

Software Instructions

CITECT SCADA 2018

Software v8.10

Version 1.1

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Software Instructions: CITECT SCADA 2018 v8.10

Acknowledgments:

We would like to acknowledge the following references used to compile these instructions for students:

- [Installation Guide](#)
- You can download CITECT SCADA 2018 -
<https://sw.aveva.com/monitor-and-control/hmi-supervisory-and-control/citect-scada>.
- You can download OPC Factory Server v3.60 Demo
- <https://www.schneider-electric.com/en/product-range-download/547-opc-factory-server/>
- You can download UNITY PRO XL V13 (Trial 30 days)
<https://schneider-electric.app.box.com/s/6fbww16u99mo196mr6didek2p13rr8x7>

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Preliminary instructions to set up the software:

Step 1: System requirements:

This information can be found in Chapter 4: System Requirements p.43-50 of [Installation Guide](#)

Step 2: Obtain the software:

1. Register and download CITECT SCADA 2018.
 - You can download CITECT SCADA 2018 (free software, big file - ~2GB) from <https://sw.aveva.com/monitor-and-control/hmi-supervisory-and-control/citect-scada>
 - Click “Schedule A Demo”
 - Fill out the form
 - Go in your email box and copy your Aveva Software user ID
 - <https://softwaresupport.aveva.com/>
 - Click “Forgot password”. Write your email and click “SEND”
 - Go in your email box and copy your temporary password
 - <https://softwaresupport.aveva.com/>
 - Click “Sign In” and write your account data
 - Click on Product Hub
 - In Filters section Products select Citect, in section Download Type select Full product – Apply
 - Click on Citect SCADA 2018 and download
2. Download Unity Pro XL v13 (trial 30 days, big file - ~2GB)

Step 3: Install the software:

1. Install CITECT SCADA 2018. This information can be found in Chapter 5: Installation p.57-74 of [Installation Guide](#)
2. Install OPC Factory Server v3.60 Demo (**only v3.60 DEMO**).

3. Install Unity Pro XL v13

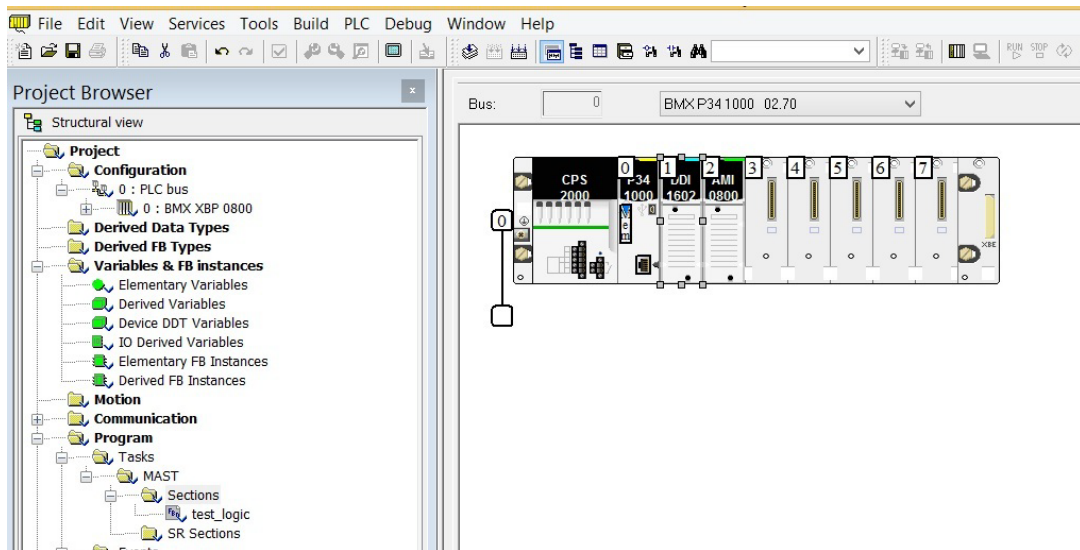
Part number: UNYSPUEFF1X

Serial: 12345678999

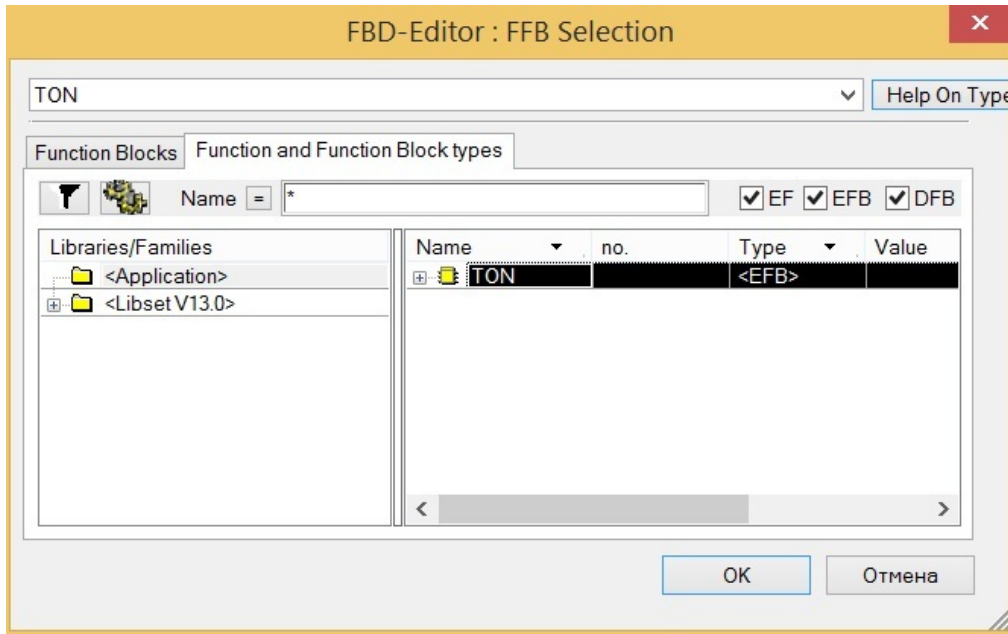
Instructions to utilise the software:

Step 1: Start Unity Pro XL v13:

