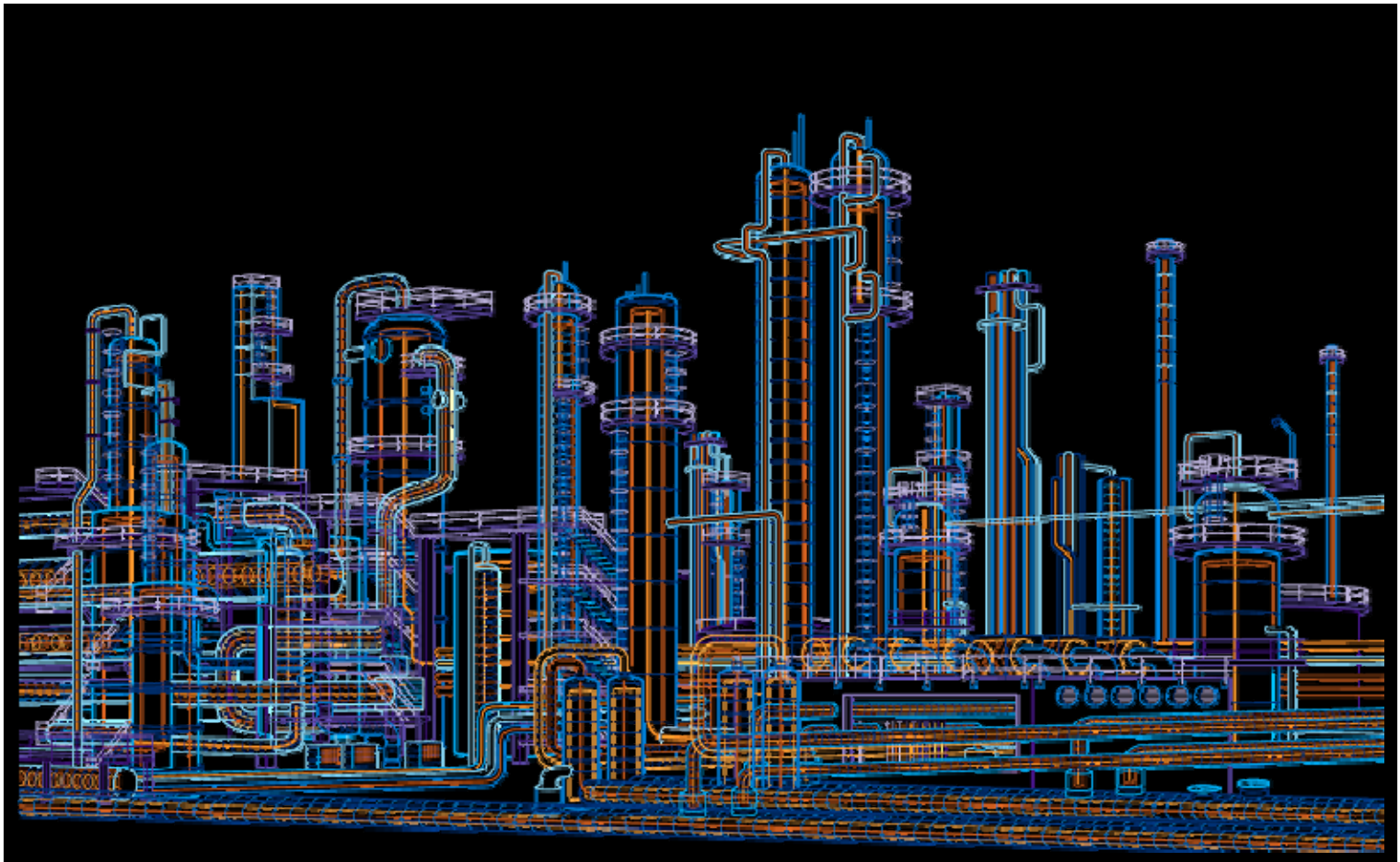

System 800xA
PC Toolkit Library for Freelance
Human System Interface - Closed Loop Control
User Manual

System Version SV5.1RevA

Power and productivity
for a better world™

Purpose

The purpose of this document is to describe the Human System Interface with Faceplates and Graphic Elements of the System 800xA. All elements are part of an 800xA System Extension, which will be used mainly in the Petrochemical Industry but also in other Process industries. This document defines the ABB Control System standards for the Human Machine Interface (HMI).

Conditions

The HMI standards consider the object types for Freelance. The System Extension supports System 800xA SV5.1RevA

Notice

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Release: 2012-05-22

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1. General

The following standard faceplates and graphic elements apply to the object types for Freelance. For both styles, all available faceplates and graphic elements are listed and described. For information regarding property configuration refer to document 3BDA033478R5102EN_HMI_Graphic Properties.doc

2. Human System Interface (Classic Style)

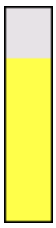
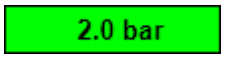
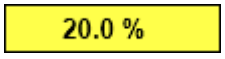
2.1 Universal and standard controllers

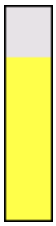
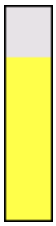
2.1.1 Faceplates

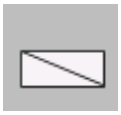
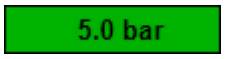
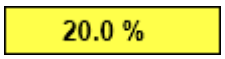
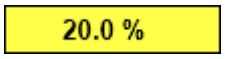
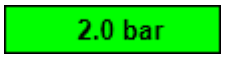
The faceplates for Freelance object types in classic style come along with the software package “800xA for Freelance”. Refer to the 800xA standard documentation 3BDD011811-510 for more information.

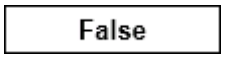
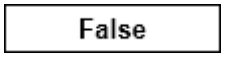
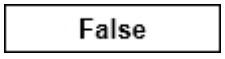
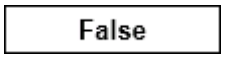
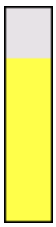
2.1.2 Graphic Elements

Graphic Elements based on standard and universal controller Freelance object types

Example	Graphic Element Name	Description
	c_cs_bargraph_out_PG2	Bargraph indication of output value (OUT signal)
	c_cs_bargraph_pv_PG2	Bargraph indication of process value (PV signal)
	c_cs_mode_PG2	Operating mode indication
	c_cs_numeric_pv_PG2	Indicator text box with numeric formatting displaying process value (PV signal). Input window is not available.
	c_cs_numeric_out_PG2	Indicator text box with numeric formatting displaying output

Example	Graphic Element Name	Description
		value (OUT signal). Input window is available in manual mode (Yi signal is written)
	c_cu_3way_valve_PG2	Mode icon Three-way-valve
	c_cu_bargraph_asp_PG2	Bar graph indication of active set point value (ASP signal)
	c_cu_bargraph_ota_PG2	Bar graph indication of output track value in automatic mode (OTA signal)
	c_cu_bargraph_ov_PG2	Bar graph indication of output value for visualization (OV signal)
	c_cu_bargraph_pv_PG2	Bar graph indication of process value (PV signal)
	c_cu_bucket_wheel_PG2	Mode icon Bucket Wheel
	c_cu_com_PG2	Mode icon Compressor
	c_cu_engine_PG2	Mode icon Engine/Motor

Example	Graphic Element Name	Description
	c_cu_fan_PG2	Mode icon Fan
	c_cu_flap_PG2	Mode icon Flap
	c_cu_mode_PG2	Operating mode indication
	c_cu_mode_sie_PG2	Set-point mode indication
	c_cu_numeric_asp_PG2	Indicator text box with numeric formatting displaying active set point value (ASP signal). Input window is available in internal setpoint mode (Wi signal is written)
	c_cu_numeric_ota_PG2	Indicator text box with numeric formatting displaying output track value in automatic mode (OTA signal). Input window is available (OTA signal is written)
	c_cu_numeric_ov_PG2	Indicator text box with numeric formatting displaying output value for visualization (OV signal). Input window is available in manual mode (Yi signal is written)
	c_cu_numeric_pv_PG2	Indicator text box with numeric formatting displaying current process value (PV signal). No input window is available
	c_cu_pump_PG2	Mode icon Pump
	c_cu_valve_PG2	Mode icon Valve

Example	Graphic Element Name	Description
	c_cu_Mode_CAS_PG2	Operating mode indication (MAN/AUTO/ CASCADE/TRACKING)
	c_cu_text_SL1_PG2	Limit text box changing color/text if limit l is violated (SL1 signal active)
	c_cu_text_SL2_PG2	Limit text box changing color/text if limit 2 is violated (SL2 signal active)
	c_cu_text_SL3_PG2	Limit text box changing color/text if limit 3 is violated (SL3 signal active)
	c_cu_text_SL4_PG2	Limit text box changing color/text if limit 4 is violated (SL4 signal active)
	c_su_3way_valve_PG2	Mode icon Three-way-valve
	c_su_bargraph_asp_PG2	Bar graph indication of active set point value (ASP signal)
	c_su_bargraph_fb_PG2	Bar graph indication of position feedback signal value (FB signal)
	c_su_bargraph_pv_PG2	Bar graph indication of process value (PV signal)
	c_su_bucket_wheel_PG2	Mode icon Bucket Wheel

