

Connect ScadaBR, OpenPLC, and Factory I/O

IP Address

OpenPLC, Factory I/O: 192.168.133.128
ScadaBR: 192.168.133.129

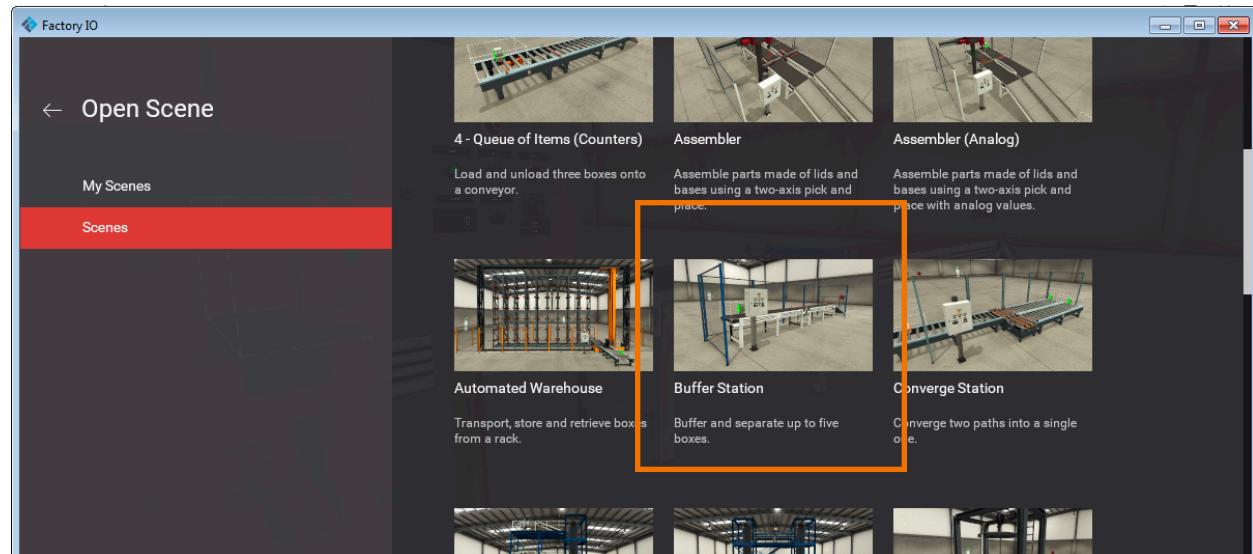
Reference: <https://www.youtube.com/watch?v=9N6YaS3BqLM> (Connect Factory I/O with OpenPLC)

