

Industry Online Support

NEWS

PN/CAN LINK – Configuring the "CAN transparent" operating mode

TIA Portal V15, SIMATIC S7

https://support.industry.siemens.com/cs/ww/en/view/109760971

Siemens Industry Online Support



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1.0 P 10/2018 Subject to change

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Task

This application example explains the operation of two PN/CAN LINKs in "CAN transparent" operating mode. During configuration, the following is considered:

- Sending and receiving CAN messages with fixed ID
- Sending and receiving CAN messages with variable ID

For CAN messages with variable ID, the message ID is not set during configuration but during program execution.

Knowledge required

The following knowledge is required:

- Knowledge of programming a SIMATIC S7 controller
- Knowledge of configuration with TIA Portal
- Knowledge of working with the PROFINET fieldbus
- In-depth knowledge of the CAN or CANopen communication protocols
- General knowledge in the field of automation technology
- General knowledge of communication networks

2

Solution

2.1 System configuration

For the application example use the following configuration:



The PN/CAN LINKs are connected via PROFINET to the SIMATIC S7 control system. The PN/CAN LINKs are configured as follows:

• PN/CAN LINK 1 - in "transparent" operating mode

PN/CAN LINK 1 is configured in such a way that it sends messages.

• PN/CAN LINK 2 - in "transparent" operating mode

PN/CAN LINK 2 is configured in such a way that it receives messages.

The configuration takes place on a PC with installed TIA Portal.

2.2 Hardware and software components

2.2 Hardware and software components

The application example was created with the following components:

Hardware components

| Component | Number | Article number | Comment |
|--------------------------------------------------------|--------|--------------------|----------------------------------------------------|
| SIMATIC S7 control system | 1 | 6AG1215-1AG40-5XB0 | CPU 1215C DC/DC/DC |
| PN/CAN LINK | 2 | 6BK1620-0AA00-0AA0 | Network transition between PROFINET and CAN Bus |
| Power supply SIMATIC S7-1200 Power Module PM1207 | 1 | 6EP1332-1SH71 | For power supply of control system and PN/CAN LINK |

Software components

| Component | Number | Article number | Comment |
|----------------|--------|--------------------|---------------------------------|
| TIA Portal V15 | 1 | 6ES7810-5CC00-0YM2 | SIMATIC STEP 7 Professional and |
| | | | Update 3 have to be installed |

Example files and projects

| File | Comment |
|-------------------------------------------------------------|--------------------------------------------|
| 109760971_network_transitions_pncan_link_transparent_de.pdf | The German version of this doc- ument |
| 109760971_network_transitions_pncan_link_transparent_en.pdf | The English version of this doc- ument |
| CAN_Transparent_TIAproj_V15.zip | The TIA project of the application example |

You can find the download link in the section "Internet links (Page 40)".

2.3 General procedure

Proceed as follows:

- 1. Create a project.
- 2. Set English as language for the graphical interface.
- 3. Insert the HSP for TIA Portal V15.

You can find the required HSP there – HSP (https://support.industry.siemens.com/cs/ww/en/view/54163658).

- 4. Click on "Catalog" ① and insert the devices as described in the section "Hardware and software components (Page 6)".
- 5. Connect CPU and PN/CAN LINKs in the "Network view" window with PROFINET 2.
- 6. Configure the PROFINET interface ③ for both PN/CAN LINKs based on the conditions of your PROFINET network.

| CAN_transparent_20180821 > Devices & networks | 💶 🖬 🗮 🗙 Hardware catalog 🛛 💷 🕨 |
|-----------------------------------------------|-------------------------------------------------------------------|
| 🛃 Topology view 🔒 | Network view Device view Options |
| Network | |
| | A V Catalog |
| | |
| | PN/CAN LINK MI MI |
| PLC_1 Link_1 Link_2 | 🔤 🗹 Filter Profile: «All» 💌 📑 |
| CPU 1215FC PN/CAN LINK PN/CAN LINK | Controllers |
| | . 중 🕨 🧰 HMI |
| 2 | C systems |
| PN/IE_1 | Inves & starters |
| | Retwork components |
| | V I I SWICHES |
| 100% | Industrial Security |
| Link 1 [PN/CAN LINK] | fa (1) Diagnostics |
| | TO Diagnostics |
| General IO tags System constants Texts | 68K1 620-0AA00-0AA0 |
| General Ethomot addresses | 🕨 🛅 IE/AS-i Link |
| CAN operating mode | Dig PN/PN Coupler |
| Generate PLC tags Interface networked with | 🕨 🛅 DP/AS-i Link |
| PROFINET interface [X1] | E/PB Link PN IO |
| General Subnet: PN/IE_1 | Im INLAN/PB Link PN IO |
| Ethernet addresses 3 Add new subnet | Router |
| Advanced options | Diagnostics repeater |
| IP protocol | Detecting & Monitoring |
| | Distributed I/O |
| IP address: 192.168.0.2 | Field devices |
| Subnet mask: 255 . 255 . 0 | Other field devices |
| Synchronize router s | ettings with IO controller |
| Use router | |
| Pouter address: 0 0 0 0 | Device: |
| | 9 |
| PROFINET | |
| | 6 6 |
| Generate PROFINET | device name automatically |
| PROFINET device name: link 1 | PN/CAN LINK |
| Converted name: lively1700 | ======= |
| Converted name. Inficit 17136 | Article no.: 6BK1 620-0AA00-0AA0 |
| Device number: 1 | Version: V1.0 |
| | Description: |
| | PROFINET / CAN gateway with the operating modes: |
| | CAN transparent, CANopen Manager, CANopen slave; |
| | according to specification CIA 301, IP 20 degree of protection |
| | |

You can follow the TIA project "CAN_Transparent_TIAproj_V15.zip" with the workflows described below.

Configuring messages and assigning parameters to tags

The "CAN transparent" operating mode provides the option to send and receive messages for which no send or receive messages have been configured.

Subsequent configuration is possible using send and receive proxies, which need to be added to the existing project.

3.1 Configuring messages

For sending and receiving, send and receive messages with a data record length \leq 8 bytes are configurable in "CAN transparent" operating mode.

The data packets transported by means of the CAN bus have a message ID, which the CAN bus nodes can use to decide whether the received message is to be processed or not.

Note

In the following application example, 2 PN/CAN LINKs are used for sending and receiving. This is used to generate data traffic on the CAN bus.

Of course, a PN/CAN LINK can be operated simultaneously as sender and receiver.

3.1.1 Inserting messages for PN/CAN LINK

Set "CAN transparent" operating mode

Proceed as follows:

1. Select "Network view $\bigcirc \rightarrow \text{Link}_1 \oslash$ ".

| Network | 🚰 Topology view | 📩 Network view | 1) Device view |
|-----------------------------------------------------|--------------------------------|----------------|----------------|
| PLC_1 CPU 1215FC PINCAN LINK PLC_1 PN/IE_1 | Link_2 PN/CAN LINK PLC_1 | | < |
| < m | > 100 | % | |

2. Select "Properties $(1) \rightarrow \text{General} \rightarrow \text{CAN}$ operating mode (2)".

| Link_1 [PN/CAN LINK] | | 💁 Properties | 1 Info | i 🗓 Diagnostics | ┛╘▼ |
|---------------------------------------------|----------------------|---------------------|--------|-----------------|---------|
| General IO tags Sys | stem constants Texts | | | | |
| General CAN operating mode 2 | CAN operating mode | | | | |
| Generate PLC tags | | | ~ | | |
| PROFINET interface [X1] | Operating mod | de: CAN transparent | 3 | | |

3. Select "CAN transparent" ③.

Repeat this operation for "Link_2".

