



CURSO LOGO 8 NIVEL II

Eusebio Gómez García

1



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PROFINET HMI – LOGO8

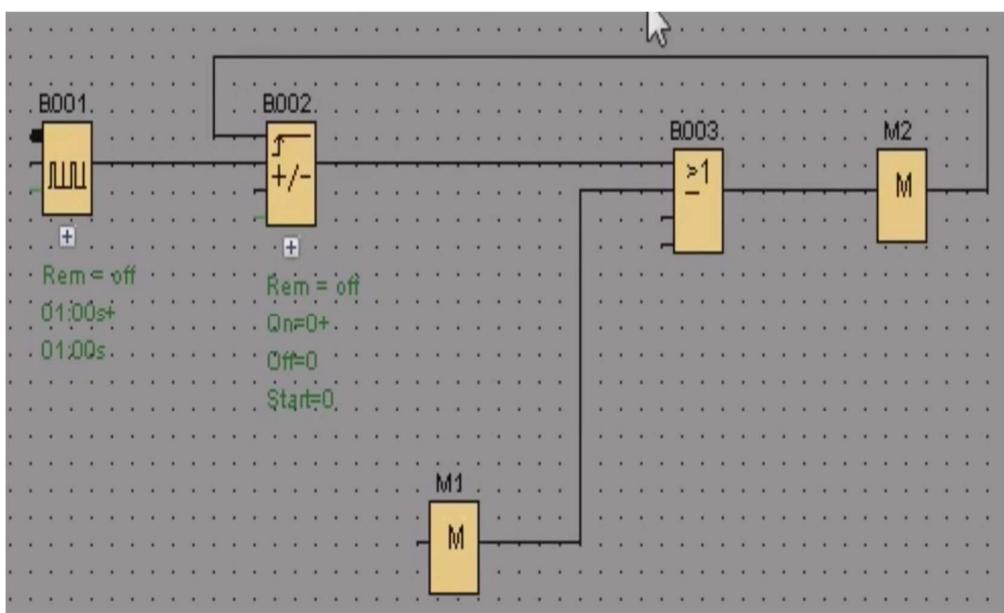
2



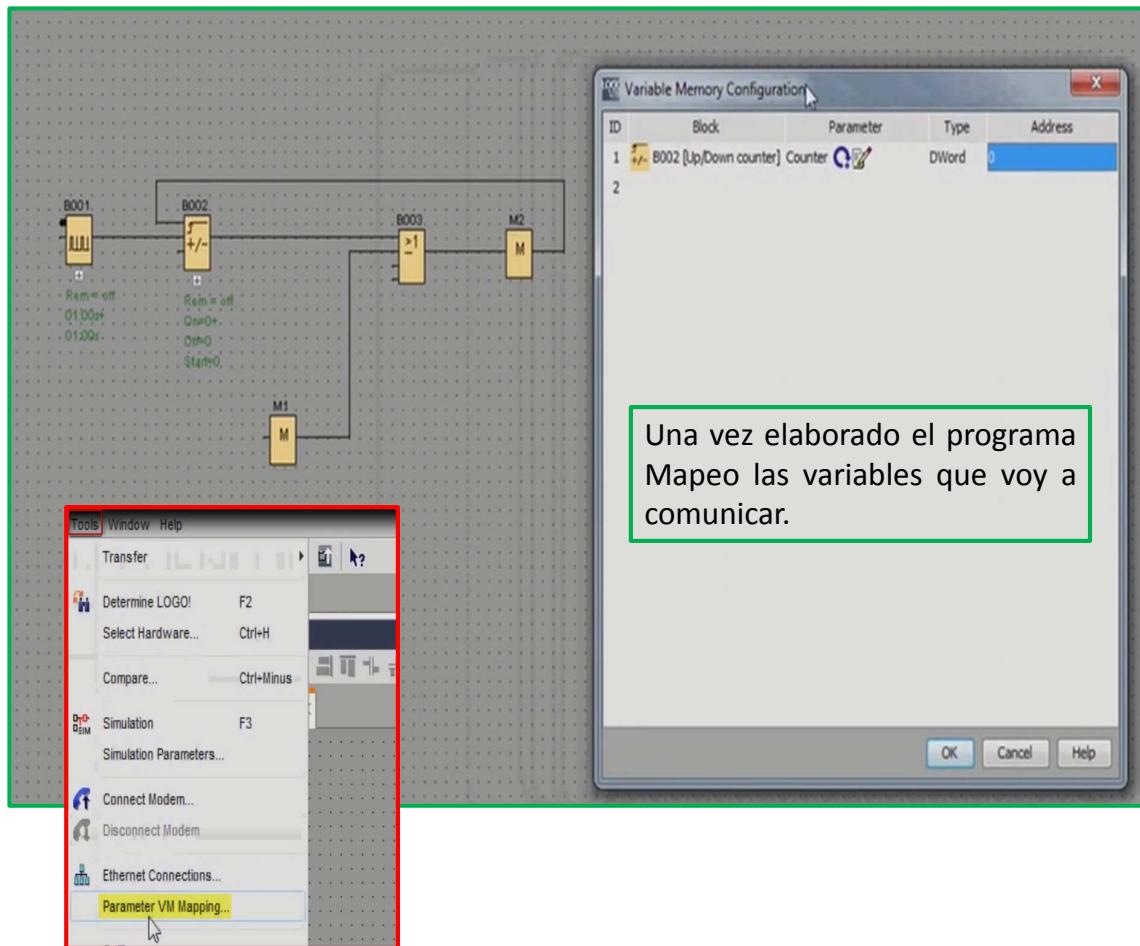
3

Diseño el programa de LOGO.

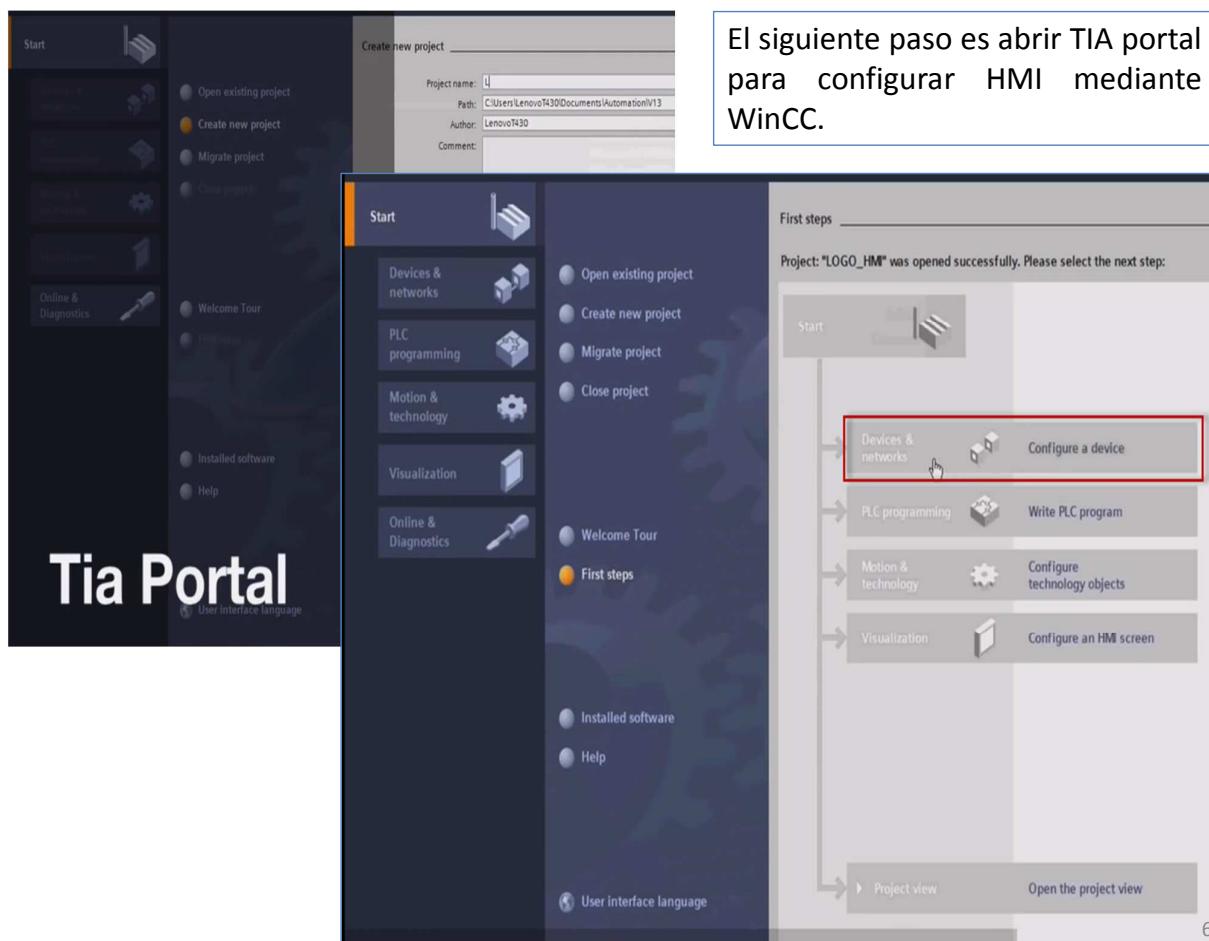
Este ejemplo contará impulsos mediante un contador. El estado del contador se podrá visualizar en una HMI con la posibilidad de resetear el contador mediante un botón de la HMI asociado a la marca M1.



4

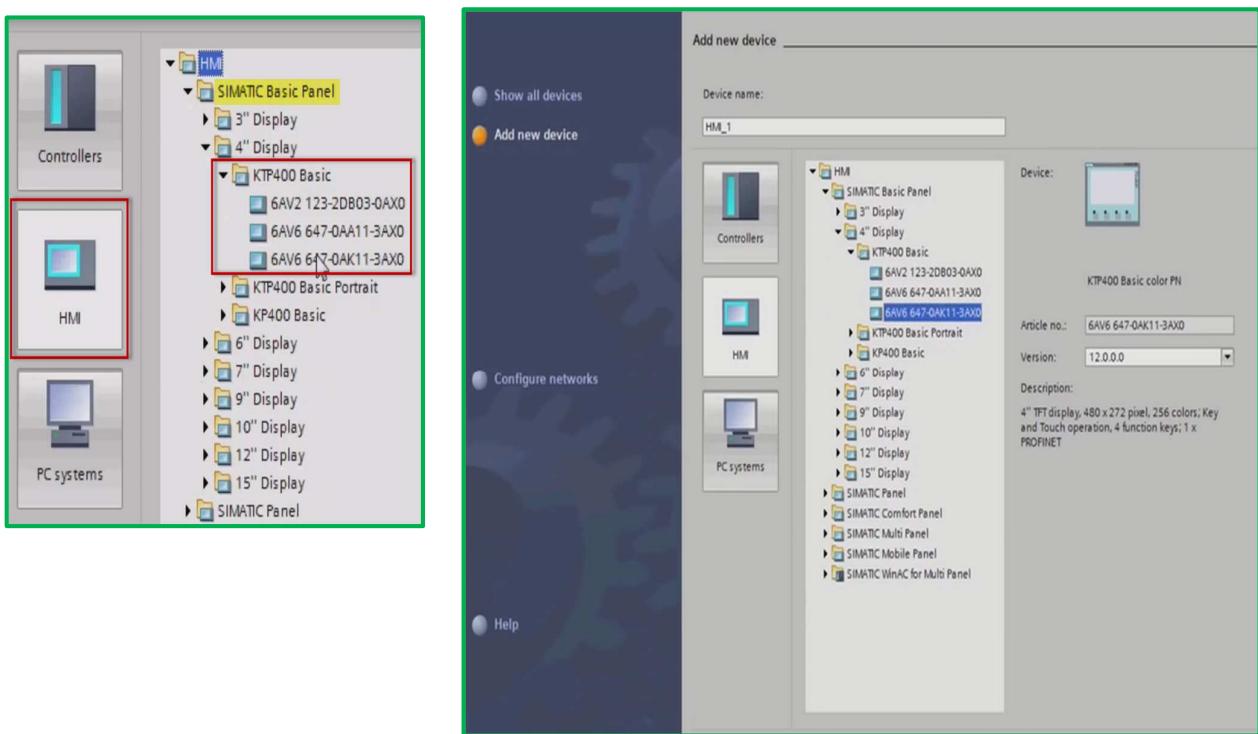


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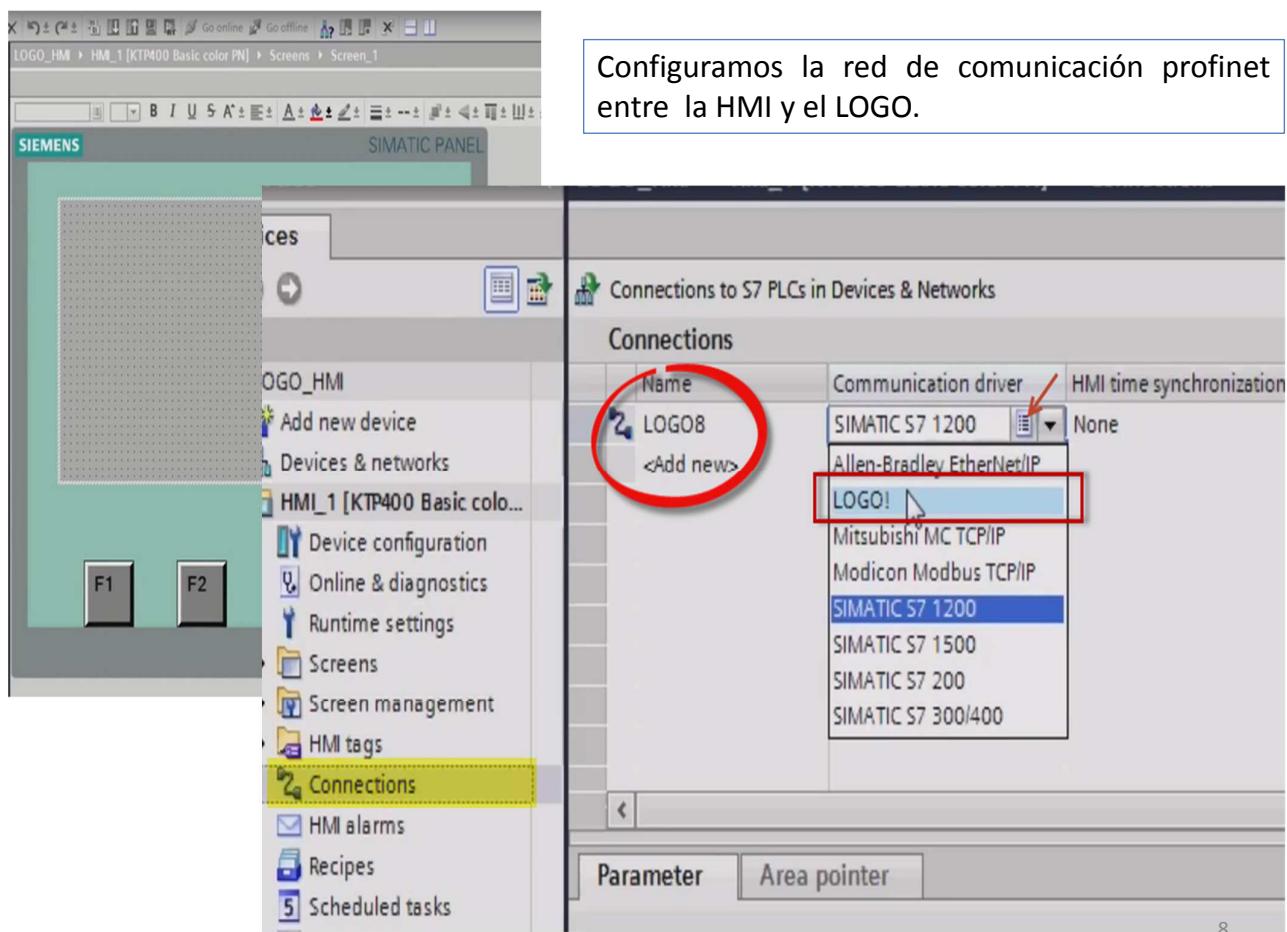
6

Agrego dispositivos al proyecto, en este caso la pantalla HMI que considere necesaria. En este caso una KTP 400 basic.

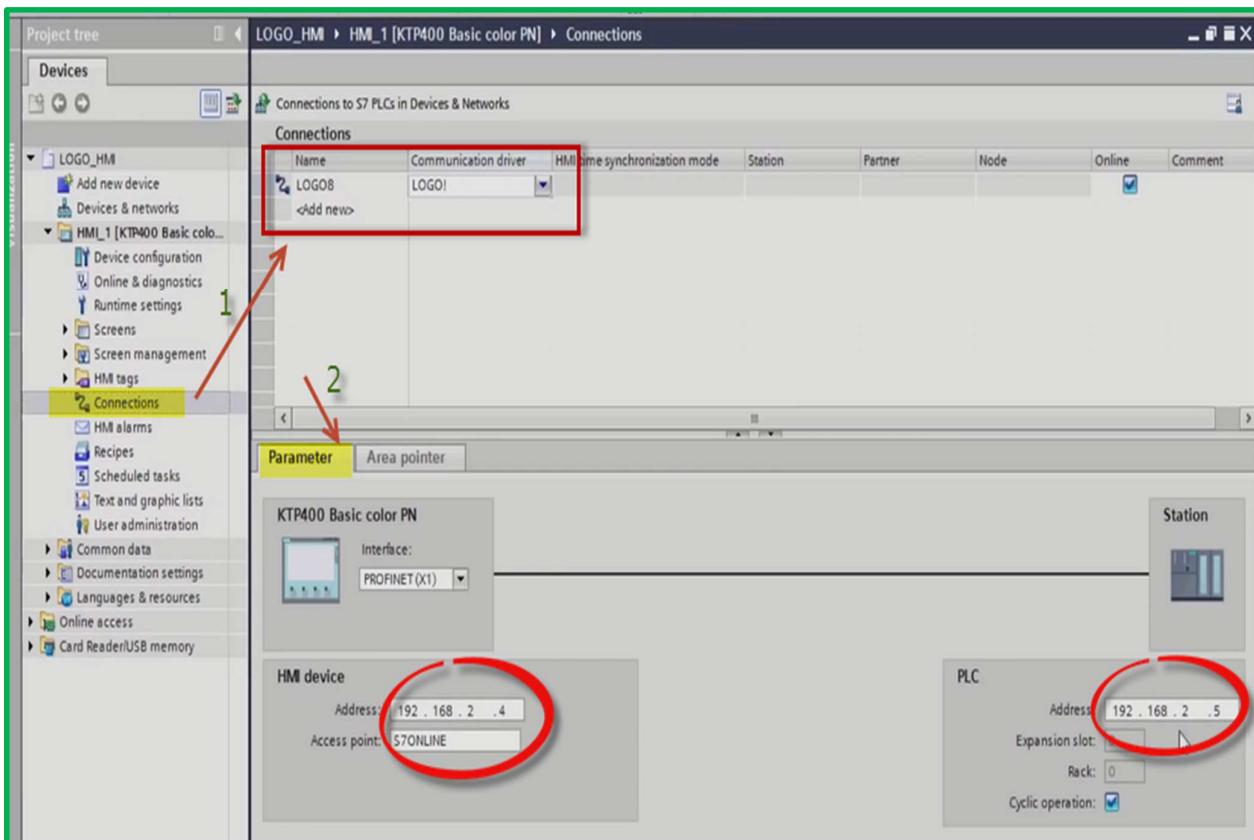


7

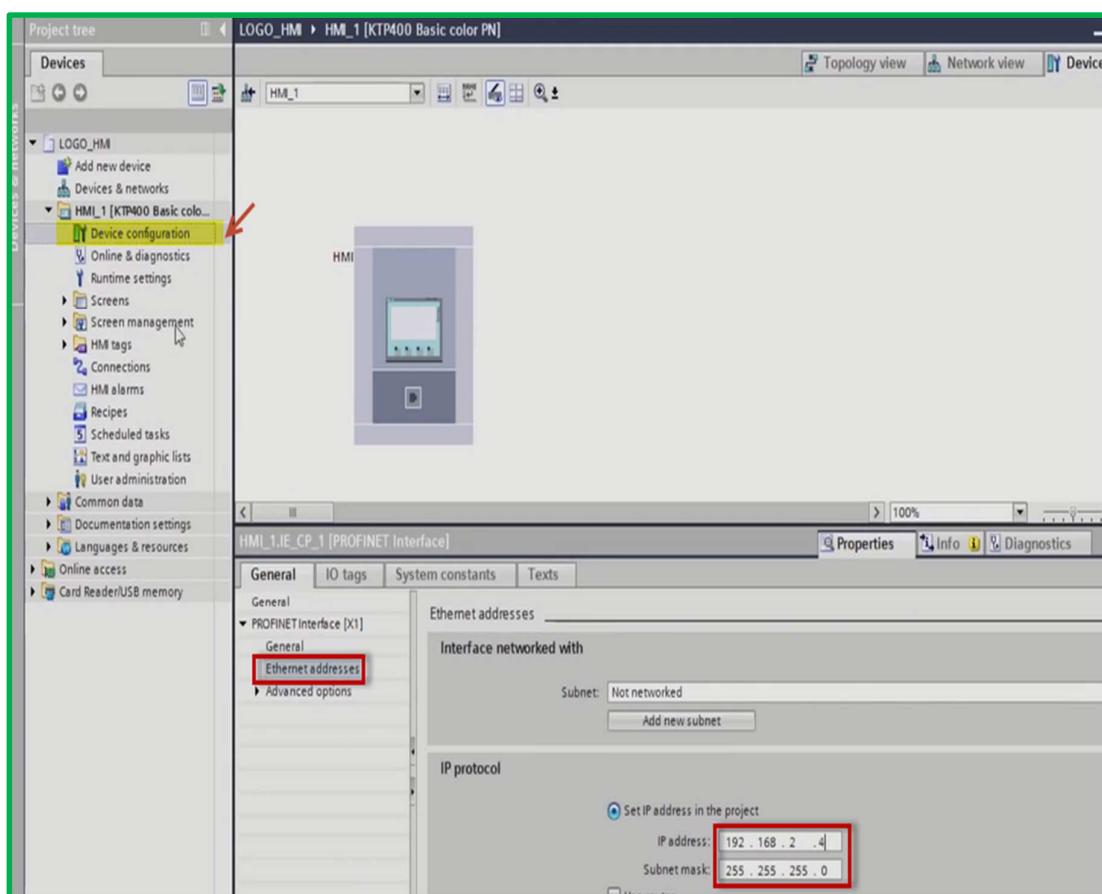
Configuraremos la red de comunicación profinet entre la HMI y el LOGO.



