


FUNCTIONAL DESCRIPTION

VALVE01

On/Off Valve

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1 General

VALVE01 is a functional unit designed for the control of valves in different processes.

The functional unit is standardised to a high degree to simplify the work of designing presentation, dialog and control logic. The unit has many optional capabilities, which increase its operational flexibility. VALVE01 normally performs its control function without help from other elements.

VALVE01 is used in the control of valves from Operate^{IT} Operator Station, control desks or control organs at the valve itself. The valve can be controlled from a master control function (e.g. group start, level regulation from level gauges etc).

2 Configuration

VALVE01 like other functional units is built up of two parts:

- A Function Block, which is handled in the same way as other Function Blocks in the ABB Controller 800M range of products. Figure 3.1 illustrates the terminals on the function block.
- A section for operator functions, which consists of presentation and order functions. Data and parameters from the process are presented on an Operate^{IT} Operator Station. The keyboard of the Operate^{IT} Operator Station is used by the operator to enter commands, which control the operation of the functional unit. The response to the operator's intervention is shown on the display screen of the Operate^{IT} Operator Station. The application work for this part is normally limited to the arrangement of the display. Figure 2.1 shows the structure of the functional unit.

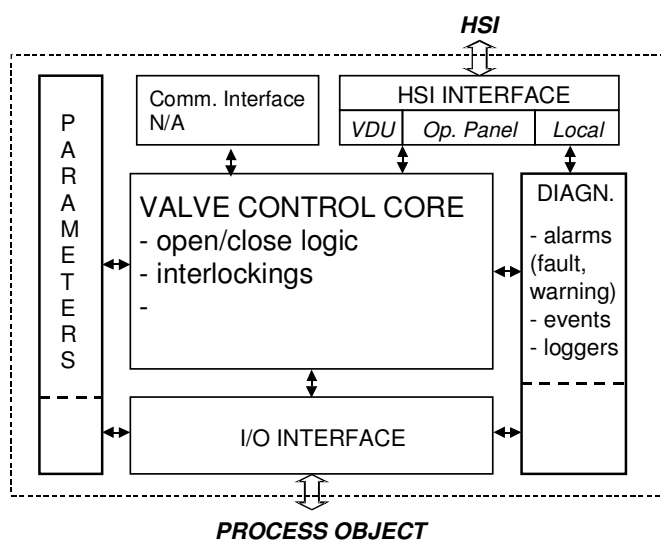


Figure 2-1. The Structure of the Functional Unit

3 Function Block VALVE01

FUNCTION OF INPUT TERMINALS	VALVE01		FUNCTION OF OUTPUT TERMINALS
Object name	Name	NoInt	No Interlocks
Object description	Description	NoICInt	No Safety Interlocks (IC)
Enable object	Enable	NoIBInt	No Process Interlocks (IB)
Fault 1	FLT1	NoIAInt	No Sequence Interlocks (IA)
Fault 2	FLT2	NORD	New order. Output for open/close order (pulse)
Safety Interlock 1	IC1	Blk	Standby
Safety Interlock 2	IC2	IPOS	Intermediate position
Safety Interlocks	ICs	RDY	Ready for operation.
Process Interlock 1	IB1	Trip	Trip
Process Interlock 2	IB2	OPN	Open order
Process Interlock 3	IB3	OPNP	Open pulse (during T1 time)
Process Interlock 4	IB4	OPNL	Limit switch open is reached
Process Interlocks	IBs	CLS	Close order
Sequence Interlock 1	IA1	CLSP	Close pulse (during T1 time)
Sequence Interlock 2	IA2	CLSL	Limit switch close is reached
Sequence Interlocks	IAs	JogInd	Jog mode
Open order pulse Time	T1	LocalInd	Local mode
Supervision Time	T2	ManInd	Man mode
Function inversion	FINV	E1Ind	E1 mode
Order mode to Man	SeqMan	E2Ind	E2 mode
Order mode to E1	SeqE1	PEO	Position Error Open
Open order in E1 mode	E1Open	PEC	Position Error Close
Close order in E1 mode	E1Close	NoOfStroke	Number of stroke
Order mode to E2	SeqE2	OutPar	Out Parameter
Open order in E2 mode	E2Open		
Close order in E2 mode	E2Close		
Limit Switch Open	LSOpn		
Limit Switch Close	LSCls		
Order mode to Jog	JogEnbl		
Open order in Jog mode	JogOpn		
Close order in Jog mode	JogCls		
Order mode to Local	LEnbl		
Open order in Local mode	LOpn		
Close order in Local mode	LClS		
Block alarm	AlcBlk		
Acknowledge alarm	AlarmAck		
In Parameter	InPar		
Event name	EventName		

Figure 3-1. Function Block, Complete symbol

Table 3-1 below illustrates the default properties of each terminal of VALVE01 function block.

Name	Data Type	Attributes	Direction	FD Port	Initial value	Description
Name	string	coldretain	in	yes	'Valve01'	Object name
Description	string	coldretain	in	yes	'Descr'	Object description
Enable	bool	coldretain	in	yes	true	Enable object
FLT1	bool	retain	in	yes	true	Fault 1
FLT2	bool	retain	in	yes	true	Fault 2
IC1	bool	retain	in	yes	true	Safety Interlock 1
IC2	bool	retain	in	yes	true	Safety Interlock 2
ICs	ICConn	by_ref	in	yes		Safety Interlocks
IB1	bool	retain	in	yes	true	Process Interlock 1
IB2	bool	retain	in	yes	true	Process Interlock 2
IB3	bool	retain	in	yes	true	Process Interlock 3
IB4	bool	retain	in	yes	true	Process Interlock 4
IBs	IBConn	by_ref	in	yes		Process Interlocks
IA1	bool	retain	in	yes	true	Sequence Interlock 1

Name	Data Type	Attributes	Direction	FD Port	Initial value	Description
IA2	bool	retain	in	yes	true	Sequence Interlock 2
IAs	IAConn	by_ref	in	yes		Sequence Interlocks
T1	time	coldretain	in	yes	1s	Open order pulse Time
T2	time	coldretain	in	yes	10s	Supervision Time
FINV	bool	coldretain	in	yes	false	Function inversion
SeqMan	bool	retain	in	yes		Order mode to Man
SeqE1	bool	retain	in	yes		Order mode to E1
E1Open	bool	retain	in	yes		Open order in E1 mode
E1Close	bool	retain	in	yes		Close order in E1 mode
SeqE2	bool	retain	in	yes		Order mode to E2
E2Open	bool	retain	in	yes		Open order in E2 mode
E2Close	bool	retain	in	yes		Close order in E2 mode
LSOpn	bool	retain	in	yes		Limit Switch Open
LSCls	bool	retain	in	yes		Limit Switch Close
JogEnbl	bool	retain	in	yes		Order mode to Jog
JogOpn	bool	retain	in	yes		Open order in Jog mode
JogCls	bool	retain	in	yes		Close order in Jog mode
LEnbl	bool	retain	in	yes		Order mode to Local
LOpn	bool	retain	in	yes		Open order in Local mode
LCls	bool	retain	in	yes		Close order in Local mode
AlcBlk	bool	retain	in	yes		Block alarm
AlarmAck	bool	retain	in	yes		Acknowledge alarm
InPar	Valve01_InPar	by_ref	in	yes		In Parameter
EventName	string	coldretain	in	yes	' Valve01_ '	Event name
NoInt	bool	retain	out	yes		No Interlocks
NoICInt	bool	retain	out	yes		No Safety Interlocks (IC)
NoIBInt	bool	retain	out	yes		No Process Interlocks (IB)
NoIAlnt	bool	retain	out	yes		No Sequence Interlocks (IA)
NORD	bool	retain	out	yes		New order. Output for open/close order (pulse)
Blk	bool	retain	out	yes		Standby
IPOS	bool	retain	out	yes		Intermediate position
RDY	bool	retain	out	yes		Ready for operation.
Trip	bool	retain	out	yes		Trip
OPN	bool	retain	out	yes		Open order
OPNP	bool	retain	out	yes		Open pulse (during T1 time)
OPNL	bool	retain	out	yes		Limit switch open is reached
CLS	bool	retain	out	yes		Close order
CLSP	bool	retain	out	yes		Close pulse (during T1 time)
CLSL	bool	retain	out	yes		Limit switch close is reached
JogInd	bool	retain	out	yes		Jog mode
LocalInd	bool	retain	out	yes		Local mode
ManInd	bool	retain	out	yes		Man mode
E1Ind	bool	retain	out	yes		E1 mode
E2Ind	bool	retain	out	yes		E2 mode
PEO	bool	retain	out	yes		Position Error Open
PEC	bool	retain	out	yes		Position Error Close
NoOfStroke	dint	coldretain	out	yes		Number of stroke
OutPar	Valve01_OutPar	by_ref	out	yes		Out Parameter
Opr	Valve01_Opr	by_ref	out	yes		Operator order

