

Movicon HMI Quick Start Video

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This video shows how to get started with Yaskawa's SmartPanel HMI.

Instructor Introduction

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Quick Preview

- Hardware Setup
- Variable Import
- Simple HMI screen
- Runtime Simulation
- Run SmartPanel HMI

Here's a quick preview of the process

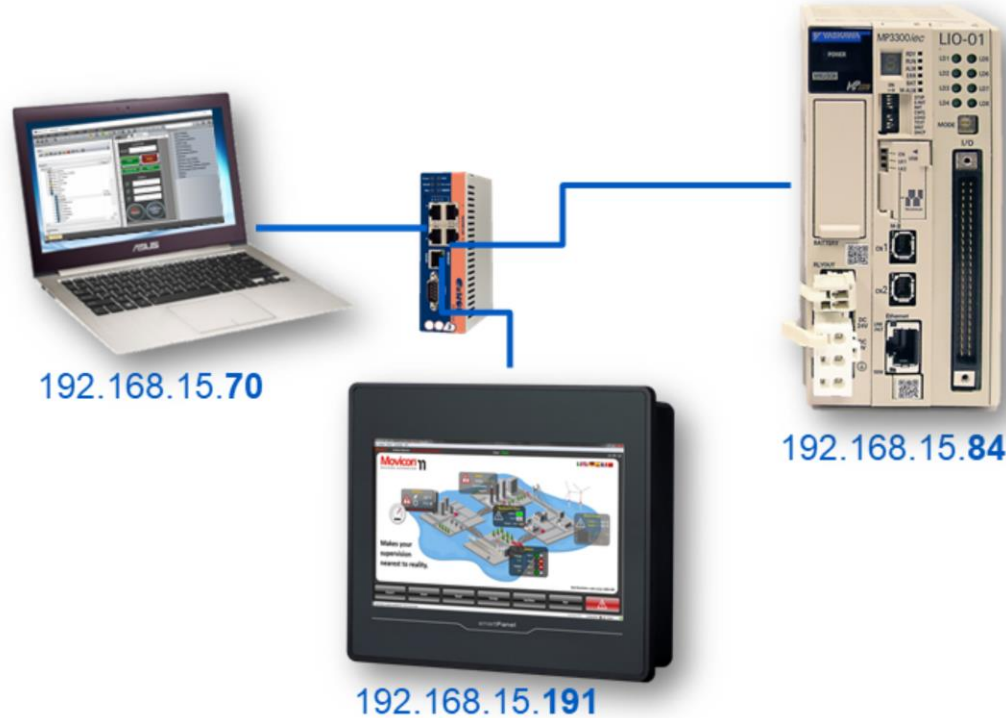
Start a new Movicon project and import the variables marked "OPC" from the controller

Connect buttons and edit boxes to these variables and adjust the properties
Test functionality in the runtime simulation
Then set up the HMI to run the project

Now let's look at this in more detail.

Hardware Setup

Connections



Here's the system and hardware I'm working with.

I have an Ethernet connection between my PC, a 7 inch SmartPanel HMI, and MP3300iec machine controller. You can see the unique IP addresses of each device, each on subnet 15 in this case.

Hardware Setup

Global Variables Marked OPC

Name	Description	Address	Init	Retain	PDD	OPC	TB	Hid...	Init...	Default Hid...
PLC_TASK_8		%MB1.5896		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
PLC_TASK_9		%MB1.6024		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
PLC_TASK_10		%MB1.6152		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
PLC_TASK_11		%MB1.6280		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
PLC_TASK_12		%MB1.6408		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
PLC_TASK_13		%MB1.6536		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
PLC_TASK_14		%MB1.6664		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
PLC_TASK_15		%MB1.6792		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
PLC_TASK_16		%MB1.6920		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
ISR_TIMING	ISR (Motion Engine) Timing Data	%MD3.65536		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
ISR_EVT_TIMING	ISR Event Timing Data	%MD3.65560		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
HIGH_EVT_TIMING	High Event Timing Data	%MD3.65584		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
LOW_EVT_TIMING	Low Event Timing Data	%MD3.65608		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
ALM_EVT_TIMING	Alarm Event Timing Data	%MD3.65632		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Controller		%MD3.66560		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
⊕ X <SGD7W> - Sigma-7W Ⓢ Names, Not Group Name. *)										
⊕ Z <SGD7S> - Sigma-7S Ⓢ Names, Not Group Name. *)										
⊕ Y <SGD7W> - Sigma-7W Ⓢ Names, Not Group Name. *)										
⊖ User Variables										
HMI_TestContact				<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
HMI_TestCoil				<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
HMI_TestIN_LREAL				<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
HMI_TestOut_INT				<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

I'm running MotionWorks IEC version 3.6 and the MP3300iec is running this simple program with four global variables and simple code to convert data
 I would like to manipulate and display this data in the HMI panel, which right now is at factory condition.

