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3 Bay



Figure 1. The bay standard function

3.1 Description

The standard function of the bay is used for controlling and monitoring the bay related functions. The main functionality is as listed below:

- Bay local/remote-switch indication
- Bay local/remote-switch control (if remotely controllable)
- Status information

The position of the bay local/remote-switch is shown as a text in the lower part of the picture function. The status is normally indicated by different colors. In addition to the color coding, the abnormal status is indicated by an information message in dialogs.

By default the standard function is obligatory for every bay (LIB 510/MV Process) because it is used for defining the control authority for the bay. If there are several pictures for the same bay e.g. overview, detailed zoom window etc, it is sufficient to have the bay picture function in one of these pictures.

It is also possible to configure the other picture functions e.g. switching device, measurement, etc. to operate without bay. For further information, please refer to the manuals for used picture functions.

The standard function of the bay has the following sub-functionality:

- Alarm state/acknowledgement for all alarms within the selected bay
- Bay blocking/deblocking of update, control, alarm, event, printout and reprocessing within the database
- Bay interlocking
- Data update facility for the entire bay
- Object messages

3.2 Features/Options

- Bay local/remote-switch can be set out of use for RTUs, etc.
- Motorized/manually operable
- Versatile configuration

- A large amount of predefined information messages
- Help in all dialogs

3.3 Process Commands

- (Disabled)/local/remote/(reserved) commands to the bay local/remote-switch
- Bay interlocking ON/OFF command to the control device

3.4 Bay Dialogs

This chapter describes the dialogs of the MV Process bay. These dialogs are found in the directory LIB4/FMOD/MVPROCESS/USE and they can be opened by clicking the bay picture function or the More... menu in the bay main dialog.

3.4.1 Object Presentation

The current bay local/remote-switch position is indicated by different texts. The color of the symbol gives additional information about the status. Please refer to the General chapter in this MV Process Operator's Manual regarding the color and the corresponding status.

3.4.2 Main Dialog

The bay main dialog is for monitoring and controlling the bay local/remote-switch.

All functionality related to the bay local/remote-switch is relevant only if the physical local/remote-switch exists, i.e. it has been configured to exist during the system engineering.

Functionality

Radio-buttons show the position of the bay local/remote-switch if it has been defined as remotely controllable. The check-box indications will be used if the bay L/R-switch is manually controllable.

The insensitive button is the button with a grey label whereas the sensitive buttons have a black label. Only the sensitive buttons can be activated.

If the button is insensitive, the reason could be:

- The control center does not have the authority to control this substation
- The operator does not have the authority to perform the operation
- Control is out of use/to be used manually only
- Discrepancy in database configuration; some objects are connected to the process, some are not

- Control has been blocked
- Bay is already in a disabled control
- Communication with the process unit is lost

The dialog shows messages of the bay local/remote-switch state on the information bar. Only the most important message is shown, but all active messages can be seen in the Object messages dialog which can be found by clicking the More... button. Active messages can be seen in the Object messages dialog, and more detailed explanations of their meaning can be found in Help.

If the bay local/remote-switch is not connected to the process, the dialog simulates the actual operation within the database.

Other supported features are made available when clicking the More... button. Help on each subdialog can be found by clicking the Help button in the sub-dialog.

Figure 2 presents the main dialog for the bay picture function.

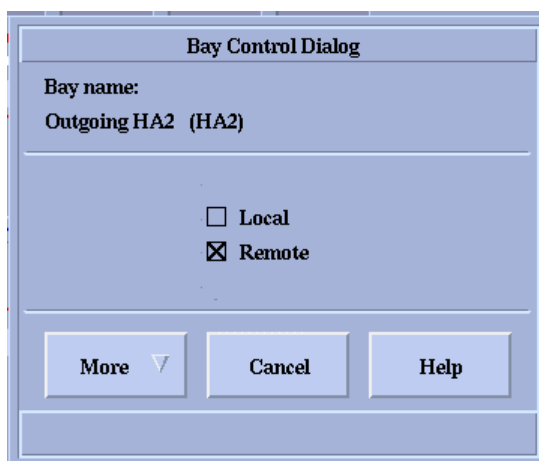


Figure 2. Main dialog for the bay (FPU_BAY2A.PIC)

The bay name and its abbreviation are shown in the upper part of the dialog.