8

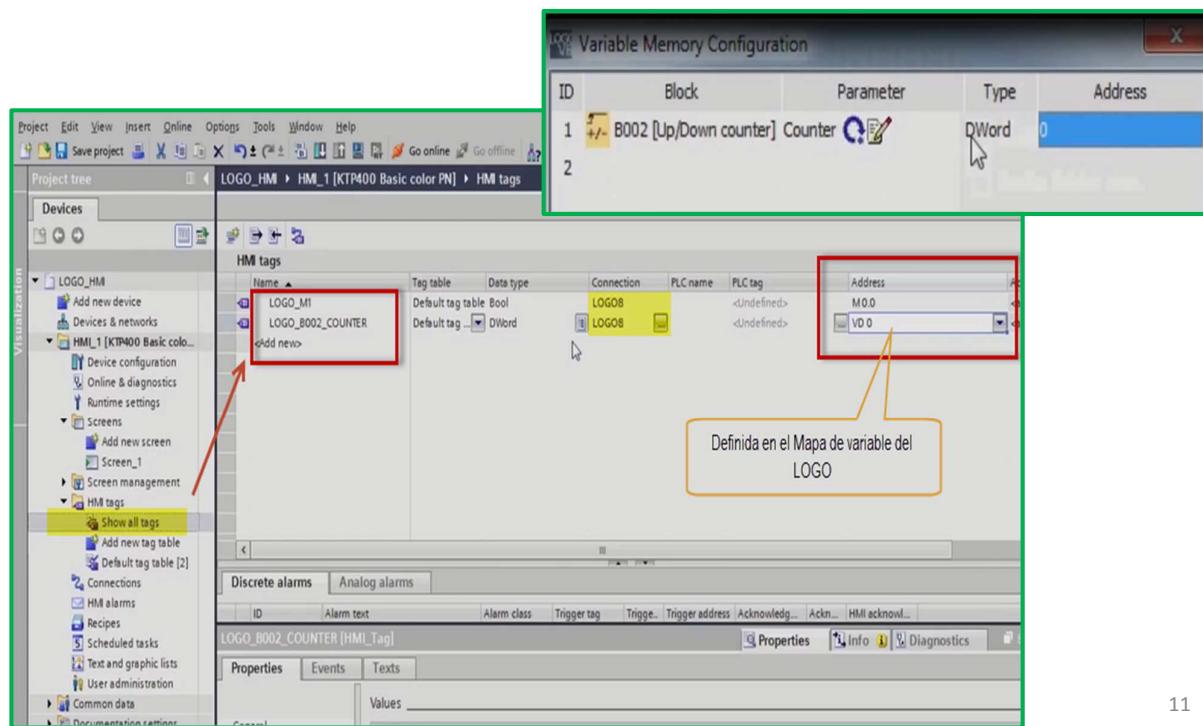


9

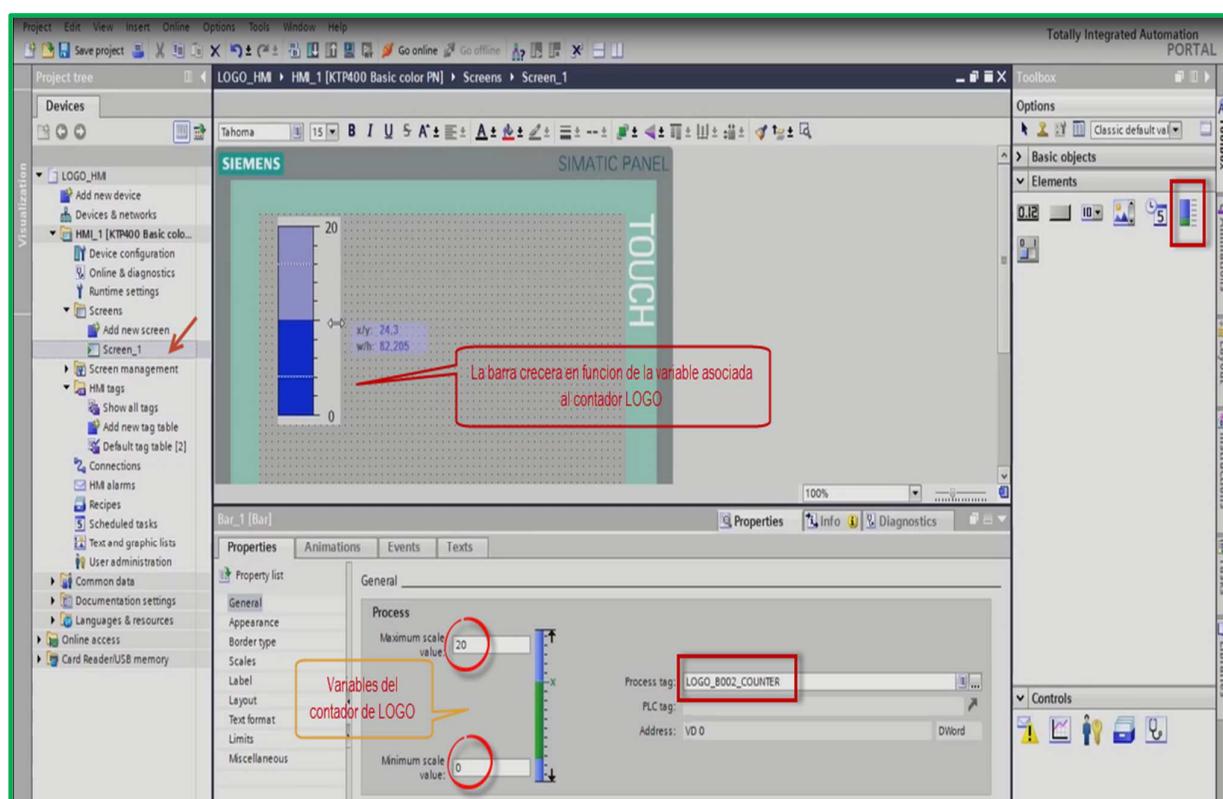


10

Configuro la tabla de variables de la HMI, asociando con el LOGO aquellas que tendran que comunicar e interaccionar directamente entre HMI y LOGO



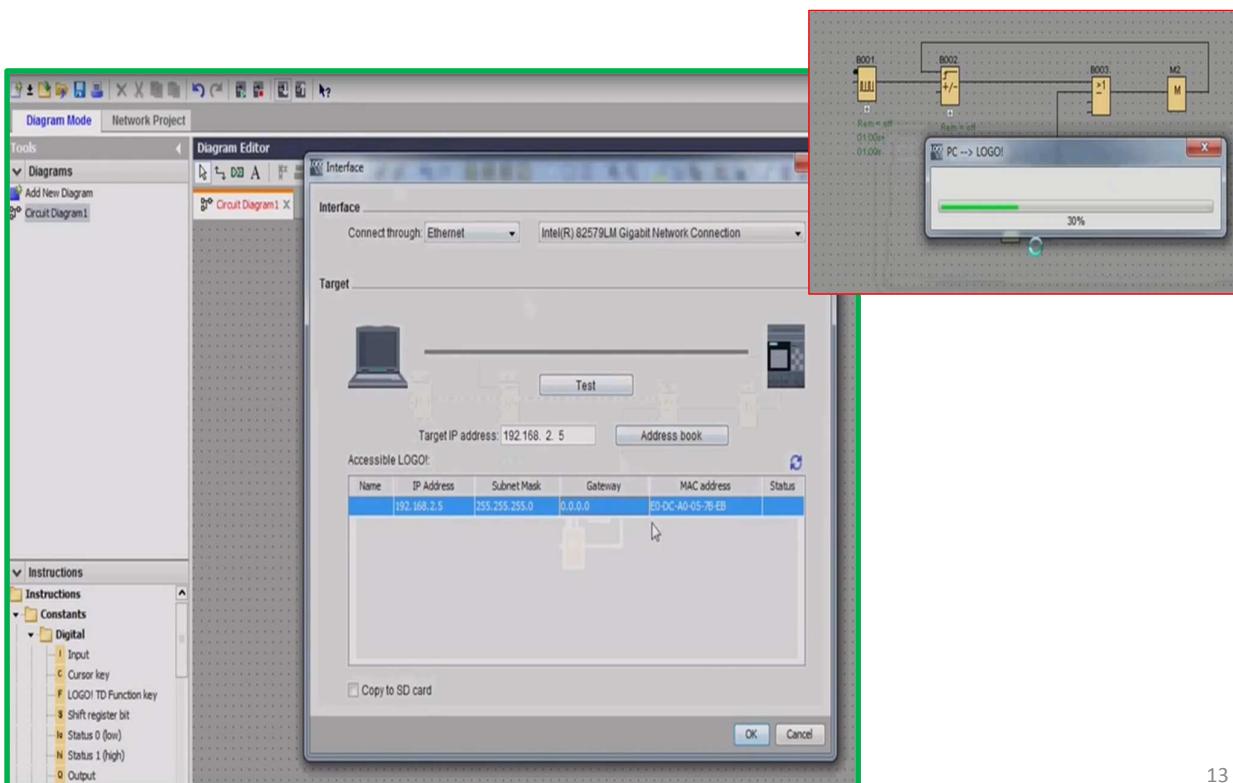
11



Diseno y parametrizo la pantalla HMI enlazando los objetos con las variables del LOGO para que realicen la animación que he configurado

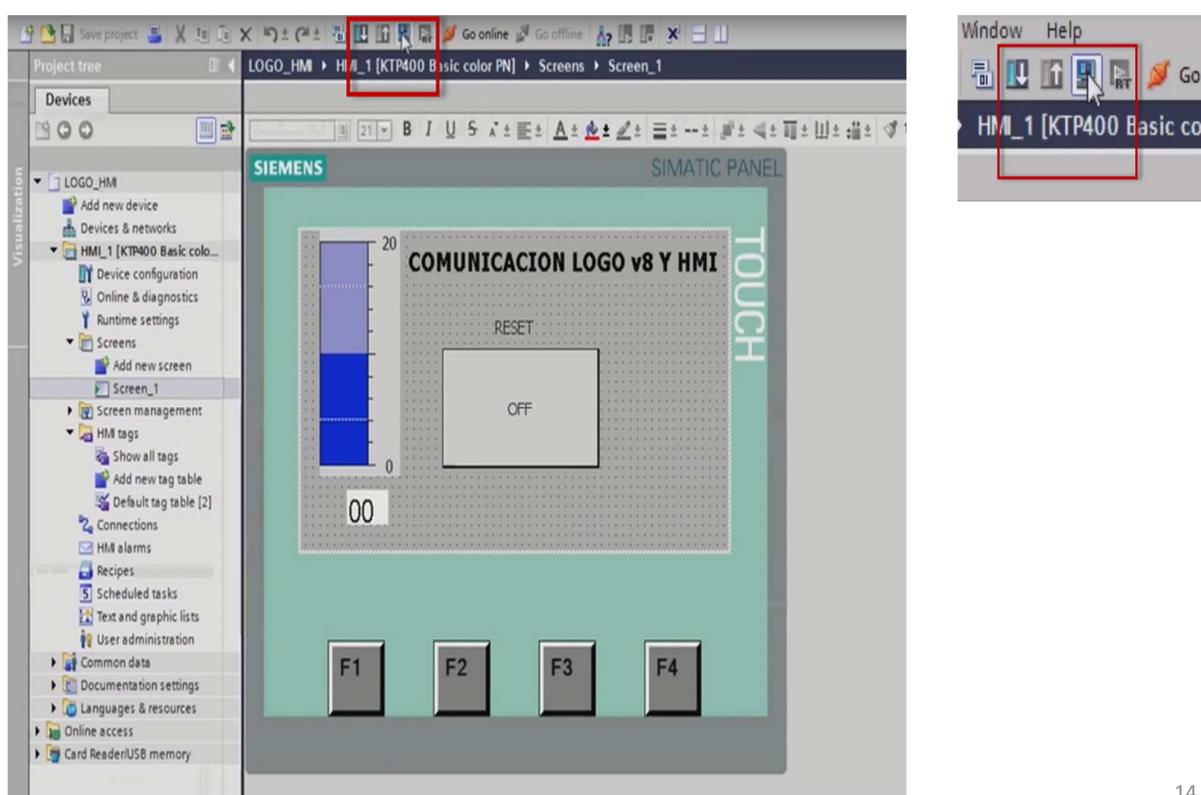
12

Envío el programa que he diseñado con LOGOSOFT al LOGO físico y activo la supervisión online. Despues enviaré el programa al HMI mediante TIA Portal y activo la simulación de la HMI mediante RunTime.



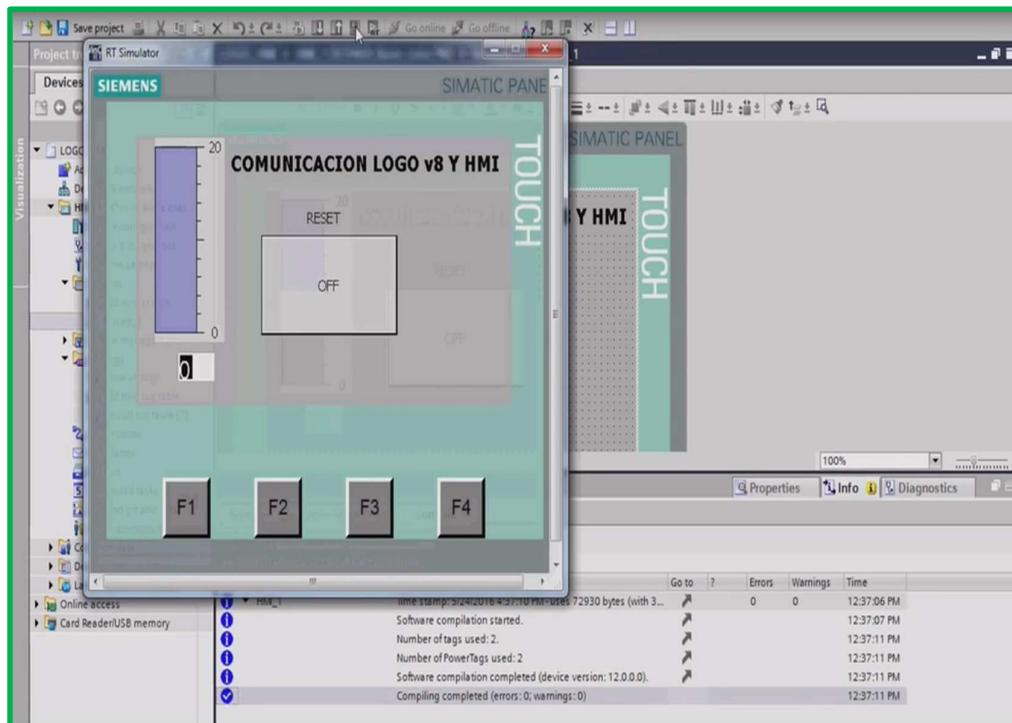
13

Activo el RunTime del WinCC para simular la HMI en línea con el LOGO físico. Antes de activar la simulación es necesario enviar el programa al HMI.

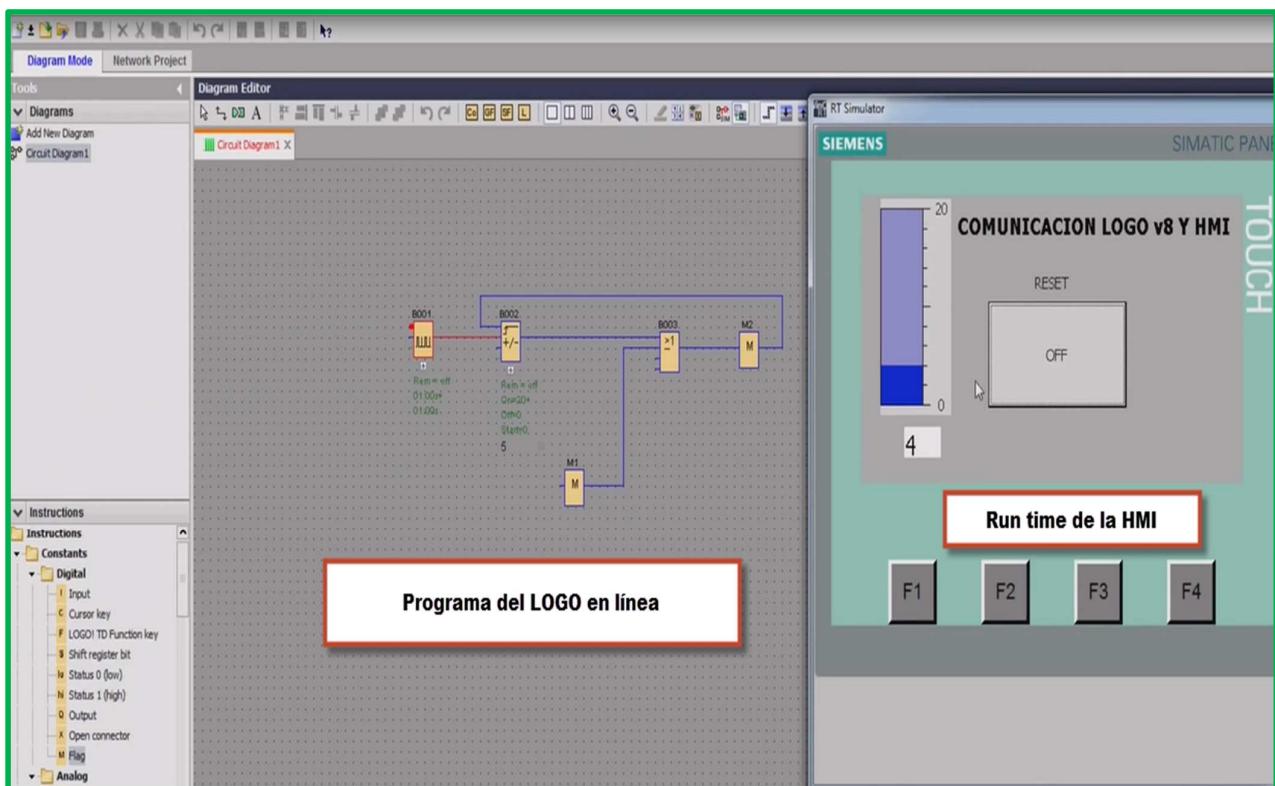


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Estado de la pantalla una vez ejecutada la simulación. Esta pantalla estará directamente enlazada por red con el LOGO físico y podremos interactuar entre ellos. Podremos visualizar el contador mediante la barra y resetear el contador con el botón de reset.



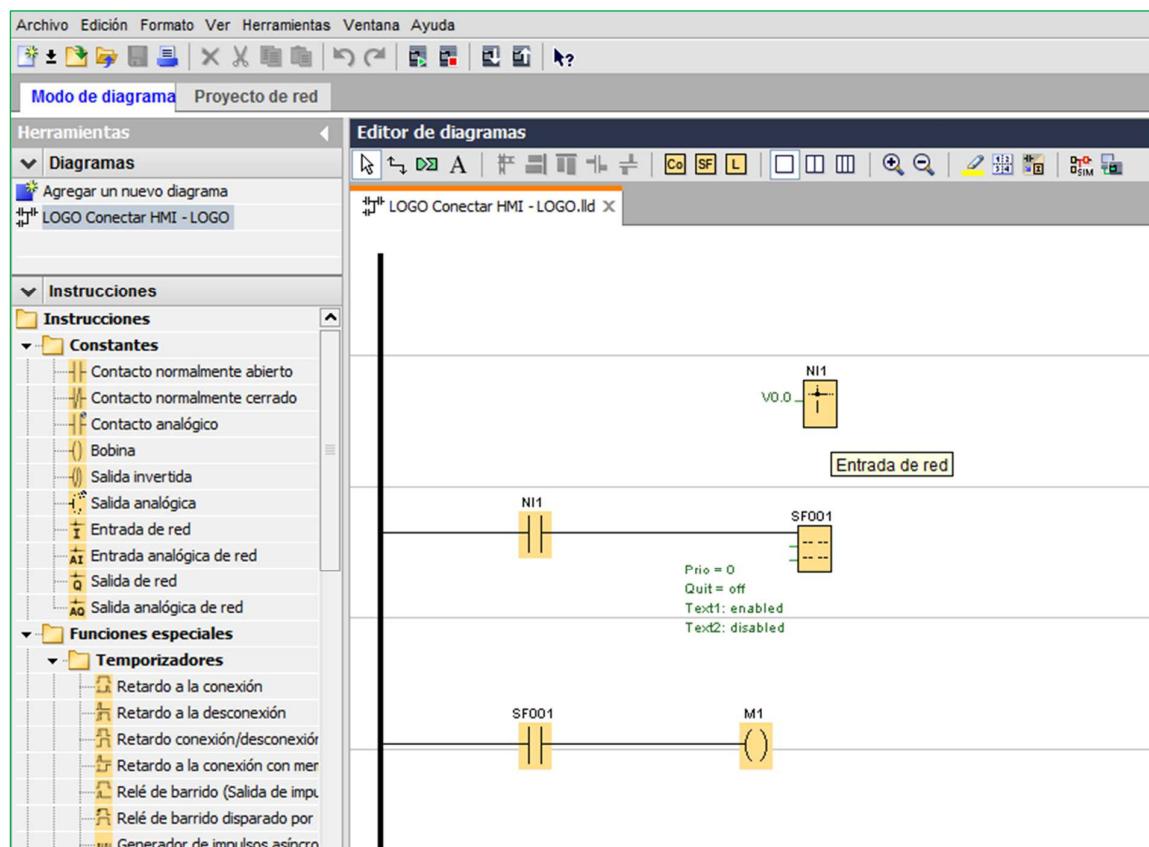
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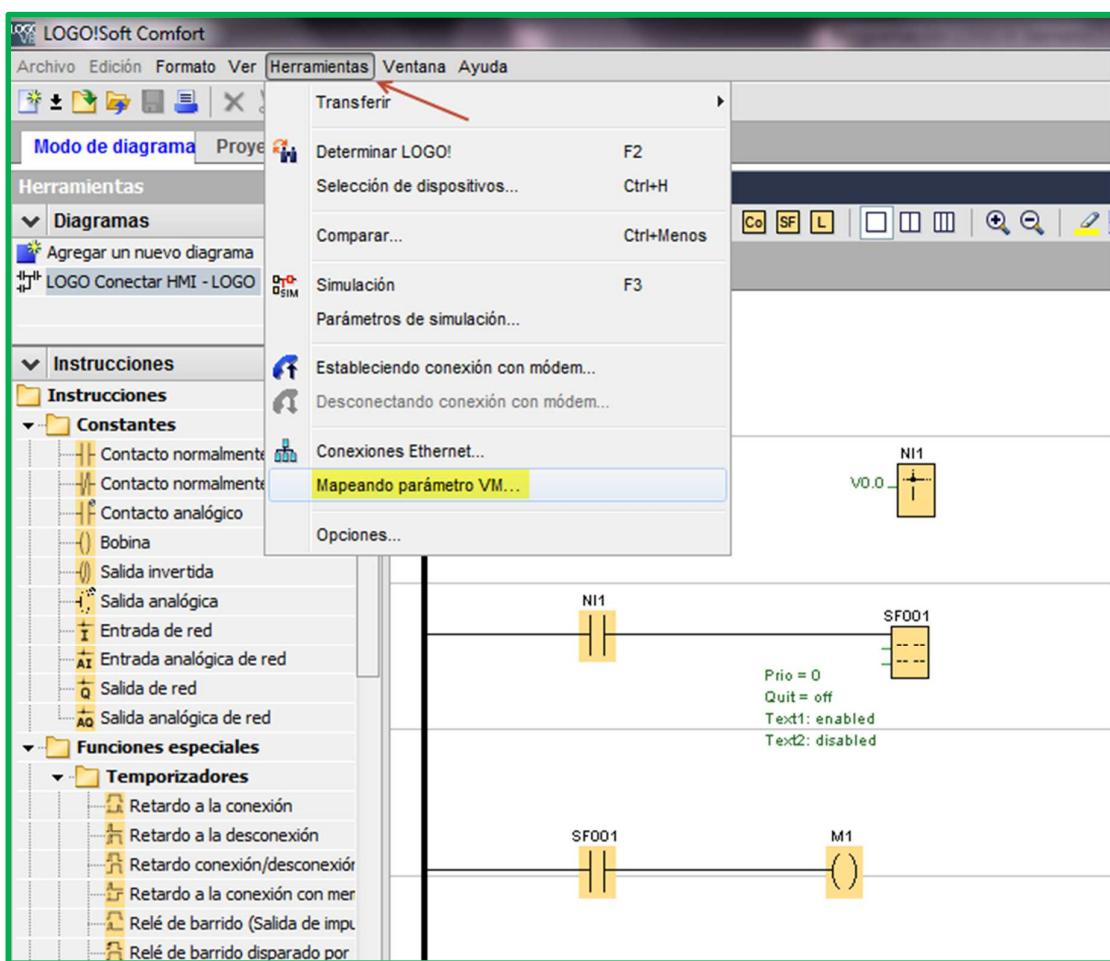
Visualización de la comunicación entre el LOGO en la HMI

