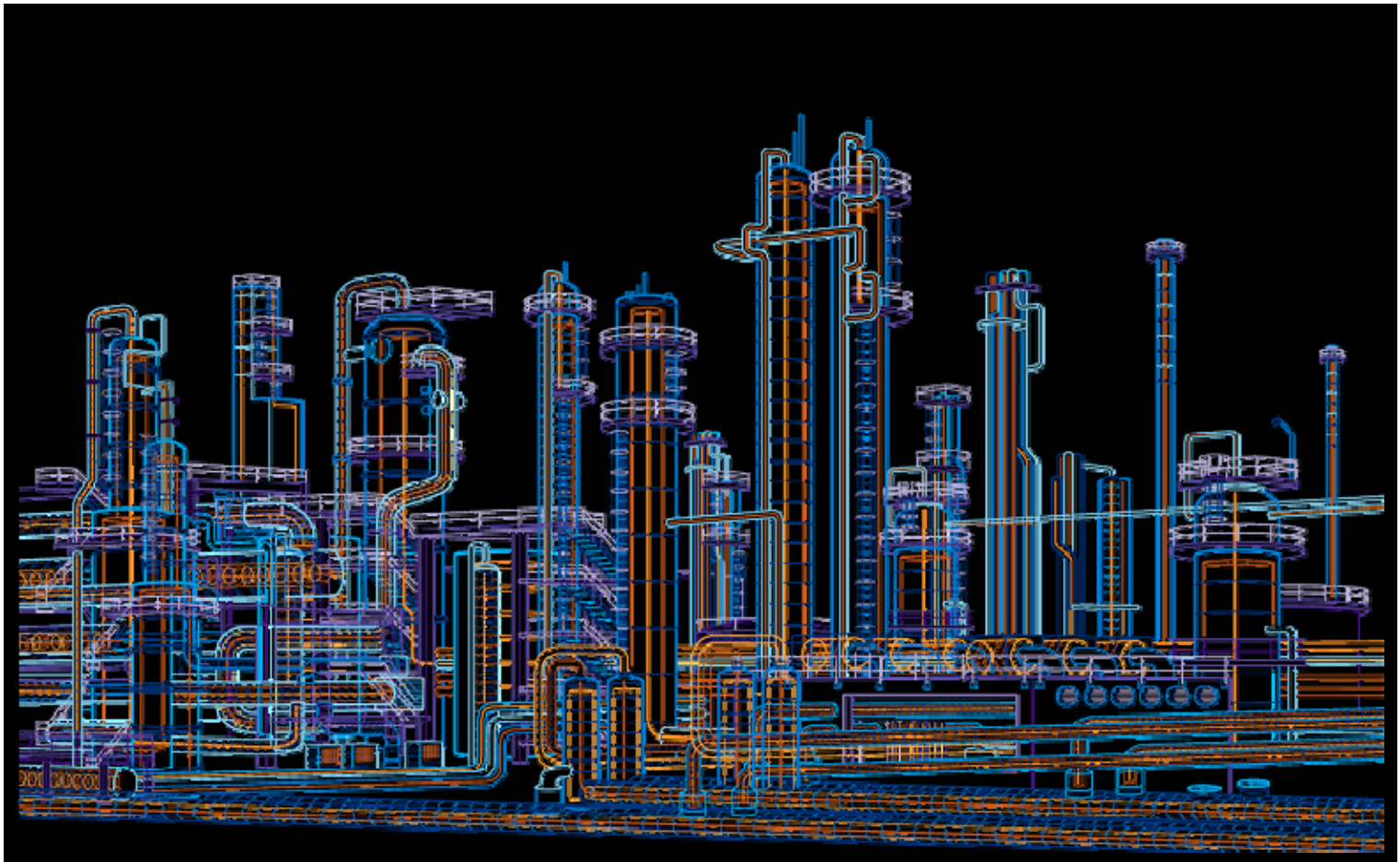

System 800xA
PC Toolkit Library for Freelance
Human System Interface - Open Loop Control
User Manual