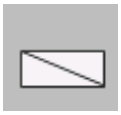
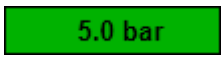
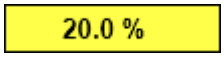
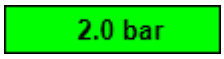
Example	Graphic Element Name	Description
	c_su_com_PG2	Mode icon Compressor
	c_su_engine_PG2	Mode icon Engine/Motor
	c_su_fan_PG2	Mode icon Fan
	c_su_flap_PG2	Mode icon Flap
	c_su_numeric_asp_PG2	Indicator text box with numeric formatting displaying active set point value (ASP signal). Input widow is available in internal setpoint mode (Wi signal is written)
	c_su_numeric_fb_PG2	Indicator text box with numeric formatting displaying position feedback signal value (FB signal). Input window is available in manual mode (Yabub signal is written)
	c_su_numeric_pv_PG2	Indicator text box with numeric formatting displaying current process value (PV signal). Input window is not available
	c_su_pump_PG2	Mode icon Pump
	c_su_valve_PG2	Mode icon Valve

Table: 2-1 GE – standard and universal controller object types

.

2.2 Ratio Controllers (C_CR, C_SR)

2.2.1 Faceplates

The faceplates for Freelance object types in classic style come along with the software package “800xA for Freelance”. Refer to the 800xA standard documentation 3BDD011811-510 for more information.

2.2.2 Graphic Elements

Graphic Elements based on ratio controller Freelance object types

Example	Graphic Element Name	Description
1.00 %	c_cr_numeric_ar_PG2	Indicator text box with numeric formatting displaying active ratio value (AR signal). Input window is available (Ri signal is written)

Table: 2-2 GE – ratio controller object types

2.3 TUNE – Controller Selftune

2.3.1 Faceplates

The faceplates for Freelance object types in classic style come along with the software package “800xA for Freelance”. Refer to the 800xA standard documentation 3BDD011811-510 for more information.

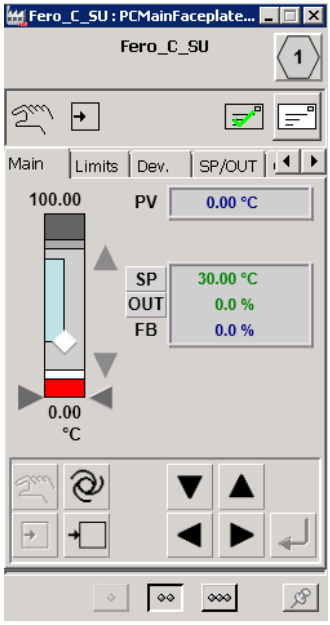
2.3.2 Graphic Elements

There are no classic graphic elements for this object type.

3. Human System Interface (High Performance Style)

3.1 Universal and Standard Controllers

3.1.1 Faceplate



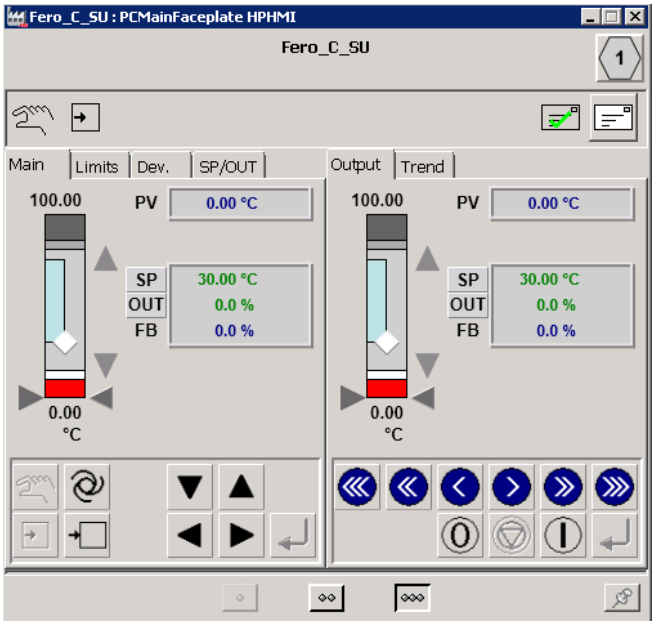


Figure: 3-1 Main View *Figure: 3-2 Extended View*

Basic information

Name:	PCMainFaceplate HPHMI
Description:	PC HPHMI Main Faceplate
Connect type:	Freelance AC800F
Object type:	C_CS (Continuous Standard C.) , C_CU (Continuous Universal C.) C_SS (Step C. Standard), C_SU (Step C. Universal) C_OS (Two-Position C. Standard), C_OU (Two-Position C. Universal) C_PS (Three-Position C. Standard), C_PU (Three-Position C. Universal)
Function blocks group:	Controller
Min. required 800xA version:	SV5.1RevA
Graphics Builder version:	PG2

Table: 3-1 Basic Information

Layout

Parameter	Value
Update rate (ms)	1000
Default view	Faceplate
Faceplate orientation	Horizontal
Reduced View	Not available

Table: 3-2 Layout information

Sizing information

Parameter in pixels	Main View	Ext View
Width	250 px	500 px
Height	424 px	424 px
MaxNoOfIndicatorRows	1	1
MaxNoOfIndicatorsRerRow	6	12
MaxNoOfButtonRows*	2	2
MaxNoOfButtonPerRow* **Buttons are implemented as part of faceplate elements*	6	6

Table: 3-3 Sizing Information

Elements

View	Aspect	Tab group	NLS-ID	User role
Main	PC_FE_HPHMI_Main	1	NLSID_PC_Main	EveryOne
Main	PC_FE_HPHMI_Limits	1	NLSID_PC_Limits	EveryOne
Main	PC_FE_HPHMI_Dev	1	NLSID_PC_F_Dev	EveryOne
Main	PC_FE_HPHMI_SpOut	1	NLSID_PC_F_SpOut	EveryOne
Main*	PC_FE_HPHMI_Output **(Only C_PS, C_PU)*	1	NLSID_PC_OutputTab	EveryOne
Ext	PC_FE_HPHMI_Main	1	NLSID_PC_Main	EveryOne
Ext	PC_FE_HPHMI_Limits	1	NLSID_PC_Limits	EveryOne
Ext	PC_FE_HPHMI_Dev	1	NLSID_PC_F_Dev	EveryOne
Ext	PC_FE_HPHMI_SpOut	1	NLSID_PC_F_SpOut	EveryOne
Ext*	PC_FE_HPHMI_Output **(Only C_PS, C_PU)*	2	NLSID_PC_OutputTab	EveryOne
Ext	PC_FE_HPHMI_Trend	2	NLSID_PC_Trend	EveryOne

Table: 3-4 Faceplate Aspect names

3.1.2 Faceplate elements

PC_FE_HPHMI_Main

This is the main view for the all standard and universal controller object type's faceplate. Operator input is possible for setpoint, and output (based on access rights and operating mode). Step controllers have indication of feedback value. Arrows next to bar graph indicate binary output signals (depending on controller type). Normal range is configured via additional aspect "PC Additional Limits".

