

**BERNARD[®]
CONTROLS**

TECHNICAL MANUAL



**PC WORKSTATION FOR
MASTER STATION MS202**

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1 > INTRODUCTION

Our Master Station is a ready-to-work solution which eases the command and control of large quantities of motor operated valves by the means of a fieldbus. It will help you saving time and resources. It is an interface located between the DCS and the actuators, which can replace your standard industrial computer. Because BERNARD CONTROLS Master Station is already set up, you will save precious time during the commissioning phase. Just cable it and the system is quickly ready to work! Overall start up time of your site is now reduced to the minimum.

Our Master Station is also able to work without the DCS. In case of default of your DCS or if you do not want to include one in your installation, you can still communicate with your actuators through the Master Station's manual control, from the color touch screen. You can thus keep the control of your valves even if the DCS is on hold or disconnected.

The Master Station is able to interface with a monitoring computer (optional) to control directly valves' automation. This PC workstation, equipped with specific software, allows to operate the MOVs and to retrieve data and alarms from the field units.

By choosing the PC workstation, you opt for greater user friendliness. Indeed, we can work together on demand to schematize your installation in the software interface so as to overview all the actuators of your site easily. And for simple use, the software is available in English, French, Spanish, German and Italian.

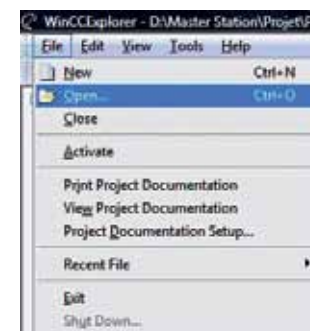
SETTING UP

2 > MAKING THE ETHERNET COMMUNICATION

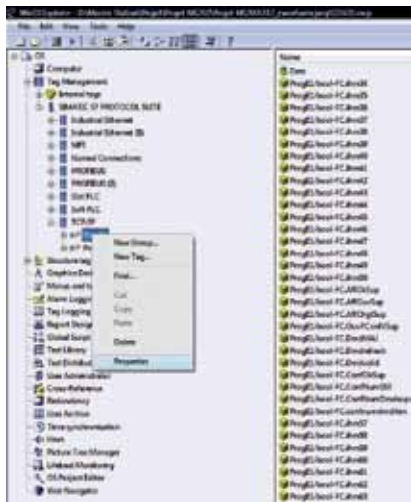
To link the PC Workstation and the Master Station MS202 together use an Ethernet cable (provided). Connect one of both cable extremity to the Ethernet port of the PC, and the second to **M9** Unit or to the Ethernet port on the front panel of one of the Master Station MS202 units (for more information refer to NR1177 – Master Station MS202 Technical Manual).

To ensure the redundancy of the system, the PC Workstation communicates with the two Master Station MS202 units. Each unit has an IP address which is 192.168.94.180 for the first unit and 192.168.94.182 for the second unit. So, if you did not change these addresses go to the next section III. Setting up your PC Workstation. Otherwise, the way to proceed is explained below.

First of all, power on your PC and run Simatic WinCC Explorer; you can find the application's icon on the desktop or in C:\Program Files\Siemens\WinCC\bin\WinCC Explorer.exe. Then, open the MS202 Project by clicking on "File", "Recent File" and click on "OS.mcp".



Now the MS202 project is open and you can change the IP settings. On the left column, double click on the left button on "Tag Management", "SIMATIC S7 PROTOCOL SUITE" and "TCP/IP". At last click on the right button "ProgE1" and select "Properties".



The window "Connection properties" shown below will appear. Click on «Properties» button.



The window "Connection Parameter - TCP/IP" shown below will appear. Now, you can change the IP address.



Click on «OK» to validate, then on «File» and «Exit» to close the project.

This procedure allows changing the TCP/IP parameter to communicate with the Master Station MS202 unit labeled "PLC 1". To change the TCP/IP parameter to communicate with the Master Station MS202 unit labeled "PLC 2" follow the same procedure but, this time, select "ProgE2".

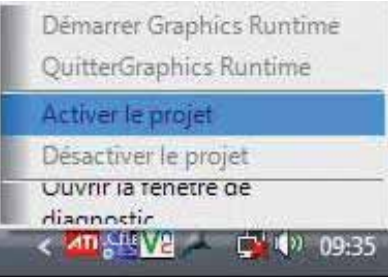
Note: Before changing the TCP/IP parameters you must know the IP address of each unit, so refer to NR1177 – Master Station MS202 Technical Manual.

3 > SETTING UP YOUR PC WORKSTATION

To run the Master Station MS202 application click right on the WinCC icon on the taskbar.



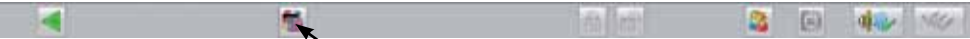
Then select Activate the project will run the application.



3.1 > LANGUAGE

Language can be chosen amongst the following list: English, French, Spanish, German and Italian. Any type of user's accounts has access to this setting (refer to part 5.1. Log in access).

From any pages you have access to the Toolbar on the bottom of the screen (for more details about the navigation refer to section 5. PC Workstation). Click on the green arrow on the left bottom corner to display the "Language Selection" icon.



"Language Selection" icon

A window will be displayed. Select the language you want.



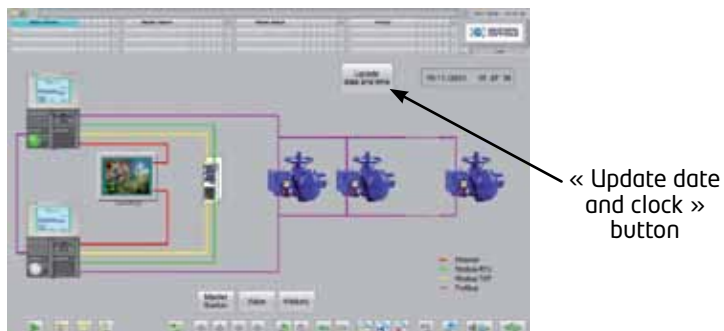
Wait a few seconds and the change will be effective.



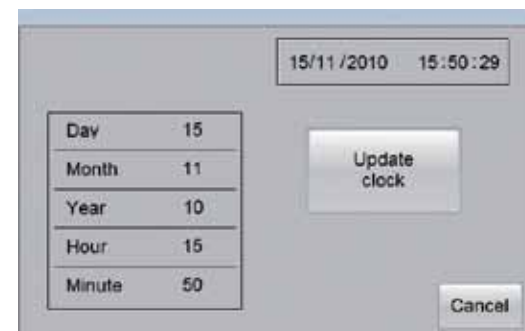
3.2 > CLOCK

You can set up date and time only if you are logged in to the Maintenance account (refer to section 5.1. Log in access).

From the "Main Picture" window, click on the "Update date and time" button to access to the "Setting date and clock" window.



On the top of the "Setting date and clock" window there is the current date and clock. You can change these parameters on the left of the window and press Enter on the keyboard to confirm your choice. Then, to validate the change click on the «Update Clock» button.



Now, the entire system (Touch screens, Internal Web pages and the PC) is configured with the new parameters. Click on «Cancel» to go back to the main picture.

3.3 > MANAGEMENT OF USER'S ACCOUNTS

You can restrict access to the Master Station according to user's profile. Indeed there exist four types of accounts all secured by a password, possibilities of each account are described in Annex User's account

- **User:** You can only consult information about the Master Station and the actuators connected to it.
- **Super-user:** Like with the user account, you can consult information about the Master Station and the actuators connected to it. But you can also command the actuators.
- **Maintenance:** You can consult information about and set up the Master Station, and have full access to actuators (piloting and setting up).
- **Administrator:** This account is dedicated to the management of user's accounts.

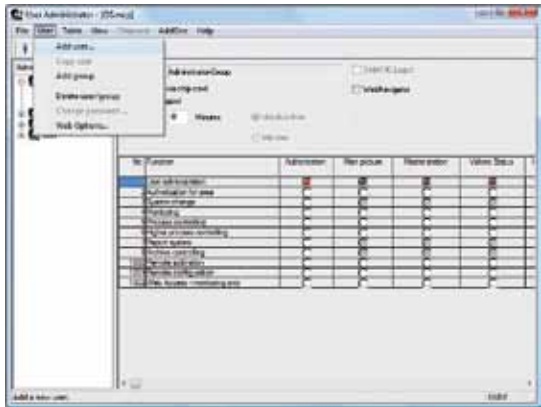
To create a user's account you must be logged in with an Administrator account (refer to section 5.1. Log in access).

From any pages you have access to the Toolbar on the bottom of the screen (for more details about the navigation refer to section 5. PC Workstation). Click on the green arrow on the left bottom corner to display the "User's account" icon.



The "User Administrator" window is open and it allows you to create a user's account.

On the left of the window there are the four kinds of user's account: Administrator, Maintenance, SuperUser and User. To add an account select the type of account and click on "User" then on "Add user..."