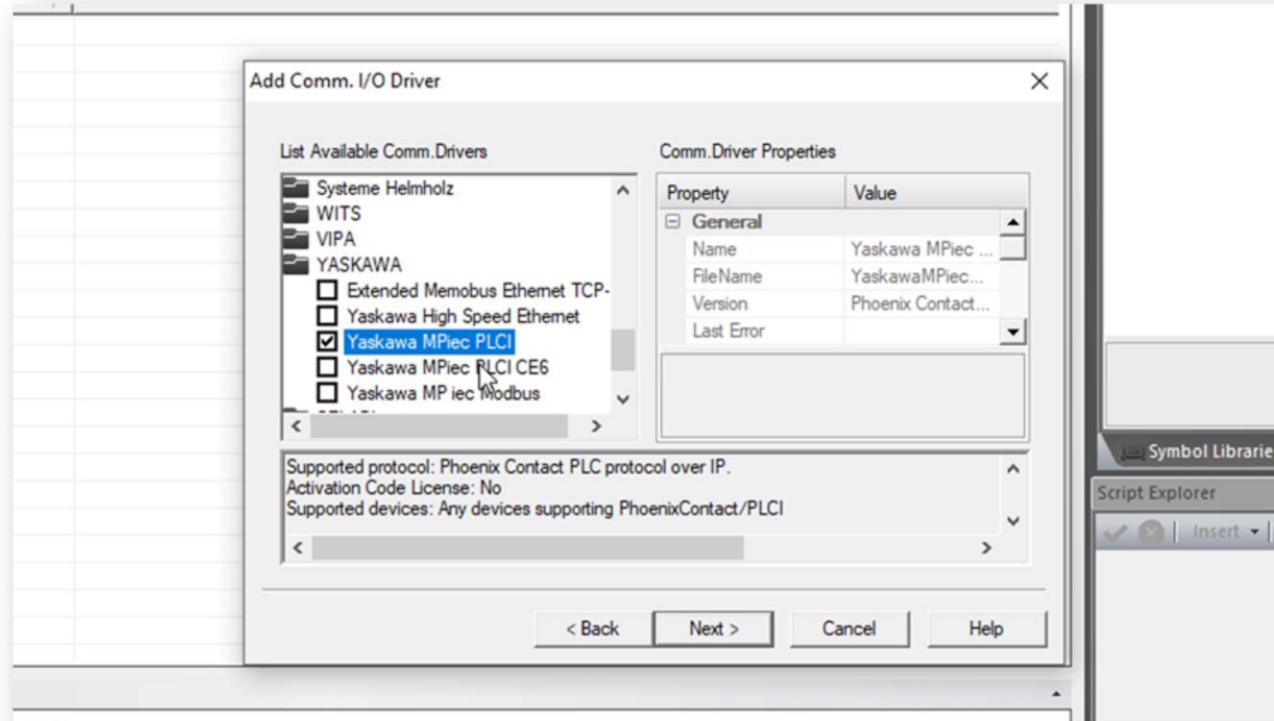
The first step is to mark the OPC property for the variables in the global variables list. These marked variables will be accessed by the HMI using the PLCI communication protocol. Standard Modbus protocol is also supported by the HMI, but PLCI is much faster and easier to use.

PLCI also supports structure datatypes so I'll mark a structure here such as PLCTask1 so you can see how that works.

Let's run this on the controller

Variable Import

New Project



Next let's import those variables into a Movicon project.

I'm using version 11.6

Start a new project and choose WinCE Platform

I'll name it Quickstart in the default folder

Keep users at default for now

In "Add comm driver", go down to Yaskawa MPiec PLCI, next

The screen size of the 7" smart panel is 800 wide by 480 high.

And I'll change the default color to custom Yaskawa blue (0,90,194), next

Datalogger and recipies, leave at default...

alarm settings leave default.

And finish

Any of these settings can be changed later.

Variable Import PLCI Driver

The screenshot displays the 'Station Properties' dialog box on the left and a network diagram on the right. The dialog box is titled 'Station Properties' and has a tab labeled 'Station Properties'. It contains a table with the following data:

Property	Name
Phoenix Contact PLCI Station G...	
Server Address	192.168.15.84
Server Port	41100
Timeout	4000
Subscribe Variables	True
General	
Station Name	MP3300ec
Error Threshold	0
State/Command Variable	

Below the table is a text box labeled 'Station Name' with the prompt 'Enter the Station Name'. At the bottom of the dialog are buttons for 'OK', 'Cancel', 'Apply', and 'Help'.

The network diagram on the right shows three devices connected to a central hub. The devices are labeled with their IP addresses: 192.168.15.70 (a laptop), 192.168.15.191 (a tablet), and 192.168.15.84 (a PLC rack). The IP address 192.168.15.84 is highlighted in yellow.

Below the diagram are panels for 'Symbol Libraries' and 'Properties', and two panels for 'Script Explorer' and 'Refactoring Explorer'.

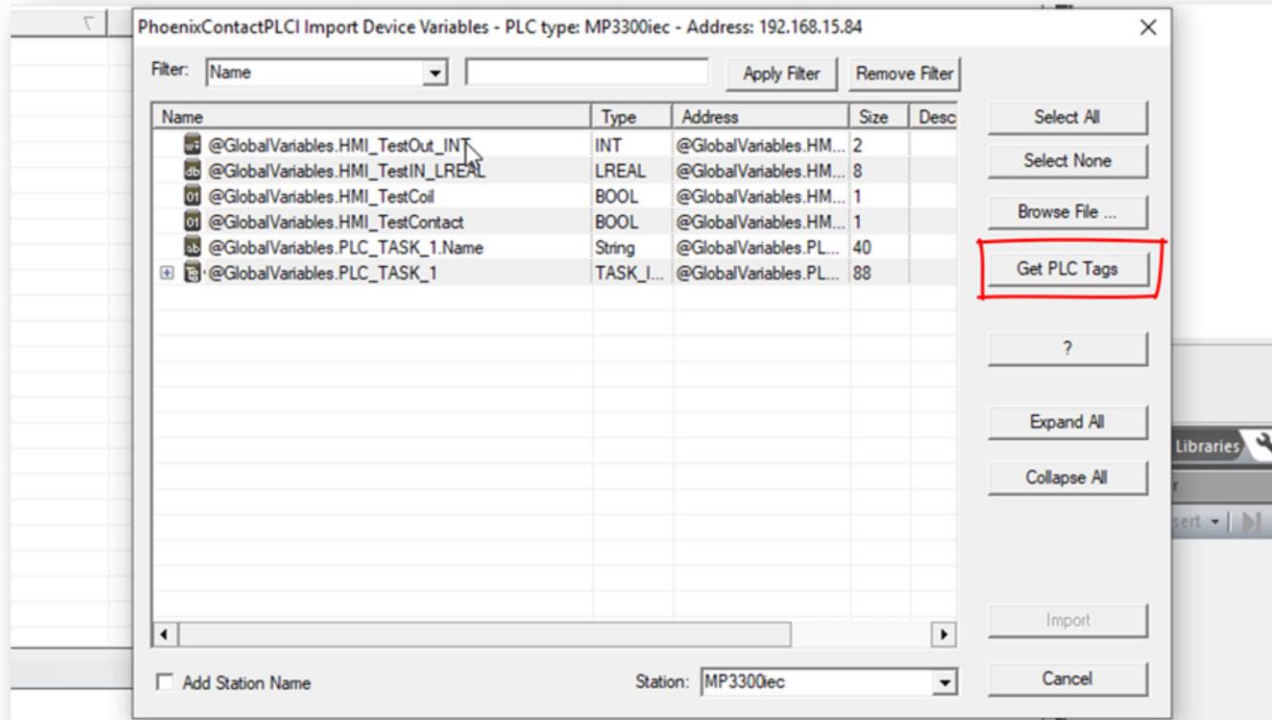
Next is a prompt to set up the PLCI driver.
 All this means is to specify the IP address of the MPiec controller and give it a name.
 The controller is considered a "station", so under the stations tab ADD

Expand the properties to set Server Address

Expand general to set Station Name = MP3300iec (whatever name you want)

OK and OK that's it

Variable Import Import Screen



Here's the part we wanted to get to and that's to import tags from the PLC, so Yes
 Since my PC is connected to the controller, the easiest way to import is "Get PLC Tags"
 You can see PLC_Task_1 was imported as two structures.