Table 1 The dialog buttons have the following functionality:

Button	Functionality
Radio-buttons/check boxes	The current position of the bay local/remote-switch. If the object is remotely controllable (indication with radio-buttons), the buttons can be used to make a preselection of the control command for the bay local/remote-switch. Successful preselection displays control action acknowledgement dialog shown later on in Figure 3. Preselection does not send any command to the process; it is used as an internal tag only.
More	Opens selection list of the bay sub-functionality.
Cancel	Closes the dialog and its sub-dialogs.
Help	Opens the general LIB 510 help dialog with the help text file FPU_BAY2A.HLP.

3.4.3 Control Confirmation Dialog

Figure 3 presents the control confirmation dialog which is opened from the main dialog. The function of this dialog is to confirm the preselected action before sending the command to the process.

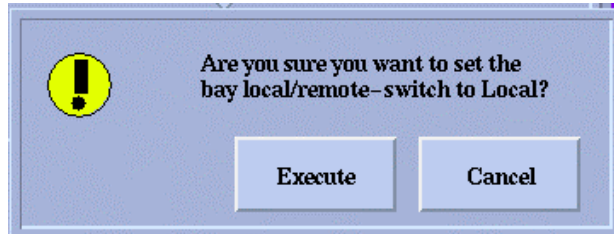


Figure 3. Bay control confirmation dialog (FPU_BAY2B.PIC)

The operation to be carried out is described in the dialog for the user to verify it

Table 2 The dialog buttons have the following functionality:

Button	Functionality
Execute	Executes the preselected command. In case of a simulated process, the change in the database is simulated.
Cancel	Deselects the object and closes the dialog.

3.4.4 Alarm State Dialog

The alarm state dialog can be opened by selecting Alarm state... which can be found by clicking the More button in the main dialog.

The dialog presents all persisting or fleeting alarms within the selected bay and the unacknowledged alarms can be acknowledged. For details, please refer to the General chapter in this MV Process Operator's Manual, which contains more detailed information about the Alarm state dialog.

3.4.5 Bay Blockings Dialog

The bay blocking dialog can be opened by selecting Bay blockings... which can be found by clicking the More button in the main dialog.

The bay blockings dialog is aimed for making the following blockings within the selected substation bay in MicroSCADA/SCS database. For details, please refer to the General chapter in this MV Process Operator's Manual, which contains more detailed information about the Blockings dialog.

3.4.6 Bay Interlocking Dialog

The bay interlocking dialog can be opened by selecting Bay interlockings... which can be found by clicking the More button in the main dialog. The interlocking dialog presents the current state of the interlockings at the control device (process) and control application level. The dialog can be used to change the current state of the interlockings.

The purpose of the interlocking dialog is to make it possible to bypass interlockings in case of a program error or a hardware malfunction.

NOTE! SETTING THE INTERLOCKING OUT OF USE MAY CAUSE A HAZARDOUS SITUATION TO THE PERSONNEL AND TO THE PROPERTY AND THEREFORE, IT SHOULD BE USED ONLY AFTER VERY CAREFUL CONSIDERATION!

Functionality

If there are some database objects that have deliberately been left out, the functionality differs from the description below.

The current interlocking state in the control device is shown by two indicators; a check box for the hardware switch (can be set with the help of tools) and the toggle button for the software switch (can be set only with the help of serial communication by control system or setting program).