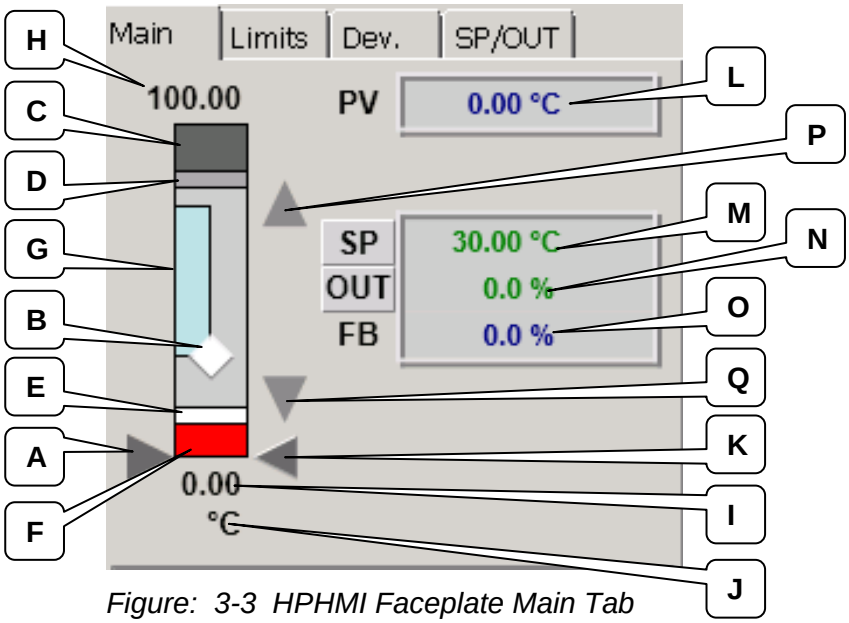


Figure: 3-3 HPHMI Faceplate Main Tab

ID	Comment	Property
A	Process value	PV
B	Set-point value	ASP
C	Limit HH	L1, L2, L3, L4 ** depending on configuration in CBF*
D	Limit H	L1, L2, L3, L4 ** depending on configuration in CBF*
E	Limit L	L1, L2, L3, L4 ** depending on configuration in CBF*
F	Limit LL	L1, L2, L3, L4 ** depending on configuration in CBF*
G	Normal range	PC Additional Limits:GH.Value PC Additional Limits:GL.Value
H	Maximum PV range	Mbe
I	Minimum PV range	Mba
J	Unit string of PV	Dim

ID	Comment	Property
K	Output value	OV
L	Process value	PV
M	Set-point value	ASP
N	Output value	OV
O	Output feedback value ** Only C_SS, C_SU*	FB
P	Binary ouput 2 White arrow: active ** Only C_SS, C_SU, C_PS, C_PU, C_OS, C_OU*	C_OS,C_OU: OB C_SS,C_SU, C_PS, C_PU: OB2
Q	Binary ouput 1 White arrow: active ** Only C_SS, C_SU, C_PS, C_PU*	C_SS,C_SU, C_PS, C_PU: OB1

Table: 3-5 HPHMI Faceplate Main tab Description

PC_FE_HPHMI_Limits

This is the limit configuration view for the controller object type's faceplate. Operator input is possible and based on access rights to the signals. Limits GH and GL are configured in "PC Additional Limits" aspect.

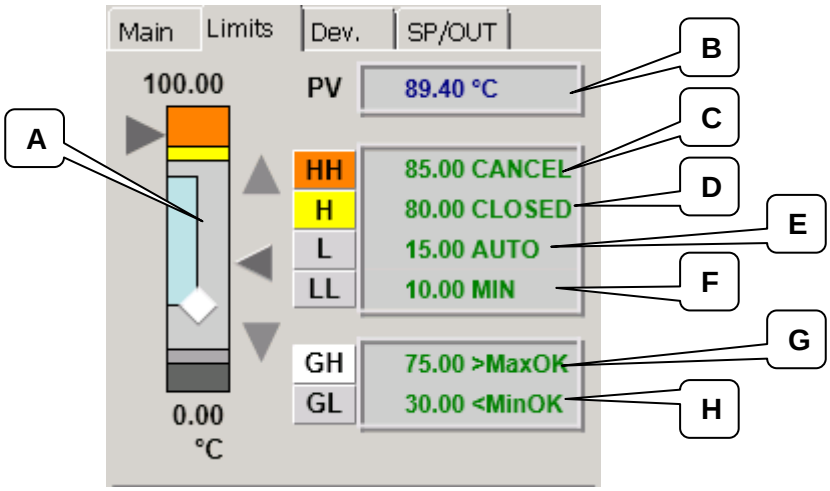


Figure: 3-4 HPHMI Faceplate Limits Tab

ID	Comment	Property
A	Bar graph indication	Refer to description of Main tab
B	Process value	PV
C	HH limit	Depending on CBF configuration: L1, L2, L3, L4

ID	Comment	Property
D	H limit	Depending on CBF configuration: L1, L2, L3, L4
E	L limit	Depending on CBF configuration: L1, L2, L3, L4
F	LL limit	Depending on CBF configuration: L1, L2, L3, L4
G	Normal range max	PC Additional Limits:GH.Value
H	Normal range min	PC Additional Limits:GL.Value

Table: 3-6 HPHMI Faceplate Limits tab Description

PC_FE_HPHMI_Dev

This is the deviation limits view for the controller object types faceplate. Operator input is possible. Deviation limits are shown as dotted lines on bar graph. The dotted line above PV shows lowest value of all configured High deviations. Dotted line below PV shows the highest value of all configured Low deviations.

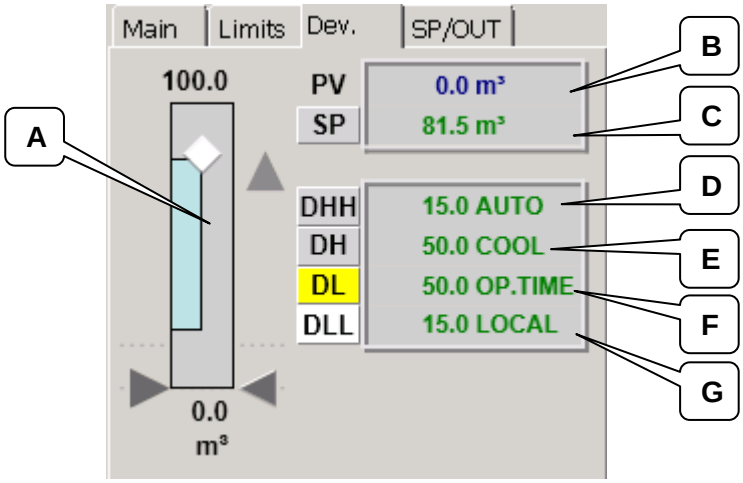


Figure: 3-5 HPHMI Faceplate Dev Tab

ID	Comment	Property
A	Bar graph indication	Refer to description of Main tab
B	Process value	PV
C	Setpoint value	ASP
D	Dev limits (DH, DHH, DL, DLL, DHL) The order depends on configured order in CBF	Depending on CBF configuration: L1, L2, L3, L4
E		
F		
G		

Table: 3-7 HPHMI Faceplate Dev tab Description

PC_FE_HPHMI_SpOut

This is the set-point and output limitation view for the controller object types faceplate. Operator input is possible for SP and OUT controls. Some of the controls may become invisible are not actually used.

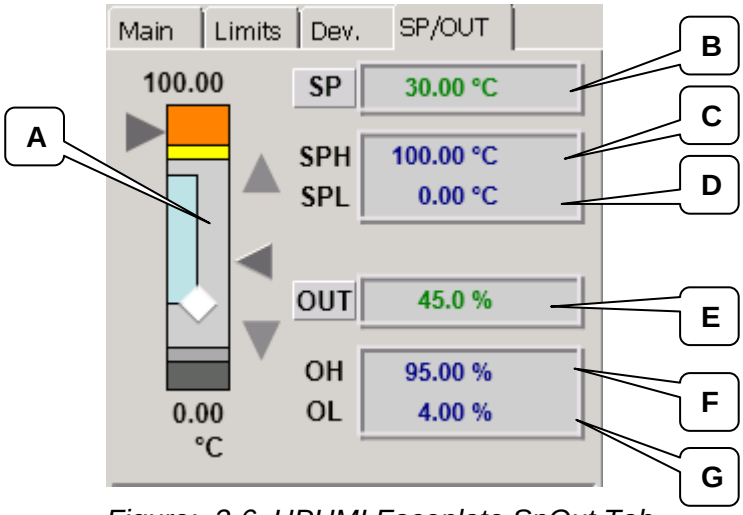


Figure: 3-6 HPHMI Faceplate SpOut Tab

ID	Comment	Property
A	Bar graph indication	Refer to description of Main tab
B	Setpoint value	ASP
C	Set-point high limitation	Wh
D	Set-point low limitation	Wl
E	Output value	OUT
F	Output high limitation	OH or Ygh
G	Output low limitation	OL or Ygl

Table: 3-8 HPHMI Faceplate SpOut tab Description

PC_FE_HPHMI_Output

This is the output values view for the all standard and universal controller object type's faceplate. The look and functionality is exactly same as Main tab. Different operating buttons are used for this tab. Refer to Buttons section for more information.

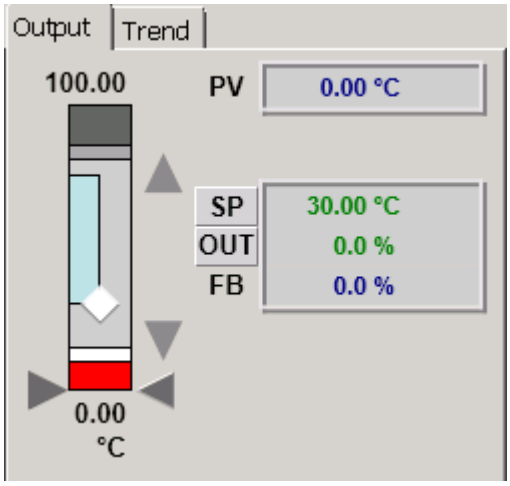


Figure: 3-7 HPHMI Faceplate Output Tab

PC_FE_HPHMI_Trend

This is the trend curves view for the controller object types faceplate.

