

APPLICATION EXAMPLE

# CP600 ACSX80 DRIVES FACEPLATE CONFIGURATION GUIDE



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## 2 Introduction

### 2.1 Scope of the document

This document provides guidance on how the application example "CP600 drives faceplate" works and how to use the base faceplates, the communications routines, and the drives widgets to customize the faceplates. Furthermore, it shows how to change this project to use it with different panel types.

It is meant to be used when you need to understand how the application example was built to customize the solution in Panel Builder 600 according to your needs.

### 2.2 Compatibility

The application example explained in this document has been used with the below engineering system versions. It should also work with other versions, nevertheless some small adaptations may be necessary, for future versions.

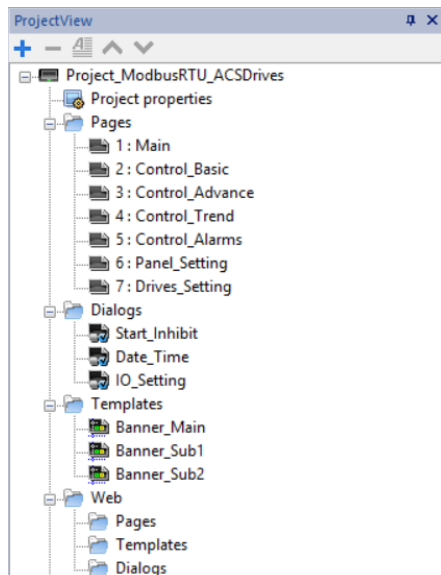
- CP600 (2<sup>nd</sup> Gen, -eCo, -Pro) Panel
- Panel Builder 600 version 2.8.1 Build 447 or newer

### 2.3 Overview

The application example is based on CP600 7" panels (CP607, CP635, CP6407 and CP6607) with the screen resolution 800 x 480 pixels.

It is configured to connect up to 8 units of ACSx80 Drives via Modbus RTU.

It has 7 Pages of Graphical User Interface with 3 dialogs and 3 templates.



## 2.4 Related documents

Further documentation:

Title	Document number	Purpose
Quick start guide CP600 drives faceplate	3ADR010711	How to setup and use the standard CP600 drives faceplate
Panel Builder 600 manual	3ADR010277	Detailed information on Panel Builder 600 features and how to use them

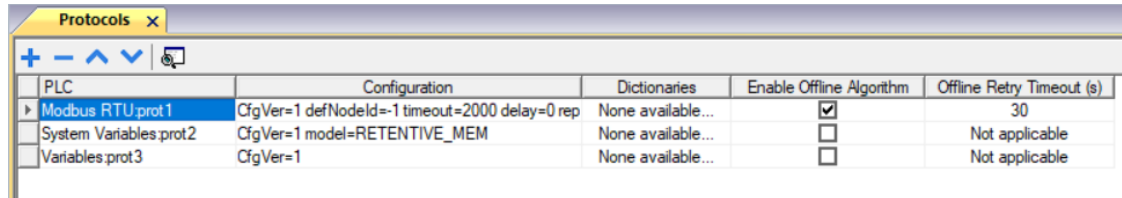
Panel Builder 600 basic training – accessible for ABB employees and persons with a myABB account:

Title	Link	Duration
CP600 HMI - 01 - Installation	<a href="#">eLearning</a>	5 min
CP600 HMI - 02 - Project creation	<a href="#">eLearning</a>	5 min
CP600 HMI - 03 - Working with pages	<a href="#">eLearning</a>	10 min
CP600 HMI - 04 - Protocols and objects	<a href="#">eLearning</a>	13 min
CP600 HMI - 05 - Keypads	<a href="#">eLearning</a>	7 min
CP600 HMI - 06 - Trends	<a href="#">eLearning</a>	11 min
CP600 HMI - 07 - Recipes	<a href="#">eLearning</a>	14 min
CP600 HMI - 08 - Scheduler	<a href="#">eLearning</a>	8 min
CP600 HMI - 09 - Alarms	<a href="#">eLearning</a>	7 min
CP600 HMI - 10 - Multilanguage	<a href="#">eLearning</a>	7 min
CP600 HMI -11 - User management	<a href="#">eLearning</a>	5 min

## 3 Configuration

### 3.1 Protocol

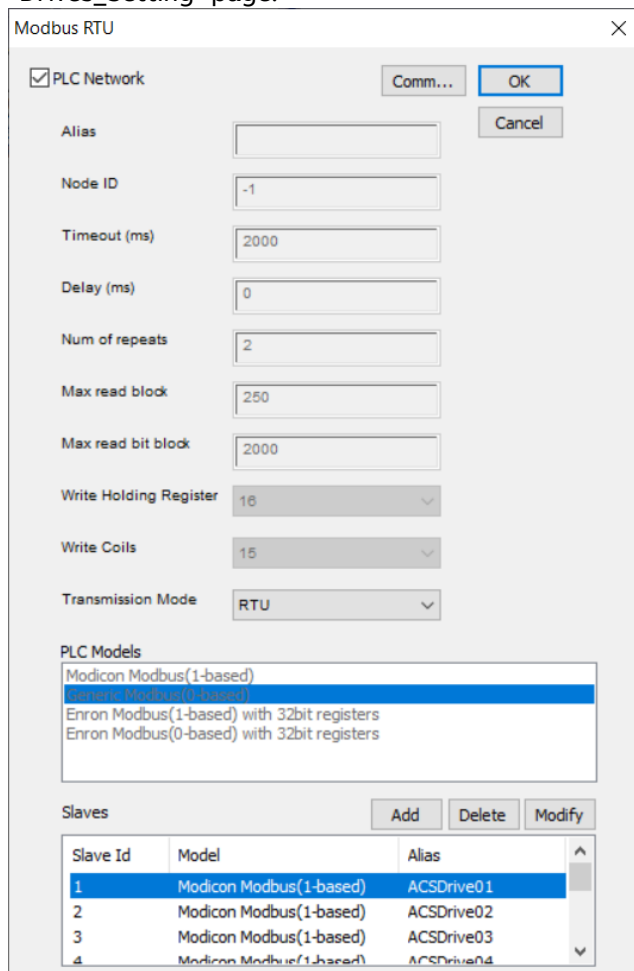
3 protocols are created for this project.



PLC	Configuration	Dictionaries	Enable Offline Algorithm	Offline Retry Timeout (s)
Modbus RTU:prot1	CfgVer=1 defNodeId=-1 timeout=2000 delay=0 rep	None available...	<input checked="" type="checkbox"/>	30
System Variables:prot2	CfgVer=1 model=RETENTIVE_MEM	None available...	<input type="checkbox"/>	Not applicable
Variables:prot3	CfgVer=1	None available...	<input type="checkbox"/>	Not applicable

#### Modbus RTU

8 Modbus RTU slaves are created under this protocol with the default alias name “ACSDrive01” to “ACSDrive08” and Slave ID 1 to 8. The Slave ID can later be changed on the “Drives\_Setting” page.



Modbus RTU

☒ PLC Network Comm... OK Cancel

Alias:

Node ID:

Timeout (ms):

Delay (ms):

Num of repeats:

Max read block:

Max read bit block:

Write Holding Register:

Write Coils:

Transmission Mode:

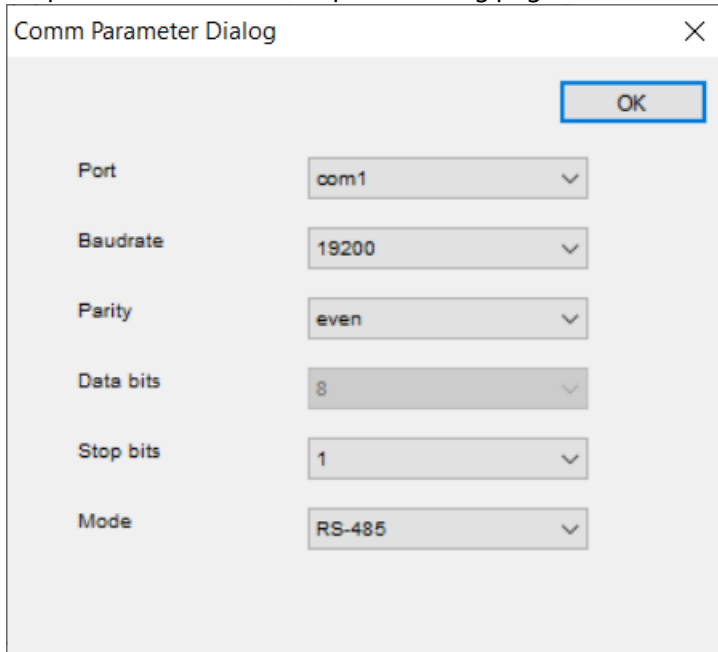
PLC Models

- Modicon Modbus(1-based)
- Generic Modbus(0-based)**
- Enron Modbus(1-based) with 32bit registers
- Enron Modbus(0-based) with 32bit registers

Slaves Add Delete Modify

Slave Id	Model	Alias
1	Modicon Modbus(1-based)	ACSDrive01
2	Modicon Modbus(1-based)	ACSDrive02
3	Modicon Modbus(1-based)	ACSDrive03
4	Modicon Modbus(1-based)	ACSDrive04

The default communication parameter is set as below. The Baud rate, Parity, Data bits and Stop bits can be set on the panel setting page.



Comm Parameter Dialog

Port	com1
Baudrate	19200
Parity	even
Data bits	8
Stop bits	1
Mode	RS-485

OK

### System Variables

Use for non-volatile memory to store the Drive names and IO Names.

### Variables

Use for internal variables.

## 3.2 Tags

### Modbus RTU: prot1

The “CommSerialxxx” is used to set the communication parameter for Modbus RTU.

All the other tags are with Prefix “ACSDrive01/”, “ACSDrive02/”... “ACSDrive08/”. This prefix is used to differentiate between the drives as they are having the same tags. This method allows us to utilize the structure in the custom widget.

Follow by the prefix is the group, index and parameter name, example:

“ACSDrive01/0113\_OutputVoltage”.

Tags			
Modbus RTU:prot1			
Name	Groups	Driver	Address
CommSerialBaudrate		Modbus RTU:prot1	1 SP_Baud 0 unsignedInt
CommSerialParity		Modbus RTU:prot1	1 SP_Par 0 unsignedByte
CommSerialStopBits		Modbus RTU:prot1	1 SP_Stop 0 unsignedByte
CommSerialMode		Modbus RTU:prot1	1 SP_Mode 0 unsignedByte
CommSerialDone		Modbus RTU:prot1	1 SP_Done 0 boolean
ACSDrive01/0001_CW		Modbus RTU:prot1	1 HREG 400001 unsignedShort
ACSDrive01/0002_Ref1		Modbus RTU:prot1	1 HREG 400002 short
ACSDrive01/0003_Ref2		Modbus RTU:prot1	1 HREG 400003 short
ACSDrive01/0004_SW		Modbus RTU:prot1	1 HREG 400004 unsignedShort
ACSDrive01/0005_Act1		Modbus RTU:prot1	1 HREG 400005 short
ACSDrive01/0006_Act2		Modbus RTU:prot1	1 HREG 400006 short
ACSDrive01/0101_MotorRPM		Modbus RTU:prot1	1 HREG 400101 short
ACSDrive01/0106_MotorFrequency		Modbus RTU:prot1	1 HREG 400106 short
ACSDrive01/0107_MotorCurrent		Modbus RTU:prot1	1 HREG 400107 short
ACSDrive01/0110_MotorTorque		Modbus RTU:prot1	1 HREG 400110 short
ACSDrive01/0111_DCVoltage		Modbus RTU:prot1	1 HREG 400111 short
ACSDrive01/0113_OutputVoltage		Modbus RTU:prot1	1 HREG 400113 short
ACSDrive01/0114_OutputPower		Modbus RTU:prot1	1 HREG 400114 short
ACSDrive01/0401_TrippingFault		Modbus RTU:prot1	1 HREG 400401 unsignedShort
ACSDrive01/0402_ActiveFault2		Modbus RTU:prot1	1 HREG 400402 unsignedShort
ACSDrive01/0403_ActiveFault3		Modbus RTU:prot1	1 HREG 400403 unsignedShort
ACSDrive01/0406_ActiveWarning1		Modbus RTU:prot1	1 HREG 400406 unsignedShort
ACSDrive02/0001_CW		Modbus RTU:prot1	2 HREG 400001 unsignedShort
ACSDrive02/0002_Ref1		Modbus RTU:prot1	2 HREG 400002 short
ACSDrive02/0003_Ref2		Modbus RTU:prot1	2 HREG 400003 short
ACSDrive02/0004_SW		Modbus RTU:prot1	2 HREG 400004 unsignedShort
ACSDrive02/0005_Act1		Modbus RTU:prot1	2 HREG 400005 short
ACSDrive02/0006_Act2		Modbus RTU:prot1	2 HREG 400006 short
ACSDrive02/0101_MotorRPM		Modbus RTU:prot1	2 HREG 400101 short
ACSDrive02/0106_MotorFrequency		Modbus RTU:prot1	2 HREG 400106 short
ACSDrive02/0107_MotorCurrent		Modbus RTU:prot1	2 HREG 400107 short
ACSDrive02/0110_MotorTorque		Modbus RTU:prot1	2 HREG 400110 short
ACSDrive02/0111_DCVoltage		Modbus RTU:prot1	2 HREG 400111 short
ACSDrive02/0113_OutputVoltage		Modbus RTU:prot1	2 HREG 400113 short
ACSDrive02/0114_OutputPower		Modbus RTU:prot1	2 HREG 400114 short



**System Variables: prot2**

The maximum size of the non-volatile memory is 16Kbytes and accessible through an offset. It is used to store the Drive name and IO name.

All the tags are with Prefix "ACSDrive01/", "ACSDrive02/"... "ACSDrive08/". This prefix is used to differentiate between the drives as they are having the same tags. This method allows us to utilize the structure in the custom widget.

Each Drive utilize 195 Bytes.

Tags x				
System Variables.prot2				
Name	Groups	Driver	Address	Encoding
ACSDrive01/DriveType		System Variables.prot2	RET_MEM 0 short	
ACSDrive01/Name_Drive		System Variables.prot2	RET_MEM 2 string [12]	UTF-8
ACSDrive01/Name_DI1		System Variables.prot2	RET_MEM 14 string [12]	UTF-8
ACSDrive01/Name_DI2		System Variables.prot2	RET_MEM 26 string [12]	UTF-8
ACSDrive01/Name_DI3		System Variables.prot2	RET_MEM 38 string [12]	UTF-8
ACSDrive01/Name_DI4		System Variables.prot2	RET_MEM 50 string [12]	UTF-8
ACSDrive01/Name_DI5		System Variables.prot2	RET_MEM 62 string [12]	UTF-8
ACSDrive01/Name_DI6		System Variables.prot2	RET_MEM 74 string [12]	UTF-8
ACSDrive01/Name_AI1		System Variables.prot2	RET_MEM 86 string [12]	UTF-8
ACSDrive01/Name_AI2		System Variables.prot2	RET_MEM 98 string [12]	UTF-8

**Variables: prot3**

This is the internal memory used for scheduler, data transfer, drives selection and etc.

Tags x			
Variables.prot3			
Name	Groups	Driver	Address
Drive_Selected_No		Variables.prot3	Drive_Selected_No unsignedShort
Drive_Selected_01		Variables.prot3	Drive_Selected_01 boolean
Drive_Selected_02		Variables.prot3	Drive_Selected_02 boolean
Drive_Selected_03		Variables.prot3	Drive_Selected_03 boolean
Drive_Selected_04		Variables.prot3	Drive_Selected_04 boolean
Drive_Selected_05		Variables.prot3	Drive_Selected_05 boolean
Drive_Selected_06		Variables.prot3	Drive_Selected_06 boolean
Drive_Selected_07		Variables.prot3	Drive_Selected_07 boolean

### 3.3 Alarms

The alarms are configured based on the drive *Status Word - Tripped (Bit 3)* and *Warning (Bit 7)*. The alarm is enabled when the selected drive is enabled in the drive setting page.

The alarm message is shown as below:

ACSDrive node [!ACSDrive01/NodeID] - [!ACSDrive01/Name\_Drive] is Faulted.

The "[!ACSDrive01/NodeID]" show the slave id and the "!" before the tags is to capture the tag value when the alarm occurs.