For information, authorizations per type of user's account are presented below:

		Administrator	Maintenance	SuperUser	User
No.	Function	Authorization	Authorization	Authorization	Authorization
1	User administration				
2	Authorization for area				
3	System change				
4	Monitoring				
5	Process controlling				
6	Higher process controlling				
7	Report system				
8	Archive controlling				
1000	Remote activation				
1001	Remote configuration				
1002	Web Access - monitoring only				

4 > SETTING UP YOUR ACTUATORS

4.1 > ACTIVATE YOUR ACTUATORS

The first thing you have to do is to activate the actuator on the Master Station to establish the communication between those. There, before activating the actuator, make sure it is correctly cabled and connected and its slave address is correctly set up.

Note : The number of the valve you will activate must correspond to the slave address minus 2 (For example the valve number 1 will have 3 for slave address, the valve number 2 will have 4 for slave address...).

To activate an actuator you must be logged in with a Maintenance account (refer to section 5.1. Log in access).

From any windows click on the "Valves Status" button on the top of the screen, then on "Valves 1 -60" or "Valves 61 - 120" on the "Valves Activity" column, depending on the actuator you want activate.



The "Valves activity page 1 or 2", depending on the actuator you want to activate, is displayed and you can see the status of each actuators.
If the actuator is activated, the "Active Valve" inscription and the "Deactivate" button are displayed on the right of the valve number. If the actuator is inactivated, the "Inactive Valve" inscription and the "Activate" button are displayed on the right of the valve number.

To activate an actuator, click on the corresponding "Activate" button.

The communication with your actuator is now established and you have access to all fonctionna-
lities of the actuator.

Now, when you come back on the Valve Status screen (refer to section 6.2. Actuators Status) you get information about the actuator. If there is communication fault it will be displayed. In such case, make sure Profibus is correctly cabled and slave address is correctly set up, then deactivate and reactivate the actuator.



The "Next page" button allows you to access directly to the "Valves activity page 2".



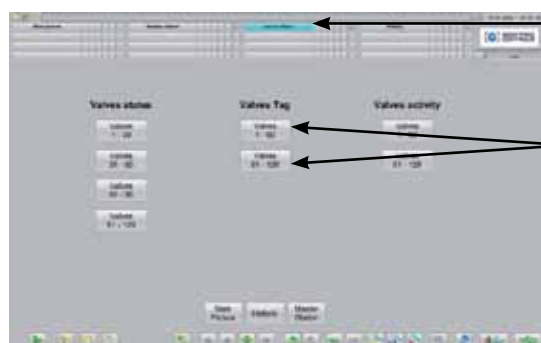
« Last page »
button

The "Last page" button allows you to access directly to the "Valves activity page 1".

4.2 > RENAME YOUR ACTUATORS

To change the valve name you must be logged in with a Maintenance account (refer to section 5.1. Log in access).

From any windows click on the "Valves Status" button on the top of the screen, then on "Valves 1 -60" or "Valves 61 - 120" on the "Valves Tag" column, depending on the actuator you want change the name of.



« Valves Status »
button

"Valves 1 -60" &
"Valves 61 - 120"
on the "Valves
Tag" column

The "Valves Tag page 1 or 2", depending on the actuator you want to change the name of, is displayed. To change a valve name click on the current tag and enter the new name, then press "Enter" on your keyboard to validate the change.



« Next page »
button

The "Next page" button allows you to access directly to the "Valves Tag page 2".



« Last page »
button

The "Last page" button allows you to access directly to the "Valves Tag page 1".

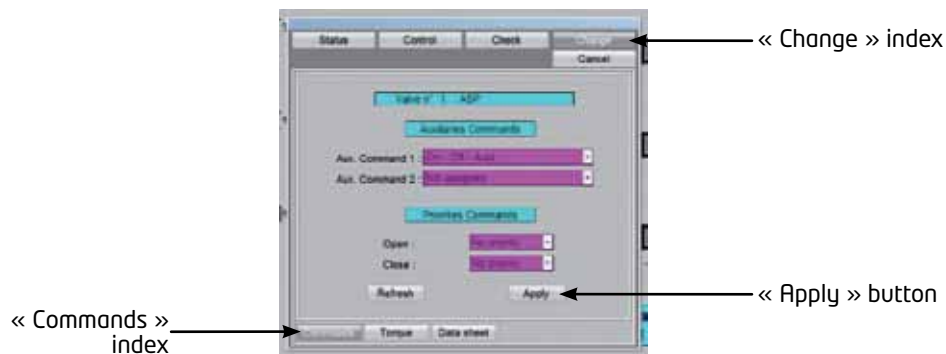
4.3 > SET UP YOUR ACTUATOR

To set up an actuator you must be logged in with a Maintenance account (refer to section 5.1. Log in access). If you are logged in with a User or SuperUser account you have access to these pages but you cannot change any values.

Once you selected the valve you want change a parameter of (refer to part 6.1. Actuator selection), click on «Change».

4.3.1 > SET UP COMMANDS

On the « Change » index of the « Valve status » select the "Commands" index.



You can allocate the auxiliaries commands to the following functions:

- **LOCAL/REMOTE:** Replace the local/remote selector on the actuator and, under remote control conditions, authorize either local control or remote control.
- **LOCAL+REMOTE/REMOTE:** This function has the same role as the previous one, but local and remote control can be authorized simultaneously.
- **PROHIBITING LOCAL CONTROL:** Prohibiting local control is controlled remotely. This function prohibits local opening and closing controls and authorizes remote control even if the actuator selector is placed on local control.
- **PROHIBITING OPENING/CLOSING:** This control is used for preventing the actuator from starting or stopping.
- **AUTO / ON-OFF:** For an actuator used in modulating mode with a positioning function, a command can be selected by position set-point (equivalent to the 4/20mA signal) or by opening, closing or stop controls. The auto/on-off control is used for changing from one control mode to another.
- **CLOSING / OPENING / EMERGENCY SHUTDOWN:** The ESD (Emergency Shut Down) is an emergency remote command that has priority over the other commands. Depending on the type of operation for which the valve is to be used, this emergency command can be opening, closing or stopping in an intermediate position. The ESD command is assigned to a Modbus command for auxiliary command 1 and to a wired link (separate cabling) for auxiliary command 2.
Note: The cabled ESD has priority over the Modbus ESD. Emergency control is not possible when the switch is in the OFF position.
- **PARTIAL MOVEMENT:** This control carries out an automatic test to ensure that the actuator is still operational. The test consists of manoeuvring the actuator over a part of its course. The starting position as well as the percentage of movement can be set. An alarm is given off if the test has not been carried out within a predetermined time.

A priority can be selected between the opening command and the closing command.

In standard there is no priority between opening and closing.

Priorities are used for:

- Reversing the direction of movement during operation without passing via a stop command. In this case, a priority for opening or a priority for closing must be configured.
- Giving priority to a direction of rotation: If the actuator receives two simultaneous opening and closing orders and an opening priority has been selected, the actuator will go rotate for opening.

To change a parameter, click on the current value to display a drop-down list, then select the auxiliary command or the priority command you want and click on "Apply" to validate your change.

Note: if there is a loss of communication between the two PLC only the signals which come from actuators connected to the primary PLC will be refresh. Similarly, it will only be possible to control actuators connected to the primary PLC.

4.3.2 > SET UP TORQUE

On the « Change » index of the « Valve status » select the "Torque" index.

On this window you can change the torque limitations and the closing mode.

There are four torques parameters:

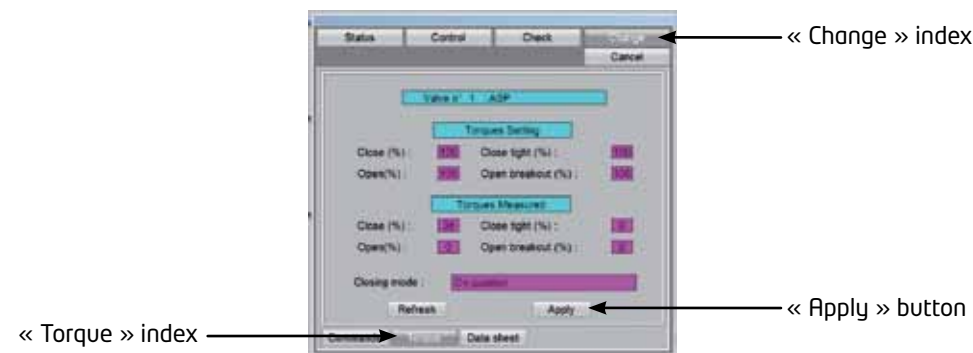
- Close (%): limits torque during closing
- Close tight (%): the torque applied on the valve seat may not be the same as the torque limit during the closing movement.
- Open breakout (%): the torque limit to unseat the valve may be different from - generally higher than - the torque limit during the opening movement.
- Open (%): limits torque during opening movement.

For information the value of these four torque types measured during the last electric actuation are displayed as shown below.

Finally you can change the closing mode.

There are three possible values:

- On position
- Closing on torque
- Opening and closing on torque



To change a torque parameter click on the current value and enter a new value, it must be between 40% and 100%. Press on Enter on the keyboard to confirm your choice.

Note: Change the torque settings must be doing with full knowledge of the fact.

To change the closing mode click on the current value to display a drop-down list, then select the mode you want.

Click on "Apply" to validate your change.

