Sesi 6 21/8/2025-1 SIJ:PLC Siemen [SIR SidiQ]

1. Ip Configuration
2. Choosing a PLC and Software:
3. Defining Inputs and Outputs:
4. Writing the Program Logic:
5. Testing and Debugging:
6. Downloading and Running:
7. Monitoring and Adjusting:

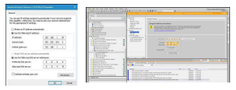
Note prepared by:
Fendy@w2wbi.com

1 Configure IP address Manual

configure the IP address, subnet mask, and potentially the gateway address on your devices

Control Panel\Network and Internet\Network Connections \Ethernet2 Properties\change setting of this connection\

The default IP address for the Siemens S7-1200 PLC is typically 192.168.0.1.



Configure IP Address Auto

Sample Batch Script
The following sample script provides a simple menu-driven approach. Save it as ip_changer.bat and run it as an administrator:

Siemens TIA Portal local project server

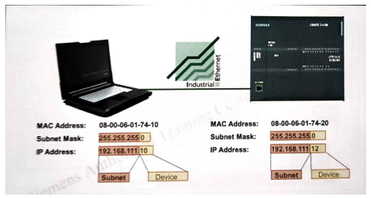
Siemens TIA Portal local project server

To manage the Siemens TIA Portal local project server from the command line, you'll use the pcjsrv command (for the project server) and the pxpt command (for the Power Tools). These tools, along with the musrv command for the multiuser server, allow you to start, stop, configure, and manage server projects and libraries.
Key Commands and Their Functions:
Start:
Used for managing the project server itself.
You can use it to start, stop, or configure the project server.
musrv:
Used to manage server projects, libraries, and local sessions on the project server through the Power Tools.
Start:
Used for managing the multiuser server, including installation, configuration, and certificate management.

Example Usage:

starting the project server: pcjsrv start.
Stopping the project server: pcjsrv stop.
Installing the multiuser server: musrv install -r <repository_path> -p <port_number> -h https -h <certificate_hash> (requires administrator rights).
Managing server projects using Power Tools: pxpt (followed by specific commands for actions like creating, opening, or deleting projects).
Administrative Rights:
Some commands, especially those related to installation and configuration of the multiuser server, require administrator privileges.
TIA Portal Installation:
The local project server is typically installed by default with TIA Portal.
Power Tools:
The Project Server Power Tools are used for more advanced management tasks and are accessed via the pxpt command.

4.2. Online connection via Industrial Ethernet : assigning an IP Adress for the PG



IP address PG/PC --> PLC Subnet
In the last session, the lecturer taught 2 ways to change the PC and PLC subnet.

Conclusion :
CPU reset factory setting as Topic 4.5.1 will change subnet to default therefore changing PC/PG subnet refer to subject 4.2.1 are recomended steps compare to changing PLC subnet

4.5.1 SIMATIC S7-1200/1500:

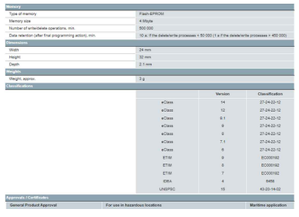
Memory Concept for CPU Reset to Factory Setting

Requirement :
6ES7954-8LC02-0AA0
(EAN: 4047623402350)
SIMATIC S7 Memory Card, 4 MB

Price Rm 219.88 US$52
empowerlaptop.com

Price Rm 131.92 Refurbished
JC-Electronic

Figure similar



Note prepared by:
Fendy@w2wbi.com

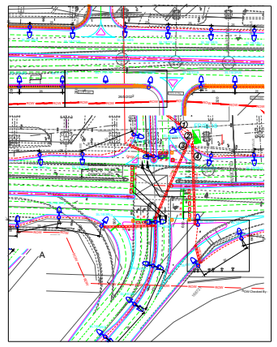
[EXCERCISE] 30 june 2025

Traffic light sequence

SETUP STATIC TIMER INTO DYNAMIC TIMER [EXCERCISE]

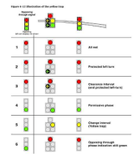
https://youtu.be/1idsCTkOQmQ?si=_rQ_plCiCgPPmWcR
Sunday, June 29, 2025 Fendy Femaja http://9w2wbi.com

* implimenting static to dynamic timer sequence*
Integrated with camera image detection piority to front liner ambulan/fire fighter/enforcement