Both hardware and software switch have to be set ON to enable interlocking program in the control device. The interlocking can be bypassed locally by turning the hardware switch OFF, or remotely by setting the software switch (toggle button) OFF. Enabling/disabling the interlocking is allowed only to persons with the authorization level Engineering (2) or higher.

Control application interlocking is an optional built-in interlocking program which can be used as a back-up of process interlocking. This program can be edited by using the Standard Configuration Tool (SCT) with the Picture Editor.

The toggle button shows the current interlocking state in the control application. The interlocking can be bypassed by setting the toggle button ON or OFF. Enabling/disabling the interlocking is allowed only to persons with the authorization level Engineering (2) or higher.

Figure 4 presents the bay interlocking dialog.

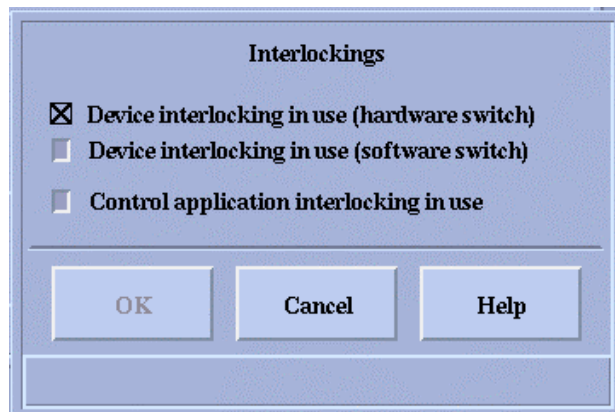


Figure 4. Bay interlocking dialog (FPU_BAY2G.PIC)

The operation to be carried out is described in the dialog for the user to verify it.

Table 3 The buttons have the following functionality:

Button	Functionality
Toggle button for device interlocking	Shows the current interlocking state of the control device and it can be used to set the interlocking ON or OFF. If there is no connection to the process, the actual operation is simulated within the database.
Toggle button for application interlocking	Shows the current interlocking state of the control application and it can be used to set the interlocking ON or OFF.
OK	Sets the selected interlocking mode to the database/process and closes the dialog.
Cancel	Discards all changes made and closes the dialog.
Help	Opens the general LIB 510 help dialog with the help text file FPU_BAY2G.HLP.

3.4.7

Update Process Data Dialog

The update process data dialog can be opened by selecting Update process data... which is found by clicking the More button in the main dialog.

The update process data dialog is aimed for updating the database from the actual process within the selected bay. The dialog can be used to initialize the substation after the system restart or to verify the database consistency.

Functionality

Data fetching is performed in the background and therefore, the system can be used during the updating. The duration of data fetching depends on the amount of the data to be updated, the speed of the communication line and the communication protocol.

The possible error messages during the execution will appear onto the MicroSCADA notification window on the console.

To activate data fetching, press the YES button. To exit the dialog without updating the database, press the NO button.

Figure 5 presents the update process data dialog.

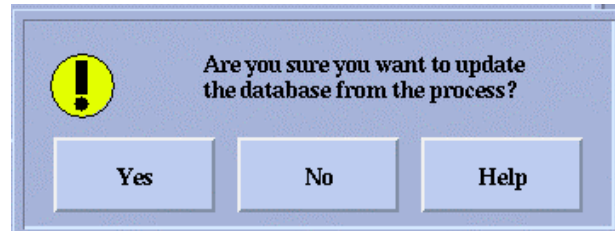


Figure 5. Update process data dialog (FPU_BAY2C.PIC)

Table 4 The buttons have the following functionality:

Button	Functionality
Yes	Starts data fetching and closes the dialog
No	Closes the dialog.
Help	Opens the general LIB 510 help dialog with the help text file FPU_BAY2C.HLP.

3.4.8

Object Messages Dialog

The object messages dialog can be opened by selecting Object messages... which is found by clicking the More button in the main dialog.

An overall picture of the bay picture function state can be seen in the dialog. The dialog shows information messages active at the moment the dialog is opened. The most important active message is also shown on the information bar of the main dialog.