Architecture

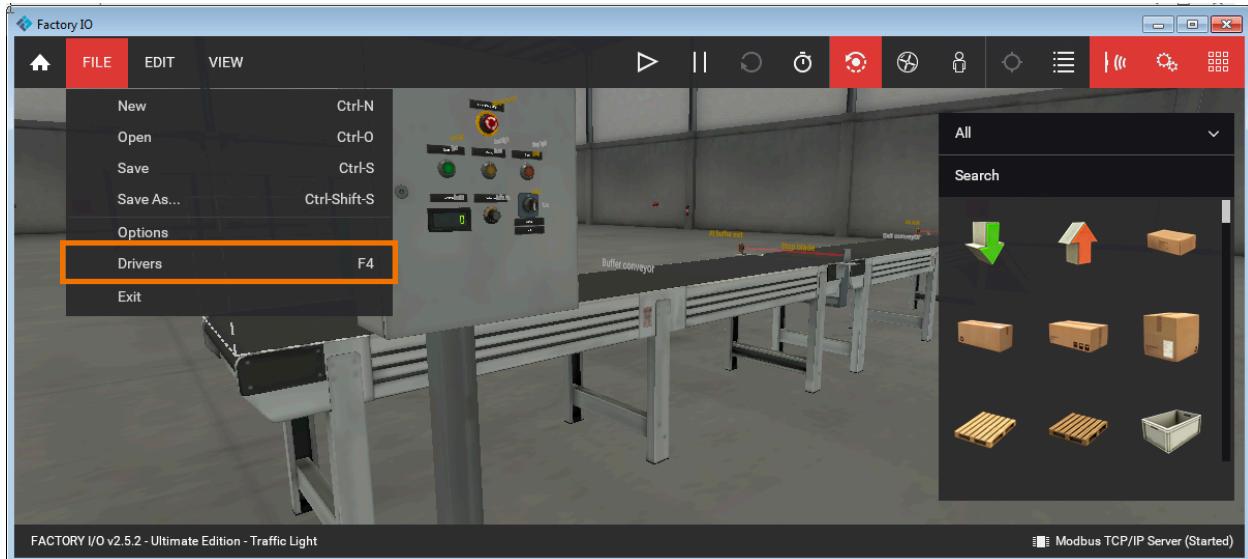


Steps

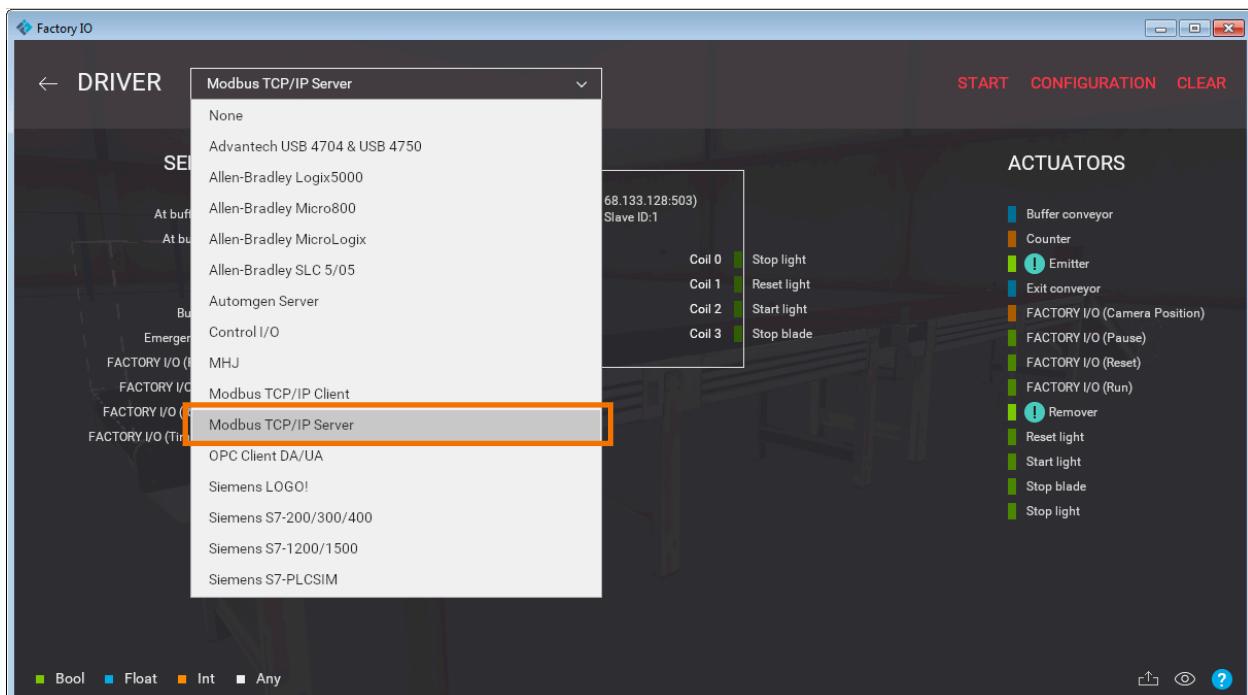
Start Factory I/O, and select a scene. In this case I used “Buffer Station”