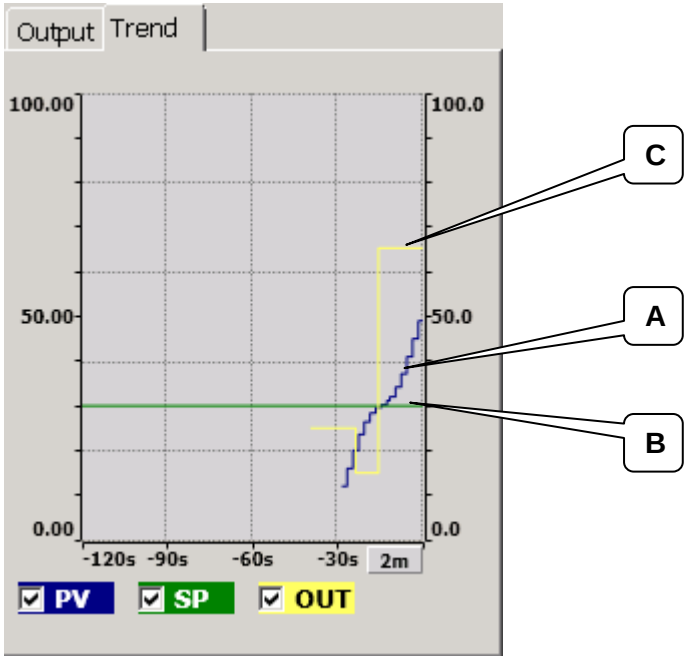


Figure: 3-8 HPHMI Faceplate Trend Tab

ID	Comment	Property
A	Indication of process value ("PV" label)	PV

ID	Comment	Property
B	Indication of set point value (“SP” label)	ASP
C	Indication of output value (“OUT” label)	OV

Table: 3-9 HPHMI Faceplate Trend tab Description

3.1.3 Indicators

Icon	Description	Property (Value)	Position		
			Red	FP	Ext
	Automatic mode	SMA (True)	-	1	1
	Manual mode	SMA (False)	-	1	1
	Internal setpoint mode	SIE (False)	-	2	2
	External setpoint mode	SIE (True)	-	2	2
	Tracking	STR (True)	-	3	3
	Module disabled (module is not processed)	ENO	-	4	4
	Operator note available	Operator Note:HoldsData	-	5	5

Table: 3-10 Indicators

3.1.4 Aspect Links

Icon	Description	Aspect	Position		
			Red	FP	Ext
	Operator note	Operator note	-	6	12

Table: 3-11 Aspect Links

3.1.5 Buttons Main Tab

Icon	Description	Property (Value)	Position		
			Red	FP	Ext
	Set manual mode	Py (0)	-	1	1
	Set automatic mode	Py (1)	-	2	2
	Set set-point mode to internal setpoint	Pwi (0)	-	7	7
	Set set-point mode to external setpoint	Pwi (1)	-	8	8
	Decrease set-point (value is continuously changed when holding down the button with left mouse)	Wi - 2% of range	-	5	5
	Increase set-point (value is continuously changed when holding down the button with left mouse)	Wi + 2% of range	-	6	6
	Decrease output (value is continuously changed when holding down the button with left mouse)	Yi - 2% of range	-	10	10
	Increase output (value is continuously changed when holding down the button with left mouse)	Yi + 2% of range		11	11
	Apply the selected action	-	-	12	12

Table: 3-12 Buttons Main tab

3.1.6 Buttons Output Tab

Icon	Description	Property (Value)	Position		
			Red	FP	Ext
	Decrement output by 10	Yiibt (-10)	-	1	1
	Decrement output by 3	Yiibt (-3)	-	2	2
	Decrement output by 1	Yiibt (-1)	-	3	3
	Increment output by 1	Yiibt (1)	-	4	4

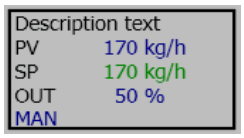
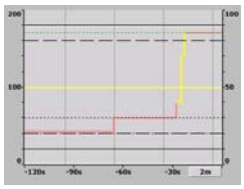
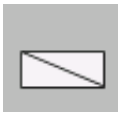
Icon	Description	Property (Value)	Position		
			Red	FP	Ext
	Increment output by 3	Yiibt (3)	-	5	5
	Increment output by 10	Yiibt (10)	-	6	6
	Command Off	Yiibt (-100)	-	9	9
	Command Stop	Yiibt (0)	-	10	10
	Command On	Yiibt (100)	-	11	11
	Apply the selected action	-	-	12	12

Table: 3-13 Buttons Output tab

3.1.7 Graphic Elements

Graphic Elements based on Standard and Universal Controller object types

Example	Graphic Element Name	Description
	c_cs_HPHMI_AlarmInd c_cu_HPHMI_AlarmInd c_su_HPHMI_AlarmInd	Alarm indication
	c_cs_HPHMI_bargraph_pvsp c_cu_HPHMI_bargraph_pvsp c_su_HPHMI_bargraph_pvsp	Bargraph indication (with PV limits)
	c_cs_HPHMI_bargraph_out c_su_HPHMI_bargraph_out	Bargraph indication (OUT)

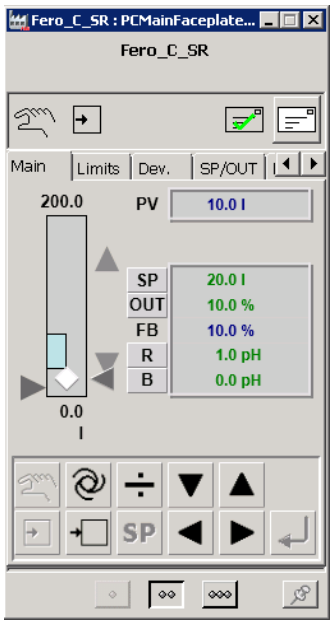
Example	Graphic Element Name	Description
	c_cs_HPHMI_mode c_cu_HPHMI_mode	Operating mode indication
	c_cs_HPHMI_status c_cu_HPHMI_status c_su_HPHMI_status	Controller values overview
	c_cs_HPHMI_trend_pvlimits c_cu_HPHMI_trend_pvlimits c_su_HPHMI_trend_pvlimits	Trend indication (PV, SP, OUT and process value signal limits)
	c_cu_HPHMI_3way_valve c_su_HPHMI_3way_valve	Three-way valve symbol based on controller output value
	c_cu_HPHMI_bucketwheel c_su_HPHMI_bucketwheel	Bucket wheel symbol based on controller output value
	c_cu_HPHMI_com c_su_HPHMI_com	Compressor symbol based on controller output value
	c_cu_HPHMI_engine c_su_HPHMI_engine	Engine symbol based on controller output value
	c_cu_HPHMI_flap c_su_HPHMI_flap	Flap symbol based on controller output value
	c_cu_HPHMI_pump c_su_HPHMI_pump	Pump symbol based on controller output value
	c_cs_HPHMI_valve c_cu_HPHMI_valve c_su_HPHMI_valve	Valve symbol based on controller output value

Example	Graphic Element Name	Description
	c_cu_HPHMI_mode_CAS	Operating mode indication (Manual/Auto/Cascade)
	c_cu_HPHMI_mode_SIE	Setpoint mode indication
	c_cu_HPHMI_numeric_asp c_su_HPHMI_numeric_asp	Numeric indication of actual setpoint (signal ASP)
	c_cu_HPHMI_numeric_pv c_su_HPHMI_numeric_pv	Numeric indication of actual process value (signal PV)
	c_cu_HPHMI_numeric_ov	Numeric indication of actual output value (signal OV)
	c_cu_HPHMI_numeric_ota	Numeric indication of track value OUT (signal OTA)
	c_su_HPHMI_numeric_fb	Numeric indication of output feedback value (signal FB)
	c_cu_HPHMI_text_SL1	Text indication based on active limit 1
	c_cu_HPHMI_text_SL2	Text indication based on active limit 2
	c_cu_HPHMI_text_SL3	Text indication based on active limit 3
	c_cu_HPHMI_text_SL4	Text indication based on active limit 4