System Version SV5.1RevA

Power and productivity
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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

Document Number: 3BDA035394R5102EN_HMI_Open Loop Control function blocks

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3.1 DOS – Dosing Circuit 9
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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 DOS – Dosing Circuit

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 Freelance Dosing object types

Example	Graphic Element Name	Description
0.00 m³	dos_a_numeric_PG2	Current counter value indication (CTC signal). No input window available
10.00 m³	dos_e_numeric_SOV_PG2	Shut-off threshold value indication (SOV signal). Input window available for this signal
False	dos_e_numeric_SFD_PG2	Text element changing color/text indicating fine dosing output (SFD signal)

Table: 2-1 GE – Dosing object types

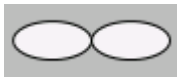
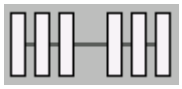
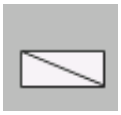
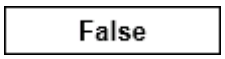
2.2 IDF_x – Individual Drive Function

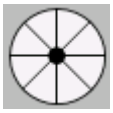
2.2.1 Faceplates

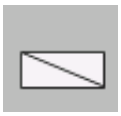
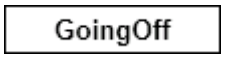
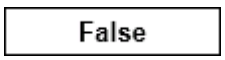
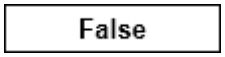
The faceplates for Freelance object types in classic style come along with the software package “800xA for Freelance”. Refer to the 800xA standard documentation 3BDD011811-510 for more information.

2.2.2 Graphic Elements

Graphic Elements based on Individual Drive Function object types

Example	Graphic Element Name	Description
	idf_1_3way_valve_PG2	Mode icon Three-way-valve
	idf_1_agit1_PG2	Mode icon Agitator – Icon type 1
	idf_1_agit2_PG2	Mode icon Agitator – Icon type 2
	idf_1_bucketwheel_PG2	Mode icon Bucket Wheel
	idf_1_com_PG2	Mode icon Compressor
	idf_1_engine_PG2	Mode icon Engine/Motor
	idf_1_fan_PG2	Mode icon Fan
	idf_1_flap_PG2	Mode icon Flap
	idf_1_loc_mode_PG2	Local intervention mode indication
	idf_1_Loc_text_PG2	Text element changing color/text according local intervention input (LOC signal).
	idf_1_mode_PG2	Operating mode indication
	idf_1_operating_PG2	Element with operating button switching IDF OFF/ON state

Example	Graphic Element Name	Description
False	idf_1_pr0_text_PG2	Text element changing text/color based on PR0 signal state (safety intervention 0)
	idf_1_pump_PG2	Mode icon Pump
	idf_1_RotaryValve_PG2	Mode icon Rotary Valve
GoingOff	idf_1_text_PG2	Text element with four color/text states IsOn, IsOff, IsGoingOn and IsGoingOff
False	idf_1_text_il1_PG2	Text element changing text/color based on IL1 signal state (inhibit for command 1)
False	idf_1_text_loc_PG2	Text element changing text/color based on LOC signal state (Local intervention)
False	idf_1_text_out_PG2	Text element changing text/color based on OUT signal state
False	idf_1_text_FEP_PG2	Text element changing color/text according position error output (FEP signal)
	idf_1_valve_PG2	Mode icon Valve
	idf_2_3way_valve_PG2	Mode icon Three-way-valve
	idf_2_bucket_wheel_PG2	Mode icon Bucket Wheel