You could prefix the variables with the station name if there are several stations in the system.

If you're not connected to the controller, it's also possible to browse for the MWT file and import the variables.

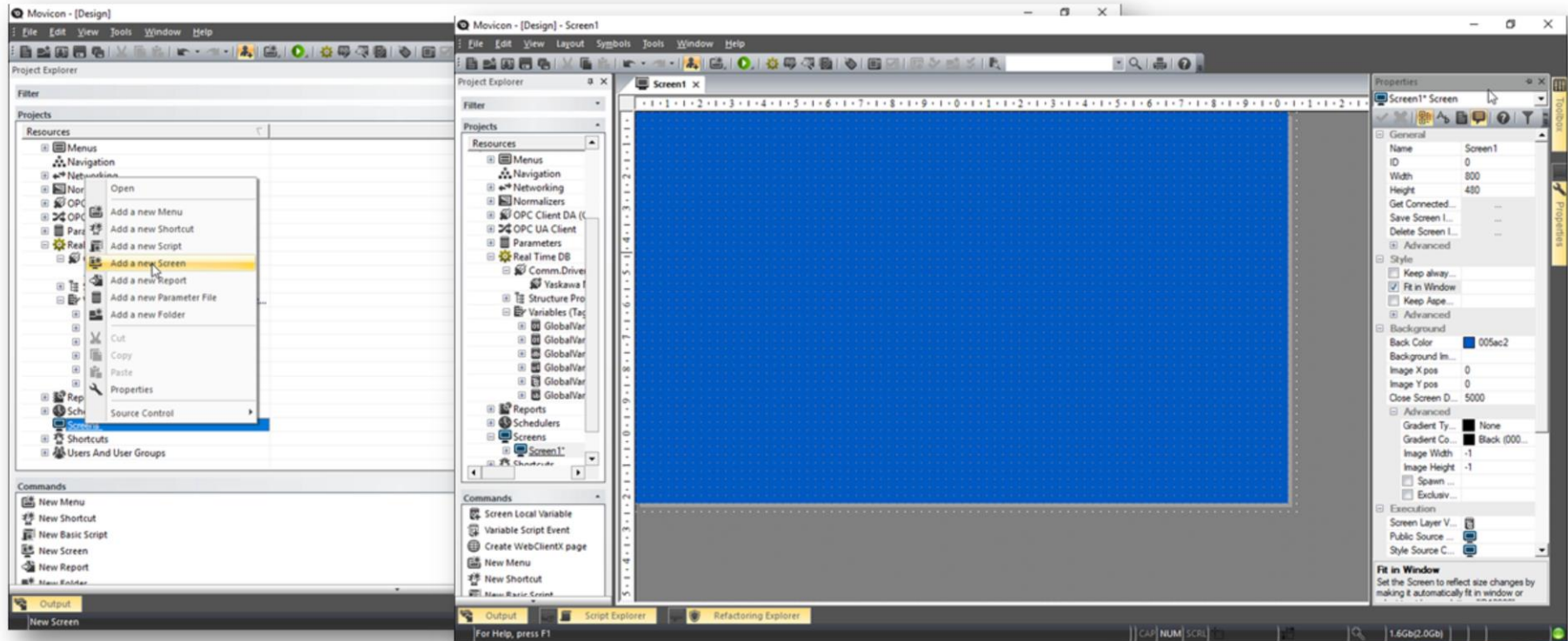
Select all the variables and click Import

You'll see all the variables in the Project Explorer under Real Time DB

If you're having trouble getting this to work, confirm you typed in the controller IP address in the driver under Real Time DB, Comm.Drivers

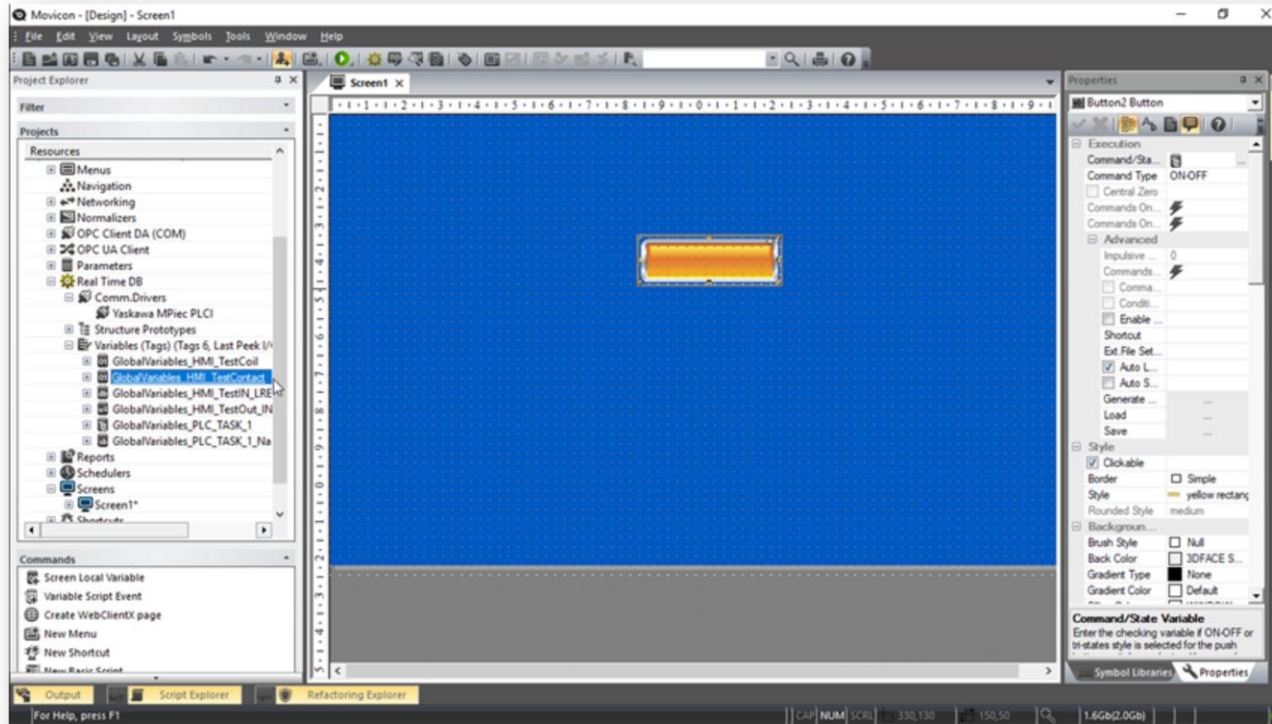
And you can always import again by right clicking the comm driver