Table 3-1 Terminal Properties

4 VALVE01 Datatypes

4.1 VALVE01_InPar

Name	Data Type	Attributes	Initial value	ISP value	Description
Class	dint	coldretain	500		AE class
Severity	dint	coldretain	1000		AE severity
InitMode	dint	coldretain	5		Init mode (5 = Man ; 7 = E1 ; 8 = E2)
JogBlk	bool	coldretain	false		Block operator order Jog mode
LocalBlk	bool	coldretain	false		Block operator order Local mode
ManBlk	bool	coldretain	false		Block operator order Man mode
E1Blk	bool	coldretain	false		Block operator order E1 mode
E2Blk	bool	coldretain	false		Block operator order E2 mode
OpenBlk	bool	coldretain	false		Block operator order Open command
CloseBlk	bool	coldretain	false		Block operator order Close command
AlcBlkEvBlk	bool	coldretain	true		Block event for AlcBlk
LEnblEvBlk	bool	coldretain	true		Block event for LEnbl
JogEnblEvBlk	bool	coldretain	true		Block event for JogEnbl
SeqManEvBlk	bool	coldretain	true		Block event for SeqMan
SeqE1EvBlk	bool	coldretain	true		Block event for SeqE1
SeqE2EvBlk	bool	coldretain	true		Block event for SeqE2
LSOpnEvBlk	bool	coldretain	true		Block event for LSOpn
LSClsEvBlk	bool	coldretain	true		Block event for LSCls
ExtOpenEvBlk	bool	coldretain	true		Block event for ExtOpen
ExtCloseEvBlk	bool	coldretain	true		Block event for ExtClose
IABlockNotExtMode	bool	coldretain	true		IA blocked when not in E1 or E2 mode
IA1	IAnParType1	coldretain			Configuration for IA1
IA2	IAnParType1	coldretain			Configuration for IA2
IAs1	IAnParType1	coldretain			Configuration for IAs.IA1
IAs2	IAnParType1	coldretain			Configuration for IAs.IA2
IB1	IBnParType1	coldretain			Configuration for IB1
IB2	IBnParType1	coldretain			Configuration for IB2
IB3	IBnParType1	coldretain			Configuration for IB3
IB4	IBnParType1	coldretain			Configuration for IB4
IBs1	IBnParType1	coldretain			Configuration for IBs.IB1
IBs2	IBnParType1	coldretain			Configuration for IBs.IB2
IBs3	IBnParType1	coldretain			Configuration for IBs.IB3
IBs4	IBnParType1	coldretain			Configuration for IBs.IB4
IBs5	IBnParType1	coldretain			Configuration for IBs.IB5
IBs6	IBnParType1	coldretain			Configuration for IBs.IB6
IBs7	IBnParType1	coldretain			Configuration for IBs.IB7
IBs8	IBnParType1	coldretain			Configuration for IBs.IB8
IC1	ICnParType1	coldretain			Configuration for IC1
IC2	ICnParType1	coldretain			Configuration for IC2
ICs1	ICnParType1	coldretain			Configuration for ICs.IC1
ICs2	ICnParType1	coldretain			Configuration for ICs.IC2
AEConfigFault1	dint	coldretain	0		AE configuration for Fault1
AEConfigFault2	dint	coldretain	0		AE configuration for Fault2
AEConfigLSErr	dint	coldretain	1		AE configuration for Limit Sw Exceed
AEConfigPosErrC	dint	coldretain	1		AE configuration for Pos Error Close
AEConfigPosErrO	dint	coldretain	1		AE configuration for Pos Error Open
EnNoOfStrokeCounter	bool	coldretain	false		Enable number of stroke counter

4.2 VALVE01_OutPar

Name	Data Type	Attributes	Initial value	ISP value	Description
AlarmBlk	bool	retain			Alarm blocked
IntlkBlk	bool	retain			Interlock blocked
IntlkBlkActive	bool	retain			Interlock blocked active
EnOverrideAll	bool	retain			Override All button enabled
Mode	dint	retain			Active mode
NormalMode	bool	retain			Normal mode (Active mode = Init mode)
IA1Ind	bool	retain			IA1 interlocked
IA2Ind	bool	retain			IA2 interlocked
IB1Ind	bool	retain			IB1 interlocked
IB2Ind	bool	retain			IB2 interlocked
IB3Ind	bool	retain			IB3 interlocked
IB4Ind	bool	retain			IB4 interlocked
IC1Ind	bool	retain			IC1 interlocked
IC2Ind	bool	retain			IC2 interlocked
IAs1Ind	bool	retain			IAs1 interlocked
IAs2Ind	bool	retain			IAs2 interlocked
IBs1Ind	bool	retain			IBs1 interlocked
IBs2Ind	bool	retain			IBs2 interlocked
IBs3Ind	bool	retain			IBs3 interlocked
IBs4Ind	bool	retain			IBs4 interlocked
IBs5Ind	bool	retain			IBs5 interlocked
IBs6Ind	bool	retain			IBs6 interlocked
IBs7Ind	bool	retain			IBs7 interlocked
IBs8Ind	bool	retain			IBs8 interlocked
ICs1Ind	bool	retain			ICs1 interlocked
ICs2Ind	bool	retain			ICs2 interlocked
Fault1	AlarmInd	retain			Alarm Indication for Fault1
Fault2	AlarmInd	retain			Alarm Indication for Fault2
LSErr	AlarmInd	retain			Alarm Indication for LSErr
PosErrC	AlarmInd	retain			Alarm Indication for PosErrC
PosErrO	AlarmInd	retain			Alarm Indication for PosErrO
LastClose	dint	retain			Reason for last close

4.3 VALVE01_Opr

Name	Data Type	Attributes	Initial value	ISP value	Description
BlockAlarm	bool	retain			Operator block alarms
Jog	bool	retain			Operator order Jog mode
Local	bool	retain			Operator order Local mode
Man	bool	retain			Operator order Manual mode
E1	bool	retain			Operator order E1 mode
E2	bool	retain			Operator order E2 mode
Open	bool	retain			Operator order Open command
Close	bool	retain			Operator order Close command
OverrideAll	bool	retain			Operator override all interlocks
IB1Override	bool	retain			Operator override IB1 interlock
IB2Override	bool	retain			Operator override IB2 interlock
IB3Override	bool	retain			Operator override IB3 interlock
IB4Override	bool	retain			Operator override IB4 interlock
IBs1Override	bool	retain			Operator override IBs.IB1 interlock
IBs2Override	bool	retain			Operator override IBs.IB2 interlock
IBs3Override	bool	retain			Operator override IBs.IB3 interlock
IBs4Override	bool	retain			Operator override IBs.IB4 interlock
IBs5Override	bool	retain			Operator override IBs.IB5 interlock
IBs6Override	bool	retain			Operator override IBs.IB6 interlock
IBs7Override	bool	retain			Operator override IBs.IB7 interlock
IBs8Override	bool	retain			Operator override IBs.IB8 interlock
IA1Override	bool	retain			Operator override IA1 interlock

Name	Data Type	Attributes	Initial value	ISP value	Description
IA2Override	bool	retain			Operator override IA2 interlock
IAs1Override	bool	retain			Operator override IAs.IA1 interlock
IAs2Override	bool	retain			Operator override IAs.IA2 interlock
ResetCounter	bool	retain			Order reset counter

5 Function

5.1 Basic Properties

The VALVE01 functional unit is designed for control of on/off valves.