The [!ACSDrive01/Name\_Drive] shows the drive name and the "!" before the tags is to capture the tag value when the alarm occurs. If the name of the drive is not set, the system will show "nan".

Alarms										
Alarms used 16/2000										
Name	Groups	Enable	Ack	Reset	Buffer	Trigger	Tag	Remote Enable	Rem	
ACSDrive1Tripped		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	AlarmBuffer1	bitMask.Alarm:3	ACSDrive01/0004_SW	ACSDrive01/Enable	none	
ACSDrive2Tripped		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	AlarmBuffer1	bitMask.Alarm:3	ACSDrive02/0004_SW	ACSDrive02/Enable	none	
ACSDrive3Tripped		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	AlarmBuffer1	bitMask.Alarm:3	ACSDrive03/0004_SW	ACSDrive03/Enable	none	
ACSDrive4Tripped		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	AlarmBuffer1	bitMask.Alarm:3	ACSDrive04/0004_SW	ACSDrive04/Enable	none	
ACSDrive5Tripped		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	AlarmBuffer1	bitMask.Alarm:3	ACSDrive05/0004_SW	ACSDrive05/Enable	none	
ACSDrive6Tripped		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	AlarmBuffer1	bitMask.Alarm:3	ACSDrive06/0004_SW	ACSDrive06/Enable	none	
ACSDrive7Tripped		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	AlarmBuffer1	bitMask.Alarm:3	ACSDrive07/0004_SW	ACSDrive07/Enable	none	
ACSDrive8Tripped		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	AlarmBuffer1	bitMask.Alarm:3	ACSDrive08/0004_SW	ACSDrive08/Enable	none	
ACSDrive1Alarm		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	AlarmBuffer1	bitMask.Alarm:7	ACSDrive01/0004_SW	ACSDrive01/Enable	none	
ACSDrive2Alarm		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	AlarmBuffer1	bitMask.Alarm:7	ACSDrive02/0004_SW	ACSDrive02/Enable	none	
ACSDrive3Alarm		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	AlarmBuffer1	bitMask.Alarm:7	ACSDrive03/0004_SW	ACSDrive03/Enable	none	
ACSDrive4Alarm		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	AlarmBuffer1	bitMask.Alarm:7	ACSDrive04/0004_SW	ACSDrive04/Enable	none	
ACSDrive5Alarm		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	AlarmBuffer1	bitMask.Alarm:7	ACSDrive05/0004_SW	ACSDrive05/Enable	none	
ACSDrive6Alarm		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	AlarmBuffer1	bitMask.Alarm:7	ACSDrive06/0004_SW	ACSDrive06/Enable	none	
ACSDrive7Alarm		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	AlarmBuffer1	bitMask.Alarm:7	ACSDrive07/0004_SW	ACSDrive07/Enable	none	
ACSDrive8Alarm		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	AlarmBuffer1	bitMask.Alarm:7	ACSDrive08/0004_SW	ACSDrive08/Enable	none	

### 3.4 Scheduler

This function is used to set the initial state for some tags.

Scheduler						
ID	Name	Type	Schedule	Action	Priority	
1	WriteName	Recurring	Every, Time, 00:00:01	Write Tag; Write Tag; Write Tag; Write Tag; Writ	Medium	
2	WriteInitialCW	Recurring	Every, Time, 00:00:01	Write Tag; Write Tag; Write Tag; Write Tag; Writ	Medium	
3	Initialize_TrueFalse	Recurring	Every, Time, 00:00:01	SetBit; ResetBit; SetBit	High	
4	Initialize_StartStop	Recurring	Every, Time, 00:00:01	Write Tag; Write Tag	Medium	
5	Initialize_TrendMinMax	Recurring	Every, Time, 00:00:01	Write Tag; Write Tag; Write Tag; Write Tag; Writ	Medium	
6	ACSDrive01_Disable	Recurring	Every, Time, 00:00:05	Write Tag	Low	
7	ACSDrive02_Disable	Recurring	Every, Time, 00:00:05	Write Tag	Low	
8	ACSDrive03_Disable	Recurring	Every, Time, 00:00:05	Write Tag	Low	
9	ACSDrive04_Disable	Recurring	Every, Time, 00:00:05	Write Tag	Low	
10	ACSDrive05_Disable	Recurring	Every, Time, 00:00:05	Write Tag	Low	
11	ACSDrive06_Disable	Recurring	Every, Time, 00:00:05	Write Tag	Low	
12	ACSDrive07_Disable	Recurring	Every, Time, 00:00:05	Write Tag	Low	
13	ACSDrive08_Disable	Recurring	Every, Time, 00:00:05	Write Tag	Low	
14	Drive01_Selected	Recurring	Every, Time, 00:00:02	DataTransfer; DataTransfer; DataTransfer; Dal	Medium	
15	Drive02_Selected	Recurring	Every, Time, 00:00:02	DataTransfer; DataTransfer; DataTransfer; Dal	Medium	
16	Drive03_Selected	Recurring	Every, Time, 00:00:02	DataTransfer; DataTransfer; DataTransfer; Dal	Medium	
17	Drive04_Selected	Recurring	Every, Time, 00:00:02	DataTransfer; DataTransfer; DataTransfer; Dal	Medium	
18	Drive05_Selected	Recurring	Every, Time, 00:00:02	DataTransfer; DataTransfer; DataTransfer; Dal	Medium	
19	Drive06_Selected	Recurring	Every, Time, 00:00:02	DataTransfer; DataTransfer; DataTransfer; Dal	Medium	
20	Drive07_Selected	Recurring	Every, Time, 00:00:02	DataTransfer; DataTransfer; DataTransfer; Dal	Medium	
21	Drive08_Selected	Recurring	Every, Time, 00:00:02	DataTransfer; DataTransfer; DataTransfer; Dal	Medium	

### 3.5 Data Transfer

Transfer the Control Word for Start and Stop base on the button press at the “DriveControlBasic” Widget.

Data transfer						
	TAG A	TAG B	Direction	Update method	Trigger	
1	StartButton	ACSDrive01/0001_CW	A->B	On trigger	ACSDrive01/CW_Start	0
2	StopButton	ACSDrive01/0001_CW	A->B	On trigger	ACSDrive01/CW_Stop	0
3	StartButton	ACSDrive02/0001_CW	A->B	On trigger	ACSDrive02/CW_Start	0
4	StopButton	ACSDrive02/0001_CW	A->B	On trigger	ACSDrive02/CW_Stop	0
5	StartButton	ACSDrive03/0001_CW	A->B	On trigger	ACSDrive03/CW_Start	0
6	StopButton	ACSDrive03/0001_CW	A->B	On trigger	ACSDrive03/CW_Stop	0
7	StartButton	ACSDrive04/0001_CW	A->B	On trigger	ACSDrive04/CW_Start	0
8	StopButton	ACSDrive04/0001_CW	A->B	On trigger	ACSDrive04/CW_Stop	0
9	StartButton	ACSDrive05/0001_CW	A->B	On trigger	ACSDrive05/CW_Start	0
10	StopButton	ACSDrive05/0001_CW	A->B	On trigger	ACSDrive05/CW_Stop	0
11	StartButton	ACSDrive06/0001_CW	A->B	On trigger	ACSDrive06/CW_Start	0

### 3.6 Security

#### UserGroups

2 user groups are created, “Engineers” and “Operators”.

“Operators” group can access the normal operations.

“Engineers” group have higher privileges which allow to access the panel setting page and drive setting panel beside normal operations.

UserGroups						
Users						
	Name	Authorized	Home Page	Use Last Visited Page	Comments	Authorization Settings
	admin	true	Main	<input type="checkbox"/>	administrator group	adminAuth
	guest	true		<input type="checkbox"/>		guestAuth
	unauthorized	false		<input type="checkbox"/>		unauthorizedAuth
	Engineers	true	Main	<input type="checkbox"/>		User_Auth1
	Operators	true	Main	<input type="checkbox"/>		User_Auth2

#### Users

2 users are created, “engineer1” and “operator1”.

Engineer1 is under the “Engineers” group and Operator 1 is under the “Operators” group.

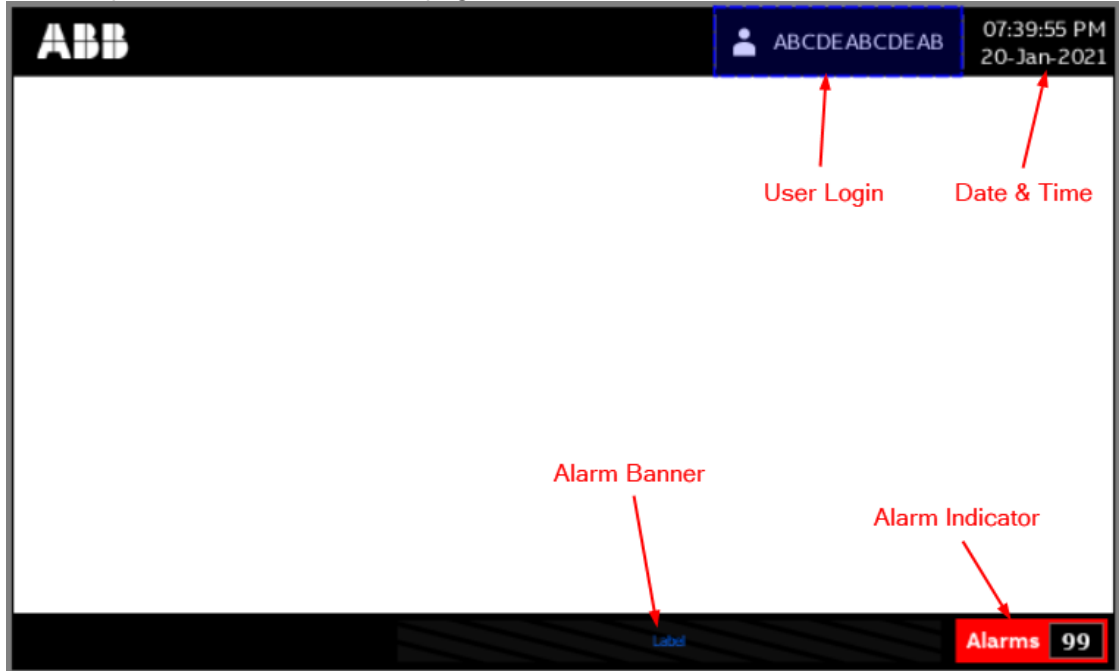
The password for both is 1234.

UserGroups									
Users									
	Name	Default User	Group	Password	Comments	Exception	Change Initial Password	Logoff Time (minutes)	Password
	admin	<input type="checkbox"/>	admin	*****	admin user	<input type="checkbox"/>	false	5	4
	engineer1	<input type="checkbox"/>	Engineers	*****		<input type="checkbox"/>	false	5	4
	operator1	<input checked="" type="checkbox"/>	Operators	*****		<input type="checkbox"/>	false	0	4

## 4 Templates

### 4.1 Banner\_Main

This template is used in the “Main” page.



#### User Login Button:

The default user is Operator1. The “User Login” button triggers the Switch User page and lets the user login as a different user.

[-] Events	
[-] OnMouseClicked Action	1 Action
Action[0]	SwitchUser()
[-] OnMouseHold Action	

#### Data & Time:

Display the panel date & time.

#### Alarm Indicator:

This indicator appears when alarm or warning occurs and trigger the JavaScript, which will update the Alarm Banner with the dedicated messages.

[-] Events	
[-] OnDataUpdate Action	1 Action
Action[0]	js:update_alarm_banner1()

**Alarm Banner:**

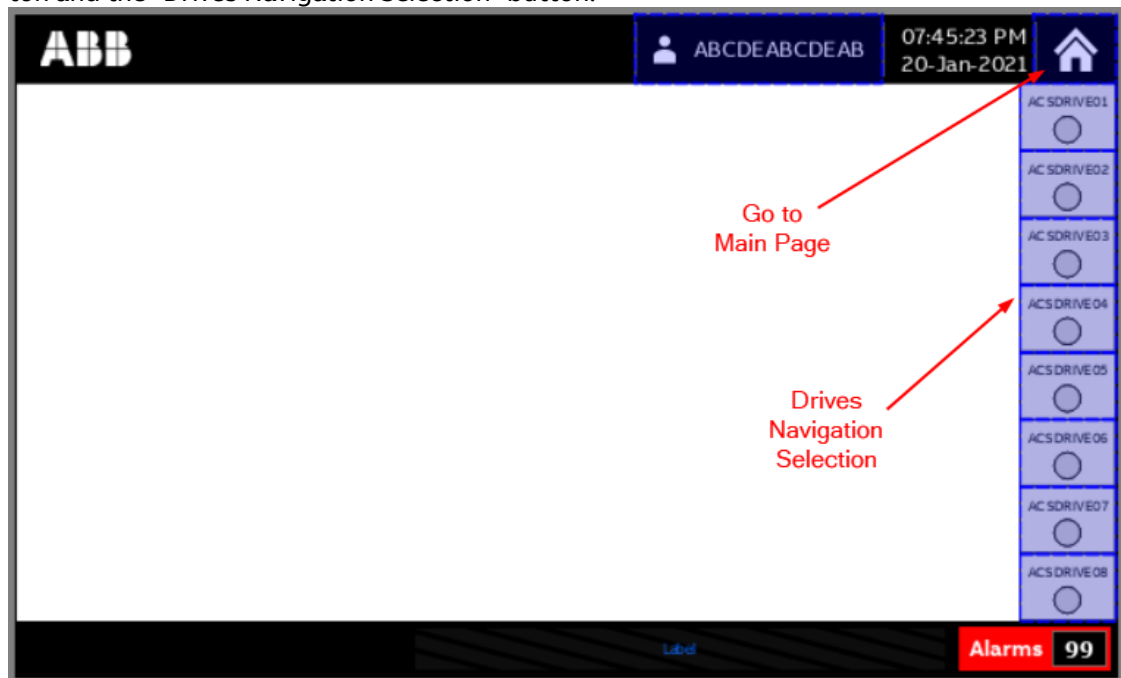
Display the alarm and warning message when the JavaScript is triggered via the Alarm Indicator.

```
function update_alarm_banner1(me, eventInfo)
{
    var descriptions = "";
    for (var i=0; i < project.getWidget("_AlarmsMgr").getProperty("alarmCount"); i++) {
        if (project.getWidget("_AlarmsMgr").getProperty("alState",i) == "Triggered") {
            descriptions += " *[" + project.getWidget("_AlarmsMgr").getProperty("alDescription",i) + "]"* ";
        }
    }
    page.getWidget("alarm_banner1").setProperty("text", descriptions);
    return false;
}
```

## 4.2 Banner\_Sub1

This template is used in the “Control\_Basic”, “Control\_Advance”, “Control\_Trend” and “Control\_Alarms” page.

It has the similar function with “Banner\_Main” template, with extra “Go to Home Page” button and the “Drives Navigation Selection” button.

**Go to Home Page button:**

Load the Main page when you press it.

[-] Events	
[-] OnMouseClicked Action	1 Action
Action[0]	LoadPage(main.jmx)
OnMouseHold Action	

#### Drives Navigation Selection Button:

This button is only visible when the drive is enabled.

Visible	true
DataLink	ACSDrive01/NodeID   ScaleXForm(1,1,-255)
Access Type	R

When pressed, it toggles the drive selected bit and deselects all others.

Events	
OnMouseClicked Action	10 Actions
Action[0]	WriteTag(_TagMgr:Drive_Selected_Name,ACSDrive01)
Action[1]	WriteTag(_TagMgr:Drive_Selected_No,1)
Action[2]	SetBit(_TagMgr:Drive_Selected_01,0)
Action[3]	ResetBit(_TagMgr:Drive_Selected_02,0)
Action[4]	ResetBit(_TagMgr:Drive_Selected_03,0)
Action[5]	ResetBit(_TagMgr:Drive_Selected_04,0)
Action[6]	ResetBit(_TagMgr:Drive_Selected_05,0)
Action[7]	ResetBit(_TagMgr:Drive_Selected_06,0)
Action[8]	ResetBit(_TagMgr:Drive_Selected_07,0)
Action[9]	ResetBit(_TagMgr:Drive_Selected_08,0)
OnMouseHold Action	

The circle inside displays the status of the drive.

## 4.3 Banner\_Sub2

This template is used in the “Panel\_Setting” and “Drives\_Setting” page.

It has the similar function with “Banner\_Main” template, with “extra Go to Home Page” button and “Date & Time Setting” button.