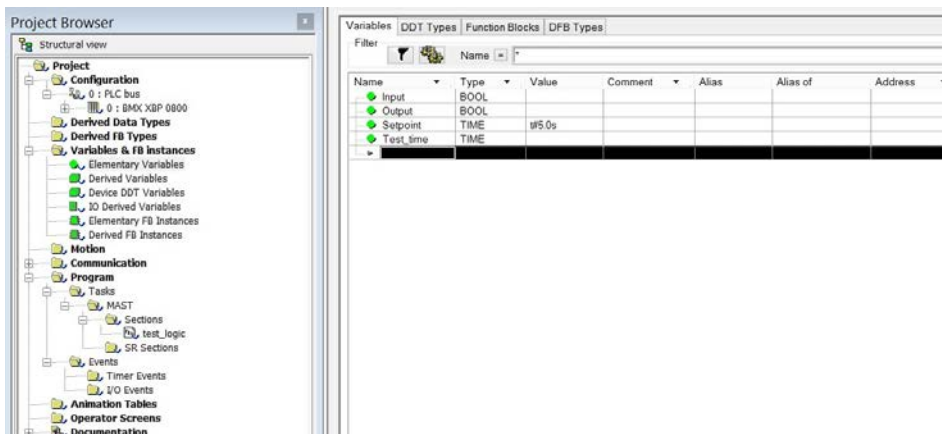
1. Create a new project. Choose PLC M340 (for example, BMX P34 1000) and rack (BMX XBP 0800)
2. Save project “EIT_UNITY_1”
3. In the Configuration folder, we can see our PLC bus. Double-click on an empty slot and add one discrete BMX DDI 1602 and one analogue BMX AMI 0800 module.
Double-click on module you can configure it.
4. Create a new section in the following folder: Program – Tasks – MAST – Sections right click – Create new section. Name – “test_logic”, Language – FBD – OK.



5. Add TON block – Edit - Data Selection – write TON – choose TON block - OK



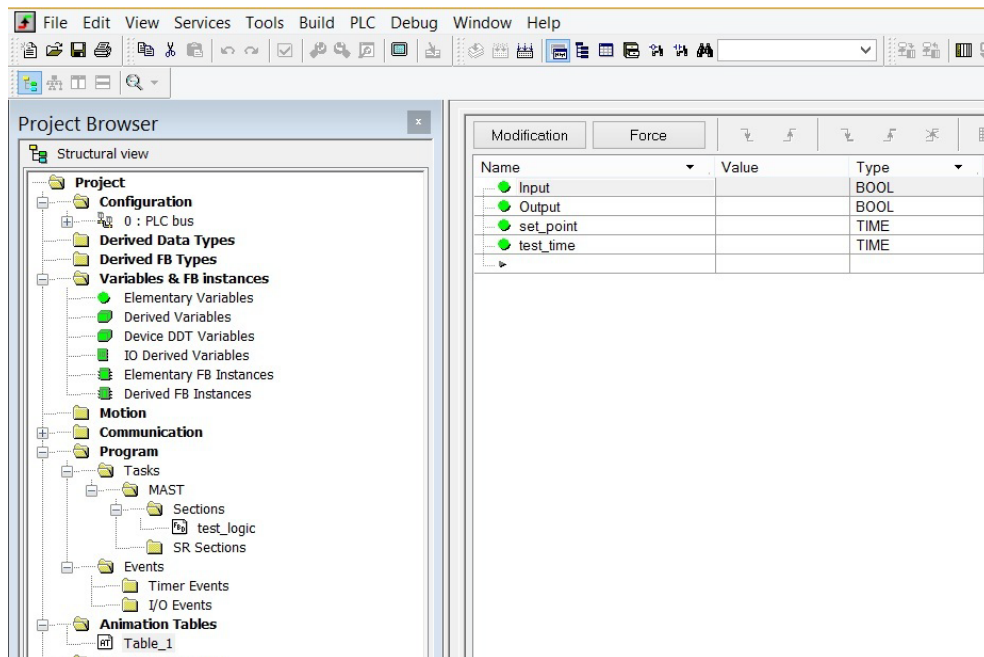
6. Add variables in Variables & FB instances choose Elementary Variables.



Name	Type	Value
Input	BOOL	
Output	BOOL	
Setpoint	TIME	t#5.0s
Test_time	TIME	

7. In the section “test_logic”, add variables to the function block.
8. Add animation table “table_1”. In the Animation Tables folder, right-click – New Animation Table.
9. Add variables in the animation table.

10. Start Simulation mode – click PLC – Simulation mode, then click Build - Rebuild all project, PLC – Connect, PLC - Transfer Project to PLC – check PLC Run after Transfer – click Transfer.



11. Check timer. In table_1 click on Modification button, in row Input on Value field right click Set – Set to 1.
12. To connect with OFS choose Tools – Project Settings. In General choose PLC embedded data and check – Data dictionary – OK.
13. Save project.

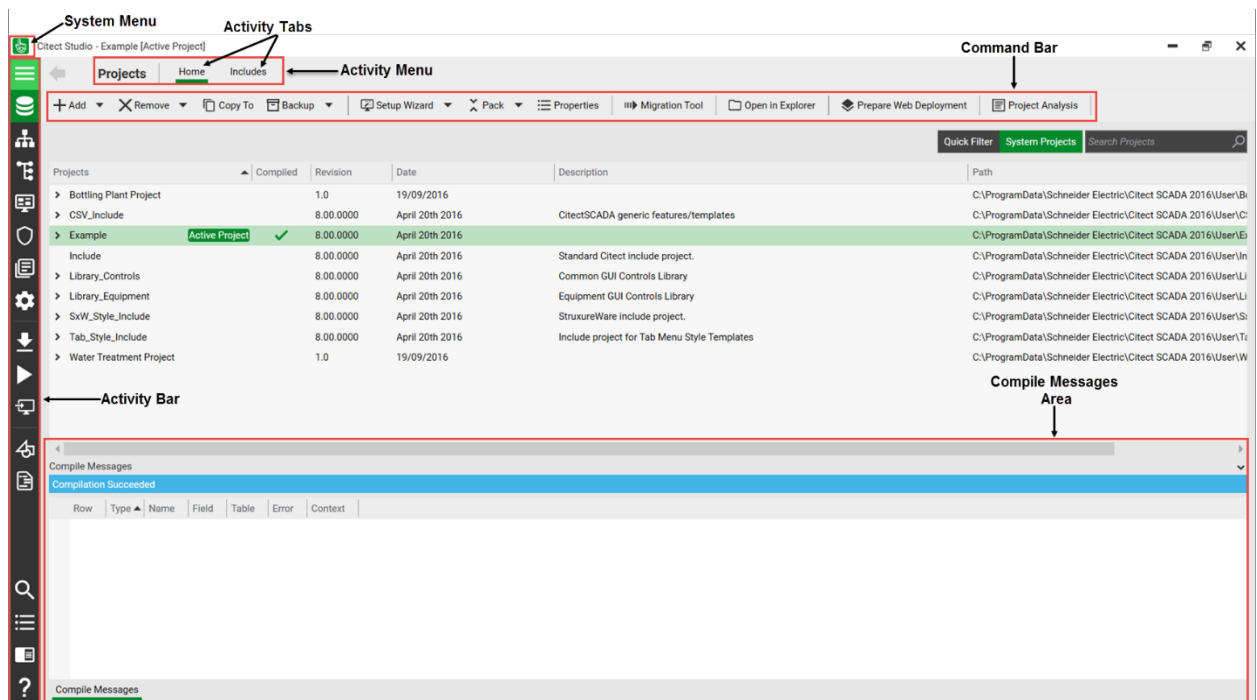
Step 2: Configure OFS:

1. Start OFS Configuration Tool.
2. Choose Device overview, right click in empty field – New Device Alias and rename it on M340. In device address wizard in TCP IP, in field TCP/IP write address 127.0.0.1 – OK
3. In Device Type choose Modicon M340
4. Check Using Data Dictionary
5. File - Save Configuration.

Step 3: Start Citect Studio.

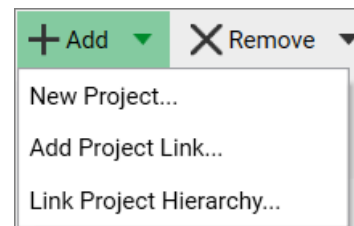
To start the program, click Windows Start menu - All Programs - Schneider Electric - Citect SCADA 2018 - Citect Studio.

Citect Studio window has the following form.



Create a new project

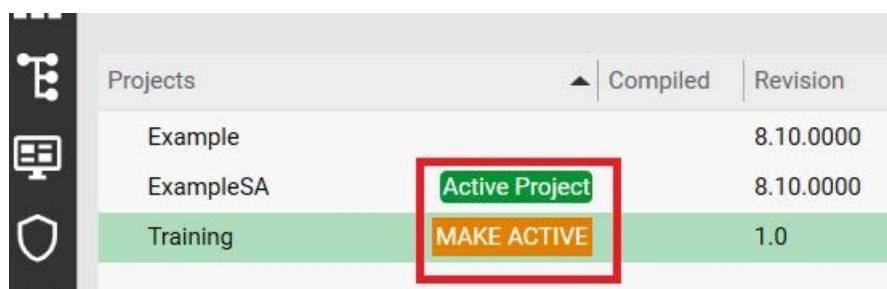
1. In the activity bar called “Projects”, select tab **Home**.
2. On the Command Bar select **Add - New Project**.
The New Project dialog appears.
3. Complete the required fields (Name – EIT_CIT_1, Starter project selection – SA_Style_1_MultiRes).
4. Click **OK**.



The new project will appear in the Project activity.

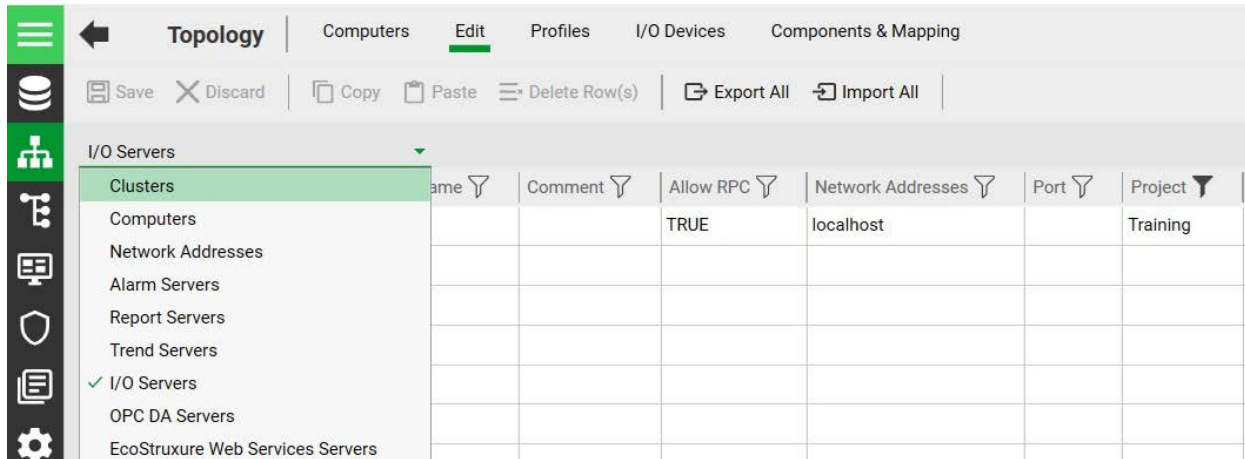
Make project active

Click to select the project you want to make active. Click the **Make Active** button next to the project name. The Active Project indicator is displayed next to the project name and in the window title.



Devices configuration

In the **Topology** activity bar, select activity tab **Computers – By Cluster**. You can see that you have Server (**IOServer1**) and Cluster (**Cluster1**). Select **Edit**. On the menu below the Command Bar select **I/O Server**.



Add new I/O device

In the Topology activity bar, select activity tab **I/O Devices**. In the Command Bar select **New Device**. In the window, choose your project – click Next – choose your I/O Server - click Next – Create a new I/O Device (**M340**) – Click Next – Select the type of I/O Device (**External I/O Device**) – click Next – Choose “**M340 - OFSOPC**” – Click Next – Address – **M340** – Next – check **Link I/O Device to an external tag database** – click Browse – in OPC Data Access Server Parameters click “+” and choose **M340** – OK – Next – Finish. Click on row with created device in External in Automatic Refresh choose FALSE.

In the **System model** activity bar, select activity tab **Variables**. You can see all exported variables.