Simple HMI Screen New Screen



OK now it's time to make a simple screen
In the project explorer under screens there are none yet, so right click to add a new screen and Name it.

Simple HMI Screen Buttons



The buttons and lights etc for the screen are found in the toolbox window. Let's start with a button. I'll use a rectangular button and choose yellow (and center it) I want it to turn on the contact in the ladder code so drag the variable onto the button.

Maybe I want to call this button “Enable” so click, type and adjust the font.

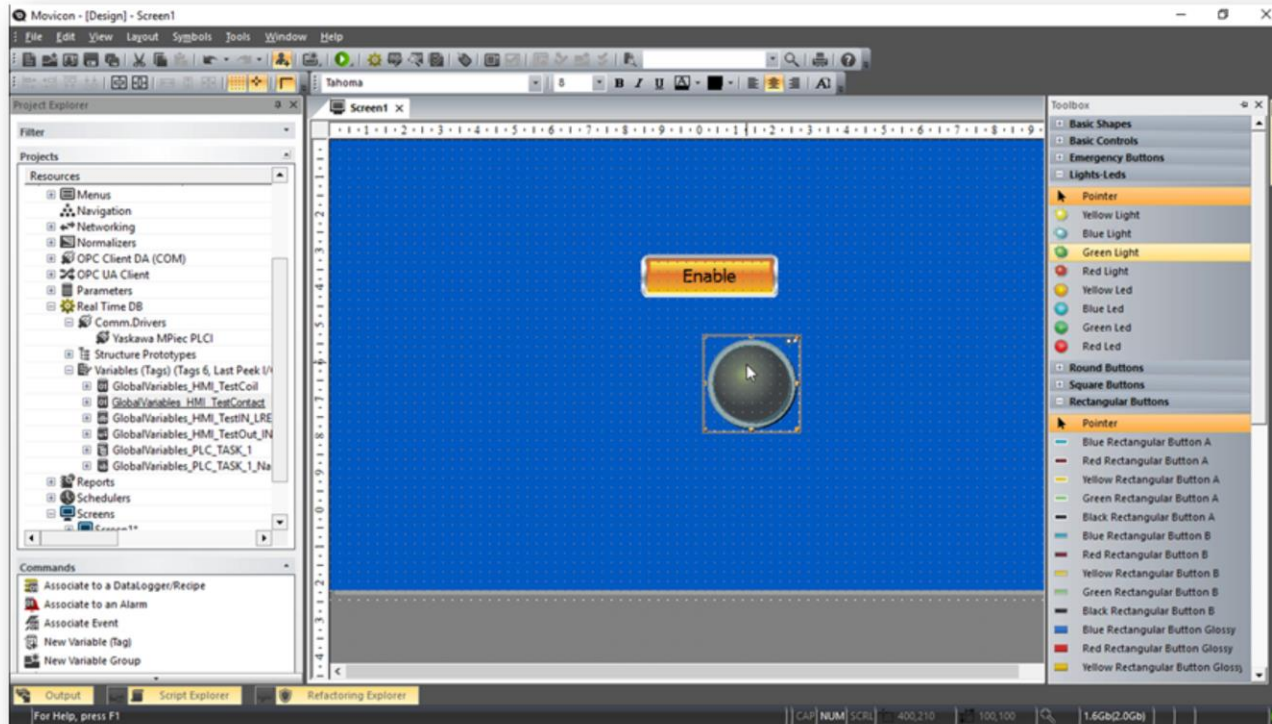
Toolbox: Rectangular Buttons

- Drag a button onto screen

- Drag variable onto the button

- Execution.Command Type = Impulsive

Simple HMI Screen LED



I'd also like an indicator lamp for the relay coil
 In the Toolbox under lights I'll drag in a green light and name it status
 There's another way to add the variable, and that's in the properties window under Command/State

Variable click the gray box with the ellipsis.

This brings up the tag browser with handy filter feature. For example I can search for *HMI* to narrow it down and choose the variable.