**Go to Home Page button:**

Load the Main page when you press it.

[-] Events	
[-] OnMouseClicked Action	
1 Action	
Action[0]	LoadPage(main.jmx)
OnMouseHold Action	

**Date & Time Setting button:**

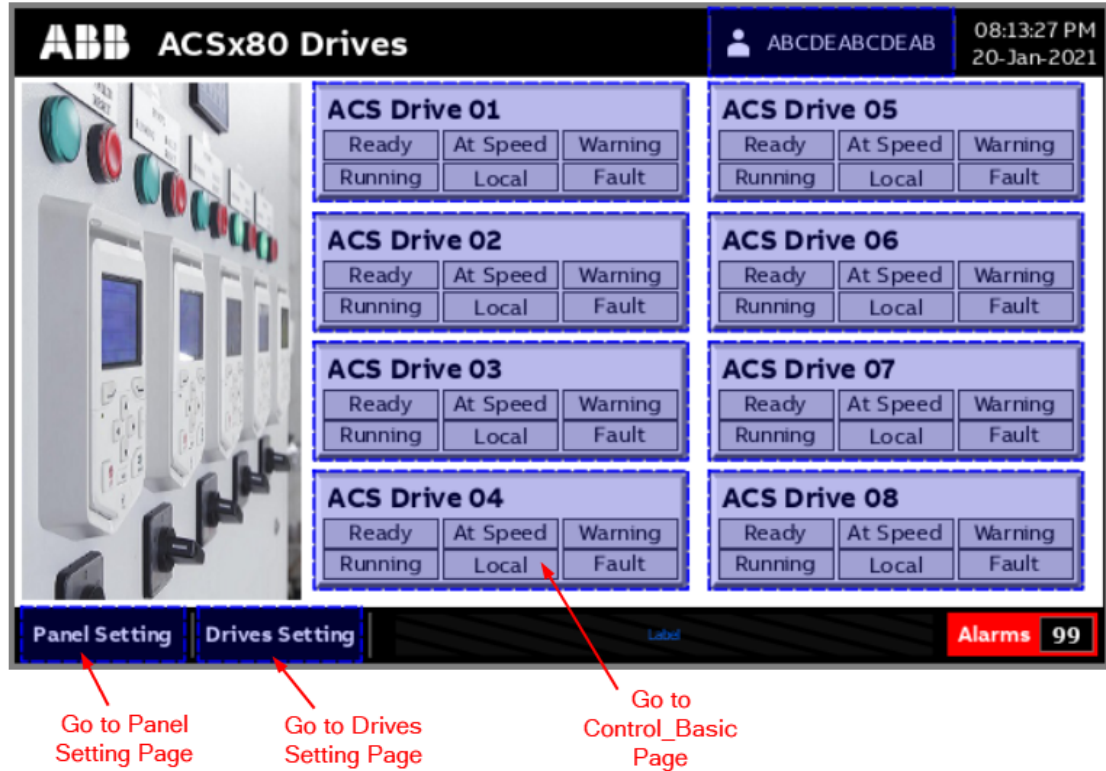
When press, display date & time setting page.

[-] Events	
[-] OnMouseClicked Action	
2 Actions	
Action[0]	SetBit(_TagMgr:Date_Time_En,0)
Action[1]	ShowDialog(date_time.jmx)
OnMouseHold Action	

## 5 Pages

### 5.1 Main

The main page uses the template – Banner\_Main.



Go to Panel Setting Page & Go to Drives Setting Page:

These buttons only appear when UserGroups – admin or Engineers are logged in.

For the other UserGroups they are set to “Hide”.

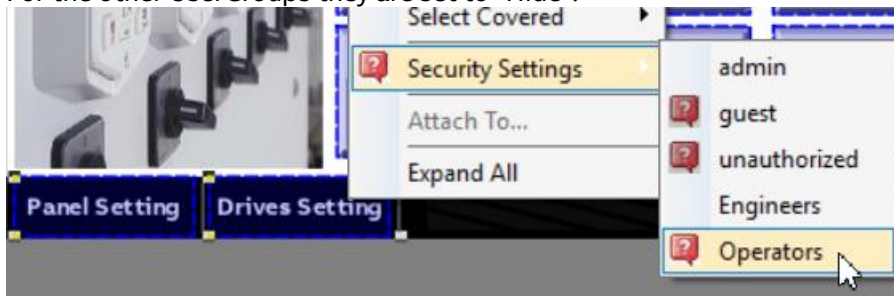


ABB Operators authorizations

Widget		Action
>  GroupWgt1		
Widget	GroupWgt1	Permission
		Hide



**Go to Control\_Basic Page:**

This button is only visible when the drive is enabled. Drives01 is enabled by default.

Visible	true
DataLink	ACSDrive01/NodeID ScaleXForm(1,1,-255)
Access Type	R

This button is combined with the display of the Drives Status.

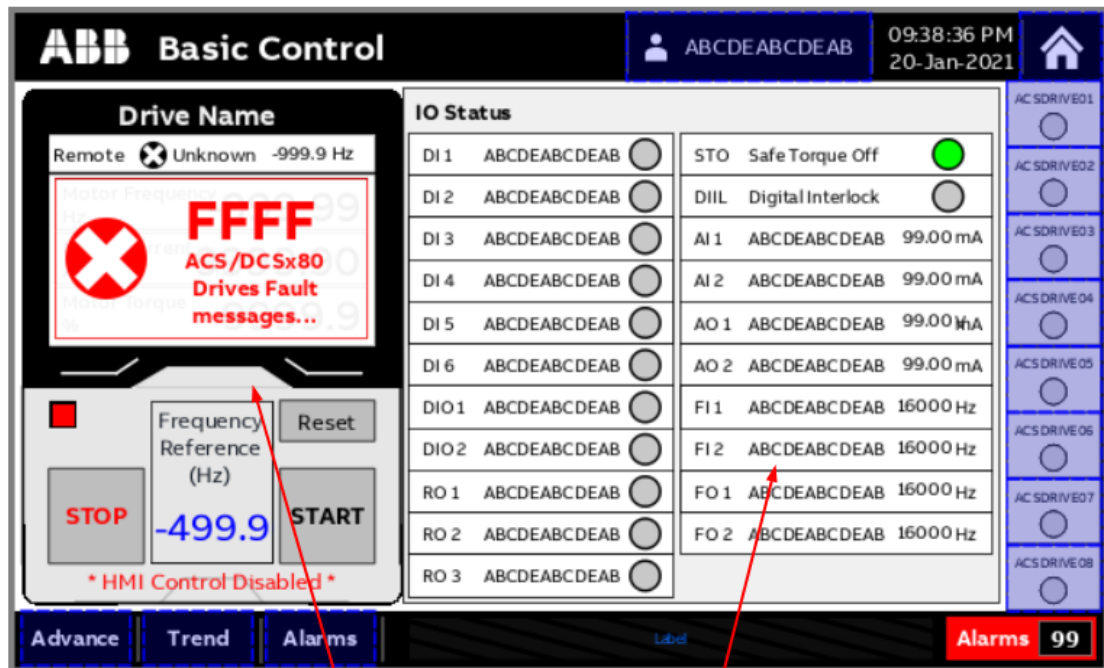
Fill Color	[200, 200, 200]
DataLink	ACSDrive01/0004_SW BitIndexXForm(7) ColorPaletteCustomXForm(0#c8c8c8,1#ffaa00)
Access Type	R

When press on the button, it executes several actions and the final action will load the Control\_Basic page.

Events	
OnMouseClicked Action	11 Actions
Action[0]	SetBit(_TagMgr:Drive_Selected_01,0)
Action[1]	ResetBit(_TagMgr:Drive_Selected_02,0)
Action[2]	ResetBit(_TagMgr:Drive_Selected_03,0)
Action[3]	ResetBit(_TagMgr:Drive_Selected_04,0)
Action[4]	ResetBit(_TagMgr:Drive_Selected_05,0)
Action[5]	ResetBit(_TagMgr:Drive_Selected_06,0)
Action[6]	ResetBit(_TagMgr:Drive_Selected_07,0)
Action[7]	ResetBit(_TagMgr:Drive_Selected_08,0)
Action[8]	WriteTag(_TagMgr:Drive_Selected_Name,ACSDrive01)
Action[9]	WriteTag(_TagMgr:Drive_Selected_No,1)
Action[10]	LoadPage(control_basic.jmx)

## 5.2 Control\_Basic

The Control\_Basic page uses the template – Banner\_Sub1.



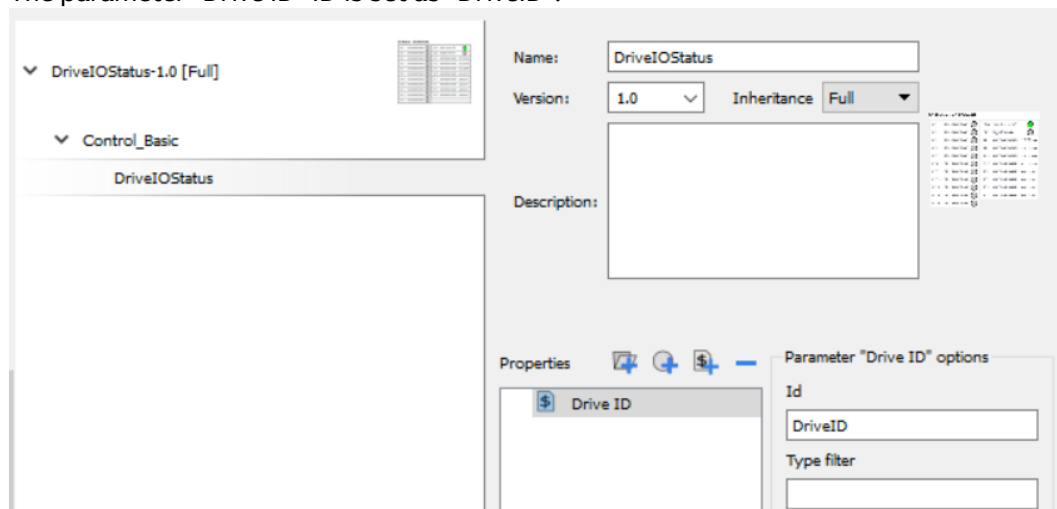
DriveControlBasic  
Widget

DriveIOStatus  
Widget

### DriveIOStatus Widget:

This custom widget inheritance is set to full.

The parameter "Drive ID" ID is set as "DriveID".



The "DriveID" is used as the structure to link with the tags.

Inside the widget, the datalink will set to "\${DriveID}/DriveType|BitIndexXForm(0)"

DriveIOStatus-1.0:1.0 : DriveIOStatus	
Drive ID	
DriveIOStatus-1.0:1.0	Drive_Selected_Name
Access Type	R

Visible	true
DataLink	`\${DriveID}/DriveType BitIndexXForm(0)`
Access Type	R

The “`\${DriveID}`” will be substituted with the value of the tag – Drive\_Selected\_Name.  
 Example: After substitution, the datalink will be “ACSDrive03/DriveType|BitIndexXForm(0)”.  
 The IO will show based on the drive type. Below is drive type value table.

DriveType	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	Value
ACS380	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	1	225
ACS480	0	0	0	1	0	1	1	0	0	1	0	1	0	0	1	1	5715
ACS580	0	0	0	1	0	1	1	0	0	1	0	1	0	1	1	1	5719
ACS880	0	0	0	1	0	1	1	0	0	0	1	0	1	1	1	1	5679

Therefore, the visibility of the IO is set based on the drive type bit.

Visible	true
DataLink	`\${DriveID}/DriveType BitIndexXForm(5)`
Access Type	R

Some of the IO is able to be configured on different options. Example: The DI can change from Digital Input to Frequency Input. The visibility is set based on the configuration.

Visible	true
DataLink	`\${DriveID}/1113_DI3_Config ScaleXForm(1,1,-1)`
Access Type	R

#### DriveControlBasic Widget:

This custom widget inheritance is set to full.

The parameter “Drive ID” ID is set as “DriveID”.

The “DriveID” is used as the structure to link with the tags.  
 The fault display is visible when the drive status bit 3 is triggered.

Id	DriveControlBasic.FaultDisplay
Visible	true
DataLink	`\${DriveID}/0004_SW BitIndexXForm(3)`
Access Type	R

The speed/frequency command and feedback are switching based on the Motor Control Mode.

Id	DriveControlBasic.Frequencycmd
Visible	true
DataLink	`\${DriveID}/9904_MotorControlMode`
Access Type	R

The Start and Stop button toggle the CW\_Start and CW\_Stop. This bit will trigger the “Data-Transfer” to move the word value 1151 or 1150 to the ControlWord.

Shape Button : DriveControlBasic.start	
Value	0
DataLink	`\${DriveID}/CW_Start[R/W]`
Access Type	R/W
Click Type	momentary

The control (Start, Stop, Reset and Speed/Frequency) can be disabled via the Drive Setting page.

General	
Disable	false
Shape Button	`\${DriveID}/HMI_Control`
Access Type	R

## 5.3 Control\_Advance

The Control\_Advance page uses the template – Banner\_Sub1.

**ABB Advance Control**

ABCDEABCDEAB 10:54:47 PM 20-Jan-2021

Bits	Status Word	Status	Bits	Control Word	Control
0	RDY_ON		0	OFF1_CONTROL	
1	RDY_RUN		1	OFF2_CONTROL	
2	RDY_REF		2	OFF3_CONTROL	
3	TRIPPED		3	INHIBIT_OPERATION	
4	OFF_2_STATUS		4	RAMP_OUT_ZERO	
5	OFF_3_STATUS		5	RAMP_HOLD	
6	SWC_ON_INHIB		6	RAMP_IN_ZERO	
7	ALARM		7	RESET	
8	AT_SETPOINT		8	JOGGING_1	
9	REMOTE		9	JOGGING_2	
10	ABOVE_LIMIT		10	REMOTE_CMD	
11	USER_0		11	EXT_CTRL_LOC	
12	USER_1		12	USER_0	
13	USER_2		13	USER_1	
14	USER_3		14	USER_2	
15	RESERVED		15	USER_3	

**Control \* HMI Control disabled \***

Frequency Reference (Hz): 9999.0

Acceleration Time 1 (s): 999.0

Deceleration Time 1 (s): 999.0

**Status**

Motor Speed (rpm): 99999

Motor Frequency (Hz): 9999.00

Motor Current (A): 9999.00

Motor Torque (%): 9999.0

DC Voltage (V): 9999.0

Output Voltage (V): 9999.0

Output Power (kW): 9999.00

Inverter Temperature (%): 999.0

**Alarms 99**

Go to Start Inhibit Status

Drive Status Word

Drive Control Word

Drive Control

Drive Feedback

**Drive Status Word:**

It displays the status word in detail as bit form.

Shape : DriveControlAdvance.StatusWord.SWPanel.status2	
Fill Color	[190, 190, 190]
DataLink	\${DriveID}/0004_SW BitIndexXForm(2) ColorPaletteCustomXForm(0#bebebe,1#00ff00)
Access Type	R

**Drive Control Word:**

It displays the control word in detail as bit form and allows user to toggle each control bit.

Shape Button : DriveControlAdvance.ControlWord.CWPanel.controlbtn7	
Value	0
DataLink	\${DriveID}/0001_CW R/W BitIndexXForm(7)
Access Type	R/W

The control word can be disabled via the Drive Setting page.

General	
Disable	false
Shape Button	\${DriveID}/HMI_Control
Access Type	R

**Drive Control:**

The speed/frequency command is switching based on the Motor Control Mode.

General	
Id	DriveControlAdvance.StatusControl.frequencycmd
Visible	true
DataLink	\${DriveID}/9904_MotorControlMode
Access Type	R

The acceleration time 1 and deceleration time 1 are written to the different locations based on the Motor Control Mode.

*\${DriveID}/2312\_AccelTime1|R/W|ScaleXForm(1,10,0)*

*\${DriveID}/2872\_AccelTime1|R/W|ScaleXForm(1,10,0)*

General	
Id	DriveControlAdvance.StatusControl.AccelTime2
Visible	true
DataLink	\${DriveID}/9904_MotorControlMode
Access Type	R

**Drive Feedback:**

Displays extra information from the drives.

**Go to Start Inhibit Status:**

This button is only visible when the drive status bit 6 (SWC\_ON\_INHIB) is TRUE.

