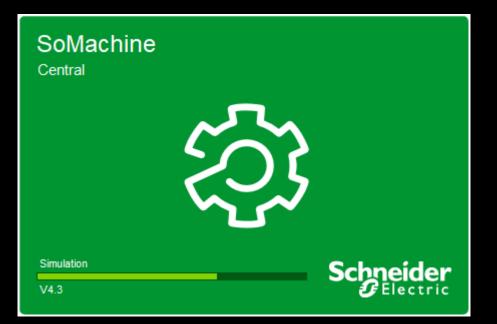
# SoMachine V4.3



# Software Configuration

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# SoMachine V4.3

# • Introduction :

What is the SoMachine Logic Builder?

- General Information :
- The Logic Builder provides the configuration and programming environment for the SoMachine Projects you create with SoMachine Central.
- It displays the different elements of your project in separate views that you can arrange on the SoMachine user interface and on your desktop according to your individual requirements. This View structure allows you to add hardware and software elements to your project by drag and drop. The main configuration dialog boxes that allow you to create content for the project are provided in the center of the Logic Builder screen.
- In addition to easy configuration and programming, the Logic Builder also provides powerful Diagnostic and maintenance features.

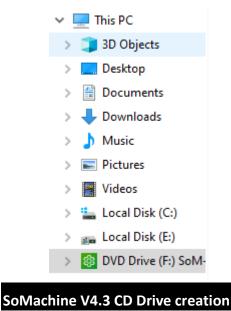
# **Somachine V4.3 Installation Procedure**

- Go to your file directory,
- Double click on SoMachine **.ISO** file format.

SoMachine-4.3.0.0-Final_17.06.21.01	6/14/2019 4:15 PM	File folder	
ReleaseNotes.EN.pdf	7/10/2017 2:38 PM	Adobe Acrobat D	586 KB
SoMachine V4.3-list of fixed PCRs.xlsx	7/12/2017 12:46 PM	Microsoft Excel W	76 KB
SoMachine-4.3.0.0-Final_17.06.21.01.iso	6/22/2017 1:11 PM	Disc Image File	7,703,048 KB

#### SoMachine V4.3 Installation file Directory

- You get Symbol as per attached image.
- Here, you get **SoMachine V4.3 CD drivce**.



You get some files of the Somachine V4.3 installation files,



# Installation Files in CD Drive of the SoMachine V4.3

- Double Click on Launcher.exe file.
- As per attached below image you get one configuration page for the Somachine V4.3.
- Follow below procedure for the Installation SoMachine V4.3.

oMachine Configurat	tion Manager	Schneide
stallation Add-Ons	s/Patches Licensing Support Settings About	
	SoMachine Software	Info
Install New Version >	Component	Version Build
Customize Version >	SoMachine Components	
Uninstall Version >	🔤 🔮 LogicBuilder	4.3.0.0 (17.6.20.1)
	🗸 LogicBuilder Lexium28	4.3.0.0 (16.9.13.1)
	🔮 LogicBuilder LMC078	4.3.0.0 (16.9.13.1)
Local Offer Code >	🔮 LogicBuilder Standalone Mode	4.3.0.0 (17.6.20.1)
		6.2.4.1068 (16.11.2.3)
Additional Software >	_ OPC	16.1.0.0 (17.5.5.2)
	🖬 🔮 Gateway	16.1.0.0 (17.5.5.1)
Show EULA >	Optional Drivers	16.1.0.0 (17.5.15.1)
CHOIL COLLEG	SoMachine Basic	1.5.0.58934 (1.5.0.58934)
Show Release Notes >	Auxiliary Tools	
Show ReadMe >	Schneider Electric Software Update	2.3.1.0 (0.0.0.0)
	Schneider Electric LicenseManager	2.3.0.0 (0.0.0.0)
	ControllerAssistant	16.1.10.0 (17.5.19.1)
	O Diagnostics	16.1.10.0 (17.5.19.1)
	SoftSPS	16.1.0.0 (17.3.15.3)
	ETest	4.3.0.0 (17.6.20.1)
	Controllers	
	✓ M221	4.3.2.0 (15.7.30.2802)
	₩241	4,3,9.7 (17.6.13.1)
	♥ M251	4.3.9.7 (17.6.13.1)

## SoMachine V4.3 installation Configuration

- Check all marks and Click on Install button.
- Wait for the installation.
- Here, take a time more time for the installation, so don't cancel installation and wait for the installation.
- After completion installation, reboot your system.
- Now Installation Completed.

# SoMachine V4.3

#### List of Supported PLC for the SoMachine V4.3 :

- Below PLC Models are supported in only SoMachine V4.3.
- Different PLC models have a different property and communication protocols.

## SoMachine V4.3 supported Controller List

- SoMachine V4.3 have supported below listed Controller List :
  - 1. Logic Controller
  - 2. Motion Controller
  - 3. Drive Controller
  - 4. HMI Controller
  - 5. Magelis HMI&iPC
  - 6. Communication Element

# Logic Controller :

- Logic Controller have supported below listed models of the controller.
- TM221 Controller have supported with the SoMachine V4.3 and all the instruction already given in SoMachine basic software, Please refer SoMachine basic software document.