16

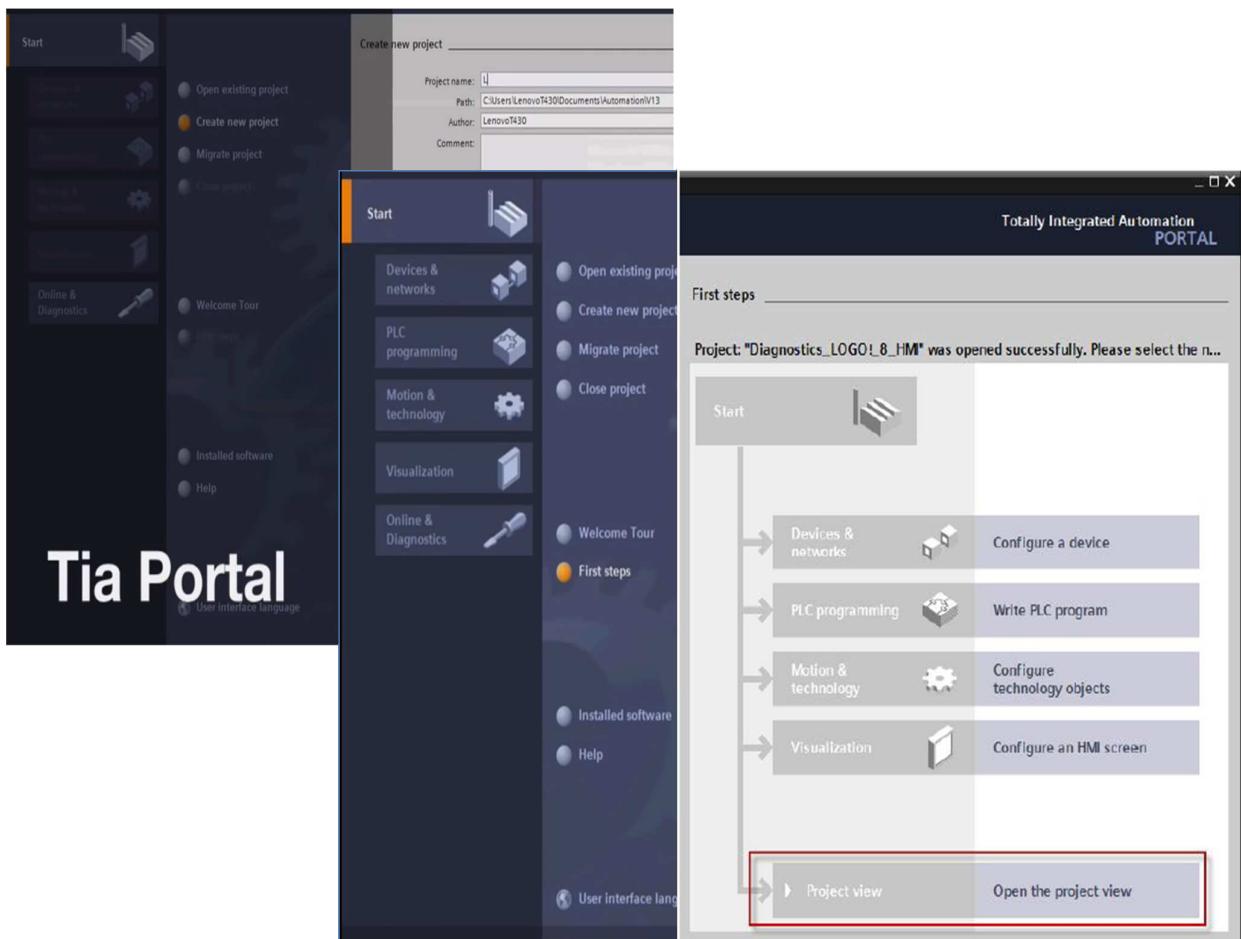
EJEMPLO 2



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Creating tags

Double click the “HMI tags” folder in the project navigation. Add a tag for each diagnostic bit of the VM address 984 from the variable memory of the LOGO! 8 so that a tag is configured for each diagnostic type. Make sure that your connection to the LOGO! 8 is selected in “Connection” for each tag and specified in “Acquisition cycle” 100ms.

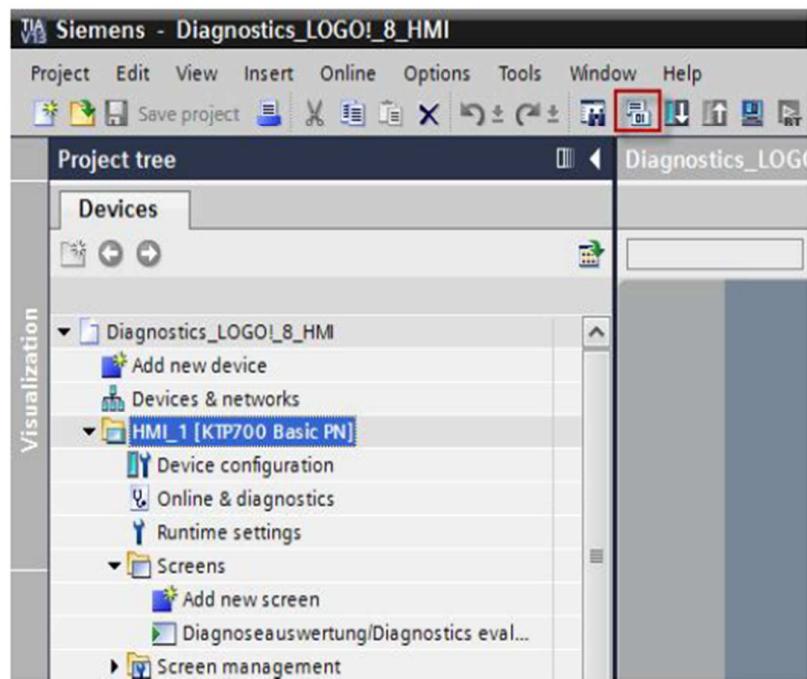
The screenshot shows the Tia Portal HMI configuration interface. The top menu bar includes Project, Edit, View, Insert, Online, Options, Tools, Window, Help. The toolbar below has various icons for file operations. The left sidebar is titled "Project tree" and shows a hierarchy under "Devices": "Diagnostics_LOGO!_8_HMI" (with "Add new device", "Devices & networks", "HMI_1 [KTP700 Basic PN]" (Device configuration, Online & diagnostics, Runtime settings), "Screens" (Add new screen, Diagnoseauswertung/Diagnostics evaluation), "HMI tags" (Show all tags, Add new tag table, Default tag table [6]), "Connections", and "HMI alarms". The main workspace is titled "Default tag table" and displays a table with the following data:

Name	Data type	Connection	Address	Acquisition cycle
Tag_ScreenNumber	UInt	<internal tag>	V984.0	1 s
Ethernet_Verbindungsfehler/Ethernet_link_error	Bool	LOGO!_8_H...	V984.1	100 ms
Erweiterungsmodul_Aenderung/Expansion_module_changed	Bool	LOGO!_8_HM...	V984.2	100 ms
Lesen_Schreiblehner_SD-Karte/SD card_read_write_error	Bool	LOGO!_8_HM...	V984.3	100 ms
Keine_SD-Card_vorhanden/No SD card present	Bool	LOGO!_8_HM...	V984.4	100 ms
SD-Card_voll/SD card_full	Bool	LOGO!_8_HM...		

The "Default tag table [6]" item in the project tree is also highlighted with a red box.

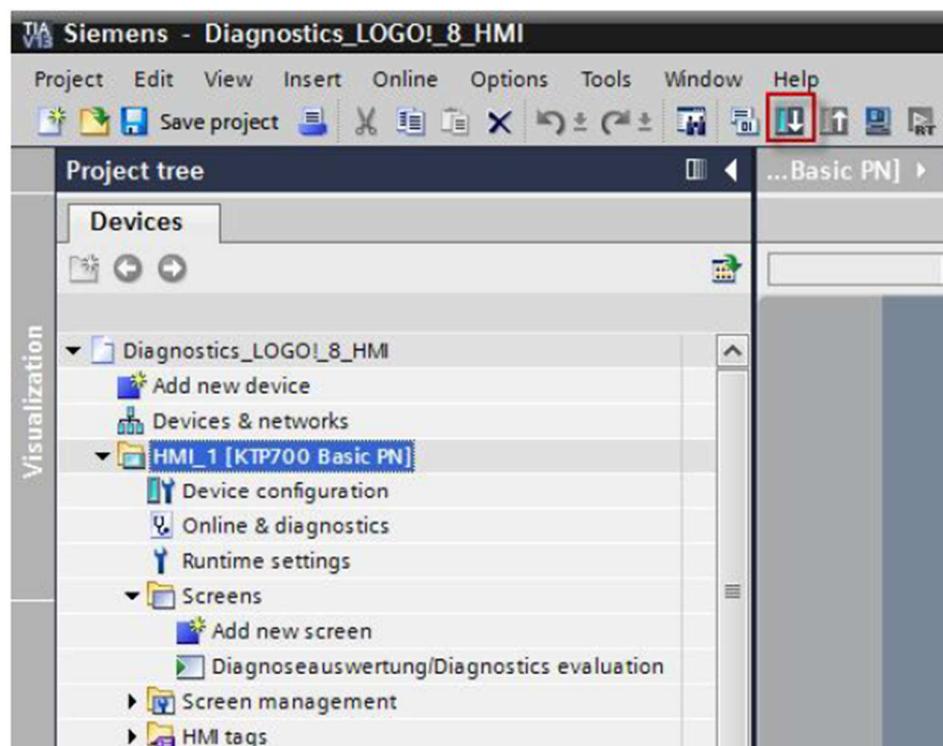
Loading the configuration

Select the device for which you want to load the configuration and click the "Compile" button.



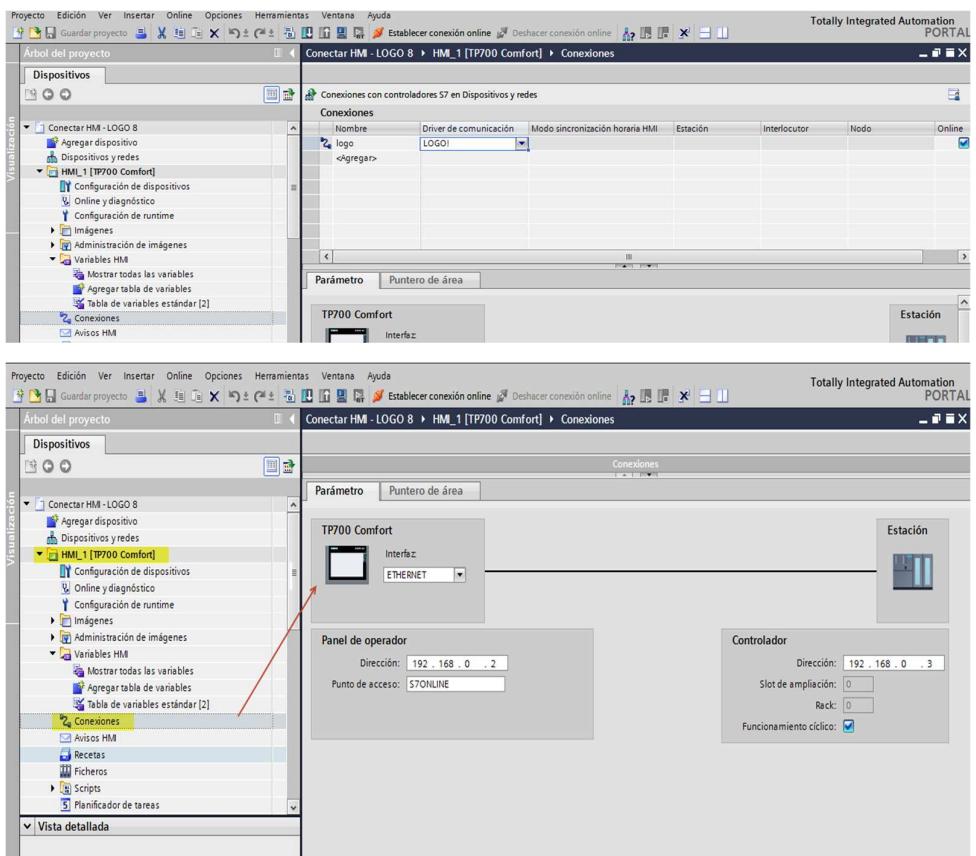
21

Then select the device again and click the "Download to device" button.



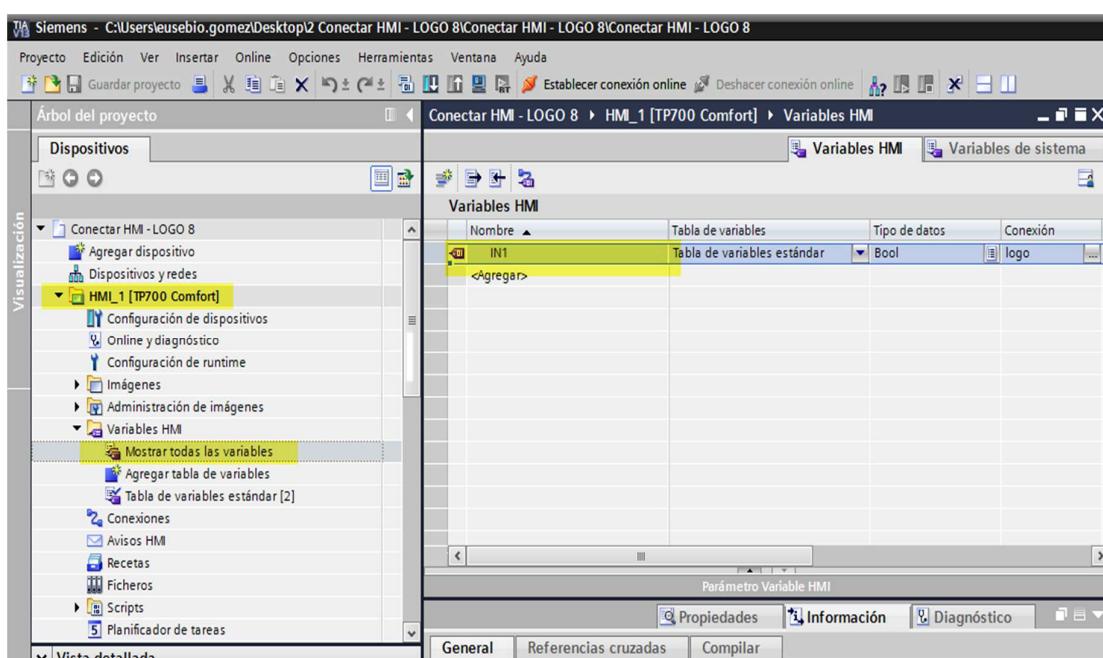
22

En TIA portal generamos la conexiones de red entre la HMI y el LOGO



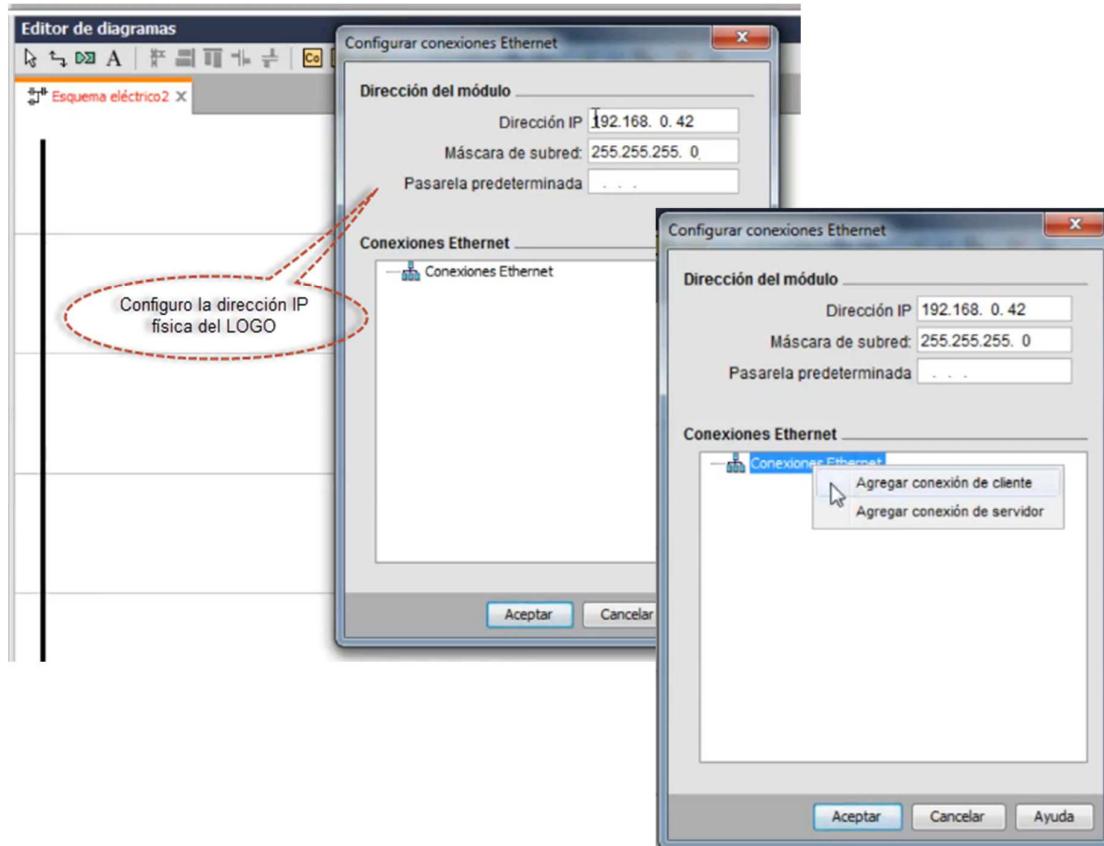
23

En TIA portal hay que enlazar la HMI con el logo. Enlazamos en la tabla de variables

