...]	replaces an individual character in a range ([a-f], [0-9]) or quantity ([2adg]) of characters
[^...]	replaces an individual character that is **not** part of the specified range or quantity

No distinction is made between upper-case and lower-case letters.

Detail view – Edit mode

Click the **Add / Save** button to store/change an alarm in the database.

Required specifications
General:
- KKS and signal
- Alarm (description)
- Origin (plant section from list box)
- Alarm class (from selection box)

Alarm acquisition via the CS275 bus (MKS):
- Bus No.
- AS No.
- Tel Type
- MKS/AKS No.
- MKS/AKS Bit

The specifications in the remaining entry boxes are merely descriptive and can be adopted from the configuration data of the old system when the PDC Server is initially installed.

Note:

For alarms that are acquired via the CS275 bus (MKS), the Bus No., AS No., MKS and Bit entries identify the allocated message text and alarm class.

For alarms acquired via the printer interface of an OS or external system, the KKS, Signal, Alarm and Origin entries identify the "printer message" and thus allow allocation to an alarm class.
The clear text that identifies the alarm is hidden and cannot be changed, whereas the visible alarm text can be changed. That means that the sometimes "cryptical" short descriptions in some of the old systems can be changed to a meaningful text for the message display.

6.4 Analog Signals

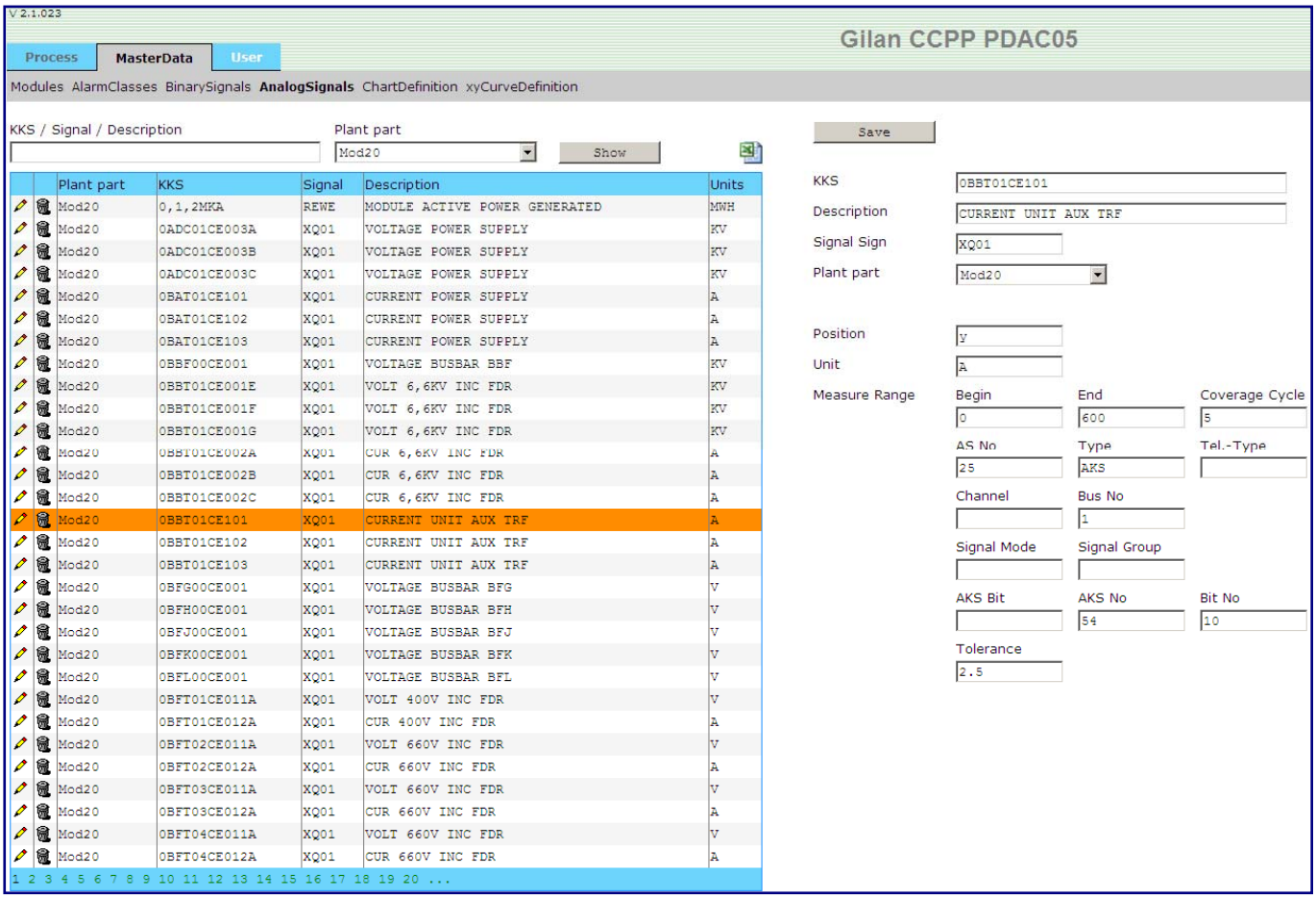


Figure 11: MasterData – Analog Signals

Use the **AnalogSignals** window to define, change or delete the process values that form the basis for the definition of charts.

When the PDC Server is installed, the process value parameters from the existing TELEPERM M system will be transferred (migrated).

List view – columns and symbols

Edit or delete a selected alarm

Plant part	Plant section or system that transmits the alarm
KKS	Power plant identification
Signal	Signal identifier
Description	Alarm text; short description of the alarm, as stored in the database
Units	Unit of the process value

Click the Printer symbol in the window's head section to send the contents of the list(s) to a printer.

Selecting a plant section from the **Plant part** list reduces the alarm list accordingly.

To regenerate the alarm list, click the **Show** button.
The alarm list can be exported to an **Excel** file.

KKS / Signal / Description