Logic Controller	Logic Controller Models
	TM238LDA24DR
TM238	TM238LDD24DT
1101238	TM238LFAC24DR
	TM238LFDC24DT
	TM241C24R
	TM241C24T/U
	TM241C40R
	TM241C40T/U
TM241	TM241CE24R
111/241	TM241CE24T/U
	TM241CE40R
	TM241CE40T/U
	TM241CE24R
	TM241CE24T/U
TM251	TM251MESC
1101251	TM251MESE
	TM258LD42DT
	TM258LD42DT4L
TM258	TM258LF42DR
1 11/230	TM258LF42DT
	TM258LF42DT4L
	TM258LF66DT4L

#### SoMachine V4.3 Software :

 SoMachine and the devices supported by SoMachine are continuously improved. Therefore, new updates of SoMachine and its associated supports are released on a regular basis.
 SoMachine Software provides, in most cases, a simple, and straight forward way to migrate projects created with previous versions of SoMachine to the current version.

			SoMachine Central - V4.3		-8
	%I-3I <b>?</b> <	gic Builder Vijeo-Des	igner SoMachine Basic Maintenance 💌	Tools 🔻	Help Cente
Get started Start > Recent Projects >					
Recent Projects > Connect Controller New Project Open Project					
	Recent Projects	Last Change	Directory		
	TANK_Final UPDATED NEW 28 10002243_NMMC_WTP_LOGIC 10002243_NMMC_WTP_LOGIC	10/12/2019 12:13:31 PM	E\PRITESH\TALAIPALLI\HARDCASTLE FINAL BACKUP\HOWCO_ C\Users\Admin\Documents E\PRITESH\10002243_NMMC	PLC No image	Created: Title: Author: Company: Last change: Version:
					Schneider Electric

# SoMachine V4.3

- SoMachine V4.3 Used for the development of the PLC logic, In this SoMachine software compatible with the Motion controller, Drive controller and IPC HMI configuration and Much more.
- Different Controller have different protocols for the communication.
- Please refer Controller information and choose what you have require.

#### **Recent Tab :**

• If you are already developed or used Somchine software and developed any project in SoMachine V4.3, So you have shown recent project option in recent tab.

lame	Last Change	Directory
TANK_Final UPDATED NEW 28	3/29/2019 10:51:35 AM	E:\PRITESH\TALAIPALLI\HARDCASTLE FINAL BACKUP\HOWCO_PLC
10002243_NMMC_WTP_LOGIC	. 10/12/2019 12:13:31 PM	C:\Users\Admin\Documents
10002243_NMMC_WTP_LOGIC	9/20/2019 2:55:05 PM	E:\PRITESH\10002243_NMMC

- If you have to open recent project, simply double click on listed project name.
- Here you are entered in development section.

#### New Project Creation :

- New project creation with SoMachine V4.3, Follow below procedure.
- As per attached image **Get Started** SoMachine V4.3.
- Click on New Project
- Four Options available,
  - 1. Using Assistant
  - 2. Template Based
  - 3. Empty Project
  - 4. New Library

art >	Recent Projects >
Recei	nt Projects >
Conn	ect Controller
New	Project
Oper	n Project

Recent Projects	Assistant	Using Assistant	Template Based	Empty Project	New Library	
Connect Controller	With template	Need help? SoMachine will guide you to find the best	Templates allow a short project times by relying on a	Plain project without any pre- configuration of devices or	Why not creating your own library? Make your know-how	
New Project	Empty project	way to start a new project. Based on the information	project that has already been successfully. We offer project	logic. Based on your level of expertise, you may require	re-useable. Libraries allow you to store parts of your	
Open Project	New library	that your enter, SoMachine will propose the best ways to	templates starting with a machine type or a given	the full flexibility. In most cases you benefit more from	application and machine know-how into a repository.	
		start your project.	recommended architecture.	using a template or the assistant.	Library objects may exist in different versions.	

#### Get Started with SoMachine V4.3

- Choose you want and create new project. For Example I created project based on Using Assistant.
- Type Project Name,
- Choose Controller
- Choose Requirement
- Choose Programming Language
  - 1. CFC (Continuous Function Chart)
  - 2. FBD (Function Block Diagram)
  - 3. IL (Instruction List)
  - 4. LD (Ladder Diagram)
  - 5. SFC (Sequential Function Chart)
  - 6. ST (Structured Text)