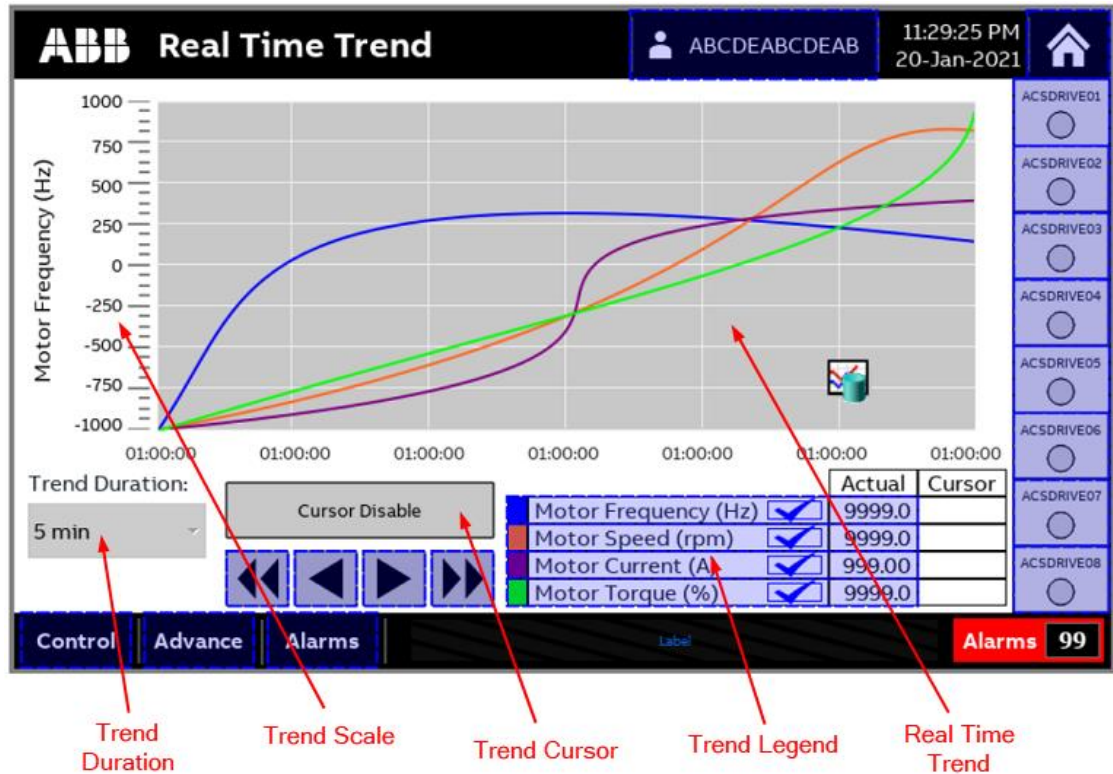
(A condition to start is missing and the Start button / Bit0 of CW is pressed)

Visible	true
DataLink	\${DriveID}/0004_SW BitIndexXForm(6)
Access Type	R

When pressed, it will load the Start Inhibit page.

## 5.4 Control\_Trend

The Control\_Trend page uses the template – Banner\_Sub1.



### Real Time Trend:

The Real Time Trend displays the Frequency, Speed, Current and Torque values of the drive via the index tag.

Curve 1	
Curve 1 Tag	Drive_Trend.Frequency
Visible	true
Request Samples	1000

Drive_Trend		Index Tag Drive_Selected_No		
Search		Filter by: Index		
Index Instance: + -		Alias: + -		
Index	Frequency	Speed	Current	Torque
1	ACSDrive01/0106_MotorFrequency	ACSDrive01/0101_MotorRPM	ACSDrive01/0107_MotorCurrent	ACSDrive01/0110_MotorTorque
2	ACSDrive02/0106_MotorFrequency	ACSDrive02/0101_MotorRPM	ACSDrive02/0107_MotorCurrent	ACSDrive02/0110_MotorTorque
3	ACSDrive03/0106_MotorFrequency	ACSDrive03/0101_MotorRPM	ACSDrive03/0107_MotorCurrent	ACSDrive03/0110_MotorTorque
4	ACSDrive04/0106_MotorFrequency	ACSDrive04/0101_MotorRPM	ACSDrive04/0107_MotorCurrent	ACSDrive04/0110_MotorTorque
5	ACSDrive05/0106_MotorFrequency	ACSDrive05/0101_MotorRPM	ACSDrive05/0107_MotorCurrent	ACSDrive05/0110_MotorTorque



**Trend Legend:**

It can select the specific parameter in the trend legend and it will change Trend Scale based on the parameter.

OnMouseClicked Action	3 Actions
Action[0]	WriteTag(_TagMgr:Drive_Trend_Curve,2)
Action[1]	DataTransfer(_TagMgr:Drive_Trend_Curve1_Min;_TagMgr:Drive_Trend_Curve_Min)
Action[2]	DataTransfer(_TagMgr:Drive_Trend_Curve1_Max;_TagMgr:Drive_Trend_Curve_Max)

**Trend Scale:**

Displays the scale base on the selection.

**Message Text : TrendLabel**

Value: 2

DataLink: Drive\_Trend\_Curve

Access Type: R

Messages

View Ind

Events

OnDa

Marker

Text

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General

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Message Text

☒ Multilanguage Lang1 **B** *I* U ABBvoice

☐ Continuous Index Min: 0 Range: 4

Index	Message Description
1	2 Motor Frequency (Hz)
2	4 Motor Speed (rpm)
3	8 Motor Current (A)
4	16 Motor Torque (%)

OK Cancel

Min	-1000
DataLink	Drive_Trend_Curve_Min
Access Type	R
Max	1000
DataLink	Drive_Trend_Curve_Max
Access Type	R

**Trend Cursor:**

Enables and disables the Trend Cursor.

Allows user to move the trend cursor left and right.

### Trend Duration:

It can select the duration.

Index	String List	Data List
0	1 min	1
1	5 min	2
2	10 min	3
3	30 min	4
4	1 hour	5

## 5.5 Control\_Alarms

The Control\_Alarms page uses the template – Banner\_Sub1.

ABB Warnings and Faults			ABCDEABCDEAB	12:11:20 AM 21-Jan-2021	Home
Tripping Fault	1869F	ACS/DCSx80 Drives Fault messages...	Information At Fault	ACSDRIVE01	
Active Fault 2	1869F	ACS/DCSx80 Drives Fault messages...	Motor Speed: 9999.0	ACSDRIVE02	
Active Fault 3	1869F	ACS/DCSx80 Drives Fault messages...	Output Freq.: 9999.0	ACSDRIVE03	
Latest Fault	1869F	ACS/DCSx80 Drives Fault messages...	DC Voltage: 9999.0	ACSDRIVE04	
2nd Latest Fault	1869F	ACS/DCSx80 Drives Fault messages...	Motor Current: 9999.0	ACSDRIVE05	
3rd Latest Fault	1869F	ACS/DCSx80 Drives Fault messages...	Motor Torque: 9999.0	ACSDRIVE06	
Active Warning 1	1869F	ACS/DCSx80 Drives Warning messages..	Main Status Word: FFFF	ACSDRIVE07	
Active Warning 2	1869F	ACS/DCSx80 Drives Warning messages..	DI Delayed Status: FFFF	ACSDRIVE08	
Active Warning 3	1869F	ACS/DCSx80 Drives Warning messages..	Inverter Temp.: 9999.0		
Latest Warning	1869F	ACS/DCSx80 Drives Warning messages..	Reference Used: 9999.0		
2nd Latest Warning	1869F	ACS/DCSx80 Drives Warning messages..			
3rd Latest Warning	1869F	ACS/DCSx80 Drives Warning messages..			
			Drive Reset		

Control Advance Trend Label Alarms 99

Drive Fault Message

Drive Warning Message

Information at Fault


Drive Reset



**Drive Fault Message:**

This widget contains all the fault message from the drives.

Message Text

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ABBvoice

☒ Continuous Index

Min: 0

Range: 4

	Index	Message Description	
1	0	ACSx80 Drives No Fault Messages...	
2	4224	Backup/Restore timeout	
3	4225	Rating ID fault	
4	5138	Fault reset	
5	5140	Backup/Restore timeout	


OK

Cancel

**Drive Warning Message:**

This widget contains all the warning message from the drives.

Message Text

☒  Multilanguage

Lang1

**B** *I* U

ABBvoice

☒ Continuous Index

Min: 0

Range: 4

	Index	Message Description	
1	0	ACSx80 Drives No Warning Messages...	
2	25855	Fault reset	
3	41219	DC-breaker acknowledge	
4	41220	Reversal volt function	
5	41221	Dynamic braking acknowledge	

OK

Cancel

**Information at Fault:**

Display the information of the drive when faulted. This information is not available on all type of drives. It is only visible if the selected drive does support it.

<div>General</div>	
Id	DriveAlarms.InfoAtFault
Visible	true
DataLink	\${DriveID}/DriveType BitIndexXForm(6)
Access Type	R

**Drive Reset Button:**

When pressed, it resets the selected drive.

Shape Button : DriveAlarms.BtnRect	
Value	0
DataLink	\${DriveID}/0001_CW R/W BitIndexXForm(7)
Access Type	R/W
Click Type	momentary

## 5.6 Panel\_Setting

The Panel\_Setting page uses the template – Banner\_Sub2.

A dark rectangle with opacity 0.7 hides the content if the “Date\_Time” dialogue is activated.

**ABB Panel Information**
ABCDEABCDEAB
02:20:35 PM  
25-Jan-2021

Main OS Version:	OS version	Display Brightness:	5%
Runtime Version:	runtime version	Serial Communication Parameters	
Manufacturer Code:	9999	Baudrate:	150 Stop Bits: 1
Available Sys.Mem:	2345.67 MBytes	Parity:	None Mode: RS-232
Flash Free Space:	2345.67 MBytes	Data Bits:	8
Backlight Time:	2345678 Hours	Apply	
System Up Time:	2345678 Hours	Network Adapter Parameters	
Project Date:	25/Jan/2021 - 14:22:35	ETH1 Use DHCP: No	
Project Name:	Current_project_name_that_loaded_in_the_PL	Mac ID:	BC:F4:BB:4F:F8:38
Comm. Status:	At least one comm. protocol reports an error.	IP Address:	192.168.121.123
Comm. Error Count:	99999	Subnet Mask:	192.168.121.123
Comm. Error Message:	Communication error with error source. Blank when no errors are reported.	Gateway:	192.168.121.123

Visible	true	+
DataLink	Date_Time_En	-
Access	R	
Opacity	0.7	a +
Lock	false	a +
Static Opti	normal	

**ABB Panel Information**
ABCDEABCDEAB
12:33:27 AM  
21-Jan-2021

Main OS Version:	OS version	Display Brightness:	5%
Runtime Version:	runtime version	Serial Communication Parameters	
Manufacturer Code:	9999	Baudrate:	150 Stop Bits: 1
Available Sys.Mem:	2345.67 MBytes	Parity:	None Mode: RS-232
Flash Free Space:	2345.67 MBytes	Data Bits:	8
Backlight Time:	2345678 Hours	Apply	
System Up Time:	2345678 Hours	Network Adapter Parameters	
Project Date:	21/Jan/2021 - 00:33:27	ETH1 Use DHCP: No	
Project Name:	Current_project_name_that_loaded_in_the_PL	Mac ID:	BC:F4:BB:4F:F8:38
Comm. Status:	At least one comm. protocol reports an error.	IP Address:	192.168.121.123
Comm. Error Count:	99999	Subnet Mask:	192.168.121.123
Comm. Error Message:	Communication error with error source. Blank when no errors are reported.	Gateway:	192.168.121.123

**Drives Setting**
Label
Alarms 99

Panel  
Information

Serial  
Communication  
Parameters

Display  
Brightness

Ethernet  
Parameters

**Panel Information:**

Display the information of the panel. The information is linked to the System Tags.

Source: ☐ Tag ☐ Alias ☒ System ☐ Widget ☐ Recipe

Search

▷ Alarms

▷ Buzzer

▷ Communication

▷ Daylight Saving Time

▾ Device

Available System Memory

Backlight Time

Battery LED

Battery Timeout

Display Brightness

External Timeout

Flash Free Space

Manufacturer Code

System Font List

System Mode

System Mode

**Serial Communication Parameters:**

Allows the user to change the serial communication settings.

SerialCommParam-1.0:1.0 : SerialCommParam		
Serial Baud Rate	150	
SerialCommParam-1.0	CommSerialBaudrate   R/W	
Access Type	R/W	
Serial Parity	0	
SerialCommParam-1.0	CommSerialParity   R/W	
Access Type	R/W	
Serial Stop Bits	1	
SerialCommParam-1.0	CommSerialStopBits   R/W	
Access Type	R/W	
Serial Mode	0	
SerialCommParam-1.0	CommSerialMode   R/W	
Access Type	R/W	
Serial Done	0	
SerialCommParam-1.0	CommSerialDone   R/W	
Access Type	R/W	

**Display Brightness:**

Allows the user to set the brightness of the panel in a range from 5% to 100%.

Index	0
List	5%,25%,50%,75%,100%
Data	12
DataLink	Display Brightness:_SysPropMgr R/W
Access Type	R/W

Combo Box

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+ - Data list

Index	String List	Data List
0	5%	12
1	25%	64
2	50%	128
3	75%	192
4	100%	255

OK Cancel

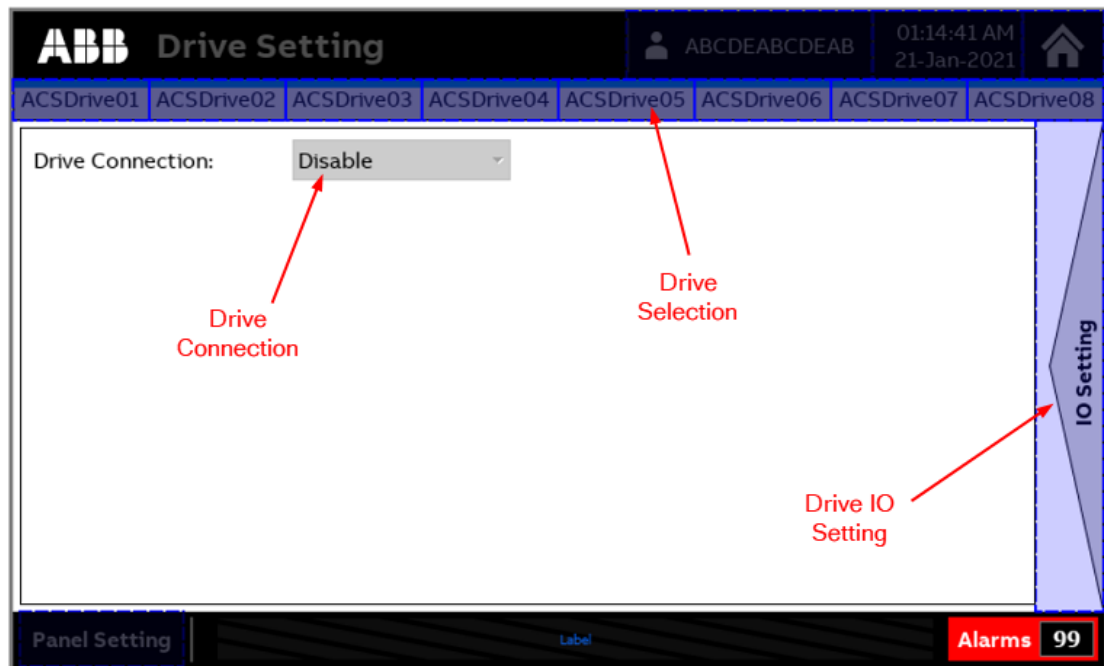
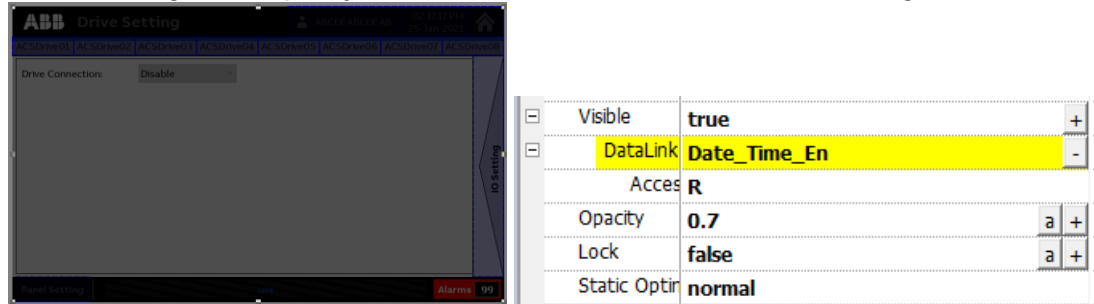
**Ethernet Parameters:**

Allows the user to set the Ethernet Adapter Parameters.