Example	Graphic Element Name	Description
	idf_2_com_PG2	Mode icon Compressor
	idf_2_engine_PG2	Mode icon Engine/Motor
	idf_2_fan_PG2	Mode icon Fan
	idf_2_flap_PG2	Mode icon Flap
	idf_2_mode_PG2	Operating mode indication
	idf_2_pump_PG2	Mode icon Pump
	idf_2_text_PG2	Text element with five color/text IDF states IsOn, IsOff, IsGoingOn, IsGoingOff and IsStopped.
	idf_2_text_OU0_PG2	Text element changing color/text according control command 0 output (OU0 signal)
	idf_2_text_OU1_PG2	Text element changing color/text according control command 1 output (OU1 signal)
	idf_2_valve_PG2	Mode icon Valve
	idf_a_3way_valve_PG2	Mode icon Three-way-valve

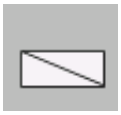
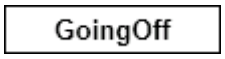
Example	Graphic Element Name	Description
	idf_a_bucketwheel_PG2	Mode icon Bucket Wheel
	idf_a_com_PG2	Mode icon Compressor
	idf_a_engine_PG2	Mode icon Engine/Motor
	idf_a_fan_PG2	Mode icon Fan
	idf_a_flap_PG2	Mode icon Flap
	idf_a_mode_PG2	Operating mode indication
	idf_a_pump_PG2	Mode icon Pump
	idf_a_text_PG2	Text element with five color/text IDF states IsOn, IsOff, IsGoingOn, IsGoingOff and IsStopped.
	idf_a_valve_PG2	Mode icon Valve

Table: 2-2 GE – IDF object types

3. Human System Interface (High Performance Style)

3.1 DOS – Dosing Circuit

3.1.1 Faceplate

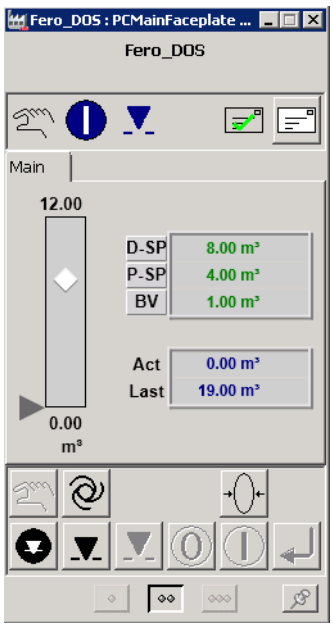


Figure: 3-1 Main View

Basic information

Name:	PCMainFaceplate HPHMI
Description:	PC HPHMI Main Faceplate
Connect type:	Freelance AC800F
Object type:	DOS (Dosing Circuit), DOS_A (Dosing Circuit with Analog Input), DOS_E (Dosing Circuit, Extended)
Function blocks group:	Open-loop Control
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
Width	250 px
Height	424 px
MaxNoOfIndicatorRows	1
MaxNoOfIndicatorsRerRow	6
MaxNoOfButtonRows	2
MaxNoOfButtonPerRow	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 (DOS_E only)	PC_FE_HPHMI_MsgConfig	1	NLSID_PC_Config	EveryOne

Table: 3-4 Faceplate Aspect names

3.1.2 Faceplate elements

PC_FE_HPHMI_Main

This is the main view for the DOS, DOS-A and DOS-E object type faceplate. Operator input is possible for dosing setpoint, basic value and pre-dosing setpoint (based on access rights and operating mode).