Texts separated by a space character can be used as OR function for the **KKS**, **Signal** and **Description** columns.

If spaces in the specified character string shall be taken into account, the character string must be enclosed in double quotes.

You can make use of the following placeholders when sorting alarms by partial text:

%	replaces a character string of zero or more optional characters
_ (underscore)	replaces an individual optional character
[...]	replaces an individual character in a range ([a-f], [0-9]) or quantity ([2adg]) of characters
[^...]	replaces an individual character that is **not** part of the specified range or quantity

No distinction is made between upper-case and lower-case letters.

Detail view – Edit mode

Click the **Add / Save** button to store/change a process value in the database.

- KKS
- Description
- Signal Sign
- Plant part (from selection box)
- Unit
- Measure range (start, end)
- Coverage cycle
- Bus No.
- AS No.
- Tel Type
- AKS No.
- AKS Bit
- Tolerance

The specifications in the remaining entry boxes are merely descriptive and can be adopted from the configuration data of the old system when the PDC Server is initially installed.

The **Coverage cycle** (in seconds)
defines the smallest time interval at which values are acquired.
A zero ("0") entry here would mean that every value from the process level will be acquired.

Example:

- If the process level transmits values at every second and the coverage cycle is set to 20 seconds, then every 20th value will be acquired by the system.
- If the process level transmits values at 5-second intervals and the coverage cycle is set to 20 seconds, then only every forth value will be acquired by the system.
- If the process level transmits values at 50-second intervals and the coverage cycle is set to 20 seconds, then every value will be acquired by the system - the specified coverage cycle is not effective.

Hence a value will be acquired every 20 seconds, independent of the update cycle of the process level, as long as the update cycle of the process level is shorter than the system's coverage cycle.

The **Tolerance** band (in percent)
affects the difference between the new process value and the process value acquired last. The difference must be larger than the tolerance band value, otherwise the process value will not be acquired.

Example:
Process value acquired last=30, tolerance band=10. The value acquired next will be below 27 or above 33.