Table: 3-14 GE – Standard and universal controller object types

3.2 Ratio Controllers (C_CR, C_SR)

3.2.1 Faceplate



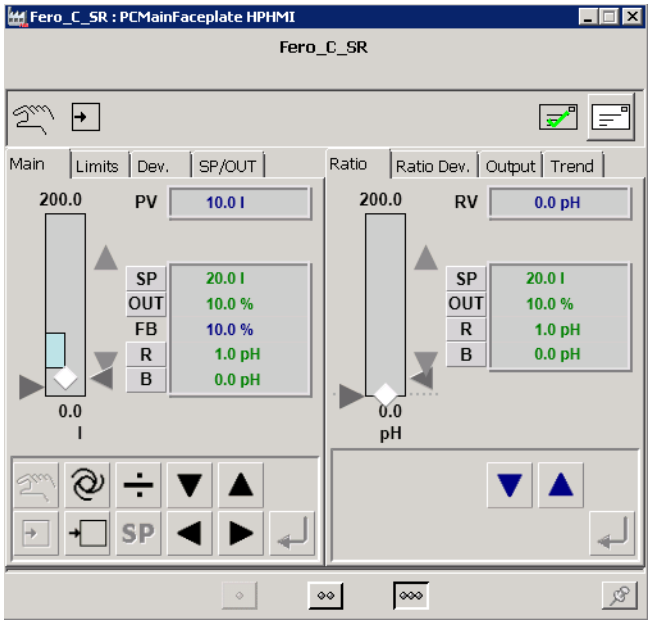


Figure: 3-9 Main View *Figure: 3-10 Extended View*

Basic information

Name:	PCMainFaceplate HPHMI
Description:	PC HPHMI Main Faceplate
Connect type:	Freelance AC800F
Object type:	C_CR (Continuous Ratio C.), C_SR (Ratio Step C.)
Function blocks group:	Controller
Min. required 800xA version:	SV5.1RevA
Graphics Builder version:	PG2

Table: 3-15 Basic Information

Layout

Parameter	**Value**
Update rate (ms)	1000
Default view	Faceplate
Faceplate orientation	Horizontal
Reduced View	Not available

Table: 3-16 Layout information

Sizing information

Parameter in pixels	Main View	Ext View
Width	250 px	500 px
Height	424 px	424 px
MaxNoOfIndicatorRows	1	1
MaxNoOfIndicatorsRerRow	6	12
MaxNoOfButtonRows*	2	2
MaxNoOfButtonPerRow* **Buttons are implemented as part of faceplate elements*	6	6

Table: 3-17 Sizing Information

Elements

View	Aspect	Tab group	NLS-ID	User role
Main	PC_FE_HPHMI_Main	1	NLSID_PC_Main	EveryOne
Main	PC_FE_HPHMI_Limits	1	NLSID_PC_Limits	EveryOne
Main	PC_FE_HPHMI_Dev	1	NLSID_PC_F_Dev	EveryOne
Main	PC_FE_HPHMI_SpOut	1	NLSID_PC_F_SpOut	EveryOne
Main	PC_FE_HPHMI_Ratio	1	NLSID_PC_Ratio	EveryOne
Main	PC_FE_HPHMI_RatioDev	1	NLSID_PC_F_DevRatio	EveryOne
Main*	PC_FE_HPHMI_Output **(Only C_SR)*	1	NLSID_PC_OutputTab	EveryOne
Ext	PC_FE_HPHMI_Main	1	NLSID_PC_Main	EveryOne
Ext	PC_FE_HPHMI_Limits	1	NLSID_PC_Limits	EveryOne
Ext	PC_FE_HPHMI_Dev	1	NLSID_PC_F_Dev	EveryOne
Ext	PC_FE_HPHMI_SpOut	1	NLSID_PC_F_SpOut	EveryOne
Ext	PC_FE_HPHMI_Ratio	2	NLSID_PC_Ratio	EveryOne
Ext	PC_FE_HPHMI_RatioDev	2	NLSID_PC_F_DevRatio	EveryOne
Ext*	PC_FE_HPHMI_Output **(Only C_SR)*	2	NLSID_PC_OutputTab	EveryOne
Ext	PC_FE_HPHMI_Trend	2	NLSID_PC_Trend	EveryOne

Table: 3-18 Faceplate Aspect names

3.2.2 Faceplate elements

PC_FE_HPHMI_Main

This is the main view for the all ratio controller object type's faceplate. Operator input is possible for setpoint, and output (based on access rights and operating mode). Step controller has indication of feedback value. Arrows next to bar graph indicate binary output signals (depending on controller type). Normal range is configured via additional aspect "PC Additional Limits".

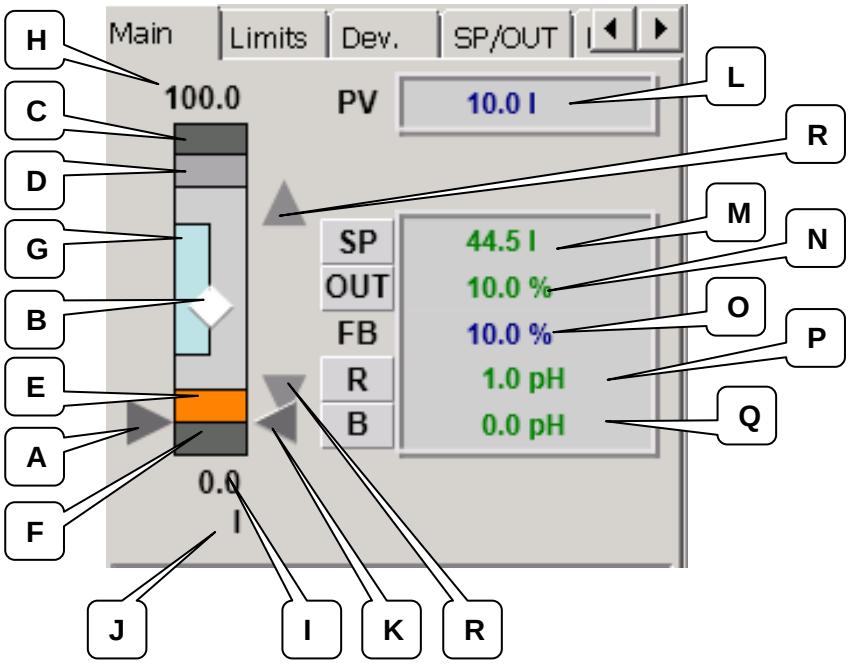


Figure: 3-11 HPHMI Faceplate Main Tab

ID	Comment	Property
A	Process value	PV
B	Set-point value	ASP
C	Limit HH	L1, L2, L3, L4 ** depending on configuration in CBF*
D	Limit H	L1, L2, L3, L4 ** depending on configuration in CBF*
E	Limit L	L1, L2, L3, L4 ** depending on configuration in CBF*
F	Limit LL	L1, L2, L3, L4 ** depending on configuration in CBF*
G	Normal range	PC Additional Limits:GH.Value PC Additional Limits:GL.Value
H	Maximum PV range	Mbe
I	Minimum PV range	Mba

ID	Comment	Property
J	Unit string of PV	Dim
K	Output value	OV
L	Process value	PV
M	Set-point value	Ww
N	Output value	OV
O	Output feedback value ** Only C_SR*	FB
P	Ratio set-point	AR
Q	Bias set-point	AB
R	Binary ouput 2 White arrow: active ** Only C_SR*	OP
S	Binary ouput 1 White arrow: active ** Only C_SR*	ON

Table: 3-19 HPHMI Faceplate Main tab Description

PC_FE_HPHMI_Limits

This is the limit configuration view for the controller object type's faceplate. Operator input is possible and based on access rights to the signals. Limits GH and GL are configured in "PC Additional Limits" aspect.

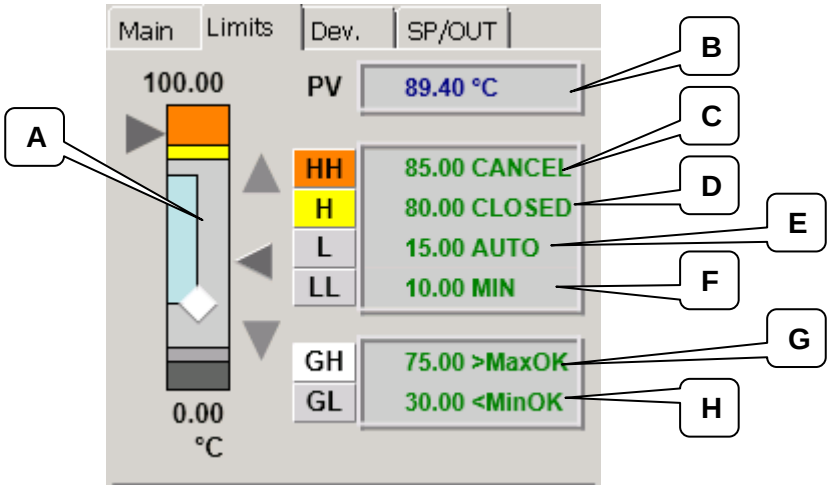


Figure: 3-12 HPHMI Faceplate Limits Tab

ID	Comment	Property
A	Bar graph indication	Refer to description of Main tab
B	Process value	PV

ID	Comment	Property
C	HH limit	Depending on CBF configuration: L1, L2, L3, L4
D	H limit	Depending on CBF configuration: L1, L2, L3, L4
E	L limit	Depending on CBF configuration: L1, L2, L3, L4
F	LL limit	Depending on CBF configuration: L1, L2, L3, L4
G	Normal range max	PC Additional Limits:GH.Value
H	Normal range min	PC Additional Limits:GL.Value

Table: 3-20 HPHMI Faceplate Limits tab Description

PC_FE_HPHMI_Dev

This is the deviation limits view for the controller object types faceplate. Operator input is possible. Deviation limits are shown as dotted lines on bar graph.

