KONGSBERG

Kongsberg K-Chief 600 Auxiliary Control System

Operator Manual

347693/A

Document history

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The reader

This Operator Manual describes how to use the K-Chief 600 Auxiliary Control System and display facilities. It is intended for system operators. He/she should be experienced in the operation of alarm and monitoring systems and have basic knowledge of personal computers or should have attended a Kongsberg Maritime training course.

Note

Warning

The equipment to which this manual applies must only be used for the purpose for which it was designed. Improper use or maintenance may cause damage to the equipment and/or injury to personnel. The user must be familiar with the contents of the appropriate manuals before attempting to operate or work on the equipment.
Kongsberg Maritime disclaims any responsibility for damage or injury caused by improper installation, use or maintenance of the equipment.

Comments

To assist us in making improvements to the product and to this manual, we welcome comments and constructive criticism.
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Admonitions

The following admonitions found throughout this manual mark special messages to alert the user of specific information concerning of the personnel, the equipment or the process.

WARNING

Text set off in this manner provides a warning notice that failure to follow the directions in this WARNING can result in bodily harm or loss of life and/or extensive damage to equipment.

Caution

Text set off in this manner provides a warning notice that failure to follow the directions in this CAUTION can result in damage to equipment.

Note

Text set off in this manner presents clarifying information or specific instructions pertinent to the immediate instruction.

Glossary

ACK	Acknowledge
CRP	Control Room Panel
DPU	Distributed Processing Unit
I/O	Input/Output
MOS	Midi Operator Station
OS	Operator Station

Introduction

The purpose of this Operator Manual is to provide the descriptions and procedures required to allow for safe and efficient use of the Kongsberg K-Chief 600 Auxiliary Control System. A thorough understanding of system functions and controls is necessary to optimize overall performance. Careful study of the information in this manual is highly recommended, preferably while exploring the system's various functions. System operation is a dynamic activity requiring regular adjustments and fine tuning to achieve the best possible results under varying environmental conditions.

The manual includes the following main chapters:

Topics

– This chapter contains step-by-step procedures for operation of the K-Chief 600 Auxiliary Control.

Note

The K-Chief 600 is a modular system, consisting of standard main units such as Operator Stations, Operator Panels and processing and I/O units. For a specific project configuration, the choice and quantities of items may vary and may depend on ship and class.

Note

This manual only describes the operation of the Auxiliary Control System. For an overall understanding of the K-Chief 600 system, please read the principal K-Chief 600 manual referenced below.

Reference documents

- K-Chief 600 Operator Manual for Alarm and Monitoring System (document number 338857), including the following topics:
  - System description, presenting the K-Chief 600 system architecture, system functionality and main hardware building blocks.
  - User interface, presenting all elements of the K-Chief 600 user interface.
  - Operational procedures, containing step-by-step procedures for operation of the alarm system, including command control and watch calling procedures.
  - Reference guide, containing parameter-related information accessible from the various operator locations.
  - Maintenance, explaining how to keep the system in good working order and what to do if the system fails.

System description

Auxiliary Control

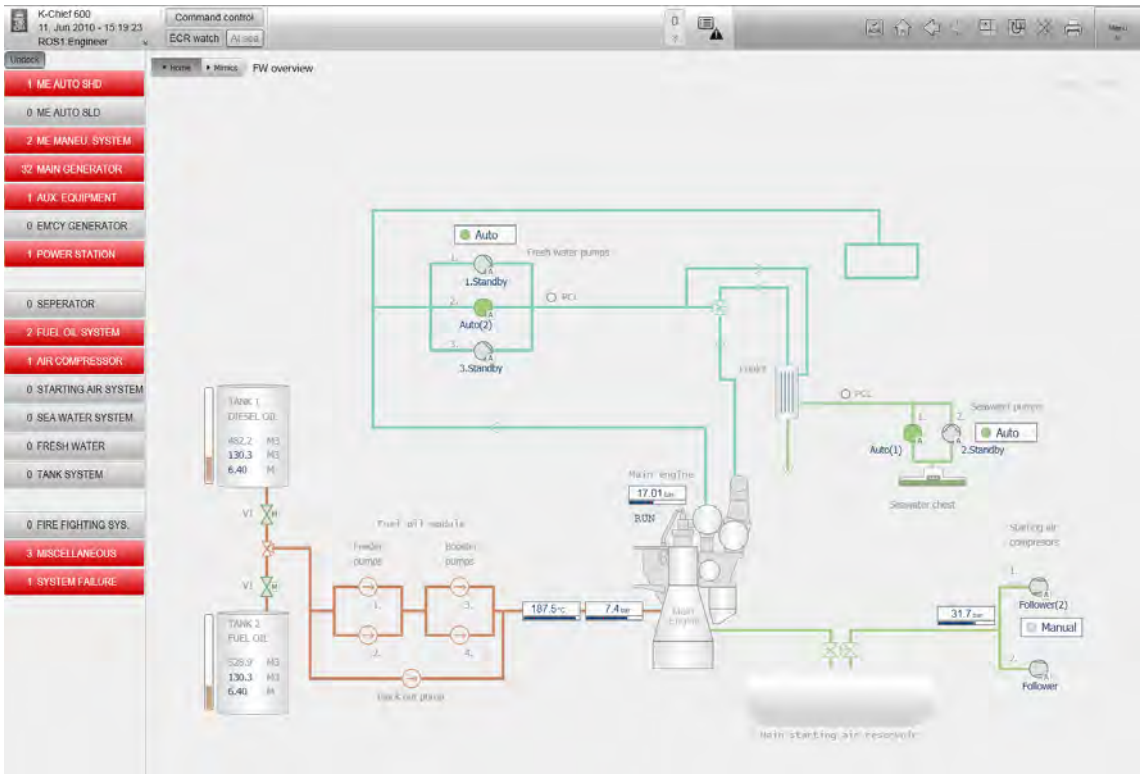
The Auxiliary Control System is one of the systems that can be integrated in the K-Chief 600. It can control a large variety of processes, for example control of compressors. The main purpose of this type of control is to maintain the air receiver pressure at a constant value.