6.5 Chart Definition

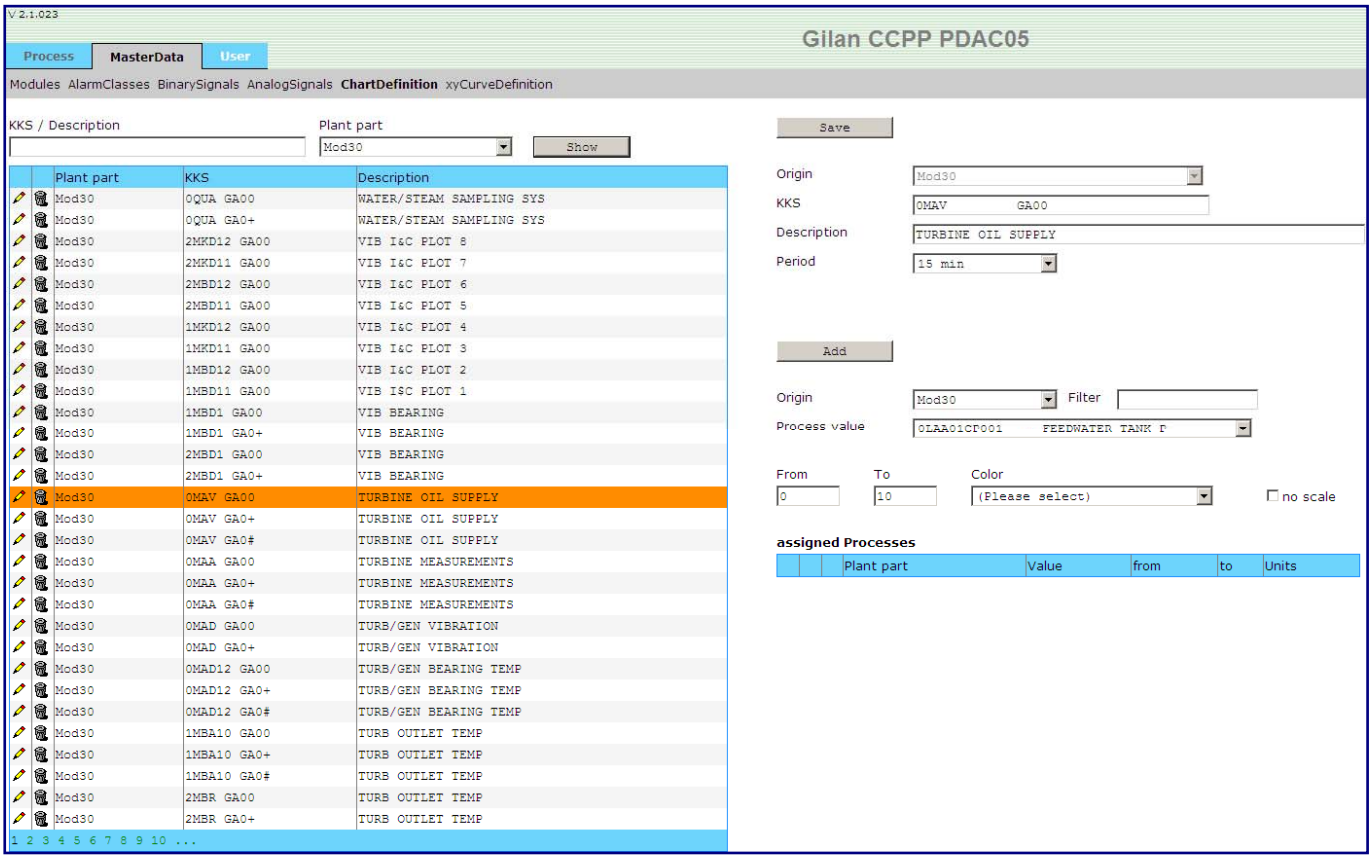


Figure 12: MasterData – Chart Definition

Use the **ChartDefinition** window to define, change or delete chart windows and allocate process values (charts) to specific chart windows.

When the PDC Server is installed, the chart definitions from the existing TELEPERM M system will be transferred (migrated).

List view – columns and symbols

Edit or delete a selected alarm

Plant part	Plant section or system that transmits the alarm
KKS	Power plant identification (empty)
Description	Short description of the process value, as stored in the database

Click the Printer symbol in the window's head section to send the contents of the list(s) to a printer.

Selecting a plant section from the **Plant part** list reduces the alarm list accordingly.
To regenerate the chart definition list, click the **Show** button.

KKS / Description

Texts separated by a space character can be used as OR function for the **KKS** and **Description** columns.

If spaces in the specified character string shall be taken into account, the character string must be enclosed in double quotes.

You can make use of the following placeholders when sorting alarms by partial text:

%	replaces a character string of zero or more optional characters
_ (underscore)	replaces an individual optional character
[...]	replaces an individual character in a range ([a-f], [0-9]) or quantity ([2adg]) of characters
[^...]	replaces an individual character that is **not** part of the specified range or quantity

No distinction is made between upper-case and lower-case letters.

Detail view – Edit mode

In Edit mode, you define a chart and then allocate process values to this chart.

Click the upper **Add / Save** button to store/change a chart in the database.