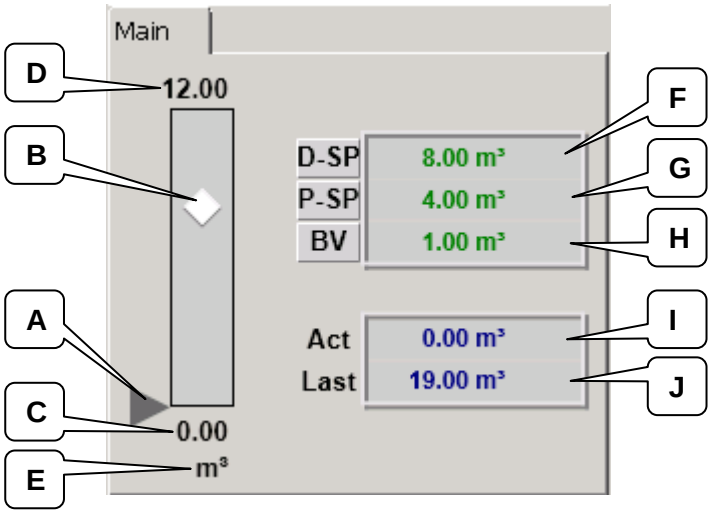


Figure: 3-2 HPHMI Faceplate Main Tab

ID	Comment	Property
A	Actual dosing value	Pzl
B	Dosing set-point value	SOV
C	Scale range min	0
D	Scale range max	Ske
E	Unit string	Dim
F	Dosing set-point value	SOV
G	Pre-shutdown set-point value	PTV
H	Basic value	BV
I	Actual dosing value	Pzl
J	Previous dosing value	CTP

Table: 3-5 HPHMI Faceplate Main tab Description

PC_FE_HPHMI_MsgConfig

This is message configuration view for DOS_E function block type. It presents list of available messages with their priorities.

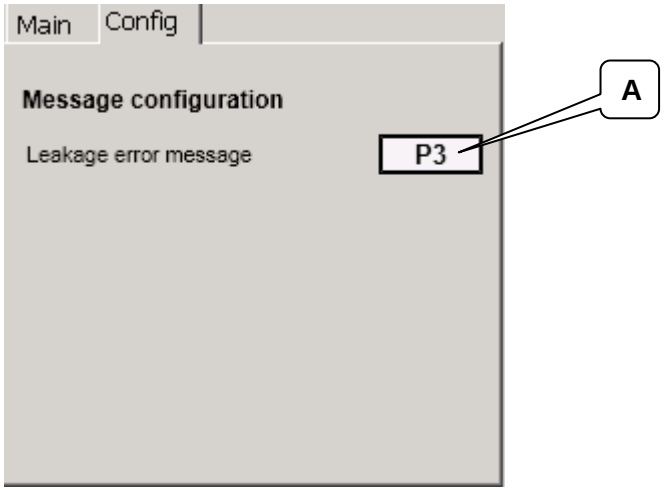


Figure: 3-3 HPHMI Faceplate Config Tab

ID	Comment	Property
A	Indication of leakage error message priority	Mp1

Table: 3-6 HPHMI Faceplate Config tab Description

3.1.3 Indicators

Icon	Description	Property (Value)	Position		
			Red	FP	Ext
	Automatic mode	SMA (True)	-	1	-
	Manual mode	SMA (False)	-	1	-
	Dosing stopped	SRS (True)	-	2	-
	Dosing running	SRS (False)	-	2	-
	Fine (partly) dosing active	SFD	-	3	-
	Coarse (maximum) dosing active	SCD	-	3	-
	Both valves closed	Pbs	-	3	-
	DOS_E only: Leakage (background color is color of message priority)	FL	-	4	-
	Module disabled (module is not processed)	ENO	-	4	-
	Operator note available	Operator Note:HoldsData	-	5	-

Table: 3-7 Indicators

3.1.4 Aspect Links

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

Table: 3-8 Aspect Links

3.1.5 Buttons

Icon	Description	Property (Value)	Position		
			Red	FP	Ext
	Set manual mode	Pha (0)	-	1	-
	Set automatic mode	Pha (1)	-	2	-
	Reset	Prs (True)	-	5	-

Icon	Description	Property (Value)	Position		
			Red	FP	Ext
	Close dosing valves	Pd (0)		7	-
	Set fine dosing on	Pd (1)	-	8	-
	Set coarse dosing on	Pd (2)	-	9	-
	Stop dosing	Pls(1)	-	10	-
	Start dosing	Pls(0)	-	11	-
	Apply the selected action	-	-	12	-