4.3.3 > DATASHEET

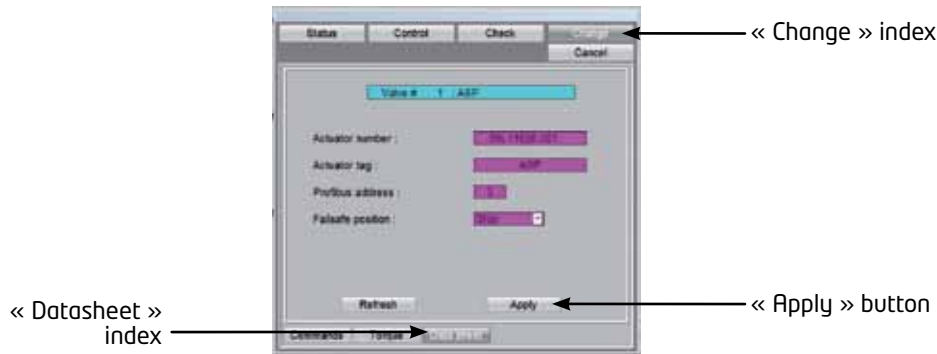
On the « Change » index of the « Valve status » select the "Datasheet" index.

On this window you can change the actuator tag. You can also select a fail-safe position that the actuator will reach in case of loss of communication with the Master Station MS202. You can choose among the following positions:

ON POSITION: The actuator stays in position.

OPENING: The actuator runs in the opened direction.

CLOSING: The actuator runs in the closed position.



To change the actuator tag, click on the current value and enter a new value.
To change the fail safe position click on the current value to display a drop-down list, then select the position you want.
Click on "Apply" to validate your change. change, click on «Cancel» to go back to the «Valve Selection» page.

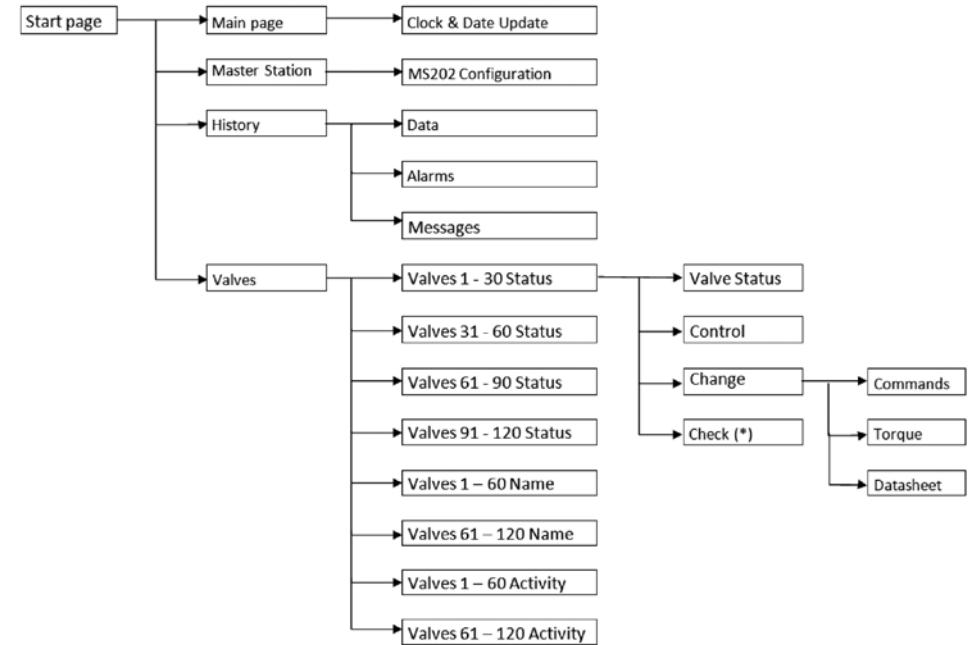
UTILISATION

5 > PC WORKSTATION

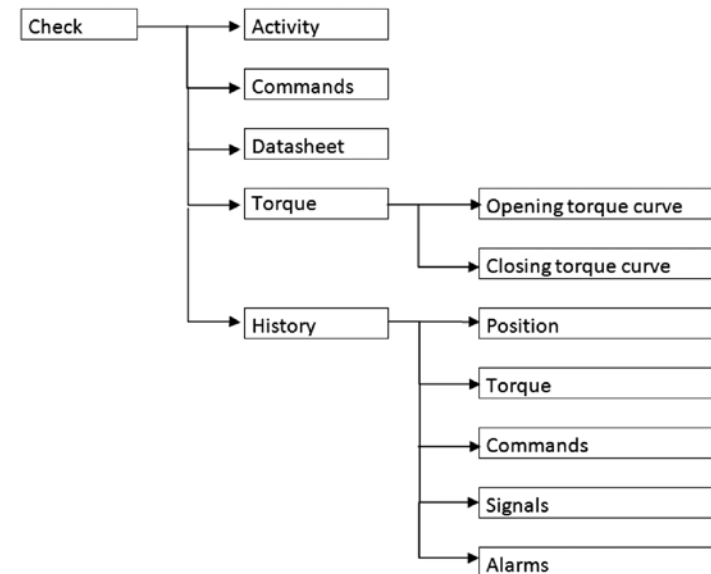
With the PC workstation it is possible to activate and configure an actuator, to pilot your actuator, to check its activity and its characteristics and consult its torque curves.
You can consult the status of the Master Station MS202 or configure it.

In addition, all the messages and the alarms about the Master Station MS202 and about the actuators are saved in the PC workstation.

PC Workstation layout:



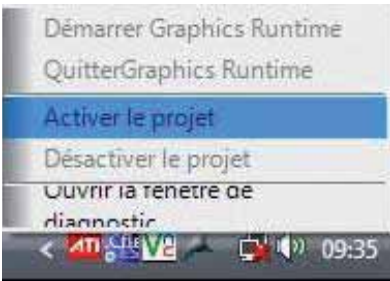
(*) Check menu is described in the next board.



To run the Master Station MS202 application click right on the WinCC icon on the taskbar.



Then select Activate the project will run the application.

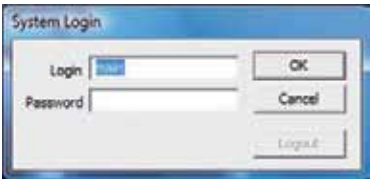


5.1 > LOG IN ACCESS

You can restrict access to the Master Station according to user’s profile. Indeed there exist four types of accounts all secured by a password, possibilities of each account are described in Annex User’s account.

- User: You can only consult information about the Master Station and the actuators connected to it.
By default: Login: User Password: 333333
- Super-user: Like with the user account, you can consult information about the Master Station and the actuators connected to it. But you can also command the actuators.
By default: Login: SuperUser Password: 222222
- Maintenance: You can consult information about and set up the Master Station, and have full access to actuators (piloting and setting up).
By default: Login: Main Password: 111111
- Administrator: This account is dedicated to the management of user’s accounts.
By default: Login: Admin Password: 321321

In order to log in, you must enter a login and a password (described before) in the “System Login” window shown below.



This window appears when you start the Master Station application, but there are two others way to display it.
On the top right corner of the window there is the label of the current session. Click on it and the “System Login” window will appear.



You can also click on the “Login” icon on the bottom toolbar.



This allows you to change the accounts from any page.

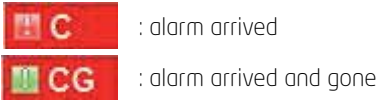
5.2 > MENU AND TOOLBARS

Alarm banner:

On the top of the window there is an alarm banner which displays actuator’s and Master Station’s faults. Alarms are classified in two categories:
- Alarm: means that actuator is not available because of fault, consequently you cannot control it (red line).
- Warning: means there is a fault but the actuator is still available, then you can control it (yellow line).

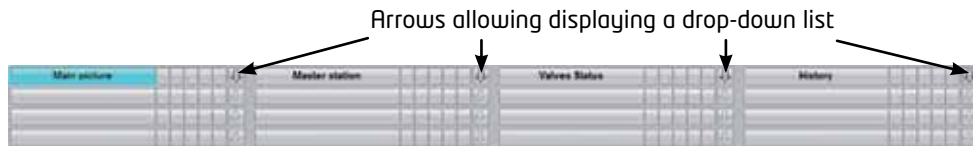


Date: The date when the fault arrived.
Time: The time when the fault arrived.
Origin: It specifies if the fault concerns an actuator or the Master Station.
Designation: It is the fault description.



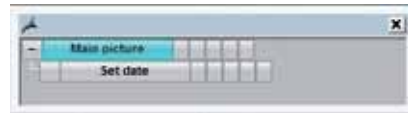
Status: It means that fault has arrived, left or acknowledged.
Acknowledgement: This button allows you to acknowledge the fault, so the message disappears from the alarm banner.

Menu:
On the top of the window there is a menu which allows you to access directly to any pages. There is four drop-down lists: Main picture, Master Station, Valves Status and History. To display these, click on the arrow on the right.



Main picture drop-down list:

You have a direct access to the "Set date and clock" window, by clicking on the corresponding button.



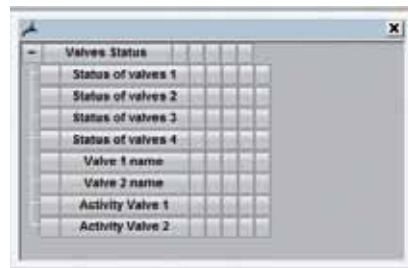
Master Station drop-down list:

You have a direct access to the "Master Station Configuration" window, by clicking on the corresponding button.