- Origin (from selection box)
- KKS (optional)
- Description
- Period (preferred chart display period)

Click the lower **Add / Save** button to allocate a new process value to the chart or to change the parameters of a process value allocation.

- Origin (from selection box)
- Filter (affects the process value list)
- Process value (from the selection box)
- From, To (range of values)
- Color (of chart and legend, also of Y-axis if applicable)

6.6 xyCurve Definition

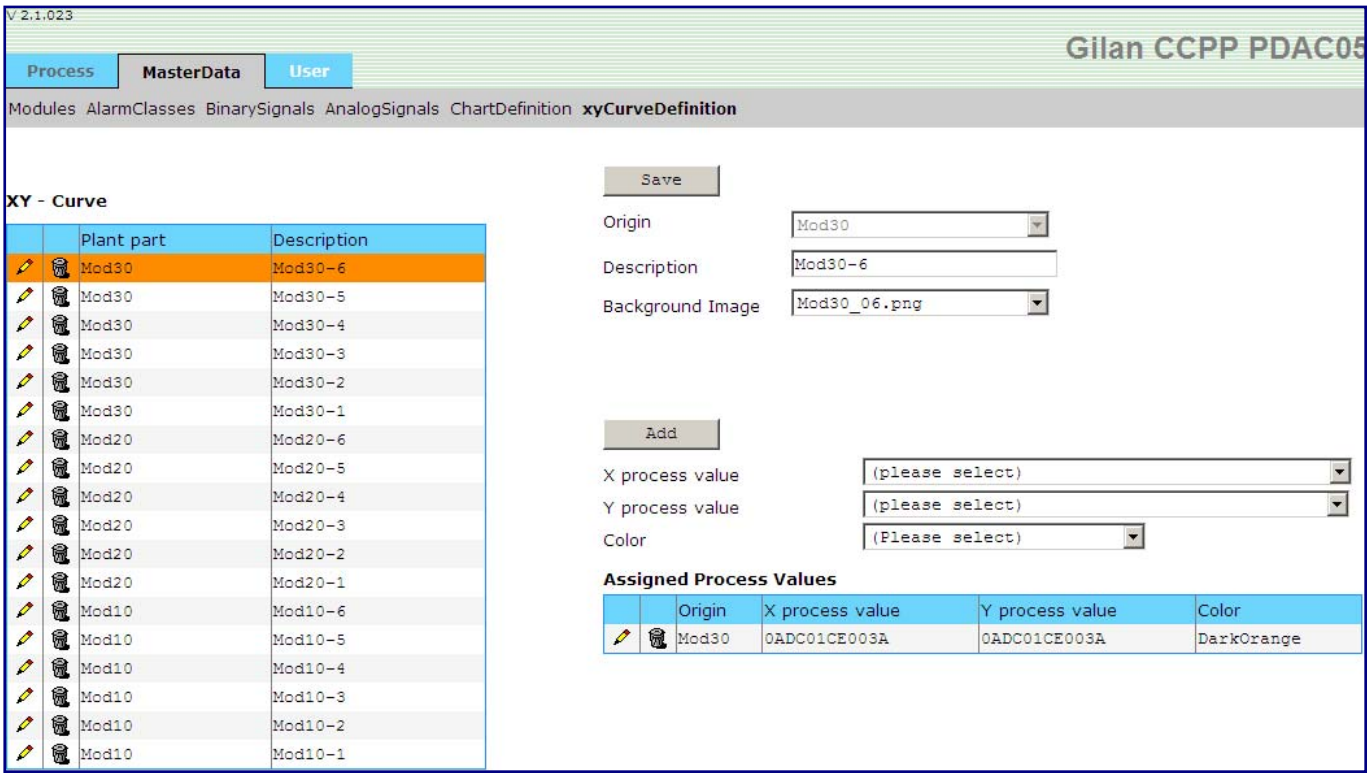


Figure 13: MasterData – xyCurve Definition

For every XY-curve several conditions must be declared, e.g. a name (description), process values for X and Y axis, a definite color for it, et cetera.

Also, for every equipment and every type of XY chart some individual background images(*.bmp, *.jpg, *.png) will be delivered with the PDC Server.

The background image can be selected from the ComboBox aside and after a click on the Save button, it will be assigned to.

To create your own background image you can use Microsoft VISIO. The image dimension should be 635 x 600 pixel.