VALVE01 units consist of the following basic functions.

- Supervision of external faults
- Evaluation of interlocks
- Control of open/close
- Supervision of limit switches
- Running tests from the valve site
- Control from the local operator's panel
- Manual/External operation
- Supervision of operations via Operate^{IT} Operator Station

5.2 Control Modes

VALVE01 is intended for control from Operate^{IT} Operator Station, i.e. from a central control room. However, it is also possible to select other modes of control and thus control VALVE01 from other locations.

All the control modes can be selected from the central operator station. The LOCAL control mode may also be selected from the local control station.

The different modes of control are as follows:

- Jog
- Local
- Manual
- External 1
- External 2

By selecting control mode, the operator decides from which location the valve is to be controlled. All control modes may be selected through the dialog in the Operate^{IT} Operator Station. The LOCAL control mode may also be selected from the local control station through the Function Block input :LEnbl, provided that the current control mode is neither JOG, nor DISABLE.

For the different control modes, VALVE01 is controlled as follows. For a summary of the control modes, see Table 4-1.

5.2.1 Control mode JOG

The control mode JOG is suitable for testing the valve in the field. The valve is supposed to be controlled from a open/close station adjacent to the valve. Control from other locations is blocked.

The supervision of interlocks is limited. Only the safety interlocks :IC1 and :IC2 as well as faults in the control voltage chain (the inputs :FLT1 - :FLT2) prevent starting.

The valve is opened and closed through the inputs :JogOpn and :JogCls.

:JogOpn, Open order from field-mounted Open/close station

:JogCls, Close order from field-mounted Open/close station

The function of these inputs is set out in tabular form below.

:JogOpn	:JogCls	
0	0	No change.
0	1	Close Order.
1	0	Open Order.
1	1	Close Order.

5.2.2 Control mode LOCAL

The valve is controlled from a local desk or panel. Control from other locations is blocked.

LOCAL control mode, like other points of control, may be selected from Operate^{IT} Operator Station. In addition, LOCAL control mode may be selected from the local control panel through the input :LEnbl as follows:

:LEnbl = 1: The control mode is LOCAL, as long as the Operate^{IT} Operator Station operator does not request JOG or STAND BY. All other control modes are blocked and :LEnbl must be released before a mode change can occur.

LEnbl -> 0: VALVE01 resumes the previous or the latest control mode called for from Operate^{IT} Operator Station.

The operator controls the valve through the inputs :LOPN and :LCLS.

:LCLS Local close order

:LOPN Local Open order

The function of these inputs is set out in tabular form below.

:LCLS	:LOPN	
0	0	No change
1	0	Close order
0	1	Open order

5.2.3 Control mode MANUAL

The valve is controlled from Operate^{IT} Operator Station. Control from other locations is blocked. This is the default control mode. To Open, the operator has to press the key OPEN. To close the valve, the key CLOSE has to be pressed.

5.2.4 Control mode EXTERNAL 1 and EXTERNAL 2

The valve is controlled from external signals, e.g. from a process signal. Control from other locations is blocked. This mode is e.g. used for on/off control of automatic valves.

EXTERNAL 2 functions in exactly the same way as EXTERNAL 1. EXTERNAL 2 is used when the valve is to be controlled by Level 2 application software e.g. Auto Series Software.

The function is enabled by inputs :SeqE1 and :SeqE2.

The process controls the valve through the inputs :E1(2)Open and :E1(2)Close. The operator is able to close the valve by issuing close order from Operate^{IT} Operator Station. The control mode then changes to Manual, to prevent the valve from being reOpened.

:E1(2)Close Close order

:E1(2)Open Open order

The function of these inputs is set out in tabular form below:

:E1(2)Close	:E1(2)Open	
1	0	Close order
0	1	Open order

5.2.5 Control mode DISABLED

The valve is closed and all orders to it are blocked. Used to take the valve Out of Service.

5.2.6 Operator Order and Order Blocking

The different orders given by the operator can be read at the output terminal :OprOrder.

Blocking of operator order also possible from the control program by setting the corresponding bits in the terminal :OrdBlk.

5.3 Ready for Operation

Ready for operation means that all the interlocks are satisfied, that there are no alarms and that the control mode is not JOG or that the control is DISABLED.

Ready for operation is indicated by the VALVE01 displays in the Operate^{IT} Operator Station and by the output terminal :RDY (Ready) in the function block.

5.4 Home position

The home position of the Valve01, not the field device, is defined by the terminal :FINV as follows:

:FINV = 0 Closed is the home position.

:FINV = 1 Open is the home position.

When an interlock is active or when there is an external fault (terminal :FLT1 or :FLT2 = 0) VALVE01 goes to its home position.

5.5 Start-up

An initialisation phase begins at start of the AC800M system.

The result of this becomes:

The outputs are reset (to zero) except for the :ManInd and :Cls terminals, which is set (to 1).

Manual is the default control mode at system initialisation. With an additional circuit it is possible to force the control mode to other modes at system initialisation.

5.6 Interlocks

The valve control can be interlocked by signals from the process and also by signals from the control logic. The interlocks are divided into three groups with the following designations and functions.

Safety Interlocks, which interlock the object for safety purposes. The two safety interlocks, :IC1 and :IC2, cannot be blocked.

Process Interlocks. There are 4 normal process interlocks, :IB1 to :IB4. All four interlocks can be configured to accept blocking by the operator. All four interlocks can also be configured as Open interlocks. A Open interlock will prevent the valve from Opening, but does not close an open valve.

External (Sequence) Interlocks. Interlocks on terminals :IA1 and :IA2 are used if the object is to be interlocked against other objects such as a pump motor or a group start or other conditions in an automatic sequence. These interlocks are configurable as blocked or not when not in E1 resp. E2 mode and the interlocks are not included in the conditions for indication of Ready for start.

If *IA blocked when not Ext* is equal to 1

Valve interlocked if IA1 is 0 and the Valve is in E1 mode

Valve interlocked if IA2 is 0 and the Valve is in E2 mode

If *IA blocked when not Ext* is equal to 0

Valve interlocked if IA1 or IA2 is 0 and the Valve is in Man, E1, E2 or Local mode

An interlocking is active when the input is 0 (FALSE). All Process and external interlocks are blocked when the JOG control mode is selected.

5.7 Open and Close

Open and close commands for VALVE01 may originate from dialog with Operate^{IT} Operator Station or from Function Block inputs, depending on the control mode selected (See Section 5.2, and Table 3.1).

When an Open command is issued to VALVE01, it is forwarded to the valve through the Function Block output :OPN (Open order) and :OPNP (Open Pulse). See Section 5.7.2 Open Order Selection. The Open order on the output :OPNP is a pulse with a duration which is determined by the input :T1.

The limit switches of the valve acknowledges the Open/Close order :OPN or :CLS by setting the input :LSOPN resp. :LSCLS high. The limit switches must acknowledge within the time determined by the input :T2. The time T2 ought to be set longer than T1.

If the limit switches does not acknowledge the open order within the time T2, the VALVE01 issues an alarm about the limit switch failure.

The limit switche failure alarm indication on the object display of VALVE01 disappears when the operator acknowledges the alarm and the limit switches are in the right position.

VALVE01 also issues an alarm about limit switch failure when the switches acknowledges Open orders falsely, i.e. when it sets the inputs :LSOPN high without any Open order being issued. VALVE01 transmits the alarm the time T2 after the input having been set.

5.7.1 Open and Close Order at Different Control Modes

The table below describes the commands which can be given at the different control modes of VALVE01.