Set transmission rate

Proceed as follows:

- 1. Select "Network view \rightarrow Link_1".
- 2. Select "Device view $\bigcirc \rightarrow$ Device overview \rightarrow CAN network \bigcirc ".

| | | | | 5 | Topolog | y view 🛛 🚠 Netv | vork view 🛛 🕅 Device | e view 1 |
|-------|-------------------------------------|------|------|-----------|---------|--------------------|----------------------|----------|
| 5 | Device overview | | | | | | | |
| | 🕎 Module | Rack | Slot | l address | Q addr | Туре | Article no. | Firmw |
| | ▼ Link_1 | 0 | 0 | | | PN/CAN LINK | 6BK1 620-0AA00-0AA0 | V1.0 |
| | PROFINET interface | 0 | 0 ×1 | | | PROFINET interface | | |
| 3 | CAN transparent | 0 | 1 | 68 | 68 | CAN transparent | | |
| i ž | CAN network 2 | 0 | 10 | 68 | 68 | CAN transparent | | |
| svic. | | 0 | 11 | | | | | |
| ă T | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | < | | | Ш | | | | > |

3. Select "Properties $(1) \rightarrow \text{General} \rightarrow \text{Communication} (2)$ "

| CAN network [C/ | AN transparent | | | 🔍 Properties | 1 Info | 追 🗓 Diagnostics | ┛┛▼ |
|-----------------|----------------|---------------|------------------|--------------|--------|-----------------|--------|
| General I | O tags Sys | tem constants | Texts | | | | |
| Communication 2 | | Communication | í . <u></u> | | | | |
| | | Tr | ansmission rate: | 500 3 | | | kbps 🔻 |

4. Set 500 kbps 3 as transmission rate.

Repeat this operation for "Link_2".

Inserting send messages for Link_1

Proceed as follows:

- 1. Select "Network view \rightarrow Link_1".

| | | | | | 5 | [,] Topolog | y view 🔒 Netv | vork view 🛛 🚺 Device | e view 🚺 |
|------|-----|-------------------------------------|------|------|-----------|----------------------|--------------------|----------------------|----------|
| | Dev | ice overview | | | | | | | |
| | ** | Module | Rack | Slot | l address | Q addr | Туре | Article no. | Firmw |
| | | ▼ Link_1 2 | 0 | 0 | | | PN/CAN LINK | 6BK1 620-0AA00-0AA0 | V1.0 |
| | | PROFINET interface | 0 | 0 ×1 | | | PROFINET interface | | |
| ₹ | 4 | CAN transparent | 0 | 1 | 68 | 68 | CAN transparent | | |
| ė. | - | CAN network | 0 | 10 | 68 | 68 | CAN transparent | | |
| evic | | | 0 | 11 | | | | | |
| ă | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | < | | | | | | | | > |

3. Select "Catalog (1) \rightarrow CAN process data \rightarrow Transmit messages (2)".

| | | | a b |
|------------|-------------|-------------|------------|
| Options | | | |
| | | | |
| ✓ Catalo | g () | | |
| PN/CAN LIN | к | | tini tini |
| 🛃 Filter | Profile: | <all></all> | - 01 |
| 🕶 🛅 CAN | process da | ta | |
| 🚺 Tr | ansmit me | ssage 🙎 | |
| 🚺 Re | eceive mes | sage | |
| 🚺 Tr | ansmit pro: | y. | |
| 🚺 Re | ceive prox | / | |
| 🕨 🛅 CANo | pen node | | |
| 🕨 🫅 PN/G | AN Link | | |

- 4. Insert a send message by double-clicking.
- 5. Repeat this step twice.

Inserting receive messages for Link_2

The previously configured send messages are sent on the CAN bus. For the PN/CAN LINK to be able to process these messages further, a corresponding receive message must be configured for each send message, i.e. send and receive messages have the same ID.

Note

If no receive message is configured for a send message, it will still be sent to the CAN bus. If other CAN bus nodes have configured a corresponding receive message, the message of this is processed.

For the three configured send messages, the following three receive messages must now be configured in the device view of the PN/CAN LINK 2.

Proceed as follows:

- 1. Select "Network view \rightarrow Link_2".

| | | | | | ⁷ Topolog | y view 🛛 🛔 Netv | vork view 📑 Device | e view 🚺 |
|---------|-------------------------------------|------|------|-----------|----------------------|--------------------|---------------------|----------|
| | Device overview | | | | | | | |
| | 🕎 Module | Rack | Slot | I address | Q addr | Туре | Article no. | Firmw |
| | ▼ Link_1 2 | 0 | 0 | | | PN/CAN LINK | 6BK1 620-0AA00-0AA0 | V1.0 |
| | PROFINET interface | 0 | 0 ×1 | | | PROFINET interface | | |
| 3 | CAN transparent | 0 | 1 | 68 | 68 | CAN transparent | | |
| 1. Š | CAN network | 0 | 10 | 68 | 68 | CAN transparent | | |
| sis . | | 0 | 11 | | | | | |
| ă E | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | < | | | | | | | > |

3. Select "Catalog $\bigcirc \rightarrow$ CAN process data \rightarrow Receive messages \bigcirc ".

| Hardware catalog 🛛 🖬 🔳 🕨 |
|-----------------------------|
| Options |
| |
| ✓ Catalog 1 |
| PN/CAN LINK |
| Filter Profile: <all></all> |
| 🕶 🛅 CAN process data |
| 🚺 Transmit message |
| 📗 Receive message 🛛 🙎 |
| 🚺 Transmit proxy |
| 🚺 Receive proxy 🛛 3 |
| 🕨 🛅 CANopen node |
| 🕨 🫅 PN/CAN Link |

- 4. Insert a receive message by double-clicking.
- 5. Repeat this step twice.
- 6. Select "Catalog (1) \rightarrow CAN process data \rightarrow Receive proxy (3)".
- 7. Insert a "Receive proxy" by double-clicking.