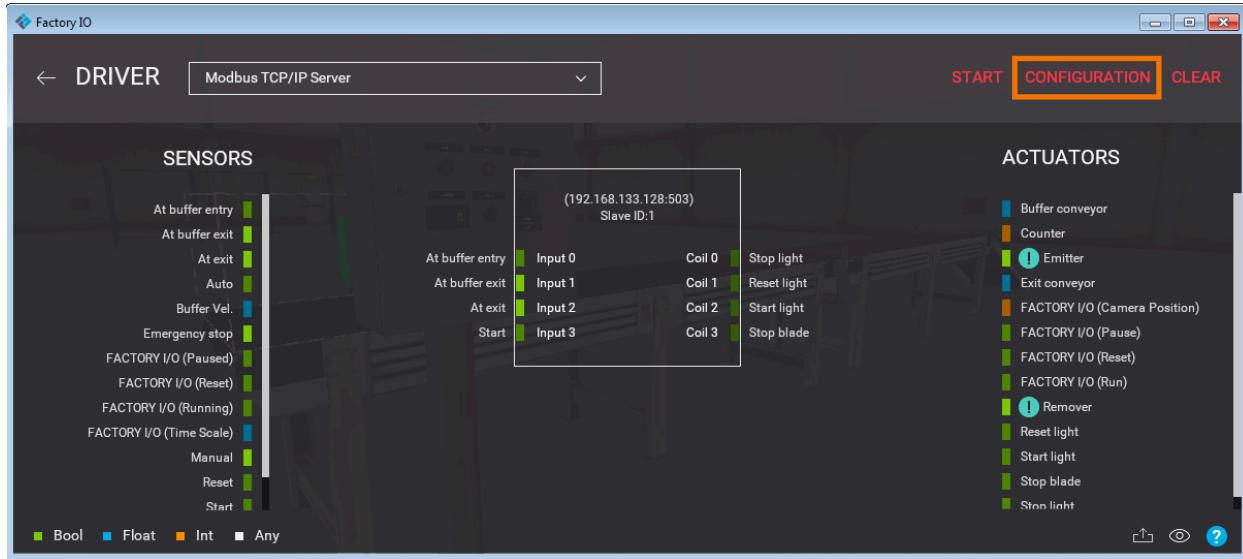
Click “File”, and select “Drivers”



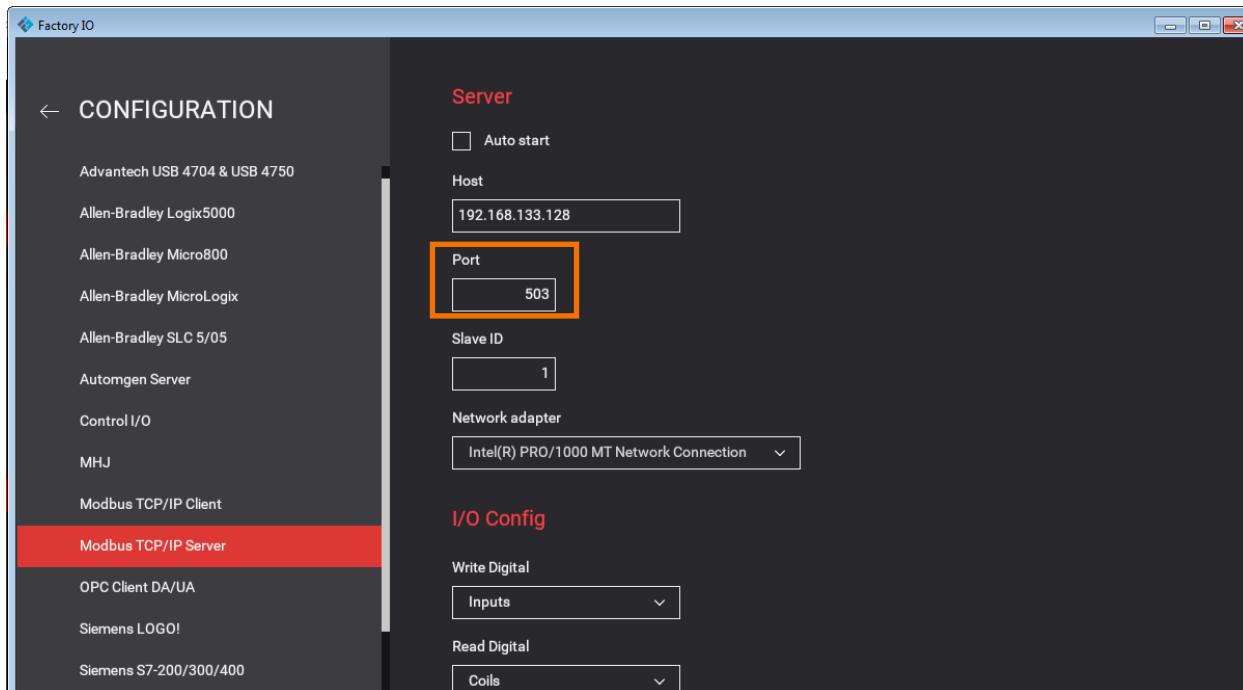
Select “Modbus TCP/IP Server”