The following types of equipment can be controlled by the K-Chief 600 Auxiliary Control System:

- Pumps
- Fans
- Compressors
- Stand-by handler systems
- Valves
- Dampers
- PID controllers

Operator interaction is done through interactive colour graphic pictures on the Operator Stations (OS), or locally from the Midi Operator Stations (MOS). The number of images in the system depends on the amount of equipment under K-Chief 600 control.

The following illustration is an example of a process view.



All data acquisition, signal conditioning, signal scaling and process control is performed by each individual Distributed Processing Unit (DPU). This solution guarantees that local operation is available even if the Operator Stations are not functioning.

Examples of application areas are:

- Lubrication oil systems
- Sea water cooling system
- Fresh water cooling system
- Potable and fresh water control
- Compressed air control
- Bilge control
- Fuel oil system
- Cooling systems
- Steam system
- Purifier plant
- Heating, Ventilation and Air Condition System (HVAC)

Pump information

This chapter contains information about the pumps that can be a necessary supplement to the procedures.

Pump control functions

To control pumps the following functions and features are available:

- Start and stop sequence for two speeds and two different directions.
- Alarm reporting for start and stop failure.
- Alarm reporting for tripping or started without commanded.
- Auto and manual control.
- Automatic time delayed restart when recovering from blackout.
- Blocking from operation when Local switch is active or during blackout.
- Automatic shutdown.
- Optional time stamping of every change of operation, allowing the system to record time of starting, running and stopping.

Pump types

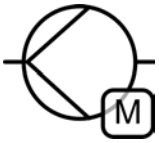
The following types of pumps can be operated:

- **Single speed:** One speed control in one direction
- **Two speed:** Two speed in the same direction
- **Two directional:** One speed in two directions
- **Two speed two directional:** Two speed in two directions
- **Single acting:** One speed with steady relay control

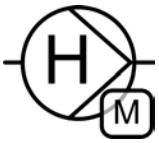
Pump symbols

- Pump going forward:

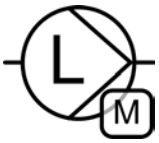
- Pump going reverse:



- Pump at high speed:



- Pump at low speed:



Tagmark description for the pumps

The tagmark is located at the bottom and to the left on the symbol. See the illustration underneath:

Tagmark abbreviation:

- **M**: Manual
- **A**: Auto
- **L**: Local
- **B**: Blocked
- **T**: Tripped

The tagmark changes according to the changes made in the dialogue box.

Pump states

- **Green**: Pump running
- **Grey**: Pump stopped
- **Grey**: Pump stand-by
- **Grey/green flashing**: Immediate state
- **Red square around the symbol**: Tripped/Failure
- **Pink colour filled in a square around the symbol**: Invalid

Alarms and events

There are some alarms that must be enabled at all times due to classification society requirements. Start fail and trip alarms are among these. The following conditions will result in alarms, and the pump will be set to manual:

- Trip
- Start failure
- Stop failure
- Started without commanded

Pump modes

The pump can be operated in two different modes; auto and manual.

- **Auto**: A unit can be automatically started and stopped
- **Manual**: Only manual start and stop is possible

Restart after blackout applies to both auto and manual modes. The shutdown and start block functions are active both in auto and manual modes.

Pump control

Single acting control

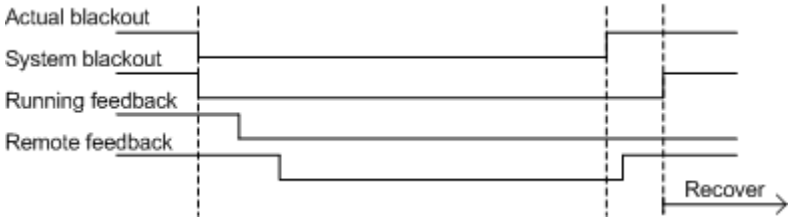
A relay is used to start and stop the controlled unit. The relay is closed as long as the unit is meant to be running, and opened when the unit is meant to be stopped. This functionality applies to one way, one speed units only.

If the controlled unit does not include a sensor to know if it is running, the starter will generate the feedback signal internally. In this way the event information sent from the starter includes the current running information.

Blackout

Some equipment starters (provided by some manufacturers) have the local/remote switch connected serially with the power failure switch. On a blackout, the starter will lose the remote signal. It is important that the starter detects the blackout before it is set to local, and that the remote signal is back before the starter receives recover from blackout.

To solve this set the delay to, Off, at the running and remote feedback, and the delay to, On, for the system blackout signal.



Overview of the general pump dialogue box

The K-Chief 600 has a general pump dialogue box. Underneath is an example of it, and a table with explanation of the function buttons.

Table 1 General pump dialogue box functions

Button	Function
	Closes the dialogue box.
	Pins the dialogue box. If other operations are done while the dialogue box is pinned, the dialogue boxes will still be displayed on the screen.

Table 1 General pump dialogue box functions (cont'd.)