Renaming send messages

Proceed as follows:

- 1. Select "Network view \rightarrow Link_1".
- 2. Select "Device view \bigcirc \rightarrow Device overview \rightarrow CAN transparent".
- 3. Change the names of the messages as indicated in 2.

| 1 | | | | an En | ^P Topolog | ıy view 🛛 🛔 Netv | vork view 📑 Device | e view 1 |
|------|-------------------------------------|------|------|-----------|----------------------|--------------------|---------------------|----------|
| | Device overview | | | | | | | |
| | 🔐 Module | Rack | Slot | I address | Q addr | Туре | Article no. | Firmw |
| | ✓ Link_1 | 0 | 0 | | | PN/CAN LINK | 6BK1 620-0AA00-0AA0 | V1.0 |
| | PROFINET interface | 0 | 0 ×1 | | | PROFINET interface | | |
| 3 | CAN transparent | 0 | 1 | | | CAN transparent | | |
| i ž | CAN network | 0 | 10 | 68 | 68 | CAN transparent | | |
| N ic | Tx_msg_1 | 0 | 11 | | 69 | Transmit message | | |
| ă T | Tx_msg_2 | 0 | 12 | | 70 | Transmit message | | |
| | Tx_msg_3 | 0 | 13 | | 71 | Transmit message | | |
| | <u> </u> | 0 | 14 | | | | | |
| | | | | | | | | |
| | < | | | Ш | | | | > |

Renaming receive messages

Proceed as follows:

- 1. Select "Network view \rightarrow Link_2".
- 2. Select "Device view \bigcirc \rightarrow Device overview \rightarrow CAN transparent".
- 3. Change the names of the messages as indicated in ②.

| | | | | | ⁷ Topolog | y view 🔒 Netv | vork view 📑 Devic | e view 1 |
|-------|-------------------------------------|------|------|----------|----------------------|--------------------|---------------------|----------|
| | Device overview | | | | | | | |
| | 📸 Module | Rack | Slot | laddress | Q addr | Туре | Article no. | Firmw |
| | ▼ Link_2 | 0 | 0 | | | PN/CAN LINK | 6BK1 620-0AA00-0AA0 | V1.0 |
| | PROFINET interface | 0 | 0 ×1 | | | PROFINET interface | | |
| 3 | CAN transparent | 0 | 1 | | | CAN transparent | | |
| i și | CAN network | 0 | 10 | 69 | 72 | CAN transparent | | |
| sio 🕨 | Rx_msg_1 | 0 | 11 | 70 | | Receive message | | |
| ă T | Rx_msg_2 | 0 | 12 | 71 | | Receive message | | |
| | Rx_msg_3 | 0 | 13 | 72 | | Receive message | | |
| | Rx_proxy | 0 | 14 | 7385 | 73 | Receive proxy | | |
| | 2 | 0 | 15 | | | | | |
| | < | | | | | | | > |

3.1.2 Assigning parameters to PN/CAN LINK 1

Activate Link_1

Proceed as follows:

- 1. Select "Network view \rightarrow Link_1".
- 2. Select "Device view $\bigcirc \rightarrow$ Device overview \rightarrow CAN transparent".

| | | | | | Topolog | y view 🛛 🛔 Netv | vork view 📑 Device | e view 🚺 |
|-----|-------------------------------------|------|------|-----------|---------|--------------------|---------------------|----------|
| | Device overview | | | | | | | |
| | 🙀 Module | Rack | Slot | l address | Q addr | Туре | Article no. | Firmw |
| | ✓ Link_1 | 0 | 0 | | | PN/CAN LINK | 6BK1 620-0AA00-0AA0 | V1.0 |
| | PROFINET interface | 0 | 0 ×1 | | | PROFINET interface | | |
| 37 | CAN transparent | 0 | 1 | | | CAN transparent | | |
| i ž | CAN network | 0 | 10 | 68 | 68 | CAN transparent | | |
| N S | Tx_msg_1 | 0 | 11 | | 69 | Transmit message | | |
| ă F | Tx_msg_2 | 0 | 12 | | 70 | Transmit message | | |
| | Tx_msg_3 | 0 | 13 | | 71 | Transmit message | | |
| | | 0 | 14 | | | | | |
| | | | | | | | | |
| | < | | | Ш | | | | > |

Configuring send message Tx_msg_1

Proceed as follows:

- 1. Select "Tx_msg_1".
- 2. Select "Properties $\bigcirc \rightarrow$ General \rightarrow Message definition \bigcirc ".

| Transmit message_1 [TM-Tx] | | 🔍 Properties 🚺 | 🗓 Info 追 🎚 Diagnostics | |
|---------------------------------|-----------------------|----------------------|----------------------------------|---|
| General IO tags Sys | tem constants Texts | | | |
| General Message definition 2 | Message definition | | | |
| I/O addresses | | | 1 | |
| | Message ID: | | hex | |
| | Message ID format: | 11 bit | | - |
| | Byte order: | Adjust (CAN message: | : Little Endian, S7: Big Endian) | • |
| | Send condition: | Value change, remote | access, activation | - |
| | Send cycle: | | ms | |
| | | | | |
| | Parameter name | Data type | Q address | |
| | Transmit message_1.01 | Unsigned 08 | 70 | |
| | <add></add> | | | |
| | U U | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

- 3. Enter "011" (3) as message ID.
- 4. Click < Add> ④.

Configuring send message Tx_msg_2

Proceed as follows:

- 1. Select "Tx_msg_2".
- 2. Select "Properties $(1) \rightarrow \text{General} \rightarrow \text{Message definition} @"$.

| Transmit message_3 [TM- | Tx] | 🔍 Properties | 1 🗓 Info 🕕 🎦 Diagnostic | s ī = - |
|-------------------------------|---------------------------------------|--------------------------|-----------------------------------|---------|
| General IO tags | System constants Texts | | | |
| General Message definition | Message definition | | | |
| I/O addresses | Messag | e ID: 013 3 | hex | |
| | Message ID for | mat: 11 bit | | • |
| | Byte o | rder: Adjust (CAN messag | e: Little Endian, S7: Big Endian) | - |
| | Send cond | tion: Value change, remo | te access, activation | • |
| | Send o | ycle: 0 | ms | |
| | • | • | | |
| | , Parameter name | Data type | Q address | |
| | Transmit message | _3.01 Unsigned 08 | 72 | |
| | <add></add> | | | |
| | · · · · · · · · · · · · · · · · · · · | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

- 3. Enter "012" (3) as message ID.
- 4. Click <Add> ④.

Configuring send message Tx_msg_3

Proceed as follows:

- 1. Select "Tx_msg_3".
- 2. Select "Properties $\bigcirc \rightarrow$ General \rightarrow Message definition \bigcirc ".

| Transmit message_3 [TM- | Tx] | Rroperties 1 | 🗓 Info 👔 🌄 Diagnostics | |
|-------------------------------|------------------------------------------------------------------------------------|----------------------------------------------------------------------|-----------------------------------------------------------------------|----------|
| General IO tags | System constants Texts | | | |
| General Message definition | Message definition | | | |
| I/O addresses | Message ID: Message ID format: Byte order: Send condition: Send cycle: | 013 3 11 bit Adjust (CAN message: Value change, remote 0 | hex : Little Endian, S7: Big Endian) : access, activation ms | v |
| | . Parameter name | Data type | Q address | |
| | Transmit message_3.01 | Unsigned 08 | 72 | |

- 3. Enter "013" (3) as message ID.
- 4. Click <Add> ④.