Table 3-1. Relation between commands and control modes

Order	Jog	Local	Manual	Ext1	Ext2
Input JogOpn	Open	-	-	-	-
Input JogCls	Close	-	-	-	-
Input LOpen	-	Open	-	-	-
Input LClose	-	Close	-	-	-
Operator Open	-	-	Open	-	-
Operator Close	-	-	Close	Close	Close
Input E1(2)Open	-	-	-	Open	Open
E1(2)Close	-	-	-	Close	Close

5.7.2 Open/Close Order Selection

The Function Block VALVE01 has two order outputs:

:OPN Open order

:CLS Close order

The activation of the outputs is determined as follows from the different points of control.

5.7.2.1 Control mode JOG

FB input :JogOpn or :JogCls

5.7.2.2 Control mode LOCAL

FB input :LOPN or :LCLS

5.7.2.3 Control mode MAN

The operator issues a Open or Close order from Operate^{IT} Operator Station.

5.7.2.4 Control mode Ext1/Ext2

A superior control program sets the input :E1(2)Open or :E1(2)Close to issue a new order.

See the table below.

:E1(2)Open	:E1(2)Close	Descr
0	0	No change.
1	0	Open Order.
0	1	Close Order
1	1	Close Order

5.7.2.5 Control mode DISABLE

The valve cannot be Opened.

5.8 Fault Evaluation of External Faults

Evaluation is performed of the inputs :FLT1 and :FLT2. The inputs :FLT1 and :FLT2 are to be TRUE when there are no errors.

5.9 Alarm and Event Handling

Alarm and Events are generated for status change on the signals defined in interaction window 5.10.4 Event Blocking.

The layout of the alarm and event is described in chapter 6.3.2 Alarm and Event Message

All Operator Events are reported by Audit Trail Functionality and not included in the FunctionBlock.

The individual text string for each event is stored in the Alarm and Event Translator aspect. This text can be NLS handled.

5.10 Interaction Window

The interaction window is available in the Control^{IT} Control Builder. The interaction window is an engineering aid used to simplify configuration and blocking of signals not available on the faceplates. Changes to values in the Interaction window are only available in 'Online' mode in Control^{IT}.

5.10.1 VALVE01 Interaction Window

Interaction window overview. Name and description are shown. The buttons are links to sub-windows.

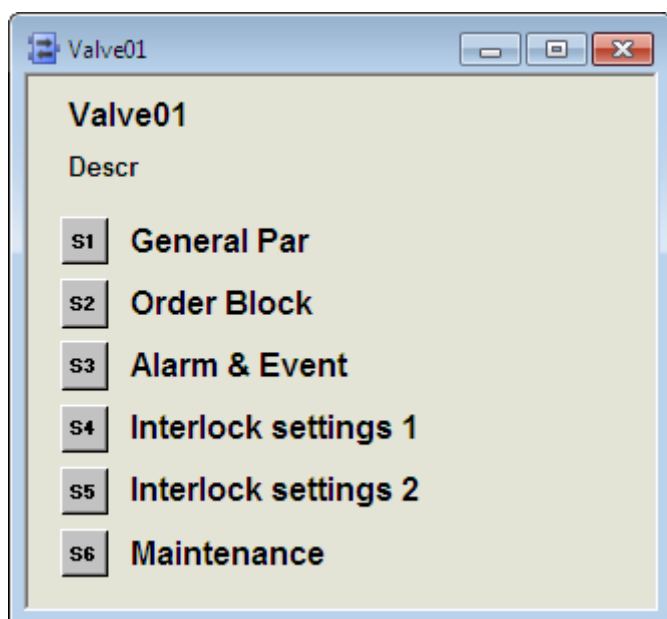


Figure 4-1 Main Interaction Window.

5.10.2 General Parameters

“Class” defines the process section or area in which alarms are grouped. By utilizing class the alarms can be filtered. Valid values are user defined. A suggestion would be to use mill area numbers as class values.

“Severity” defines the alarm priority for general alarms. The severity for MV-alarms is entered in window “Alarm & Event”. Valid values are 1 –1000 where 1000 is the highest priority.

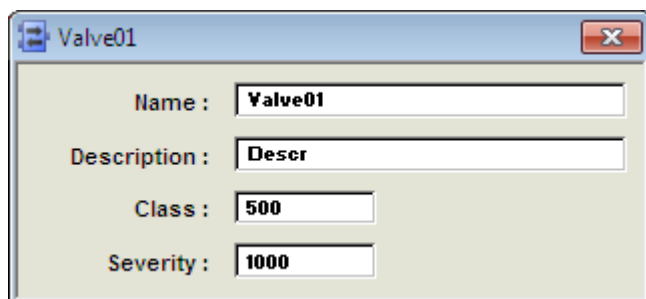


Figure 4-2 General Parameters.

5.10.3 Order Block

Blocking of operator order are entered in this window.

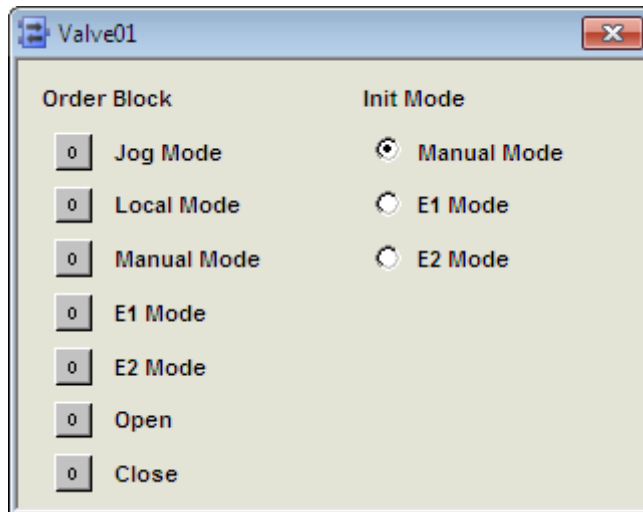


Figure 4-3 Order Block.

5.10.4 Event Blocking

Alarm and Events are generated for status change on the signals defined in interaction window.

All Operator Events are reported by Audit Trail Functionality and not included in the FunctionBlock.

The individual text string for each event is stored in the Alarm and Event Translator aspect. This text can be NLS handled.

For Alarm Configuration the following values are valid

- 0 No Alarm or Event are generated
- 1 Alarm and Event are generated
- 2 Event is generated

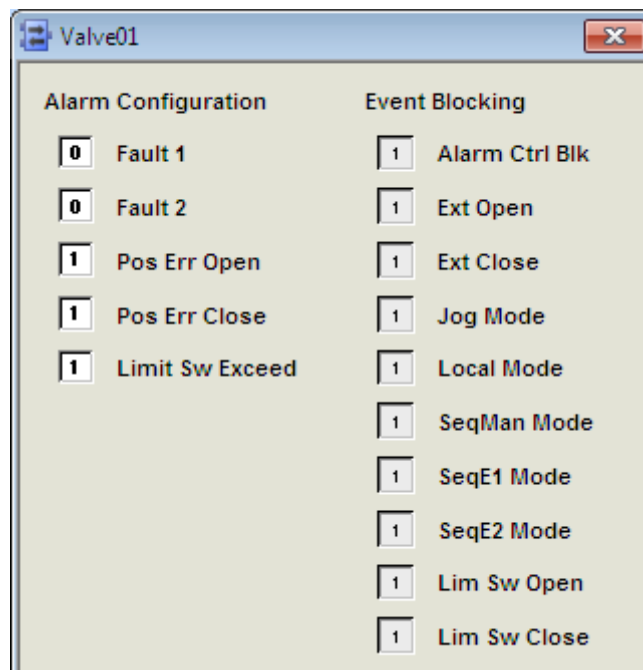


Figure 4-4 Indication Event Block.

5.10.5 Interlock Settings

The different settings for interlocks are entered in this window.