Dotted line above PV arrow shows lowest value of all configured High deviations (PV+Dev). Dotted line below PV arrow shows the highest value of all configured Low deviations (PV – Dev).

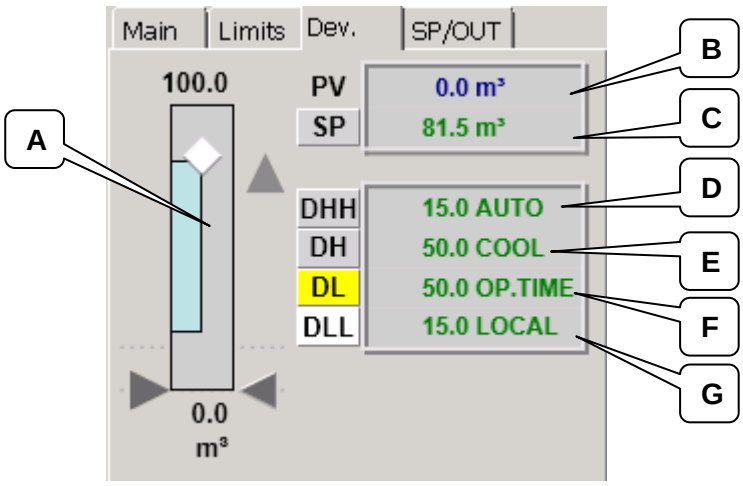


Figure: 3-13 HPHMI Faceplate Dev Tab

ID	Comment	Property
A	Bar graph indication	Refer to description of Main tab
B	Process value	PV
C	Setpoint value	ASP
D	Dev limits	Depending on CBF configuration:

ID	Comment	Property
E	(DH, DHH, DL, DLL, DHL)	L1, L2, L3, L4
F	The order depends on configured order in CBF	
G		

Table: 3-21 HPHMI Faceplate Dev tab Description

PC_FE_HPHMI_SpOut

This is the set-point and output limitation view for the controller object types faceplate. Operator input is possible for SP and OUT controls. Some of the controls may become invisible if relevant limits are not actually used.

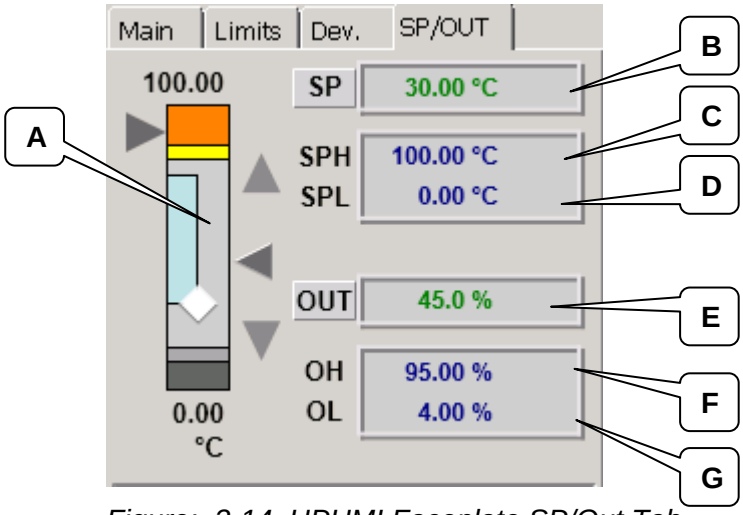


Figure: 3-14 HPHMI Faceplate SP/Out Tab

ID	Comment	Property
A	Bar graph indication	Refer to description of Main tab
B	Setpoint value	ASP
C	Set-point high limitation	Wh
D	Set-point low limitation	Wl
E	Output value	OV
F	Output high limitation	OH or Ygh
G	Output low limitation	OL or Ygl

Table: 3-22 HPHMI Faceplate SP/Out tab Description

PC_FE_HPHMI_Output

This is the output values view for the all standard and universal controller object type's faceplate. The look and functionality is exactly same as Main tab. Different operating buttons are used for this tab. Refer to Buttons section for more information.

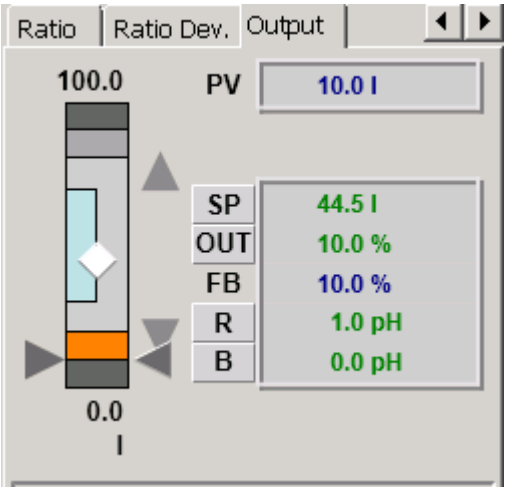


Figure: 3-15 HPHMI Faceplate Output Tab

PC_FE_HPHMI_Ratio

This is the ratio values view for the all ratio controller object type's faceplate. Operator input is possible for setpoint, output, ratio setpoint and bias setpoint (based on access rights and operating mode).

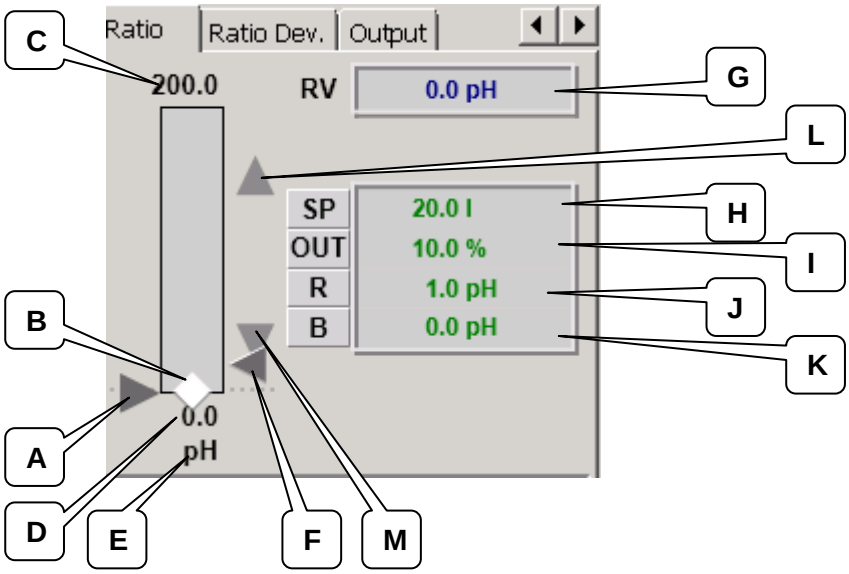


Figure: 3-16 HPHMI Faceplate Ratio Tab

ID	Comment	Property
A	Actual ratio value	Vist
B	Ratio set-point value	AR
C	Maximum Ratio range	Mbe

ID	Comment	Property
D	Minimum Ratio range	Mba
E	Unit string of Ratio	Dim
F	Output value	OV
G	Actual ratio value	Vist
H	Set-point value	ASP
I	Output value	OV
J	Ratio set-point	AR
K	Bias set-point	AB
L	Binary ouput 2 White arrow: active ** Only C_SR*	OP
M	Binary ouput 1 White arrow: active ** Only C_SR*	ON

Table: 3-23 HPHMI Faceplate Ratio tab Description

PC_FE_HPHMI_RatioDev

This is the ratio deviation limits view for the controller object types faceplate. Operator input is possible. Deviation limits are shown as dotted lines on bar graph. The dotted line above actual ratio arrow shows lowest value of all configured High deviations. Dotted line below ratio arrow shows the highest value of all configured Low deviations.

