



# IMPACT67 PRO

Ethercat- I/O Link Handleiding  
Beckhoff **Twincat 3**

AV V1.0

Ether**CAT**®

 **IO-Link**

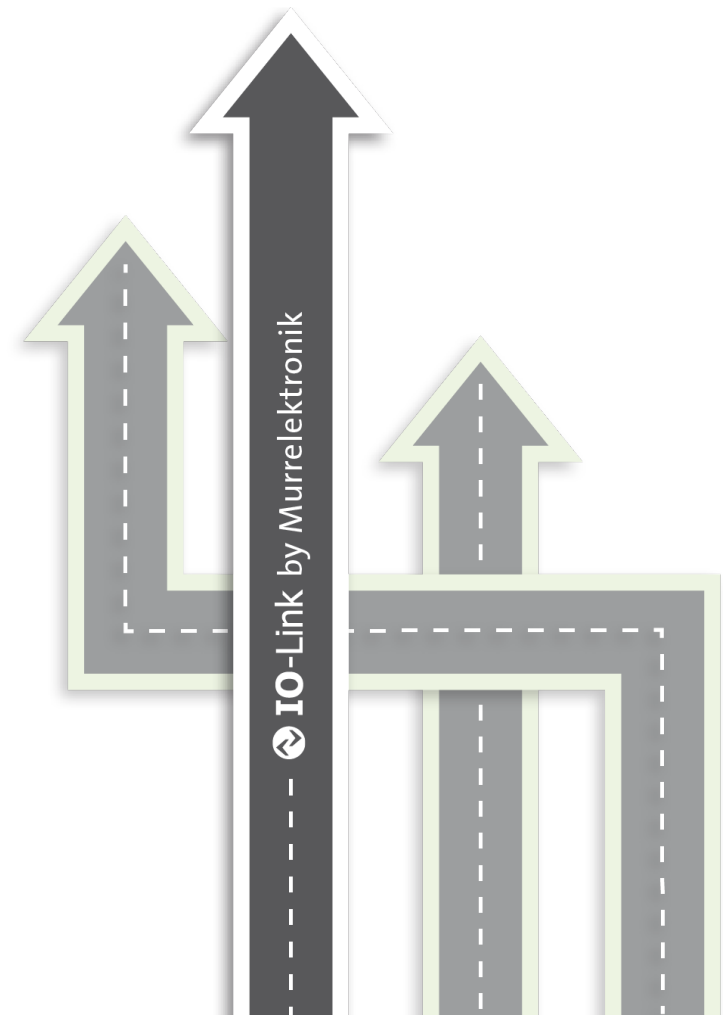


 **MURR  
ELEKTRONIK**

*stay connected*

- Topic 1**  
Hardware aansluiten.
- Topic 2**  
Software opstarten.
- Topic 3**  
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Online kijken



## IO-Link

## 8x B Port



- IO-Link: B-Ports (X05...X08)  
 1: Sensorversorgung (US) L+  
 2: Digitaler Ausgang (UA) L+  
 3: Sensorversorgung (US) L-  
 4: CIQ IO-Link  
 5: Aktuatorversorgung (UA) L-