Valves Status drop-down list:

You have a direct access to the four "Valves Status" windows, to the two "Valves Name" windows and to the two "Activity valve" windows, by clicking on the corresponding buttons.

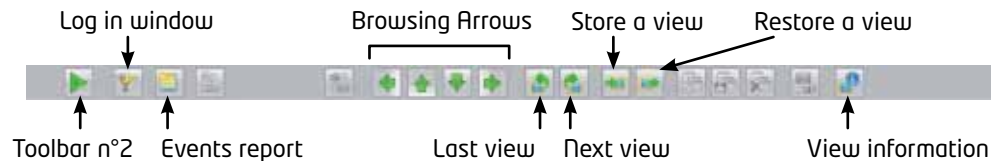


History drop-down list:

You have a direct access to the "Value History", to the "Alarm History" and to the "Message History" windows, by clicking on the corresponding buttons.



Toolbar n°1:



Toolbar n°2: this button allows you to display Toolbar n°2.

Log in window: this button allows you to display the "Log in" window (refer to section 5.1. Log in access).

Events report: this button allows you to display all the alarms presented in the alarm line on the top of the screen (refer to section 6.5.2. Alarm and message history).

Browsing arrows: these buttons allow you to browse between the pages according to the PC Workstation menu layout described in section 5.PC Workstation.

Last view: this button allows you to go back to the last view which is displayed.

Next view: this button allows you to go back to the next view which is displayed.

Store a view: this button allows you to store a view so that you can restore it later.

Restore a view: this button allows you to restore the view which is stored before.

View information: this button allows you to display some information about the current window.

Toolbar n°2:



Toolbar n°1: this button allows you to display Toolbar n°1.

Language selection: this button allows you to display the "Language selection" window (refer to section 3.1. Language).

User's accounts: displayed only if you are logged in with an administrator account. This button allows you to manage the user's accounts (refer to section 3.3. Management of user's account).

Exit runtime: displayed only if you are logged in with a maintenance account. This button allows you to exit to the Master Station MS202 application.

6 > ACTUATORS

In this section we will describe what the Master Station MS202 allows you to do with the actuators.

6.1 > ACTUATORS SELECTION

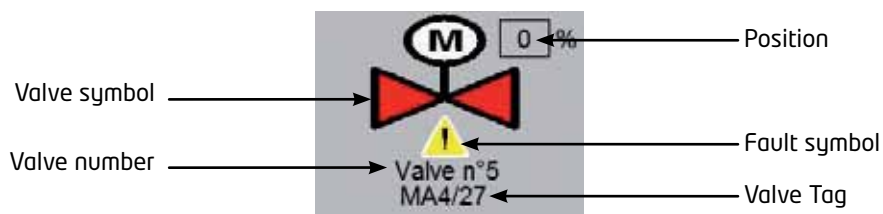
To access to the "Valves Status" window you must follow the instructions described in section 5.2. Menu and toolbar or, from any window click on the "Valves Status" button on the top of the screen, then on "Valves 1 -30", "Valves 31 -60", "Valves 61 -90" or "Valves 91 - 120" on the "Valves Status" column, depending on the actuator you want consult.



Then, a list of thirty valves is displayed, and you can see status of active valves.







Indications description:



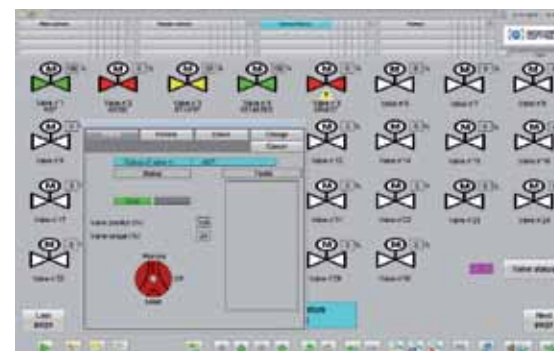
- Valve symbol: this symbol can be in four colors:
 - White means that the valve is not active
 - Green means that the valve is open
 - Red means that the valve is closed
 - Yellow means that the valve is in an intermediary position
- Position: this is the current position of the valve; value is between 0% and 100%
- Valve number: it is the number of the valve; value is between 1 and 120
- Valve tag: it is the landmark of the valve (refer to section 4.2. Rename your actuator)
- Fault symbol: this symbol means that the valve is not available for one of the following reasons:
 - The selector is in Local or Off position
 - The torque limiter is activated
 - Motor thermal overload activated: The actuator will be available again as soon as the motor has cooled down.
 - Phase loss fault: Only in 3-phase mode, one phase is missing. No start-up allowed.
 - Valve too hard: Opening or closing is incomplete as the torque is too high.
 - Rotation direction fault: Direction of rotation non-compliant in opening or closing mode.
 - Actuator jam alarm: The actuator is jammed when either opening or closing.
 - Torque or position sensor fault: The actuator no longer receives any information from the torque or position sensor.
 - Partial movement Fault: The partial movement test has detected a fault.

Buttons description:






-  : valve symbol is also a button which allows you to access to its status window.
-  : you can enter the number of an active valve in the purple box (press «Enter» on the keyboard to validate the valve number) to access to it by clicking on "Valve status" button.
-  : this button allows you to display the last "Valves Status" windows.
-  : this button allows you to display the next "Valves Status" windows.

6.2 > ACTUATORS STATUS

After a valve was selected on a "Valves Status" window, its "Actuator status" window is displayed. You can find on this screen the current valve position and torque, the Remote/Local selector position and, in case of fault, fault description.



Indications description:

-  : It means that the Selector of the actuator is in OFF position.
-  : It means that the Selector of the actuator is in Local position.
-  : It means that the Selector of the actuator is in Remote position.
-  100 : this is the current position of the valve; value is between 0% and 100%
-  34 : this is the current torque of the valve; value is between 10% and 150%

- **Open** : It means that the actuator is open.
- **Opening** : It is displayed when the actuator is running in the open direction.
- **Close** : It means that the actuator is closed.
- **Closing** : It is displayed when the actuator is running in the close direction.
- In case of fault, a description is given on the right of the window. See below a list of the faults which can be displayed:
 - Motor thermal overload activated: The actuator will be available again as soon as the motor has cooled down.
 - Phase loss fault: Only in 3-phase mode, one phase is missing. No start-up allowed.
 - Rotation direction fault: Direction of rotation non-compliant in opening or closing mode.
 - Torque sensor fault: The actuator no longer receives any information from the torque sensor.
 - Position sensor fault: The actuator no longer receives any information from the position sensor.
 - Non-redundant com.: Communication between the Master Station MS202 and the actuator is no longer redundant.
 - Loss of com.: Communication between the Master Station MS202 and the actuator is cut off.
 - Overtravel alarm: Position overshoot > 5% after motor shut down.
 - Motor jammed on opening: The motor locked in the opening direction.

6.3 > COMMAND YOUR ACTUATOR

Once the "Actuator status" window is displayed, click on the "Control" index to display the "Control" window. From this page it is possible to control the actuator, but only if you are logged in with a Maintenance or a SuperUser account.

Depending on auxiliary command "On - Off / Auto", control window can have two different appearances. But in each case you can find the current position of the valve, a fault light and the auxiliaries' commands.

Fault light is displayed if the actuator is not available for one of the following reasons:

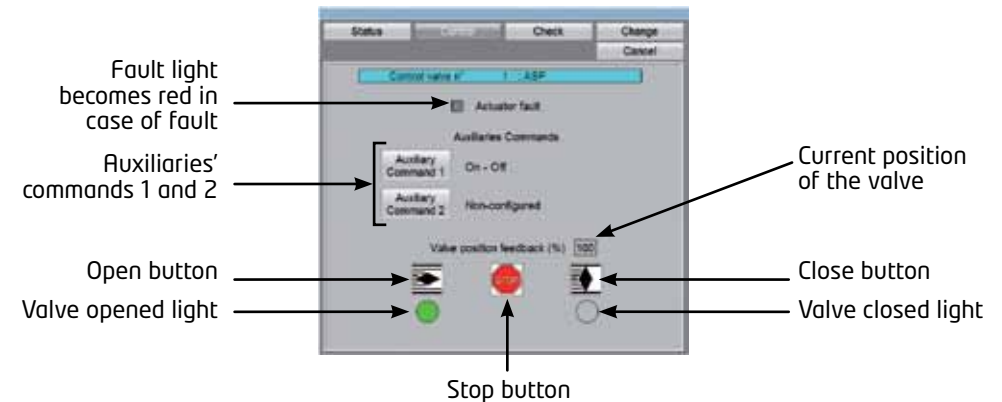
- The selector is in Local or Off position
- The torque limiter is activated
- Motor thermal overload activated: The actuator will be available again as soon as the motor has cooled down.
- Phase loss fault: Only in 3-phase mode, one phase is missing. No start-up allowed.
- Valve too hard: Opening or closing is incomplete as the torque is too high.
- Rotation direction fault: Direction of rotation non-compliant in opening or closing mode.
- Actuator jam alarm: The actuator is jammed when either opening or closing.
- Torque or position sensor fault: The actuator no longer receives any information from the torque or position sensor.
- Partial movement Fault: The partial movement test has detected a fault.