Functionality

A new "snapshot" can be taken by pressing Refresh. The dialog can be closed by pressing Close. If messages do not fit into one view, they can be viewed with the help of the scrollbar. For details, please refer to the General chapter in this MV Process Operator's Manual, which contains more detailed information about the Object messages dialog.

Information Messages

Message	Explanation
STATION LOCAL/REMOTE-SWITCH MISSING	The database object for the station local/remote-switch does not exist (or there is a configuration error).
BAY LOCAL/REMOTE-SWITCH MISSING	The database object for the bay local/remote-switch does not exist (or there is a configuration error).
BAY L/R-SWITCH CONTROL OBJECT(S) MISSING	The database object(s) for the bay local/remote-switch control does not exist.
NOT AUTHORIZED CONTROL CENTER	The control authority for the station is not given for this application, a list of currently authorized control centers for a station can be seen in the dialog which can be found in the picture header menu.
NOT AUTHORIZED TO CONTROL	The personal authority level of the user is not high enough to perform all operations within the dialog.
TEMPORARILY LOCALLY CONTROLLABLE	The control of the bay local/remote-switch has been temporarily inhibited because of the position of the object (typically inhibited by Local position).
VALUES SUBSTITUTED BY CONTROL DEVICE	The control device has substituted actual information from process with another values i.e. it is in the simulation mode.
DISCREPANCY IN POSITION INDICATION OBJECTS	Not all of the database process objects for the bay local/remote-switch are in the same switch state.
DISCREPANCY IN CONTROL OBJECTS	Not all of the database process objects for the bay local/remote-switch control are in the same switch state.
NOT CONNECTED TO PROCESS	The bay local/remote-switch object is not connected to the actual process. The dialog is made to simulate the actual operation.
BAY L/R-SWITCH NOT REMOTELY CONTROLLABLE	The bay local/remote-switch indication object is connected to the process, but the command objects are not.
BAY L/R-SWITCH INDICATION NOT CONNECTED TO PROCESS	The bay local/remote-switch command objects are connected to the process, but the indication objects are not.
STATION LOCAL/REMOTE-SWITCH INHIBITS CONTROLS	The station local/remote-switch inhibits the control of the bay local/remote-switch from this control level.
STATION L/R-SWITCH HAS IRRATIONAL VALUE	The value of the station local/remote-switch is out of range.
STATION L/R-SWITCH NOT UPDATED	The station local/remote-switch has not been updated from the process.
STATION L/R-SWITCH VALUE OBSOLETE	The station local/remote-switch has an obsolete value.
BAY L/R-SWITCH HAS IRRATIONAL VALUE	The value of the bay local/remote-switch is out of range.
BAY L/R-SWITCH NOT UPDATED	The bay local/remote-switch has not been updated from the process.
BAY L/R-SWITCH VALUE OBSOLETE	The bay local/remote-switch has an obsolete value.

CONTROL BLOCKED	The control of the bay local/remote-switch is blocked (UB=1). The blockings can be set with the Blockings dialog.
SELECTED ON ANOTHER MONITOR	The same bay local/remote-switch object has been selected and the control dialog is open on another monitor.
UPDATE BLOCKED	The indication of the bay local/remote-switch is blocked (UB=1). The blockings can be set with the help of Blockings dialog.
ALARM BLOCKED	The alarms of the bay local/remote-switch are blocked (AB=1). The blockings can be set with the help of Blockings dialog.
EVENT BLOCKED	The events of the bay local/remote-switch are blocked (HB=1). The blockings can be set with the help of Blockings dialog.
PRINTOUT BLOCKED	The printouts of the bay local/remote-switch are blocked (PB=1). The blockings can be set with the help of Blockings dialog.
REPROCESSING BLOCKED	The event activation (reprocessing) of the bay local/remote-switch is blocked (XB=1). The blockings can be set with the help of Blockings dialog.

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