3.1.3 Assigning parameters to PN/CAN LINK 2

Activate Link_2

Proceed as follows:

- 1. Select "Network view \rightarrow Link_2".
- 2. Select "Device view $\bigcirc \rightarrow$ Device overview \rightarrow Link_2".

| | | | | | ² Topolog | y view 🔒 Netv | vork view 📑 Devic | e view 1 |
|------|-------------------------------------|------|------|-----------|----------------------|--------------------|---------------------|----------|
| | Device overview | | | | | | | |
| | 🕎 Module | Rack | Slot | l address | Q addr | Туре | Article no. | Firmw |
| | ▼ Link_2 | 0 | 0 | | | PN/CAN LINK | 6BK1 620-0AA00-0AA0 | V1.0 |
| | PROFINET interface | 0 | 0 ×1 | | | PROFINET interface | | |
| 3 | CAN transparent | 0 | 1 | | | CAN transparent | | |
| - Ki | CAN network | 0 | 10 | 69 | 72 | CAN transparent | | |
| • No | Rx_msg_1 | 0 | 11 | 70 | | Receive message | | |
| ă T | Rx_msg_2 | 0 | 12 | 71 | | Receive message | | |
| | Rx_msg_3 | 0 | 13 | 72 | | Receive message | | |
| | Rx_proxy | 0 | 14 | 7385 | 73 | Receive proxy | | |
| | 2 | 0 | 15 | | | | | |
| | < | | | | | | | > |

Configuring a receive message Rx_msg_1

Proceed as follows:

- 1. Select "Rx_msg_1".
- 2. Select "Properties \bigcirc \rightarrow General \rightarrow Message definition \bigcirc ".

| Receive message_1 [TM-Rx] | | 💁 Properties 👔 | 🗓 Info 🤢 🖳 I | Diagnostics | |
|-------------------------------|-------------------------------|----------------------------------------------------------------------------------|-----------------------------|-------------|---|
| General IO tags Sys | tem constants Texts | | | | |
| General Message definition | Message definition | | | | |
| WO addresses | Messa Message ID f Byte | age ID: 011 3 ormat: 11 bit order: Adjust (CAN message: Update on power | hex Little Endian, S7: f | Big Endian) | • |
| | Initial value Pa | rameter name | Data type | l address | - |
| | 0 | Receive message_1.01 | Unsigned 08 | 70 | |
| | | <add></add> | | | |
| | | | | | |

- 3. Enter "011" ③ as message ID.
- 4. Click <Add> ④.

Configuring a receive message Rx_msg_2

Proceed as follows:

- 1. Select "Rx_msg_2".
- 2. Select "Properties $\bigcirc \rightarrow$ General \rightarrow Message definition \bigcirc ".

| Receive message_2 [TM-Rx] | | 🔍 Properties 👔 | 🗓 Info 追 🗓 I | Diagnostics | |
|-------------------------------|--------------------------------------------------|------------------------------------------------------------|-----------------------------|-------------|----------|
| General IO tags Sys | tem constants Texts | | | | |
| General Message definition | Message definition | | | | |
| WO addresses | Message ID: Message ID format: Byte order: | 012 3 11 bit Adjust (CAN message: Update on power | hex Little Endian, S7: I | Big Endian) | v |
| | Initial value Paramete | r name | Data type | l address | |
| | 0 Receiv | e message_2.01 4 | Unsigned 08 | 71 | |
| | | | | | |
| | | | | | |
| | | | | | - |

- 3. Enter "012" ③ as message ID.
- 4. Click <Add> ④.

Configuring a receive message Rx_msg_3

Proceed as follows:

- 1. Select "Rx_msg_3".
- 2. Select "Properties $(1) \rightarrow \text{General} \rightarrow \text{Message definition} @"$.

| Receive mess | sage_3 (TM-R | R×] | | 🔍 Properties 👔 | 🗓 Info 追 🗓 | Diagnostics | ∎∎- |
|-------------------------|---------------------|---------------------------------|------------------------------------------------------------------------------------------------|--------------------------------------------------------------------|---------------------------|-------------|-----|
| General | IO tags | System constants | Texts | | | | |
| General Message defi | inition (2) | Message defin | nition | | | | |
| I/O addresses | 5 | h | Message ID Aessage ID format Byte order | 2 D13 3 2 11 bit 2 Adjust (CAN message: 2 Update on power | hex Little Endian, S7: | Big Endian) | • |
| | | Initial val | lue Paramet | er name | Data type | l address | |
| | | • 0 | Rece <add< td=""><td>ive message_3.01 4</td><td>Unsigned 08</td><td>72</td><td></td></add<> | ive message_3.01 4 | Unsigned 08 | 72 | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

- 3. Enter "013" ③ as message ID.
- 4. Click <Add> ④.

3.1.4 Completing the tag table

Add tags

Proceed as follows:

 Switch to the project navigation and click "Devices ① → PLC_1 → PLC tags → Default tag table ②".

| Devices 1 | |
|------------------------------|------|
| | |
| | |
| ▼ 🛅 Project2 | ^ |
| 🎬 Add new device | |
| 💑 Devices & networks | |
| ▼ 1 [CPU 1215C DC/DC/DC] | |
| III Device configuration | |
| 🚱 Online & diagnostics | = |
| 🕨 🚘 Program blocks | |
| 🕨 🚂 Technology objects | |
| External source files | |
| 🔻 🚂 PLC tags | |
| 🍇 Show all tags | |
| 🚔 Add new tag table | |
| 💥 Default tag table [71] 🛛 2 | |
| 🕨 📴 PLC data types | - 11 |
| Watch and force tables | - 11 |
| 🕨 📴 Online backups | - 11 |
| 🕨 🔄 Traces | - 10 |
| 🕨 🏢 Device proxy data | - 10 |
| 📴 Program info | - 11 |
| 🔄 PLC alarm text lists | |
| 🕨 🫅 Local modules | 100 |
| 🕨 🧊 Distributed I/O | ~ |

2. Double-click "Default tag table".

The "Default tag table" tag table is displayed.

| | | | 🕣 Tags | User con | stants 🖌 | 🗐 Syster | m const | ants |
|----|--------|---------------------------------------------|-----------|----------|----------|----------|----------|--------|
| | | | | | | | | |
| Г |)efaul | lt tag table | | | | | | |
| | N | lame | Data type | Address | Retain | Acces | . Writa | Visibl |
| 1 | - | Link_1.CAN transparent.Status | Byte | %IB68 | | | | |
| 2 | -00 | Link_1.CAN transparent.Control | Byte | %QB68 | | | | |
| 3 | - | Link_2.CAN transparent.Status | Byte | %IB69 | | | | |
| 4 | - | Link_2.CAN transparent.Control | Byte | %QB69 | | | | |
| 5 | - | Link_1.CAN transparent.Tx_msg_1.Tx_msg_1.01 | USInt | %QB70 | | | | |
| 6 | | Link_1.CAN transparent.Tx_msg_2.Tx_msg_2.01 | USInt | %QB71 | | | | |
| 7 | -00 | Link_1.CAN transparent.Tx_msg_3.Tx_msg_3.01 | USInt | %QB72 | | | | |
| 8 | - | Link_2.CAN transparent.Rx_msg_1.Rx_msg_1.01 | USInt | %IB70 | | | | |
| 9 | - | Link_2.CAN transparent.Rx_msg_2.Rx_msg_2.01 | USInt | %IB71 | | | | |
| 10 | - | Link_2.CAN transparent.Rx_msg_3.Rx_msg_3.01 | USInt | %IB72 | | | | |
| 11 | | DataFromProxy_1 | Byte | %MB10 | | | | |
| 12 | - | DataFromProxy_2 | Byte | %MB11 | | | | |
| 13 | - | DataFromProxy_3 | Byte | %MB12 | | | | |
| 14 | - | DataFromProxy_4 | Byte | %MB13 | | | | |
| 15 | - | DataFromProxy_5 | Byte | %MB14 | | | | |
| 16 | - | DataFromProxy_6 | Byte | %MB15 | | | | |
| 17 | - | DataFromProxy_7 | Byte | %MB16 | | | | |
| 18 | - | DataFromProxy_8 | Byte | %MB17 | | | | |
| 19 | | Add new> | | | | V | V | 1 |
| | | | | | | | - | |

3. Enter the tags ① as indicated.

The tags of rows 12 to 18 can be pasted using "Copy & Paste".