## M12 L-code

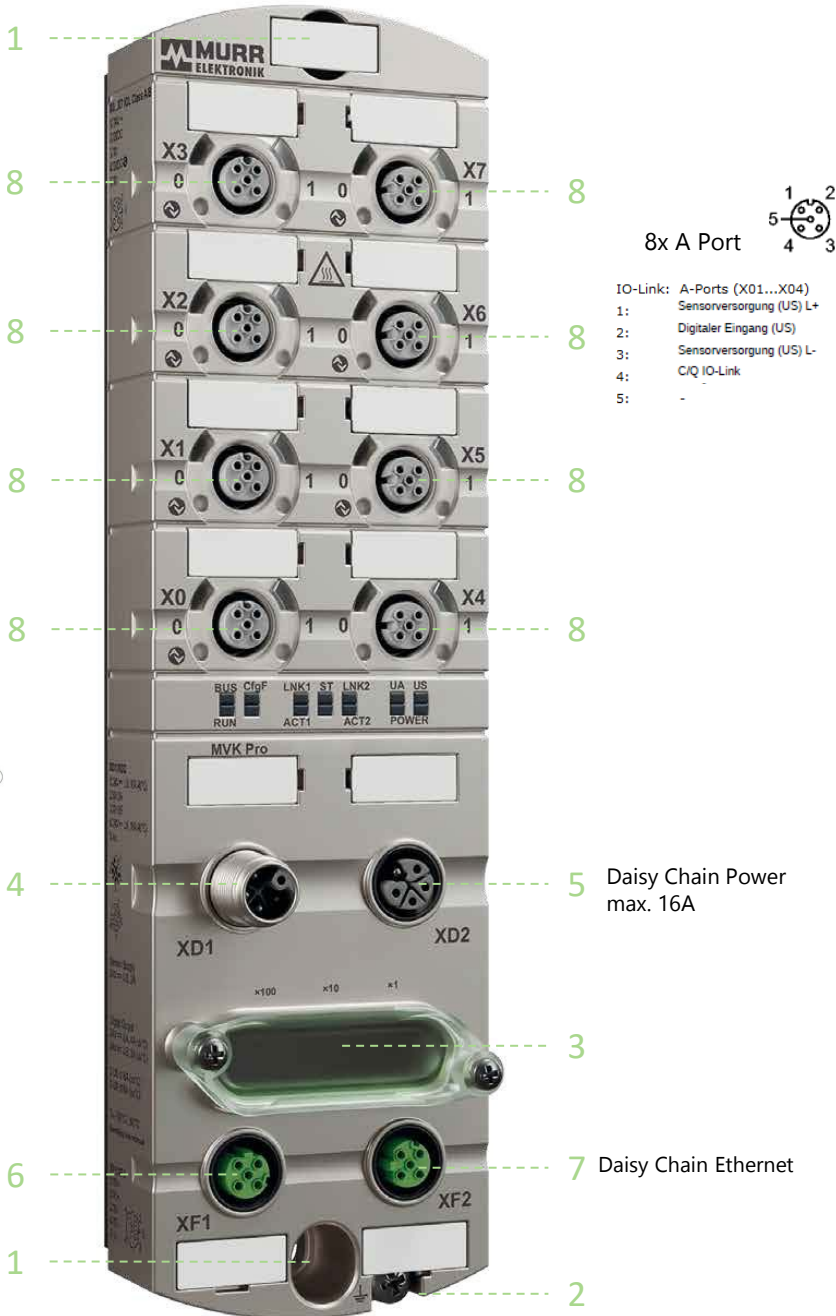
- 1 +24 V DC (US) braun  
 2 GND (UA) weiß  
 3 GND (US) blau  
 4 +24 V DC (UA) schwarz  
 5 FE grau