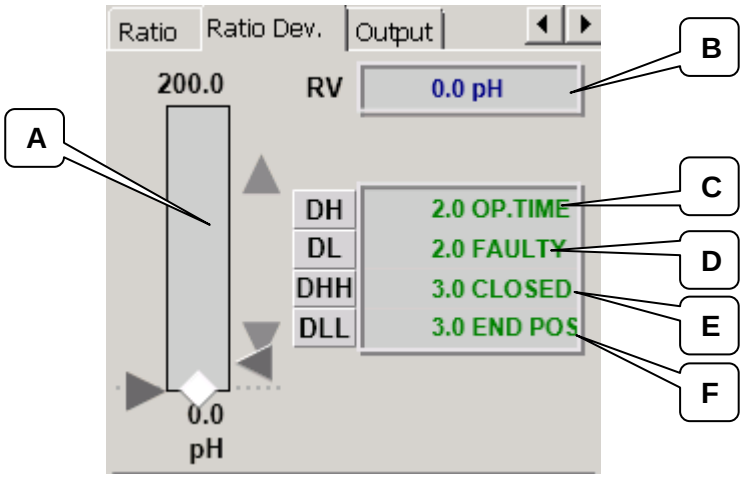


Figure: 3-17 HPHMI Faceplate RatioDev Tab

ID	Comment	Property
A	Bar graph indication	Refer to description of Ratio tab
B	Actual ratio value	Vist

ID	Comment	Property
C	Dev limits	Depending on CBF configuration:
D	(DH, DHH, DL, DLL, DHL)	L1, L2, L3, L4
E	The order depends on configured order in CBF	
F		

Table: 3-24 HPHMI Faceplate RatioDev tab Description

PC_FE_HPHMI_Trend

This is the trend curves view for the controller object types faceplate.

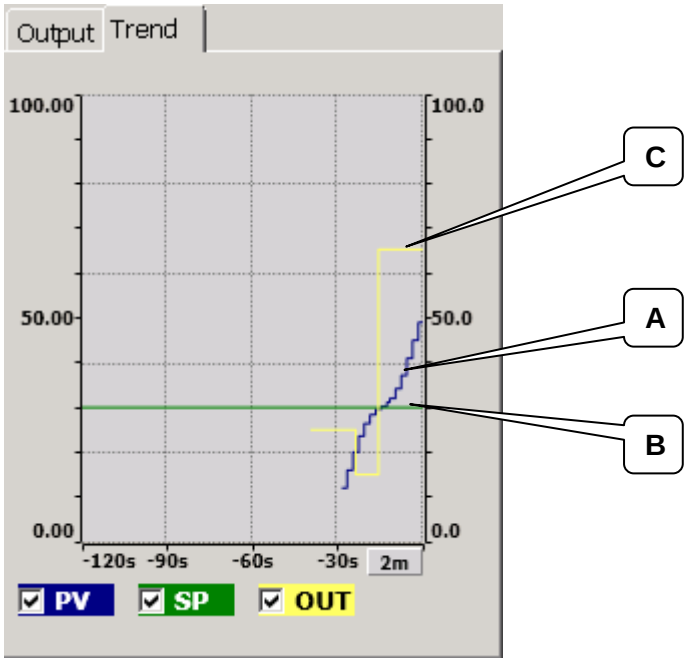


Figure: 3-18 HPHMI Faceplate Trend Tab

ID	Comment	Property
A	Indication of process value (“PV” label)	PV
B	Indication of set point value (“SP” label)	ASP
C	Indication of output value (“OUT” label)	OV

Table: 3-25 HPHMI Faceplate Trend tab Description

3.2.3 Indicators

Icon	Description	Property (Value)	Position		
			Red	FP	Ext
	Automatic mode	SMA (True)	-	1	-
	Manual mode	SMA (False)	-	1	-
	Internal setpoint mode	SIE (False)	-	2	-
	External setpoint mode	SIE (True)	-	2	-
	Tracking	STR (True)	-	3	-
	Module disabled (module is not processed)	ENO	-	4	-
NLSID _PC_ SP	Setpoint mode	SR (False)	-	4	-
	Ratio mode	SR (True)	-	4	-
	Operator note available	Operator Note:HoldsData	-	5	-

Table: 3-26 Indicators

3.2.4 Aspect Links

Icon	Description	Aspect	Position		
			Red	FP	Ext
	Operator note	Operator note	-	6	12

Table: 3-27 Aspect Links

3.2.5 Buttons Main Tab

Icon	Description	Property (Value)	Position		
			Red	FP	Ext
	Set manual mode	Py (0)	-	1	1
	Set automatic mode	Py (1)	-	2	2
	Set controller mode to Ratio	Pvein (0)	-	3	3

Icon	Description	Property (Value)	Position		
			Red	FP	Ext
SP	Set controller mode to Setpoint	Pvein (1)	-	9	9
	Set set-point mode to internal setpoint	Pve (0)	-	7	7
	Set set-point mode to external setpoint	Pve (1)	-	8	8
	Decrease set-point (value is continuously changed when holding down the button with left mouse)	Wi - 2% of range	-	5	5
	Increase set-point (value is continuously changed when holding down the button with left mouse)	Wi + 2% of range	-	6	6
	Decrease output (value is continuously changed when holding down the button with left mouse)	Yi - 2% of range	-	10	10
	Increase output (value is continuously changed when holding down the button with left mouse)	Yi + 2% of range		11	11
	Apply the selected action	-	-	12	12

Table: 3-28 Buttons Main tab

3.2.6 Buttons Ratio Tab

Icon	Description	Property (Value)	Position		
			Red	FP	Ext
	Set manual mode	Py (0)	-	1	1
	Set automatic mode	Py (1)	-	2	2
	Set controller mode to Ratio	Pvein (0)	-	3	3
SP	Set controller mode to Setpoint	Pvein (1)	-	9	9
	Set set-point mode to internal setpoint	Pve (0)	-	7	7
	Set set-point mode to external setpoint	Pve (1)	-	8	8

Icon	Description	Property (Value)	Position		
			Red	FP	Ext
	Decrease ratio set-point (value is continuously changed when holding down the button with left mouse)	Ri - 2% of range	-	5	5
	Increase ratio set-point (value is continuously changed when holding down the button with left mouse)	Ri + 2% of range	-	6	6
	Decrease output (value is continuously changed when holding down the button with left mouse)	Yi - 2% of range	-	10	10
	Increase output (value is continuously changed when holding down the button with left mouse)	Yi + 2% of range		11	11
	Apply the selected action	-	-	12	12

Table: 3-29 Buttons Ratio tab

3.2.7 Buttons Output Tab

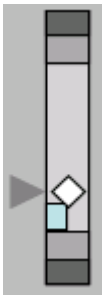
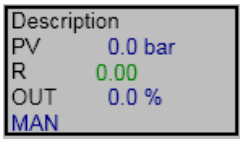
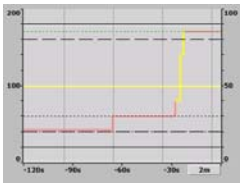
Icon	Description	Property (Value)	Position		
			Red	FP	Ext
	Decrement output by 10	Yiibt (-10)	-	1	1
	Decrement output by 3	Yiibt (-3)	-	2	2
	Decrement output by 1	Yiibt (-1)	-	3	3
	Increment output by 1	Yiibt (1)	-	4	4
	Increment output by 3	Yiibt (3)	-	5	5
	Increment output by 10	Yiibt (10)	-	6	6
	Command Off	Yiibt (-100)	-	9	9
	Command Stop	Yiibt (0)	-	10	10

Icon	Description	Property (Value)	Position		
			Red	FP	Ext
	Command On	Yiibt (100)	-	11	11
	Apply the selected action	-	-	12	12

Table: 3-30 Buttons Output tab

3.2.8 Graphic Elements

Graphic Elements based on Freelance Ratio Controller object types

Example	Graphic Element Name	Description
	c_cr_HPHMI_AlarmInd	Alarm indication
	c_cr_HPHMI_bargraph_pvsp	Bargraph indication (with PV limits)
	c_cr_HPHMI_numeric_ar	Numeric indication of ratio setpoint (signal AR)
	c_cr_HPHMI_status	Controller values overview
	c_cr_HPHMI_mode_SRE	Operating mode indication
	c_cr_HPHMI_trend_pvlimits	Trend indication (PV, SP, OUT and process value signal limits)

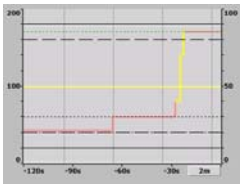
Example	Graphic Element Name	Description
	c_cr_HPHMI_trend_ratio	Trend indication (actual ratio, ratio setpoint, OUT. No indication of limits)

