TIA(TOTALLY INTEGRATED AUTOMATION) PORTAL

SIMATIC STEP 7 BASIC V13 TUTORIAL

This tutorial will help you for developing your programming ability with S7-1200 PLC.

First, we are choosing TIA Portal V13 from our Start Menu and double click and open the program.
Here is our portal view. Now we need to choose **Create new project** icon. You can change your project name also your path and you can add your comments. And click the **create** button.

![Create new project icon](image)

We completed **Start** section. Now we need to configure our device. First click **configure a device**.

![Configure a device](image)
Choose **add new device**. And click **SIMATICS7-1200 CPU its model** and **type** respectively. Your **CPU type** can change from one to another. So you need to control on your **PLC Training Set**. Its CPU panel will give needed information to you. When you are confident to select true choice. Click **add** button. And go on.

The **CPU** added. You can see at the following figure. Now choose **Program blocks** and click double **Main [OB1]**.
Here is the **LADDER diagram window**. Now we are ready to add our operations such as bit logic, timer, counter, comparator etc. We will use **Basic Instructions** part.

### EXAMPLE

Let’s make an example and show step by step.

In order to drive a DC Motor 30 seconds by a button (**START and STOP**) the following **ladder diagram** can be used.

We choose first block. It is an “normally open” switch.

Its label will be **START** button. We will adjust its label and address.
Click right button on mouse. And choose Define tag.

Specify your information and click the Define button. Start button’s name is I0.0

Do the same thing like START button with STOP button. Stop button’s name will be I0.1 This is your choice. You have no constraints on it.
Now double click **Add new block**. Because we need **Timer** for our problem.

Choose **Data Block**. From **Type**, so you can choose whatever you need. And we chose **IEC_Timer**. And click **OK**.
Our Data_block_1[DB1] is added. Double click Main [OB1] and turn back our LAD diagram.

Add TON timer relay from Basic Instructions is selected. And click unknown information on and under the timer. Our time is milisecond at our programme. You need to give attention. Also we will give its label “Data_block_1”. You can see our explanations at the following figures.
Now we need to use Network 2.

Add new button. Its our timer’s output contact.

We will add output coil. Its label will be MOTOR.

Click right with Mouse and specify its properties and click Define button again.
Click **Save project**.

This icon is downloading our program to **CPU**. Also you know **Main[OB1]** is interface between **PC** and **CPU**. Click **download icon** and continue.

Choose **PN/IE** and **Intel® 82579LM Gigabit Network Connection**. And click the **Start Search** button.
Search is completed. Choose **PLC_2** device and click the **Load** button.

Choose **Stop all** and click **Load** again. And then click **Finish** button. Finally, you completed compiling process.
Now click this icon for simulation.

If you open **10.0**(START) input. 30 seconds later, our motor will be loaded. Let’s do that.

And finally we completed our task.

Don’t forget to go offline. 😊