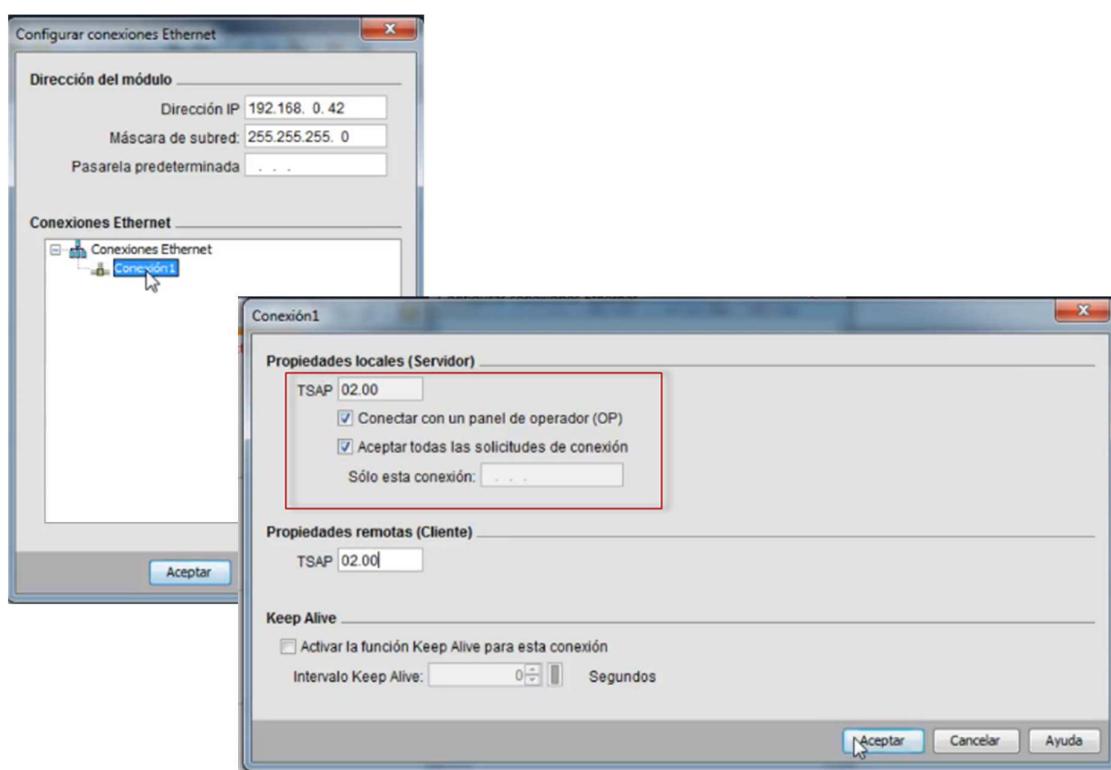


24

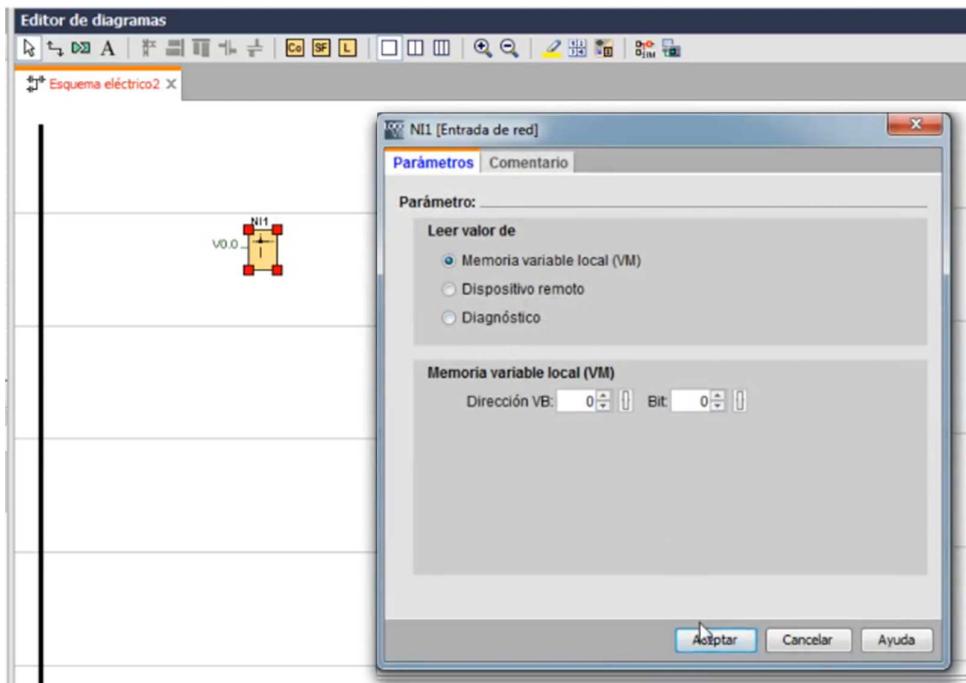
Conexión de LOGO con HMI KTP 600



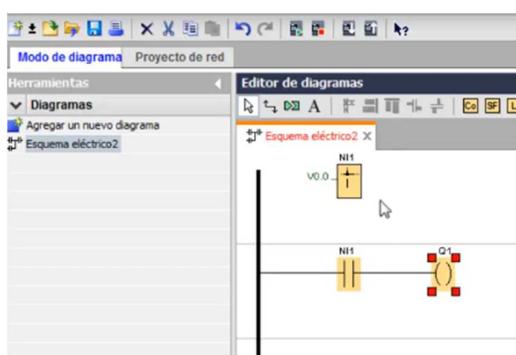
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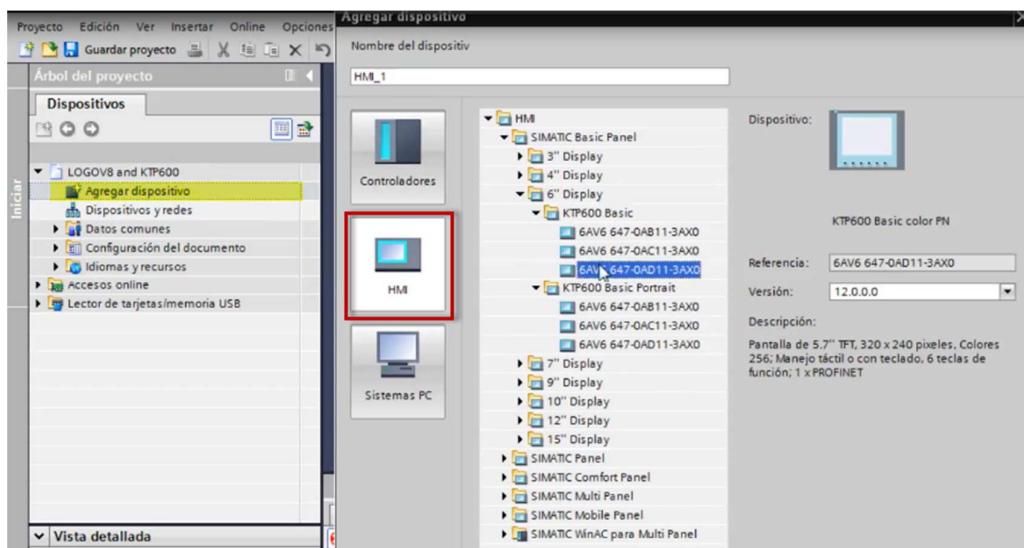
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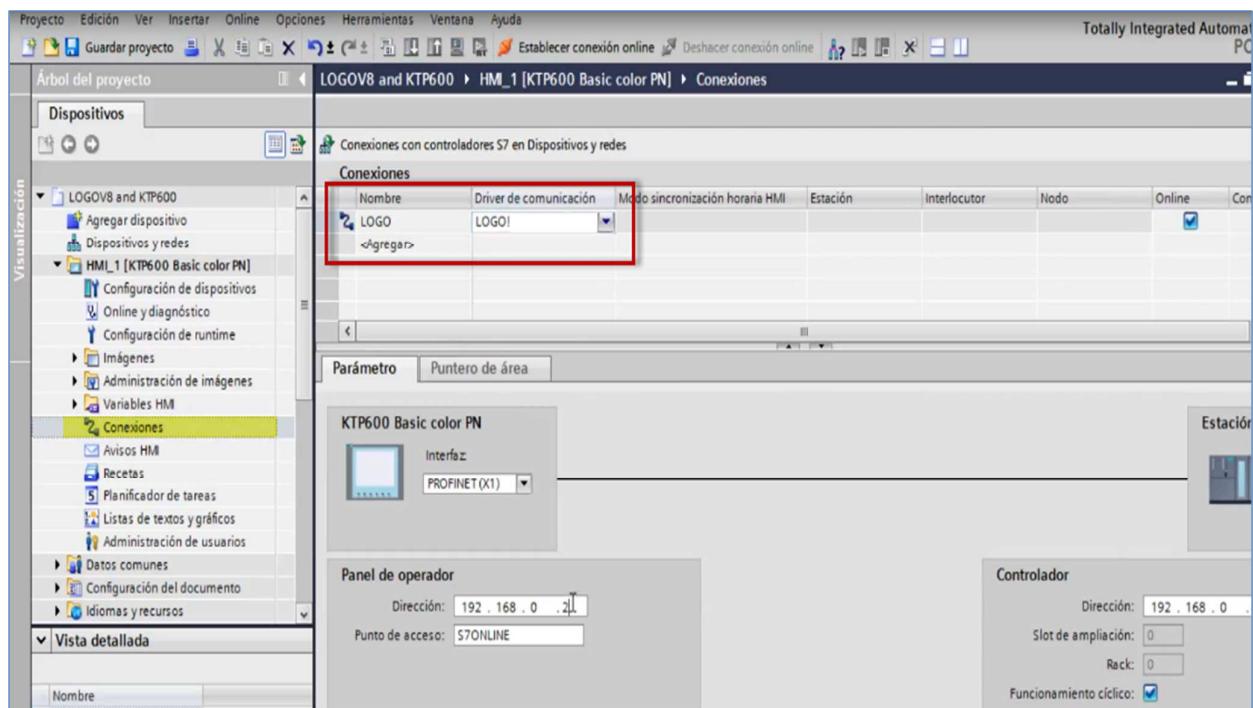


Diseñamos el programa de LOGO y en TIA
Portal configuramos el HMI



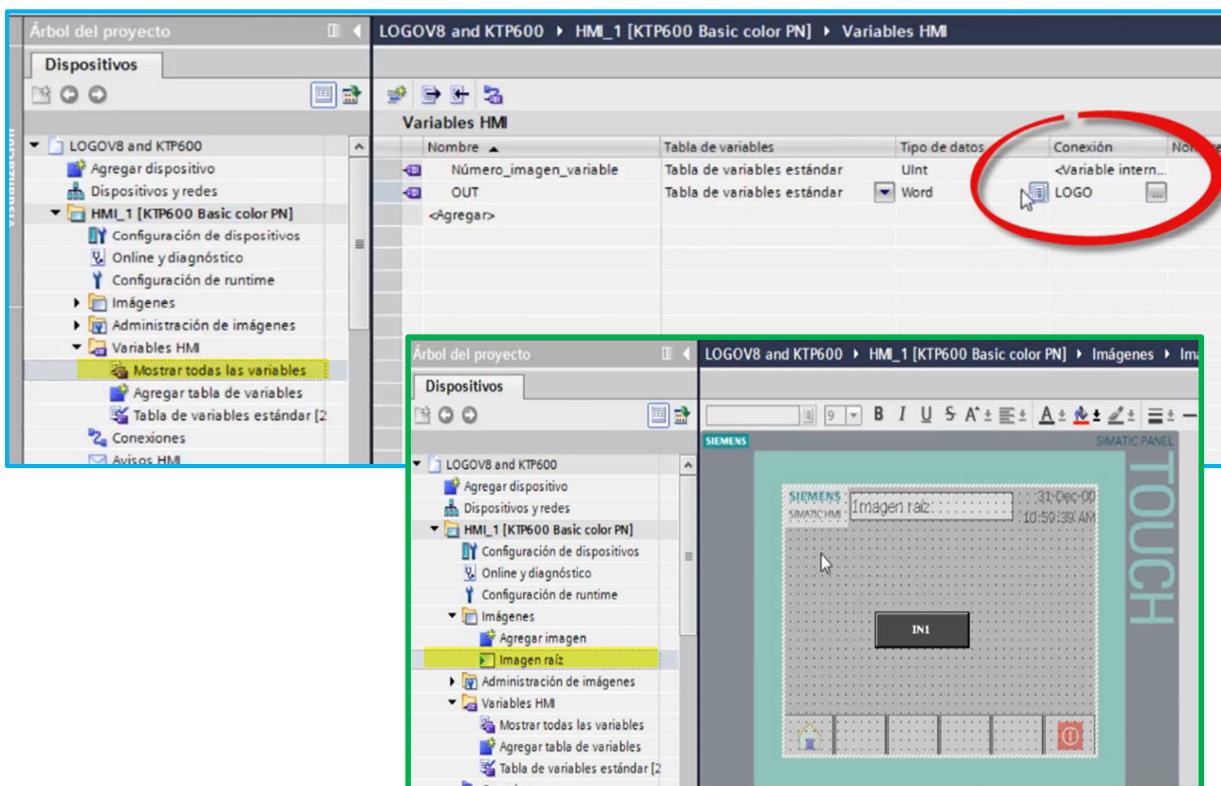
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CONFIGURACIÓN DE RED PROFINET LOGO / HMI

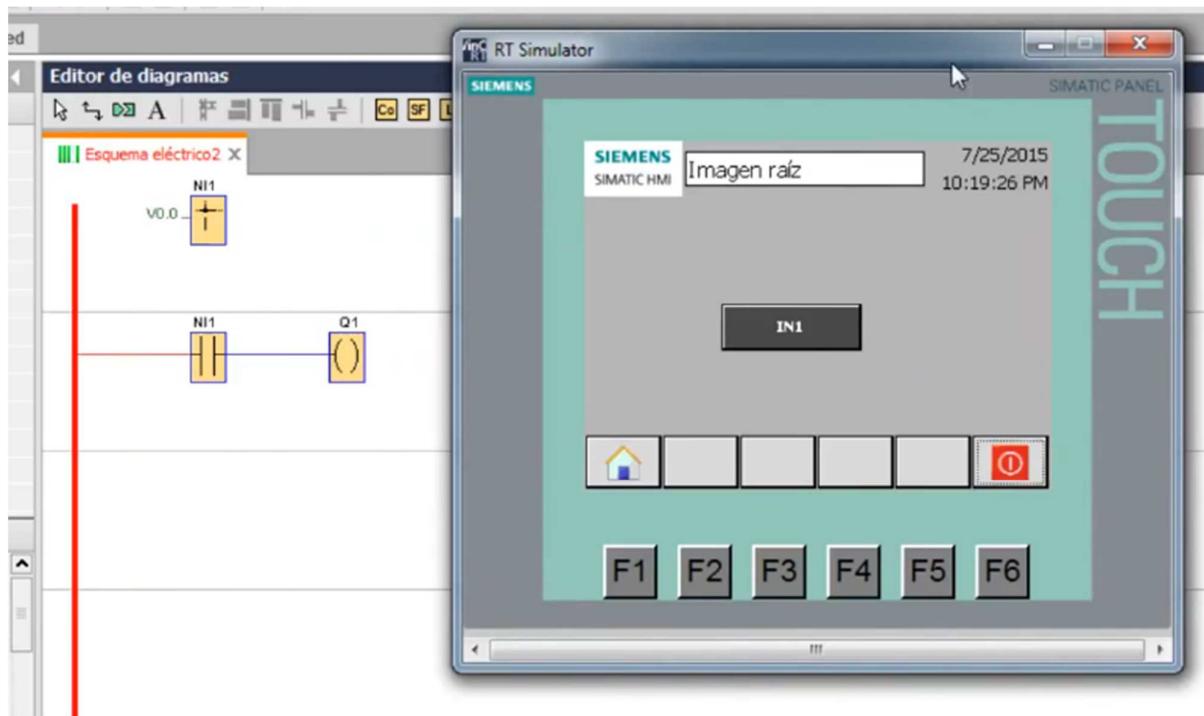


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CONFIGURAR LA TABLA DE VARIABLES Y DISEÑAR EL HMI



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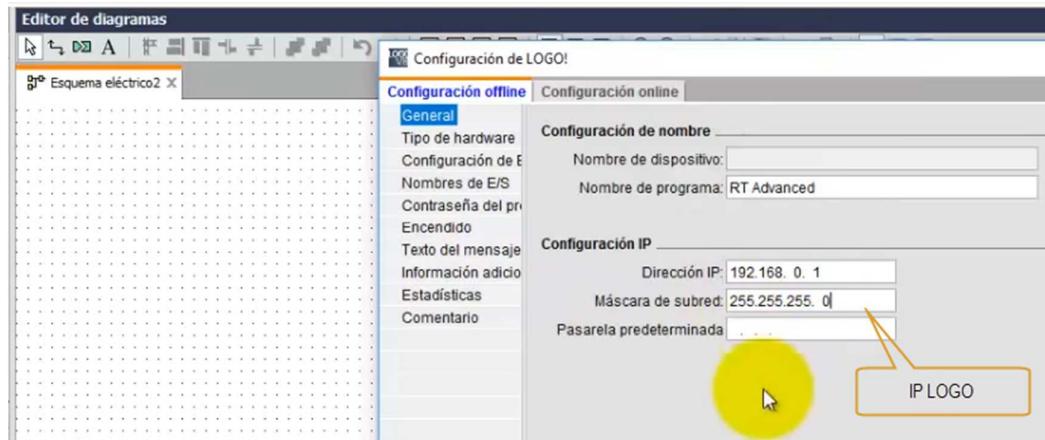
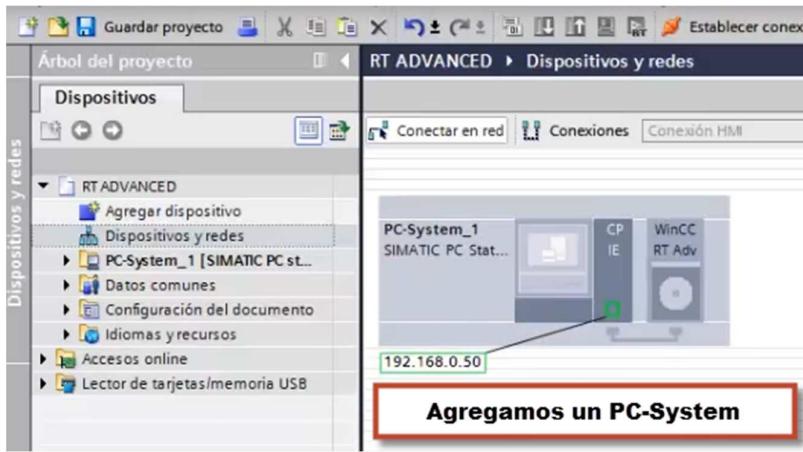
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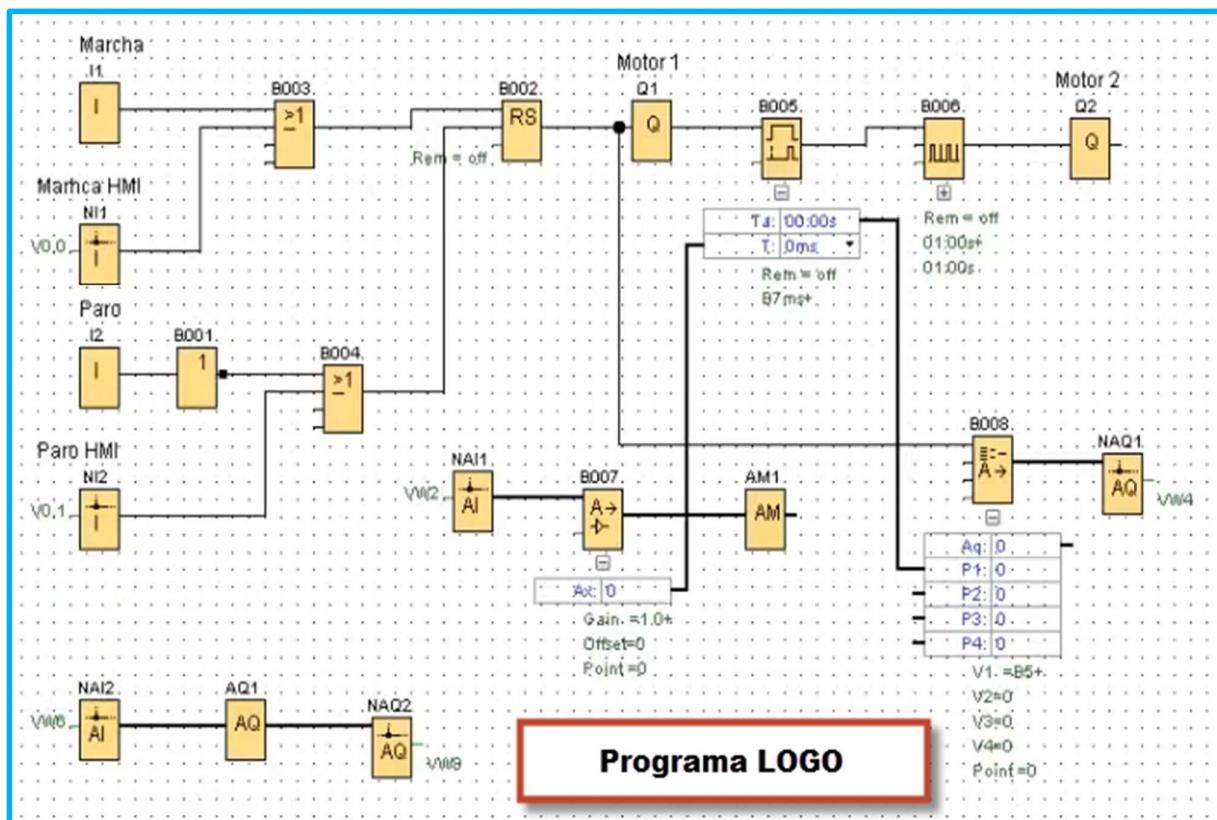
Eusebio Gómez García

LOGO8 – SISTEMA PC / RT ADVANCE EN WINCC

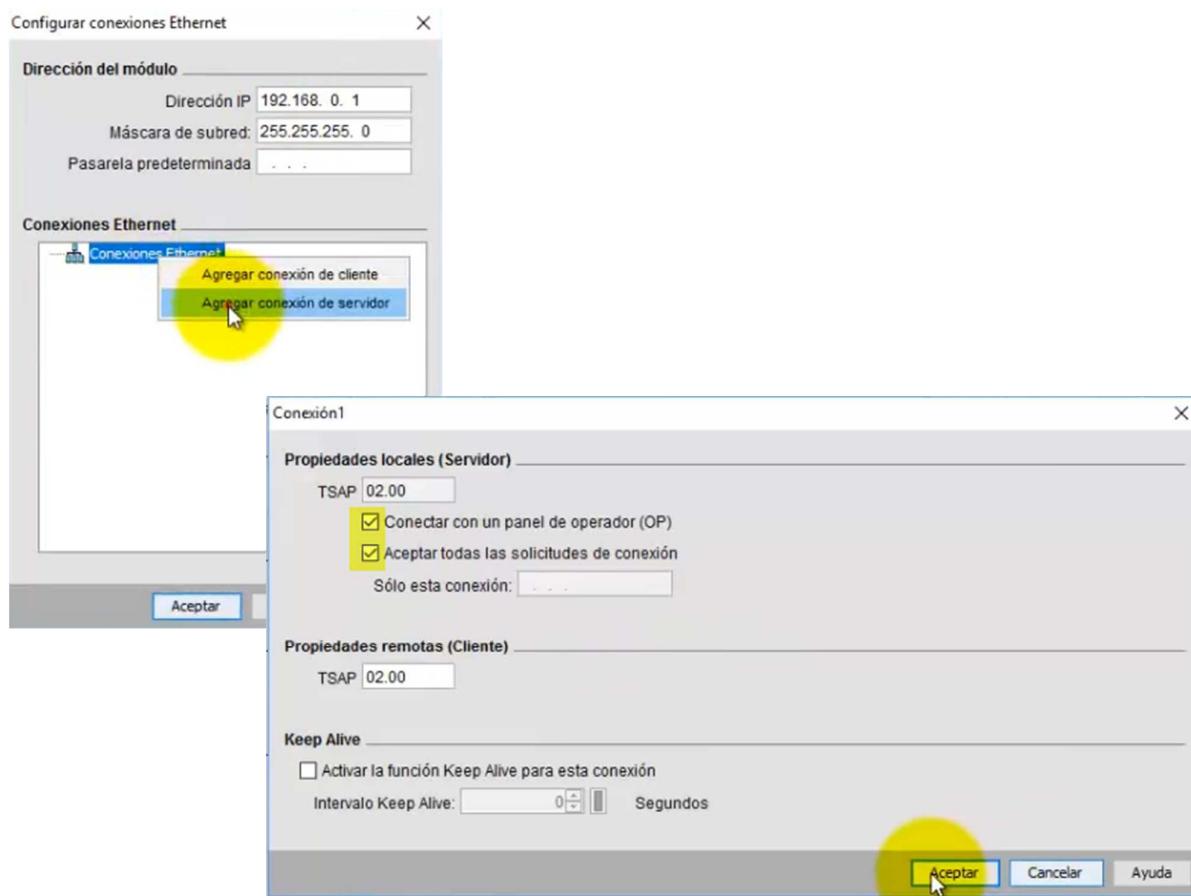
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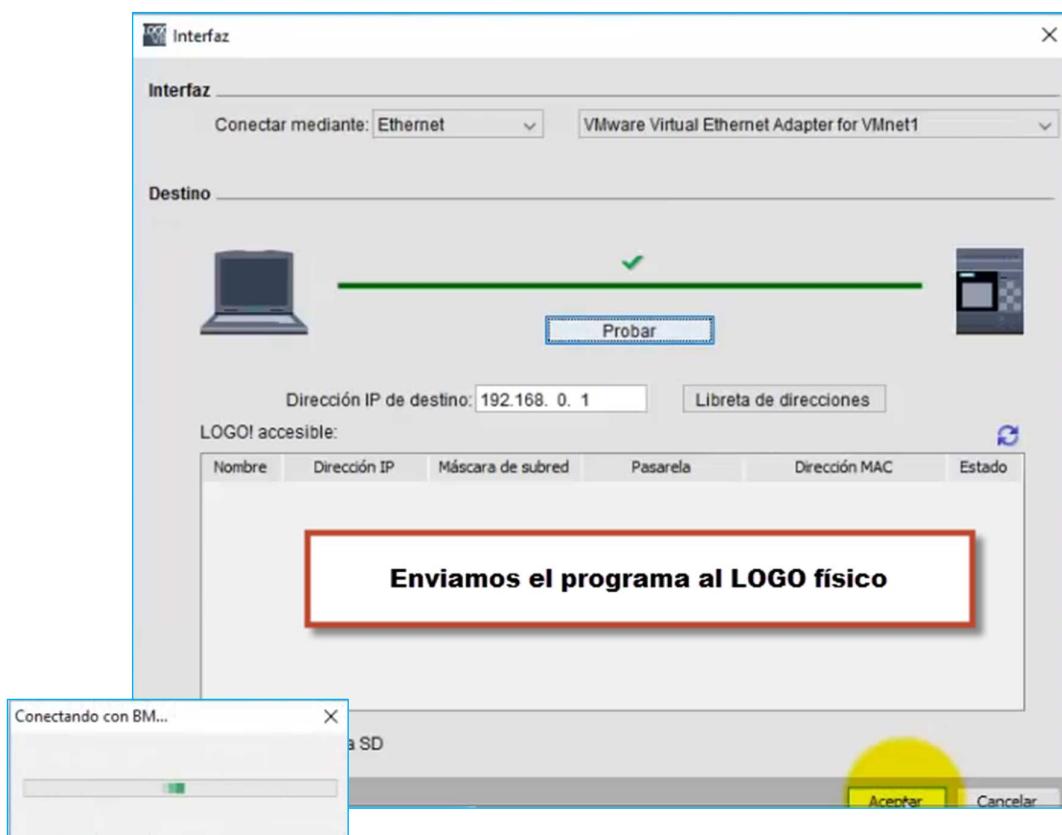
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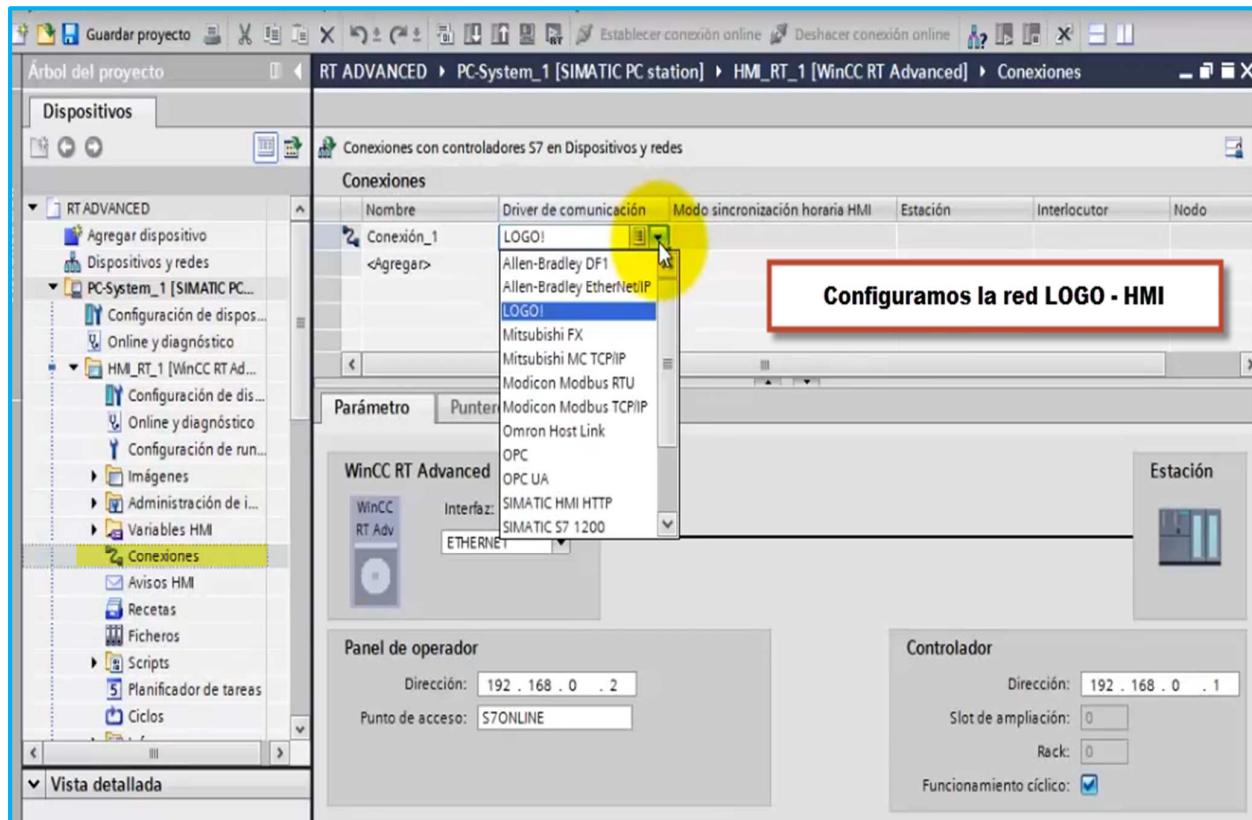
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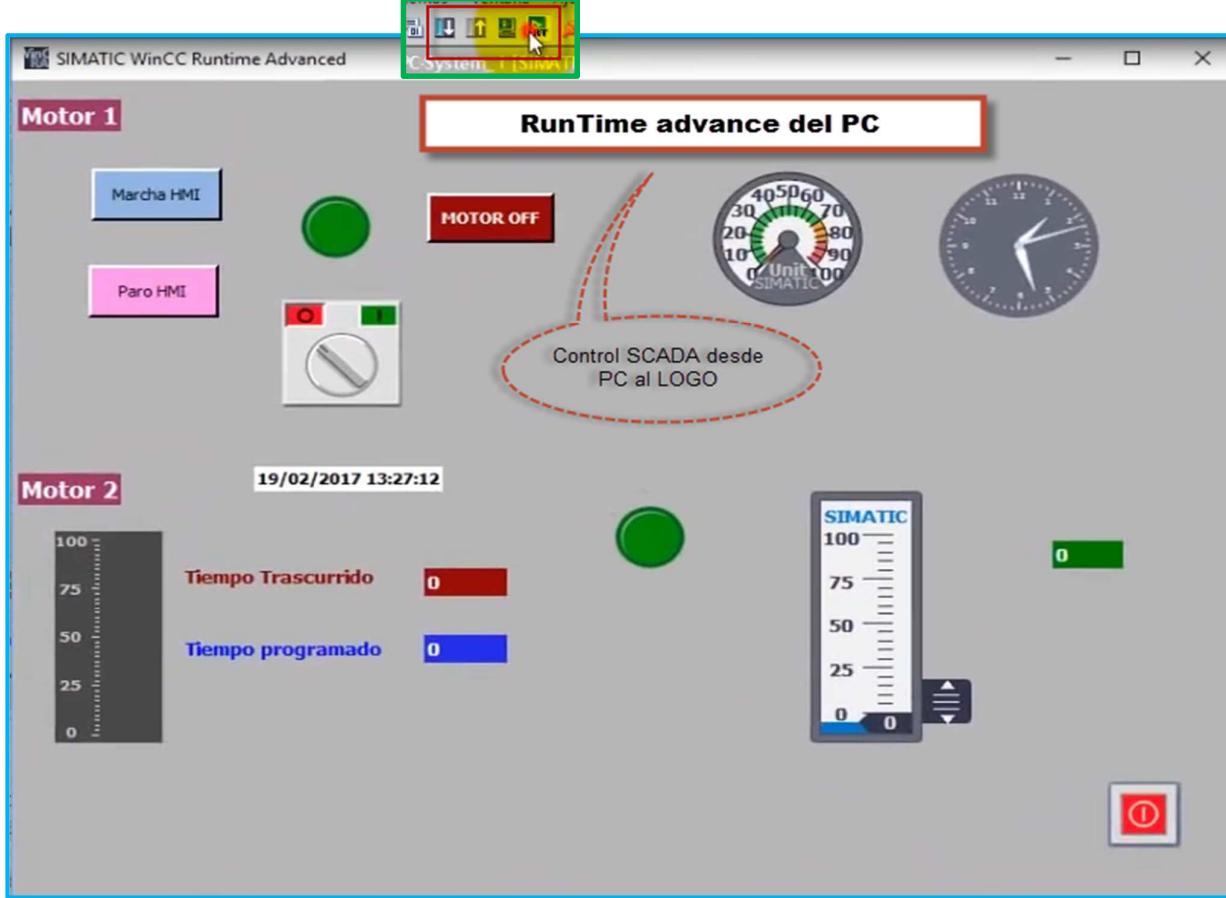