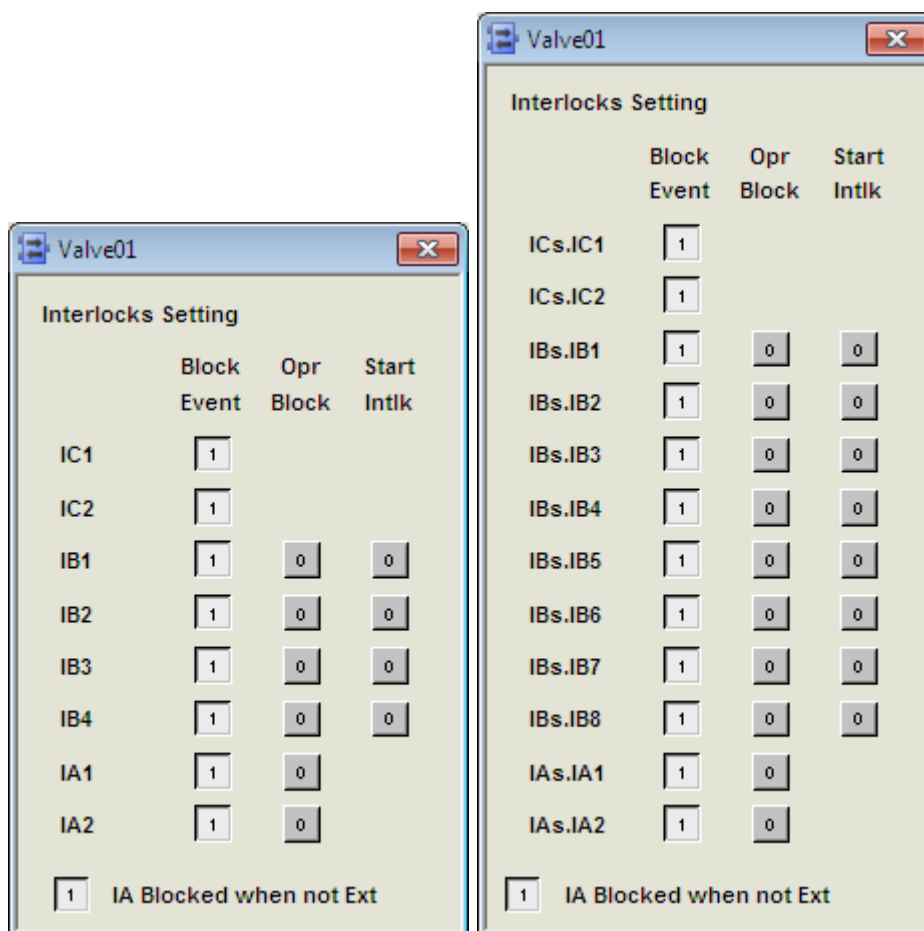


Figure 4-5 Interlock Settings.

5.10.6 Texts

The different interlock and information texts are entered in the aspect Text Properties. The length of the text is limited to about 60 characters, by the size of presentation element in the Interlock Display.

Name	Value	Type	Description	Readable?	R/Permission	Writable?	W/Permission	Deploy Scheme
FLT1Text		String	FLT1 Text	Yes		Yes	Configure	Always Repla
FLT2Text		String	FLT2 Text	Yes		Yes	Configure	Always Repla
IC1Text		String	IC1 Interlock Text	Yes		Yes	Configure	Always Repla
IC2Text		String	IC2 Interlock Text	Yes		Yes	Configure	Always Repla
ICs								
IC1Text		String	ICs.IC1 Interlock Te	Yes		Yes	Configure	Always Repla
IC2Text		String	ICs.IC2 Interlock Te	Yes		Yes	Configure	Always Repla
IB1Text		String	IB1 Interlock Text	Yes		Yes	Configure	Always Repla
IB2Text		String	IB2 Interlock Text	Yes		Yes	Configure	Always Repla
IB3Text		String	IB3 Interlock Text	Yes		Yes	Configure	Always Repla
IB4Text		String	IB4 Interlock Text	Yes		Yes	Configure	Always Repla
IBs								
IB1Text		String	IBs.IB1 Interlock Te	Yes		Yes	Configure	Always Repla
IB2Text		String	IBs.IB2 Interlock Te	Yes		Yes	Configure	Always Repla
IB3Text		String	IBs.IB3 Interlock Te	Yes		Yes	Configure	Always Repla
IB4Text		String	IBs.IB4 Interlock Te	Yes		Yes	Configure	Always Repla
IB5Text		String	IBs.IB5 Interlock Te	Yes		Yes	Configure	Always Repla
IB6Text		String	IBs.IB6 Interlock Te	Yes		Yes	Configure	Always Repla
IB7Text		String	IBs.IB7 Interlock Te	Yes		Yes	Configure	Always Repla
IB8Text		String	IBs.IB8 Interlock Te	Yes		Yes	Configure	Always Repla
IA1Text		String	IA1 Interlock Text	Yes		Yes	Configure	Always Repla
IA2Text		String	IA2 Interlock Text	Yes		Yes	Configure	Always Repla
IAs		String	RunInt1 Interlock Te	Yes		Yes	Configure	Always Repla
IA1Text		String	IAs.IA1 Interlock Te	Yes		Yes	Configure	Always Repla
IA2Text		String	IAs.IA2 Interlock Te	Yes		Yes	Configure	Always Repla
Info1Text		String	Info 1 Text	Yes		Yes	Configure	Always Repla
Info2Text		String	Info 2 Text	Yes		Yes	Configure	Always Repla

Figure 4-6 Texts.

5.10.7 Maintenance

The maintenance window shown the reason for the latest closing of the valve.

This window also have indication and control of stroke counter. If “Enable counter” is activated information of number of strokes is displayed in the Extended Faceplate.

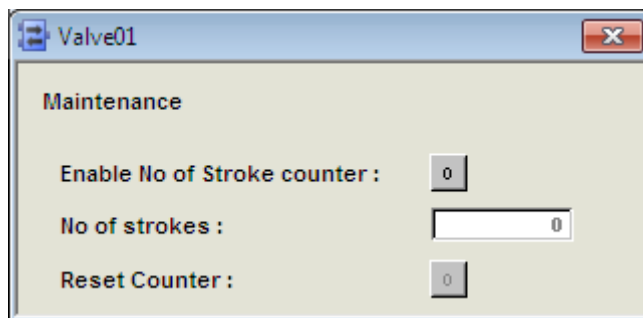


Figure 4-7 Maintenance.

6 Operator Functions

The Operator functions are divided in principle into 4 parts:

- Presentation (Display elements, Time logged properties)
- Faceplate (Dialog)
- Alarm and Event handling

6.1 Presentation

6.1.1 Display elements

Display elements, which can be used for different display types, are available for use in the functional unit VALVE01.

The display elements show the status and the controls of the process with different degrees of detail and are intended for the following displays:

- Object display
- Process display
- Interlock display

Examples of different display elements which could be used in these displays are given in the following sections.