## M12 D-code

- 1 yellow  
 2 white  
 3 orange  
 4 blue

**EtherCAT**

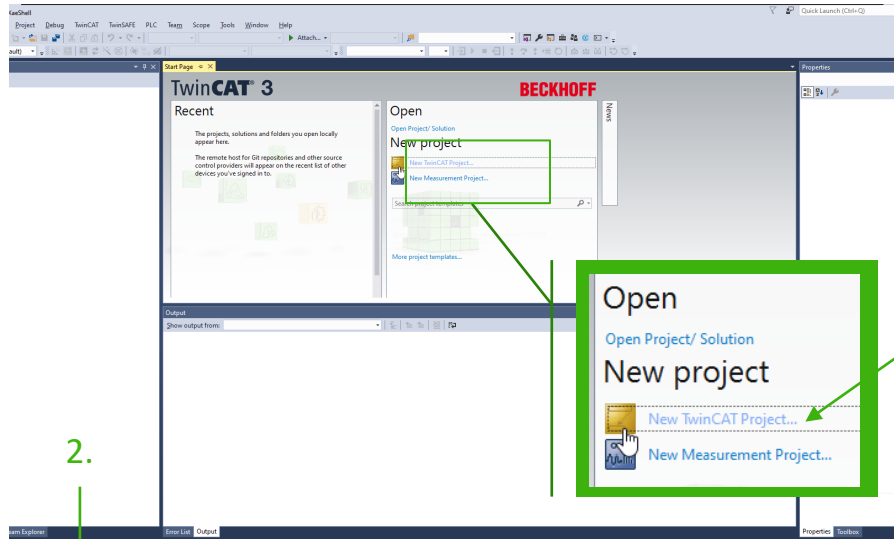


## Topic 1

## Hardware aansluiten



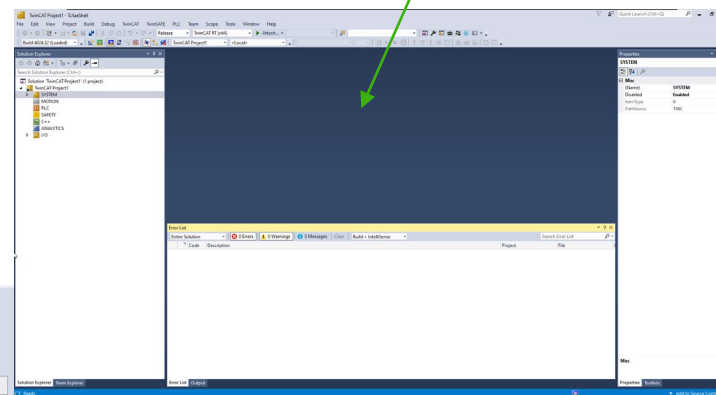
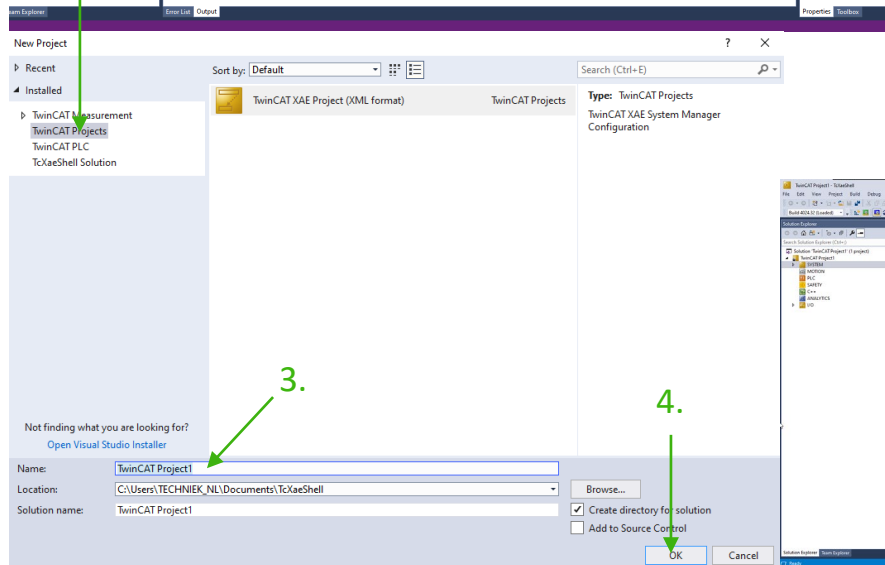
1. Monteer de module met 2x M6 bout.
2. Afhankelijk van de een 4-polige of 5-polige aarde aansluiting, hier de module aarden.
3. Pas eventueel het adres van de module aan.
4. Sluit de voeding aan op XD1 M12 L-code.
5. Op XD2 kan de voeding worden doorgelust.
6. Sluit de Profinetkabel aan op XF1 (M12 D-code).
7. Op XF2 kan de veldbus worden doorgelust
8. Sluit via een M12 A-cod. kabel de IO aan op poorten X0 t/m X7.