37

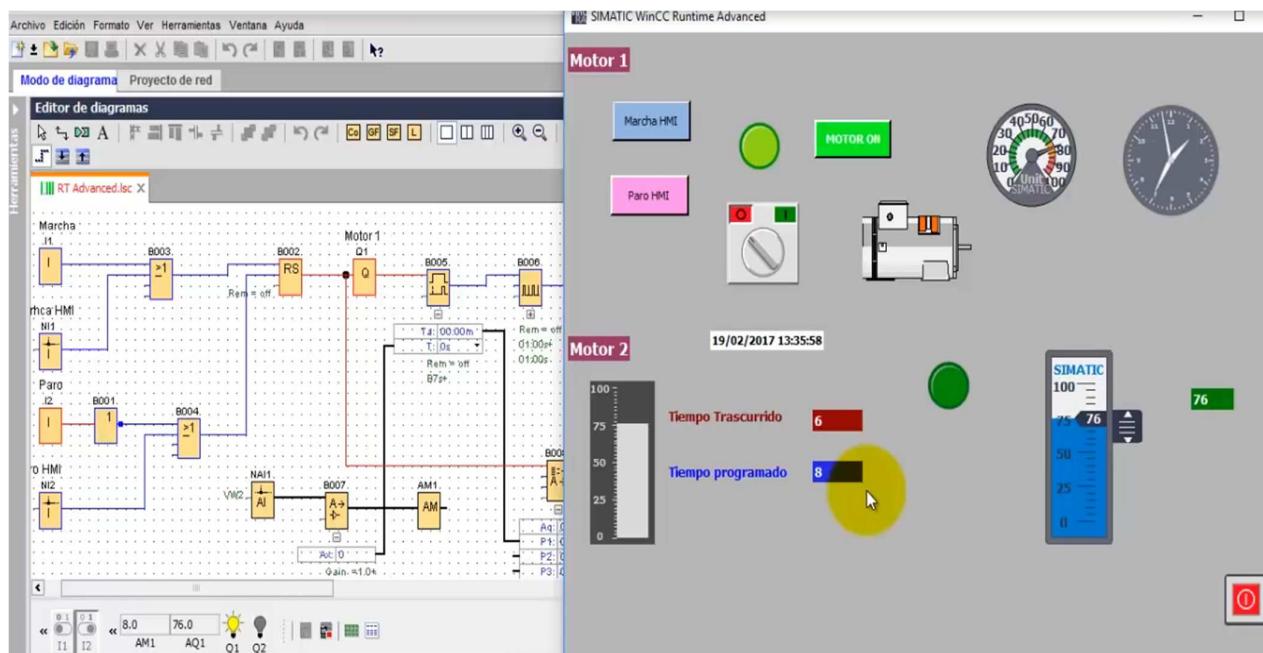
Tabla de variables HMI

Nombre	atós	Conexión	Nombre PLC	Variable PLC	Dirección
Marcha HMI		Conexión_1	<No definido>	V 0.0	
Motor 1		Conexión_1	<No definido>	Q 0.0	
Motor 2		Conexión_1	<No definido>	Q 0.0	
Palabra_Marca		Conexión_1	<No definido>	VW6	
Período HMI		Conexión_1	<No definido>	V 0.1	
Salida_Analogica		Conexión_1	<No definido>	VW8	
Tiempo Programado		Conexión_1	<No definido>	VW2	
Tiempo Transcurrido		Conexión_1	<No definido>	IW4	
<Agregar>					

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SIMULACIÓN

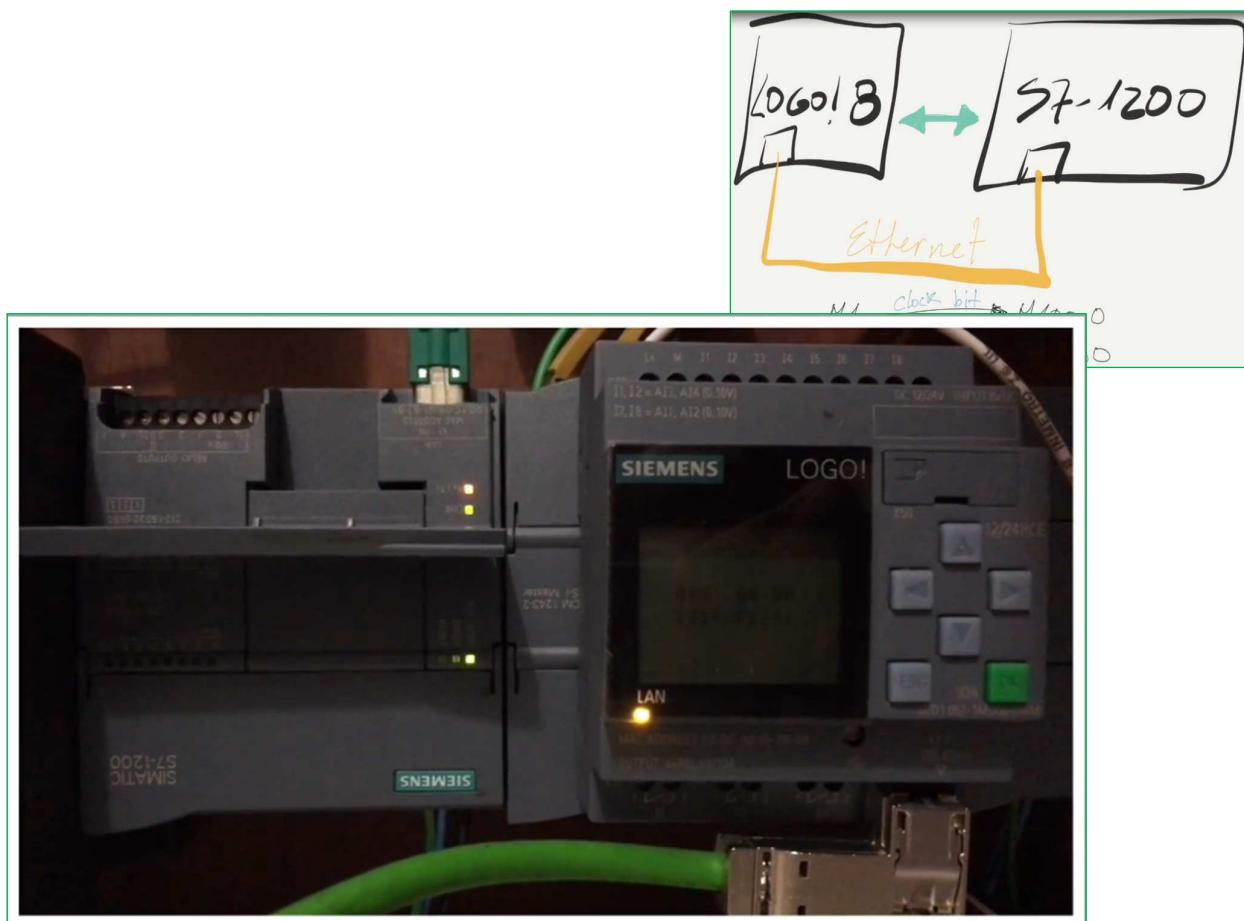
40



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PROFINET LOGO8 – S71200 (TRANSFERENCIA DE DATOS)

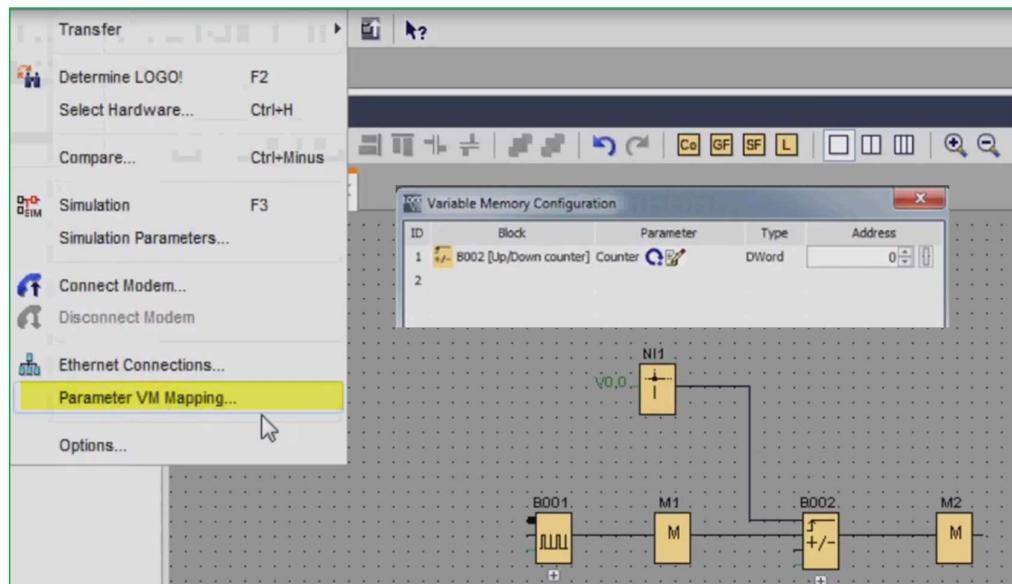
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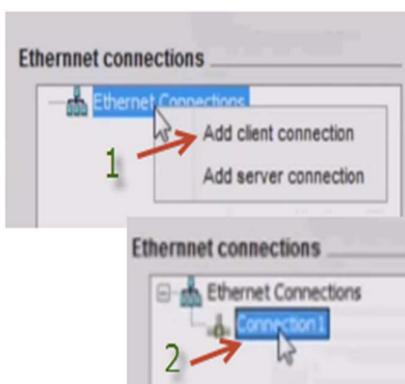
42



Configuramos las propiedades de red del logo indicando la IP del mismo. Hacemos el programa en LOGOSOFT y Mapeamos las variables que vamos a comunicar para saber que posición de memoria tienen asignada por defecto o cambiarla si lo deseamos.

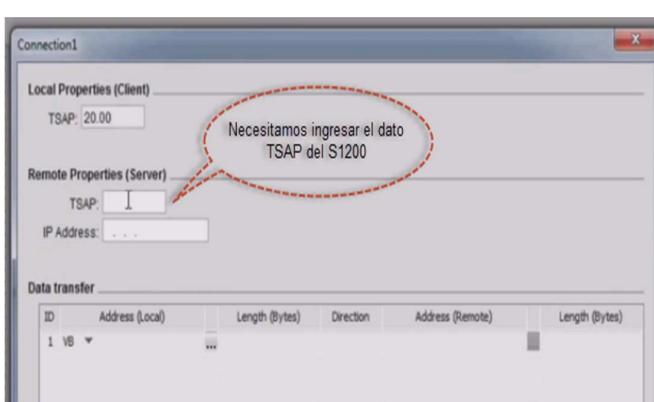


43

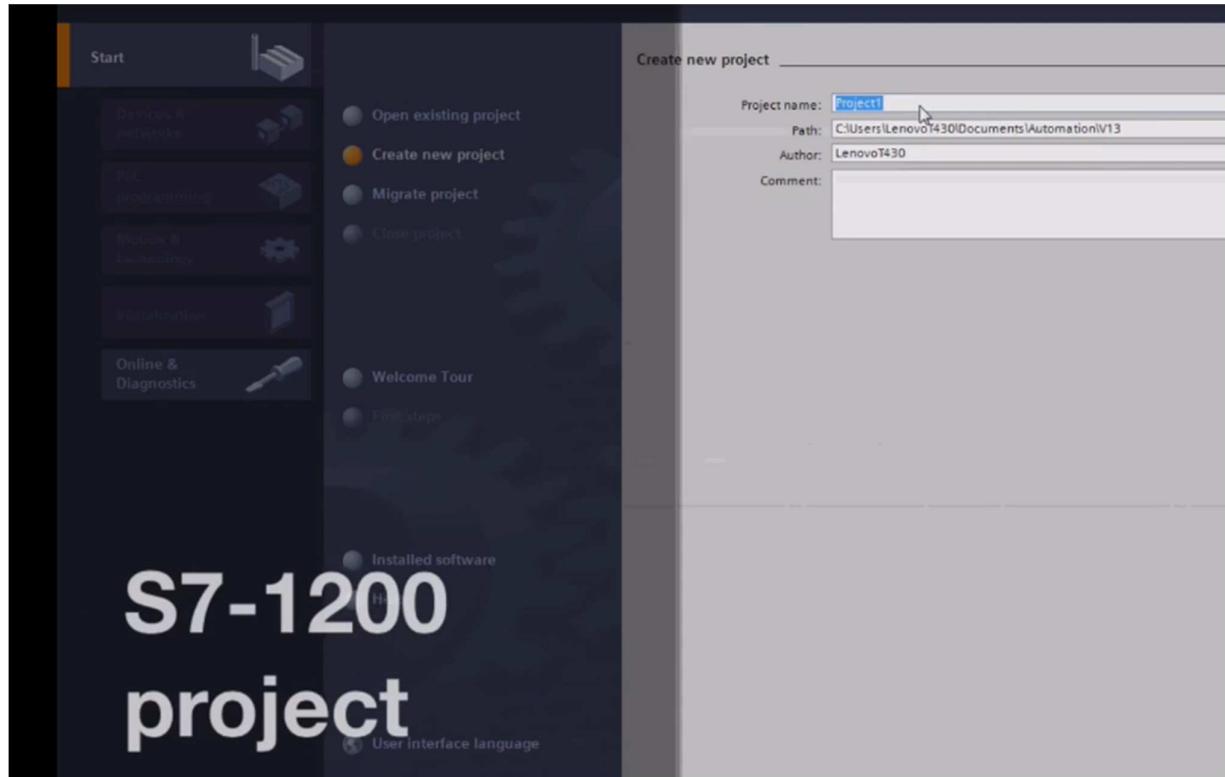


Al establecer una red de conexión clicamos sobre red de clientes y establecemos una nueva conexión.

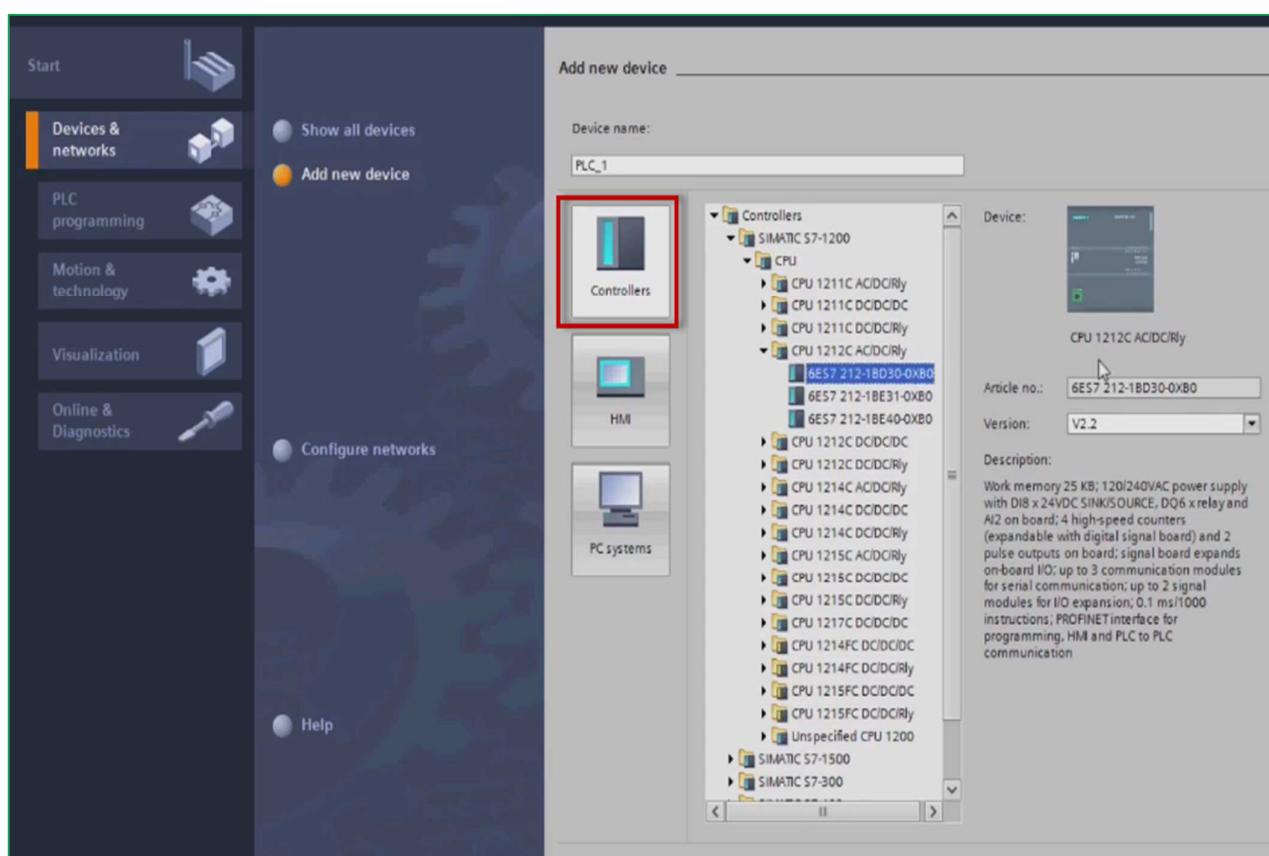
Necesitamos obtener el dato TSAP del S1200 para establecer la conexión entre el LOGO y el PLC S1200. Este dato lo conseguiremos consultando las propiedades del PLC en el programa TIA Portal