6.1.1.1 Object display

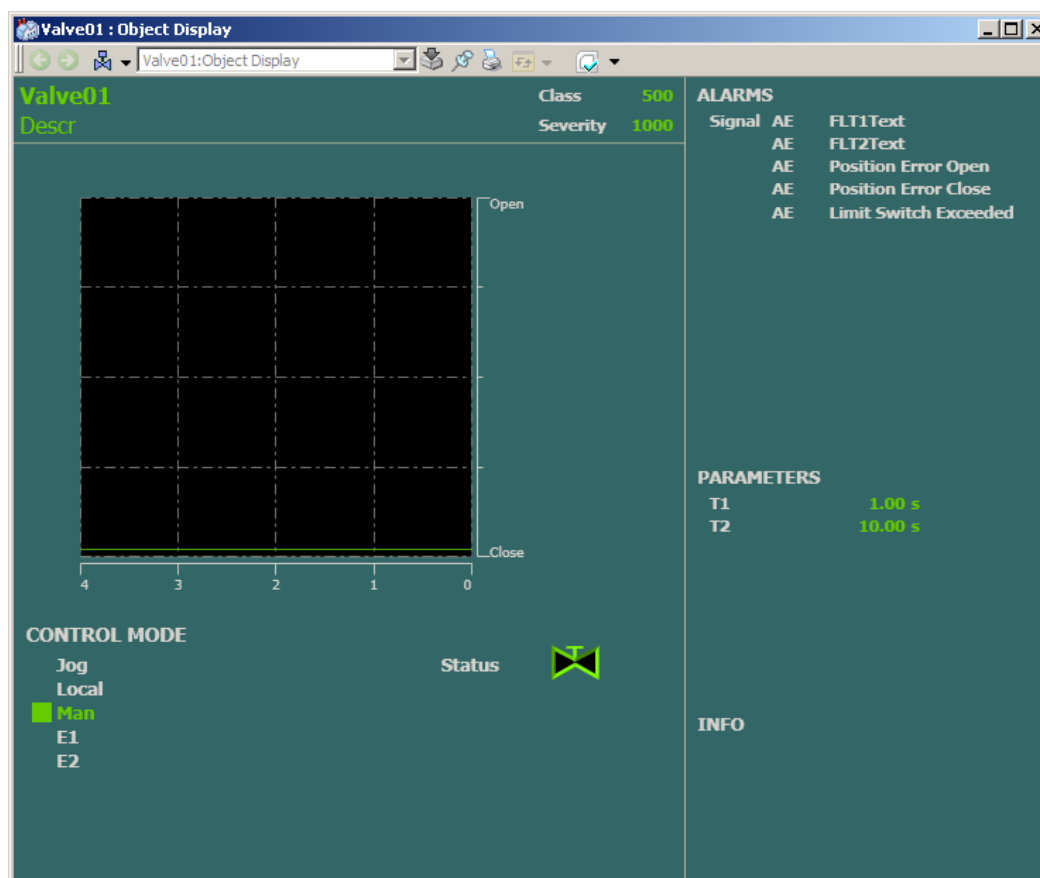


Figure 5-1 Object Display.

6.1.1.2 Process display

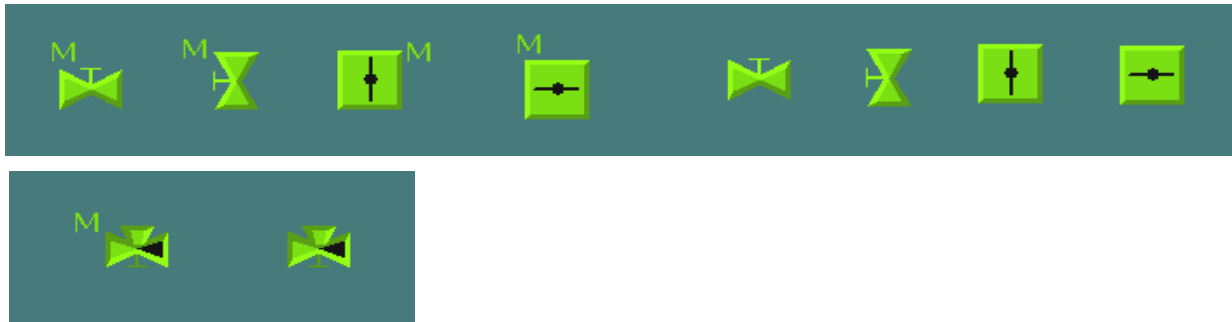


Figure 5-2 Process Display Elements.

6.1.1.3 Interlock display

This display shows the actual status of all Interlock. The operator can override individual interlocks or all interlock.

Interlocks that can be override must be set to Blockable. This can be done from this display if the user has permission Configure or from the Interaction Window see chapter 5.10.5.

Start Interlock, Block Event and IA Blocked when no in E1 or E2 mode are parameters that can be set from this display if the user has Permission Configure or from Interaction Window.

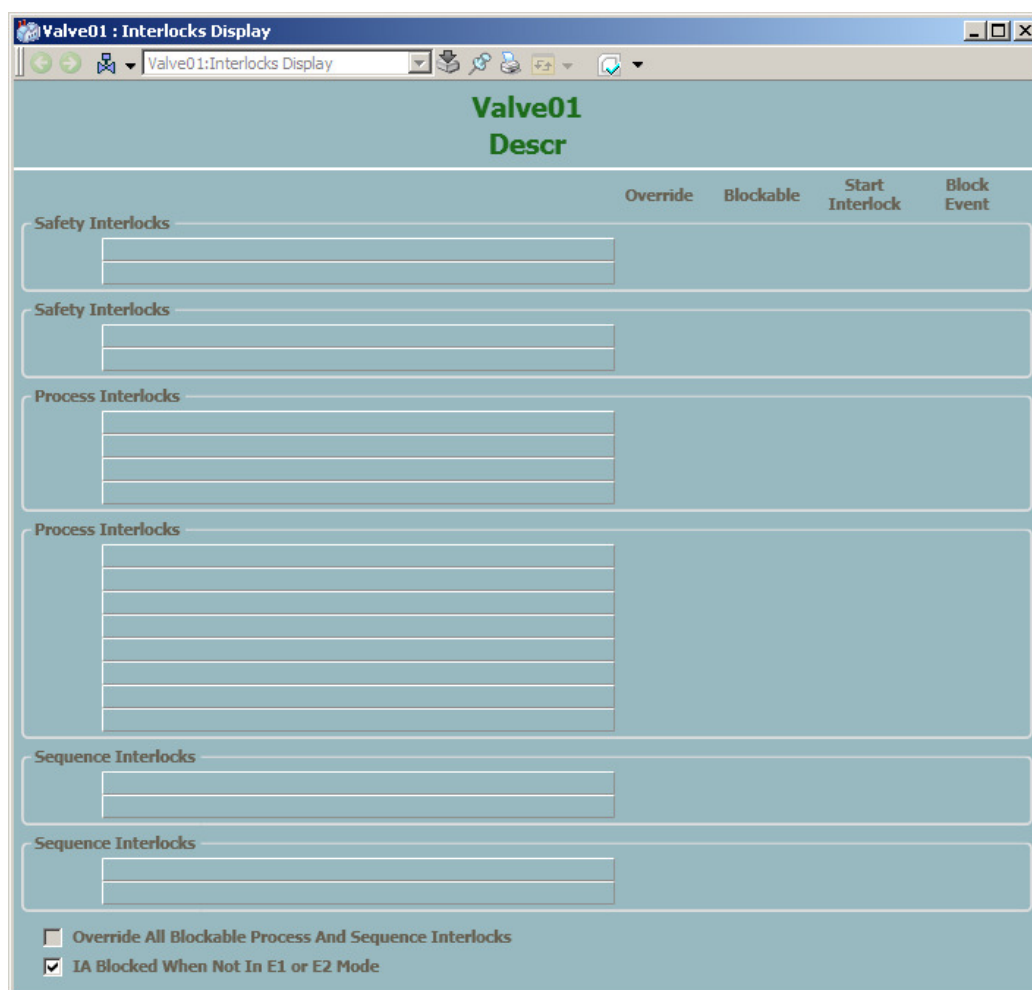


Figure 5-3 Interlock display

6.1.2 Time-logged Properties

Measured values stored can be presented graphically in the form of curves on the display screen. Such a display, a **Trend display**, can consist of 1-4 curves. All properties for the object VALVE01 are available to be logged on the trend curves.