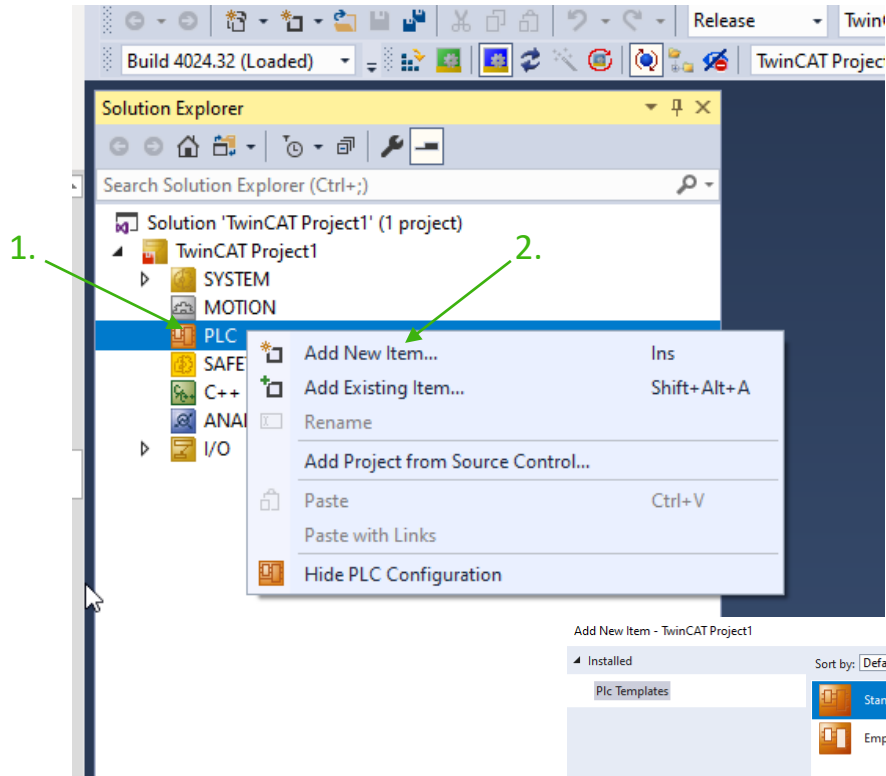


## Topic 2

# Software opstarten

1. Klik "New TwinCAT Project".
2. klik "TwinCAT project".
3. Vul-in Name: (Project Name).
4. Klik "OK".
5. Project is aangemaakt.

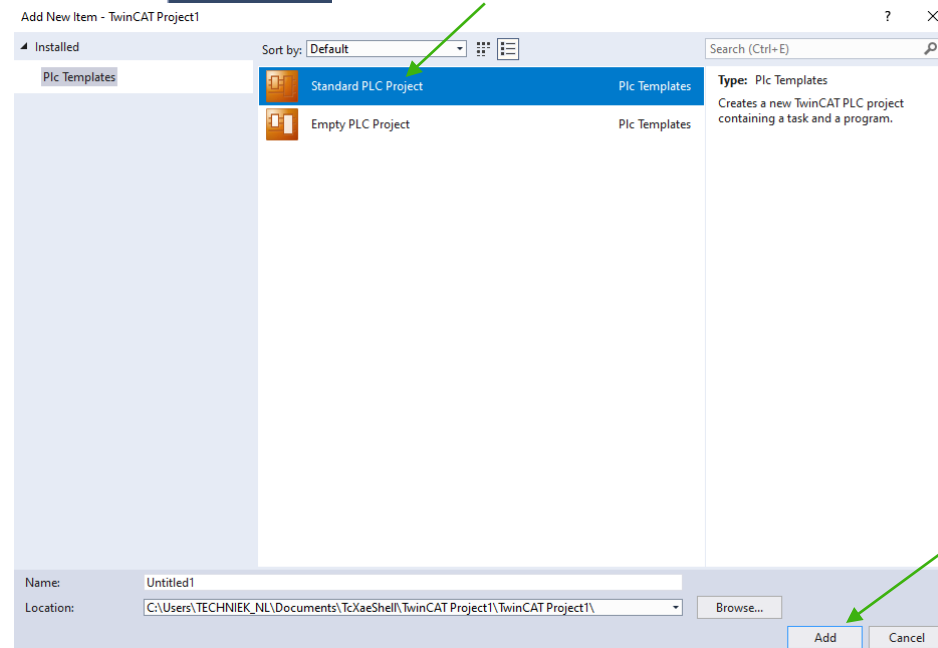




## Topic 3

# PLC Toevoegen

1. Rechter muisklik op "PLC"
2. Klik op "Add New Item..."
3. Selecteer "Standard PLC Project"
4. Klik op "Add"



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54632

ELECTRONICS IN THE CONTROL CABINET INTERFACES CONNECTION TECHNOLOGY

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## UW VOORDELEN

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E-mail adres  
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Registreren  
Wachtwoord vergeten:

## FILTER

## 1 RESULTATEN VOOR "54632"

Producten per pagina: 10 | 20 | 5

Sorteren op: Gemarkeerde producten 

**IMPACT67 Pro EC DIO8 IOL8 M12L 5P**  
EtherCAT, compact module, plastic  
Art.-Nr. 54632  
● Beschikbaar

Product markeren

**GA NAAR DE PRODUCTPAGINA**

Tip

+ Alle producten markeren

< Terug naar overzicht

**IMPACT67 Pro EC DIO8 IOL8 M12L 5P**  
EtherCAT, compact module, plastic

Art.-Nr. 54632  
Gewicht: 0,17 kg  
Land van oorsprong: DE

● Beschikbaar  
Find similar Product  Stel een vraag  
! dit product aanbevelen  Productvergelijking

aantal

Downloaden naar de databox  
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**Beschrijving**

Digital I/O outputs  
IO-Link Master M12  
M12 Power, 5 pins, L-coded  
M12, 5 pins, A-coded  
Housing fully potted.  
Connection cables are in the online shop under "Connection Technology".