To know which fault is in progress click on «Status» index to get the fault list.

For more information about auxiliaries' commands refer to section 4.3.1. Set up Commands.

On - Off control:

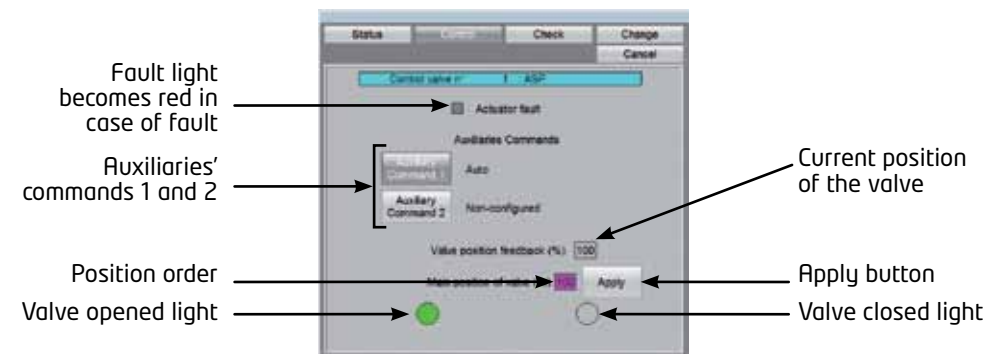
Here you can control the actuator in opening and closing direction with the "Open" and "Close" buttons. It is possible to stop the actuator in mid travel with "Stop" button.



Auto control:

To switch to the «Auto» command, «ON-OFF/Auto» must be affected to an auxiliary command, then click on «Auxiliary Command 1 or 2».

Here you can control the actuator in opening and closing direction by setting a position order and by validating your set by clicking on "Apply", then the actuator will run to the position order and stop to this position.



6.4 > CHECK

Once the "Actuator status" window is displayed, click on the "Check" index to displayed the "Check" window. From this page it is possible to see a lot of data about the actuator like its activity, its commands configuration or its torque setting.

6.4.1 > ACTIVITY

When you click on the "Check" index the "Activity" screen is displayed by default, but you can also click on "Activity" index on the bottom of the window.

« Check » index



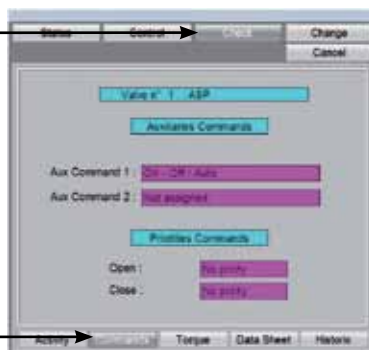
« Activity » index

On this screen you can find the number of starts during the last 12 hours, the number of starts since actuator manufacturing and since the last reset. You can also see the operating time since the actuator manufacturing and since last reset.

6.4.2 > COMMANDS CONFIGURATION

From "Check" window click on "Commands" index to display the commands configuration of the actuator.

« Check » index



« Commands » index

On this window you can see the configuration of the auxiliaries' commands and check if a priority is given to opening command or to closing command.

Auxiliaries' commands can be allocated to the following functions:

- **LOCAL/REMOTE:** To replace the local/remote selector on the actuator and, under remote control conditions, is used to authorize either local control or remote control.
- **LOCAL+REMOTE/REMOTE:** This function has the same role as the previous one, but local and remote control can be authorized simultaneously.
- **PROHIBITING LOCAL CONTROL:** Prohibiting local control is controlled remotely. This function prohibits local opening and closing controls and authorizes remote control even if the actuator selector is placed on local control.
- **PROHIBITING OPENING/CLOSING:** This control is used for preventing the actuator from starting or stopping.

- **AUTO / ON-OFF:** For an actuator used in modulating mode with a positioning function, a command can be selected by position set-point (equivalent to the 4/20mA signal) or by opening, closing or stop controls. The auto/on-off control is used for changing from one control mode to another.
- **CLOSING / OPENING / EMERGENCY SHUTDOWN:** The ESD (Emergency Shut Down) is an emergency remote command that has priority over the other commands. Depending on the type of operation for which the valve is to be used, this emergency command can be opening, closing or stopping in an intermediate position. The ESD command is assigned to a Modbus command for auxiliary command 1 and to a wired link (separate cabling) for auxiliary command 2.
Note: The cabled ESD has priority over the Modbus ESD. Emergency control is not possible when the switch is in the OFF position.
- **PARTIAL MOVEMENT:** This control carries out an automatic test to ensure that the actuator is still operational. The test consists of manoeuvring the actuator over a part of its course. The starting position as well as the percentage of movement can be set. An alarm is given off if the test has not been carried out within a predetermined time.

A priority can be selected between the opening command and the closing command. In standard there is no priority between opening and closing.

Priorities are used for:

- Reversing the direction of movement during operation without passing via a stop command. In this case, a priority for opening or a priority for closing must be configured.
- Giving priority to a direction of rotation: If the actuator receives two simultaneous opening and closing orders and an opening priority has been selected, the actuator will go rotate for opening.

6.4.3 > TORQUE PROFILE

From "Check" window click on "Torque" index to display the torque configuration of the actuator.

« Check » index



« Torque » index

On this window you can see the torques' setting, the closing mode and the torque curves. There are four torques parameters:

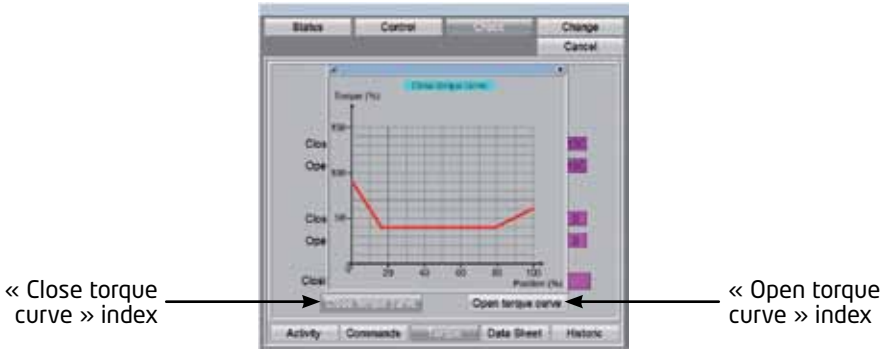
- **Close (%) :** limits torque during closing
- **Close tight (%) :** the torque applied on the valve seat may not be the same as the torque limit during the closing movement.
- **Open breakout (%) :** the torque limit to unseat the valve may be different from - generally higher than - the torque limit during the opening movement.
- **Open (%) :** limits torque during opening movement.

For information the value of these four torque types measured during the last electric actuation are displayed.

Finally you can find the closing mode, there are three possible values:

- On position
- Closing on torque
- Opening and closing on torque

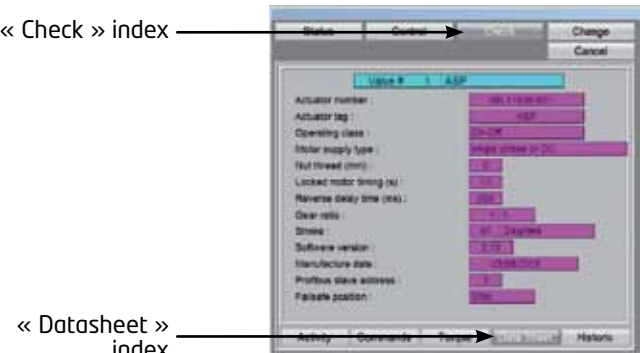
You can also see close torque curve and open torque curve of the last electric actuation.



So click on "Close torque curve" or on "Open torque curve" to display it.

6.4.4 > DATASHEET

From "Check" window, you must click on "Datasheet" index to display technical information about the actuator.



On this page you can consult the following parameters:

- The Actuator number
- The Actuator tag
- The Operating class ('On-Off', 'Modulating Class II' or 'Modulating Class III')
- The type of the Motor supply ('3 phases' or '1 phase or DC')
- The Nut thread in millimeter (0 means that is not a linear actuator)
- The necessary time to detect the motor jammed (in seconds)
- The Reverse delay time between a closing and an opening operation (in milliseconds)
- The Gear box reduction

- The Stroke ('Turns', 'Degrees' or 'mm')
- The Intelli+ software version
- The Manufacturing date
- The actuator Profibus address (3 to 252)
- The Fail safe position ('Open', 'Close' or 'On position')

6.4.5 > HISTORIC

From "Check" window, you must click on "Historic" index to display the histories of position, torque, commands, indications or alarms.
By default the position's history is displayed.

HISTORIC OF POSITION AND TORQUE are represented by a curve according to the time.
Above the curve there is a toolbar which offers many functions.



1: theses buttons allow you to go from the first recording to the last, only if you are doing pause

2: theses buttons allow you to zoom in the curve area

- : zoom area
- : zoom +/-
- : zoom time axis +/-
- : zoom valve axis

3: this button allows you to move the curve from down to up and from left to right

4: this button allows you to move the axes range

5: this button allows you to change the way to display the curve. After clicking on this button the "Time - Selection" window appears and you can select display type among "Time range", "Start and end time" and "Number of measurement point".