Table: 3-9 Buttons

3.1.6 Graphic Elements

Graphic Elements based on Freelance Dosing object types

Example	Graphic Element Name	Description
	dos_HPHMI_AlarmInd, dos_a_HPHMI_AlarmInd, dos_e_HPHMI_AlarmInd	Alarm indication
	dos_HPHMI_bargraph dos_a_HPHMI_bargraph dos_e_HPHMI_bargraph	Bargraph indication
8.00 m³	dos_HPHMI_numeric dos_a_HPHMI_numeric dos_e_HPHMI_numeric	Numeric indication of actual dosing value
8.00 m³	dos_HPHMI_numeric_SOV dos_a_HPHMI_numeric_SOV	Numeric indication of dosing set-point value

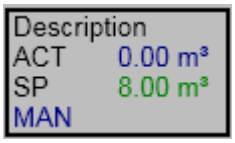
Example	Graphic Element Name	Description
	dos_e_HPHMI_numeric_SOV	
	dos_HPHMI_status dos_a_HPHMI_status dos_e_HPHMI_status	Dosing values overview
	dos_HPHMI_mode dos_a_HPHMI_mode dos_e_HPHMI_mode	Operating mode indication

Table: 3-10 GE – DOS, DOS_A, DOS_E object type

3.2 IDF_x – Individual Drive Function

3.2.1 Faceplate

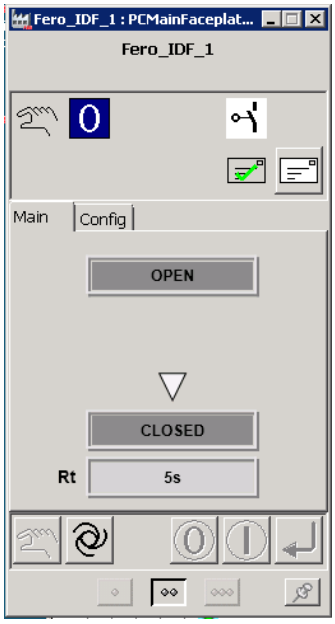


Figure: 3-4 Main View

Basic information

Name:	PCMainFaceplate HPHMI
Description:	PC HPHMI Main Faceplate
Connect type:	Freelance AC800F
Object type:	IDF_1 (Individual Drive Function for Unidirectional Units), IDF_2 (Individual Drive Function for Bi-directional Units), IDF_A (Individual Drive Function for Actuators)
Function blocks group:	Open-loop Control
Min. required 800xA version:	SV5.1RevA
Graphics Builder version:	PG2

Table: 3-11 Basic Information

Layout

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

Table: 3-12 Layout information

Sizing information

Parameter in pixels	Main View
Width	250 px
Height	424 px
MaxNoOfIndicatorRows	1
MaxNoOfIndicatorsRerRow	6
MaxNoOfButtonRows	1
MaxNoOfButtonPerRow	6

Table: 3-13 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_MsgConfig	1	NLSID_PC_Config	EveryOne

Table: 3-14 Faceplate Aspect names

3.2.2 Faceplate elements

PC_FE_HPHMI_Main

This is the main view for the IDF_1, IDF_2 and IDF_A object type's faceplate. Operator input is not possible.