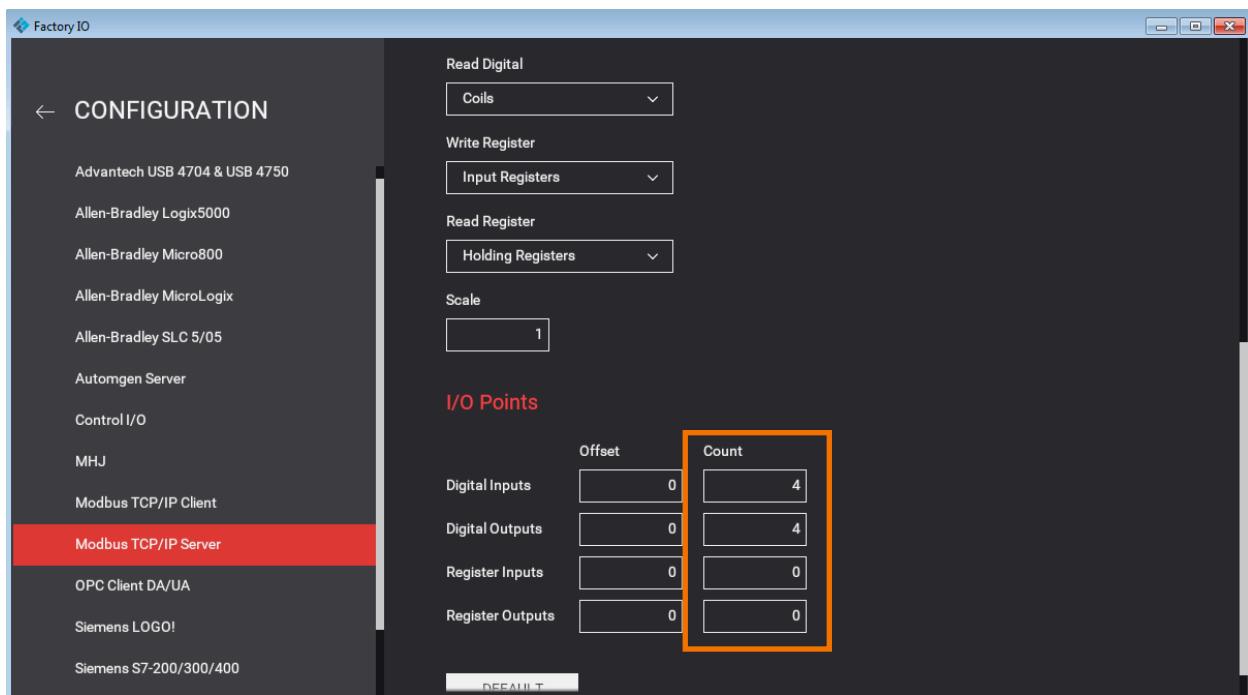
Click “Configuration”