Time range

If you select "Time range" setting you must select time scale to display on the window.
You can select a gauge among "500ms", "1 second", "1 minute", "1 hour" and "1 day", and a multiplier (for example 12 x 1 hour to display the curve on the last 12 hours).



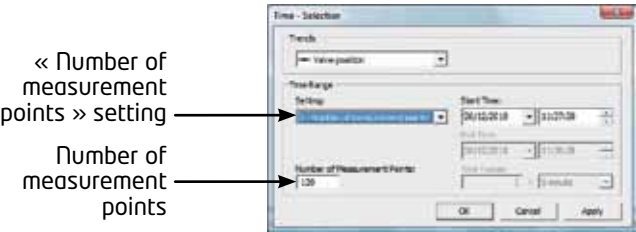
Start and end time

If you select "Start and end time" you must select the Start time and the end time, then it will be this duration which will be displayed on the window.



Number of measurement points

If you select "Number of measurement points" you must select the number of points you want to be displayed (for example if you choose 120 points, it will be the last 120 measurement points which will be displayed).



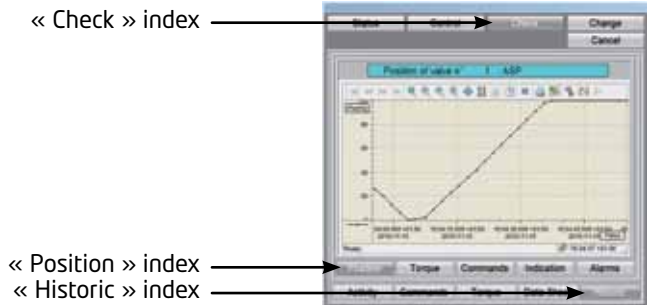
6: this button allows you to do "Pause"

7: this button allows you to print the curve

To enable or disable a filter you must tick on it or not.

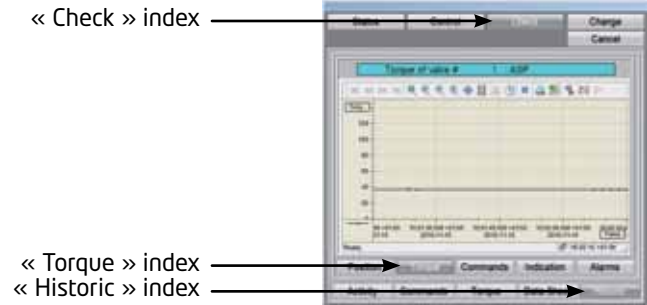
6.4.5.1 > POSITION

From "Historic" window, you must click on "Position" index to display the history of position.

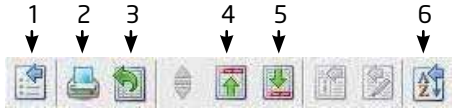


6.4.5.2 > TORQUE

From "Historic" window, you must click on "Torque" index to display the history of torque.



HISTORIC OF COMMANDS, SIGNALS AND ALARMS are represented by a list. Above the list there is a toolbar which offers many functions.

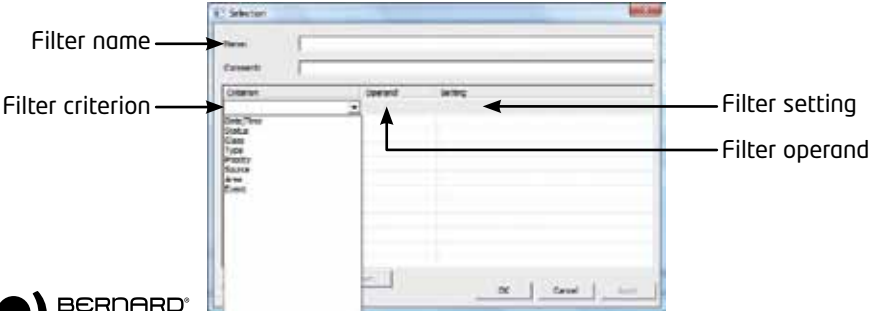


1: Select dialog: this button allows you to select the type of information that you want to display, by default all information is displayed. If you want to make a selection, click on it, then a "Selection" window is displayed.

To enable or disable a filter you must tick on it or not.



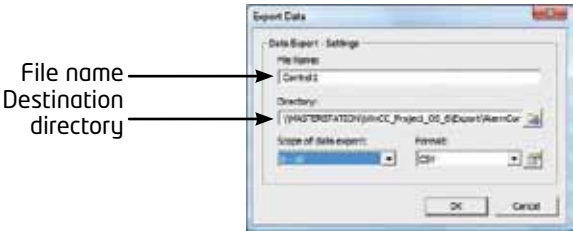
To add a new filter click on "New". Then label the filter and select a criterion in the drop-down list. Depending on your choice you must select an operand and a setting. For example, if you select "Event" in the criterion down-drop list, the operand will be "equal to" and the settings will be, for example, "Close command", "Stop command" or "Actuator running" depending of the history window.



If you create a filter with "criterion = Event", "Operand = equal to" and "Setting = Close command"; only such messages will appear into the list.

2: this button allows you to print the list.

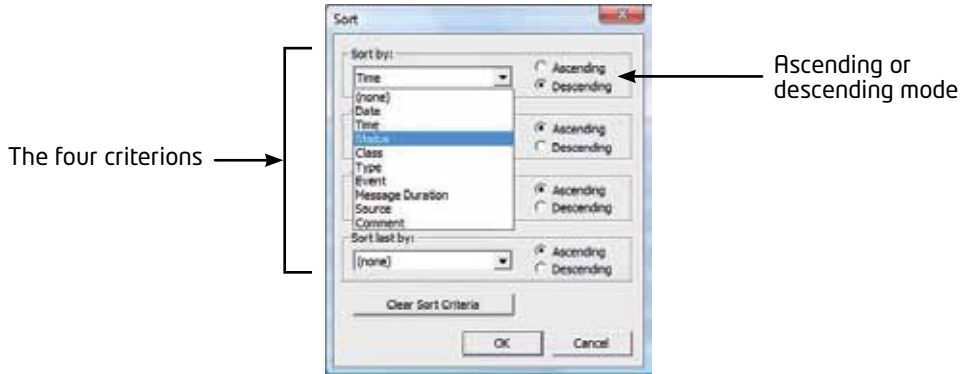
3: Export data: this button allows you to export the message list as a table. Click on it, the "Export data" window is displayed and you must enter a filename. Select the destination directory and click on "OK".



4: this button allows you to go to the first message of the list.

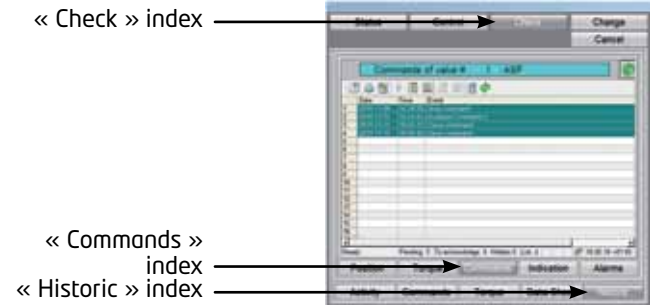
5: this button allows you to go to the last message of the list.

6: Sort dialog: this button allows you to sort the messages with four criterions. For each criterion you can associate to it ascending or descending parameter.



6.4.5.3 > COMMANDS

From "Historic" window, you must click on "Commands" index to display the history of the commands.

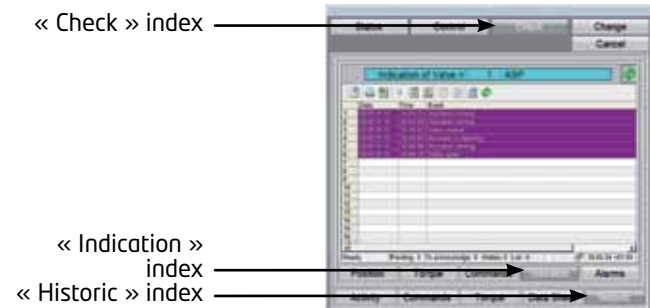


On this window you can find the following messages:

- Stop command
- Open command
- Close command
- Auxiliary command 1
- Auxiliary command 2

6.4.5.4 > SIGNALS

From "Historic" window, you must click on "Indication" index to display the history of the signals.



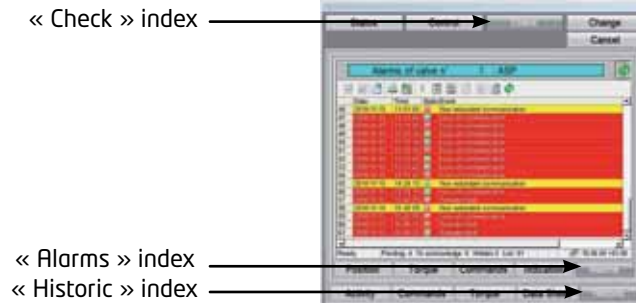
On this window you can find the following messages:

- Actuator is opening
- Actuator is closing
- Actuator is running
- Valve open
- Valve closed
- Stop in mid travel
- Selector in local position
- Selector in remote position
- Selector in off position
- Valve active

- Valve inactive
- Channel is primary
- Channel is backup
- Partial stroke in progress
- Handwheel action
- Power on

6.4.5.5 > ALARMS

From "Historic" window, you must click on "Alarms" index to display the history of the alarms.