Setup Wizard

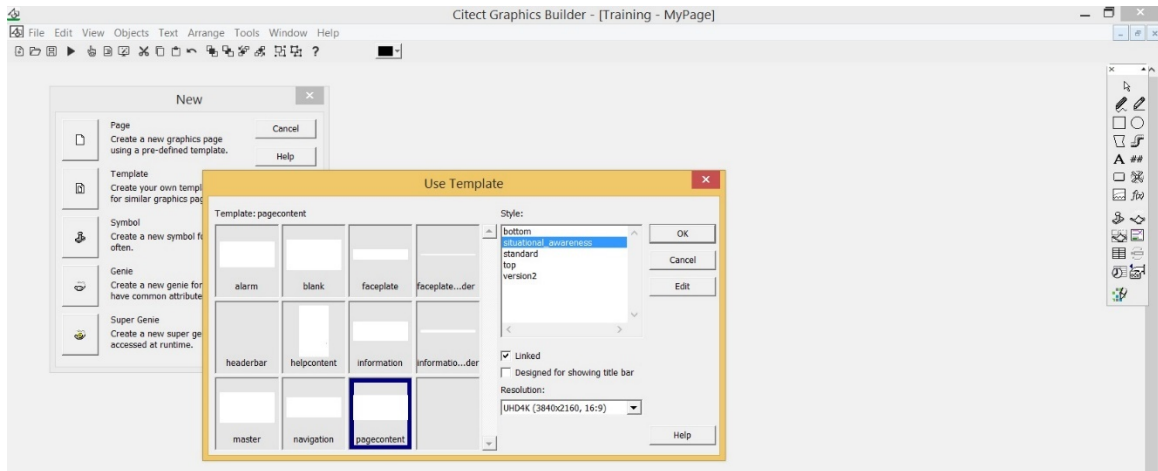
In the Project activity bar, select activity tab Home, in Command Bar select **Setup Wizard**.

In the window, choose **Custom Setup** – click Next – **Local Engineering Environment** – click Next – **Configure local settings** – click Next – in Context choose **MyPlant**, in Startup Page choose **Master_PageMenu1_HD1080** – click Next – click Next – choose **Stand alone** – click Next – click Next – check **Enable events on this computer** – click Next – click Next – ... – click Next – Done.

Creating Graphics Page

When we start Citect Studio, Citect Graphics Builder window will open too.

Graphics Builder is the tool you use to create and configure graphics pages. You can add content to a page that makes it reflect the area or processes it will be used to monitor.



From the **File** menu select **New** and choose **Page**. Use “pagecontent” template.

To save the page: from the File menu select Save. In the Page field, write “MyPage”. In Project, choose your project and click OK.

Go to **Citect Studio** in the **Visualization** activity bar, select activity tab **Menu Configuration**. In the last row, fill in the columns as shown below.

Row	Page	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6	Menu Command	Target Page	Comment	Order	Sym
25	Navigation	MyPlant	@(MyArea)	@(Test)				Navigation_ShowTargetI	Test	Defines the first button for the 'M	1	
26	InterlocksZo	@(Safety)						Interlocks_OnCategoryP		Shows the safety interlocks	1	sa_in
27	InterlocksZo	@(Process)						Interlocks_OnCategoryP		Shows the process interlocks	2	sa_in
28	InterlocksZo	@(Permissive)						Interlocks_OnCategoryP		Shows the permissive interlocks	3	sa_in
29	Navigation	MyPlant	@(MyArea)	@(MyPage)				Navigation_ShowTargetI	MyPage		1	

Drawing Graphics Objects

On the toolbar, click View, then Grid Setup. In the Grid Setup form, change the size of the grid from 8 x 8 pixels to 5 x 5 pixels. Check the Snap to Grid option, and then click OK to close the form.

Now we are ready to create and position our graphics objects.

Add Text

Click on the letter A on the Toolbox. Type “Start Timer”. Place the cursor and click to position the text that you have typed. An appearance form will be displayed to allow further customisation of the text. Choose size 18.

Add Button

On the Toolbox, click on the Button icon. To draw the button, click and hold the left mouse button while moving the mouse then release the left mouse button (i.e. click and drag the mouse).

Once you release the mouse button, the Button Properties dialog popup will appear. Double-click on the word button in the Text edit box and write “Start”.

Click on the Input tab at the top of the form to configure the action the button will perform. Select the **Up** action, then copy tag “M340_Input” from **System model** activity bar - activity tab **Variables** and paste “Toggle(M340_Input)”. When you are finished, click OK.

All objects you can copy (Ctrl+C), paste (Ctrl+V) and duplicate (Ctrl+D).



Add numbers and using keyboard data entry

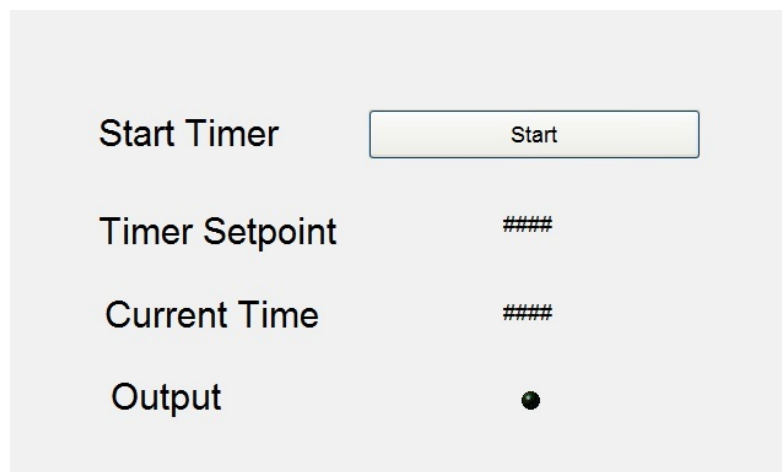
On the Toolbox, click on the **Number** tool. In the **Numeric expression field** insert Tag “M340_set_point”, choose format #####. In the horizontal tab “**Input**”, choose vertical tab **Keyboard Commands**. In **Key sequence command** write “M340_set_point = arg1”, in Key sequence choose **ENTER** and write #####ENTER. You want to create a second number with tag “M340_test_time”.

Add animated symbols

On the Toolbox, click on the Symbol Set Tool.

Position the cursor next to the Manual button, then click to place the symbol on the page. In the ON symbol when edit box type “M340_Output”. You can change the symbol type. Click **Set**.

Save your page.



Step 4: Compile and run project

Compile Project

In the activity bar, choose **Compile** the active project or **Alt + F10**. If compilation succeeded, you can run the project.

Run Project

In the activity bar, choose **Run** the active project or **F5**. Run in **Demo mode**? Click **OK**.