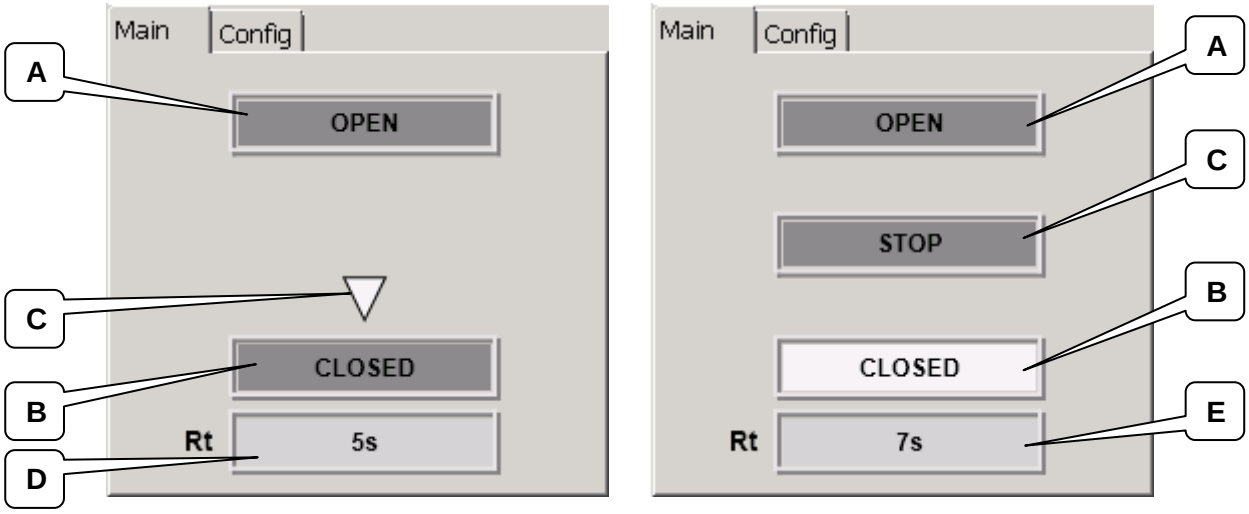


Figure: 3-5 HPHMI Faceplate Main Tab IDF_1 (left) and IDF_2, IDF_A (right)

ID	Comment	Property
A	End-position “On”	FB1 Text: Bt1
B	End-position “Off”	FB0 Text: Bt0
C	Arrows indicate state ‘Going to position’	Going to On (top arrow): Lrp Going to Off (bottom arrow): Lrn
D	Run time indication	Rt
E	IDF_2, IDF_A: End-position “Stopped”	RaS

Table: 3-15 HPHMI Faceplate Main tab Description

PC_FE_HPHMI_MsgConfig

This is message configuration view for IDF_1, IDF_2 and IDF_A function block types. It presents list of available messages with their priorities.

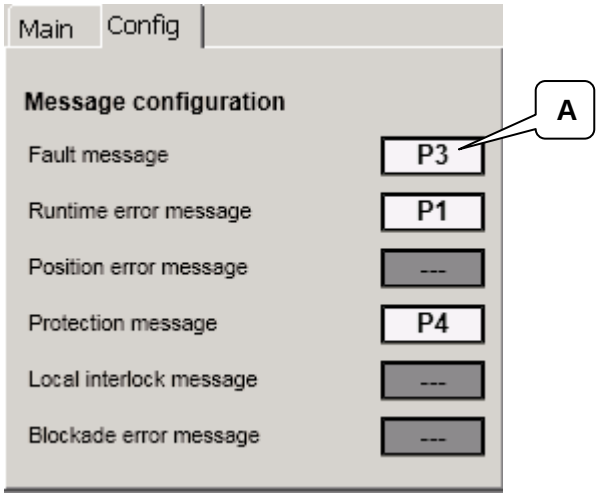


Figure: 3-6 HPHMI Faceplate Config Tab for IDF’s

ID	Comment	Property
A	Indication of error message priority	Fault: Mp1 Runtime error: Mp2 Position error: Mp3 Protection: Mp4 Local interlock: Mp5 Blockade: Mp6 (only IDF_A)