?	Opens the help-function.
»	Expands the dialogue box, so more information are displayed.
START	Starts the equipment the dialogue box is linked to.
STOP	Stops the equipment the dialogue box is linked to.
AUTO	Puts the equipment the dialogue box is linked to into auto mode.
MANUAL	Puts the equipment the dialogue box is linked to into manual mode.
RESET	Resets the equipment the dialogue box is linked to.
Acknowledge	Acknowledge the alarms. Note *This button is only present in the dialogue box if the controlled tag is in an alarm state.*

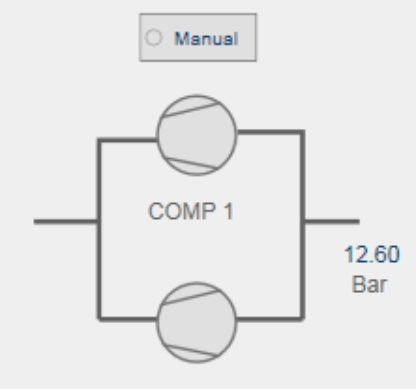
Compressor and Fan information

This chapter contains information about the compressor and fan that can be a necessary supplement to the procedures.

Compressor and fan controller functions

- Control the compressors in a compressed air system.
- Provides automatic start on low pressure and stop on high pressure.
- The compressor and fan control system may include one or more compressors or fans with analogue or binary pressure sensors.

The figure below describes a compressor system with one common analogue pressure signal.



The compressor starter monitors pressure and running signals. Compressors are started if the pressure is lower than the set limit and stopped if it is higher.

Compressor and fan types

The following types of compressors and fans can be operated:

- **Single speed:** One speed control in one direction
- **Two speed:** Two speed in the same direction
- **Two directional:** One speed in two directions
- **Two speed two directional:** Two speed in two directions
- **Single acting:** One speed with steady relay control

Compressor and fan symbols

- Compressor/Fan running forward:

- Compressor/Pump running reverse:

- Compressor/Fan at high speed:

- Compressor/Fan at low speed:

- Compressor/Fan, monitored:

Tagmark description for the compressor and fan

The tagmark is located at the bottom and to the left on the symbol. See the illustration underneath:

Tagmark abbreviation:

- **M**: Manual
- **A**: Auto
- **L**: Local
- **B**: Blocked
- **T**: Tripped

The tagmark changes according to the changes made in the dialogue box.

Compressor and fan states

- **Green**: Compressor/fan running
- **Grey**: Compressor/fan stopped
- **Grey**: Compressor/fan stand-by
- **Grey/green flashing**: Immediate state
- **Red square around the symbol**: Tripped/Failure
- **Pink colour filled in a square around the symbol**: Invalid

Alarms and events

There are some alarms that must be enabled at all times due to classification society requirements. Start fail and trip alarms are among these. The following conditions will result in alarms, and the compressor/fan will be set to manual:

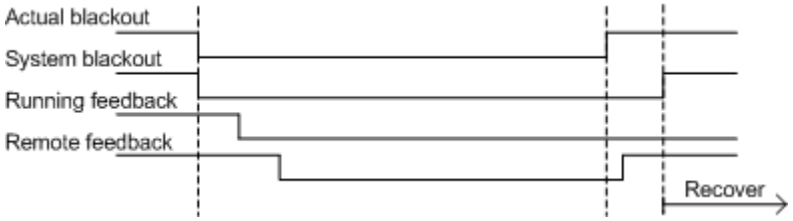
- Trip
- Start failure
- Stop failure
- Started without commanded

Compressor and fan control

Blackout

Some equipment starters (provided by some manufacturers) have the local/remote switch connected serially with the power failure switch. On a blackout, the starter will lose the remote signal. It is important that the starter detects the blackout before it is set to local, and that the remote signal is back before the starter receives recover from blackout.

To solve this set the delay to, Off, at the running and remote feedback, and the delay to, On, for the system blackout signal.



Compressor control types

- **Analogue pressure 1**: One analogue pressure
- **Analogue pressure 2**: Two analogue pressures
- **Binary pressure with hysteresis**: Pressure switches with built in hysteresis
- **Binary pressure without hysteresis**: Separate pressure switches for start and stop

Start/stop conditions

Start and stop conditions are adjustable by changing parameters:

Start

Systems using both binary and analogue pressure sensors have separate start settings for each priority.

Start conditions are:

- Pressure lower than the start limit.
- When a compressor is starting, a new compressor is started if the pressure has not increased to above the start limit when a set time has expired.

Stop

The stop limit can be the same for all compressors, or individual. When analogue pressure sensors are used, each priority has separate stop settings. When binary pressure sensors are used, separate sensors can be used to define the stop limit for each priority. A common stop sensor can also be used. All priorities are stopped by the stop leader setting.

Stop conditions are:

- Pressure higher than the stop limit

- Stop leader signal is active
- High-high pressure

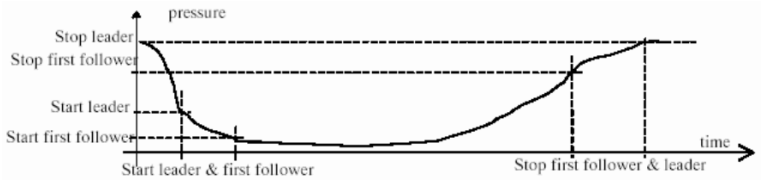
Auto

Two modes exist, auto and manual. Select auto mode to set the compressor automation functionality in operation. Auto mode operation requires that the starter is not blocked, or in any way disabled from operating. In the following different examples for start and stop conditions are given.

Leader control

The leader compressor has its own start and stop limits.

Each priority has its own start and stop settings. A compressor set to a priority will start when the pressure lowers below its start setting, and stop when the pressure rises above its stop setting.



Overhaul function

Two reservoir system have an overhaul function. That is when one of the reservoirs is disabled from being part of the auto start and stop logic. There are two ways of setting a reservoir to overhaul:

- Set the pressure sensors belonging to the reservoir to off scan (override). The sensor is not included when checking the auto start and stop limits for the compressors.
- Set a button in the mimic or physical switch on the equipment to “out of service”. Different configurations are available as required by the customer.