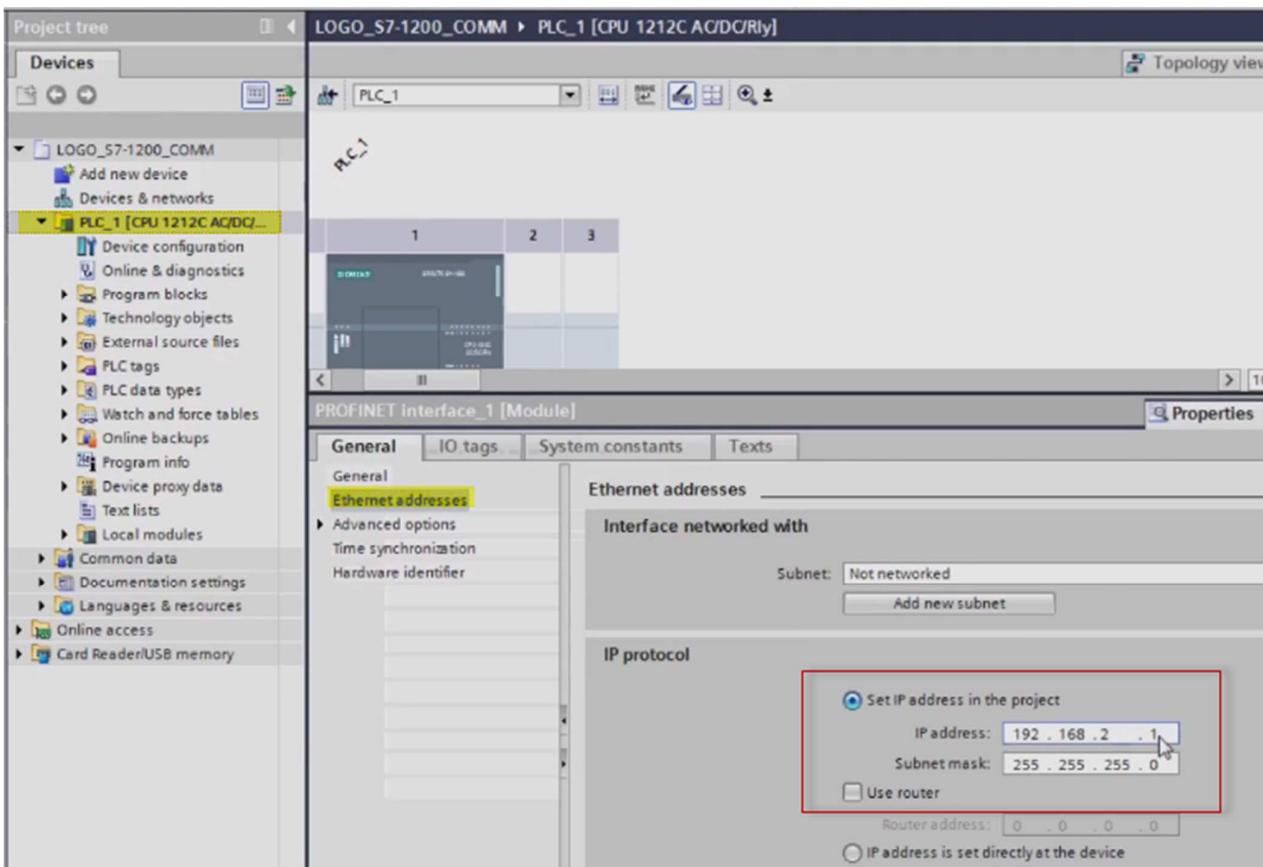
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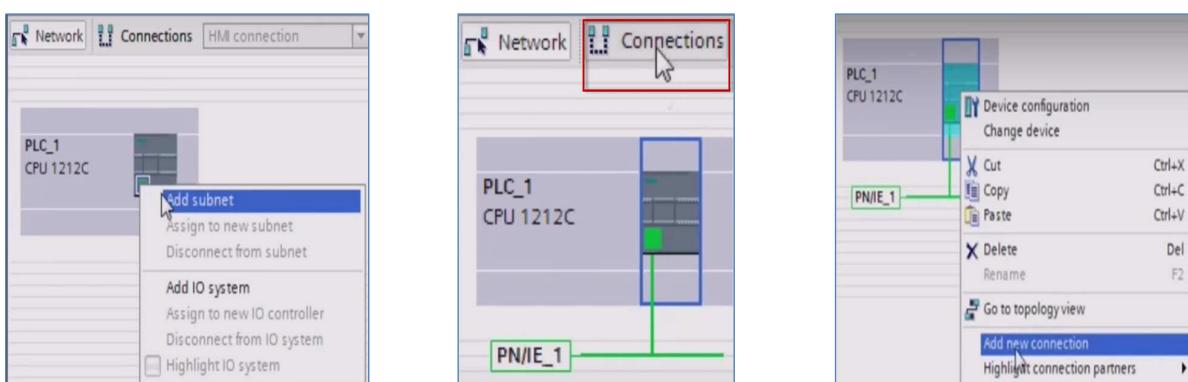
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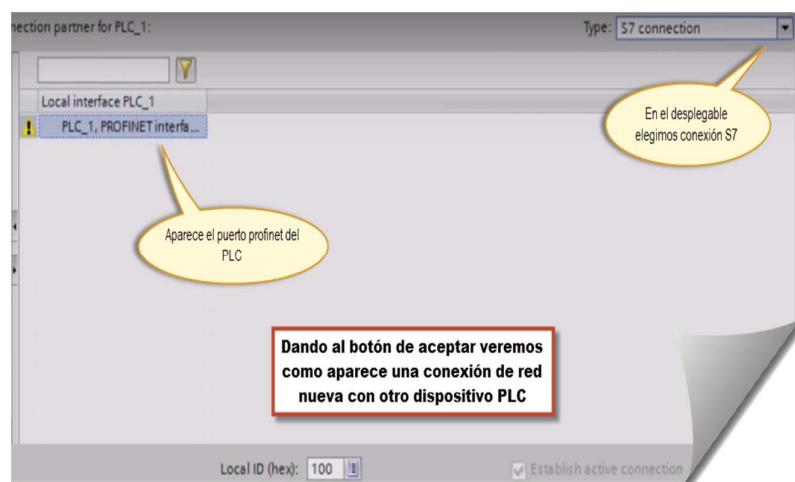
46



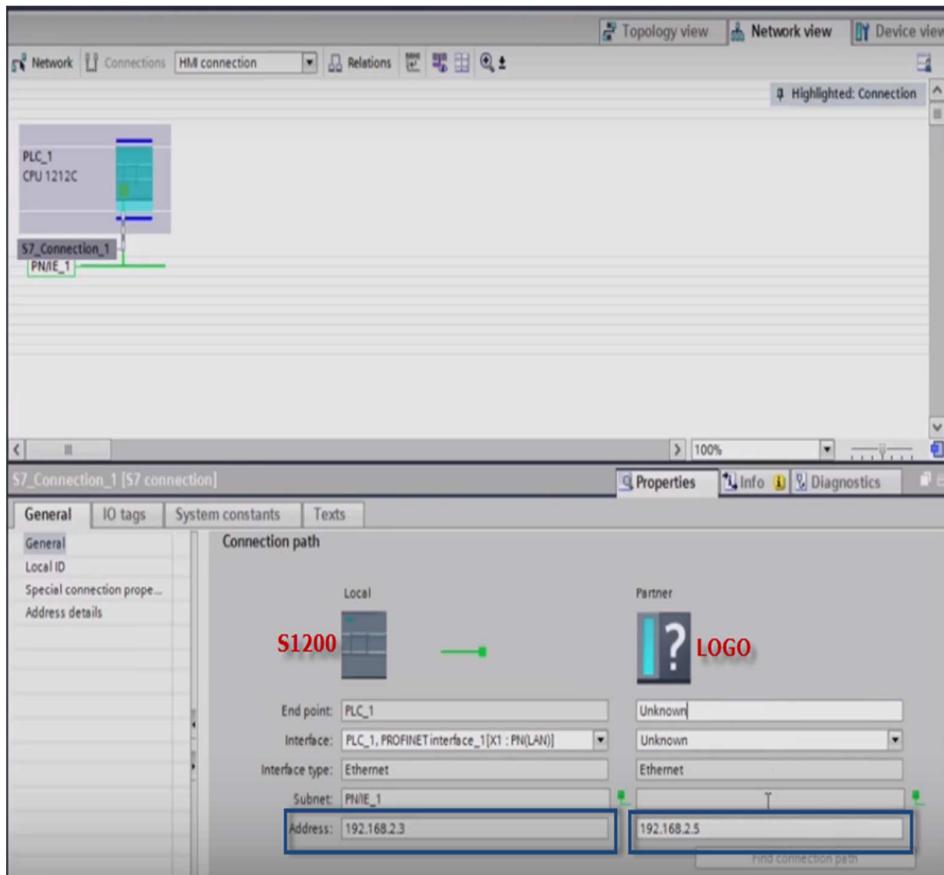
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Ahora en TIA Portal nos colocamos en vista de red, insertamos una sub red de comunicación. Nos colocamos sobre el puerto Ethernet del S1200 y añadimos subred. Seguidamente pinchamos en conexiones para establecer la conexión, con el botón derecho sobre el sobre el PLC, aparece un menú desplegable y seleccionamos de este menú desplegable la opción añadir nueva conexión.



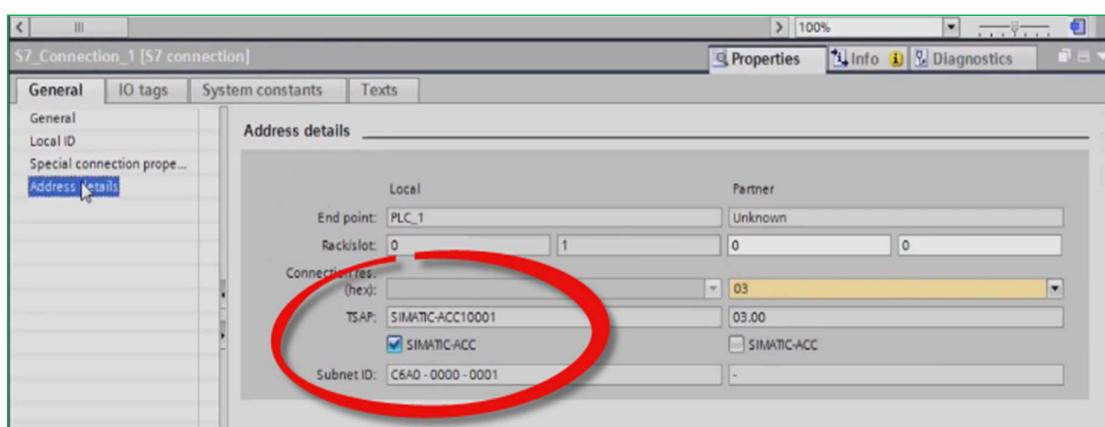
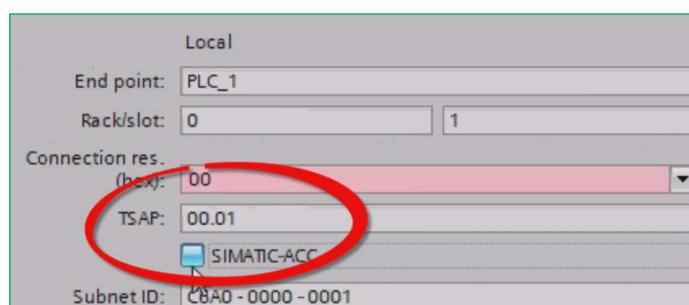
48



49

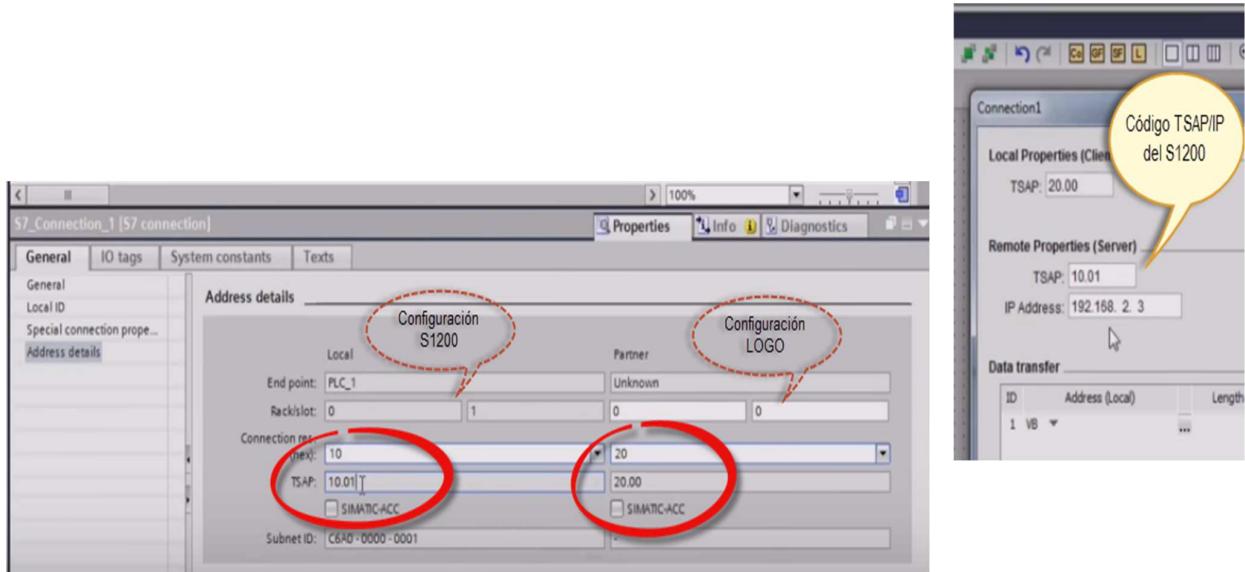
Seguidamente en **Propiedades / General / Detalles de dirección: desactivamos el tick SIMATIC-ACC.**

En la ventana inferior los parámetros de Partner harán referencia al dispositivo LOGO que conectaremos en la red. Los parámetros de Local serán los parámetros del PLC S1200.

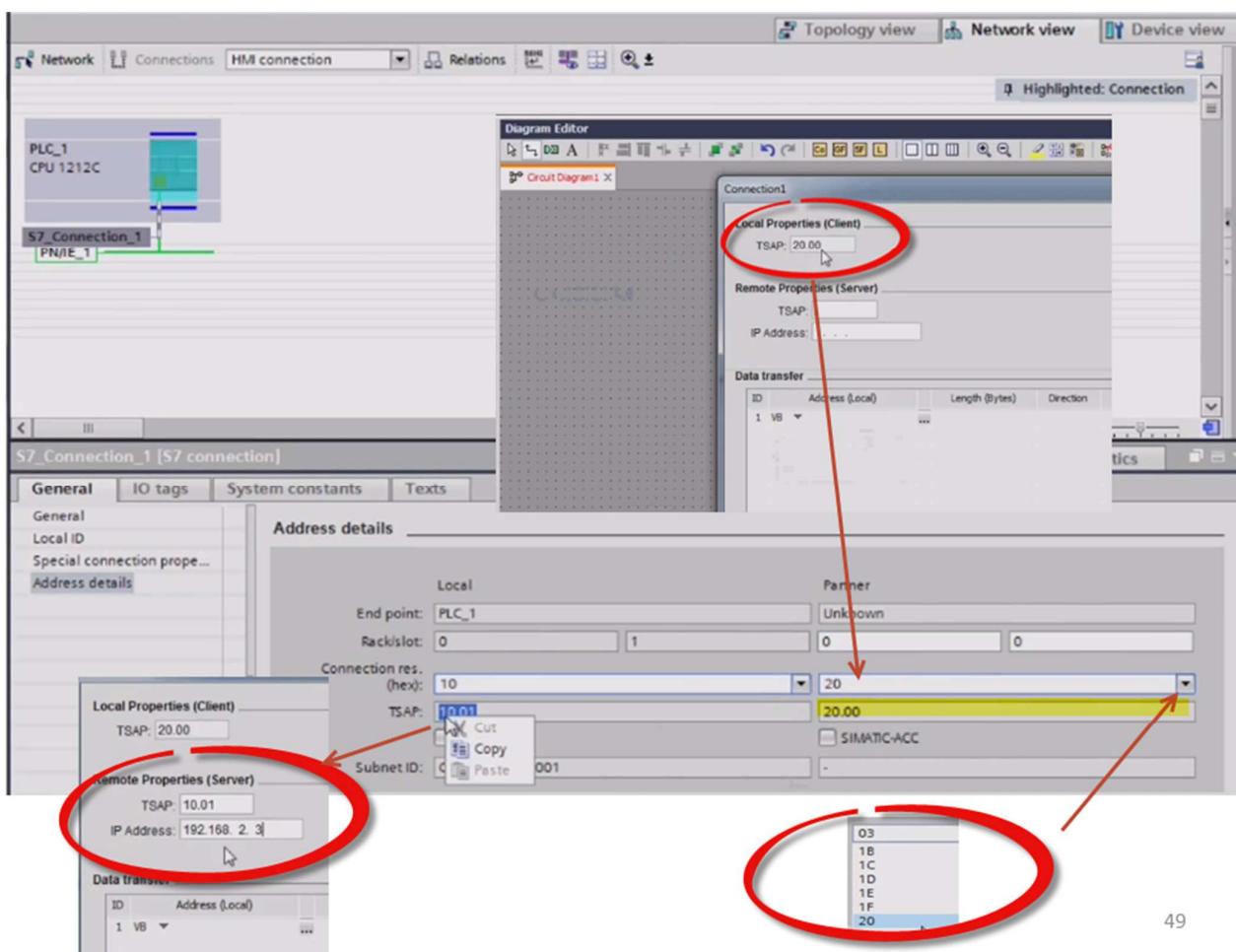


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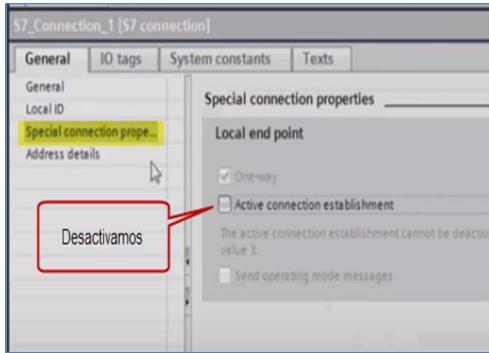
En detalles de dirección tendremos que ingresar los código TSAP tanto del LOGO como del PLC S1200. En los parámetros del logo cojo el dato directamente del programa LOGOSOFT en la ventana de conexión de red, el cual me aporta el dato TSAP = 20. Pincho en el desplegable y elijo el valor 20. En el apartado de Local y referido al S1200, selecciono en (hex) el valor 10, y automáticamente en la casilla TSAP aparece el dato (10.01), este dato lo copiaré y lo ingresaré en LOGOSOFT en la configuración de red.



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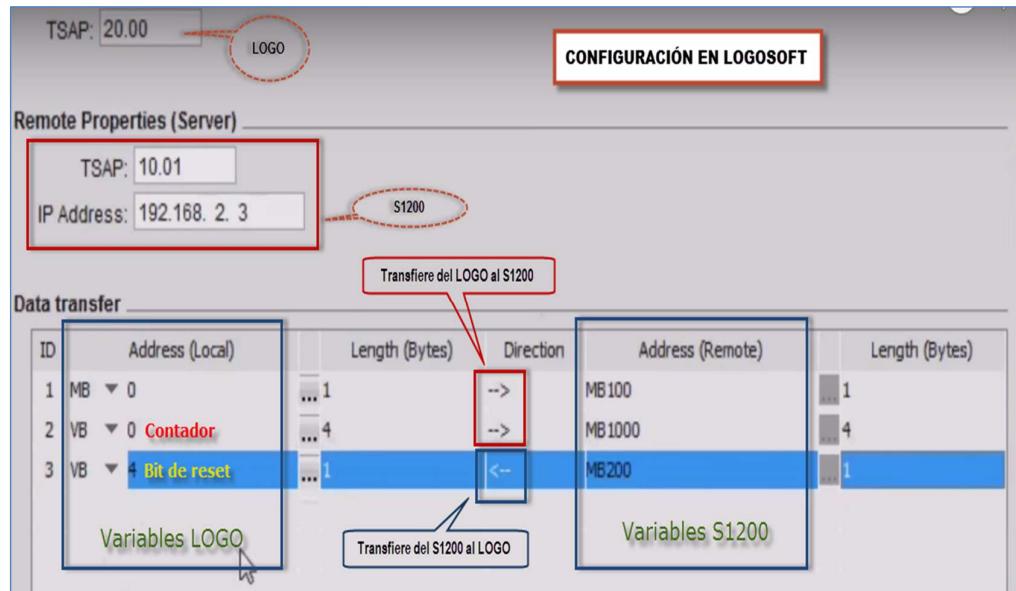
49



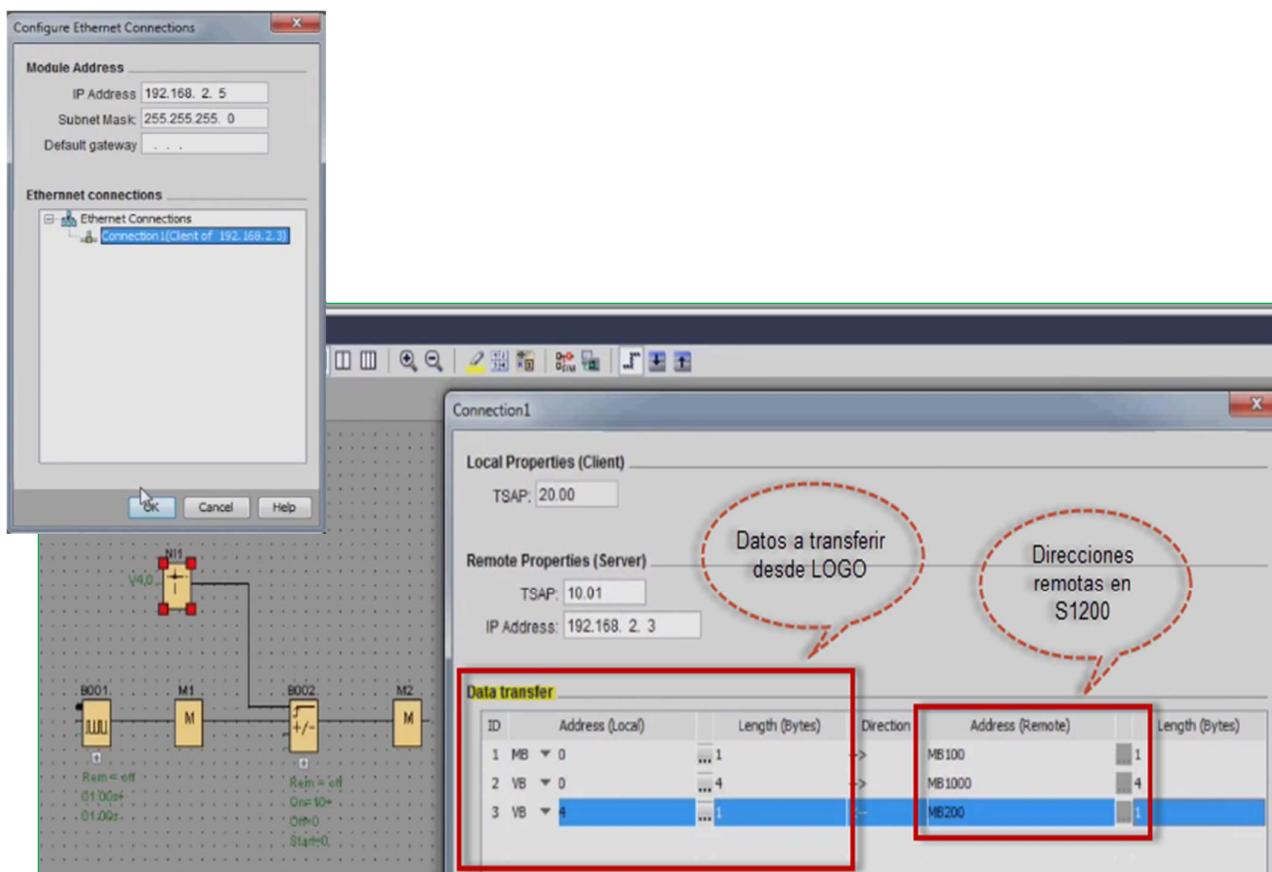
En vista de redes / Propiedades / General:

Pinchamos en propiedades especiales de conexión y desactivamos el tick que marca la imagen.

Nos vamos al LOGOSOFT y terminamos de configurar los datos de transferencia necesarios. En la imagen podemos ver las variables del LOGO que serán transferidas a las variables del S1200 que hemos definido. Y aquellas variables del S1200 que serán transmitidas hacia el LOGO. El sentido de la flecha indica el sentido de transferencia.



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Tabla de variables en S1200

Name	Tag table	Data type	Address	Retain	Visible...	Access...	Com...
1 MD1000	Default tag table	DWord	%MD1000	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
2 MB100	Default tag table	Byte	%MB100	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
3 LOGO_M1	Default tag table	Bool	%M100.0	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
4 LOGO_M2	Default tag table	Bool	%M100.1	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
5 AUX	Default tag table	Bool	%M0.0	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
6 LOGO_NETWORK_IN	Default tag table	Bool	%M200.0	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
7 TOTAL	Default tag table	DInt	%MD2	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
8 <Add new>							

En TIA Portal creamos la tabla de variables del PLC, especificando tanto el nombre de las mismas como la dirección a la cual se enviarán o desde las que se enviarán los datos requeridos en el proceso de transmisión.