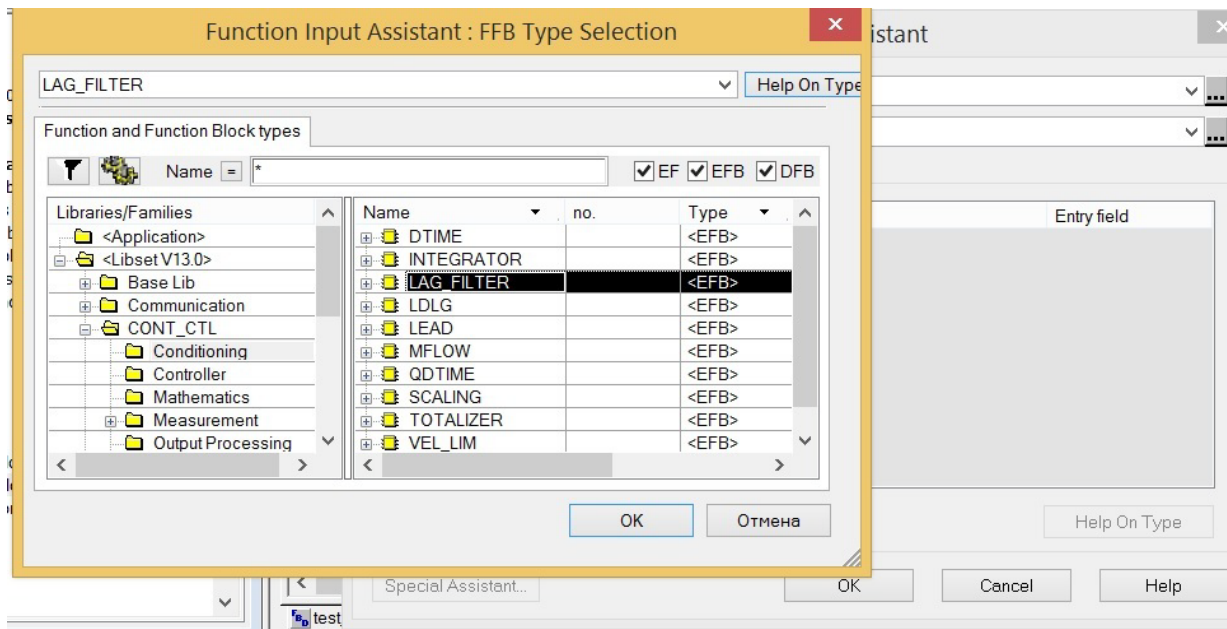
Save, Restore and Remove project

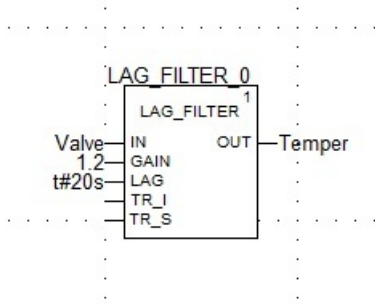
To save the project: in the Projects activity bar, select tab **Home**, and in the command bar choose command **Backup** (save in zip-file). To remove the project, choose command **Remove**. To restore the project, choose command **Restore**.

Check your program. Click **Start**. When the timer reaches the desired level, the LED should turn red.

Step 5: Add new FBD block in Unity Pro XL:

1. Create new section “LAG_logic”.
2. Right click on the empty field – FFB Input Assistant – FFB type selection button – choose LIBsetV13 folder – CONT_CTL – Conditioning – LAG_FILTER block – OK. Paste block.



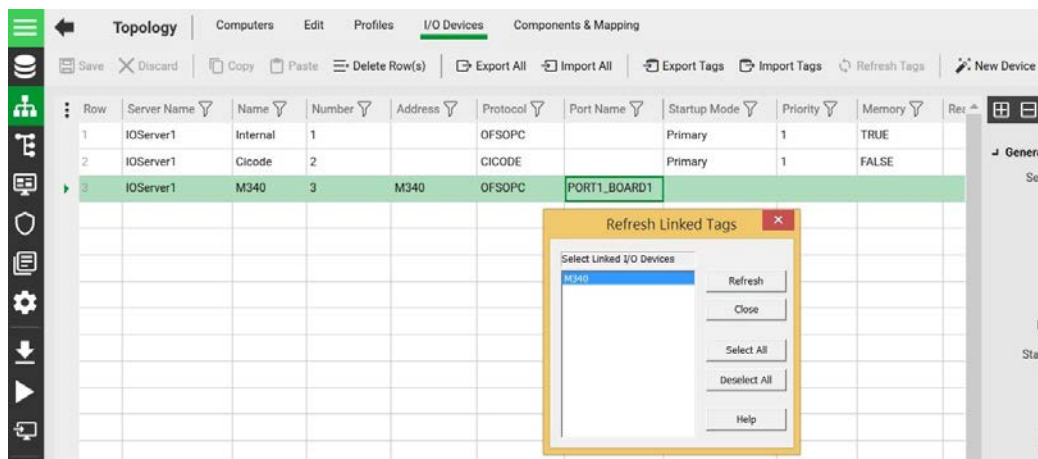


3. Add tags for LAG_FILTER block
4. Simulate and check new block

IN	Valve
OUT	Temper
GAIN	1.2
TAG	t#20s

Step 6: Refresh tags in Citext Studio:

1. In the **System model** activity bar, select activity tab **I/O Devices** and choose your device. Click on **Refresh Tags** button, choose **I/O device** and click **Refresh – Close**.