Stand-by handler systems information

This chapter contains information about the stand-by handler systems that can be a necessary supplement to the procedures.

Stand-by handler control functions

The following functions and features are available:

- Start and stop sequence for two speeds and two different directions.
- Alarm reporting for start and stop failure.
- Alarm reporting for tripping or started without commanded.
- Auto and manual control.

Stand-by handler types

The following types of units can be operated:

- Two pumps stand-by handler
- Three pumps stand-by handler
- Two fans or compressor stand-by handler
- Three fans or compressor stand-by handler

Stand-by handler symbols

- Stand-by handler in auto:

- Stand-by handler in manual:

Stand-by handler system states

- **Green spot**: Auto
- **Grey spot**: Manual
- **Grey/green flashing**: Immediate state
- **Red spot**: Tripped/Failure
- **Pink colour filled in a square around the symbol**: Invalid

Alarms and events

- Stand-by start alarm
- Pump number X failed
- Signal fail
- Operation blocked
- No stand-by available

Stand-by system modes

The stand-by system can be set to one of two modes:

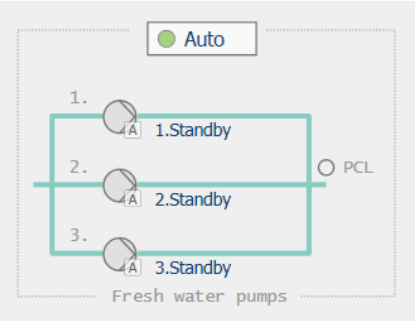
- **Auto**: For normal stand-by system operation from the Operator Station.
- **Manual**: The stand-by pump system is disabled. Pumps can be manually operated.

Stand-by handler symbol and process unit systems

A stand-by system includes a pump/fan/compressor symbol for each stand-by unit. The priority number defines which unit will start first. The one with the lowest number starts first. The running one do not need to have the lowest number.

When two units have the same stand-by number, both will start simultaneously. If non of them are running, the unit with the lowest number will start at group start

Underneath is an example of how a stand-by system may look like. (The text may wary because it is project dependent.)



Valve information

This chapter contains information about the valve that can be a necessary supplement to the procedures.

Valve control functions

The following functions and features are available:

- Monitoring of the controlled valve
- Pulse or analogue control of valves with analogue feedback
- Blocking from opening
- Blocking from closing
- Blocking from operation (local control)
- Deviation monitoring
- Update alarm status
- Update event status
- Optional time stamp on every change of operation, allowing the system to record time of positioning

Valve types

The valve control can operate the following types of configurations:

On-off valves

- **Single acting**: One relay for control
- **Single acting with one feedback**: One relay for control and one binary feedback
- **Single acting with two feedbacks**: One relay for control and two binary feedbacks
- **Single acting with no feedback**: No feedback, only single acting control
- **Double acting**: Two relays for control
- **Double acting with one feedback**: Two relays for control and one binary feedback
- **Double acting with two feedbacks**: Two relays for control and two binary feedbacks

- **Double acting with no feedback**: No feedback, only double acting control

Analogue positioning valves

- **Analogue out**: Step-less positioning
- **Analogue out with analogue feedback**: Step-less control with analogue feedback
- **Double acting positioning**: Pulsed positioning
- **Double acting with analogue feedback**: Pulsed positioning with analogue valve feedback
- **Double acting with one analogue feedback and two binary feedbacks**: Pulsed positioning with one analogue valve feedback and two binary end feedbacks.

Monitoring

Monitoring is used when only binary feedbacks are interfaced to the positioner, and no relay or other control is provided.

- **One feedback**: No control, one binary feedbacks
- **Two feedbacks**: No control, two binary feedbacks

Valve symbol

- On off valve controlled:

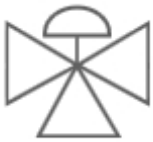
- On off valve monitored:

- Analogue valve controlled:

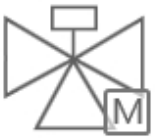
- Analogue valve monitored:

- 3 way valve controlled:

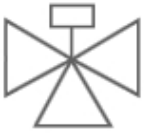
- 3 way valve monitored:



- Digital 3 way valve controlled:



- Digital 3 way valve monitored:



- Simulated valve:

Tagmark description for the valves

The tagmark is located at the bottom and to the left on the symbol. See the illustration underneath:

Tagmark abbreviation:

- **M**: Manual
- **A**: Auto
- **L**: Local
- **B**: Blocked
- **T**: Tripped

The tagmark changes according to the changes made in the dialogue box.

Valve states

Valve symbols have colours according to the state they are in.

- **Green**: Fully open
- **Grey**: Fully closed
- **Grey**: Valve stand-by
- **Grey/green flashing**: Immediate state
- **Red square around the symbol**: Tripped/Failure
- **Pink colour filled in a square around the symbol**: Invalid

Alarms

The following alarms are available:

- Out of position
- Timeout alarm
- Signal fail
- Operation blocked
- Blocked from opening, not ready

Valve modes

The valves can be operated in two different modes; auto and manual.

- **Auto**: A unit can be automatically opened and closed
- **Manual**: Only manual open and close is possible

Restart after blackout applies to both auto and manual modes. The shutdown and start block functions are active both in auto and manual modes.

Damper information

This chapter contains information about the damper that can be a necessary supplement to the procedures.