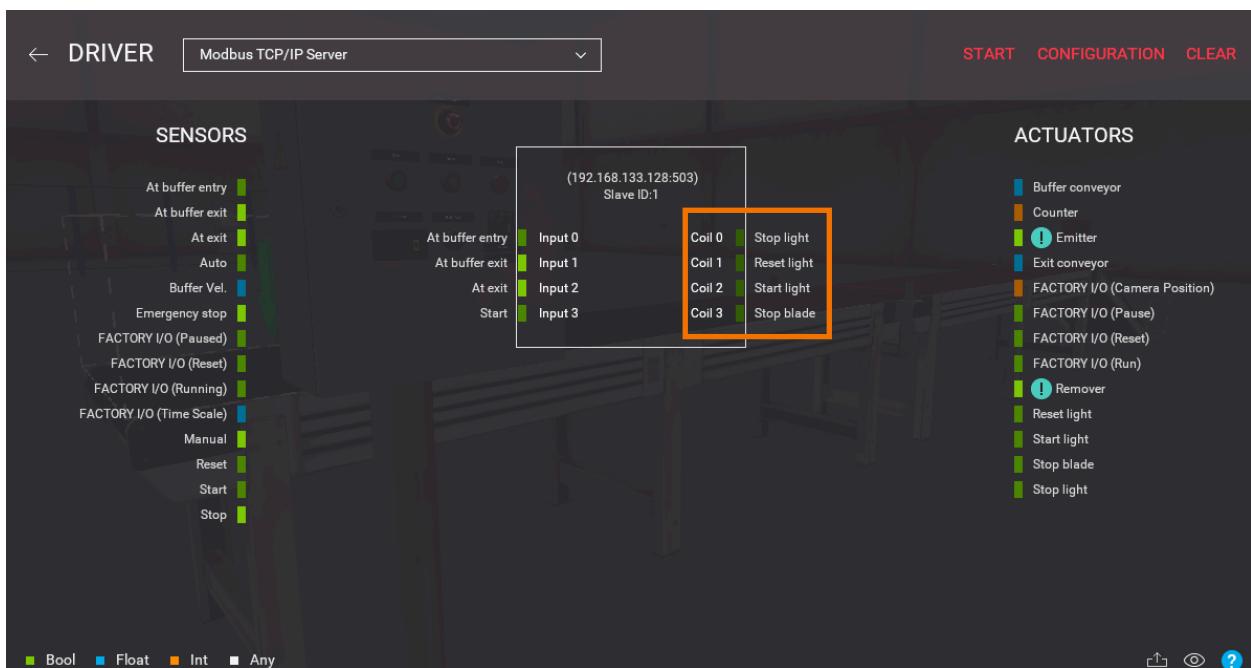
Change Port to “503”



Select number of Inputs and Outputs we need. In my case, I select 4 inputs and outputs (Green Light, Orange Light, Red Light, Emergency)



Drag some lights on the right side (Output) to show the value in the scene. It will show green light (Start light), orange light (Reset light), red light (Stop light), emergency (Stop blade).



Go back to OpenPLC, select “Slave Devices” tab, and press “Add new device”

Slave Devices

List of Slave devices attached to OpenPLC.

Attention: Slave devices are attached to address 100 onward (i.e. %IX100.0, %IW100, %QX100.0, and %QW100)

Device Name	Device Type	DI	DO	AI	AO
factoryIO	TCP	-	%QX100.0 to %QX100.3	-	-

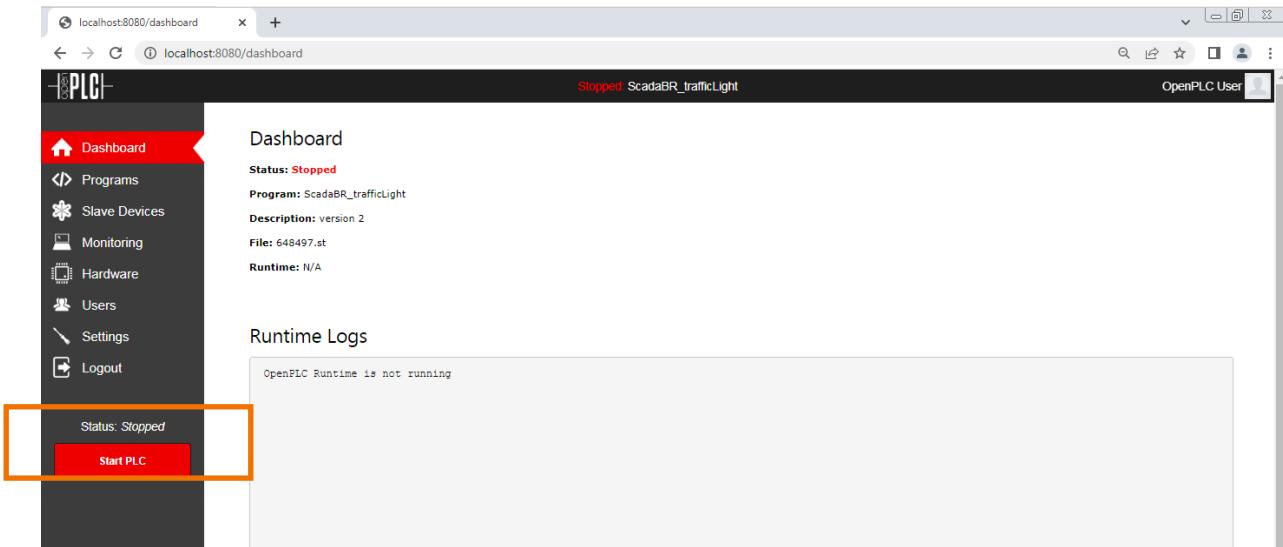
Add new device

Make the following configuration, Type is “Modbus TCP Device”, Port “503”, Coils is 4 (Green Light, Orange Light, Red Light, Emergency).