Table: 3-31 GE – Ratio controller object types

3.3 TUNE – Controller Self tune

3.3.1 Faceplate

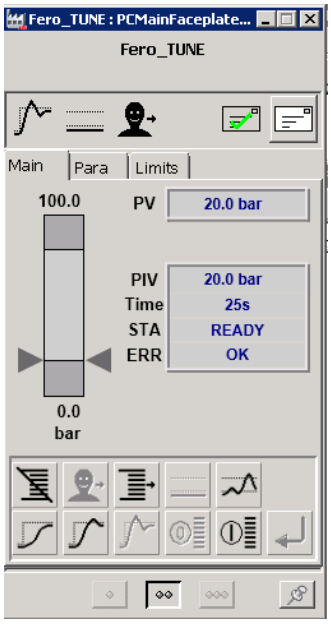


Figure: 3-19 Main View

Basic information

Name:	PCMainFaceplate HPHMI
Description:	PC HPHMI Main Faceplate
Connect type:	Freelance AC800F
Object type:	TUNE (Controller Self tune)
Function blocks group:	Controller
Min. required 800xA version:	SV5.1RevA
Graphics Builder version:	PG2

Table: 3-32 Basic Information

Layout

Parameter	Value
Update rate (ms)	1000
Default view	Faceplate
Faceplate orientation	Horizontal
Reduced View	Not available

Table: 3-33 Layout information

Sizing information

Parameter in pixels	Main View
Width	250 px
Height	424 px
MaxNoOfIndicatorRows	1
MaxNoOfIndicatorsRerRow	6
MaxNoOfButtonRows*	2
MaxNoOfButtonPerRow* **Buttons are implemented as part of faceplate elements*	6

Table: 3-34 Sizing Information

Elements

View	Aspect	Tab group	NLS-ID	User role
Main	PC_FE_HPHMI_Main	1	NLSID_PC_Main	EveryOne
Main	PC_FE_HPHMI_Para	1	NLSID_PC_Para	EveryOne
Main	PC_FE_HPHMI_Limits	1	NLSID_PC_Limits	EveryOne

Table: 3-35 Faceplate Aspect names

3.3.2 Faceplate elements

PC_FE_HPHMI_Main

This is the main view for the controller self tune faceplate. Operator input is not possible.

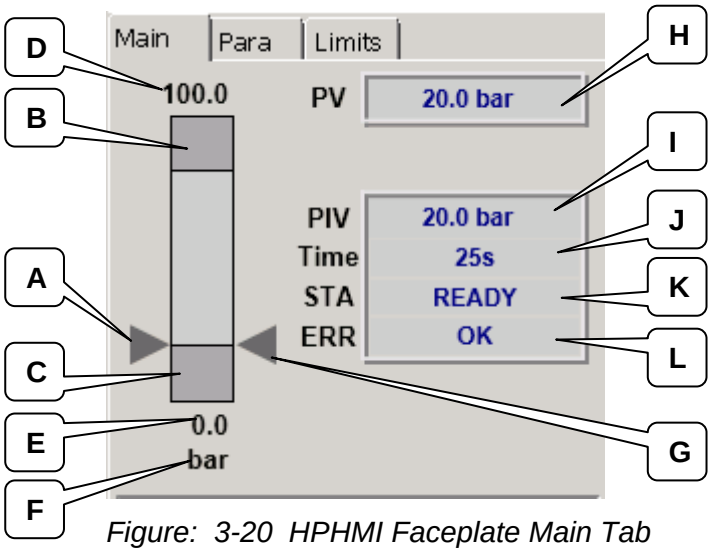


Figure: 3-20 HPHMI Faceplate Main Tab

ID	Comment	Property
A	Input process value	PV
B	Limit H	HL
C	Limit L	LL
D	Maximum PV range	Mbe
E	Minimum PV range	Mba
F	Unit string of PV	Dim
G	Output value to controller	PIV
H	Input process value	PV
I	Output value to controller	PIV
J	Current step test duration	PZeit
K	Status text	ZustTxt
L	Error text	StatTxt

Table: 3-36 HPHMI Faceplate Main tab Description

PC_FE_HPHMI_Limits

This is the limit configuration view for controller self tune object type's faceplate. Operator input is not possible.

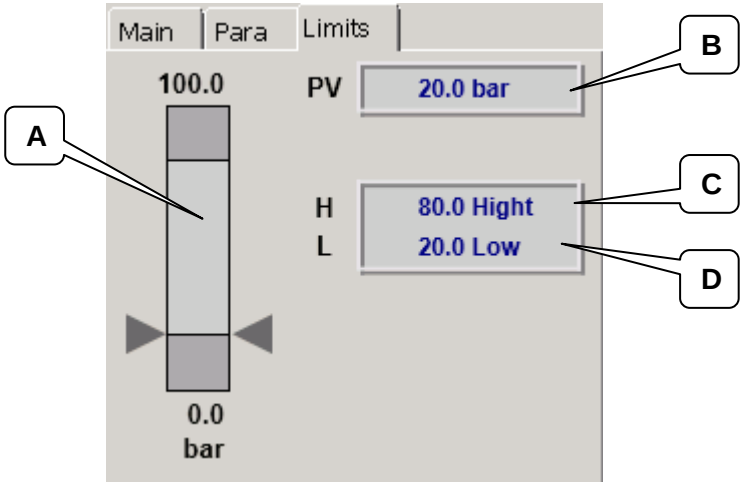


Figure: 3-21 HPHMI Faceplate Limits Tab

ID	Comment	Property
A	Bar graph indication	Refer to description of Main tab
B	Input process value	PV
C	H limit	HL
D	L limit	LL

Table: 3-37 HPHMI Faceplate Limits tab Description

PC_FE_HPHMI_Para

This is the parameters configuration view for controller self tune object type's faceplate. Operator input is not possible.

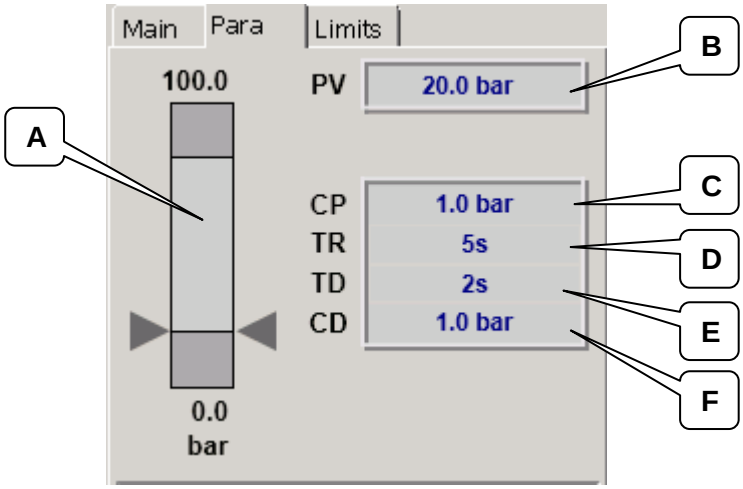


Figure: 3-22 HPHMI Faceplate Limits Tab

ID	Comment	Property
A	Bar graph indication	Refer to description of Main tab
B	Input process value	PV
C	Proportional coefficient	CP
D	Integration time	TR
E	Decay time	TD
F	Derivative action gain	CD

Table: 3-38 HPHMI Faceplate Limits tab Description

3.3.3 Indicators

Icon	Description	Property (Value)	Position		
			Red	FP	Ext
	Controller dynamic low	VDynL	-	1	-
	Controller dynamic medium	VDynN	-	1	-
	Controller dynamic high	VDynH	-	1	-
	Self tune off	Vein (False)	-	2	-
	Self tune on	Vein (True)	-	2	-

Icon	Description	Property (Value)	Position		
			Red	FP	Ext
	User defined parameter set	VSatz (True)	-	3	-
	Self tune PID parameter set	VSatz (False)	-	3	-
	Tracking	TRC	-	4	-
	Module disabled (module is not processed)	ENO	-	4	-
	Operator note available	Operator Note:HoldsData	-	5	-

Table: 3-39 Indicators

3.3.4 Aspect Links

Icon	Description	Aspect	Position		
			Red	FP	Ext
	Operator note	Operator note	-	6	12

Table: 3-40 Aspect Links

3.3.5 Buttons Main Tab

Icon	Description	Property (Value)	Position		
			Red	FP	Ext
	Stop response stationary	BtnStat(1)	-	1	-
	Set user defined parameter set	PSatz (1)	-	2	-
	Set PID parameter set	PSatz (0)	-	3	-
	Set self tune off	PEin (1)	-	4	-
	Set self tune on	PEin (0)	-	5	-
	Set controller dynamics low	PDynamik (0)	-	7	-
	Set controller dynamics medium	PDynamik (1)	-	8	-

Icon	Description	Property (Value)	Position		
			Red	FP	Ext
	Set controller dynamics high	PDynamik (2)	-	9	-
	Set parameter scheduler off	PScdEin (0)	-	10	-
	Set parameter scheduler on	PScdEin(1)	-	11	-
	Apply the selected action	-	-	12	-

Table: 3-41 Buttons

3.3.6 Graphic Elements

There are no preconfigured graphic elements for this object type.

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