Damper control functions

The following functions and features are available:

- Monitoring of the controlled valve
- Blocking from opening
- Blocking from closing
- Blocking from operation (local control)
- Deviation monitoring
- Update alarm status
- Update event status

Damper types

The damper control can operate the following types of configurations:

On-off dampers

- **Single acting**: One relay for control
- **Single acting with one feedback**: One relay for control and one binary feedback
- **Single acting with two feedbacks**: One relay for control and two binary feedbacks
- **Single acting with no feedback**: No feedback, only single acting control
- **Double acting**: Two relays for control
- **Double acting with one feedback**: Two relays for control and one binary feedback
- **Double acting with two feedbacks**: Two relays for control and two binary feedbacks
- **Double acting with no feedback**: No feedback, only double acting control

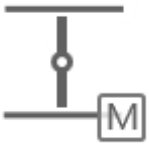
Monitoring

Monitoring is used when only binary feedbacks are interfaced to the positioner, and no relay or other control is provided.

- **One feedback**: No control, one binary feedbacks
- **Two feedbacks**: No control, two binary feedbacks

Damper symbol

- Damper closed:

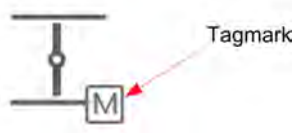


- Damper opened:

- Damper monitored:

Tagmark description for the damper

The tagmark is located at the bottom and to the left on the symbol. See the illustration underneath:



Tagmark abbreviation:

- **M**: Manual
- **A**: Auto
- **L**: Local
- **B**: Blocked
- **T**: Tripped

The tagmark changes according to the changes made in the dialogue box.

Damper states

- **Green**: Fully open
- **Grey**: Fully closed
- **Grey**: Stand-by
- **Grey/green flashing**: Immediate state
- **Red square around the symbol**: Tripped/Failure
- **Pink colour filled in a square around the symbol**: Invalid

Alarms

The following alarms are available:

- Out of position
- Timeout alarm
- Signal fail
- Operation blocked
- Blocked from opening, not ready

Damper modes

The dampers can be operated in two different modes; auto and manual.

- **Auto**: A unit can be automatically opened and closed
- **Manual**: Only manual open and close is possible

Restart after blackout applies to both auto and manual modes. The shutdown and start block functions are active both in auto and manual modes.

PID controller information

This chapter contains information about the PID controller that can be a necessary supplement to the procedures.

PID control functions

To following functions and features are available:

- Valve control
- Auto and manual control
- Alarm reporting

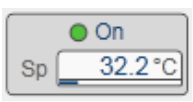
Controller types

The following types are available:

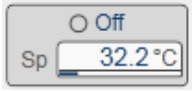
- P (Proportional controller)
- PI (Proportional–Integral controller)
- PID (Proportional–Integral–Derivative controller)

Controller symbols

- PID, On



- PID, Off



Controller states

- **Green spot**: Auto
- **Grey spot**: Manual
- **Red flashing spot**: Deviation alarm
- **Pink colour filled in a square around the symbol**: Invalid

Alarm

Deviation alarm is when the difference between the set point and the process feedback is more than a pre-defined limit for more than a pre-defined time period.

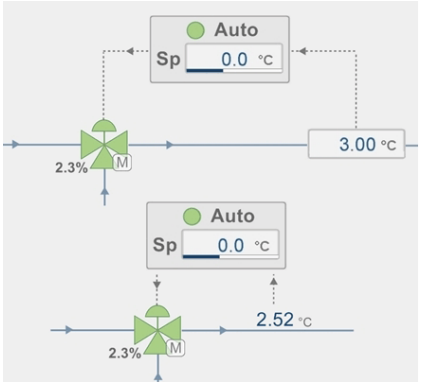
Controller modes

- **Auto**: Valve opening can bee controlled automatically.
- **Manual**: Only manual open/close or setpoint adjustment is possible.
- **Cascade control**: Is accomplished by connecting two controller together.

PID controller control

Typical application

PID controllers are typically used to control valves. The following illustration shows a typical example.



Operational procedures

How to use this chapter

This chapter presents detailed operational procedures for the K-Chief 600 Process Control System. The following types of equipment described in this chapter are:

- Pumps
- Fans
- Compressors
- Stand-by handler systems
- Valves
- Dampers
- PID controllers

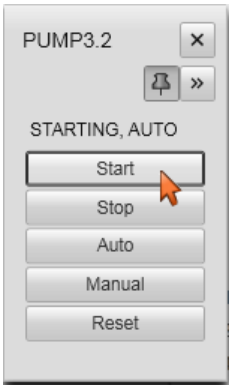
How to start/stop a pump (single pump)

Pumps in the system can be operated from every mimic view they are located at, but not from a list view.

1 Open a mimic view with the symbol of the pump you want to start/stop.

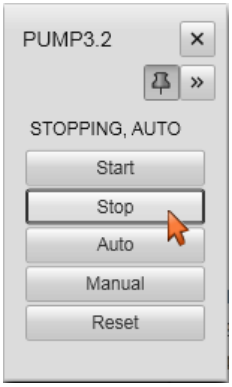
2 Click on the pump symbol.
   - A dialogue box is opened.

3 If you want to start the pump, click on the **START** button to start the pump.



- The symbol starts flashing (grey/green) when it is in a intermediate state.
- The symbol turns green.

4 If you want to stop the pump, click on the **STOP** button to stop the pump.



- The symbol starts flashing (grey/green) when it is in a intermediate state.
- The symbol turns grey.

How to reset a pump

The pump logic must be reset when the pump has tripped or as the result of a start failure.

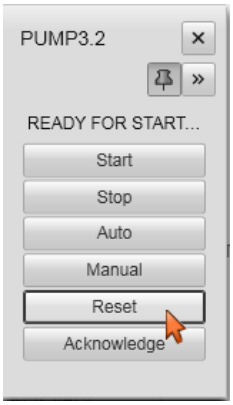
1 Push on the **ACK** button on the CRP to acknowledge the alarm. Or use an other method of acknowledging, for example by click on the **ACK** button in the topbar.