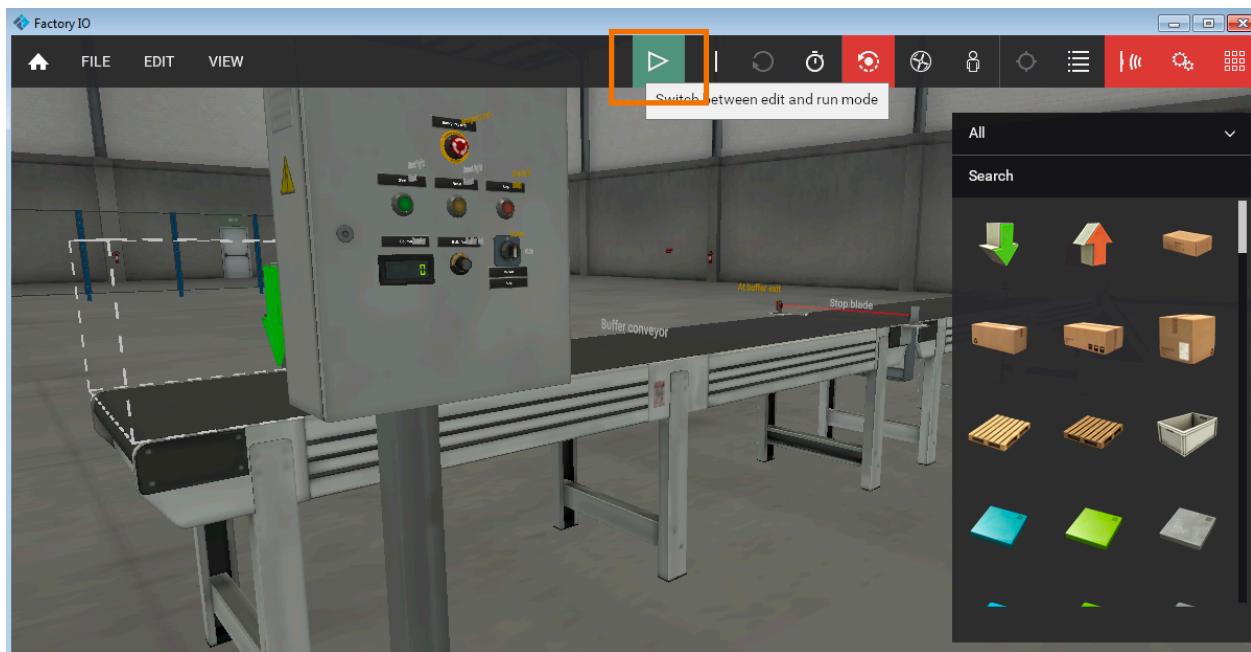
Edit slave device

Device Name	Discrete Inputs (%IX100.0)			
<input type="text" value="factoryIO"/>	Start Address:	<input type="text" value="0"/>	Size:	<input type="text" value="0"/>
Device Type	Coils (%QX100.0)			
<input type="text" value="Generic Modbus TCP Device"/>	Start Address:	<input type="text" value="0"/>	Size:	<input type="text" value="4"/>
Slave ID	Input Registers (%IW100)			
<input type="text" value="1"/>	Start Address:	<input type="text" value="0"/>	Size:	<input type="text" value="0"/>
IP Address	Holding Registers - Read (%IW100)			
<input type="text" value="192.168.133.128"/>	Start Address:	<input type="text" value="0"/>	Size:	<input type="text" value="0"/>
IP Port	Holding Registers - Write (%QW100)			
<input type="text" value="503"/>	Start Address:	<input type="text" value="0"/>	Size:	<input type="text" value="0"/>

After creating a slave device, press “Start PLC”



Go back to Factory I/O, and press the Run button.