4. Adjust the data types ② and the addresses ③.

Insert proxy tags

Proceed as follows:

 Switch to the project navigation and click "Devices ① → PLC_1 → PLC tags → Add new tag table ②".

| Devices 1 | |
|---------------------------|-----|
| 1 1 1 1 | |
| | |
| ▼ 🛅 Project2 | ^ |
| 🌁 Add new device | |
| 📥 Devices & networks | |
| • 1 [CPU 1215C DQDQDC] | |
| Device configuration | |
| 🗓 Online & diagnostics | = |
| 🕨 🚘 Program blocks | |
| 🕨 🚂 Technology objects | |
| 🕨 🔙 External source files | |
| 🔻 📜 PLC tags | |
| 🍇 Show all tags | |
| 💣 Add new tag table 🛛 🙎 | |
| 🍯 Default tag table [71] | |
| Ele PLC data types | |
| Watch and force tables | |
| 🕨 📴 Online backups | |
| 🕨 📴 Traces | |
| Device proxy data | |
| 📴 Program info | |
| 🛅 PLC alarm text lists | |
| 🕨 🛅 Local modules | 100 |
| 🕨 🛅 Distributed I/O | ~ |

2. Rename the created tag table 1 as "TT_RxProxy".



3. Double-click "TT_RxProxy".

The "TT_RxProxy" tag table is displayed.

| | | | | | | 📶 Tag | s 🗉 | User cor | istants |
|----------|--------|-------------------------------------------|-----------|------------------------------------------------|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|--------------|---------|
| * | 🕐 🕒 | • 🛃 😴 🎁 | | | | | | | |
| 1 | TT_RxP | roxy | | | | | | | |
| | Na | ame | Data type | Address | Retain | Acces | Writa | Visibl | Comment |
| 1 | - | Link_2.CAN transparent.Rx_proxy.rcvEnable | Bool | %Q70.0 | | | ~ | | |
| 2 | | Link_2.CAN transparent.Rx_proxy.msgExist | Bool | %173.7 | | | \sim | | |
| 3 | -00 | Link_2.CAN transparent.Rx_proxy.transfer | Bool | %173.0 | | | ~ | | |
| 4 | | Link_2.CAN transparent.Rx_proxy.rcvFilter | Bool | %173.6 | | ~ | \checkmark | | |
| 5 | | Link_2.CAN transparent.Rx_proxy.data_1 | Byte | %IB78 | | | | \checkmark | |
| 6 | -00 | Link_2.CAN transparent.Rx_proxy.data_2 | Byte | %IB79 | | | ~ | | |
| 7 | | Link_2.CAN transparent.Rx_proxy.data_3 | Byte | %IB80 | | | ~ | \checkmark | |
| 8 | - | Link_2.CAN transparent.Rx_proxy.data_4 | Byte | %IB81 | | | | | |
| 9 | -00 | Link_2.CAN transparent.Rx_proxy.data_5 | Byte | %IB82 | | | ~ | \checkmark | |
| 10 | | Link_2.CAN transparent.Rx_proxy.data_6 | Byte | %IB83 | | ~ | ~ | \checkmark | |
| 11 | - | Link_2.CAN transparent.Rx_proxy.data_7 | Byte | %IB84 | | | ~ | | |
| 12 | -00 | Link_2.CAN transparent.Rx_proxy.data_8 | Byte | %IB85 | | | | | |
| 13 | - | changeFilter | Bool | %M0.0 | | | | \sim | |
| 14 | -00 | messageID | Int | %MW2 | | | | | |
| 15 | -00 | Link_2.CAN transparent.Rx_proxy.overflow | Bool | %173.5 | | | | | |
| 16 | | <add new=""></add> | | 2 <u>. </u> | | Image: A start of the start of | V | V | |
| | | | | | | | | | |
| | | | | | | | | | |
| | < | | 1111 | | | | | | > |

- 4. Enter the tags ① as indicated.
- 5. Change the data types ② and the addresses ③ as indicated.

Inserting blocks and setting online

4.1 Inserting function blocks

4.1.1 Inserting a "GeneratingData" function block

Insert block

Proceed as follows:

 Switch to the project navigation and double-click "Devices ① → PLC_1 → Program blocks → Add new block ②".





The "Add new block" window is displayed.

- 2. Click "Organization block" ①.
- 3. Click "Cyclic interrupt" 2.
- 4. Enter "GeneratingData" ③ as the name.
- 5. Check whether ③ and ④ are set as shown.
- 6. Confirm the entry with "OK".

The dialog box is closed and the function block is inserted in the project tree.

4.1 Inserting function blocks

Enter program code

Proceed as follows:

100

1. Switch to the project navigation and click "Devices \rightarrow PLC_1 \rightarrow Program blocks \rightarrow GeneratingData" ①.

The following dialog box is displayed.

| 9° 2 | ' 클카츠 특, =는 2월 2월호 18월 (17 148) (19 12월 19월 19월 19월 19월 19월 19월 19월 19월 19월 19 |
|------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| IF | |
| | <pre>// Generating some data 2 "Link_1.CAN transparent.Tx_msg_1.Tx_msg_1.01" := "Link_1.CAN transparent.Tx_msg_1.Tx_msg_1.01" + 1; 3 "Link_1.CAN transparent.Tx_msg_2.Tx_msg_2.01" := "Link_1.CAN transparent.Tx_msg_2.Tx_msg_2.01" + 5; 4 "Link_1.CAN transparent.Tx_msg_3.Tx_msg_3.01" := "Link_1.CAN transparent.Tx_msg_3.Tx_msg_3.01" + 10;</pre> |
| | In:4 CI:101 INS 100% |

2. Specify the program code ①.

The configuration of the function block is then complete.

4.1.2 Inserting the "StartUp" function block

Insert block

Proceed as follows:

1. Switch to the project navigation and double-click "Devices $(1) \rightarrow PLC_1 \rightarrow Program blocks \rightarrow Add new block (2)".$



4.1 Inserting function blocks

| Startup 2 | | | |
|-----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|----------------------------------------|
| Crganization block | Program cycle Startup Time delay interrupt Cyclic interrupt Hardware interrupt Diagnostic error interrupt Pull or plug of modules Rack or station failure Time of day Status Update Profile MC-Interpolator MC-PreServo MC-PostServo | Language: Number: Description: A "Startup" OB the operating in STOP to RUN. Aft "Program cycle" | SCL 3 Manual Manual Automatic |
| | | more | |
| Additional inform | ation | | |

The "Add new block" window is displayed.

- 2. Click "Startup" 1.
- 3. Check whether (2) and (3) are set as shown.
- 4. Confirm the entry with "OK".

The dialog box is closed and the function block is inserted in the project tree.

Enter program code

Proceed as follows:

1. Switch to the project navigation and click "Devices \rightarrow PLC_1 \rightarrow Program blocks \rightarrow Startup" (1).