## 5.7 Drives\_Setting

The Drives\_Setting page uses the template – Banner\_Sub2.

A dark rectangle with opacity 0.7 hides the content if the “Date\_Time” dialogue is activated.



### Drive Selection Button:

Allows the user to select which drive to configure. When pressed, it toggles the drive selected bit and deselects all others.

Events	
OnMouseClicked Action	10 Actions
Action[0]	WriteTag(_ TagMgr:Drive_Setting_Name,ACSDrive01)
Action[1]	WriteTag(_ TagMgr:Drive_Setting_Select,1)
Action[2]	SetBit(_ TagMgr:Drive_Selected_01,0)
Action[3]	ResetBit(_ TagMgr:Drive_Selected_02,0)
Action[4]	ResetBit(_ TagMgr:Drive_Selected_03,0)
Action[5]	ResetBit(_ TagMgr:Drive_Selected_04,0)
Action[6]	ResetBit(_ TagMgr:Drive_Selected_05,0)
Action[7]	ResetBit(_ TagMgr:Drive_Selected_06,0)
Action[8]	ResetBit(_ TagMgr:Drive_Selected_07,0)
Action[9]	ResetBit(_ TagMgr:Drive_Selected_08,0)

**Drive IO Setting Button:**

Visible when the drive is enabled.

It loads the IO Setting page when pressed.

[-] Events	
[-] OnMouseClicked Action	2 Actions
Action[0]	SetBit(_TagMgr:IO_Setting_En,0)
Action[1]	ShowDialog(io_setting.jmx)

**Drive Connection:**

Allow the user to enable the drive.

[-] + Text : DriveSetting.DriveConnect.id	Drive Connection:
[-] Combo Box : DriveSetting.DriveConnect.value	
[-] Index	0
[-] DataLink	<b><code>\${DriveID}/Enable  R/W</code></b>
Access Type	<b>R/W</b>
List	<b>Disable,Enable</b>
[-] Data	0
[-] DataLink	<b><code>\${DriveID}/Enable  R/W</code></b>
Access Type	<b>R/W</b>

When enabled, the white rectangle will be hidden.

[-] Visible	<b>true</b>
[-] DataLink	<b><code>\${DriveID}/Disable</code></b>
Access Type	<b>R</b>

Then it shows the option to configure the drive.

Drive Connection:	Disable ▾	HMI Control:	Enable ▾
Drive Name:	Drive Name	Power Unit Selection:	kW ▾
Node ID:	Disable ▾	Torque Unit Selection:	Nm (N-m) ▾
Drive Type:	Select... ▾	Parameter Save:	Done ▾
Comm. Loss Mode:	Any Message ▾	<u>Motor Data (Read Only)</u>	
Comm. Control:	Enabled ▾	Motor Type:	Permanent Magnet
Speed Scaling (rpm):	30000	Motor Control Mode:	Vector/DTC
Frequency Scaling (Hz):	1000.0	Motor Nominal Current:	6400.00 A
Current Scaling (A):	10000	Motor Nominal Voltage:	800.0 V
Power Scaling (kW):	1000	Motor Nominal Frequency:	15000.00 Hz
		Motor Nominal Speed:	30000 rpm
		Motor Nominal Power:	10000.00 hp

## 6 Dialogs

### 6.1 Start\_Inhibit

This page will be shown when the “Start Inhibit Status” button is pressed.

Start Inhibit Status		
Bit	Name	Description
0	Not ready run	DC voltage is missing or drive has not been parametrized correctly
1	Ctrl location changed	Control location has changed
2	SSW inhibit	Control program is keeping itself in inhibited state
3	Fault reset	A fault has been reset
4	Lost start enable	Start enable signal missing
5	Lost run enable	Run enable signal missing
6	FSO inhibit	Operation prevented by FSO-xx safety functions module
7	STO	Safe torque off active
8	Current calibration ended	Current calibration routine has finished
9	ID run ended	Motor identification run has finished
10	Auto phase ended	Autophasing routine has finished
11	Em Off1	Emergency stop signal (mode Off1)
12	Em Off2	Emergency stop signal (mode Off2)
13	Em Off3	Emergency stop signal (mode Off3)
14	Auto reset inhibit	The autoreset function is inhibiting operation
15	Jogging active	The jogging enable signal is inhibiting operation

Back Button      Start Inhibit Status

#### Start Inhibit Status:

The table only displays the inhibit conditions which are active.

Visible	true
DataLink	\$(DriveID)/0618_StartInhibitStatus BitIndexXForm(6)
Access Type	R

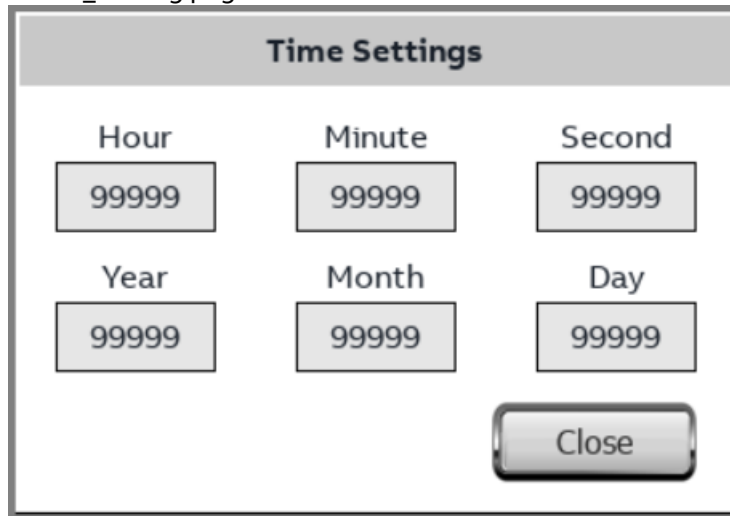
#### Back Button:

When pressed, it closes this dialog page and returns to the Control\_Advance page.

Events	
OnMouseClicked Action	2 Actions
Action[0]	ResetBit(_TagMgr:Start_Inhibit_En,0)
Action[1]	CloseDialog(Selected)

## 6.2 Date\_Time

This page is displayed when the data & time button is pressed in the Panel\_Setting page or Drives\_Setting page.

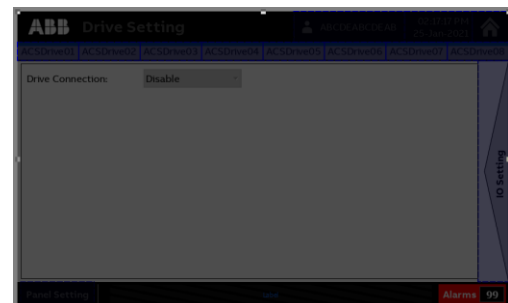
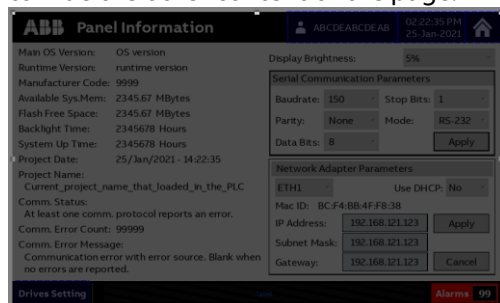


The Time Settings dialog box has a title bar "Time Settings". It contains six input fields arranged in two rows of three. The top row is labeled "Hour", "Minute", and "Second". The bottom row is labeled "Year", "Month", and "Day". Each input field contains the value "99999". Below the input fields is a "Close" button.

It allows the user to set the year, month, day, hour, minute and second. When the close button is pressed, it will return to the previous page.

OnMouseRelease Act	2 Actions
Action[0]	ResetBit(_TagMgr:Date_Time_En,0)
Action[1]	CloseDialog(Selected)

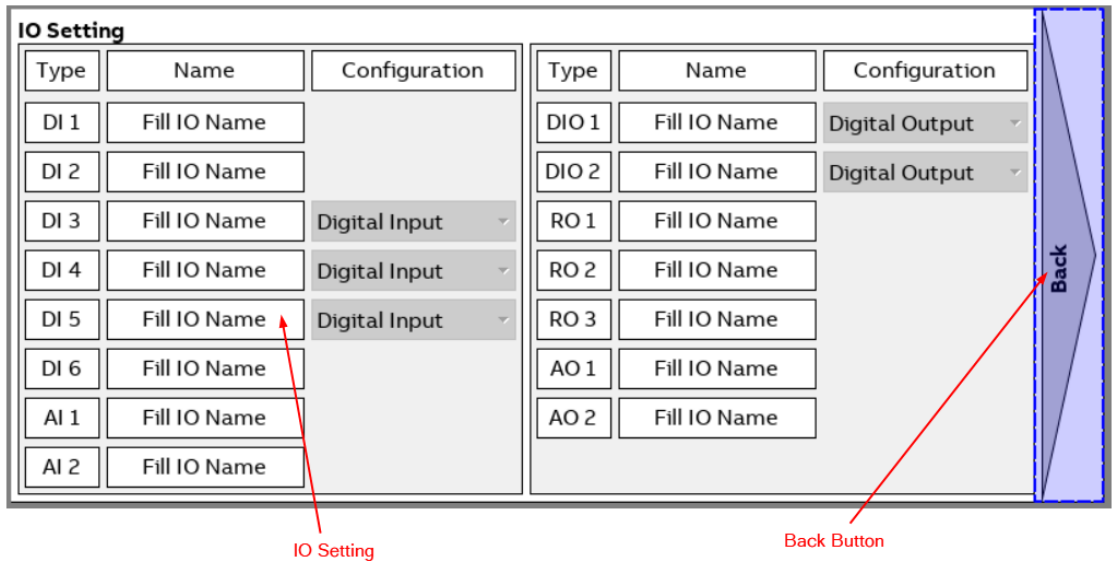
Via the Date\_Time\_En bit the dark rectangle in the background of the dialogue will be visible to hide the other content of the page.





### 6.3 IO\_Setting

This page is displayed when the “IO Setting” button is pressed.



**IO Setting:**

The IOs will be shown based on the Drive type selection.

Visible	true
DataLink	\${DriveID}/DriveType BitIndexXForm(1)
Access Type	R

The “Fill IO Name” tag is stored into the non-volatile memory of the panel.


Value	Fill IO Name
DataLink	\${DriveID}/Name_DI6 R/W
Access Type	R/W
Number Format	None
Keypad	Alphabet
Min	0
Max	0

Name	Groups	Driver	Address	Encoding
ACSDrive01/Drive Type		System Variables:prot2	RET_MEM 0 short	
ACSDrive01/Name_Drive		System Variables:prot2	RET_MEM 2 string [12]	UTF-8
ACSDrive01/Name_DI1		System Variables:prot2	RET_MEM 14 string [12]	UTF-8
ACSDrive01/Name_DI2		System Variables:prot2	RET_MEM 26 string [12]	UTF-8
ACSDrive01/Name_DI3		System Variables:prot2	RET_MEM 38 string [12]	UTF-8

The configuration allows the user to change the input type.

Combo Box : DriveIOSetting.DI_3.config	
Index	0
List	Digital Input,Frequency Input
Data	0
DataLink	/1113_DI3_Config R/W
Access Type	R/W

☒

Multilanguage

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Index	String List	Data List
0	Digital Input	0
1	Frequency Input	1

#### Back Button:

When pressed, it closes this dialog page and returns to Drives\_Setting page.

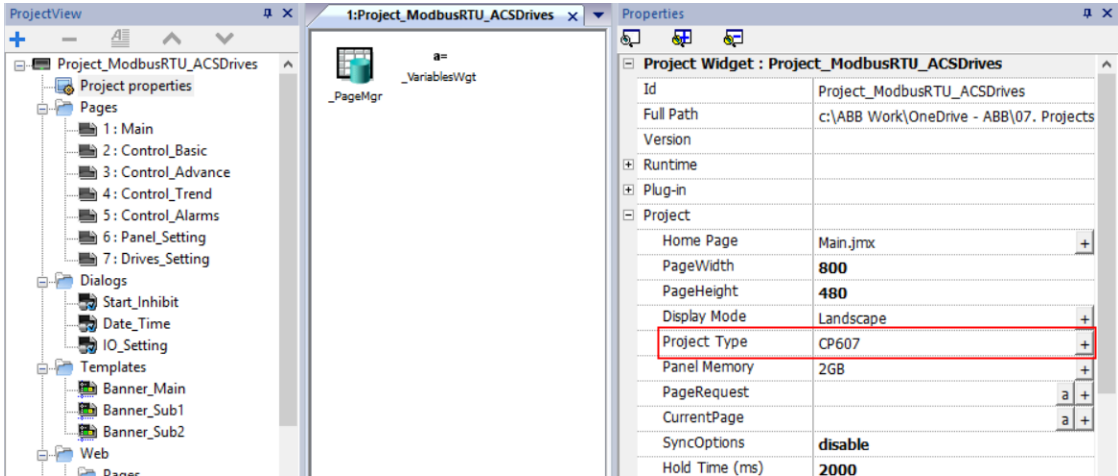
OnMouseClicked Action	2 Actions
Action[0]	ResetBit(_ TagMgr:IO_Setting_En,0)
Action[1]	CloseDialog(Selected)

# 7 Switching Panel Type

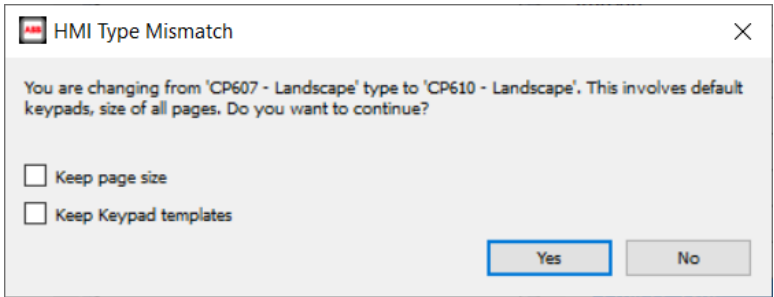
## 7.1 Project Properties

All the project setting is with default values.

To change the panel type, please click on the “+” button at the Project Type. Then select the desire panel type, in this example we will switch to CP610 with resolution 1024 x 600.



The “HMI Type Mismatch” window will popup, without select any checkbox and click “Yes” to continue.

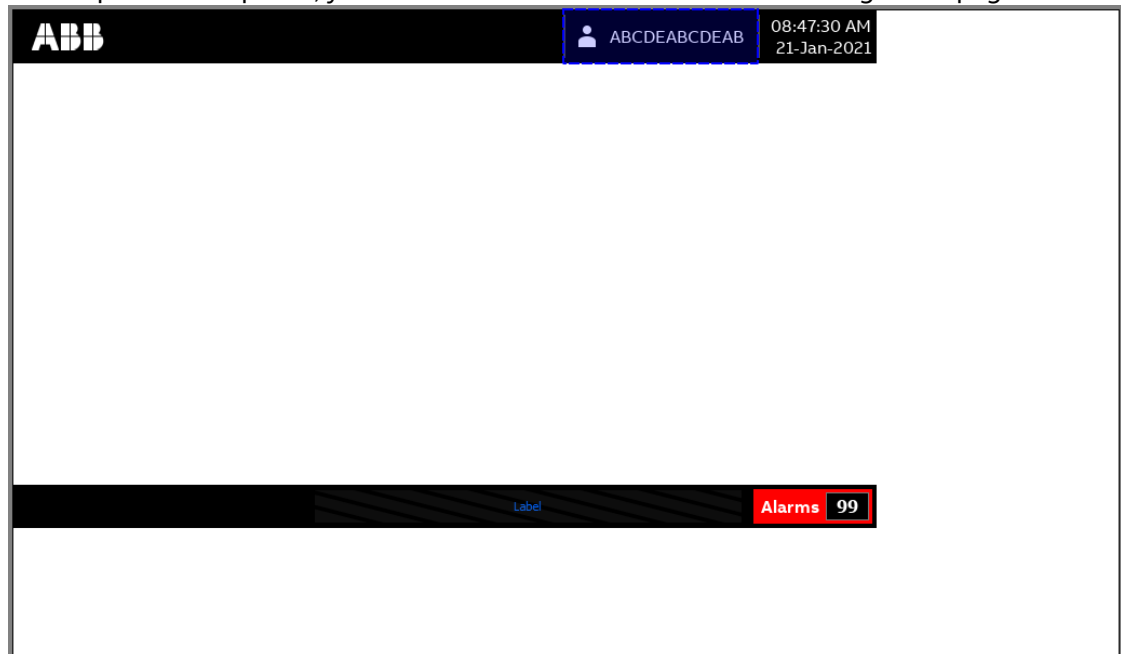


When complete, you will notice the Project type, PageWidth and PageHeight have change.