Product kan afwijken van illustratie

Registreer nu voor onze Online Shop en ontvang een M12 momentleutel gratis bij besteding van €2.000 aan bekabeling

€169

MURR ELEKTRONIK Online Shop

Power Supply units

Intelligent Power Distribution

Connection cables

**Technische data**

## Commerciële gegevens

## Downloads

## Gegevens Over Artikel:

| Download | Product PDF   |
|----------|---|
| Download | Approval: UL Listed CA 54632_E201620-NRA07_uk_ca_a.pdf  |
| Download | Approval: UL Listed US 54632_E201620-NRA07_us_a.pdf   |
| Download | Certificate: IO-Link 54632_V1-1_uk_a.pdf  |
| Download | Configuration Files: CSI 54612_M0X_PROD_KF_L_x_17.zip   |
| Download | Construction files: DXF 54632_uk_a.zip  |
| Download | Construction files: P8 54632_p8_2_12.zip  |
| Download | Construction files: STP 54632_uk_a.zip  |
| Download | Document: Installation guide 54632_uk_a_15.zip  |
| Download | Document: Product data 54632_pdt_x_13.zip   |
| Download | Document: User manual 54632_uk_a_13.zip   |
| Download | Information: Certificate of conformity Murrelektronik GmbH (01-11-20_110) RoHS REACH exception 6c 7a 7d_Doc_x_a.pdf |

## Topic 4

## ESI files importeren

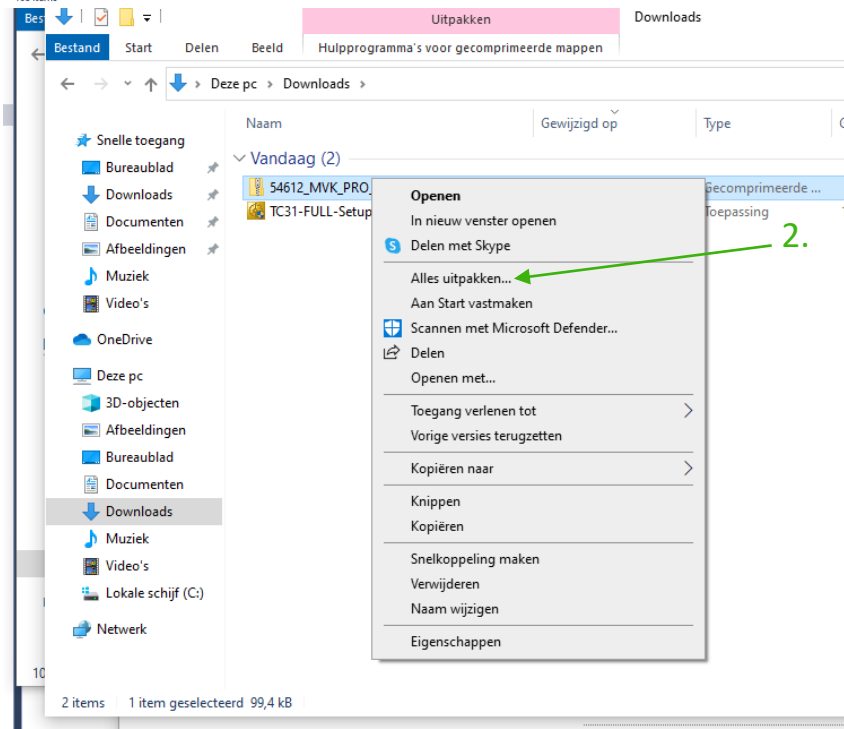
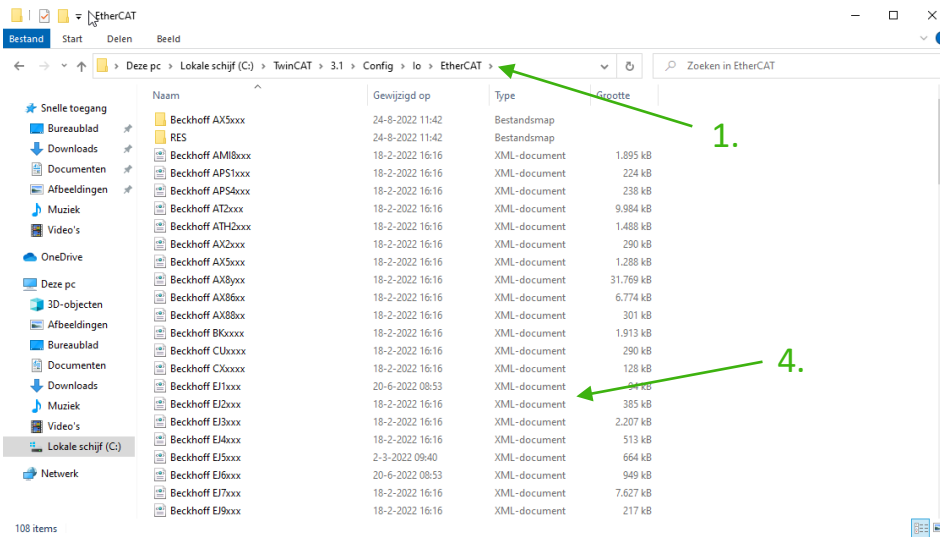
1. Ga naar <https://shop.murrelektronik.nl> en vul in de zoekbalk het device nummer in
2. Klik op "Ga naar de productpagina"
3. Klik op "Download de ESI file"
4. Accepteer de gebruikersvoorwaarden
5. Klik download