The following dialog box is displayed.

| - Mile | 1 2) | B | ± | 8. ₀ | | 4 | 3 - | 2 | | ¢ | ¢0 | Ģe | 9 C | 6 | 1 " | • | ç | = 3 | - | † | <u>ا</u> ا | 1 | | ⇔ (| 51 | ¢ | °, | 20 | 0h 0 | ¢¢. | | | |
|---------|---------|-------------|------------------------|--------------------------------------|---------------|----------|------------------|------------------------|----------------------------------|-------------------|----|------|--------------|------------------|------|----------------|------------|-----|-----|----------|------------|---|-----|-----|-----------|---|----|----|------|-----|---|--|------|
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| REGIONS | IF | 1 2 3 | SE)F ''L ''L | FOR. TO DO Sta ink_ ink_ | irtuj 1.C. | pt AN | (*. he tra | *) ga ans ans | REGN tew par par | ays ent ent | Co | onti | rol" rol' | '. %X('. %X(|) := | - TRI - TRI | UE; UE; | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | Ln: | 3 | Cl: 4 | 6 | INS | 1 | 100 | % | | | | | • | | |

2. Specify the program code 1.

The configuration of the function block is then complete.

4.1 Inserting function blocks

4.1.3 Inserting a "FilterHandling" function block

Insert block

Proceed as follows:

1. Switch to the project navigation and double-click "Devices ① → PLC_1 → Program blocks → Add new block ②".



| Add new block | | | | > |
|--------------------------|--------------------|-------------------------------|------------------------|----------------------------|
| Nome | | | | |
| FilterHandling 2 | - | | 1 | |
| _ | | | J | |
| | Language: | SCL 3 |) | |
| ОВ | Number: | 1 |] | |
| Organization | | 🔘 Manual | | |
| block | | Automatic | | |
| | | | | |
| | | | | |
| FB | Description: | | | |
| Eunction block | Function blocks ar | e code blocks that store th | eir values permanently | / in instance data blocks, |
| | so that they remai | Il available alter the block | has been executed. | |
| | | | | |
| | | | | |
| FC | | | | |
| Function | | | | |
| | | | | |
| | | | | |
| | | | | |
| DB | | | | |
| Data block | | | | |
| | more | | | |
| > Additional inform | ation | | | |
| Add new and open | | | | OK Cancel |
| That new and <u>open</u> | | | L | |

The "Add new block" window is displayed.

- 2. Click "Function block" ①.
- 3. Enter "FilterHandling" ② as the name.
- 4. Check whether ③ is set as shown.
- 5. Confirm the entry with "OK".

The dialog box is closed and the function block is inserted in the project tree.

4.1 Inserting function blocks

Insert and configure tags

Proceed as follows:

1. Switch to the project navigation and click "Devices $(1) \rightarrow PLC_1 \rightarrow Program blocks \rightarrow FilterHandling (2)".$

| Devices 1 | |
|----------------------------|---|
| | |
| | |
| Project2 | ^ |
| 🍟 Add new device | |
| 💑 Devices & networks | |
| ▼ 1 [CPU 1215C DQ/DQ/DC] | |
| 🛐 Device configuration | |
| 😡 Online & diagnostics | = |
| 🔻 🛃 Program blocks | |
| 📑 Add new block | |
| 📲 GeneratingData [OB30] | |
| 📲 Main [OB1] | |
| 🔹 Startup [OB100] | |
| 🔹 FilterHandling (FB1) 🛛 🙎 | |
| 🕨 🚂 Technology objects | |
| External source files | |
| 🕨 🚂 PLC tags | |
| PLC data types | |
| Watch and force tables | |
| 🕨 📴 Online backups | |
| 🕨 📴 Traces | |
| 🕨 📴 Device proxy data | |
| 📴 Program info | |
| PLC alarm text lists | ~ |

2. Switch to the "Block interface" window.

| | | | | | | | | 10 | | | |
|----|------|------|--------------------|--------------------|---------------|------------|---------------------------------------|-------|------------|----------|----|
| 2 | 1 | ė į | ∋t 📲 ⊑ 🕾 🕾 t (| 🏥 😋 🍋 🕼 📲 | 18 ♥ € ⇒ | | , ≡ ∥ ₂₂ , ∥ | CI 💞 | | | |
| | Filt | terl | Handling | | | | | | | | |
| | | Na | me | Data type | Default value | Retain | Accessible | Writa | Visible in | Setpoint | Co |
| 1 | - | • | Input | | | | | | | | |
| 2 | - | • | Output | | | | | | | | |
| З | - | + | InOut | | | | | | | | |
| 4 | - | • | Static | | | | | | | | _ |
| 5 | Ð | • | ▶ data | Array[01] of UDInt | | Non-retain | | | | | |
| 6 | | • | data_read | Array[01] of UDInt | | Non-retain | | | | | Ó. |
| 7 | | • | Temp | | | | | | | | Y |
| 8 | | • | done_wr | Bool | | | | | | | |
| 9 | - | • | busy_wr | Bool | | | | | | | |
| 10 | - | • | err_wr | Bool | | | | | | | |
| 11 | - | • | status_wr | DWord | | | | | | | |
| 12 | - | • | valid_rd | Bool | | | | | | | |
| 13 | - | • | busy_rd | Bool | | | | | | | |
| 14 | - | • | err_rd | Bool | | | | | | | |
| 15 | Ð | | status_rd | DWord | | | | | | | |
| 16 | - | | lenOfData_rd | UInt | | | | | | | Ó |
| 17 | | | <add new=""></add> | |] | ~ | | | | | U |
| 18 | - | + | Constant | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| - | < | | | | | | | | | | > |
| | | | | | Program | 1 | | | | | |

- 3. Insert the 2 static tags ① as indicated.
- 4. Insert the 9 temporary tags 2 as indicated.

Enter program code

Proceed as follows:

1. Click "Devices \rightarrow PLC_1 \rightarrow Program blocks \rightarrow FilterHandling".

The following dialog box is displayed.

| =5° | a 🛋 | + 1 = + | 6= == == C= == | a # L % | | » 💁 🗖 |
|----------|--------|---------------------------|--------------------|------------------------------------|---------------------|-------|
| H. 1 | | | | 2 • • • • | ₩ ₩ € 0. ► - | |
| | | | Block Interna | | | |
| | IF CAS | E FOR WHILE (* *) REGION | | | | |
| | 0 | TO DO DO () REGION | | | | |
| | 1 | // Change filter options | | | | |
| | 2 🖓 | CASE "messageID" OF | | | | |
| | 3 | 11: | | | | |
| | 4 | #data[0] := 2#0000_0000_0 | 000_0000_0000_0000 | _0001_0001; // | CRITERION, ID: x11 | = |
| | 5 | #data[1] := 2#0000_0000_0 | 000_0000_0111_1111 | _1111_1111; // | MASK | |
| 10 T | 6 | 12: | | | | |
| ₿ 1 | 7 | #data[U] := 2#0000_0000_0 | 000_0000_0000_0000 | _0001_0010; // | URITERION, ID: XIZ | |
| 19 11 | 8 | #data[1] := 2#0000_0000_0 | 000_0000_0111_1111 | _1111_1111; // | MADK | |
| | 10 | 13: | | 0001 0011. // | CDITEDION TD | |
| | 11 | #data[0] := 2#0000_0000_0 | | | WACT | |
| | 12 | FLSF | 000_0000_0111_1111 | , ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,, | IIIII | |
| | 13 | #data[0] := 2#1000 0000 0 | 000 0000 0000 0000 | 0000 0000: // | CRITERION | |
| | 14 | #data[1] := 2#0000 0000 0 | 000 0000 0111 1111 | 1111 1111: // | MASK | |
| | 15 | END CASE; | | | | |
| | 10 L | | | | | 1 |
| | : | Ш | > Ln: 1 | CI: 1 INS | 100% | · |