Project	
Home Page	Main.jmx
PageWidth	1024
PageHeight	600
Display Mode	Landscape
Project Type	CP610
Panel Memory	2GB




## 7.2 Templates

When open the templates, you will notice the different between the widget and page size.

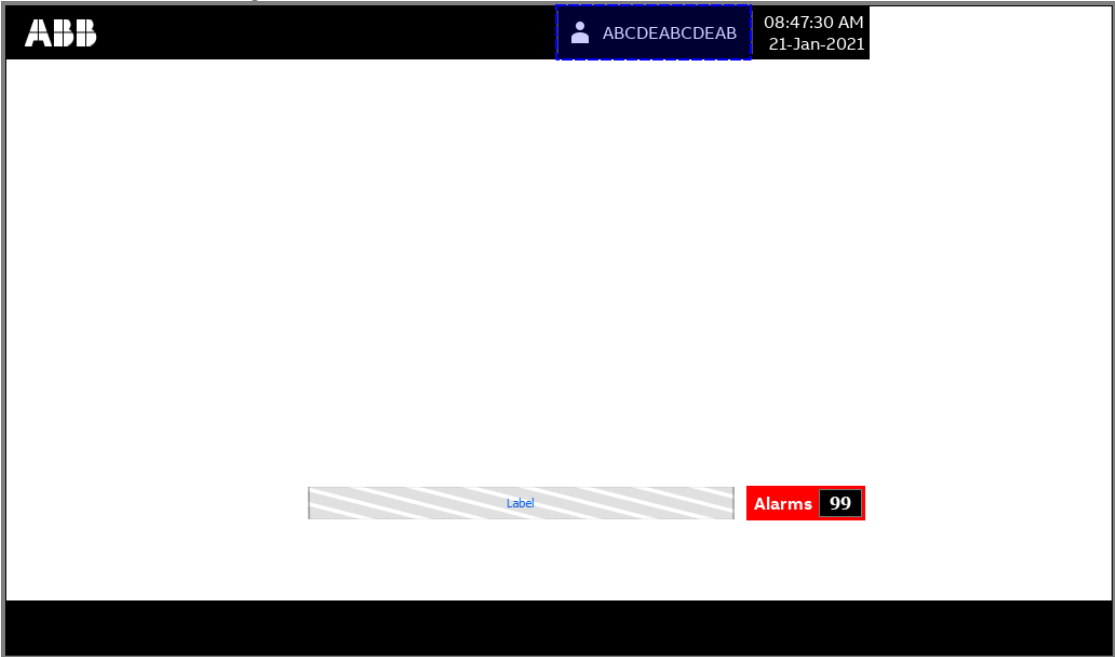


Manual step is required to change the size, position of the widget. Some of the widget need to change the font size.

As example, select the bottom black rectangle and change the position properties as below.

Properties	
  	
Shape : rect1	
FillColor	■ [0, 0, 0]
StrokeColor	■ [0, 0, 0]
StrokeWidth	1
Events	
Drawing	
General	
Position	
X	0
Y	440 → 550
CX	400
CY	20
Width	800 → 1024
Height	40 → 50
Rotation	0

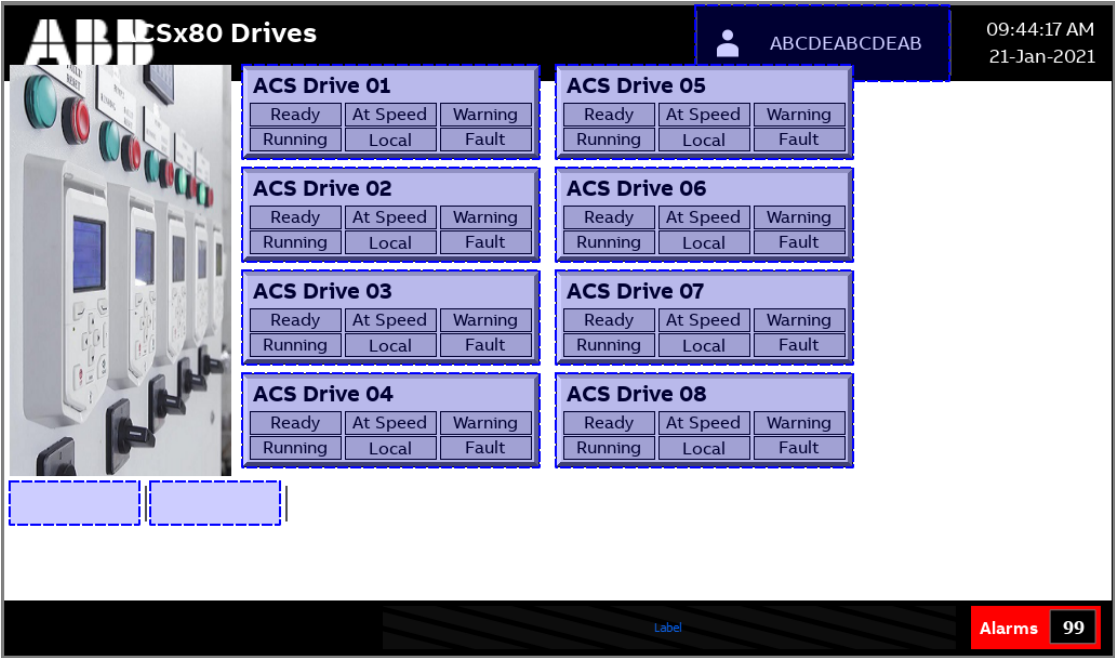
The result after change.



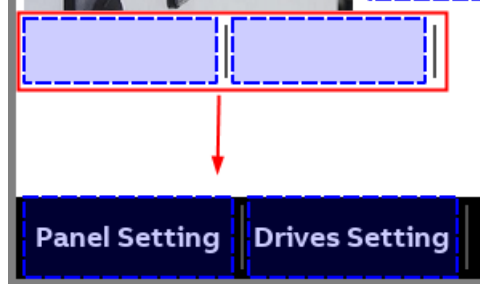
User need to repeat the step for others widget.  
On the bottom, you need to leave the space for the navigation button (Main page) on the left.

### 7.3 Pages

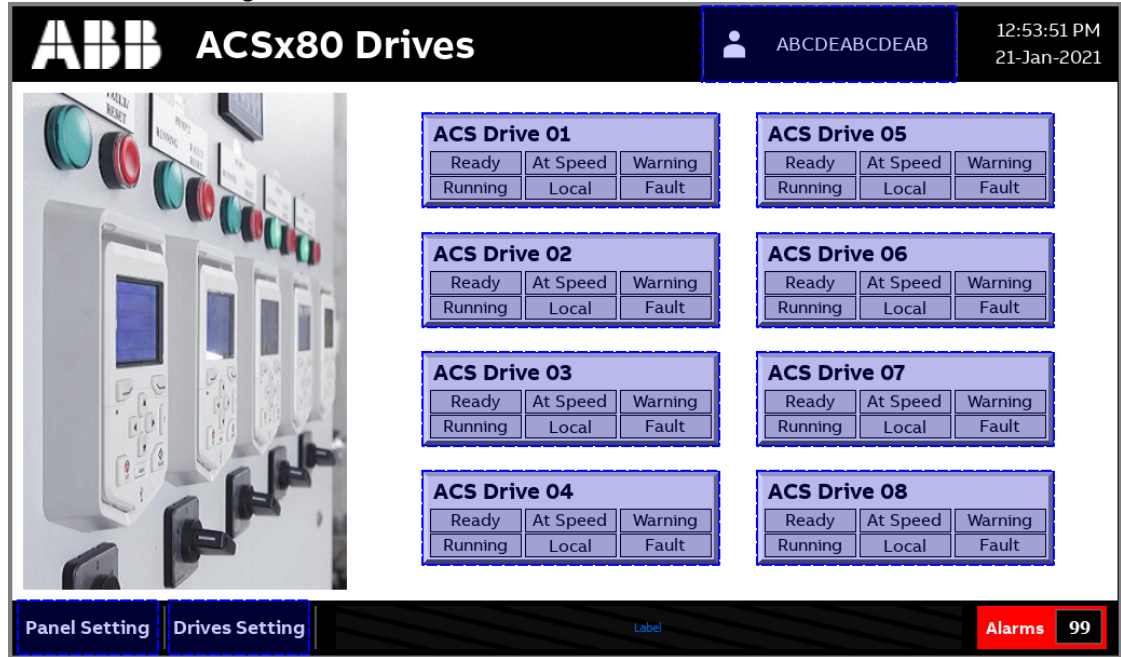
Main Page:



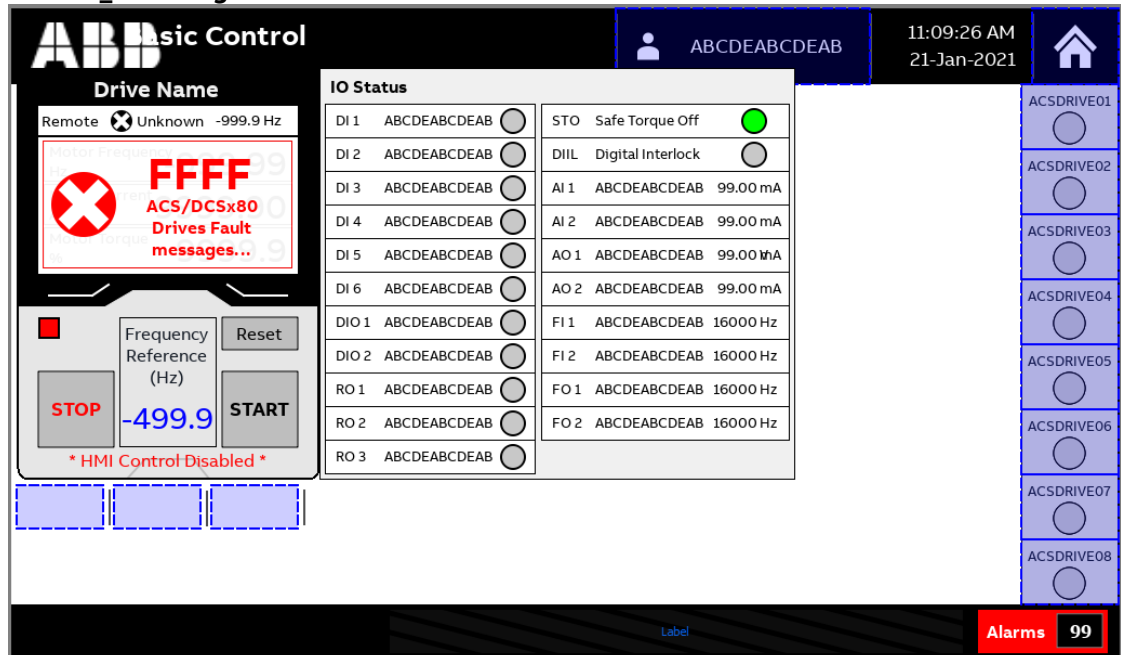
First, relocate the page navigation button by adjusting position, size and fonts.



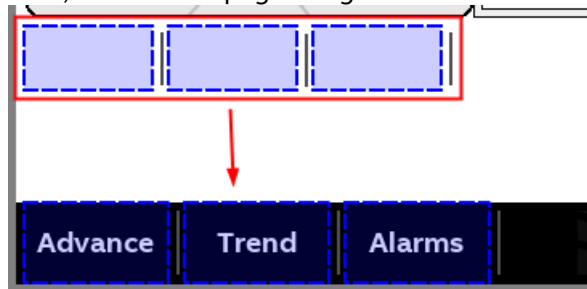
Resize the title, image and then relocate the drive selection button.



Control\_Basic Page:






First, relocate the page navigation button with adjust the position, size and fonts.



For the DriveControlBasic widget, just relocate the position and resize. Resize need to follow the aspect ratio to avoid graphic misalign.

Properties



DriveControlBasic-1.0:1.0 : DriveControlBasic

Drive ID

DriveControlBasic-1.0:1.0

Drive\_Selected\_Name

Access Type


R

General

Position

X


5



30

Y

55



80

Width

280

X 1.2 = 336

Height

380

X 1.2 = 456

CX

140

CY




190

Rotation

0

For the DriveIOStatus widget, just relocate the position and resize. Resize need to follow the aspect ratio to avoid graphic misalign.

Properties



DriveIOStatus-1.0:1.0 : DriveIOStatus

Drive ID

DriveIOStatus-1.0:1.0

Drive\_Selected\_Name

Access Type


R

+ General

Position

X


285



380

Y

55



80

Width

440

$\times 1.2 = 528$

Height

380

$\times 1.2 = 456$

CX

220

CY

190

Rotation

0

Resize and relocate the title.  
The result after change.

**Drive Name**

Remote ☒ Unknown -999.9 Hz

Motor Frequency **FFFF**

ACS/DCSx80 Drives  
Fault messages...

Frequency Reference (Hz) **-499.9**

STOP START

\* HMI Control Disabled \*

**IO Status**

DI 1	ABCDEABCDEAB	STO	Safe Torque Off	<input checked="" type="checkbox"/>
DI 2	ABCDEABCDEAB	DIIL	Digital Interlock	<input type="checkbox"/>
DI 3	ABCDEABCDEAB	AI 1	ABCDEABCDEAB	99.00 mA
DI 4	ABCDEABCDEAB	AI 2	ABCDEABCDEAB	99.00 mA
DI 5	ABCDEABCDEAB	AO 1	ABCDEABCDEAB	99.00 mA
DI 6	ABCDEABCDEAB	AO 2	ABCDEABCDEAB	99.00 mA
DIO 1	ABCDEABCDEAB	FI 1	ABCDEABCDEAB	16000 Hz
DIO 2	ABCDEABCDEAB	FI 2	ABCDEABCDEAB	16000 Hz
RO 1	ABCDEABCDEAB	FO 1	ABCDEABCDEAB	16000 Hz
RO 2	ABCDEABCDEAB	FO 2	ABCDEABCDEAB	16000 Hz
RO 3	ABCDEABCDEAB			

ACSDRIVE01  
ACSDRIVE02  
ACSDRIVE03  
ACSDRIVE04  
ACSDRIVE05  
ACSDRIVE06  
ACSDRIVE07  
ACSDRIVE08

Advance Trend Alarms **Alarms 99**

#### Control\_Advance Page:

**Start Inhibit Status**

Bits	Status Word	Status
0	RDY_ON	
1	RDY_RUN	
2	RDY_REF	
3	TRIPPED	
4	OFF_2_STATUS	
5	OFF_3_STATUS	
6	SWC_ON_INHIB	
7	ALARM	
8	AT_SETPOINT	
9	REMOTE	
10	ABOVE_LIMIT	
11	USER_0	
12	USER_1	
13	USER_2	
14	USER_3	
15	RESERVED	

**Control**

Bits	Control Word	Control
0	OFF1_CONTROL	
1	OFF2_CONTROL	
2	OFF3_CONTROL	
3	INHIBIT_OPERATION	
4	RAMP_OUT_ZERO	
5	RAMP_HOLD	
6	RAMP_IN_ZERO	
7	RESET	
8	JOGGING_1	
9	JOGGING_2	
10	REMOTE_CMD	
11	EXT_CTRL_LOC	
12	USER_0	
13	USER_1	
14	USER_2	
15	USER_3	

**Control \* HMI Control disabled \***

Frequency Reference (Hz): 9999.0

Acceleration Time 1 (s): 999.0

Deceleration Time 1 (s): 999.0

**Status**

Motor Speed (rpm): 99999

Motor Frequency (Hz): 9999.00

Motor Current (A): 9999.00

Motor Torque (%): 9999.0

DC Voltage (V): 9999.0

Output Voltage (V): 9999.0

Output Power (kW): 9999.00

Inverter Temperature (%): 999.0

ACSDRIVE01  
ACSDRIVE02  
ACSDRIVE03  
ACSDRIVE04  
ACSDRIVE05  
ACSDRIVE06  
ACSDRIVE07  
ACSDRIVE08

Advance Trend Alarms **Alarms 99**

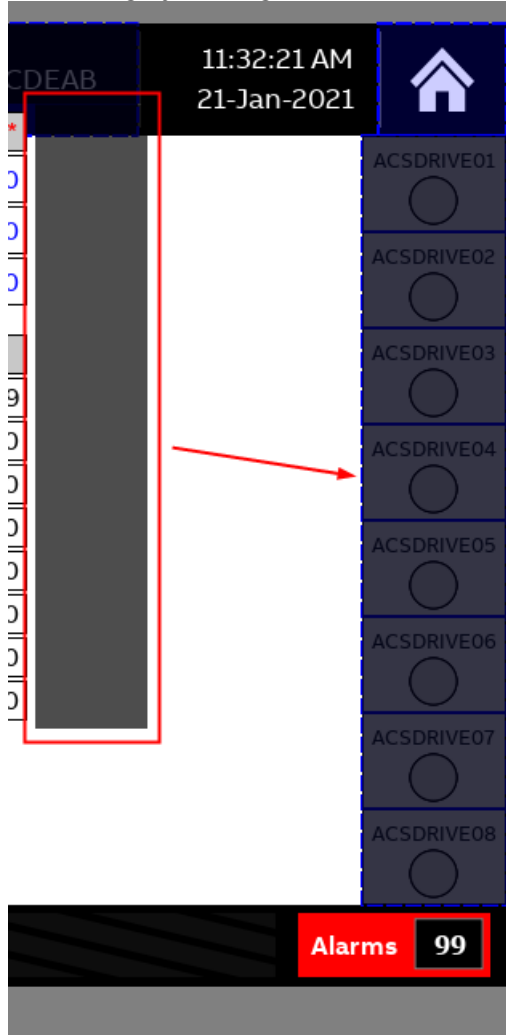
First, relocate the page navigation button with adjust the position, size and fonts.