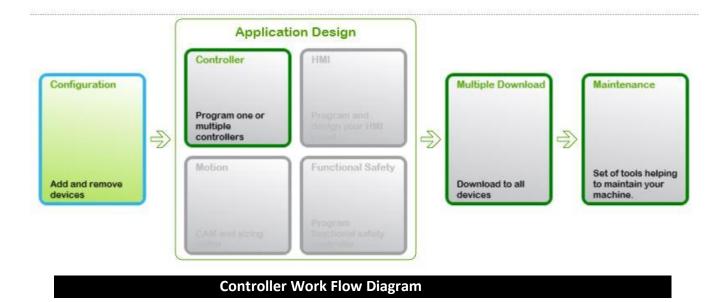
#### New Project Assistant

General	Properties	Matching T	emplates			
Project Name			Controllers			
Untitled			Туре	Version	Details	P
Start with:			IM241C40R	4.0.5.18	l	
Controller		•	TM241C40T/U	4.0.6.18	i	_
Requirement	ts		TM241CE24R	4.0.6.18	i	
Field bus			TM241CE24T/U	4.0.6.18	i	
Motion co	ntrol is needed		TM241CE40R	4.0.6.18	i	
Program Lang	guage:		TM241CE40T/U	4.0.6.18	i	
Continuous F	unction Chart (CFC)	*	TM241CEC24R	4.0.6.18	i	
			TM241CEC24T/U	4.0.6.18	i	
						*

Create Project

#### New Project Creation with SoMachine V4.3

• Click on Create Project button.



- In this controller work flow architecture, you have an option for the controller configuration, Program downloading.
- You can easily Add and remove devices through the controller configuration function.

<	Logic Builder	Vijeo-Designer	SoMachine Basic	Maintenance 🕶	Tools 🔻

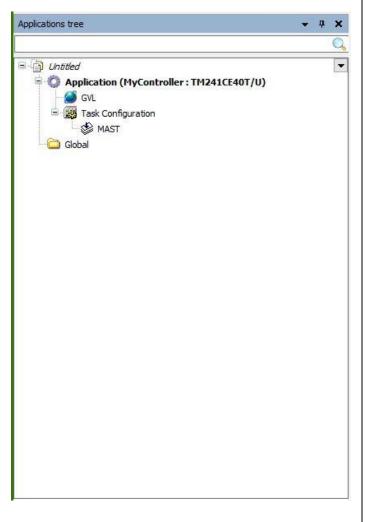
- Vijeo-Designer HMI Screen developing
- SoMachine Basic Building project for the TM221 Controller
- Maintenance Firmware Downloading and Diagnostic function
- Tools SoMachine Software Registration Tools

# Logic Builder :

- Here, you have to build your PLC logic.
  - 1. Device Tree
  - 2. Application Tree
  - 3. Tools Tree
- There are three trees available.

# **Application Tree :**

- Here, you can develop your PLC Logic.
- Create One POU with selection of **Program** and selected programming language.
- **GVL** is Global variable list, that variable list require used for the data transmit from one device to other.
- Data transferring as per your communication protocol.
- First you have require to create one POU for in the Application Tree.
- Develop your logic in that POU with selected programming language.
- Various programming languages supported in SoMachine Software, that list already have mention in Get Started page.
- One's you can developed your logic in POU, You need to Program call in Mast section.
- Without calling POU in Mast your program can't run.
- **Example** : One can press Start button, Motor will be started.



#### **Application Tree Configuration**

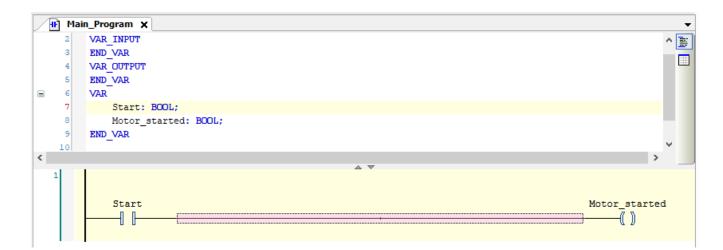
## 

- Use this Function and developed logic as you have require.
- Function can change as per selected programming language.

	) Mai	n_Program 🗙
	1	PROGRAM Main_Program
	2	VAR
	3	Start: BOOL;
	4	Motor_Started AT %M0: BOOL;
	5	END_VAR
	6	
1		
_		
		SoMachine Addressing

# Addressing Format in SoMachine V4.3:

- Here, You have same addressing format of SoMachine Basic.
- %M, %MW, %MD, %MW used for the internal addressing.
- You can configure your address in particular POU, Otherwise you have an option to do addressing in Global Variable List.
- See attached image and configure as per that.
- This Standard format use for the communication PLC Controller to any other devices.



#### Logic building in POU



#### **Function Block Variable Configuration**

- Define Function blocks Inputs and Outputs Variables here,
- Local Variable define below the Var.
- Define global variable in GVL (Global Variable List)

# **User Define Function Block :**

- Follow below procedure for the Creation User Define Function Block.
- First create one **Function Block** as per attached image.
- Here, I have created **PUMP\_FBD** name Function Block diagram using Ladder Language.
- After adding Function block, Open that created Function Block and developed Logic which you have require.
- This particular function block you can use multiple times for the Logic development.
- In this example I have created one PUMP Logic and use this function block multiple times in my project.
- It's Called Derived Function Block or User define function block.

Add POU	×
Create a new POU (Program Organization Unit)	
Name:	
PUMP_FBD	
<u>Type:</u>	
○ <u>P</u> rogram	
Function <u>B</u> lock	
Extends:	
Implements:	
Access specifier:	
×	
Method implementation language: Function Block Diagram (FBD)	
O <u>F</u> unction	
Return type:	
Implementation language:	
Ladder Logic Diagram (LD)	~
Add Cancel	

#### **Create Function Block**

- Write down all the variables inputs and outputs in Top of the created user define function block.
- Here, you can easily understand, I have mention some inputs of the pump define in Var\_Input and Some Pumps outputs define in the Var\_Output.
- After write down all the require Inputs and outputs in the Var\_Input and Var\_Output, build your project.
- After building project develop logic as per have requirement.