4. Accepteer onze gebruiksvoorwaarden.

I agree with the Privacy Policy and Legal Notice

3.

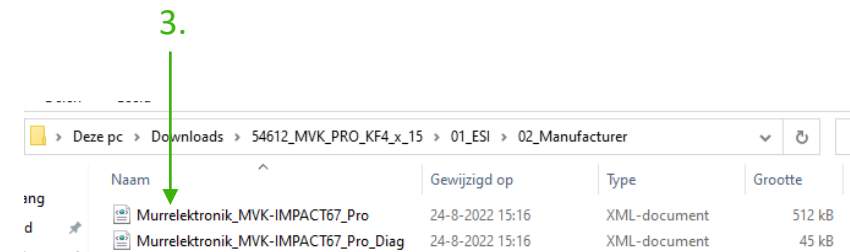
5.

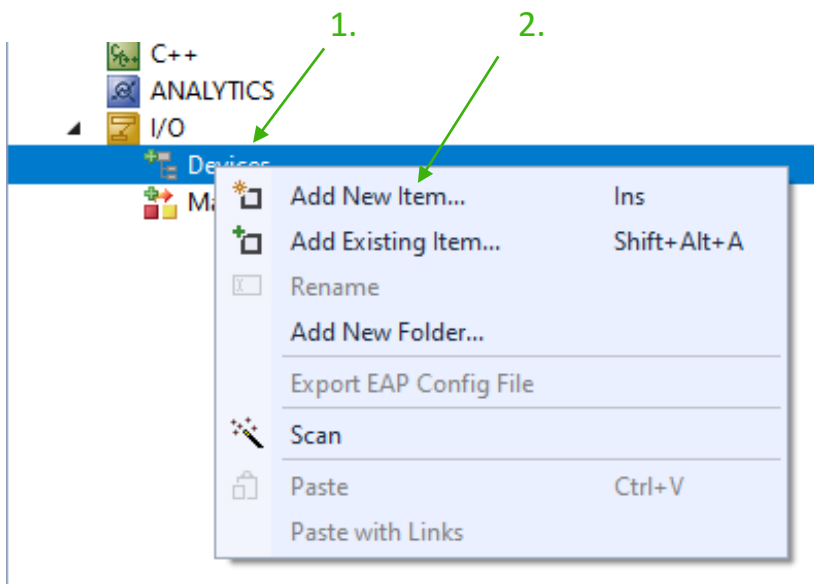


## Topic 4

# ESI files importeren

1. Open verkennen en ga naar: C:\TwinCAT\3.1\Config\Io\EtherCAT
2. Ga naar download en unzip
3. Open de mappen 01\_ESI > 02\_manufacturer. kopieer de XML files.
4. Plak deze in : C:\TwinCAT\3.1\Config\Io\EtherCAT