15 RESERVED 15 USER\_3

Control Trend Alarms



Move the gray rectangle to the side.



For the StartInhibitShow widget, just relocate the position and resize. Resize need to follow the aspect ratio to avoid graphic misalign.

Properties		
<div> </div>		
StartInhibitShow : StartInhibitShow		
Drive ID		
StartInhibitShow	Drive_Selected_Name	
Access Type	R	
General		
Position		
X	0	
Y	50	→ 76
Width	45	X 1.2 = 54
Height	390	X 1.2 = 468
CX	22.5	
CY	195	
Rotation	0	

For the DriveControlAdvance widget, just relocate the position and resize. Resize need to follow the aspect ratio to avoid graphic misalign.

Properties

DriveControlAdvanced-1.0:1.0 : DriveControlAdvance		
Drive ID		
DriveControlAdvanced-	Drive_Selected_Name	
Access Type	R	
General		
Position		
X	45	→ 60
Y	55	→ 82
Width	680	X 1.2 = 816
Height	380	X 1.2 = 456
CX	340	
CY	190	
Rotation	0	

Resize and relocate the title and the gray rectangle at the top. The result after change.

ABB

Advance Control

ABCDEABCDEAB

12:55:07 PM  
21-Jan-2021

Home

Start Inhibit Status

Bits	Status Word	Status
0	RDY_ON	
1	RDY_RUN	
2	RDY_REF	
3	TRIPPED	
4	OFF_2_STATUS	
5	OFF_3_STATUS	
6	SWC_ON_INHIB	
7	ALARM	
8	AT_SETPOINT	
9	REMOTE	
10	ABOVE_LIMIT	
11	USER_0	
12	USER_1	
13	USER_2	
14	USER_3	
15	RESERVED	

Bits	Control Word	Control
0	OFF1_CONTROL	
1	OFF2_CONTROL	
2	OFF3_CONTROL	
3	INHIBIT_OPERATION	
4	RAMP_OUT_ZERO	
5	RAMP_HOLD	
6	RAMP_IN_ZERO	
7	RESET	
8	JOGGING_1	
9	JOGGING_2	
10	REMOTE_CMD	
11	EXT_CTRL_LOC	
12	USER_0	
13	USER_1	
14	USER_2	
15	USER_3	

\* HMI Control disabled \*

Frequency Reference (Hz): 9999.0

Acceleration Time 1 (s): 999.0

Deceleration Time 1 (s): 999.0

Status

Motor Speed (rpm): 99999

Motor Frequency (Hz): 9999.00

Motor Current (A): 9999.00

Motor Torque (%): 9999.0

DC Voltage (V): 9999.0

Output Voltage (V): 9999.0

Output Power (kW): 9999.00

Inverter Temperature (%): 999.0

ACSDRIVE01

ACSDRIVE02

ACSDRIVE03

ACSDRIVE04

ACSDRIVE05

ACSDRIVE06

ACSDRIVE07

ACSDRIVE08

Control

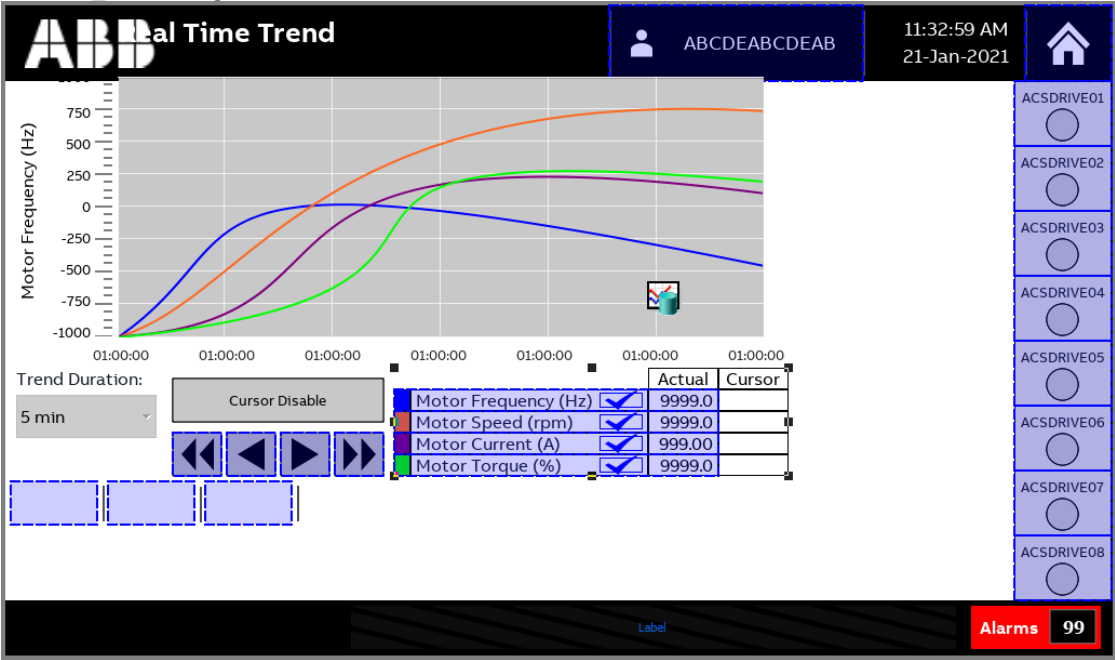
Trend

Alarms

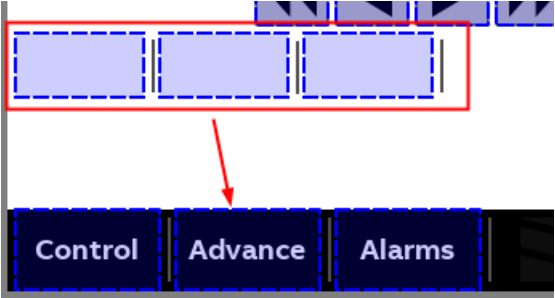
Label

Alarms 99

Control\_Trend Page:



First, relocate the page navigation button with adjust the position, size and fonts.

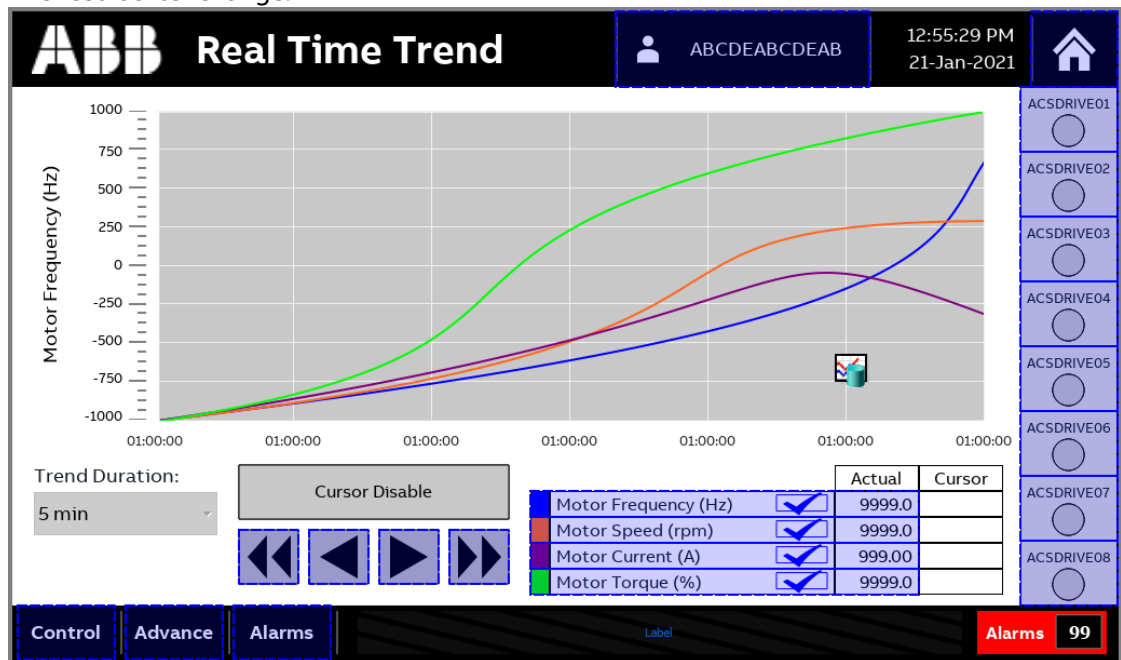


For the TrendLegend widget, just relocate the position and resize. Resize need to follow the aspect ratio to avoid graphic misalign.

Properties

TrendLegend : DriveTrend1		
Drive ID		
TrendLegend	Drive_Selected_Name	
Access Type	R	
General		
Position		
X	360	→ 480
Y	335	→ 420
Width	365	X 1.2 = 438
Height	100	X 1.2 = 120
CX	182.5	
CY	50	
Rotation	0	

Resize and relocate the trend cursor button, trend duration, Realtime Trend and Title.  
The result after change.



#### Control\_Alarms Page:

**ABB Alarms and Faults**

User: ABCDEABCDEAB | Time: 11:33:02 AM | Date: 21-Jan-2021

Fault/Warning	Code	Description
Tripping Fault	1869F	ACS/DCSx80 Drives Fault messages...
Active Fault 2	1869F	ACS/DCSx80 Drives Fault messages...
Active Fault 3	1869F	ACS/DCSx80 Drives Fault messages...
Latest Fault	1869F	ACS/DCSx80 Drives Fault messages...
2nd Latest Fault	1869F	ACS/DCSx80 Drives Fault messages...
3rd Latest Fault	1869F	ACS/DCSx80 Drives Fault messages...
Active Warning 1	1869F	ACS/DCSx80 Drives Warning messages...
Active Warning 2	1869F	ACS/DCSx80 Drives Warning messages...
Active Warning 3	1869F	ACS/DCSx80 Drives Warning messages...
Latest Warning	1869F	ACS/DCSx80 Drives Warning messages...
2nd Latest Warning	1869F	ACS/DCSx80 Drives Warning messages...
3rd Latest Warning	1869F	ACS/DCSx80 Drives Warning messages...

Information At Fault	
Motor Speed:	9999.0
Output Freq.:	9999.0
DC Voltage:	9999.0
Motor Current:	9999.0
Motor Torque:	9999.0
Main Status Word:	FFFF
DI Delayed Status:	FFFF
Inverter Temp.:	9999.0
Reference Used:	9999.0

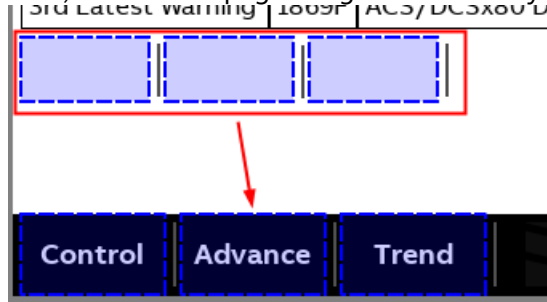
**Drive Reset** button

**Navigation:** Control | Advance | Trend | Label

**Alarms:** 99

**Drives List (Right):** ACS DRIVE01 to ACS DRIVE08.

First, relocate the page navigation button by adjusting position, size and fonts.



For the DriveAlarms widget, just relocate the position and resize.  
 Resize need to follow the aspect ratio to avoid graphic misalign.

Properties

DriveAlarms-1.0:1.0 : DriveAlarms

Drive ID	DriveAlarms-1.0:1.0	Drive_Selected_Name
Access Type	R	
General		
Position		
X	5	30
Y	55	82
Width	720	$720 \times 1.2 = 864$
Height	380	$380 \times 1.2 = 456$
CX	360	
CY	190	
Rotation	0	

Resize and relocate the title.  
 The result after change.

**Warnings and Faults**

ABCDEABCDEAB

12:55:51 PM  
 21-Jan-2021

Tripping Fault	1869F	ACS/DCSx80 Drives Fault messages...	Information At Fault	ACSDRIVE01
Active Fault 2	1869F	ACS/DCSx80 Drives Fault messages...	Motor Speed: 9999.0	ACSDRIVE02
Active Fault 3	1869F	ACS/DCSx80 Drives Fault messages...	Output Freq.: 9999.0	ACSDRIVE03
Latest Fault	1869F	ACS/DCSx80 Drives Fault messages...	DC Voltage: 9999.0	ACSDRIVE04
2nd Latest Fault	1869F	ACS/DCSx80 Drives Fault messages...	Motor Current: 9999.0	ACSDRIVE05
3rd Latest Fault	1869F	ACS/DCSx80 Drives Fault messages...	Motor Torque: 9999.0	ACSDRIVE06
Active Warning 1	1869F	ACS/DCSx80 Drives Warning messages...	Main Status Word: FFFF	ACSDRIVE07
Active Warning 2	1869F	ACS/DCSx80 Drives Warning messages...	DI Delayed Status: FFFF	ACSDRIVE08
Active Warning 3	1869F	ACS/DCSx80 Drives Warning messages...	Inverter Temp.: 9999.0	
Latest Warning	1869F	ACS/DCSx80 Drives Warning messages...	Reference Used: 9999.0	
2nd Latest Warning	1869F	ACS/DCSx80 Drives Warning messages...		
3rd Latest Warning	1869F	ACS/DCSx80 Drives Warning messages...	Drive Reset	

Control

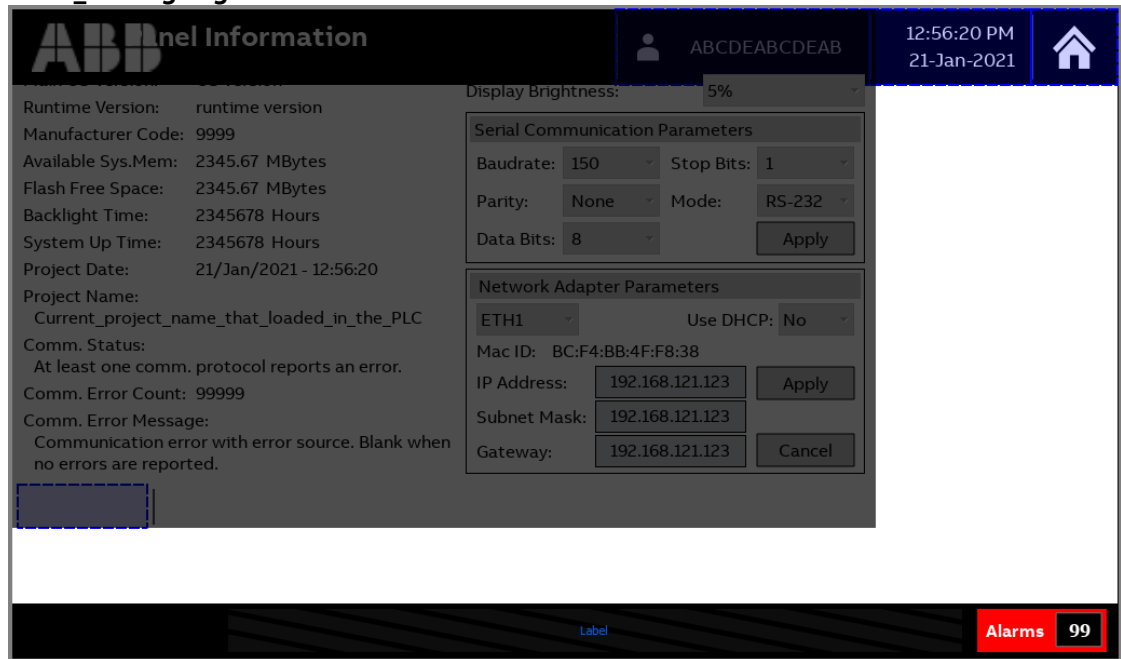
Advance

Trend

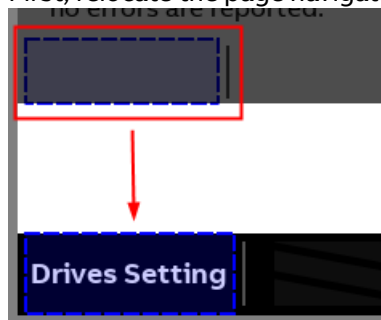
Label

Alarms 99

## Panel\_Setting Page:



First, relocate the page navigation button by adjusting position, size and fonts.