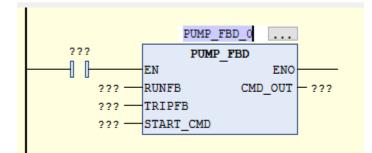


#### **PUMP\_FBD Function Block**

- See, how can use this developed PUMP\_FBD function block multiple times or other sections.
- Follow below procedure and configure as well.

dd POU	×	
Create a new POU (Program Organization	n Unit)	• Create One more POU as per your require selected programming language.
Name:		• Here, in example I have create MAIN_PRG Program block using Ladder
MAIN_PRG		Language.
Type:		After Creation this function block simply
○ Program		Add created <b>PUMP</b> Function block in
Function <u>B</u> lock		MAIN_PRG program block.
Extends:		• Click on this button for
		the calling function block in this section.
Implements:		• After clicking this symbol you get one
Access specifier:		window for the calling function block in
Mathead incloses to tion loss success	~	particular section.
Method implementation language: Ladder Logic Diagram (LD)	$\sim$	• See, below attached image, Double click
		on created used define function block.
○ <u>F</u> unction		Give a name of the function block, like
<u>R</u> eturn type:		PUMP_FBD_0.
Implementation language:		

# MAIN\_PRG Function Block Creation



Calling PUMP\_FBD in MAIN\_PRG Section

ext seard       Categories         Function blocks       Module Calls         Keywords       Application         Conversion Operators       PUMP_FBD         PUMP_FBD       FUNCTION_BLOCK         © 0 SEC_HSC       Libray         # 0 Util       Libray         Structured view       Show documentation commentation         Socumentation:       Insert with arguments	Function blocks       Name       Type       Origin         Module Calls       Application       Application       Application         Conversion Operators       Image: Development of the section of the sec	Function blocks       Name       Type       Origin         Module Calls       Application       Application       Application         Conversion Operators       PUMP_FBD       FUNCTION_BLOCK         Conversion Operators       SEC_HSC       Library       m241 plcsystem, 1.0         Conversion Operators       SEC_FSC       Library       m241 plcsystem, 1.0         Conversion Operators       SEN       Library       m241 plcsystem, 1.0         Conversion Operators       SEN       Library       m241 plcsystem, 1.0         Conversion Operators       SEN       Library       m241 plcsystem, 1.0         Conversion Operators       Util       Library       standard, 3.5.2.0 (system)         Structured view       Show documentation ocumentation       Insert with arguments       Insert with namespace procumentation:
Module Calls     Yple     Origin       Keywords     PUMP_FBD     PUMPY_FBD       Conversion Operators     PUMP_FBD     PUMPY_FBD       PUMP_FBD     PUMPY_FBD     PUMPY_FBD       PUMP_FBD     PUMPY_FBD     PUMPY_FBD       PUMP_FBD     PUMPY_FBD     PUMPY_FBD       PUMP_FBD     PUMPY_FBD     PUMPY_FBD       PUMPY_FBC     Ubray     m241 plcsystem, 1.0       PUMP_FBD     PUMPY_FBD     PUMPY_FBD       PUMPY_FBC     Ubray     m241 plcsystem, 1.0       PUMPY_FBC     Ubray     m241 plcsystem, 1.0       PUMPY_FBD     Ubray     m241 plcsystem, 1.0       PUMPY_FBD     Ubray     plcscommunication, 1       PUMPY_FBD     Ubray     standard       PUMPY     Standard     Libray       Structured view     Prover util, 3.5.1.0 (system)	Module Calls       Application       Application         Conversion Operators       Image: Sec	Nodule Calls       Conversion Operators       Organization       Application       Application         PUMP_FBD       FUNCTION_BLOCK         © O SEC_HSC       Libray       m241 plcsystem, 1.0         © O SEC_HSC       Libray       m241 hsc, 1.0.0.13 (s         © O SEC_HSC       Libray       m241 hsc, 1.0.0.13 (s         © O SEC_HSC       Libray       m241 hsc, 1.0.0.13 (s         © O SEC_HSC       Libray       m241 plcsystem, 1.0         © O SEC_HSC       Libray       standard f         © O SEC_HSC       Libray       standard f         © O Standard       Libray       standard f         Show documentation       Insert with arguments       Insert with namespace procumentation:         cumentation:       Cm       Cm
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Show documentation Insert with namespace pre- cumentation:	Show documentation Insert with namespace proceedings of the second secon	Show documentation Insert with arguments Insert with namespace procumentation:
		OK
	OK	
	OK Car	
	OK Car	
OK Cano		

# **Program Call In Mast :**

First you have require to developed PLC Logic in the POU and then after do this procedure.

•

2.

- This procedure can configure your POU in Mast Section.
- See in image, Here Main\_Program Program Block created.
- Now, I have require to add this section in Mast section.