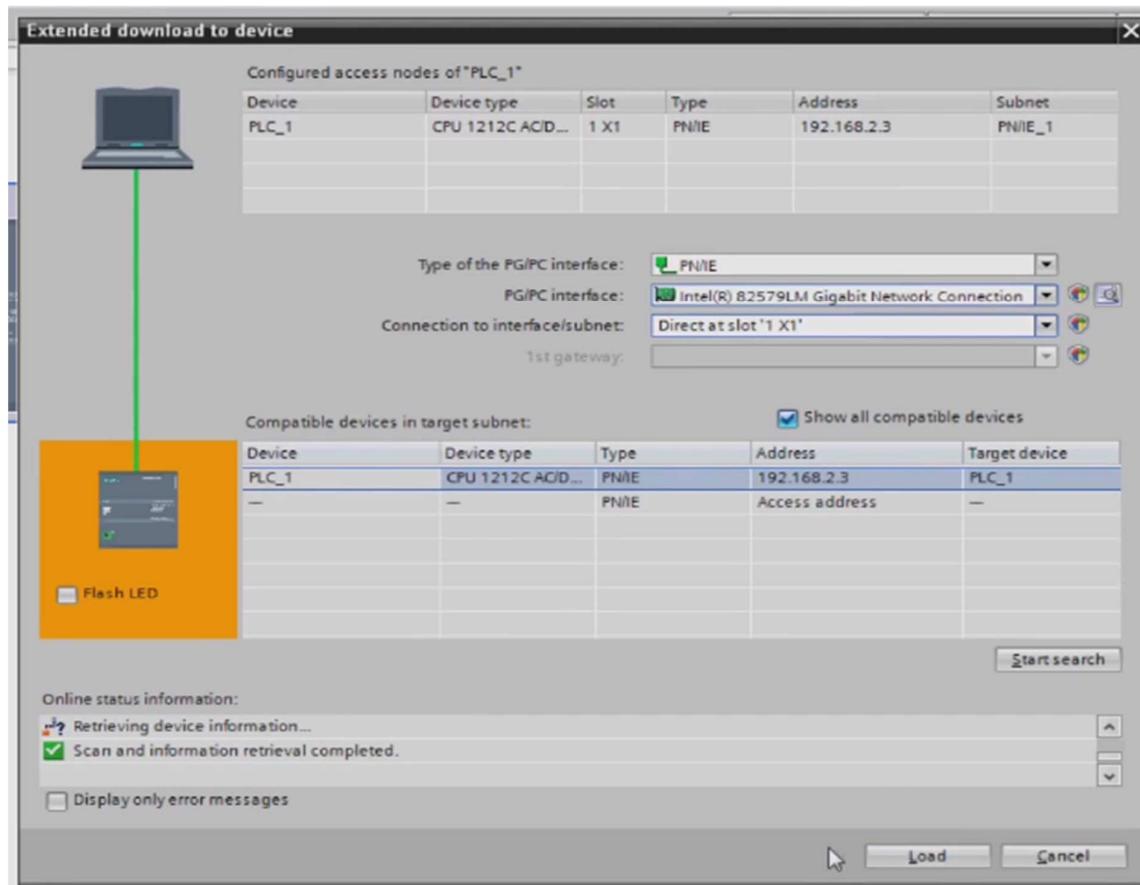
55

Programa S1200

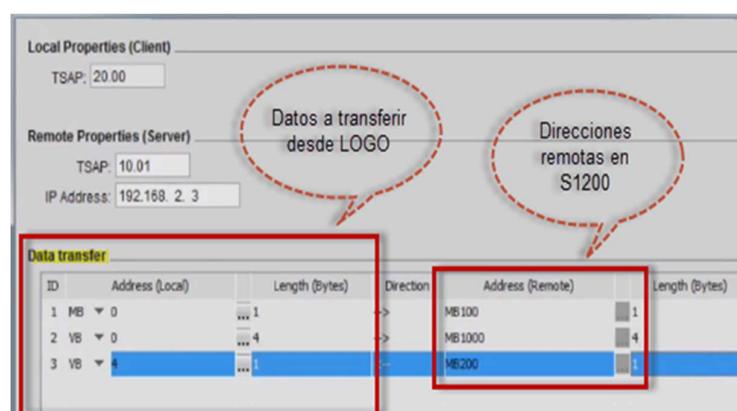
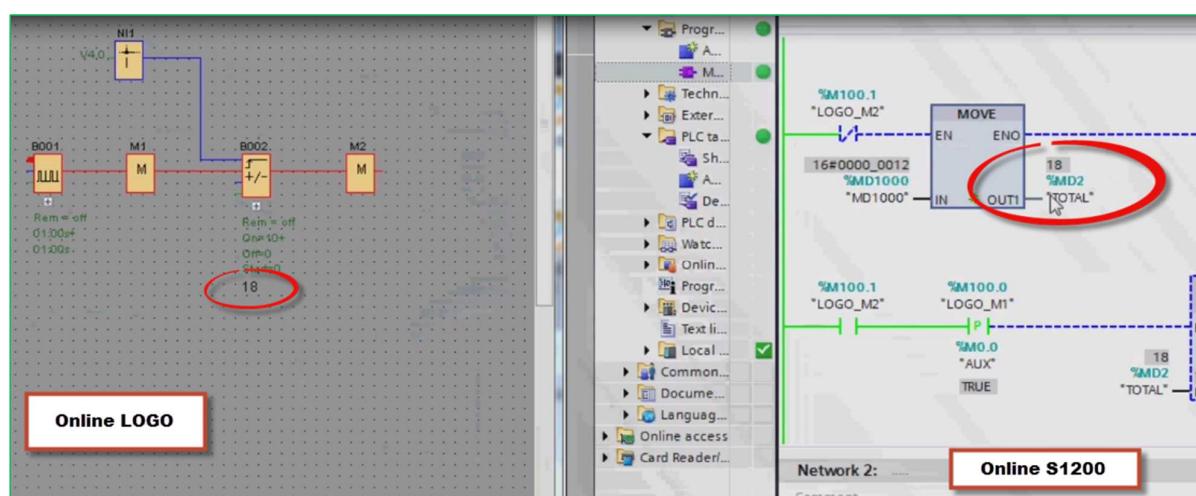
```

Main [OB1]
Network 1:
    %M100.1 "LOGO_M2" --- MOVE --- %MD2
    %MD1000 "MD1000" --- IN --- OUT1 --- %TOTAL
    %M100.1 "LOGO_M2" --- P --- %M0.0 "AUX"
    %M100.0 "LOGO_M1" --- EN --- %MD2
    %MD2 "TOTAL" --- IN/OUT --- 20
    %MD2 "TOTAL" --- RS --- Q
  
```

56



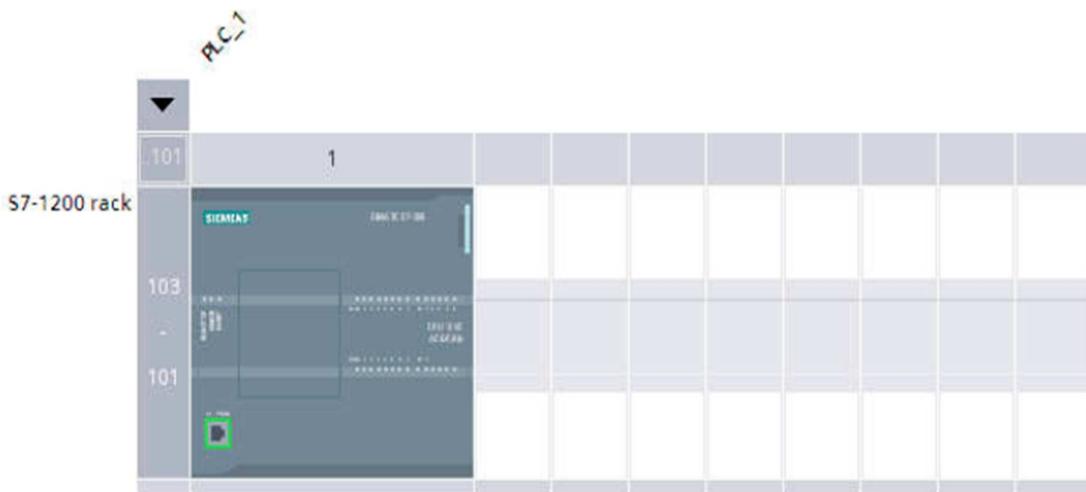
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58

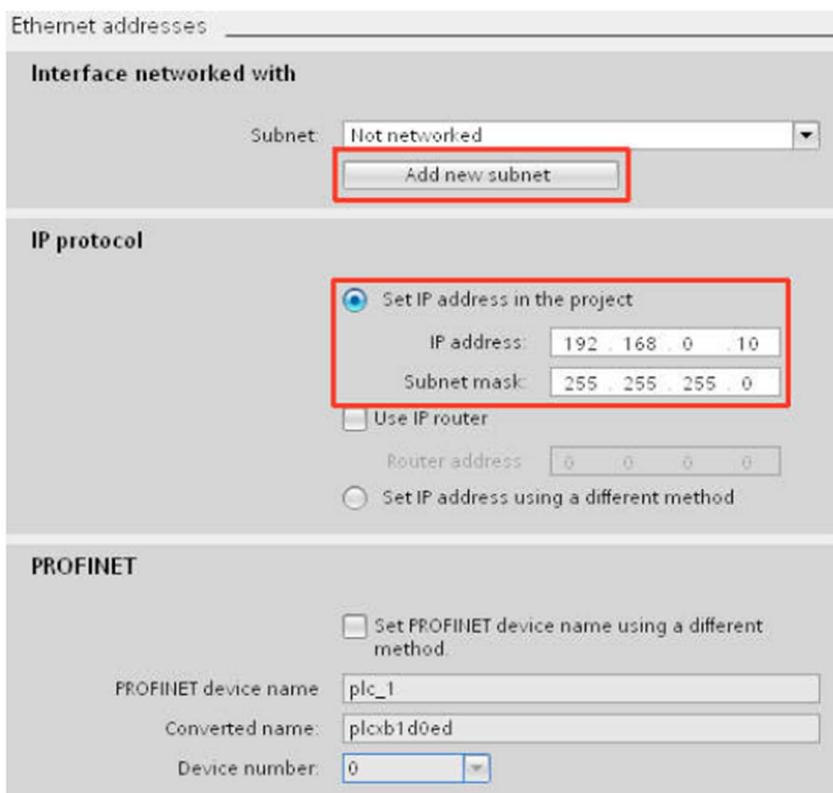
Settings in Step7 Basic V11:

You must first create a hardware configuration in Step7 Basic V11.



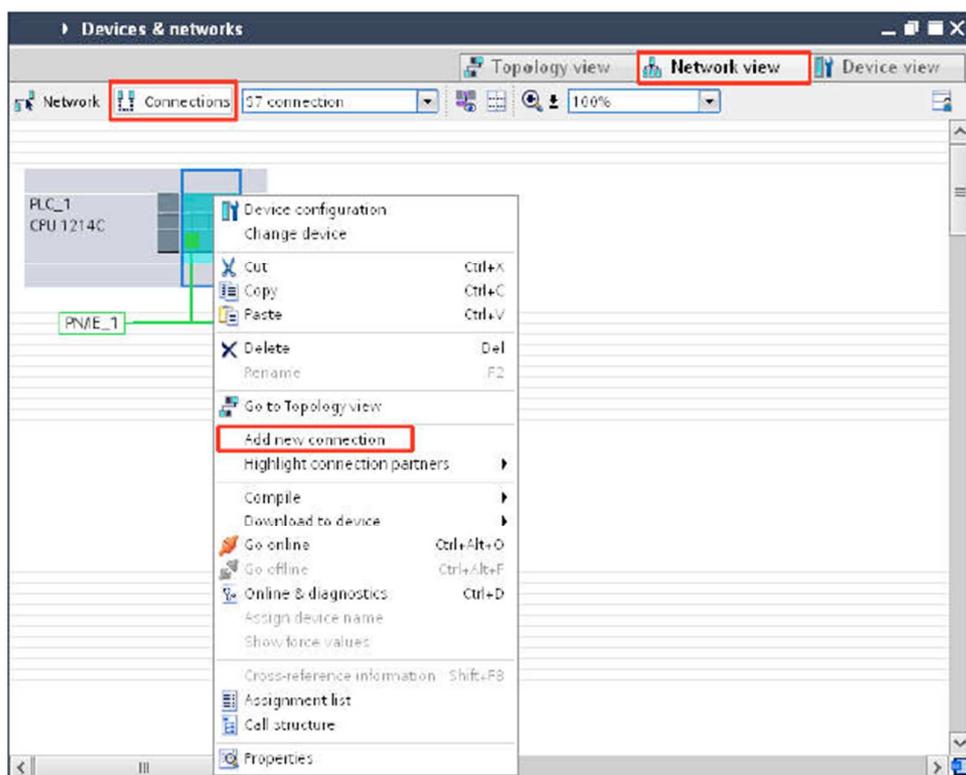
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Enter the IP address in the CPU properties under "PROFINET interface" and add a new subnet.



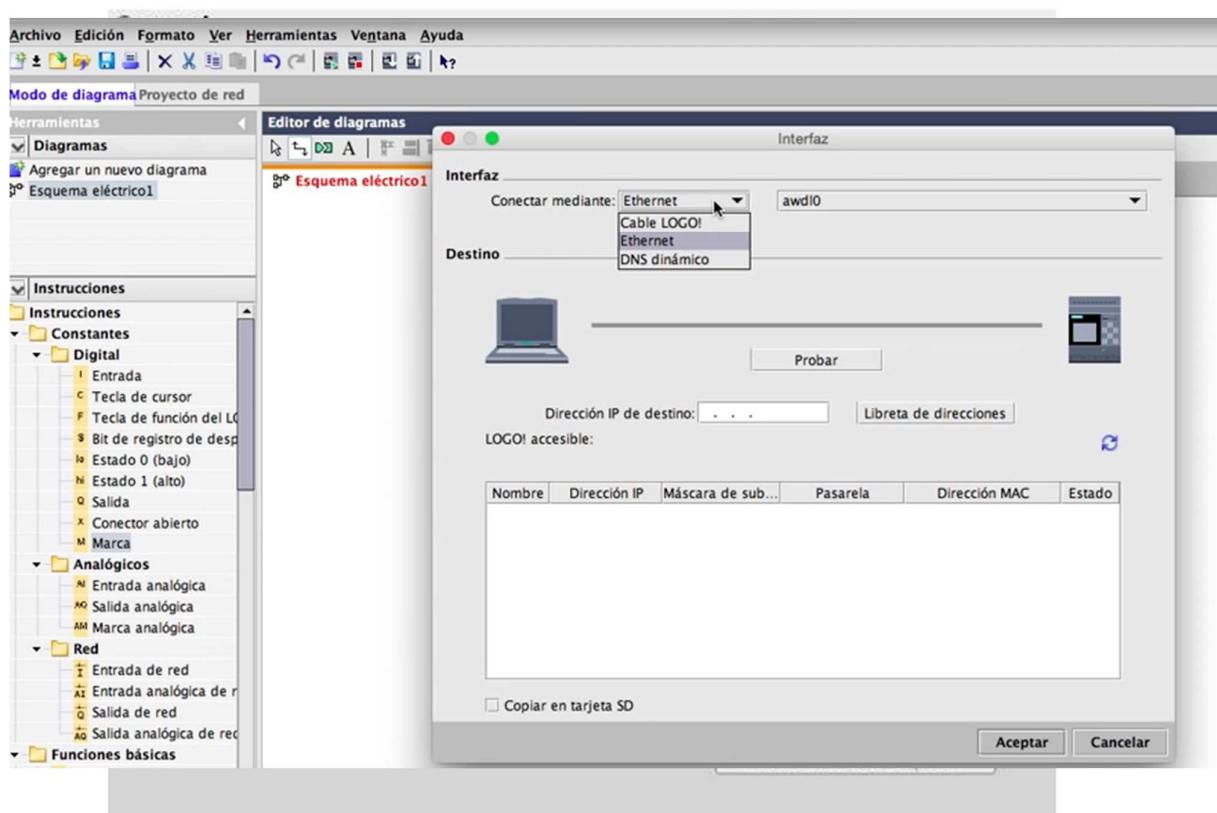
60

Then you add a new connection in the Network view with a right-click on the device under Connections.



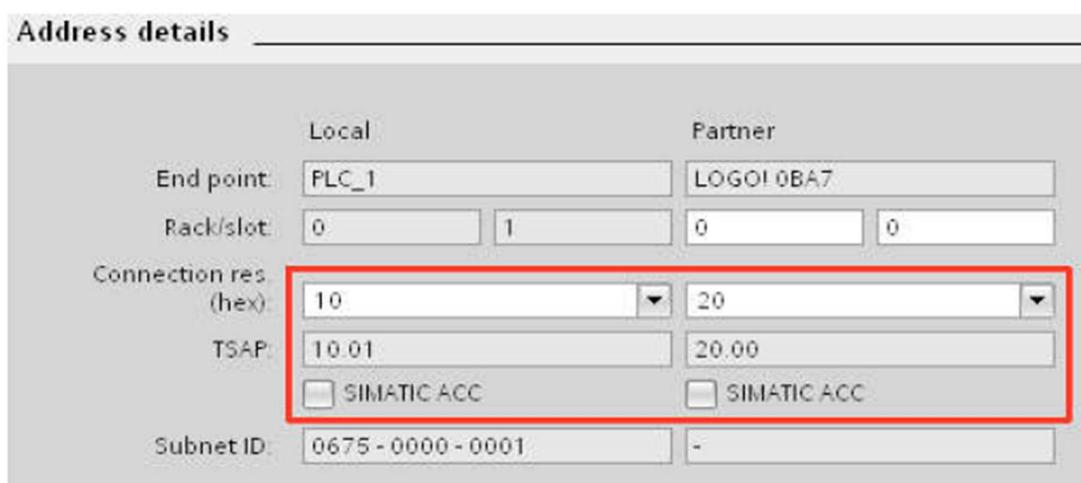
61

1. General: Partner end point, Partner address



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2. Address details: Connection resources

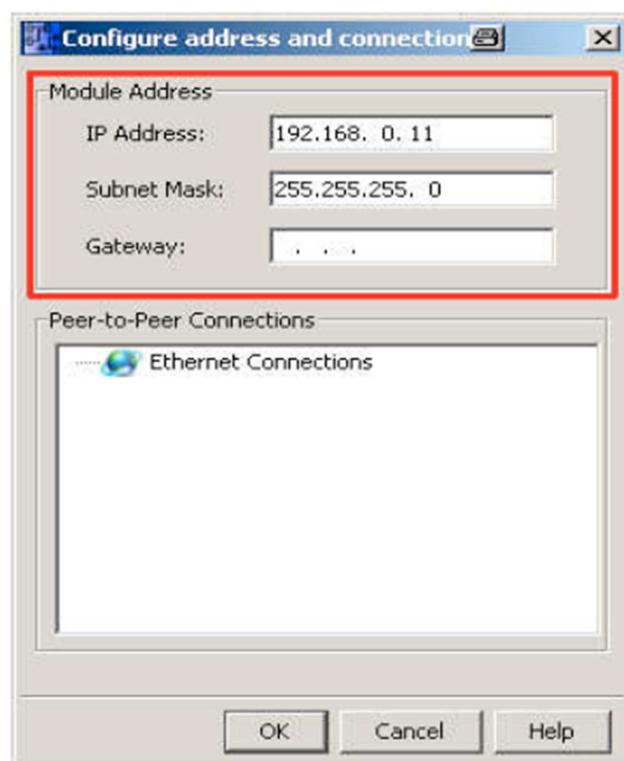


Configuration of the connection is now complete and you can make the connection configuration for LOGO!.

63

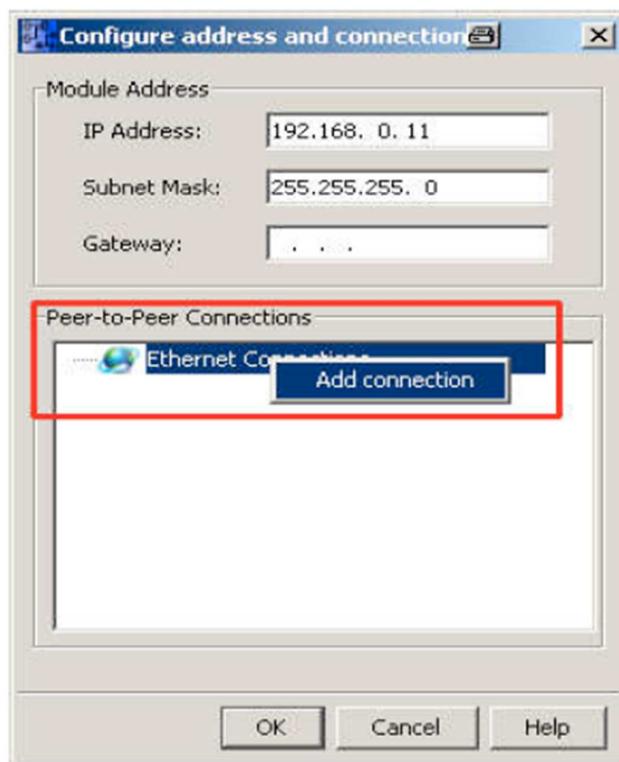
Configure a new connection under Tools; Ethernet Connections:

1. Enter the IP address and subnet mask of the LOGO! basic module.



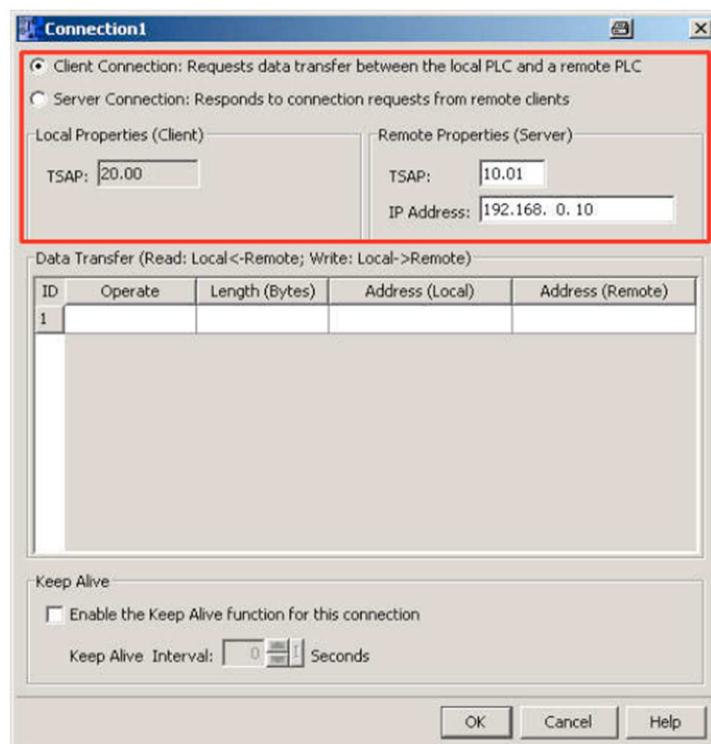
64

2. Add a new connection with a right-click on Ethernet Connections under Peer-to-Peer connections.



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3. Configure a client connection in the properties of the added connection. Enter TSAP and IP address of the S7-1200 in the remote properties.



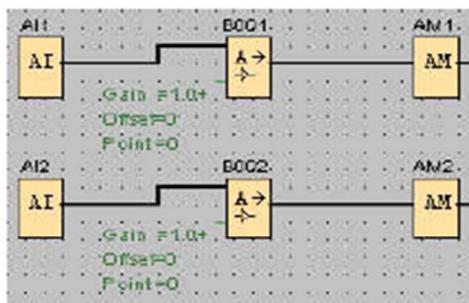
In the data transfer table you can specify which and how many data are transferred from LOGO! to the server.