And ScadaBR, OpenPLC, and Factory I/O are connected. Here are some screenshots.

When it's green light, it shows true in ScadaBR and OpenPLC. Factory I/O lights up the green light.

The screenshot shows the OpenPLC Monitoring interface running on a Windows host. The left sidebar has a red 'Monitoring' button highlighted. The main area displays a table of PLC points:

Point Name	Type	Location	Forced	Value
Redlight	BOOL	%QX100.0	No	FALSE
Orangelight	BOOL	%QX100.1	No	FALSE
Greenlight	BOOL	%QX100.2	No	TRUE

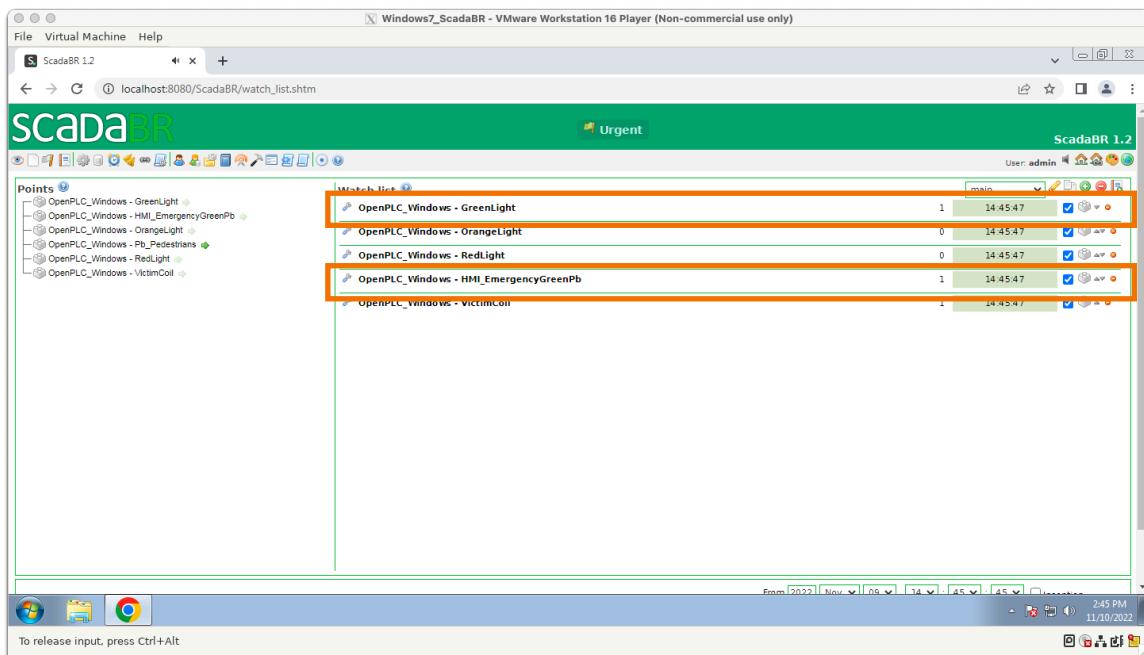
An orange box highlights the 'Greenlight' row. Below the table is a Factory IO HMI window showing a control panel with three lights. The bottom right light is green, corresponding to the 'Greenlight' point in the table.

The screenshot shows the ScadaBR 1.2 software running on a Windows host. The left sidebar shows a 'Points' tree with several entries under 'OpenPLC_Windows'. The right side shows a 'Watch list' table:

Point	Type	Value	Timestamp	Actions
OpenPLC_Windows - GreenLight	BOOL	1	14:33:39	
OpenPLC_Windows - OrangeLight	BOOL	0	14:33:39	
OpenPLC_Windows - RedLight	BOOL	0	14:33:39	
OpenPLC_Windows - HMI_EmergencyGreenPb	BOOL	0	14:33:39	
OpenPLC_Windows - VictimColl	BOOL	0	14:33:39	

An orange box highlights the 'Watch list' table. The bottom status bar shows 'From 2022 Now 14 32' and the time '2:33 PM 11/10/2022'.

When event happens, emergency is true and green light is true.



OpenPLC shows the same, and Factory I/O shows green light and the blue stop blade.