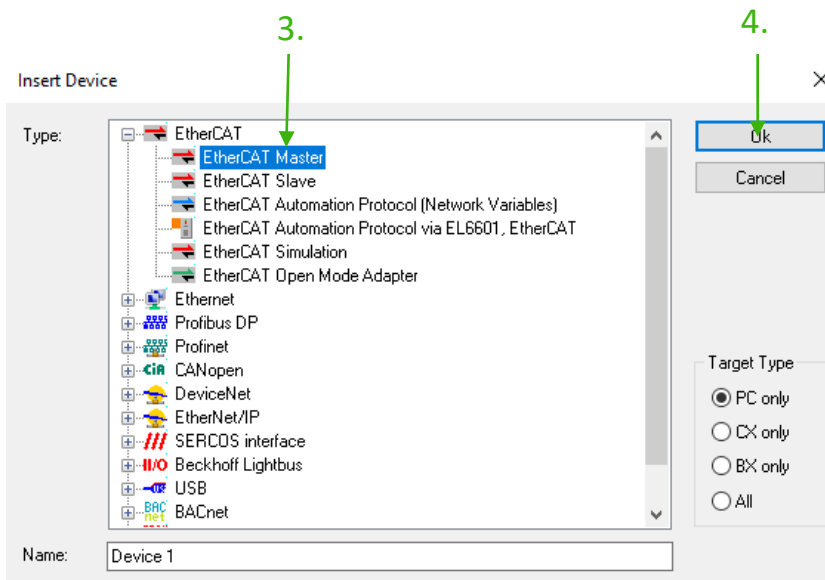




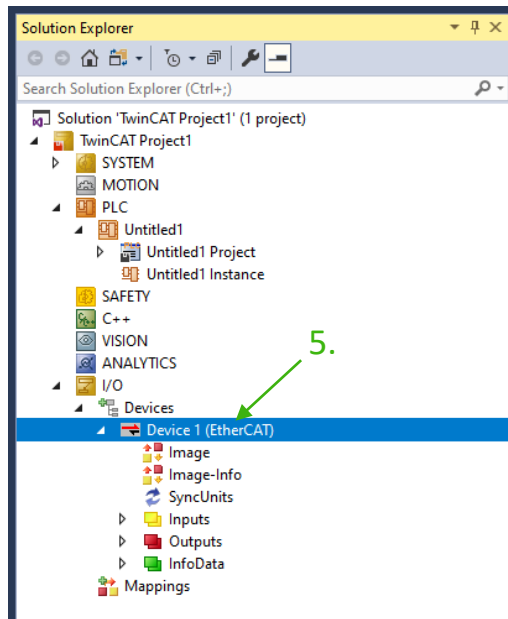
## Topic 5

# Module toevoegen

1. Rechter muisklik op “Devices”
2. Klik op “Add New Item...”
3. Selecteer “EtherCAT Master”
4. Klik op “Ok”



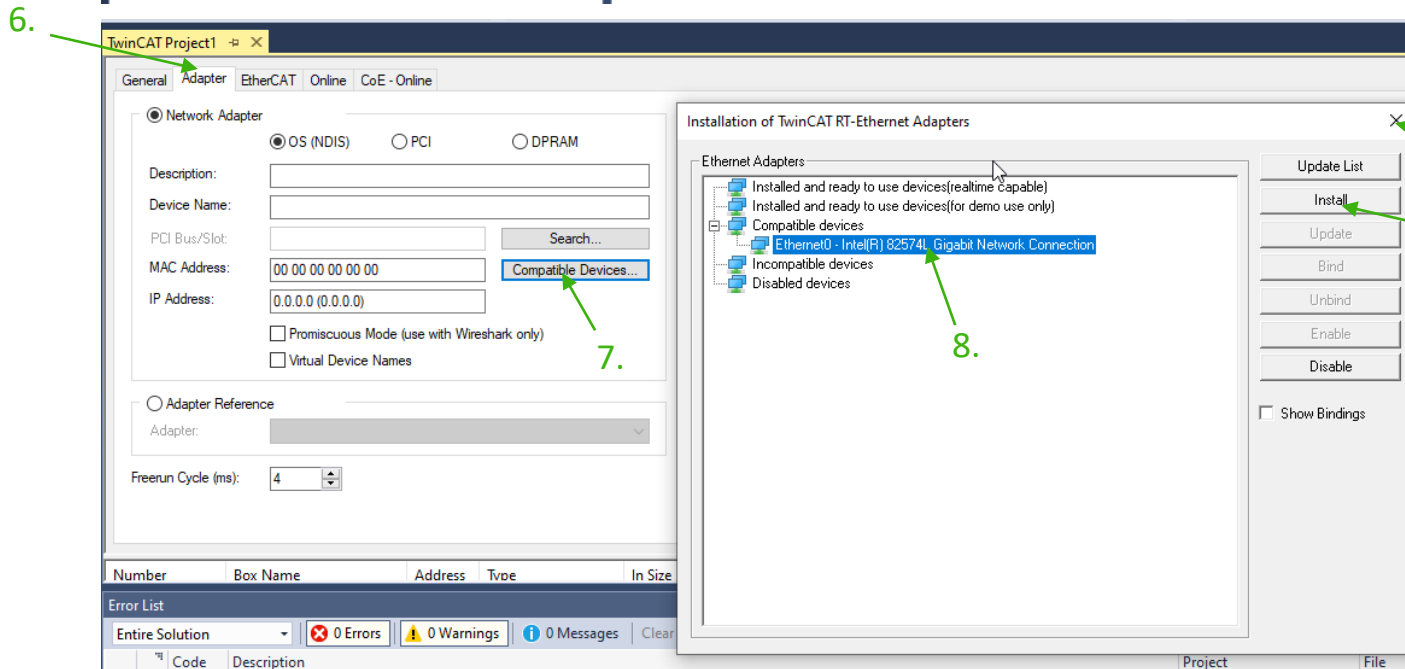