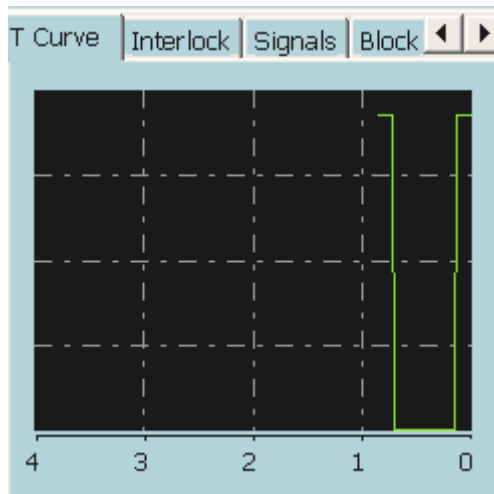
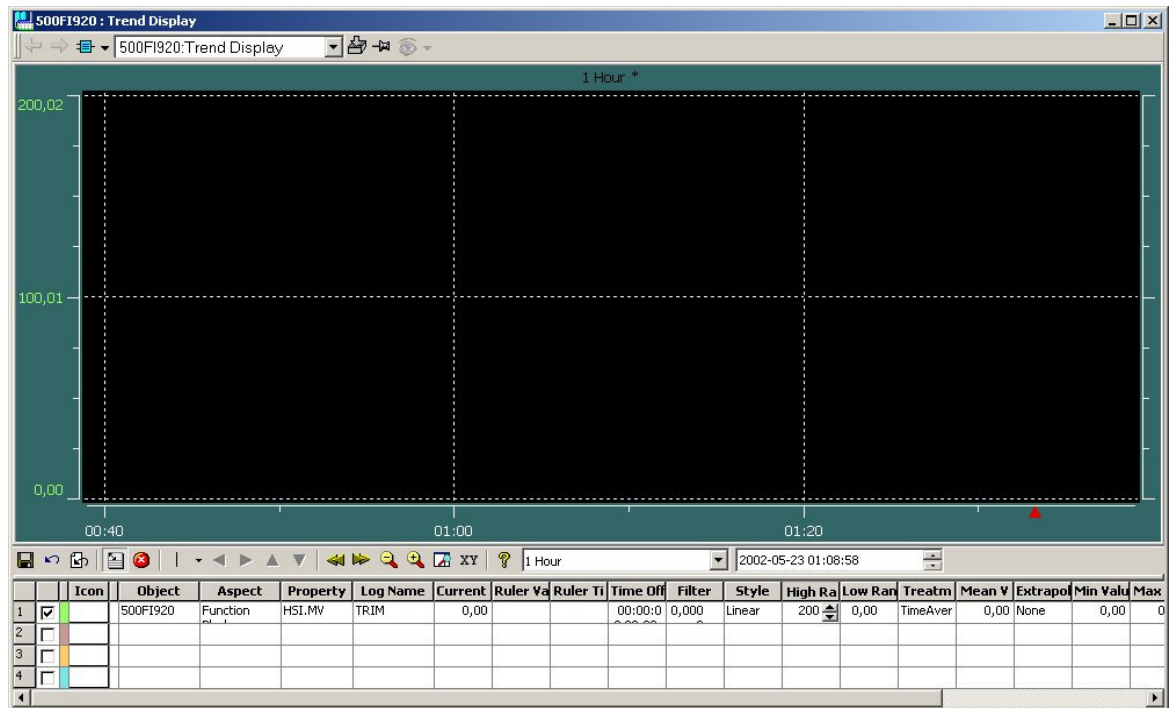


Figure 5-4 Trend Curve

6.2 Faceplate (Dialog)

The display screen is supplemented with a mouse and keyboard for operator communication with the functional unit/object.

By using Operate^{IT} Operator Station the operator can view and control the process through faceplates. The dialogue consists of buttons, indicators and graphic presentations within a Faceplate. A faceplate has three levels of dialogue, which are presented by the following three runtime views:

- Reduced Faceplate, where the size and contents typically have been optimized to cover most of the normal process operator actions. Minimum dialogue. This is the default view.
- Faceplate, which typically covers all normal process operator actions. This view is disabled as default.

- Extended Faceplate, with functions and information intended for the process engineer or the advanced operator. Maximum dialogue.

The figures 5-5 to 5-7 below and overleaf illustrate the various presentations of the faceplate.

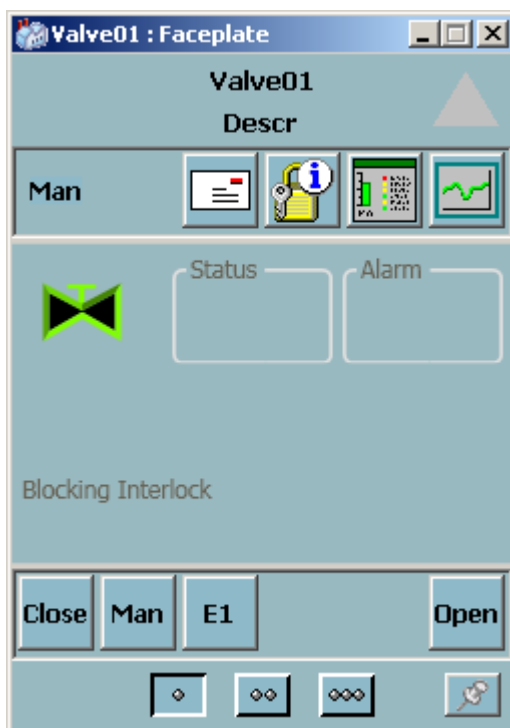


Figure 5-5 Reduced Faceplate



Figure 5-6 Faceplate

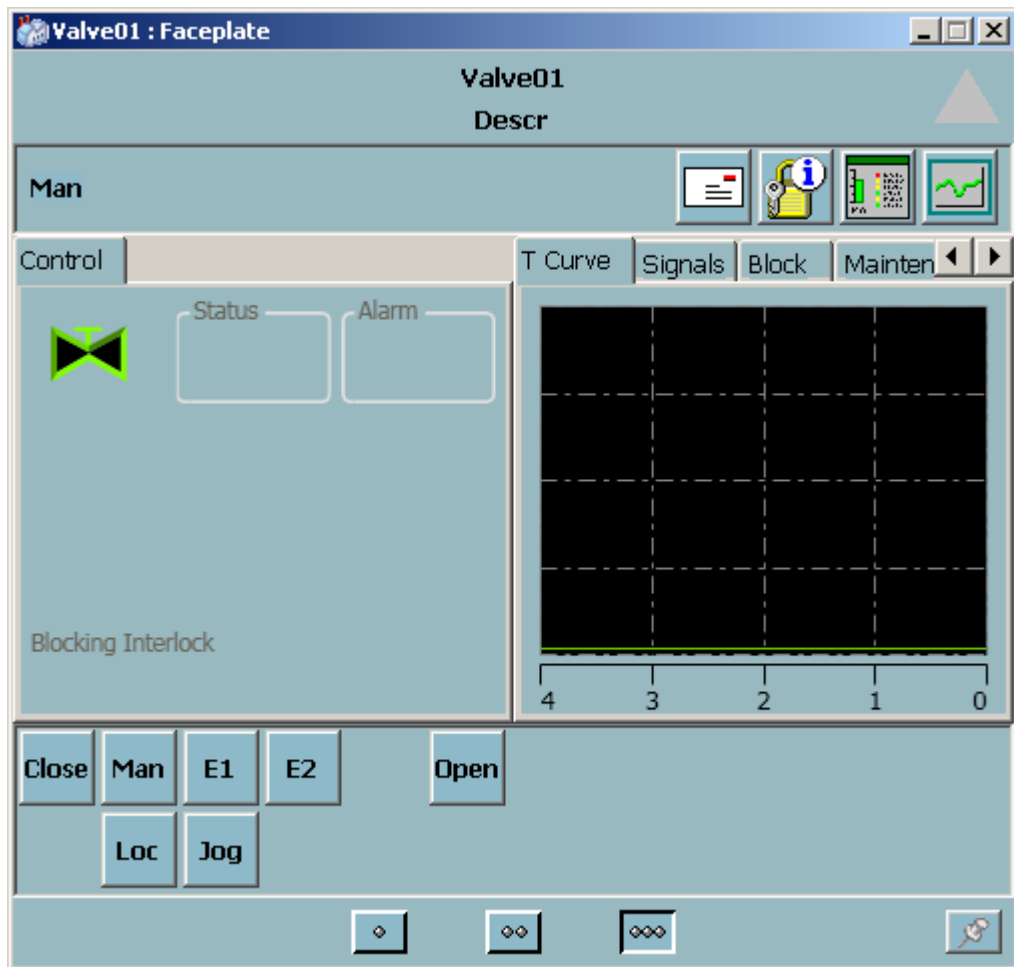


Figure 5-7 Extended Faceplate

6.3 Alarm and Event Handling

6.3.1 General

This section contains a description of all alarms and events in the functional unit VALVE01.

When a valve fails an alarm and an event is generated and can be viewed on the Operate^{IT} Operator Station. The alarms are indicated in the faceplate, object display and in the alarm and event list.