7 User Administration

7.1 Introduction

User Administration allows you to define new PDC Server users, change user characteristics, delete users, assign users to user groups and grant specific user access rights. A logged-in user can only select the menu items that correspond to the access rights defined for him in user administration.

7.2 Defining a User

You can use the **User** window to add a new user or to change user characteristics.

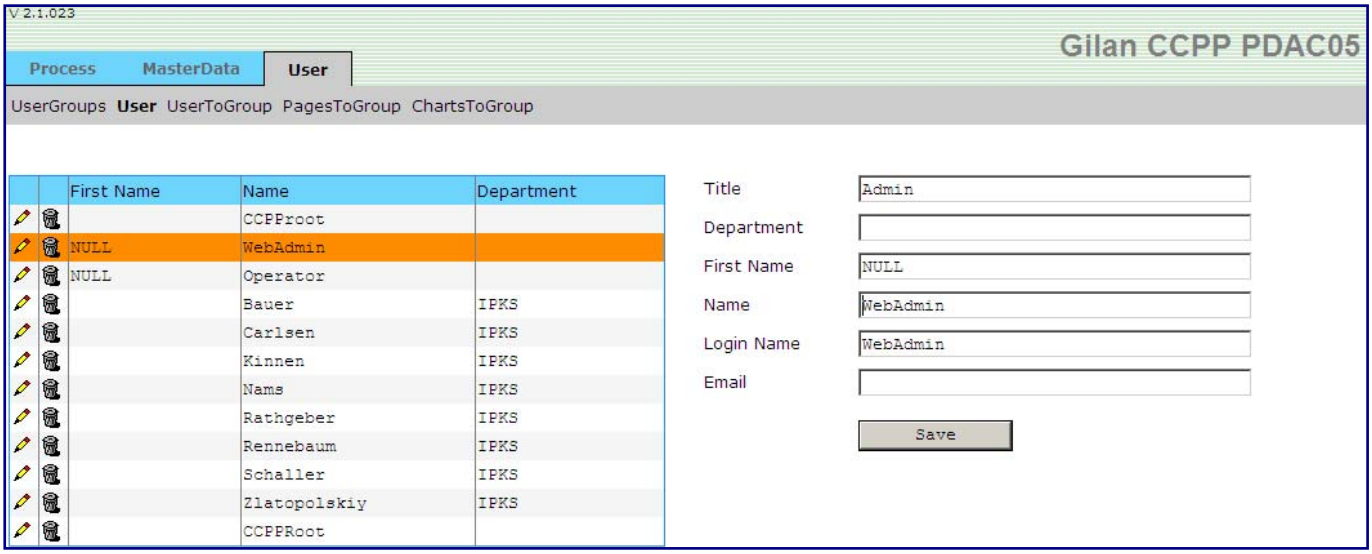


Figure 14: User Administration

7.3 Defining a User Group

Use the **UserGroups** window to create user groups to which individual users can be assigned. Access rights or availability of individual chart values and menu items are always allocated to such a user group.

A user inherits the access rights of the user group he is assigned to.

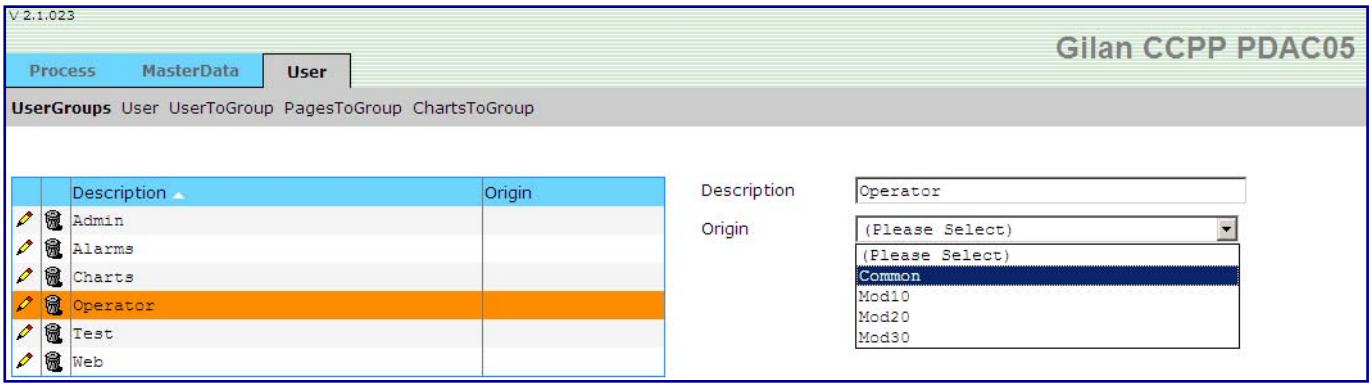


Figure 15: User Groups

7.4 Assigning a User to a User Group

Use the **UserToGroup** window to assign a user to one or more user groups. If a user belongs to more than one user group, he is granted the rights of each user group he is assigned to.