Table: 3-16 HPHMI Faceplate Config tab Description

3.2.3 Indicators

Icon	Description	Property (Value)	Position		
			Red	FP	Ext
	Automatic mode	SMA (True)	-	1	-
	Manual mode	SMA (False)	-	1	-
	Off state	FB0	-	2	-
	On state	FB1	-	2	-
	Going to Off state	Lrp	-	2	-
	Going to On state	Lrn	-	2	-
	IDF_2, IDF_A: Stop state	RaS	-	2	-
	Error (Background color is the color of message priority)	FLT	-	3	-
	Run time error (Background color is the color of message priority)	FRT	-	4	-
	End position error (Background color is the color of message priority)	FEP	-	5	-
	Priority command active (Background color is the color of message priority)	PR0 || PR1	-	6	-
	Local intervention (Background color is the color of message priority)	LOC	-	7	-
	Only IDF_A: Torque error (Background color is the color of message priority)	FTQ	-	8	-
	Module disabled (module is not processed)	ENO	-	10	-
	Operator note available	Operator Note:HoldsData	-	11	-

Table: 3-17 Indicators

3.2.4 Aspect Links

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

Table: 3-18 Aspect Links

3.2.5 Buttons

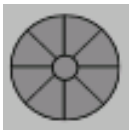
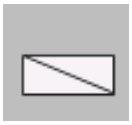
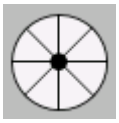
Icon	Description	Property (Value)	Position		
			Red	FP	Ext
	Set manual mode	Pha (0)	-	1	-
	Set automatic mode	Pha (1)	-	2	-
	Set command Off (IDF_1)	Hi (0)	-	4	-
	Set command On (IDF_1)	Hi (1)	-	5	-
	Set command Off (IDF_2, IDF_A)	Hi (0)	-	3	-
	Set command Stop (IDF_2, IDF_A)	Hi (1)	-	4	-
	Set command On (IDF_2, IDF_A)	Hi (2)	-	5	-
	Apply the selected action	-	-	12	-

Table: 3-19 Buttons

3.2.6 Graphic Elements

Graphic Elements based on Freelance IDF object types

Example	Graphic Element Name	Description
	idf_1_HPHMI_AlarmInd idf_2_HPHMI_AlarmInd idf_a_HPHMI_AlarmInd	Alarm indication

Example	Graphic Element Name	Description
	idf_1_HPHMI_3wayvalve idf_2_HPHMI_3wayvalve idf_a_HPHMI_3wayvalve	Three-way valve symbol
	idf_1_HPHMI_bucketwheel idf_2_HPHMI_bucketwheel idf_a_HPHMI_bucketwheel	Bucket-wheel symbol
	idf_1_HPHMI_comp idf_2_HPHMI_comp idf_a_HPHMI_comp	Compressor symbol
	idf_1_HPHMI_engine idf_2_HPHMI_engine idf_a_HPHMI_engine	Engine symbol
	idf_1_HPHMI_fan idf_2_HPHMI_fan idf_a_HPHMI_fan	Fan symbol
	idf_1_HPHMI_flap idf_2_HPHMI_flap idf_a_HPHMI_flap	Flap symbol
	idf_1_HPHMI_pump idf_2_HPHMI_pump idf_a_HPHMI_pump	Pump symbol
	idf_1_HPHMI_RotaryValve idf_2_HPHMI_RotaryValve	Rotary valve symbol
	idf_1_HPHMI_text idf_2_HPHMI_text idf_a_HPHMI_text	IDF text indication
	idf_1_HPHMI_valve idf_2_HPHMI_valve idf_a_HPHMI_valve	Valve symbol

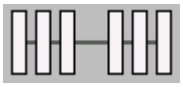
Example	Graphic Element Name	Description
	idf_1_HPHMI_mode idf_2_HPHMI_mode idf_a_HPHMI_mode	Operating mode indication
	idf_1_HPHMI_interlock idf_2_HPHMI_interlock idf_a_HPHMI_interlock	Interlock indication
	idf_1_agit1	Agitator symbol
	idf_1_agit2	Agitator symbol
	idf_1_text_fep	Text indication based on end-position error signal (FEP)

Table: 3-20 GE –IDF_1, IDF_2, IDF_A object type

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