66

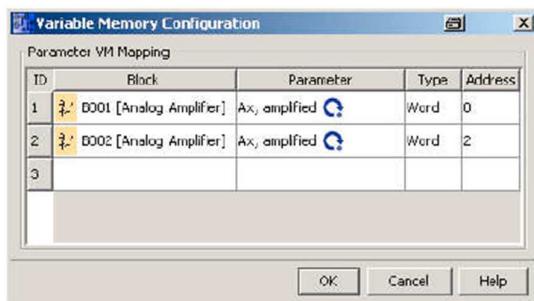
Example:

The digital inputs I1 to I6 and the analog inputs AI1 and AI2 are to be processed in the S7-1200. The S7-1200 should also be able to address the digital outputs Q1 to Q4.

To transfer the analog input values to the S7-1200, you have to first enter them in the "Parameter-VM mapping". The analog inputs are added to the program of LOGO! for this purpose and then connected with the analog amplifier and the analog flags.

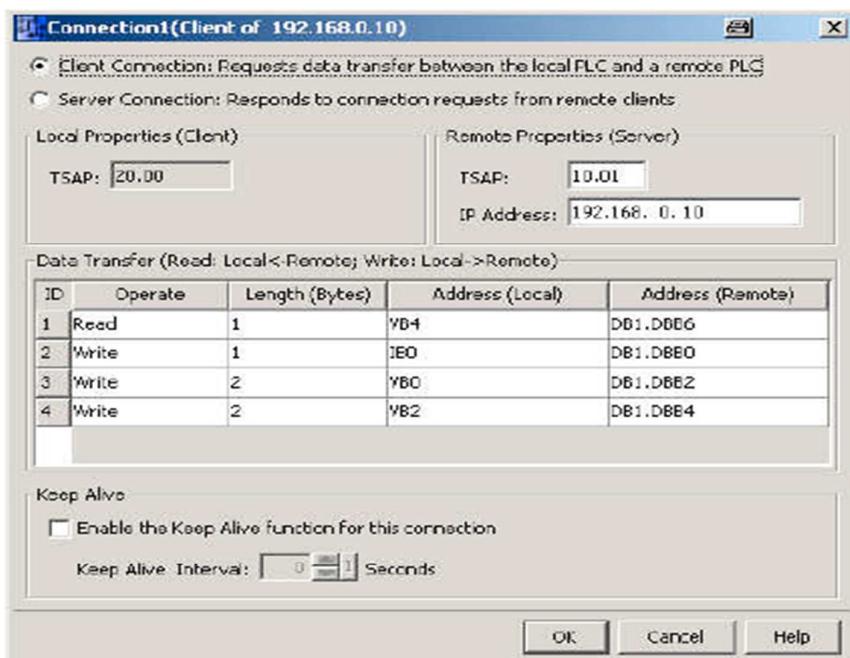


Then you open the "Parameter-VM mapping" under "Tools" and add the analog signals (Ax, amplified) of the two analog amplifiers in the table.



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Then you define in the properties of the client connection which data are written to the S7-1200 and which data are read from it.

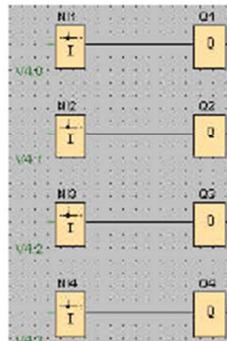


Explanation:

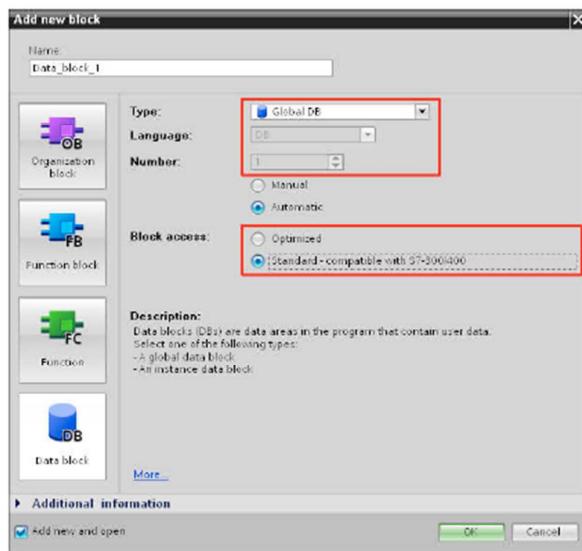
- Line 1: From data block 1 of the S7-1200, the data (1 byte) are read from data block byte 6 and sent to variable byte 4 of LOGO!. The outputs of LOGO! are later set from variable byte 4.
- Line 2: The input byte 0 (I1 to I8) of LOGO! is written to the data block type 0 in data block 1 of the S7-1200.
- Line 3: The data of the analog amplifier B001 from variable byte 0 of LOGO!, which carries the value of analog input AI1, is written to data block byte 2 (2 bytes).
- Line 4: The data of the analog amplifier B002 from variable byte 2 of LOGO!, which carries the value of analog input AI2, is written to data block byte 4 (2 bytes).

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You must also add four network inputs in the LOGO! program and link them with outputs Q1 to Q4. You must set bits 4.0 to 4.3 in the properties of the network inputs because the data for the outputs from data block 1 of the S7-1200 are read in to variable byte 4 of LOGO! (see table for data transfer).



A data block with standard block access must be added in Step7 Basic V11 under "Program blocks".



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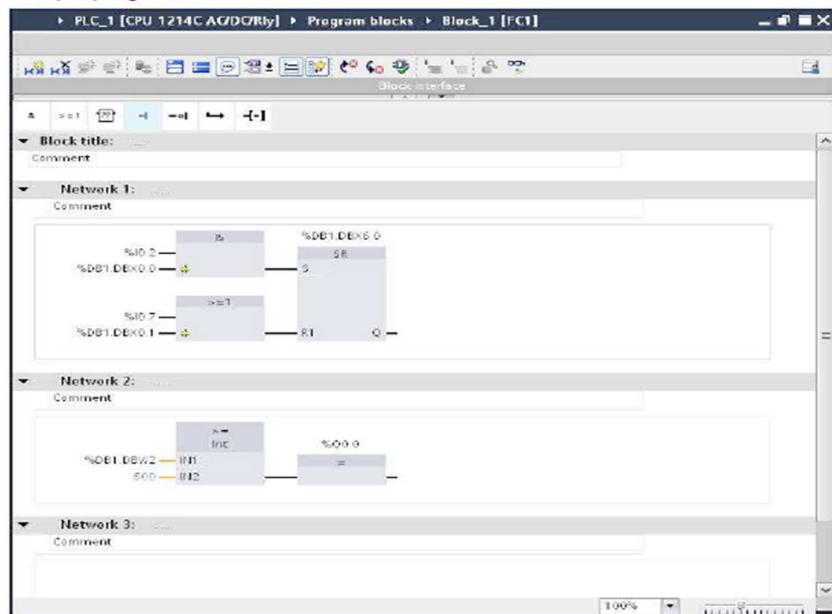
The lines according to the data transfer table have to be created in this data block.

Data_block_1							
	Name	Data type	Offset	Startvalue	Retain	Visible in ...	Comment
1	I1	Bool	0.0	false	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
2	I2	Bool	0.1	false	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
3	I3	Bool	0.2	false	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
4	I4	Bool	0.3	false	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
5	I5	Bool	0.4	false	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
6	I6	Bool	0.5	false	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
7	A11	Word	2.0	0	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
8	A12	Word	4.0	0	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
9	Q1	Bool	6.0	false	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
10	Q2	Bool	6.1	false	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
11	Q3	Bool	6.2	false	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
12	Q4	Bool	6.3	false	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

You can now create a program in Step7 Basic V11. If you want to access LOGO! data or address LOGO! outputs, you only have to configure the corresponding bit or word in the data block.

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Sample program:



Explanation:

- Network 1: If a 1 signal is present at input I0.2 of the S7-1200 and at input I1 of LOGO!, output Q0 of LOGO! is set. If a 1 signal is present at input I0.7 of the S7-1200 and at input I2 of LOGO!, output Q1 of LOGO! is reset.
- Network 2: The output Q0.0 of the S7-1200 is addressed if the value of the AI1 analog input of LOGO! is greater than or equal to 500 ($AI1 \geq 5V$).

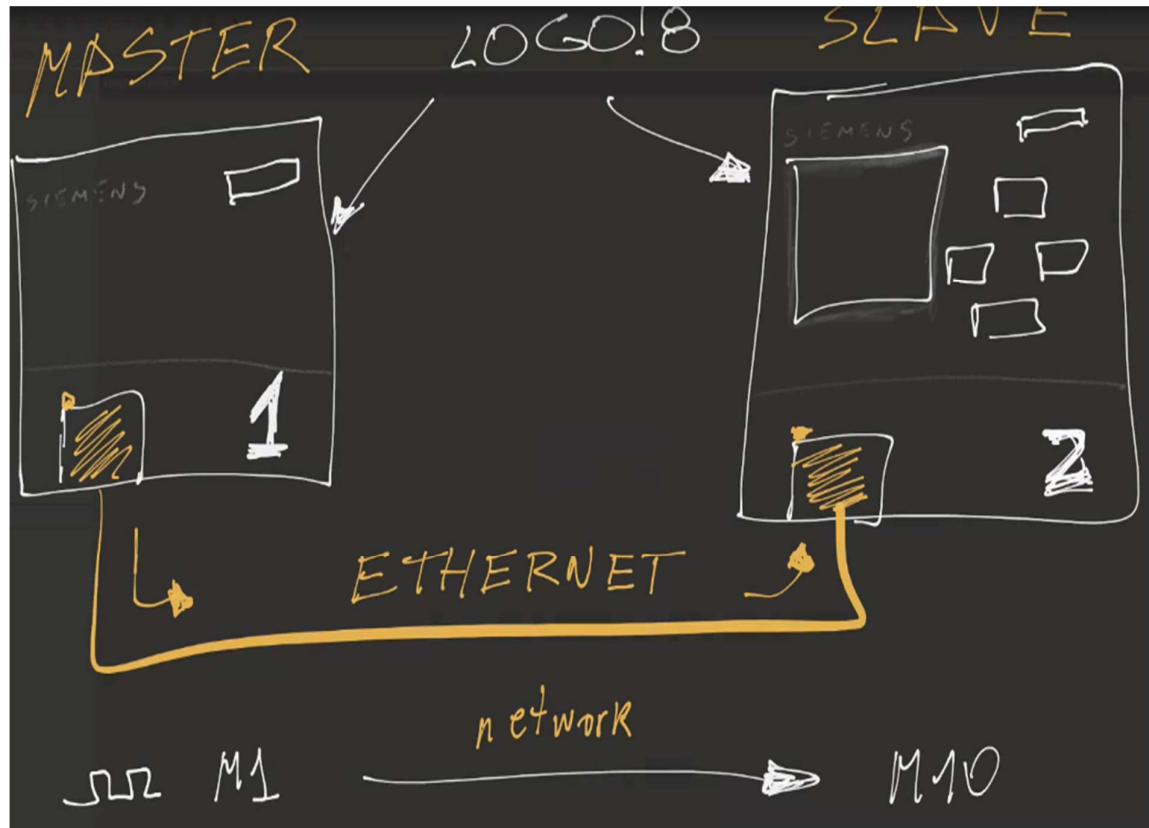
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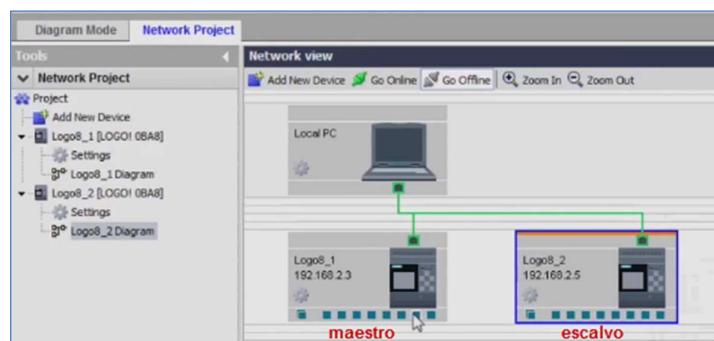
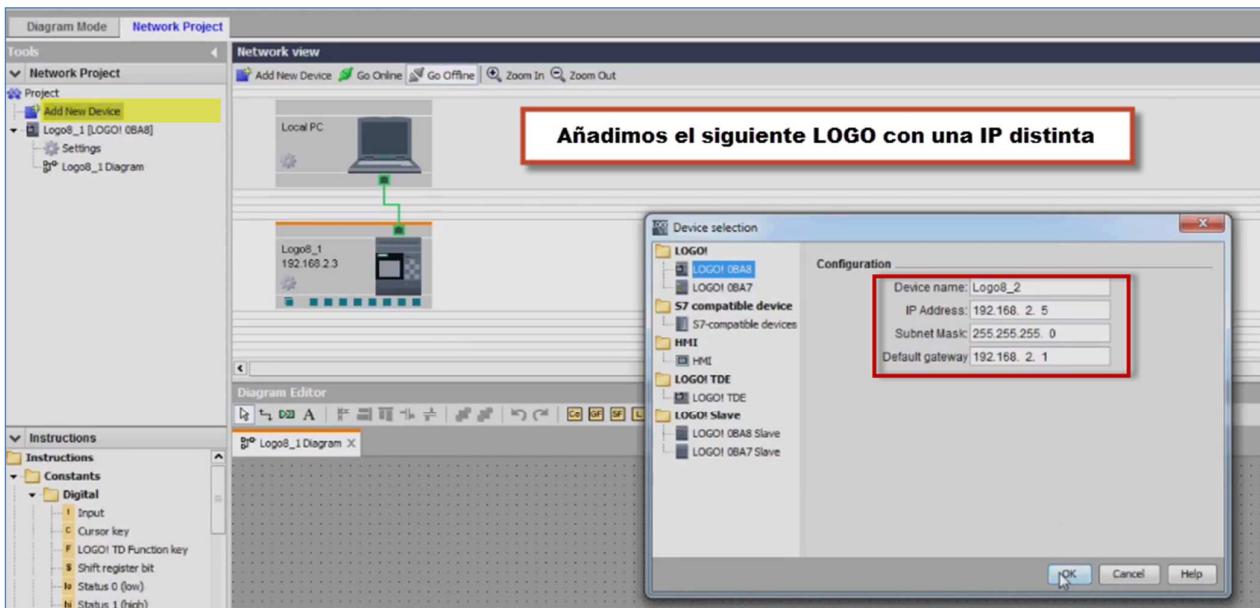
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The screenshots show the configuration steps for a LOGO! 8 device in the LOGOSOF software:

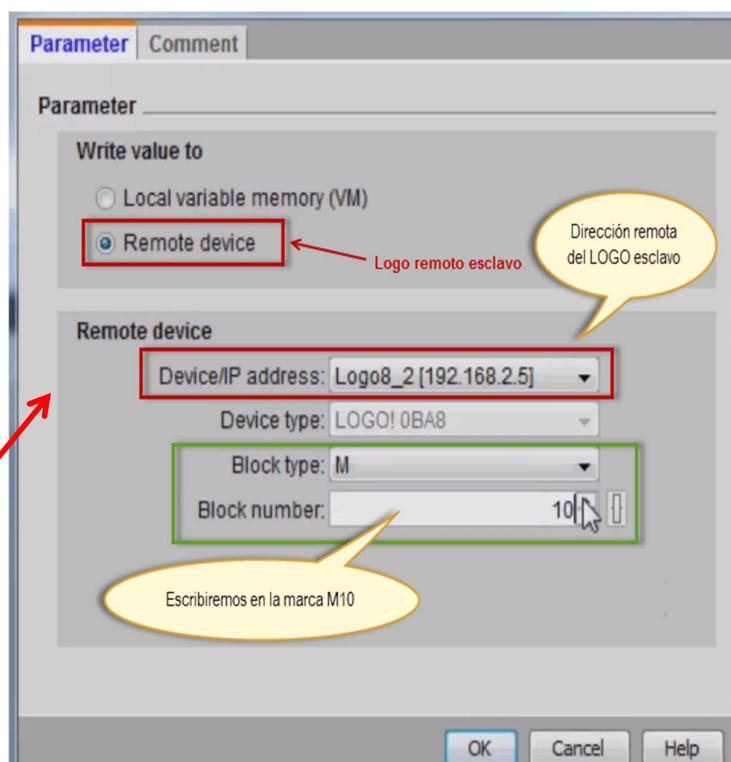
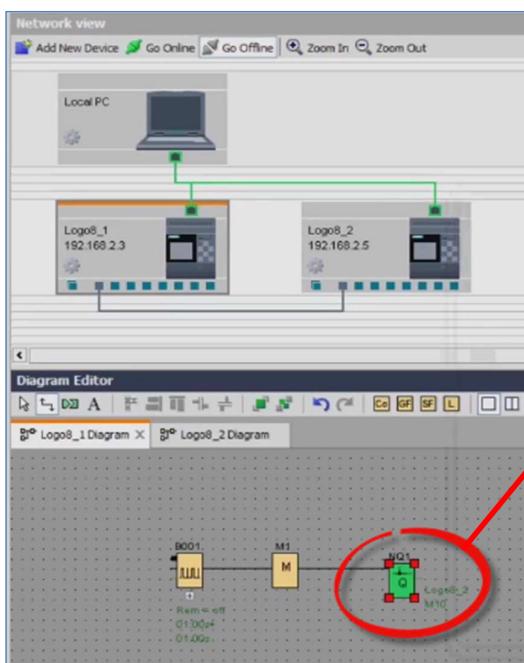
- Screenshot 1:** Shows the "Network view" with a "Local PC" icon. A red box highlights the "Add New Device" button in the toolbar, with the text "Abrimos LOGOSOF en vista de red".
- Screenshot 2:** The "Network view" now shows the "Local PC" and a "Logo8_1 [LOGO! 0BA8]" device icon. A red box highlights the device icon, with the text "Logo8_1 192.168.2.3".
- Screenshot 3:** The "Diagram Editor" shows the "Local PC" and the "Logo8_1" device. A red box highlights the "Diagram Editor" tab. A "Device selection" dialog box is open, listing device categories like LOGO!, S7 compatible device, HMI, etc., and showing a "LOGO! 0BA8" entry. A red box highlights the "LOGO! 0BA8" entry. A red arrow points from the "Device selection" dialog to a "Configuration" section where IP settings are being entered. The configuration fields are:

Device name:	Logo8_1
IP Address:	192.168.2.3
Subnet Mask:	255.255.255.0
Default gateway:	192.168.2.1

 A red box highlights the "Determine IP addresses" text, with an arrow pointing to the configuration fields.



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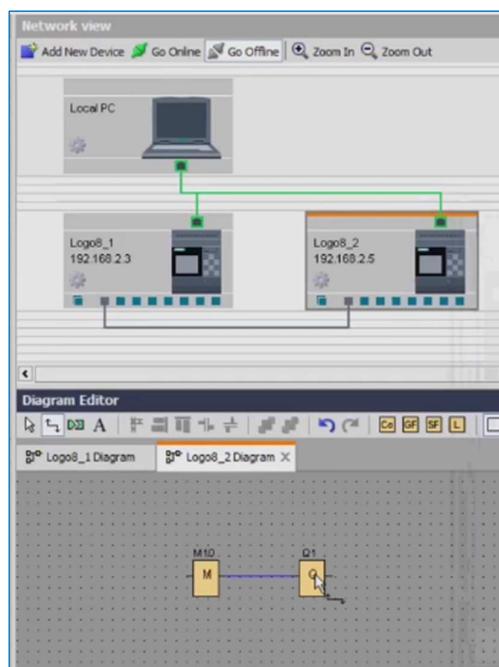
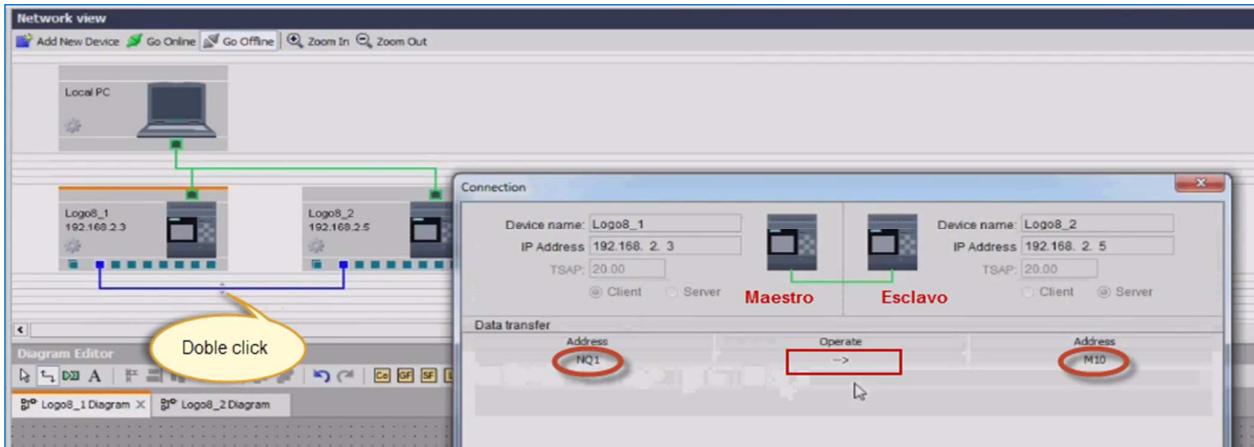
Decimos que vamos a comunicar con un dispositivo remoto y que enviaremos la información a la marca M10

A continuación configuramos el logo Maestro. **Elaboramos el programa.** Mediante la salida de red comunicaremos los datos desde el logo maestro al logo esclavo.

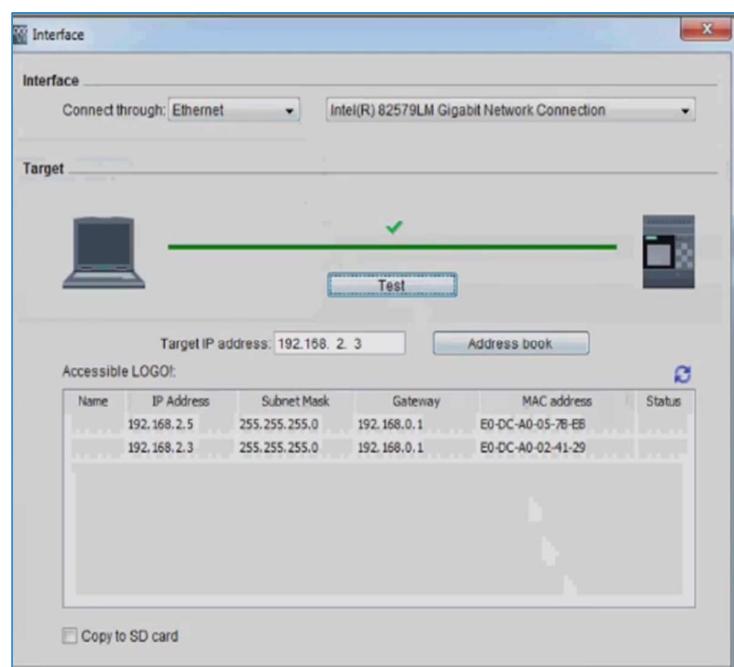
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Como podemos ver una vez configurada la salida de red, se crea una conexión entre el logo 1 (maestro) y el logo 2 (esclavo)



Creamos el programa del logo esclavo. Según la figura superior el logo esclavo recibe en M10 la información del logo maestro y desde ahí la reflejamos en la salida Q1



Descargamos los programas a los dos dispositivos LOGO's tanto el maestro como el esclavo. Lo ponemos en run y estaría la comunicación abierta. Si activamos el simulador del LOGOSOFT podremos visualizar en la pantalla PC lo que ocurre.



Eusebio Gómez García

PROFINET LOGO8 – KNX



Eusebio Gómez García

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