The possibilities of the operator to block event printouts and alarms are shown under the heading 'Event and alarm blocking' below.

The alarm handling for VALVE01 can be controlled individually for the different types of fault, which can develop. For example, it is possible to block the alarms for one or more of the external faults FLT1 and FLT2. See section 5.10 describing the Interaction Window.

Note, that the Function Block itself blocks certain alarms in a number of situations.

The time stamping of the alarm is done when the function block is executed.

Event Time	Object Name	Object Description	Condition	Message Description
02-05-24 03:46:16:763	264M500.RUN	Pulp Mixer Running	Status	Alarm
02-05-24 01:13:04:785	192.168.0.51-0.11.5		HWError	For info see 'Errors and
02-05-24 00:22:18:784	192.168.0.51-0.11.4		HWError	For info see 'Errors and
02-05-23 23:32:31:458	500F1920	Washing Pulp Flow	AI_Err	Alarm
02-05-23 23:32:31:458	500F1920	Washing Pulp Flow	MV_L1	Alarm
02-05-23 23:32:31:458	500F1920	Washing Pulp Flow	MV_L2	Alarm
02-05-23 23:23:01:784	192.168.0.51-0.11.3		HWError	For info see 'Errors and
02-05-23 20:00:07:762	500F1920	Washing Pulp Flow	MV_L2	Alarm
02-05-23 01:38:52:762	500F1920	Washing Pulp Flow	MV_L1	Alarm
02-05-23 00:18:26:995	500F1920	Washing Pulp Flow	AI_Err	Alarm
02-05-22 00:10:00:709	Mot01	Test Mot01	ControlV	Alarm
02-05-20 17:32:45:784	192.168.0.51-0.11.2		HWError	For info see 'Errors and

Figure 5-8 Alarm List

6.3.2 Alarm and Event Message

The following alarm texts are generated by the functional unit VALVE01.

The “Condition” text are stored in the Alarm and Event Translator aspect and can be NLS handled.

Object Name	Object Description	Condition	Message Description
<Name>	<Description>	Fault1	Fault
<Name>	<Description>	Fault2	Fault
<Name>	<Description>	LSErr	Fault
<Name>	<Description>	PosErrC	Fault
<Name>	<Description>	PosErrO	Fault

The “Message Description” text are stored in the Alarm and Event Translator aspect and can be NLS handled.

SourceName	ObjectDescription	Condition	Message Description
<Name>	<Description>		SeqE1 Mode
<Name>	<Description>		SeqE2 Mode
<Name>	<Description>		SeqMan Mode
<Name>	<Description>		Local Mode
<Name>	<Description>		Ext Open
<Name>	<Description>		Ext Close
<Name>	<Description>		IC1 On
<Name>	<Description>		IC1 Off
<Name>	<Description>		IC2 On

<Name>	<Description>		IC2 Off
<Name>	<Description>		IB1 On
<Name>	<Description>		IB1 Off
<Name>	<Description>		IB2 On
<Name>	<Description>		IB2 Off
<Name>	<Description>		IB3 On
<Name>	<Description>		IB3 Off
<Name>	<Description>		IB4 On
<Name>	<Description>		IB4 Off
<Name>	<Description>		IA1 On
<Name>	<Description>		IA1 Off
<Name>	<Description>		IA2 On
<Name>	<Description>		IA2 Off
<Name>	<Description>		Limit Sw Open
<Name>	<Description>		Limit Sw Close
<Name>	<Description>		Alarm Acknowledge
<Name>	<Description>		Alarm Control Block

6.4 Faceplate tabs

6.4.1 Alarm and Event blocking

By using the faceplate it is possible for the process engineer to block alarms and alarm printouts. When the block alarm and block printout check boxes are active then all alarms are blocked as indicated by the yellow characters “P” and “B” in the signals faceplate element.

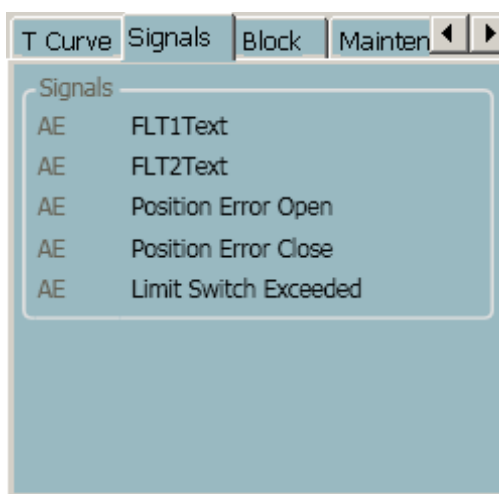


Figure 5-9 Extended Faceplate (Signals)

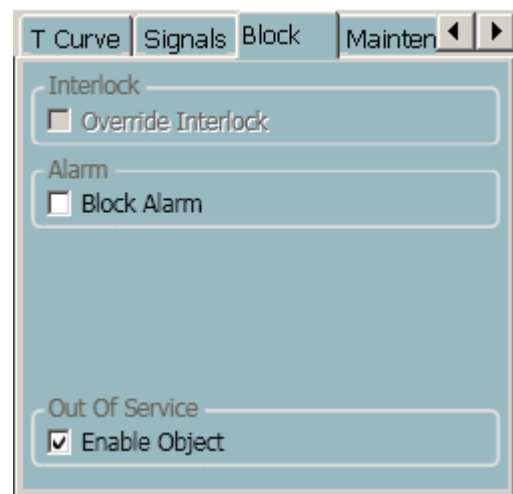


Figure 5-10 Extended Faceplate (Block)

6.4.2 Info Tab

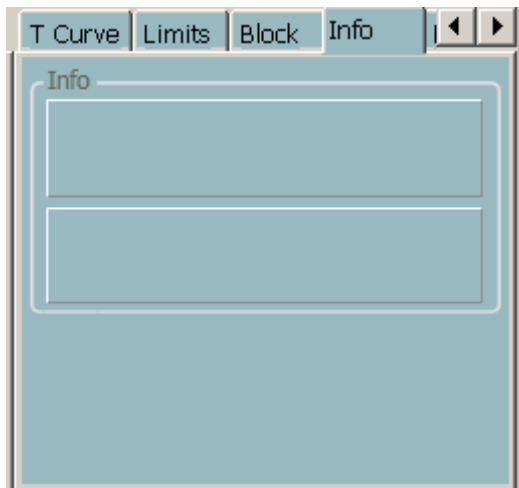


Figure 5-11 Extended Faceplate Element (Info).

6.4.3 Maintenance

The reason for the latest closing and number of strokes are displayed here.

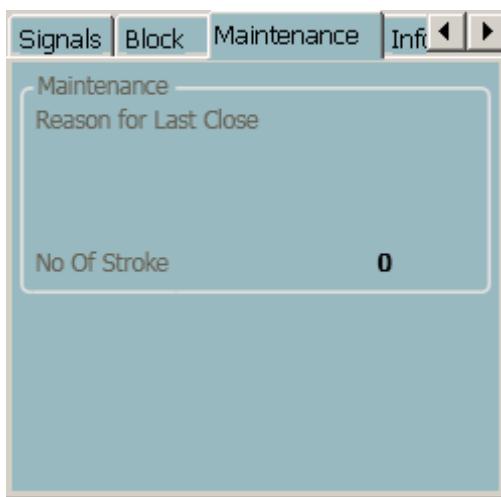


Figure 5-12 Maintenance

REVISION

Rev.	Page (P) Chapt. (C)	Description	Date Dept./Init.
-		First version	
A		Rev 1.3/0	021106/MP
B		Rev 2.0	030228/MP
C	5, 7	Initialization	04-04-15/FM
D	4, 4	Rev 3.1/2	050319/MP
E	4,5	Event handling is added. Maintenance tab is added. Interaction Windows updated	050401/BP
F	4, 5	Faceplate, Rev 4.0/1	050902/MP
G	3	Rev 4.0/2	060512/BP
H		Rev4.0/5	070511/BP
I		Rev 5.0-1 Interlock functionality is updated	081203/BP
J		Update rev5.1/0	101103/BP