For the SerialCommParam widget, just relocate the position and resize. Resize need to follow the aspect ratio to avoid graphic misalign.

Properties		
SerialCommParam-1.0:1.0 : SerialCommParam		
Serial Baud Rate	150	
Serial Parity	0	
Serial Stop Bits	1	
Serial Mode	0	
Serial Done	0	
General		
Position		
X	420	→ 560
Y	95	→ 135
Width	370	X 1.2 = 444
Height	140	X 1.2 = 168
CX	185	
CY	70	
Rotation	0	

For the com.hmi.ipwidget widget, just relocate the position and resize. Resize need to follow the aspect ratio to avoid graphic misalign.

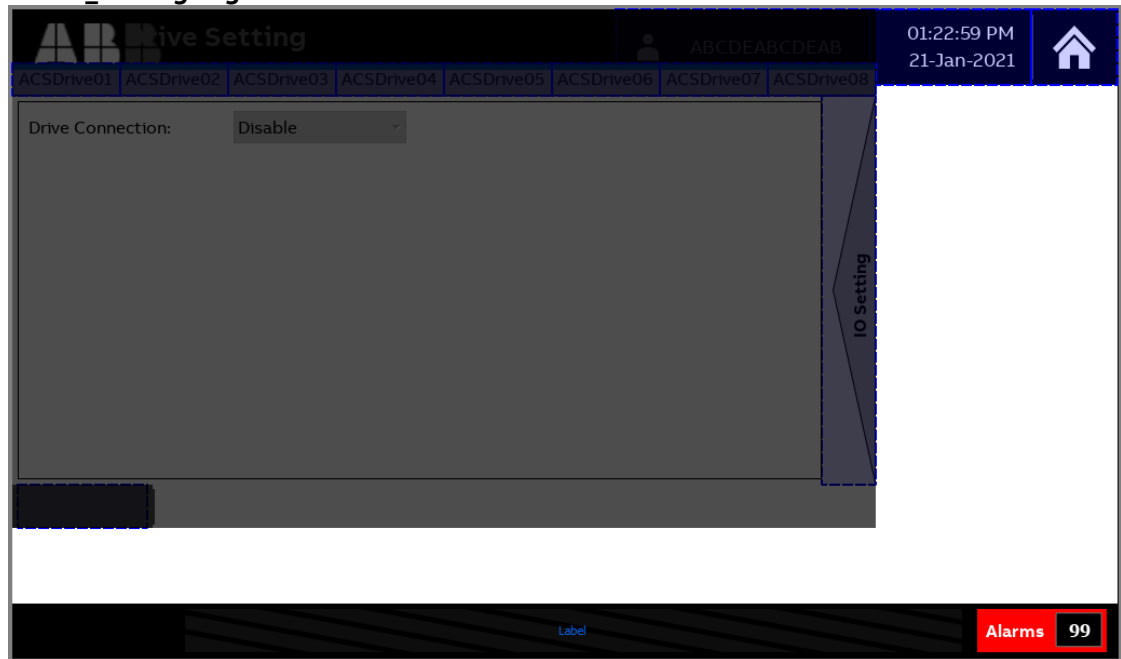
Properties		
com.hmi.ipwidget-1.0.1 : netadapterParam		
Widget Background color	[255, 255, 255]	
Header		
General		
Position		
X	420	→ 560
Y	240	→ 310
Width	370	× 1.2 = 444
Height	190	× 1.2 = 228
CX	185	
CY	95	
Rotation	0	

Resize and relocate the gray rectangle, brightness setting, title and the panel information. The result after change.

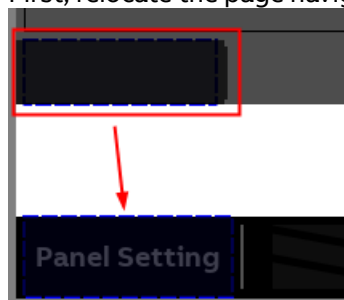
The screenshot shows the ABB Panel Information interface. The top bar includes the ABB logo, the title 'Panel Information', a user ID 'ABCDEABCDEAB', the time '12:58:56 PM' and date '21-Jan-2021', and a home icon. The main content area is divided into two columns. The left column displays system information: Main OS Version (OS version), Runtime Version (runtime version), Manufacturer Code (9999), Available Sys.Mem (2345.67 MBytes), Flash Free Space (2345.67 MBytes), Backlight Time (2345678 Hours), System Up Time (2345678 Hours), Project Date (21/Jan/2021 - 12:56:20), Project Name (Current\_project\_name\_that\_loaded\_in\_the\_PLC), Comm. Status (At least one comm. protocol reports an error), Comm. Error Count (99999), and Comm. Error Message (Communication error with error source. Blank when no errors are reported). The right column contains configuration settings: Display Brightness (5%), Serial Communication Parameters (Baudrate: 150, Stop Bits: 1, Parity: None, Mode: RS-232, Data Bits: 8, with an Apply button), and Network Adapter Parameters (Interface: ETH1, Use DHCP: No, Mac ID: BC:F4:BB:4F:F8:38, IP Address: 192.168.121.123, Subnet Mask: 192.168.121.123, Gateway: 192.168.121.123, with Apply and Cancel buttons). At the bottom, there is a 'Drives Setting' tab, a 'Label' field, and an 'Alarms' section showing a count of 99.



## Drives\_Setting Page:



First, relocate the page navigation button by adjusting position, size and fonts.



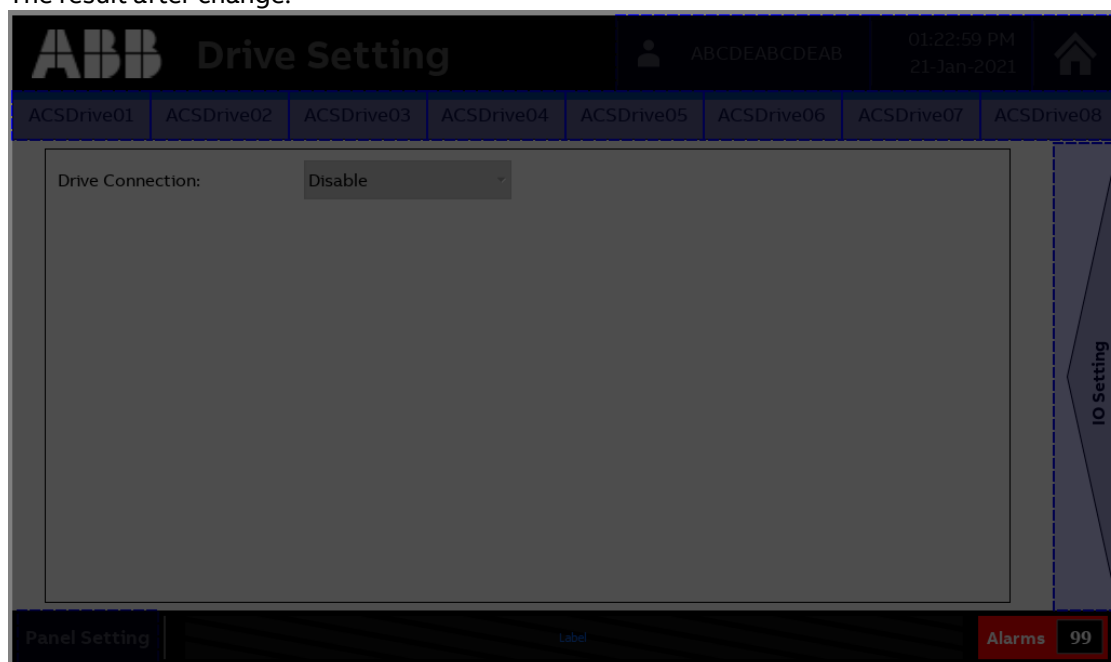
For the DriveSetting widget, just relocate the position and resize. Resize need to follow the aspect ratio to avoid graphic misalign.

Properties		
DriveSetting-1.0:1.0 : DriveSetting		
Drive ID		
DriveSetting-1.0:1.0	Drive_Setting_Name	
Access Type	R	
General		
Position		
X	5	→ 30
Y	85	→ 123
Width	745	X 1.2 = 894
Height	350	X 1.2 = 420
CX	372.5	
CY	175	
Rotation	0	

For the IOSettingShow widget, just relocate the position and resize. Resize need to follow the aspect ratio to avoid graphic misalign.

Properties		
IOSettingShow : IOSettingShow		
Drive ID		
IOSettingShow	Drive_Setting_Name	
Access Type	R	
General		
Position		
X	750	→ 964
Y	80	→ 118
Width	50	X 1.2 = 60
Height	360	X 1.2 = 432
CX	25	
CY	180	
Rotation	0	




Resize and relocate the gray rectangle, drives navigation button and title. The result after change.



## 7.4 Dialogs

### Start\_Inhibit Dialogs:

Change the size of this dialogs to suit the new dimension in the Control\_Advance page.

Properties	
  	
Dialog : Start_Inhibit	
Id	Start_Inhibit
DialogType	modal
Width	730 → 934
Height	390 → 480
Background Color	[255, 255, 255]
JavaScript Debug	false
Title Bar	false
Runtime Position	
Runtime Positioning	true
X	0
Y	50 → 70
Events	

After resizing, we will need to change the size of the widget.

Back	Start Inhibit Status		
	Bit	Name	Description
	0	Not ready run	DC voltage is missing or drive has not been parametrized correctly
	1	Ctrl location changed	Control location has changed
	2	SSW inhibit	Control program is keeping itself in inhibited state
	3	Fault reset	A fault has been reset
	4	Lost start enable	Start enable signal missing
	5	Lost run enable	Run enable signal missing
	6	FSO inhibit	Operation prevented by FSO-xx safety functions module
	7	STO	Safe torque off active
	8	Current calibration ended	Current calibration routine has finished
	9	ID run ended	Motor identification run has finished
	10	Auto phase ended	Autophasing routine has finished
	11	Em Off1	Emergency stop signal (mode Off1)
	12	Em Off2	Emergency stop signal (mode Off2)
	13	Em Off3	Emergency stop signal (mode Off3)
	14	Auto reset inhibit	The autoreset function is inhibiting operation
	15	Jogging active	The jogging enable signal is inhibiting operation

For the DriveStartInhibitStatus widget, just relocate the position and resize.  
Resize need to follow the aspect ratio to avoid graphic misalign.

Properties

DriveStartInhibitStatus-1.0:1.0 : DriveStartInhibit

Drive ID	
DriveStartInhibitStatus-1.0	Drive_Selected_Name
Access Type	R
General	
Position	
X	50 → 90
Y	5 → 12
Width	675 X 1.2 = 810
Height	380 X 1.2 = 456
CX	337.5
CY	190
Rotation	0

Resize and relocate the back button.  
The result after change.

Back

Start Inhibit Status		
Bit	Name	Description
0	Not ready run	DC voltage is missing or drive has not been parametrized correctly
1	Ctrl location changed	Control location has changed
2	SSW inhibit	Control program is keeping itself in inhibited state
3	Fault reset	A fault has been reset
4	Lost start enable	Start enable signal missing
5	Lost run enable	Run enable signal missing
6	FSO inhibit	Operation prevented by FSO-xx safety functions module
7	STO	Safe torque off active
8	Current calibration ended	Current calibration routine has finished
9	ID run ended	Motor identification run has finished
10	Auto phase ended	Autophasing routine has finished
11	Em Off1	Emergency stop signal (mode Off1)
12	Em Off2	Emergency stop signal (mode Off2)
13	Em Off3	Emergency stop signal (mode Off3)
14	Auto reset inhibit	The autoreset function is inhibiting operation
15	Jogging active	The jogging enable signal is inhibiting operation

**Data\_Time Dialog:**

Change not required.

**Time Settings**

Hour	Minute	Second
99999	99999	99999
Year	Month	Day
99999	99999	99999

Close

### IO\_Setting Dialogs:

Change the size of this dialogs to suit the new dimension in the Drives\_Setting page.

Properties	
Dialog : IO_Setting	
Id	IO_Setting
DialogType	modal
Width	800 → 964
Height	360 → 435
Background Color	<input type="checkbox"/> [255, 255, 255]
JavaScript Debug	false
Title Bar	false
Runtime Position	
Runtime Positioning	true
X	0
Y	80 → 115
Events	

After resizing, we will need to change the size of the widget.

Type	Name	Configuration
DI 1	Fill IO Name	
DI 2	Fill IO Name	
DI 3	Fill IO Name	Digital Input
DI 4	Fill IO Name	Digital Input
DI 5	Fill IO Name	Digital Input
DI 6	Fill IO Name	
AI 1	Fill IO Name	
AI 2	Fill IO Name	

Type	Name	Configuration
DIO 1	Fill IO Name	Digital Output
DIO 2	Fill IO Name	Digital Output
RO 1	Fill IO Name	
RO 2	Fill IO Name	
RO 3	Fill IO Name	
AO 1	Fill IO Name	
AO 2	Fill IO Name	

Back

For the DriveIOSetting widget, just relocate the position and resize. Resize need to follow the aspect ratio to avoid graphic misalign.

Properties	
DriveIOSetting-1.0:1.0 : DriveIOSetting	
Drive ID	
DriveIOSetting-1.0:1.0	Drive_Setting_Name
Access Type	R
General	
Position	
X	5
Y	5 → 7.5
Width	745 X 1.2 = 894
Height	350 X 1.2 = 420
CX	0
CY	175
Rotation	0

Resize and relocate the back button.  
The result after change.

IO Setting

Type	Name	Configuration
DI 1	Fill IO Name	
DI 2	Fill IO Name	
DI 3	Fill IO Name	Digital Input
DI 4	Fill IO Name	Digital Input
DI 5	Fill IO Name	Digital Input
DI 6	Fill IO Name	
AI 1	Fill IO Name	
AI 2	Fill IO Name	

Type	Name	Configuration
DIO 1	Fill IO Name	Digital Output
DIO 2	Fill IO Name	Digital Output
RO 1	Fill IO Name	
RO 2	Fill IO Name	
RO 3	Fill IO Name	
AO 1	Fill IO Name	
AO 2	Fill IO Name	

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ABB AG  
Eppelheimer Straße 82  
69123 Heidelberg, Germany  
Phone: +49 62 21 701 1444  
Fax: +49 62 21 701 1382  
E-Mail: [plc.support@de.abb.com](mailto:plc.support@de.abb.com)  
[www.abb.com/plc](http://www.abb.com/plc)

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