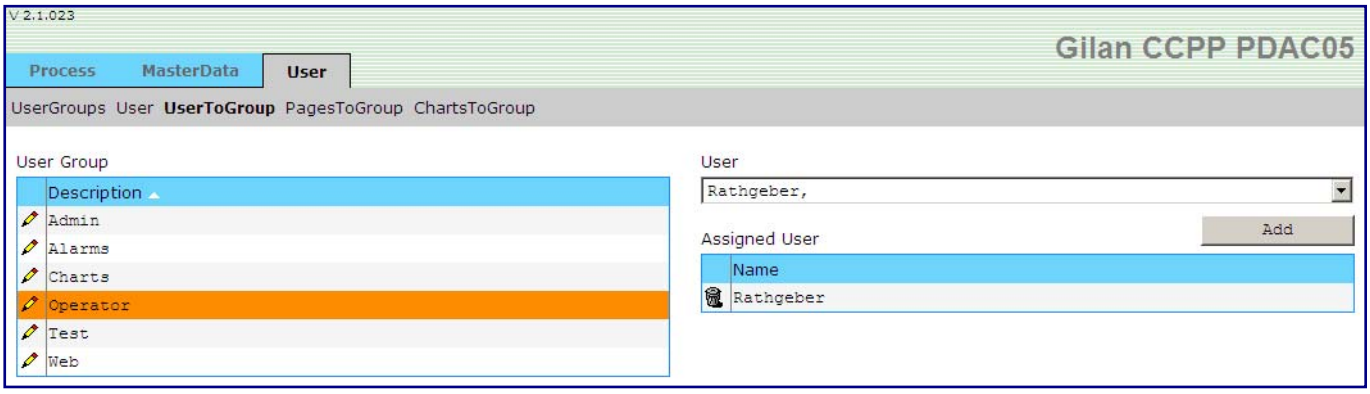


Figure 16: User To Group

7.5 Assigning Pages to a User Group

In the **PagesToGroup** window, assign the WEB-based dialog pages of the PDC Server (Alarms, Charts, MasterData) the users of a user group will be entitled to access.

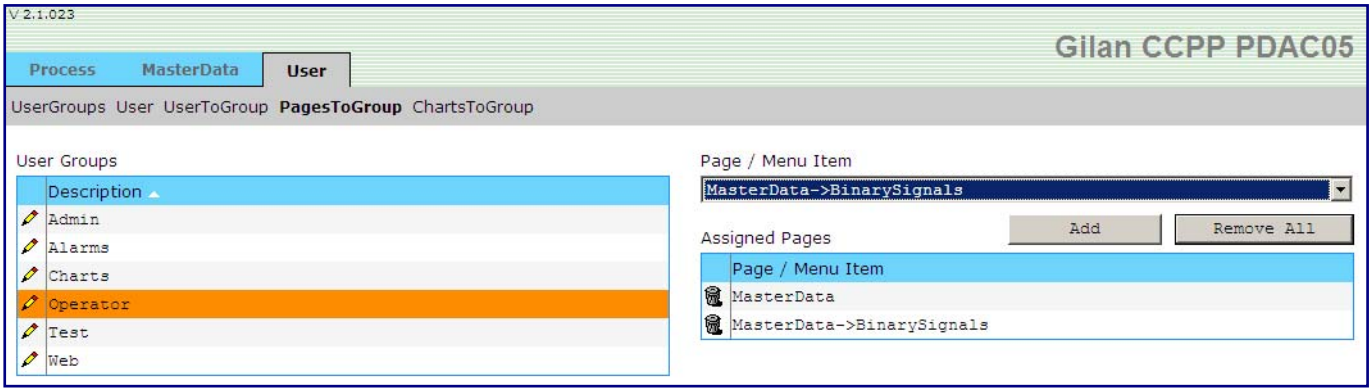


Figure 17: Pages To Group

7.6 Assigning Charts to a User Group

In the **ChartsToGroup** window, assign the chart windows of the PDC Server the users of a user group will be entitled to access.