On this window you can find the following messages:

- Actuator fault
- Torque sensor power supply fault
- Position sensor supply fault
- ESD activated
- Motor locked in opening direction
- Motor locked in closing direction
- Loss of communication
- Loss of signal
- Valve jammed
- Rotation direction fault when closing
- Rotation direction fault when opening
- Intelli+ communication fault
- Loss of phase fault
- Motor thermal overload
- Torque limiter action in closing direction
- Torque limiter action in opening direction
- Non redundant communication
- Too many starts
- Actuator pumping
- Overtravel
- Partial stroke fault
- Auxiliary 24V fault
- Activity memory fault
- Configuration memory fault
- Base memory fault
- Battery low

6.5 > HISTORY MENU

To access to the "Data history", "Alarm history" or "Message history" window you must follow the instructions describe in section 5.2. Menu and Toolbars or, from any window click on the "History" button on the top of the screen.

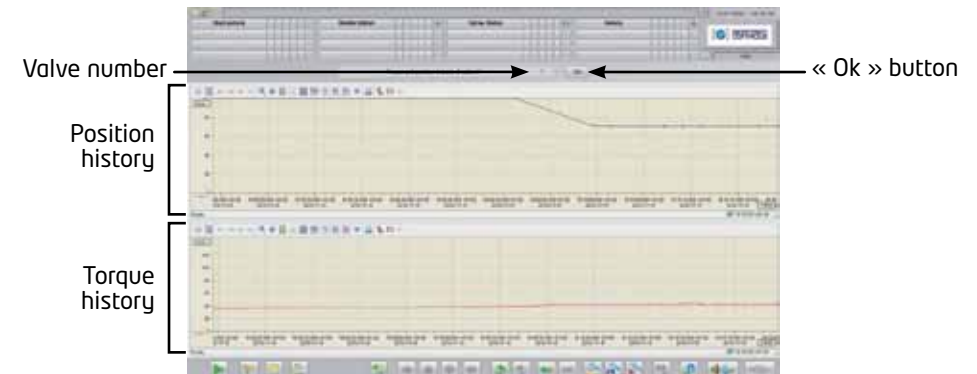


6.5.1 > DATA HISTORY

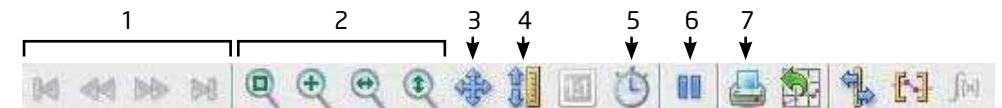
To access "Data history" you must click on "History" button on the top of the screen and then on "Data history".

On this window you can check the position and the torque of any active valve from the moment it will be activated until now.

So, enter the number of the valve you want check and press on "OK".



Above these curves there is a toolbar which offers you many functions and which is described below.



1: theses buttons allow you to go from the first recording to the last, only if you are doing pause

2: theses buttons allow you to zoom in the curve area

- : zoom area
- : zoom +/-
- : zoom time axis +/-
- : zoom valve axis

3: this button allows you to move the curve from down to up and from left to right

4: this button allows you to move the axes range

5: this button allows you to change the way to display the curve. After clicking on this button the "Time - Selection" window appears and you can select display type among "Time range", "Start and end time" and "Number of measurement point".

Time range

If you select "Time range" setting you must select time scale to display on the window. You can select a gauge among "500ms", "1 second", "1 minute", "1 hour" and "1 day", and a multiplier (for example 12 x 1 hour to display the curve on the last 12 hours).



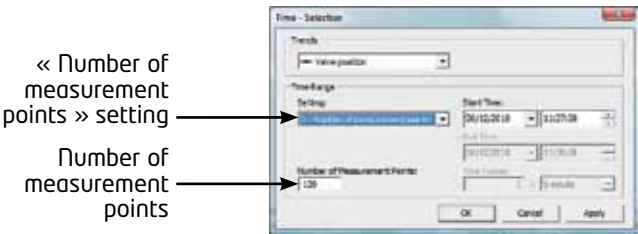
Start and end time

If you select "Start and end time" you must select the Start time and the end time, then it will be this duration which will be displayed on the window.



Number of measurement points

If you select "Number of measurement points" you must select the number of points you want to be displayed (for example if you choose 120 points, it will be the last 120 measurement points which will be displayed).



6: this button allows you to do "Pause"

7: this button allows you to print the curve

6.5.2 >ALARM AND MESSAGE HISTORY

Alarm and message history are represented by lists. Above these lists there is a toolbar which offers you many functions and which is described below.

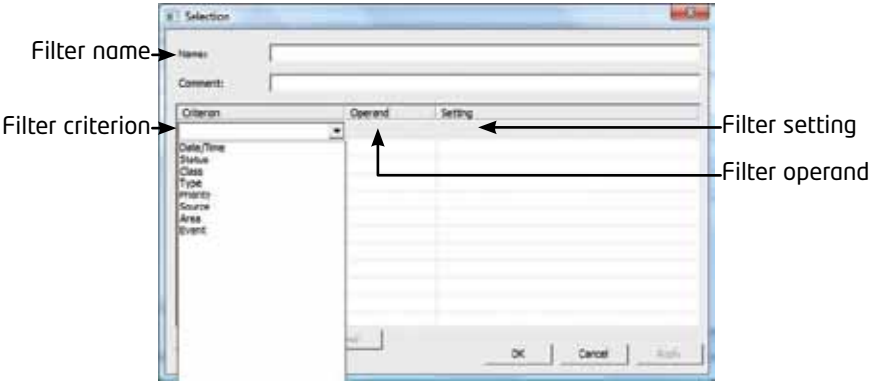


- 1: Message List: it allows you to display only the current non-acknowledged alarms
- 2: Short-term archive list: it allows you to display around 50 messages
- 3: Long-term archive list: it allows you to display around 1000 messages
- 4: Single acknowledgement: it allows you to acknowledge only one alarm
- 5: Group acknowledgement: it allows you to acknowledge all the non-acknowledged alarms
- 6: Select dialog: this button allows you to select the type of information that you want to be displayed, by default all information is displayed. Therefore, if you want make a selection, click on it, and a "Selection" window will appear.

To enable or disable a filter you must tick on it or not.



To add a new filter click on "New". Then label the filter and select a criterion in the drop-down list. Depending on your choice, you must select an operand and a setting. For example, if you select "Event" in the criterion down-drop list, the operand will be "equal to" and the settings will be, for example, "Close command", "Stop command" or "Actuator running" depending on the history window.



Thus, if you create a filter with "criterion = Event", "Operand = equal to" and "Setting = Close command"; and if you enable it, only this kind of messages will appear into the list.

7: this button allows you to print the list.

8: Export data: this button allows you to export the message list as a table. Click on it, "Export data" window is displayed. Then, enter a filename, select the destination directory and click on "OK".



9: Auto-scroll: it allows you to select one or many lines

10: it allows you to go to the first message

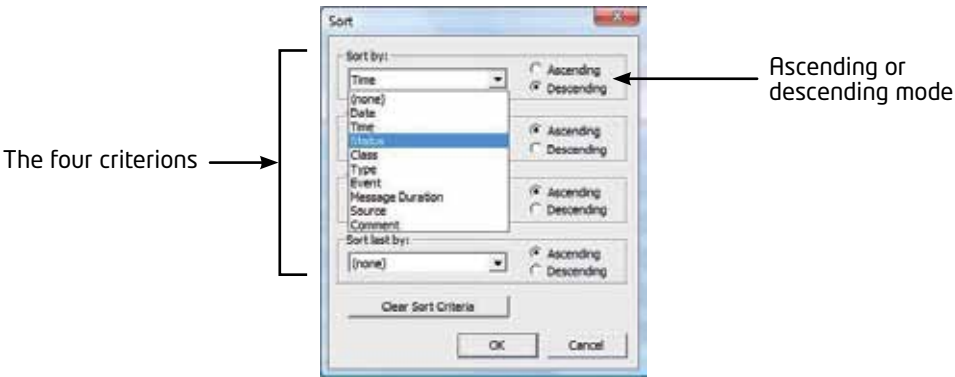
11: it allows you to go to the previous message

12: it allows you to go to the next message

13: it allows you to go to the last message

14: Make a comment: it allows you to make a comment about an alarm

15: Sort dialog: this button allows you to sort the messages with four criterions. For each criterion you can associate to it ascending or descending parameter.



16: Connect backup

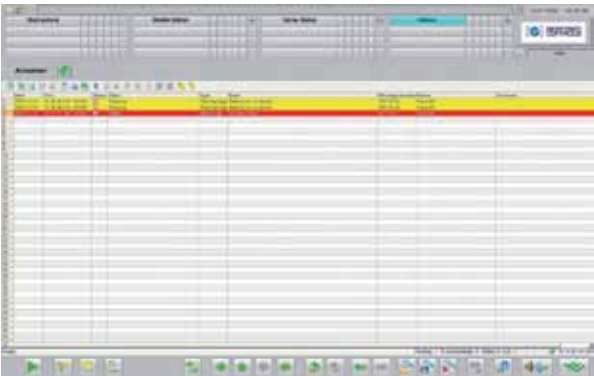
17: Disconnect backup

6.5.2.1 >ALARM HISTORY

To access "Alarm history" window you must click on "History" button on the top of the screen and then on "Alarm history".