Application (MyController : TM241CE40T/U)

Follow Below Procedure,

Main\_Program (PRG)

MyPOU Main\_Program

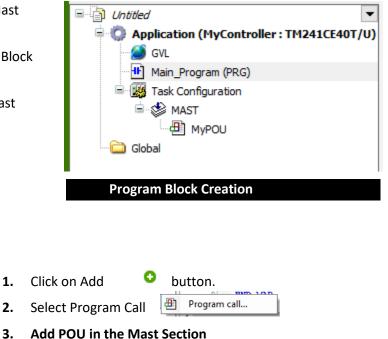
MyPOU (PRG) E Task Configuration

😑 🍪 MAST

Dutitled

🎑 GVL

🚞 Global

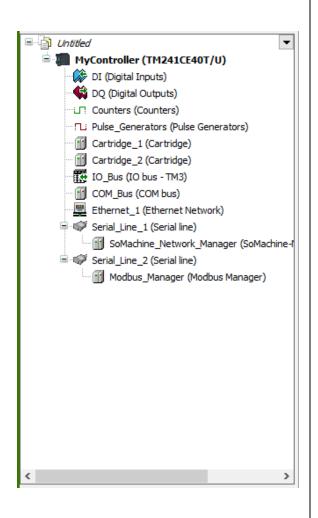


4. After Adding POU in Mast section, Your Program Can be able to execute.

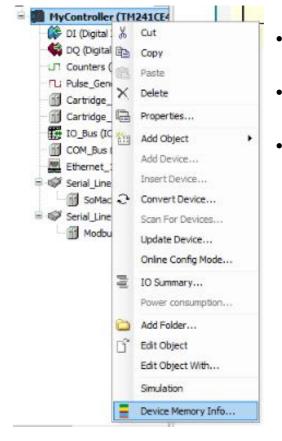
#### Main\_Program Added in Mast Section

# **Devices Tree :**

- Devices Tree used for the below listed configuration,
  - 1. IO List
  - 2. Communication Bus
  - 3. IO Bus
  - 4. Ethernet Communication
  - 5. Serial Line Communication
  - 6. IO Scanner
- TM241 controller have only 14 remote IO Supported.

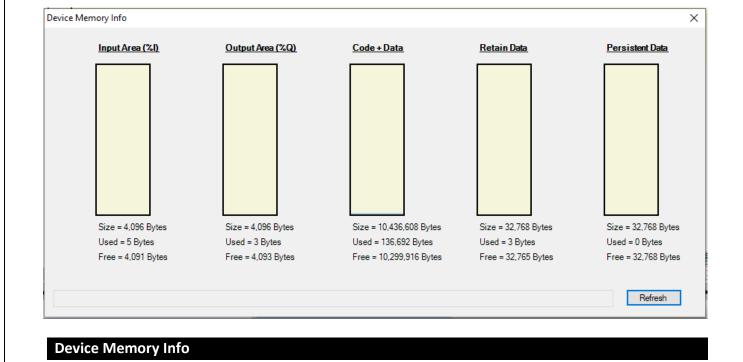


### **Memory Management :**



**Device Memory Info** 

- Right Click on My Controller and select Device Memory Info....
- Here, you have get Memory information of the Controller.
- Click on **Refresh** button for the execute memory and get Standard memory information of the controller.



# **IOs Configuration :**

- Double Click on DI or any other IO.
- See below listed Inputs and extract first one.
- You have get your selected DI or selected IO list as per attached image.

Channels							
Variable	Mapping	Channel	Address	Туре	Default Value	Unit	Description
🖃 📄 Inputs							
🖻 🦄 idwDI_IDW0	**	IDW0	%ID0	DWORD			
🗉 👋 ibDI_IB1	**	IB1	%IB4	BYTE			

Variable	Mapping	Channel	Address	Туре	Default Value	Unit	Description	
🖃 🧾 Inputs								
🖻 🦄 idwDI_IDW0	**	IDW0	%ID0	DWORD				
🍫		10	%IX0.0	BOOL			Fast input, Si	
🍫		I1	%IX0.1	BOOL			Fast input, Si	
🍫		12	%IX0.2	BOOL			Fast input, Si	
🍫		I3	%IX0.3	BOOL			Fast input, Si	
<b>*</b> ø		I4	%IX0.4	BOOL			Fast input, Si	
🍫		I5	%IX0.5	BOOL			Fast input, Si	
···· 🍫		16	%IX0.6	BOOL			Fast input, Si	
🍫		17	%IX0.7	BOOL			Fast input, Si	
···· 🍫		18	%IX1.0	BOOL			Regular input	
ᡟ		19	%IX1.1	BOOL			Regular input	
ᡟ		I10	%IX1.2	BOOL			Regular input	
ᡟ		I11	%IX1.3	BOOL			Regular input	
🍫		I12	%IX1.4	BOOL			Regular input	
🍫		I13	%IX1.5	BOOL			Regular input	
🍫		I14	%IX1.6	BOOL			Regular input	
🍫		I15	%IX1.7	BOOL			Regular input	
🍫		I16	%DX2.0	BOOL			Regular input	
🍫		I17	%DX2.1	BOOL			Regular input	
🏘		I18	%DX2.2	BOOL			Regular input	
🍫		I19	%DX2.3	BOOL			Regular input	
<b>*</b>		I20	%DX2.4	BOOL			Regular input	
¥ø		I21	%IX2.5	BOOL			Regular input	