2 Rectify the problem.

3 Open a display showing the pump.

4 Move the cursor to the symbol for the pump you want to reset, and click on it.

- A dialogue box similar to the one underneath will be opened.

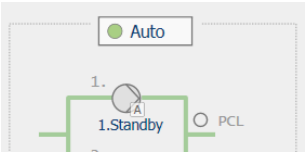


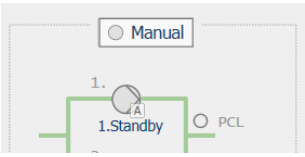
5 Click on the **RESET** button.

How to open the dialogue to the stand-by handler

1 Open the display with the wanted pump system.

2 Click on the **Auto/Manual** button. (Depending on which mode the stand-by handler is in at the time.)





- The dialogue is opened. It may look similar to the one underneath.

How to set a pump to auto or manual

1 Open the display showing the stand-by pumps.

2 Move the cursor over the stand-by pump controller symbol, and click on it.

- A dialogue box is opened.

3 Click on the Auto/Manual button. (Depending on which mode the compressor system is in at the time.)

- The stand-by pump controller button text changes to the selected mode.

How to activate a stand-by pump system

To operate a pump system in stand-by mode, the stand-by controller and all the pumps must be set to auto.

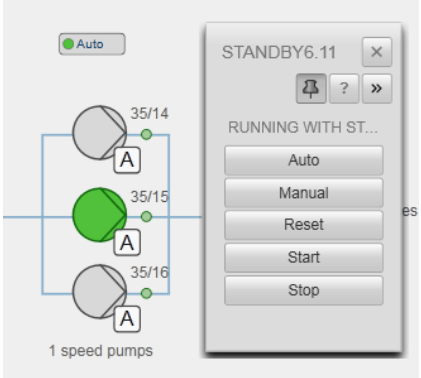
1 Select the display showing the stand-by pumps.

2 Move the cursor over the stand-by pump controller symbol, and click on it.

- A dialogue box will be opened.

3 Click on the **AUTO** button.

- The text changes from Manual to Auto.
- The circle in front of the text changes to green.
- Underneath is an illustration of how the dialogue box may look like, and the changes in text and colour like described above.



How to deactivate a stand-by pump system

To take a pump out of stand-by mode, set the pump controller to manual and stop the running pump if required.

1 Open the display showing the stand-by pumps.

2 Move the cursor over the stand-by pump controller symbol, and click on it.

- A dialogue box will be opened. It may look similar to the one underneath:

3 Click on the **MANUAL** button.

- The text changes from Auto to Manual.
- The circle in front of the text changes to grey.

How to take a pump out of stand-by set

To take a pump out of the stand-by system, set the pump to manual.

1 Open the display showing the stand-by pumps.

2 Move the cursor over the pump , and click on it.

- A dialogue box is opened.

3 Click on the **Manual** button.

- The text changes from Stand-by to Manual.
- The tagmark changes from A to M.

4 If you need to stop the pump, click on the **Stop** button.

How to put a pump back into the stand-by mode

To include a pump into the stand-by system, set the pump to auto.

1 Open the display showing the stand-by pumps.

2 Move the cursor over the pump, and click on it.

- A dialogue box is opened.

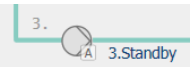
3 Click on the **Auto** button.

- The text changes from Manual to Stand-by.

- The tagmark changes from M to A.

4 If you want to start the pump, click on the **START** button.

- The symbol starts flashing (grey/green).
- The symbol turns grey.



How to handle a failure to a running pump

Pump failures are detected through a drop in pressure.

- The pressure indicator turns red, indicating a drop in pressure.
- The 1st stand-by pump starts.
- The failing pump goes to MANUAL. It will keep on running or it stops, depending on how the system is configured.

1 Push the **ACK** button to acknowledge the alarm.

2 Rectify the problem.

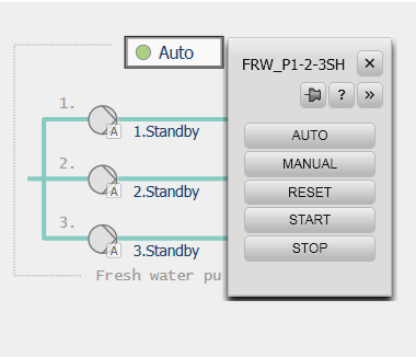
How to change stand-by priority

A stand-by pump system will normally consist of two, three or four pumps. This procedure shows how to change stand-by priority to a pump system with three pumps.

1 Open the display showing the stand-by pump

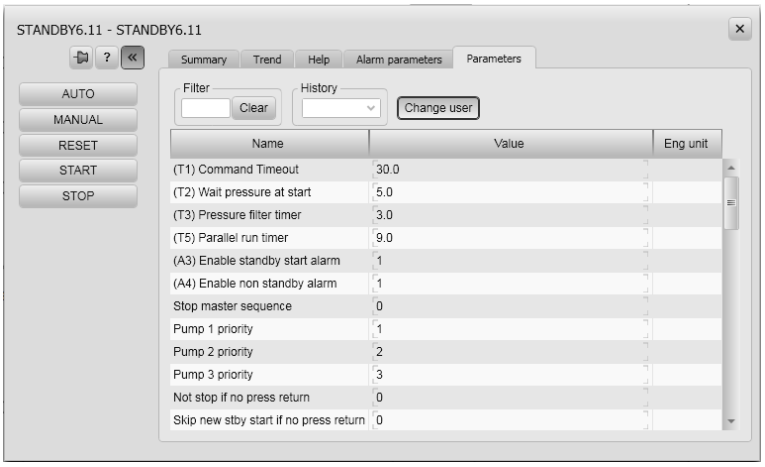
2 Move the cursor over the stand-by pump controller symbol, and click on it.