2. Enter the program code for "Change filter options" ①.

4.1 Inserting function blocks

3. Enter the program code for "Write filter options to PROXY" ①.

| |) 양 양 🐁 🖿 웹 월 🎲 😢 😘 總 📾 🗃 🈵 🖬 🎟 🖬 🕌 🖬 📢 🖉 양 양 🛢 | . 3 |
|-----|-------------------------------------------------|-----|
| | Block interface | |
| | | |
| | IF OF TO DO O (**) REGION | |
| | 17 // Write filter otions to PROXY | ^ |
| | 18 = "WRREC_DB" (REQ:= "changeFilter", | |
| | 19 ID:= 294, | |
| | 20 INDEX:= 16#210, | |
| | 21 LEN:= 8, | |
| | 22 DUME>> #done_wr, | |
| | $23 \qquad BDST => \# DUSY wit,$ | |
| | 24 ERROR=> #PIT_WIT, | |
| | 25 DFCDD1- #Status_UI, | |
| | 20 L RECORD #ddd), | |
| | 28 DIF #done wr THEN | |
| 4 | 29 "changeFilter" := FALSE: | |
| é - | 30 END IF; | |
| ů, | . 31 | |
| | 32 | |
| | 33 | |
| | 34 \= "RDREC_DB" (REQ := #done_wr, | |
| | 35 ID := 294, | |
| | 36 INDEX := 16#210, | |
| | 37 MLEN := 8, | |
| | 38 VALID => #valid_rd, | |
| | 39 BUSY => #busy_rd, | |
| | 40 ERROR => #err_rd, | |
| | 41 STATUS => #status_rd, | |
| | 42 LEN => #len0fData_rd, | |
| | 43 [RELOKD := #data_read); | |
| | | ~ |
| < | K S Lh: 1 CI: 1 INS 100% ▼ | |

4. Enter the program code for "Handling mechanism" ①.

| | ÷ 🗄 | ** 🖦 註 웹 월* 🗊 🕫 😡 웹 🔚 李 📭 표 部 님 놀 🕪 위 신 🖉 약 약 🔒 | |
|--------|------|----------------------------------------------------------------|---|
| | | Block interface | |
| | F C/ | ASE FOR WHILE (**) REGION | |
| | 46 | // Handling mechanism | ^ |
| | 47 | | |
| | 48 [| □IF NOT "Link_2.CAN transparent.Rx_proxy.rcvEnable" AND | |
| | 49 | NOT "Link_2.CAN transparent.Rx_proxy.transfer" THEN | |
| | 50 | "Link_2.CAN transparent.Rx_proxy.rcvEnable" := TRUE; | |
| | 51 | | |
| | 52 | ELSIF "Link_2.CAN transparent.Rx_proxy.rcvEnable" | |
| - | 53 | AND "Link_2.CAN transparent.Rx_proxy.msgExist" | |
| SNS - | 54 | AND "Link_2.UAN transparent.Kx_proxy.transfer" THEN | |
| ы В | 55 | "DataFromProxy 1" := "Link 2.CAN transparent.Ry proxy.data 1": | |
| 2 | 57 | "DataFromProxy 2" := "Link 2.CAN transparent.Rx proxy.data 2": | |
| | 58 | "DataFromProxy 3" := "Link 2.CAN transparent.Rx proxy.data 3"; | |
| | 59 | "DataFromProxy 4" := "Link 2.CAN transparent.Rx proxy.data 4"; | |
| | 60 | "DataFromProxy 5" := "Link 2.CAN transparent.Rx proxy.data 5"; | = |
| | 61 | "DataFromProxy_6" := "Link_2.CAN transparent.Rx_proxy.data_6"; | |
| | 62 | "DataFromProxy_7" := "Link_2.CAN transparent.Rx_proxy.data_7"; | |
| | 63 | "DataFromProxy_8" := "Link_2.CAN transparent.Rx_proxy.data_8"; | |
| | 64 | | |
| | 65 | "Link_2.CAN transparent.Rx_proxy.rcvEnable" := FALSE; | |
| | 66 | END_IF; | ~ |
| < | | III I I I I I I I I I I I I I I I I I | |

The configuration of the function block is then complete.

4.2 Inserting the organization block OB1 and watch tables

Insert OB1

Proceed as follows:

 Switch to the project navigation and click "Devices ① → PLC_1 → Program blocks → Main [OB1] ②".



2. Click "Empty box" ①.

| ,ð ,ð ∌ ≝ 🖦 🖿 🚍 💬 溜± 22± 12± 🖂 🕐 😘 🥵 🧐 🍫 年 !≘ | 🛬 📢 🗳 🚏 🔒 🛛 🖾 |
|-----------------------------------------------|---------------|
| Block interface | |
| | |
| | |
| Block title: "Main-rogram Sweep (Cycle)" | |
| Comment | |
| ▼ Network 1: | |
| Comment | |
| | * |
| Network 2: | |
| | 100% |

An empty box ② is added to network 1.

3. Click "??" ②.

A list box is displayed.



- 4. Insert the "FilterHandling" ① function block.
- 5. Confirm with "Enter".

The following dialog is displayed.

| Call options | × |
|--------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Single instance | Data block Name FitterHandling_DB 1 • Number 1 • Manual Manual Automatic 2 If you call the function block as a single instance, the function block saves its data in its own instance data block. |
| | OK Cancel |

- 6. Select "FilterHandling" (1) and "Automatic" (2).
- Click "OK" to confirm. The dialog closes.

Insert the watch table "WT_TxRx_comparison"

Proceed as follows:

1. Switch to the project navigation and click "Devices (1) \rightarrow PLC_1 \rightarrow Watch and force tables".

| Devices 1 | |
|---------------------------------------|----------|
| 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 | 1 |
| | |
| ▼ 📄 Project2 | ^ |
| 💣 Add new device | |
| 🔥 Devices & networks | |
| PLC_1 [CPU 1215C DQ/DQ/DC] | |
| III Device configuration | |
| 😨 Online & diagnostics | = |
| 🕨 🚘 Program blocks | |
| 🕨 🚂 Technology objects | |
| External source files | |
| 🕨 🔁 PLC tags | |
| PLC data types | |
| 💌 🥅 Watch and force tables | |
| 📑 Add new watch table | |
| E Force table | |
| 🚜 Watch table_1 🛛 2 | |
| 🕨 🙀 Online backups | |
| 🕨 🔄 Traces | |
| 🕨 🏢 Device proxy data | |
| 📴 Program info | |
| 🔄 PLC alarm text lists | |
| Local modules | 100 |
| Distributed I/O | ~ |

2. Double-click "Add new watch table 2".

The "Watch table_1" window ① is displayed.

| | Audress | Display format | Monitor value | Modify valu |
|-----------------------------------------------|---------|----------------|---------------|-------------|
| "Link_1.CAN transparent.Tx_msg_1.Tx_msg_1.01" | %QB73 | DEC | | |
| "Link_2.CAN transparent.Rx_msg_1.Rx_msg_1.01" | %IB70 | DEC | | |
| "Link 1 CAN transparent Ty msg 2 Ty msg 2 01" | %OB71 | DEC | | |
| "Link_2.CAN transparent.Rx_msg_2.Rx_msg_2.01" | %IB71 | DEC | | |
| "Link 1.CAN transparent.Tx msg 3.Tx msg 3.01" | %OB72 | DEC | | |
| "Link_2.CAN transparent.Rx_msg_3.Rx_msg_3.01 | %IB72 | DEC | | |

- 3. Enter the tags ① as indicated.
- 4. Enter the addresses ② and display formats ③ as indicated.
- 5. Change the name of the watch table from "Watch table_1" to "WT_TxRx_comparison".