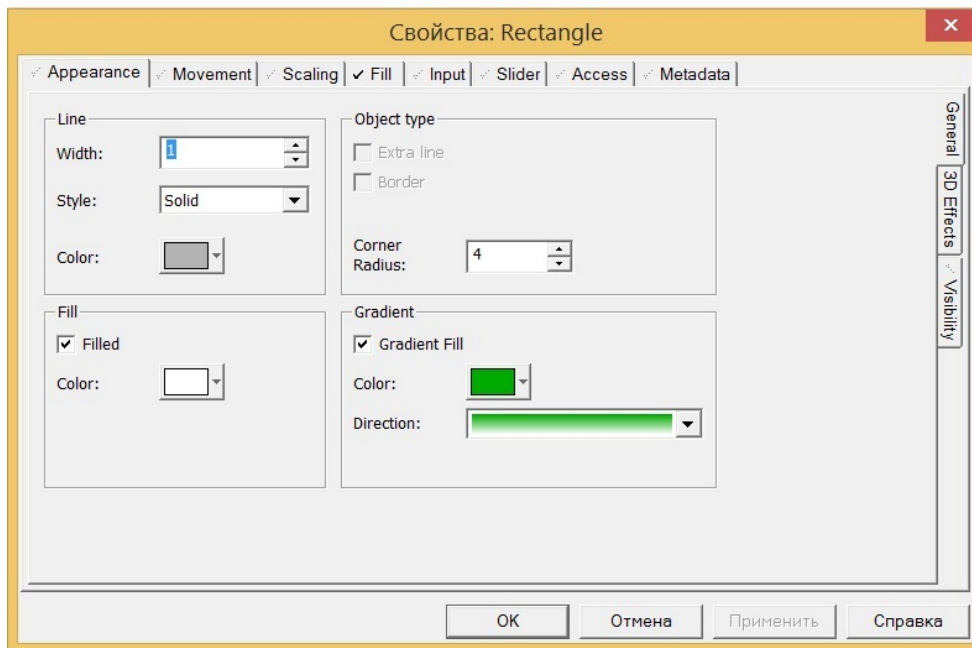


2. In Graphics Builder, create and save new page “LAG_test”.

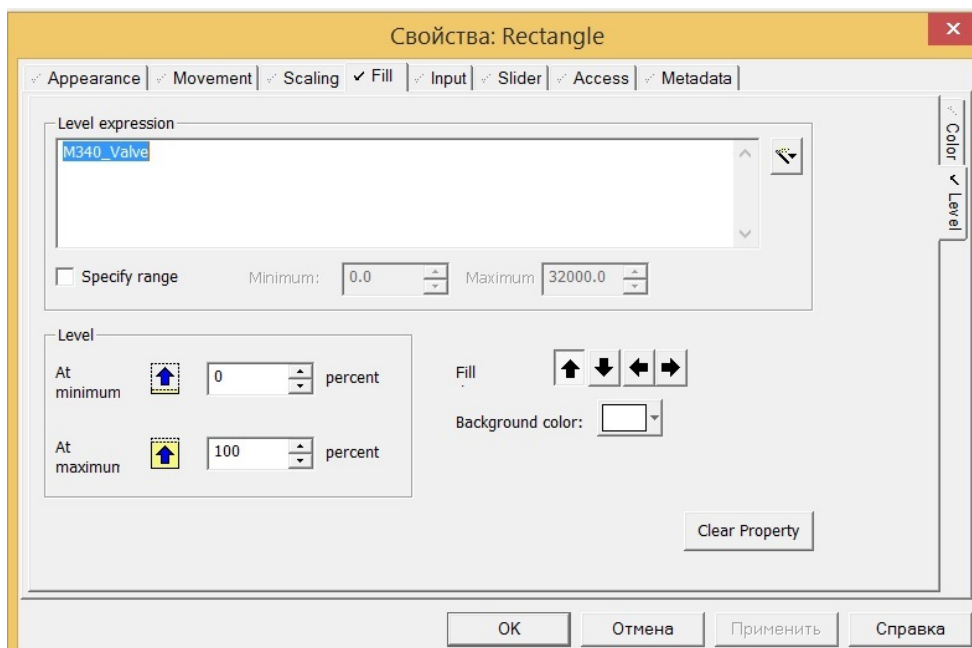
Step 7: Create Analogue Level Fill:

1. Add Rectangle from Toolbox.
2. Change the Filled Color to white.

3. Check the Gradient Fill option and select bright green as the Gradient Color.



4. From the pull-down options, change the Gradient Direction to vertical.
5. Click on the **Fill** tab and select **Level** from the vertical tabs on the right-hand side of the form.



6. Paste, in the **Level expression** field, “M340_Valve” tag and click OK.

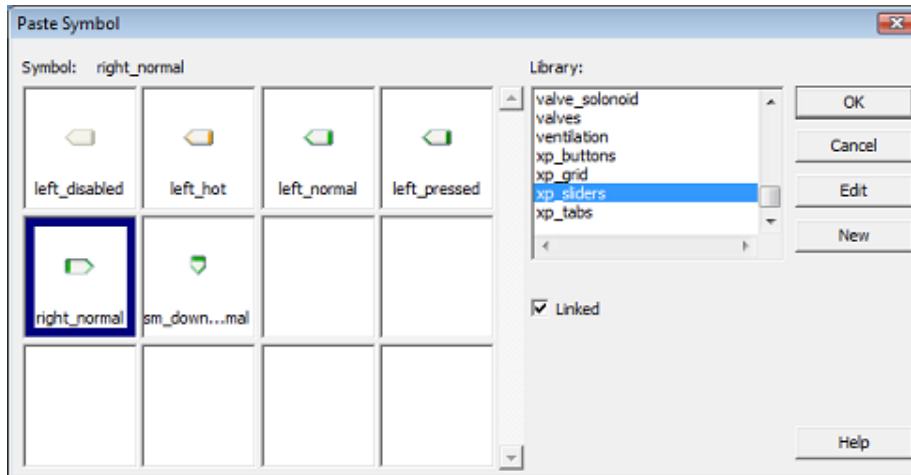
Step 8: Create Slider to Control Analogue Values:

To create a slider you need to find out how far (in pixels) the slider needs to move.

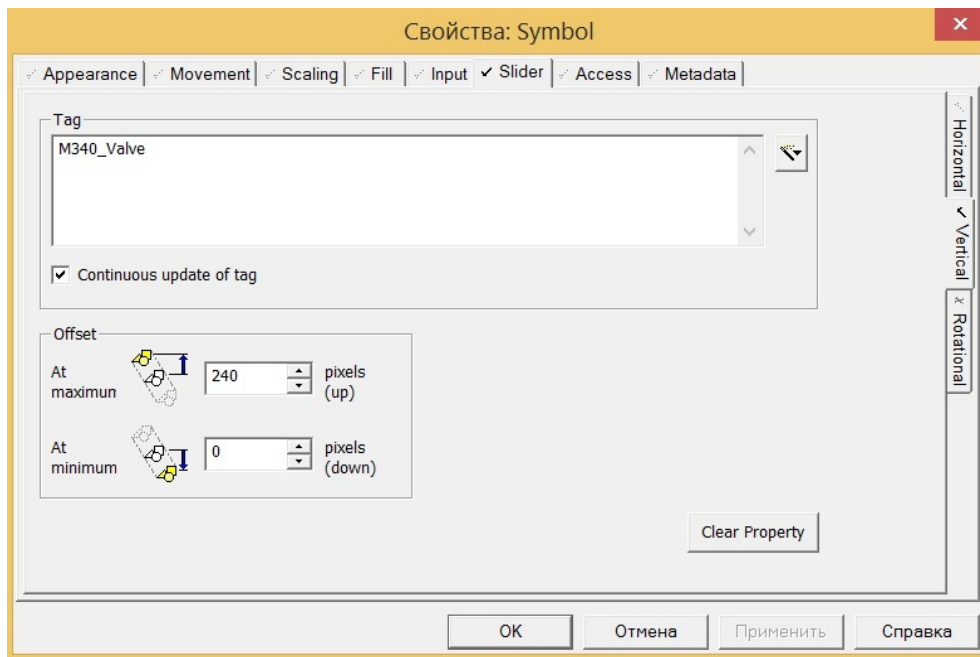
Select the rectangle, and look at information provided in the status bar at the bottom right corner of the Graphics Builder.