- A dialogue box is opened. It may look similar to the illustration underneath:



3 Click on the **expand** button in the dialogue box.

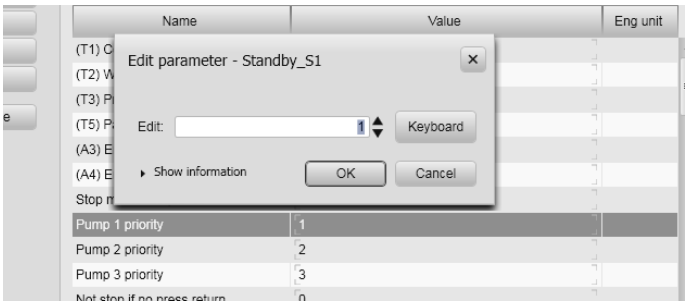
4 Click on the tab called, **Parameter**



- To be able to make changes in the parameters, the operator has to be one of the higher users. If it is necessary to change user, click on the **Change user** button. Make the change in the dialogue box, and fill in the password.

5 Click on the line with the wanted pump.

- A dialogue box is opened. It may be similar to the illustration:



6 Change the number to the pump by clicking on the up/down arrows.

7 Click on the **Ok** button

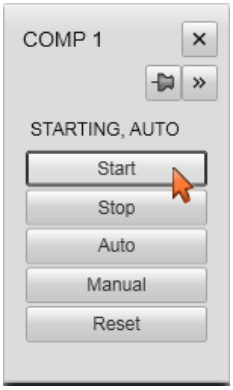
- If the rest of the pumps in the stand-by system also have a need to change priority, follow this procedure again for the other pumps.

How to start a single compressor

1 Open the display showing the wanted compressor.

2 Move the cursor over the compressor symbol, and click on it.

- A dialogue is opened. It may look similar to the one underneath:

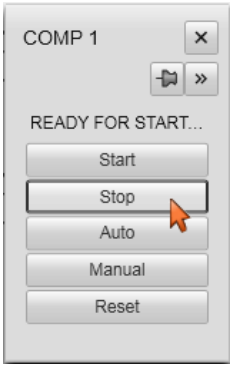


3 Click on the **Start** button.
- The compressor symbol turns green.

How to stop a single compressor

1 Open the display showing the wanted compressor.

2 Move the cursor over the compressor symbol, and click on it.
- A dialogue is opened. It may look similar to the one underneath:



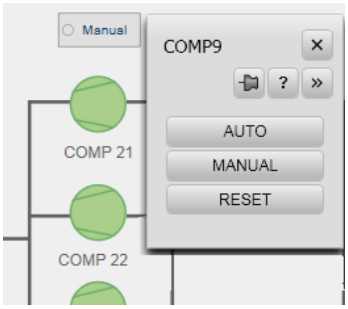
3 Click on the **Stop** button.
- The compressor symbol turns grey.

How to set a compressor system to auto or manual

The compressor system can be set to one of to modes, Auto or Manual.

1 Open the display showing the wanted compressor system.

2 Move the cursor over the compressor handler symbol, and click on it.
- A dialogue is opened. It may look similar to the illustration underneath.



3 Click on the **Auto/Manual** button. (Depending on which mode the compressor system is in at the time.)

- The compressor handler button text changes to the selected mode.
- The colour of the circle in front of the compressor handler button text changes.

How to open on/off valves

1 Open the display showing the valve.

2 Move the cursor to the symbol for the valve you want to operate, and click on it.

- A dialogue box is opened. It may look similar to the one underneath:

3 Click on the **Open** button.

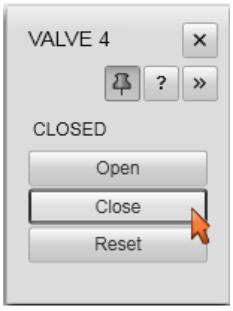
- The valve symbol turns green.

How to close on/off valves

1 Open the display showing the valve.

2 Move the cursor to the symbol for the valve you want to operate, and click on it.

- A dialogue box is opened. It may look similar to the one underneath:



3 Click on the **Close** button.

- The valve symbol turns grey.

How to reset valves

Resetting of valves is required on time-out.

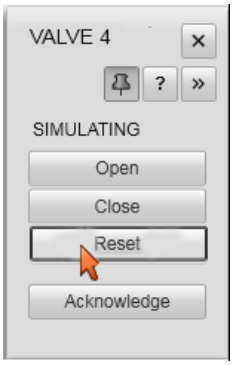
Note

As a default, valves will give an alarm on time-out - when not reaching the end position or set-point.

1 Open the display showing the valve.

2 Move the cursor to the symbol for the valve you want to operate, and click on it.

- A dialogue box is opened. It may look similar to the one underneath:



3 Click on the **Reset** button.

- The red square around the valve symbol disappears.
- The symbol keeps the colour it had before it tripped.

How to fully open an analogue valve

1 Open the display showing the valve.

2 Move the cursor to the symbol for the valve you want to operate, and click on it.

- A dialogue box is opened. It may look similar to the one underneath:

3 Click on the **Open to 100%** button.

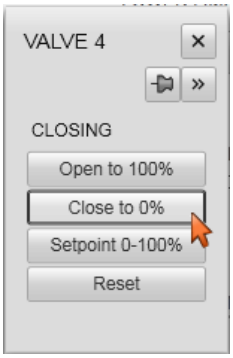
- When in intermediate state the valve symbol colour flickers.
- The valve symbol turns green when it is fully open.