🍫 😑 Create new variable

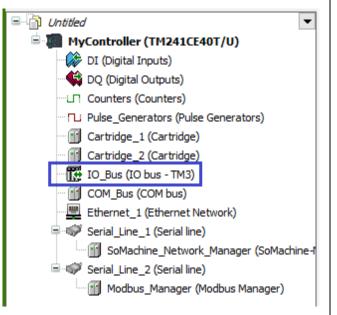
🍖 🛛 = Map to existing variable

#### **DI List in Devices Tree**

- %IX0.0 to %IX0.7 it's Address list of the DI Input Card.
- %10, %11,..., etc. input channel list of the Digital Input card.
- Description Column shown Input channel characteristic, Like : Regular Input or Fast Input.

#### **IO Bus Configuration :**

- Click on Add button
   On IO\_Bus.
- IO\_Bus used for the IOs configuration, which is connected with the controller.
- See attached image, and Add IO card which you have require.



#### **IO\_Bus Configuration**

lame:		
Action:		
Append device	Insert device O Plug device O Update de	vice
Device:		
Vendor: Schneider E	lectric	~
Name	Vendor Version	
🗉 👔 TM2 Analog I/	/O Modules	
🗈 👔 TM2 Digital I/	0 Modules	
🗉 👔 TM3 Analog I/		
🕫 🎬 TM3 Digital I/		
🗄 📆 TM3 Expert I/0	0 Modules	
Display all versions	(for experts only)	
Display all versions Display outdated ve		
Display outdated ve		
Display outdated ve	rsions	
Display outdated ve		
Display outdated ve	rsions	
Display outdated ve	rsions	
Display outdated ve	rsions	
Information:	rsions	dow is open.)
Information:	Please select a device from the list above,	dow is open.) Add Device Close

#### Adding Devices in I/O BUS

- Add I/O in Add device section,
- TM2 I/O Analog Modules
- TM3 I/O Analog Modules
- TM2 I/O Digital Modules
- TM3 I/O Digital Modules
- TM3 Expert I/O Modules
- Different controller have supported different modules.
- If I/O module not supported with selected controller then you have get Error in Message Box, Double click on Error message and troubleshoot that.

# Communication Configuration :

## Ethernet Configuration :

- Double click on **Ethernet Network** and give IP Address of the controller.
- See below Ethernet configuration.

Configuration Configured Paramet	ers							
Interface Name	Ethernet	Port0						
Network Name	my_Devi	ce						
O IP Address b	y DHCP							
O IP Address b	y BOOTP							
fixed IP Addr	ess							
IP Address		192	•	168	•	0	•	200
Subnet Mas	ĸ	255		255		255		0
Gateway Ad	dress	192		168		0		1
Ethernet Protoco	J	Ether	me	et 2				
Transfer Rate		Auto						

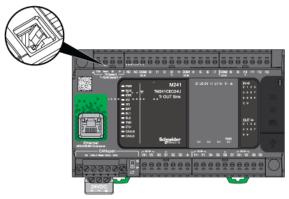
Chitled	•
🖻 🌆 MyController (TM241CE40T/U)	
DI (Digital Inputs)	
📢 DQ (Digital Outputs)	
Counters (Counters)	
Pulse_Generators (Pulse Generators)	
Cartridge_1 (Cartridge)	
Cartridge_2 (Cartridge)	
IO_Bus (IO bus - TM3)	
COM_Bus (COM bus)	
Ethernet_1 (Ethernet Network)	
🖙 💖 Serial_Line_1 (Serial line)	
SoMachine_Network_Manager (SoMach	ine-f
🖮 💞 Serial_Line_2 (Serial line)	
Modbus_Manager (Modbus Manager)	

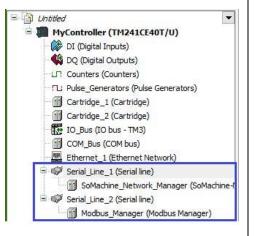
#### Serial Line Configuration :

- TM241CE40T/U controller have two serial line ports, Serial Line 1 have RJ45 Pinout and Serial Line 2 have Screw terminal.
- See attached image, Serial line 1 and Serial Line 2 ports,

#### Procedure :

- Double Click on Serial\_Line\_1 (Serial Line).
- Serial\_Line \_1 RJ45 connector Pin available on top of the Controller.





#### Serial\_Line\_1 Pinout :

• Make cable as per Physical medium and below attached image,

#### Pin Assignment

The following figure shows the pins of the RJ45 connector:



The table below describes the pin assignment of the RJ45 connector:

Pin	RS232	RS485
1	RxD	N.C.
2	TxD	N.C.
3	N.C.	N.C.
4	N.C.	D1
5	N.C.	D0
6	N.C.	N.C.
7	N.C.*	5 Vdc
8	Common	Common
* 5 Vdc delivered by	the controller. Do not connect.	