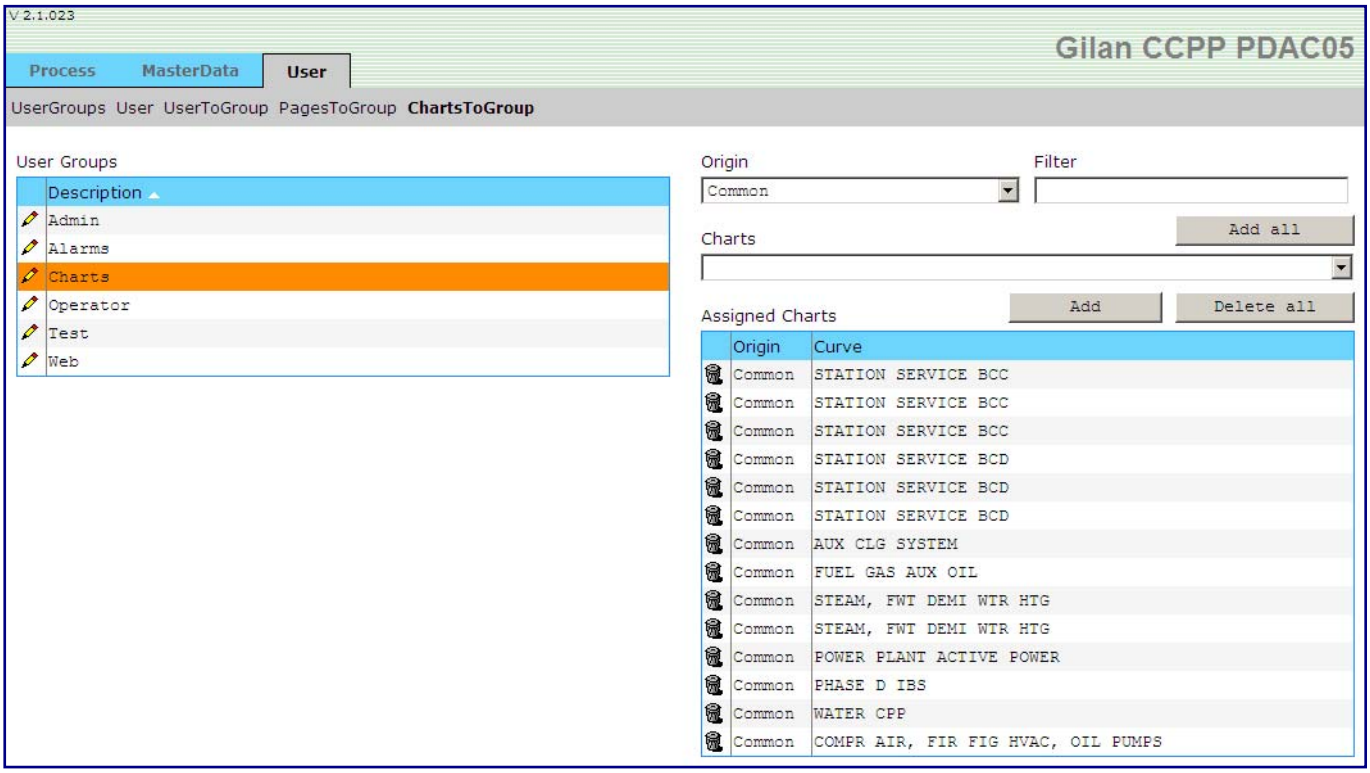


Figure 18: Charts To Group

To assign a chart window to a user group, select the plant section in the **Origin** box and then select the chart to be assigned from the **Charts** selection box. You can define a filter in the **Filter** box to reduce the number of charts listed in the **Charts** selection box (the filter affects both the **Charts** list of the selection box and the **Assigned Charts** list). The **Add** and **Delete all** buttons are only available if a filter has been defined.

8 Data backup

All PDC Server data is saved in the tables of the MS SQL Server database. These database tables can be archived using the standard MS SQL Server backup functions.
All data storage media supported by the SQL Server, such as DVD, tape, network drives, etc., can be used as backup media.

It is also possible to specify the time period (daily, weekly, ...) after which alarm and chart archives are automatically transferred and saved to Excel tables.