How to fully close an analogue valve

1 Open the display showing the valve.

2 Move the cursor to the symbol for the valve you want to operate, and click on it.

- A dialogue box is opened. It may look similar to the one underneath:



3 Click on the **Close to 100%** button.

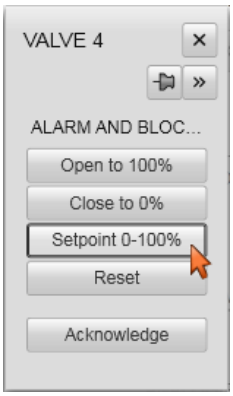
- When in intermediate state the valve symbol colour flickers.
- The valve symbol turns grey when it is fully closed.

How to set the setpoint on an analogue valve

1 Open the display showing the valve.

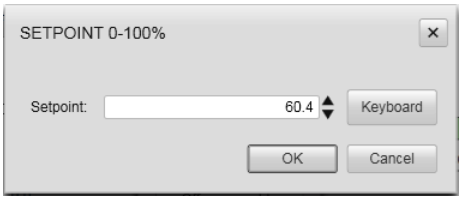
2 Move the cursor to the symbol for the valve you want to operate, and click on it.

- A dialogue box is opened. It may look similar to the one following:



3 Click on the **SETPOINT 0–100%** button.

- A dialogue box is opened. It may look similar to the one following:



4 Set the setpoint by using the arrow up or down, and click on the **OK** button.

- The setpoint can also be typed in by clicking on the **Keyboard** button, and a keyboard will be shown. Click on the **OK** button when the setpoint is typed in.

How to open the damper

1 Open the display showing the damper.

2 Move the cursor to the symbol for the damper you want to operate, and click on it.

- A dialogue box is opened. It may look similar to the one following:

3 Click on the **Open** button.

How to close the damper

1 Open the display showing the damper.

2 Move the cursor to the symbol for the damper you want to operate, and click on it.

- A dialogue box is opened. It may look similar to the one following:

3 Click on the **Close** button.

How to reset the damper

Resetting of dampers is required on time-out.

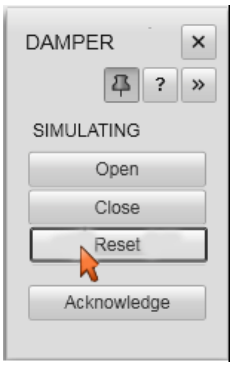
Note

As a default, dampers will give an alarm on time-out, when not reaching the end position.

1 Open the display showing the damper.

2 Move the cursor to the symbol for the damper you want to operate, and click on it.

- A dialogue box is opened. It may look similar to the one underneath:



3 Click on the **Reset** button.

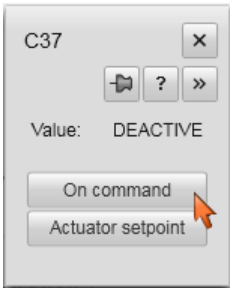
- The red square around the damper symbol disappears.
- The symbol keeps the colour it had before it tripped.

How to activate the PID controller

1 Open the display showing the PID controller.

2 Click on the PID controller.

- A dialogue box is opened. It may look similar to the one following:



3 Click on the **On command** button.

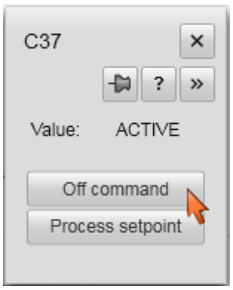
- The PID controller will change status to On (Active).

How to deactivate the PID controller

1 Open the display showing the PID controller.

2 Click on the PID controller.

- A dialogue box is opened. It may look similar to the one following:



3 Click on the **Off command** button.

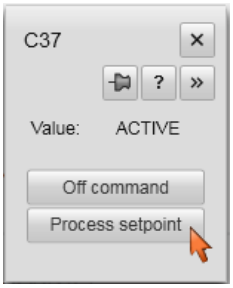
- The PID controller will change status to Off (Deactivated).

How to set the setpoint when the PID controller is activated

1 Open the display showing the PID controller.

2 Click on the PID controller.

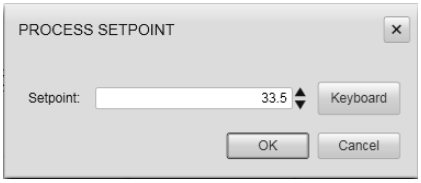
- A dialogue box is opened. It may look similar to the one following:



3 Click on the **Process setpoint** button.

- A dialogue box is opened. It may look similar to the following:

4 Set the setpoint by using the arrow up or down, and click on the **OK** button.



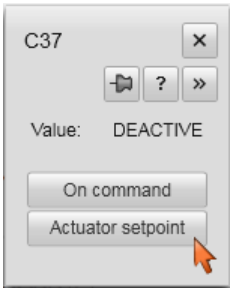
- The setpoint can also be typed in by clicking on the **Keyboard** button, and a keyboard will be shown. Click on the **OK** button when the setpoint is typed in.

How to set the setpoint when the PID controller is deactivated

1 Open the display showing the PID controller.

2 Click on the PID controller.

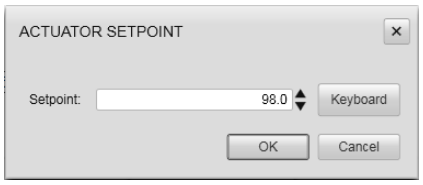
- A dialogue box is opened. It may look similar to the following:



3 Click on the **Actuator setpoint** button.

- A dialogue box is opened. It may look similar to the one following:

4 Set the setpoint by using the arrow up or down, and click on the **OK** button.



- The setpoint can also be typed in by clicking on the **Keyboard** button, and a keyboard will be shown. Click on the **OK** button when the setpoint is typed in.