Insert the watch table "WT_RxProxy"

Proceed as follows:

1. Switch to the project navigation and click "Devices (1) \rightarrow PLC_1 \rightarrow Watch and force tables".

| Devices 1 | |
|--------------------------------------------|---|
| 1 | |
| | |
| Project2 | ^ |
| 💣 Add new device | |
| 💑 Devices & networks | |
| ▼ 1 [CPU 1215C DQ/DQ/DC] | |
| 🛐 Device configuration | |
| 🚱 Online & diagnostics | = |
| 🕨 🚘 Program blocks | |
| 🕨 🚂 Technology objects | |
| External source files | |
| 🕨 🚂 PLC tags | |
| El PLC data types | |
| Watch and force tables | |
| Add new watch table | |
| Force table | |
| 🚜 Watch table_1 🛛 🛛 | |
| 🕨 📴 Online backups | |
| 🕨 🔄 Traces | |
| Device proxy data | |
| 📴 Program info | |
| 🔄 PLC alarm text lists | |
| 🕨 🫅 Local modules | |
| 🕨 🫅 Distributed I/O | ~ |

2. Double-click "Add new watch table 2".

The "Watch table_1" window ① is displayed.

| i | Name | Address | Display format | Monitor value | Modify value | 9 | Comm |
|---|-----------------------------------------------|------------------------------------------------------------------------|----------------|---------------|--------------|---|----------|
| | "Link_1.CAN transparent.Tx_msg_1.Tx_msg_1.01" | %QB73 | DEC | | | | Data g |
| | "Link_1.CAN transparent.Tx_msg_2.Tx_msg_2.01" | %QB71 | DEC | | | | Data g |
| | "Link_1.CAN transparent.Tx_msg_3.Tx_msg_3.01" | %QB72 | DEC | | | | Data g |
| | "DataFromProxy_1" | %MB10 | DEC | | | | Receiv |
| | | | | | | | |
| | "messageID" | %MW2 | DEC | | 13 | | Filter o |
| | "changeFilter" | %M0.0 | Bool | | TRUE | | Write fi |
| | | | | | -4 | | |
| | "Link_2.CAN transparent.Rx_proxy.rcvEnable" | %Q70.0 | Bool | | | | |
| | "Link_2.CAN transparent.Rx_proxy.transfer" | %173.0 | Bool | | | | |
| | "Link_2.CAN transparent.Rx_proxy.rcvFilter" | %173.6 | Bool | | | | TRUE V |
| | "Link_2.CAN transparent.Rx_proxy.msgExist" | %173.7 | Bool | | | | |
| | "Link_2.CAN transparent.Rx_proxy.overflow" | %173.5 | Bool o | | | | |
| | U | <add new<="" td=""><td></td><td></td><td></td><td></td><td></td></add> | | | | | |

- 3. Enter the tags ① as indicated.
- 4. Enter the addresses ② and display formats ③ as indicated.
- 5. Specify the value change ④.
- 6. Change the name of the watch table from "Watch table_1" to "WT_RxProxy".

4.3 Setting the watch table "WT_RxProxy" online

4.3 Setting the watch table "WT_RxProxy" online

Proceed as follows:

1. Click "Monitor all" (1) and then "Modify all selected values once and now" (2).

| 1 | 🔮 📠 🐓 🗓 💈 🖧 🕫 😋 | | | | | | |
|----------|-----------------------------------------------|--------------------|----------------|---------------|--------------|-----|-------------------------------------------------|
| | i Name 2 1 | Address | Display format | Monitor value | Modify value | 9 | Comment |
| 1 | "Link_1.CAN transparent.Tx_msg_1.Tx_msg_1.01" | %QB73 | DEC | 129 | | | Data generated in OB30. |
| 2 | "Link_1.CAN transparent.Tx_msg_2.Tx_msg_2.01" | %QB71 | DEC | 133 | | | Data generated in OB30. |
| 3 | "Link_1.CAN transparent.Tx_msg_3.Tx_msg_3.01" | %QB72 | DEC | 10 | | | Data generated in OB30. |
| 4 | "DataFromProxy_1" | %MB10 | DEC | 129 | | | Received data depended on configured filter. |
| 5 | | | | | | | |
| 6 | "messageID" | %MW2 | DEC | 11 | 11 | M 🔒 | Filter configuration. Valid values: 11, 12, 13. |
| 7 | "changeFilter" | %M0.0 | Bool | FALSE | TRUE | M 🔒 | Write filter configuration to Rx proxy. |
| 8 | | | | | | | |
| 9 | "Link_2.CAN transparent.Rx_proxy.rcvEnable" | %Q70.0 | Bool | TRUE | | | |
| 10 | "Link_2.CAN transparent.Rx_proxy.transfer" | %173.0 | Bool | TRUE" | | | |
| 11 | "Link_2.CAN transparent.Rx_proxy.rcvFilter" | %173.6 | Bool | FALSE | | | TRUE when invalid filter is set. |
| 12 | "Link_2.CAN transparent.Rx_proxy.msgExist" | %173.7 | Bool | TRUE | | | |
| 13 | "Link_2.CAN transparent.Rx_proxy.overflow" | %173.5 | Bool | FALSE | | | |
| 14 | | <add new=""></add> | | | | | |
| | | | | | | | |

The watch table "WT_RxProxy" goes online. The values in the "Monitor value" column are updated cyclically.

Appendix A

A

A.1 Internet links

| No. | Subject area |
|-----|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | Entry – PN/CAN LINK – Configuring "CAN transparent" operating mode (https://support.industry.siemens.com/cs/products?search=109760971&mfn=ps&o=DefaultRan kingDesc&lc=en-WW) |
| 2 | Industry Online Support (https://support.industry.siemens.com/cs/start?lc=en-WW) |
| 3 | Mall (https://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10140445?activeTab=Productlnformation&tree=CatalogTree) |
| 4 | Industrial communication (https://w3.siemens.com/mcms/automation/en/industrial-communications/Pages/Default.aspx) |
| 5 | Your personal contact (http://w3.siemens.com/aspa_app/) |

A.2 History

| Edition | Comment |
|---------|---------------|
| 10/2018 | First edition |

A.3 List of abbreviations

| bps | bits per second |
|-----|-------------------------------|
| CAN | Controller Area Network |
| CPU | Central Processor Unit |
| DC | Direct Current |
| I/O | Input/output |
| HSP | Hardware Support Package |
| ID | Identifier |
| IP | Internet Protocol |
| PLC | Programmable Logic Controller |
| PM | Power Module |
| PN | PROFINET |
| TIA | Totally Integrated Automation |
| TT | Tag table |
| WT | Watch table |