Toolbox: Lights-LEDs

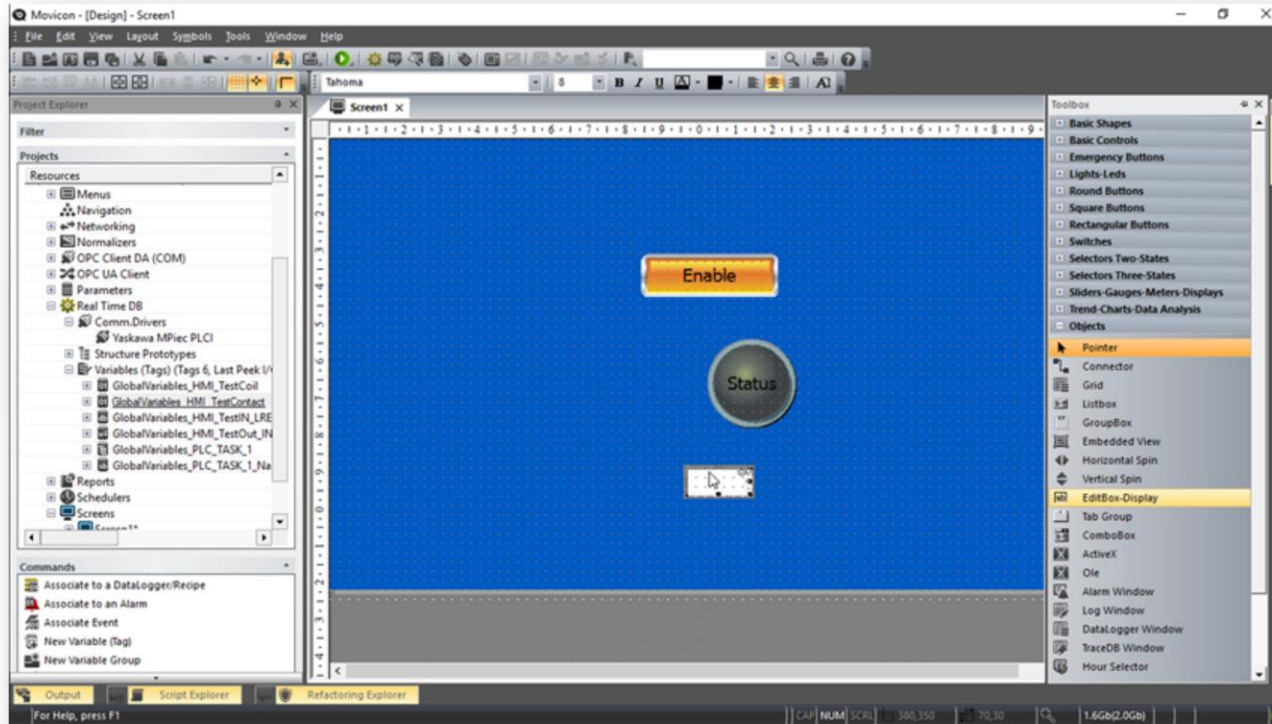
Drag onto screen

Another way to assign a variable is Properties → Command/State Variable → “...”
(ellipsis)

Execution.Command Type = ON-OFF

Simple HMI Screen

Edit Box



To display or edit the lreal or integer data, in the toolbox go to objects and user Edit Box Display I'll name the first one input, make it a little bigger and set the font size And drag the global variable.

Since this is an LREAL datatype, change the format value to x.x to allow one digit after the decimal point.

Also notice the max and min values.

I'll do this again to add another edit box for the integer.

For this one under style I'll select Read Only and turn off spin enable. Click the checkbox to apply.

To edit or display numeric data use the combo box object

Toolbox: Objects → Combo Box

Drag onto screen

Properties → EditBox-Display Variable → "..."