INPUT
CAMERA
SENSOR
PEDESTRIAN PRESS BUTTON

OUTPUT
COUNTER LED
BUZZER



REPEAT FUNCTION

SEQUENCE 1 LANE	LIGHT	SEQUENCE 2 LANE	LIGHT	SEQUENCE 3 LANE	LIGHT	SEQUENCE 4 LANE	LIGHT
L1	RED	L1	GREEN	L1	RED	L1	RED
L2	RED	L2	GREEN	L2	RED	L2	RED
L3	RED	L3	GREEN	L3	RED	L3	RED
L4	GREEN	L4	RED	L4	RED	L4	RED
L5	GREEN	L5	RED	L5	RED	L5	RED
L6	RED	L6	RED	L6	GREEN	L6	RED
L7	RED	L7	RED	L7	GREEN	L7	RED
L8	RED	L8	GREEN	L8	RED	L8	RED
L9	RED	L9	GREEN	L9	RED	L9	RED
L10	RED	L10	GREEN	L10	RED	L10	RED
L11	GREEN	L11	RED	L11	RED	L11	RED
L12	GREEN	L12	RED	L12	RED	L12	RED
L13	RED	L13	RED	L13	RED	L13	GREEN
L14	RED	L14	RED	L14	RED	L14	GREEN

Note prepared by:
Fendy@w2wbi.com

[EXCERCISE] 28 june 2025

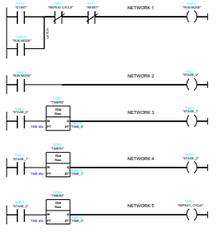
Traffic light sequence

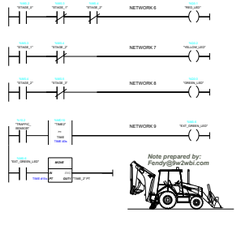
SETUP STATIC TIMER INTO DYNAMIC TIMER [EXCERCISE]

https://youtu.be/1idsCTkOQmQ?si=_rQ_plCiCgPPmWcR
Sunday, June 29, 2025 Fendy Femaja http://9w2wbi.com

TAGS

	Name	Data type	Address
MEMORY (7)	RUN_MODE	Bool	%M0.0
	REPEAT_CYCLE	Bool	%M0.1
	STAGE_0	Bool	%M0.2
	STAGE_1	Bool	%M0.3
	STAGE_2	Bool	%M0.4
	STAGE_3	Bool	%M0.5
	EXT_GREEN_LED	Bool	%M0.6
INPUT	START	Bool	%I0.0
	RESET	Bool	%I0.1
	TRAFFIC_SENSOR	Bool	%I0.2
OUTPUT	GREEN_LED	Bool	%Q0.0
	RED_LED	Bool	%Q0.1
	YELLOW_LED	Bool	%Q0.2





Note prepared by:
Fendy@w2wbi.com

Summarize

Dynamic timers improve traffic flow by adjusting light durations based on real-time conditions. The system monitors traffic and modifies the timer accordingly.A comparison mechanism is introduced to assess if the timer reaches a critical threshold. This ensures that the light timing is responsive to changing traffic conditions.The use of memory storage for status indicators like 'extend green' LED enhances monitoring. This provides visual feedback on whether the light timing is being adjusted. Implementing a dynamic timer in code allows for flexibility in traffic signal management. This prevents unnecessary delays and ensures efficient traffic flow based on real-time conditions.Resetting the timer to a standard five seconds is crucial when traffic conditions change. This ensures that the signal does not remain stuck in an extended state unnecessarily.Testing the code helps identify potential issues with timing cycles. Ensuring that the system doesn't default to incorrect values aids in maintaining smooth operations.

[EXCERCISE] 5 July 2025

INSTRUCTION *CPU --> pc --> conveyor connection*

IP Network configuration subnet mask -->ADD Hard ware Auto Detection-->Digital & Analog I/O Addresses input 8~12
General Protection & Security Password setup --> Created TAG & Address --> created Ladder Programming
Send Programming into Main OB --> compiling / Download to device --> Online Activate --> Simulating on progress --> Monitoring Process

Note prepared by:
Fendy@w2wbi.com

SIEMEN SIMULATOR CONVEYOR CPU/PC SETUP/PROGRAM & MONITOR

FC_Mode

Simulator	Address		Data type
S_OperationON	Input	%I0.0	Bool
S_Operation(NC)		%I0.1	Bool
S_Right		%I0.2	Bool
S_Left		%I0.3	Bool
P_Operation	Output	%Q4.1	Bool
P_Fault		%Q4.3	Bool

Conveyor

Conveyour	Address		Data type
B_BayLB	Input	%I8.0	Bool
S_Bay1		%I8.1	Bool
S_Bay2		%I8.2	Bool
S-Bay3		%I8.3	Bool
S_BayLB		%I8.4	Bool
B_Bay1		%I8.5	Bool
B_Bay2		%I8.6	Bool
B_Bay3		%I8.7	Bool
P_Bay1	Output	%Q8.1	Bool
P_Bay2		%Q8.2	Bool
P_Bay3		%Q8.3	Bool
P_BayLB		%Q8.4	Bool
K_Right		%Q8.5	Bool
K_Left		%Q8.6	Bool
P_Horn		%Q8.7	Bool

Main OB

Function conveyor