1. On the Toolbox click on the Paste Symbol tool.
2. In the Library choose, **xp_sliders** library and then select the **right_normal** slider icon.



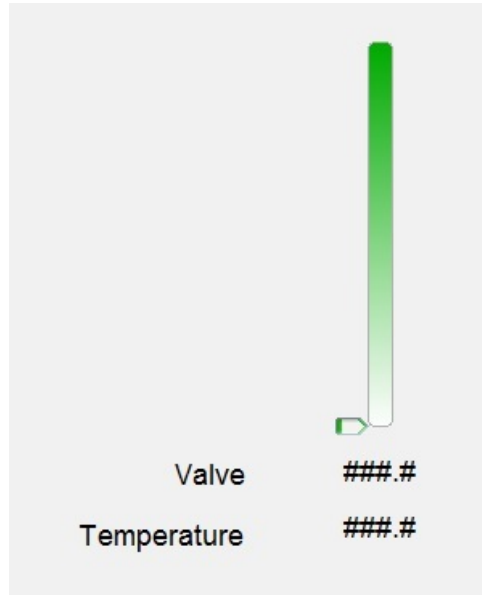
3. Position the pointer at the left bottom side of the gradient rectangle using Zoom and Nudge.
4. Double click on the Pointer Symbol to open the Symbol Properties form.
5. Click on the **Slider** tab, and then on the **Vertical** tab on the right-hand side.
6. Paste in the **Tag** field **M340_Valve** tag.



7. If the Continuous update of tag option is checked, then the tag will be written to while it is being dragged. In the At Maximum edit box, type the height in pixels that you wrote down earlier.

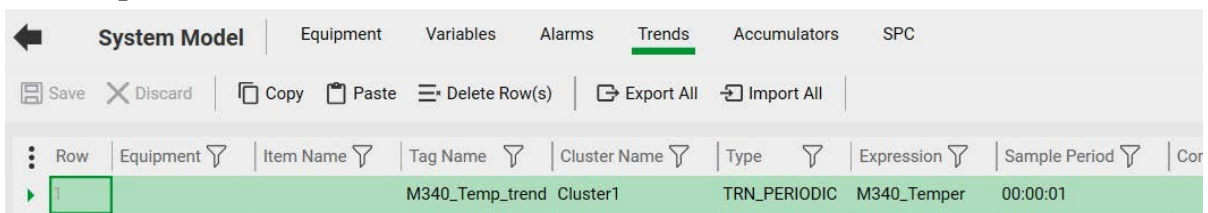
8. Click OK.
9. Click the save icon to save your page. Compile and run the project to test these changes before continuing.

Add Text and Numbers (for tags “M340_Valve” and “M340_Temper”).

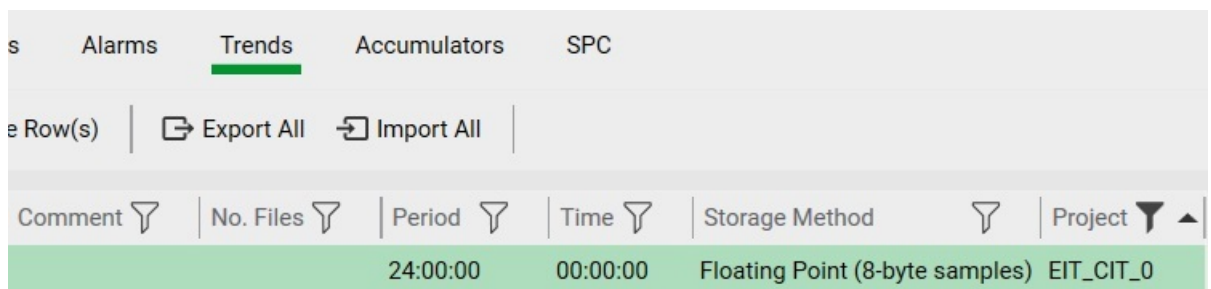


Step 9: Add Trends

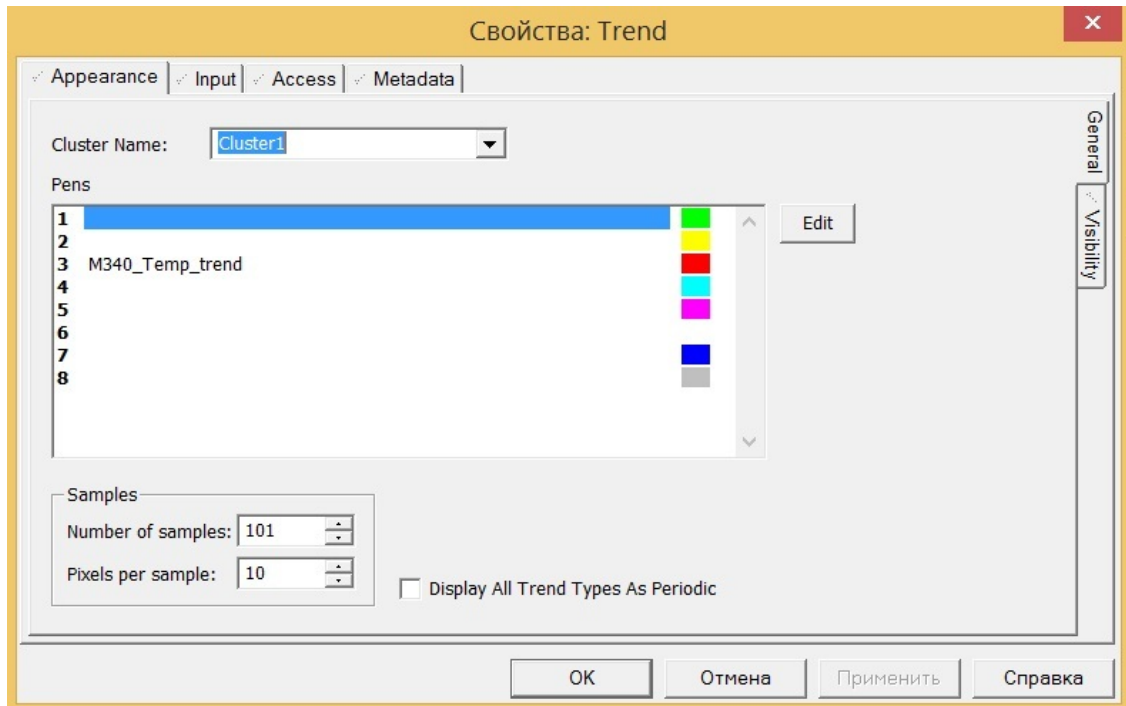
1. (Citect Studio) In the **System model** activity bar, select activity tab **Trends** and add new trend “M340_Temp_trend”.