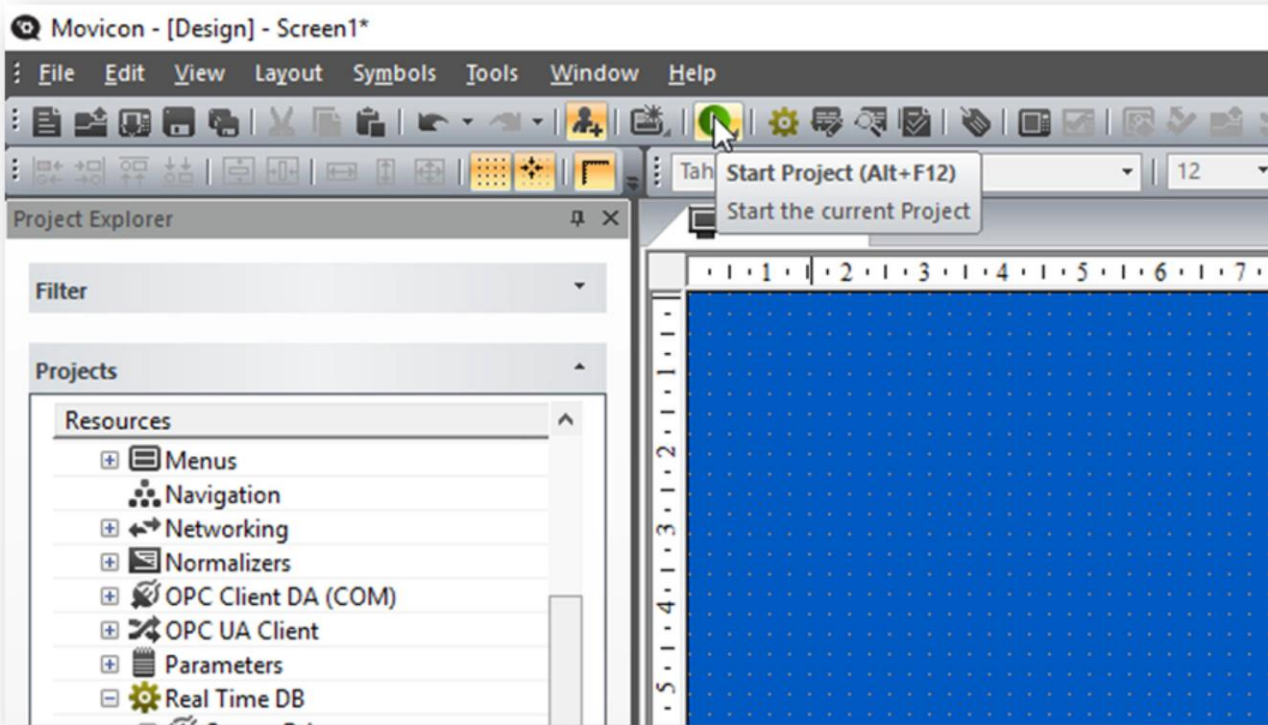
or drag variable from Project Explorer

I need one for input data to the controller

And one for output data from the controller

Runtime Simulation

Start Runtime



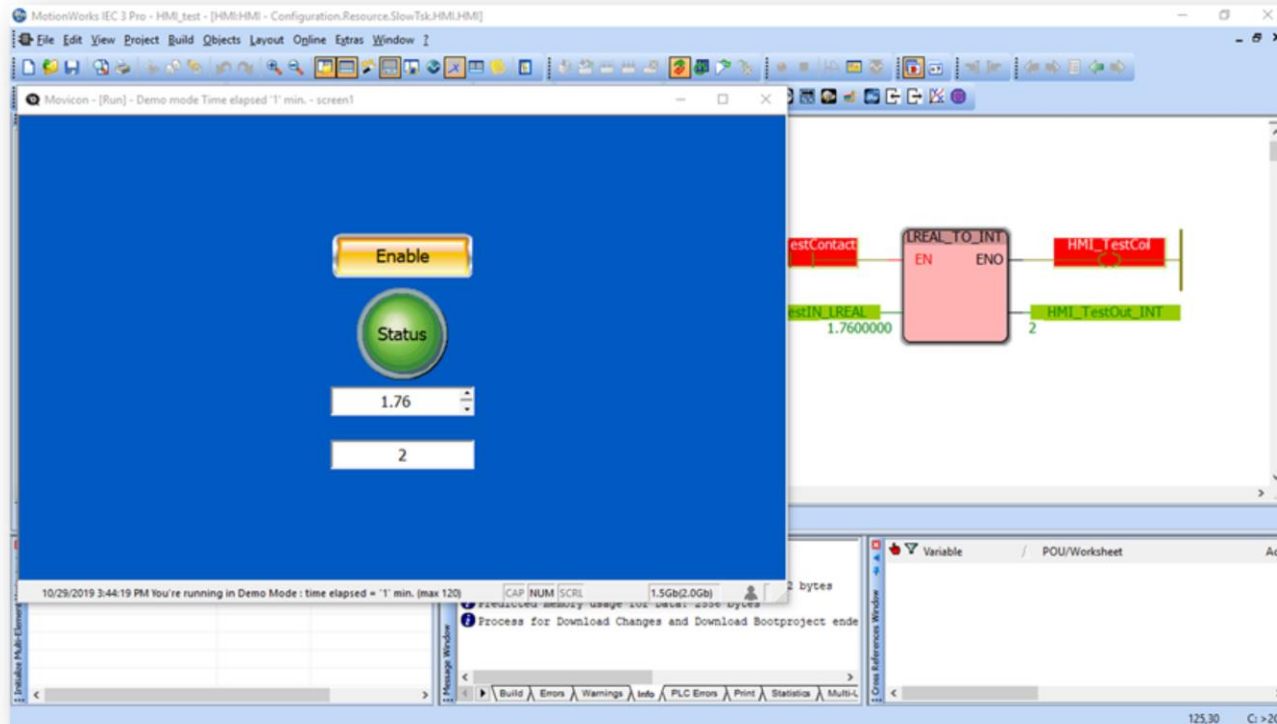
For neatness, multiple items can be selected and then distributed into rows and columns aligned, resized, and centered. <do all this until they are neatly centered in the middle >

Let's test how this works within Movicon using Start Project and save.
This launches the onscreen runtime simulation.

OK

Runtime Simulation

MotionWorks IEC

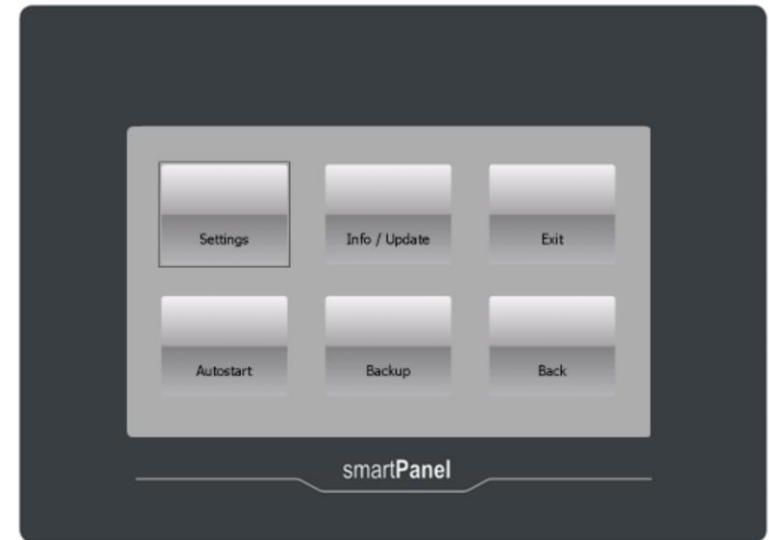


Here's what the HMI will look like and the IEC code it interacts with.
 I'll hit the button... and true shows on the controller, sets the coil, and displays the status on the HMI
 Set the numeric value in HMI... displayed in Mwiec

And the output is displayed.
Looks like it's working

Run SmartPanel HMI

System Main Menu

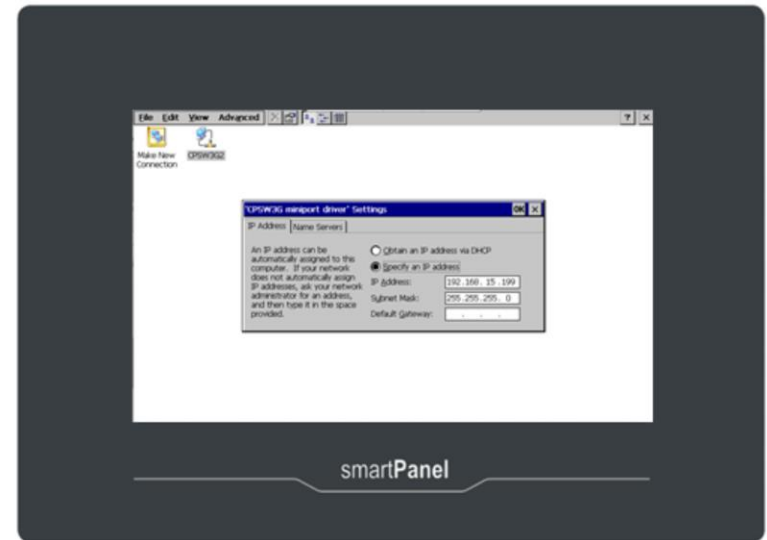
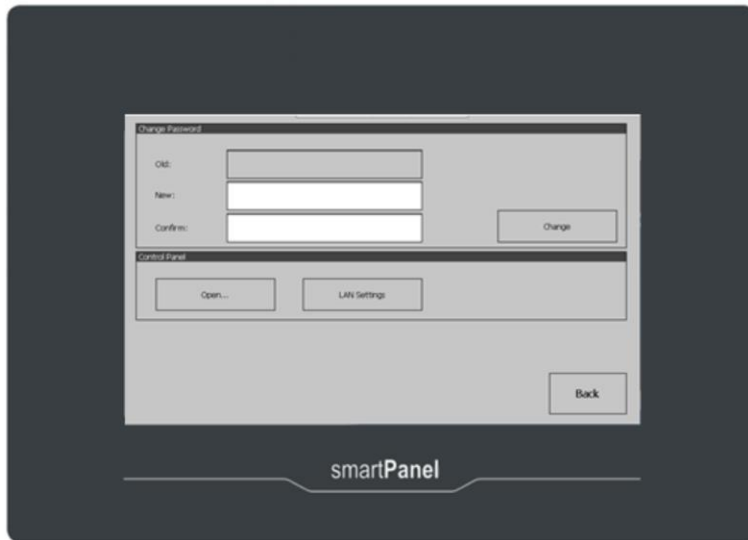


The runtime simulator is convenient for testing screens during development without a real HMI
But now let's run this on the SmartPanel hardware
For convenience, I'm showing the smartpanel screen through VNC viewer.