N.C.: No Connection

RxD: Received Data

TxD: Transmitted Data

- Note down your slave devices below details :
  - 1. Baud Rate
  - 2. Parity
  - 3. Slave ID
  - 4. Stop bit
  - 5. Data bit
  - 6. Physical Medium
- Same configuration do in selected controller.
- First Select physical medium of the device
- Make cable as per selected physical medium
- Configure Serial\_Line\_1 configuration
- Save Changes
- Build your changes

Configuration		
Serial line		
Baud rate:	9600 ~	
Parity:	None 🗸	
Data bits:	8 ~	
Stop bits:	1 ~	
Physical Medium		
RS485	No v Polarisation Resistor	
O RS232		

# Serial\_Line\_1 Configuration

## Serial\_Line\_2 Pinout :

- Serial\_line\_2 port as Screw terminal block.
- As per below attached image, Do connection of the slave devices.

#### Pin Assignment

The following figure shows the pins of the removable terminal block:



Pin	RS485
СОМ	0 V com.
Shield	Shield
D0	D0 (B-)
D1	D1 (A+)

Refer to Removing Terminal Block.

- Note down your slave devices below details :
  - 1. Baud Rate
  - 2. Parity
  - 3. Slave ID
  - 4. Stop bit
  - 5. Data bit
  - 6. Physical Medium
- Same configuration do in selected controller.
- First Select physical medium of the device
- Make cable as per selected physical medium
- Configure Serial\_Line\_1 configuration
- Save Changes
- Build your changes

Configuration			
Serial line			
Baud rate:	9600	$\sim$	
Parity:	None	$\sim$	
Data bits:	8	$\sim$	
Stop bits:	1	$\sim$	
Physical Medium			
RS485	No	$\sim$	Polarisation Resistor
○ RS232			

#### Serial\_Line\_2 Configuration

# IO Scanner :

- Add IO Scanner in Serial\_Line\_1 network.
- Click on Modbus IO Scanner and Add device.
- Add Generic Modbus Slave device in IO Scanner and follow below procedure for the configuration of the IO Scanner.
- Go to Slave Modbus Slave Channel
- Inside the Channel, Add the channel which you have to require.
- Click on **Add Device** as per below attached image.



• See below attached image and configure require settings.

0.4		Plug device O Updat	e device	
Devic				
Vend				
Nar	me	Vendor	Version	
	Protocol Managers	Vendor	Version	
- (	ASCII Manager	Schneider Electric	4.0.0.2	
	Modbus IOScanner	Schneider Electric	3.5.3.8	
	Modbus Manager	Schneider Electric	4.0.0.2	
	SoMachine-Network Manager	r Schneider Electric	4.0.0.2	
_	Display all versions (for experts only) Display outdated versions			
Infor	mation:			
A	Name: Modbus IOScanner			^
	Vendor: Schneider Electric Categories: Protocol Managers			~
	end selected device as last child o al_Line_1	of		

#### Modbus IO Scanner

Channel       Name       Channel       Access Type       Read Holding Registers (Function Code 3)       Trigger     Cyclic       Cycle       Comment       READ Register       Offset       Ox0000       Length	~
Access Type     Read Holding Registers (Function Code 3)       Trigger     Cyclic     Cycle Time (ms)     100       Comment	~
Trigger         Cyclic         Cycle Time (ms)         100           Comment	~
Comment READ Register Offset Dx0000 Length 1	
READ Register           Offset         0x0000           Length         1	
Offset 0x0000	
Length 1	
	~
Error Handling Keep last Value 🗸	
WRITE Register	
Offset 0x0000	$\sim$
Length 1	

From the Slave device.

**READ Register :** Write First Object of the Address

Access Name : Select which you have to read

• WRITE Register : Write First Object of the Address

#### **Modbus Channel Setting**

# IO Scanner :

Modbus Slave Configuration Modbus Slave Channel Modbus Slave Init Modbus Master I/O Mapping Status Information

#### **Modbus Slave Configuration :**

• Click on Modbus Slave Configuration and Write Slave Id of the Slave device.

Modbus Slave Channel :

- Click on Modbus Slave Channel.
- Add Channels which you have read from the Slave device.