2. (Citect Graphics Builder) Click Objects - Trend and draw window.



- In the Appearance tab in Cluster Name, choose your cluster. In the Pens field, in any row add your trend “M340_Temp_trend”. You can change color of trend, number of samples, pixels per sample etc.



Save your page.

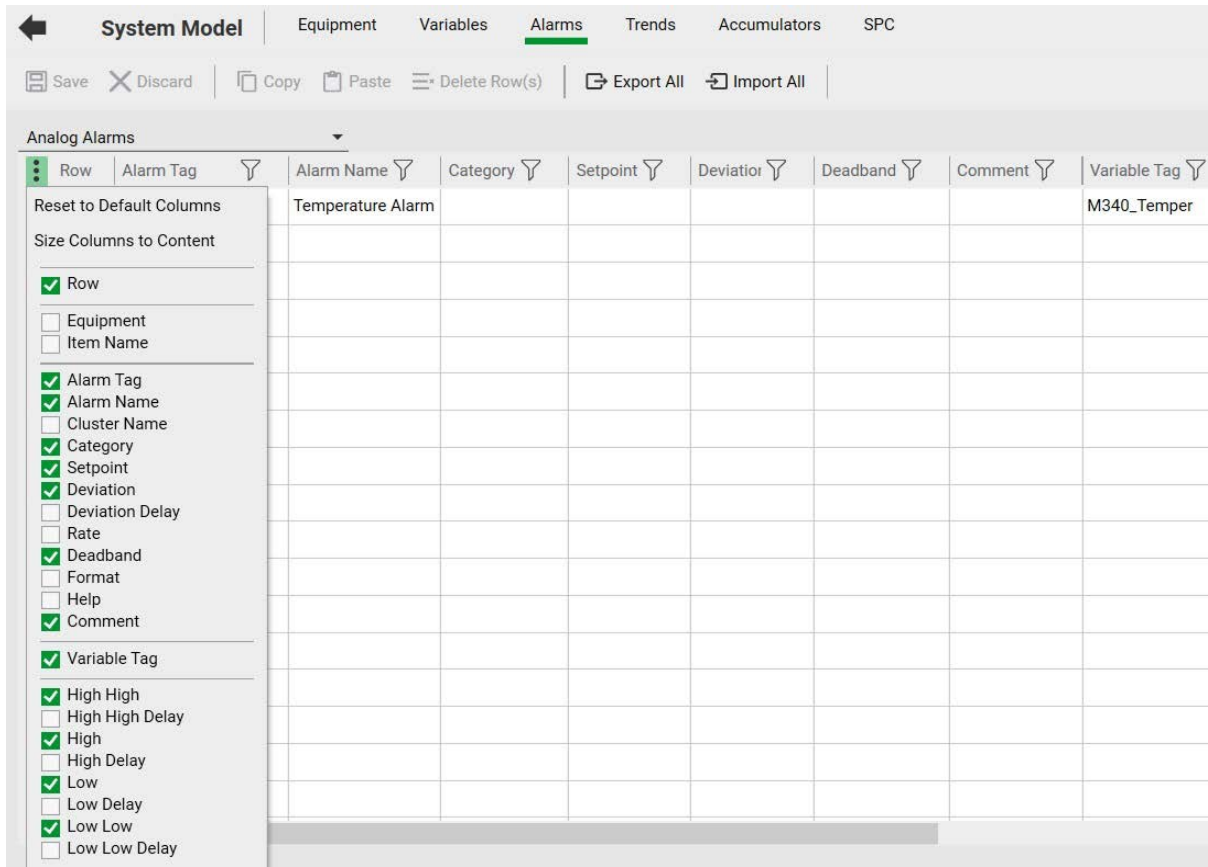
Update two variables (“M340_Valve” and “M340_Temper”) in Citect Studio,

Row	Tag Name	CI	I/O	Data Type	Address	Cl	Eng Zero Scale	Eng Full Scale
83	M340_TON_1_PT		M340	ULONG	TON_1_PT			
84	M340_TON_1_Q		M340	DIGITAL	TON_1_Q			
85	M340_TON_1_ET		M340	ULONG	TON_1_ET			
95	M340_Valve		M340	REAL	Valve		0.0	100.0
87	M340_LAG_FILTER_0_IN		M340	REAL	LAG_FILTER_0.IN			
88	M340_LAG_FILTER_0_GAIN		M340	REAL	LAG_FILTER_0.GAIN			
89	M340_LAG_FILTER_0_LAG		M340	ULONG	LAG_FILTER_0.LAG			
90	M340_LAG_FILTER_0_TR_I		M340	REAL	LAG_FILTER_0.TR_I			
91	M340_LAG_FILTER_0_TR_S		M340	DIGITAL	LAG_FILTER_0.TR_S			
92	M340_LAG_FILTER_0_OUT		M340	REAL	LAG_FILTER_0.OUT			
93	M340_Temper		M340	REAL	Temper		0.0	120.0
94	M340_LAG_0_X		M340	REAL	LAG_0.X			
95	M340_LAG_0_YMAN		M340	REAL	LAG_0.YMAN			
96	M340_LAG_0_Y		M340	REAL	LAG_0.Y			
97	M340_LAG_0_MODE_man		M340	DIGITAL	LAG_0.MODE.man			
98	M340_LAG_0_MODE_halt		M340	DIGITAL	LAG_0.MODE.halt			
99	M340_LAG_0_PARA_gain		M340	REAL	LAG_0.PARA.gain			

Step 10: Add Alarms

- (Citect Studio) In the **System model** activity bar, select activity tab **Alarms**.

2. On the menu below the Command Bar, select **Analog Alarms**.
3. Click to modify the columns on display.



4. Add analog alarm.

Analog Tag	M340_Temp_Alarm
Alarm Name	Temperature Alarm
Variable Tag	M340_Temper
High High	115
High	110
Low	10
Low Low	5

5. On the menu below the Command Bar, select **Digital Alarms**.
6. Add digital alarms.

Alarm Tag	M340_Start_Timer	M340_Stop_Timer
Alarm Desc	Start timer	Stop timer
Variable Tag A	M340_Input	M340_Output
Variable Tag B	M340_Output	

7. Click **Save** button.

Compile and Run your project.