Power on the HMI and when you see the blue boot screen with two buttons, press “main”

Run SmartPanel HMI

Set IP Address



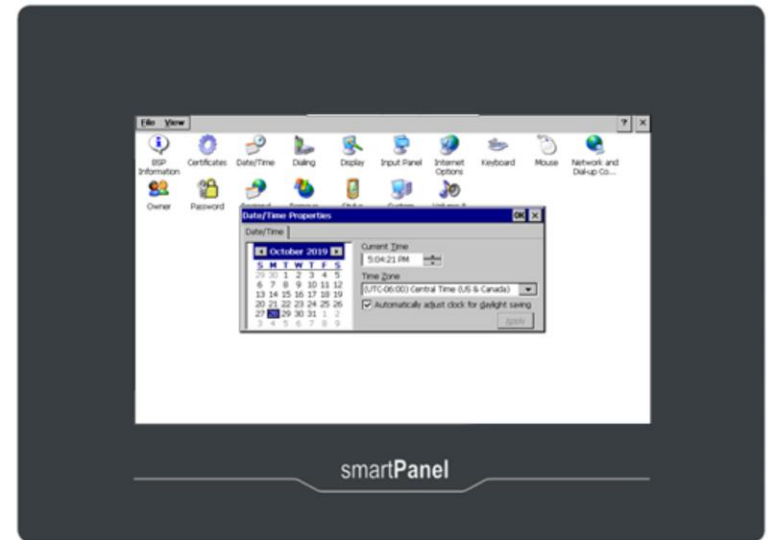
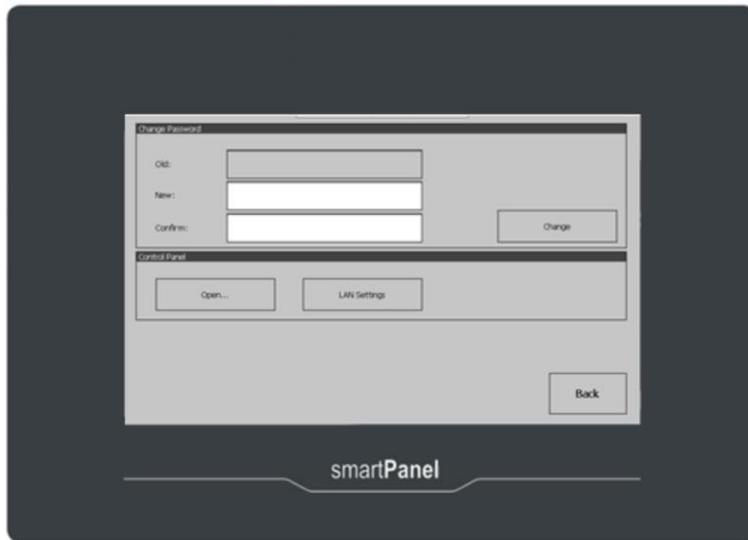
Here in main there are a number of things you can do and the most important is to set a static IP address. Go to settings, Lan settings, and open the existing connection CPSW3G2. Enter the IP address and subnet mask you wish to use.

In my setup it was 192.168.15.199

Close the screen, and OK to save the settings permanently

Run SmartPanel HMI

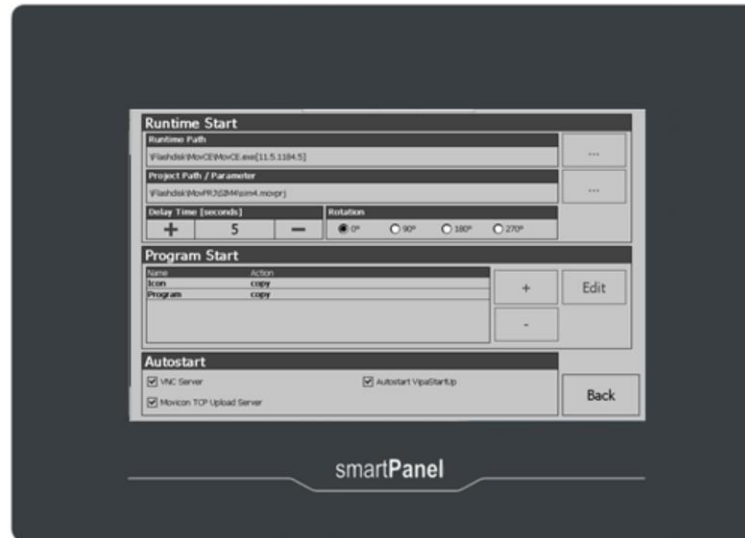
Clock



You may wish to open the control panel to set the date and time or other settings. Otherwise press back to return to the main menu

Run SmartPanel HMI

Autostart



Next look at Autostart

There are a few settings under the Autostart menu and lets focus first on the bottom. Check all of the boxes at the bottom under Autostart.

VNC server allows you to use your computer to access the hmi like I'm using to record this video (zoom out to show!)

MoviCon TCP Upload server must be selected so that you can upload the project from movicon.

Autostart VipaStartUp causes the HMI project to load automatically

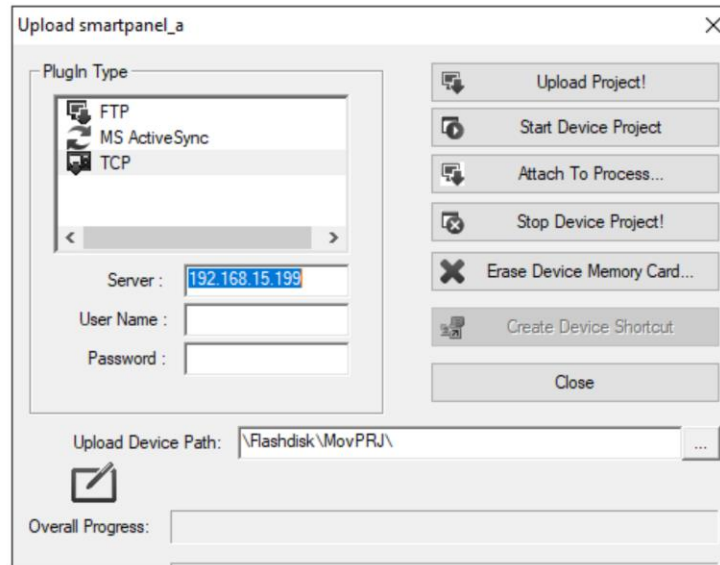
At the top, Runtime Start, project path / parameter refers to the project that loads when the smartpanel powers up.