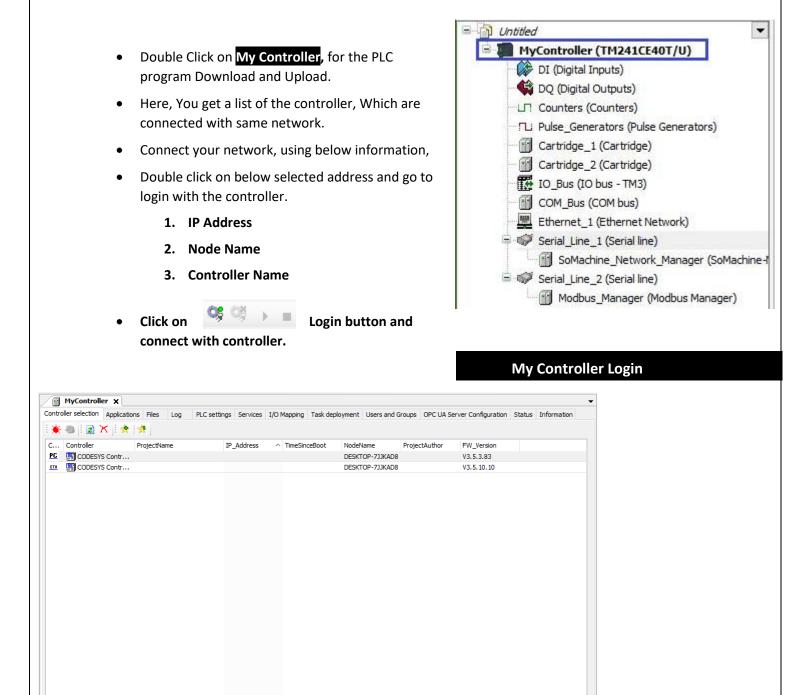
#### Modbus Master I/O Mapping :

- Click on Modbus Master I/O Mapping.
- Use Register in the program, in particular register you have get the values from the Slave devices.

# Status :

- Click on Status.
- You have get Modbus IO Scanner Status.

#### **Commissioning Section :**



Secure online mode

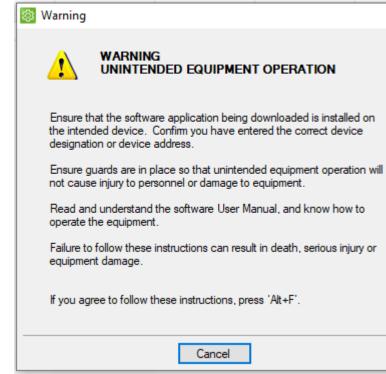
Connection Mode:

Nodename

0

Nodename:

- Press Alt+F for the analyzed program and checked Error messages.
- If any Error getting while analyze time, So First troubleshoot error and again do analyze program.
- After Analyzing download and Upload program with the controller.



 $\times$ 

# Simulation Mode :

- If you want to simulate program without controller, then select Simulation option from the Online Tab .
- Check as per attached image **Simulation symbol** on right bottom of the corner.
- Analyze program and check Error messages,
- If have getting any Error, First troubleshoot error and again analyze the program.
- Click online button and download program.
- **RUN** program and simulate your logic without controller.

Build Q	nline <u>D</u> ebug <u>T</u> ools <u>W</u> indow <u>H</u> elp							
× 1 🏚 🍳	Login Alt+F8							
9	Logout Ctrl+F8							
<b>4 X</b>	<u>Oreate</u> boot application							
0	Logoff current online <u>u</u> ser							
	Download							
M241CI	Online Change							
uts)	Source upload							
tputs)	Source download to connected device							
nters) xors (Puls	Multiple Download							
artridge	Reset warm							
artridge	Reset cold							
s - TM3)	Reset origin							
M bus)	Simulation							
Serial lin	Advanced Configuration							
Network								

# Firmware Upgradation :

- Used Controller Assistant for the Controller firmware Upgradation.
- Click on Update Firmware
- Click below link for the better understanding how to do firmware upgradation.
- https://www.se.com/ww/en/faqs/FA272065/
- There are two methods of updating the M241/M251 firmware.
- Below are the instructions for M241/M251 Firmware Update using SoMachine Controller Assistant:

Controller Assistant V16.1.	10.0					-		×
		Controller Assistant				Langua English	age: h - English	~
	Home							
Controller Assistant								
A common tool to manage firmware and images For SoMachine controllers.								
Select "Update Firmware" for managing the firmware of the controller in a few steps.								
Select "Manage Images" to manage the full image incl. firmware, application and parameters.					<b>)</b> ठ्रा			
		Update firmware		Manage in	iages			
			<<	Home	Help		Close	

#### Using SD Card :

- Use a SD Card that has been Formatted Fat32
- From SoMachine Central > Select Maintenance
- Select Controller Assistant
- Select Update Firmware..
- Choose the controller Type M241 or M251 (don't get these mixed up from the pick list
- Select the Latest Firmware and the correct Controller
- Select Next
- Select Next
- Select Write to..
- Select Write
- After it completes the Write.
- Select Close
- Eject the SD Card.
- Power off the M251
- Insert the SD card.
- Power on M251
- SD light should be flashing.
- After about 3 minutes
- SD Light should be now on Solid.
- Power off M251 and remove SD card.

#### Using Ethernet or USB cable:

- Use a SD Card that has been Formatted Fat32
- From SoMachine Central > Select Maintenance
- Select Controller Assistant
- Select Update Firmware..
- Controller Type M241/M251
- Select the Latest Firmware and the correct Controller
- Select Next
- Select Next
- Select Write to Controller...
- Select the Controller from the list of devices on the SoMachine Network by double-clicking on it
- Click "Connect"
- A progress bar will appear. Wait until the transfer is complete
- Wait until the RUN light is flashing steadily after completion
- Follow steps 1 to 9 (or find the Controller Selection screen in SoMachine) and observe the Firmware Version column to confirm the firmware version is up to date