On this window you can check all the alarms about Master Station MS202 and the actuators. Alarms are classified in two categories:

- Alarm: means that actuator is not available because of fault, and as a consequence you cannot control it (red line).
- Warning: means there is a fault but actuator is still available and you can control it (yellow line).



On this window you can find the actuator faults described in section 6.4.5.5.Alarms.

Concerning Master Station MS202 you can find the followings alarms:

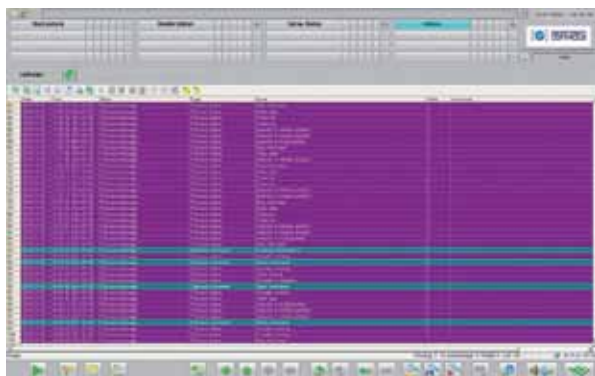
- Communication fault between Units
- Communication fault between Unit 1 and Web interface
- Communication fault between Unit 2 and Web interface
- Communication fault between PC and Unit 1
- Communication fault between PC and Unit 2

6.5.2.2 > MESSAGE HISTORY

To access to the "Message history" window you must click on "History" button on the top of the screen and then on "Message history".

In this window you can check all the messages about the valves. Messages are classified in two categories:

- Process status: which corresponds to the signals history described in section 6.4.5.4. Signals. Commands but for all the active valves at a time (purple line).
- Operator command: which corresponds to the command history described in section 6.4.5.3. Commands but for all the active valves at a time (blue line).



> ANNEX - USER'S ACCOUNT

- User:

Master Station MS202:

It is possible to change the language, to consult the status of the Master Station and the alarms.

It is not possible to change the network configuration, date and time, or to create or change a user's account.

Actuators:

It is possible to consult the status of a valve, to check the valve configuration, its characteristics, its activity and its torque curves.

It is not possible to activate/deactivate a valve, to change the actuator configuration and to command the actuator.

- Super-user:

Master Station MS202:

It is possible to change the language, to consult the status of the Master Station and the alarms.

It is not possible to change the network configuration, date and time, or to create or change a user's account.

Actuators:

It is possible to consult the status of a valve, to check the valve configuration, its characteristics, its activity and its torque curves. It is also possible to command the actuator.

It is not possible to activate/deactivate a valve or to change the actuator configuration.

- Maintenance:

Master Station MS202:

It is possible to change the language, to consult the status of the Master Station and the alarms.

It is also possible to change the network configuration, date and time.

It is not possible to create or change a user's account.

Actuators:

It is possible to consult the status of a valve, to check the valve configuration, its characteristics, its activity and its torque curves.

It is also possible to activate/deactivate a valve, to change the actuator configuration and to command the actuator.

- Administrator:

Master Station MS202:

It is possible to create or change a user's account, to change the language, to consult the status of the Master Station and the alarms.

It is not possible to change the network configuration or the date and time.

Actuators:

It is not possible to consult the status of a valve, to check the valve configuration, its characteristics, its activity and its torque curves.

It is not possible to activate/deactivate a valve, to change the actuator configuration and to command the actuator.

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AUSTRIA

IPU ING PAUL UNGER
hammermueller@IPU.co.at
WIEN
Tel.: +43 1 602 41 49

BELGIUM

BERNARD CONTROLS BENELUX
Info.benelux@bernardcontrols.com
BRUXELLES
Tel.: +32 (0)2 343 41 22

BRAZIL

JCN
jcn@jcn.com.br
SAO PAULO
Tel.: +55 11 39 02 26 00

CHINA

BERNARD CONTROLS CHINA
bcc.info@bernardcontrols.com
BEIJING
Tél.: +86 (0) 10 6789 2861

CZECH REPUBLIC

FLUIDTECHNIK BOHEMIA s.r.o.
brno@fluidbohemia.cz
BRNO
Tel.: +420 548 213 233-5

DENMARK

ARMATEC A/S
jo@armatec.dk
GLOSTRUP
www.armatec.dk
Tel.: +45 46 96 00 00

EGYPT

ATEB
gm@atebco.com
ALEXANDRIA
Tel.: +203 582 76 47

FINLAND

TALLBERG TECH OY AB
pekka.tontti@tallberg.fi
ESPOO
www.soffco.fi
Tel.: +358 0 207 420 740

GERMANY

BERNARD CONTROLS DEUFRA
bcd.mail@bernardcontrols.com
TROI SDORF
Tel.: +49 22 41 98 340

GREECE

PIGMS Enterprises Ltd
ioannis.pappas@pims.gr
HALANDRI
Tel.: +30 210 608 61 52

HUNGARY

APAGYI TRADEIMPEX KFT
bela.apagyi@mail.tvnet.hu
BUDAPEST
Tel.: +36 1 223 1958

IRAN

ASIA INSTRUMENTS Co. Ltd.
info@asiainstrumentsltd.com
TEHRAN
www.asiainstrumentsltd.com
Tel.: +98 21 8850 3065

ITALY

BERNARD CONTROLS ITALIA
info.it@bernardcontrols.com
RHO /MILANO
Tel.: +39 02 931 85 233

MALAYSIA

ACTUATION & CONTROLS
ENGINEER
tcmeng@pcjaring.my
JOHOR BAHRU
Tel.: +60 7 23 50 277 / 23 50 281

MIDDLE-EAST

BERNARD CONTROLS
MIDDLE-EAST
bernact@emirates.net.ae
DUBAI - U.A.E.
Tel.: +971 4 39 80 726

MOROCCO

AQUATEL sarl
aquatel@wanadoo.net.ma
CASABLANCA
Tel.: +212 22 66 55 71

NETHERLANDS

BERNARD CONTROLS BENELUX NV
hans.nobels@bernardcontrols.com
AN ZWAGG
Tel.: +31 (0)229-298083

NEW ZEALAND

MCRTRANSMARK NZ LTD
bill.sunley@mcrtransmark.com
AUCKLAND
Tel.: +64 9 276 4149

NORWAY

KSB LINDFLATEN AS
firmapost@lindflaten.no
LYSAKER
Tel.: +476 71 29 900

POLAND

MARCO
matzanke@pol.pl
WARSAW
Tel.: +48 22 864 55 43

PORTUGAL

PINHOL, GOMES & GOMES LDA.
import.export@pinhol.com.pt
CARNAIXIDE
Tel.: +351 21 425 68 50

RUSSIA

BERNARD CONTROLS RUSSIA
bernard@amotek.net
c/o AMOTEK - MOSCOW
Mob.: +7 917 562 8591
Tel./Fax: +7 495 343 43 80

RUSSIA

A.E.T. (agent)
aet@ctinet.ru
ST PETERSBURG
Tel./Fax: +7 812 320 55 97
Mob.: +7 812 956 35 14

SINGAPORE

ACTUATION & CONTROLS ENG.
(ASIA)
acesin@singnet.com.sg
SINGAPORE
Tel.: +65 65 654 227

SPAIN

BERNARD CONTROLS SPAIN
bernardservo@bernard.es
MADRID
Tel.: +34 91 30 41 139

SOUTH AFRICA

A-Q-RATE AUTOMATION CC
aqr@wol.co.za
BERTSHAM
Tel.: +27 11 432 58 31

SOUTH KOREA

RENTEC CO Ltd (Water market)
totorokobi@metq.com
GYEONGGI-DO
Tel.: +82 31 399 73 23

SOUTH KOREA

YOO SHIN EGI Co. Ltd
(Oil & Gas market)
yooshinini@empal.com
SEOUL
Tel.: +82 2 406 62 78

SWITZERLAND

MATOKEM AG
info@matokem.ag
ALLSCHWIL
www.matokem.ch
Tel.: +41 61 483 15 40

THAILAND

BERNARD CONTROLS
SOUTH-EAST ASIA
jchounramany@bernardcontrols.com
BANGKOK
Tel.: +66 2 640 82 64

TURKEY

OTKONSAS
sales@otkonsas.com
ISTANBUL
Tel.: +90 216 326 39 39

UNITED ARABS EMIRATES

EMIRATES HOLDINGS
emhold@emirates.net.ae
ABU DHABI
Tel.: +97 12 644 73 73

UNITED-KINGDOM

ZOE DALE Plc
enquiries@zoedale.co.uk
BEDFORD
Tel.: +44 12 34 83 28 2

USA/CANADA/MEXICO

BERNARD CONTROLS Inc
bsales@bernardcontrols.com
HOUSTON - TEXAS
Tél.: +1 281 578 66 66



BERNARD[®]
CONTROLS

BERNARD CONTROLS

4 rue d'Arsonval - BP 70091 - 95505 Gonesse Cedex - France
Tel: +33.1. 34.07.71.00 - Fax: +33.1.34.07.71.01

E-mail: mail@bernardcontrols.com

Internet: http://www.bernardcontrols.com