You'll want to replace the default project with your own.

But we can't do that yet because the project hasn't been uploaded!

Run SmartPanel HMI

Upload



Back in MoviCon go to the icon called upload project to device.
Set the server to the ip address of the hmi.
Browse for the upload device path such as flashdisk mov prj

Hit upload and there's a warning about no startup screen.

TO fix that, click on the project name in the tree, and under Execution set the startup screen.

Also check the box to start full screen

And return to upload.

The first time you'll be prompted to install the PLCI driver

Upload Project to Device

PlugIn Type = TCP

Server: = <ip address of HMI>

Upload Device Path = "\Flashdisk\MovPRJ\"

"Upload Project!"

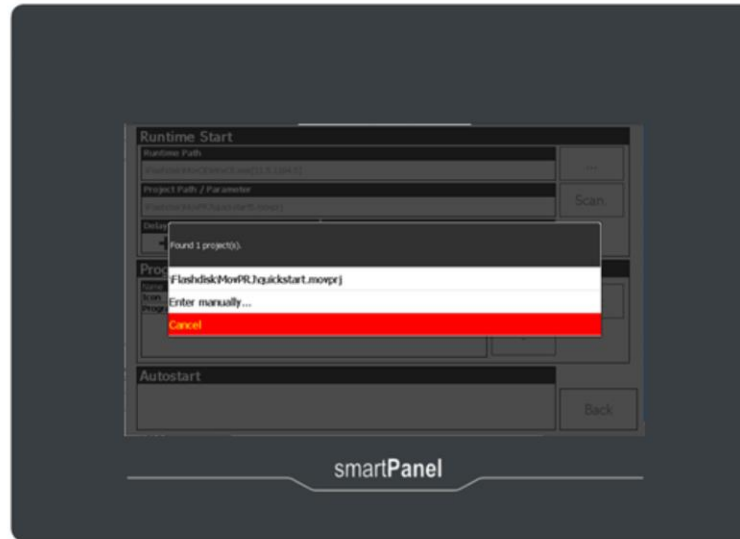
Use Default connection speed

Overwrite

Install PLCI driver

Run SmartPanel HMI

Autostart Project



Now the project is in the HMI.
So navigate to choose it in the project path
Back all the way out to that first screen and this time press start

Run project on HMI at startup

In the main menu select Autostart

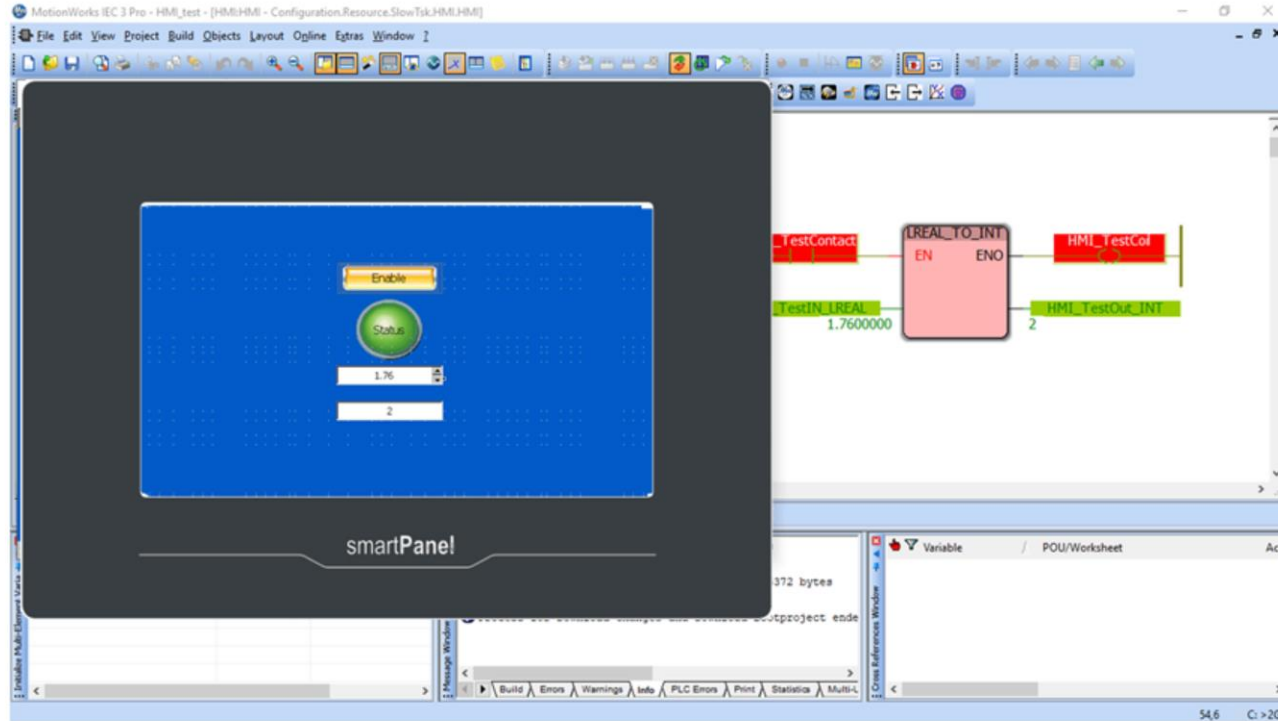
Project Path = downloaded project path

Select “Back” twice

Select “Start”

Run SmartPanel HMI

Run



Now the project is running and we have data communication just as before. Subsequent updates of the same project can be uploaded again. And the project can be started within Movicon

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Thank You

Thank you for watching this video.

For more training on Yaskawa motion products please visit www.Yaskawa.com