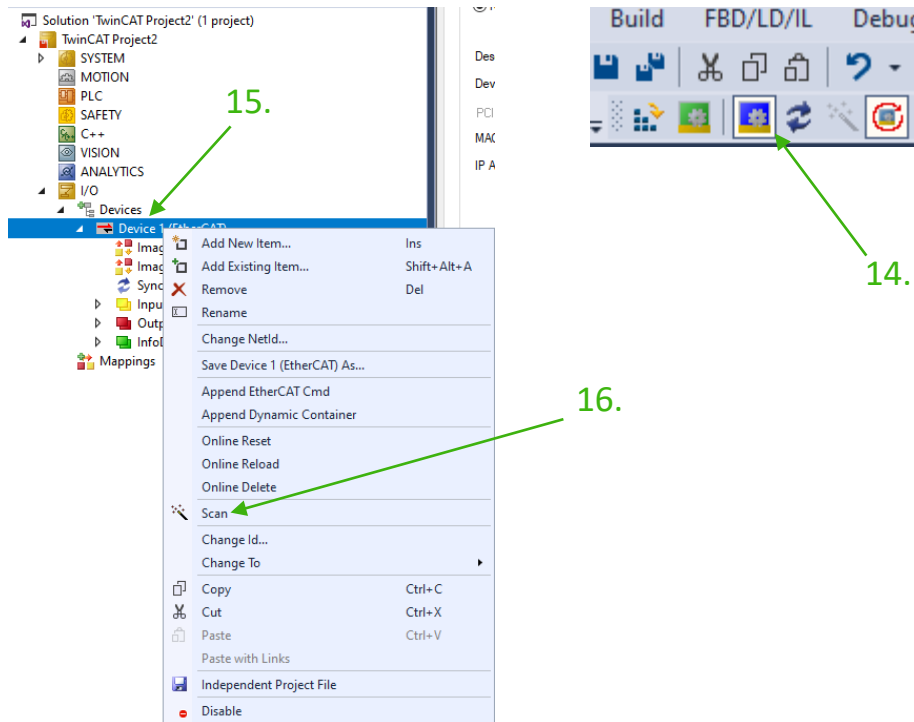


## Topic 5

# Module toevoegen

5. Dubbelklik op "Device 1"
6. Klik op "Adapter"
7. Selecteer "Compatible Devices..."
8. Klik op de ethernet adapter die je gebruikt
9. Klik op "Install"
10. Klik op het kruisje

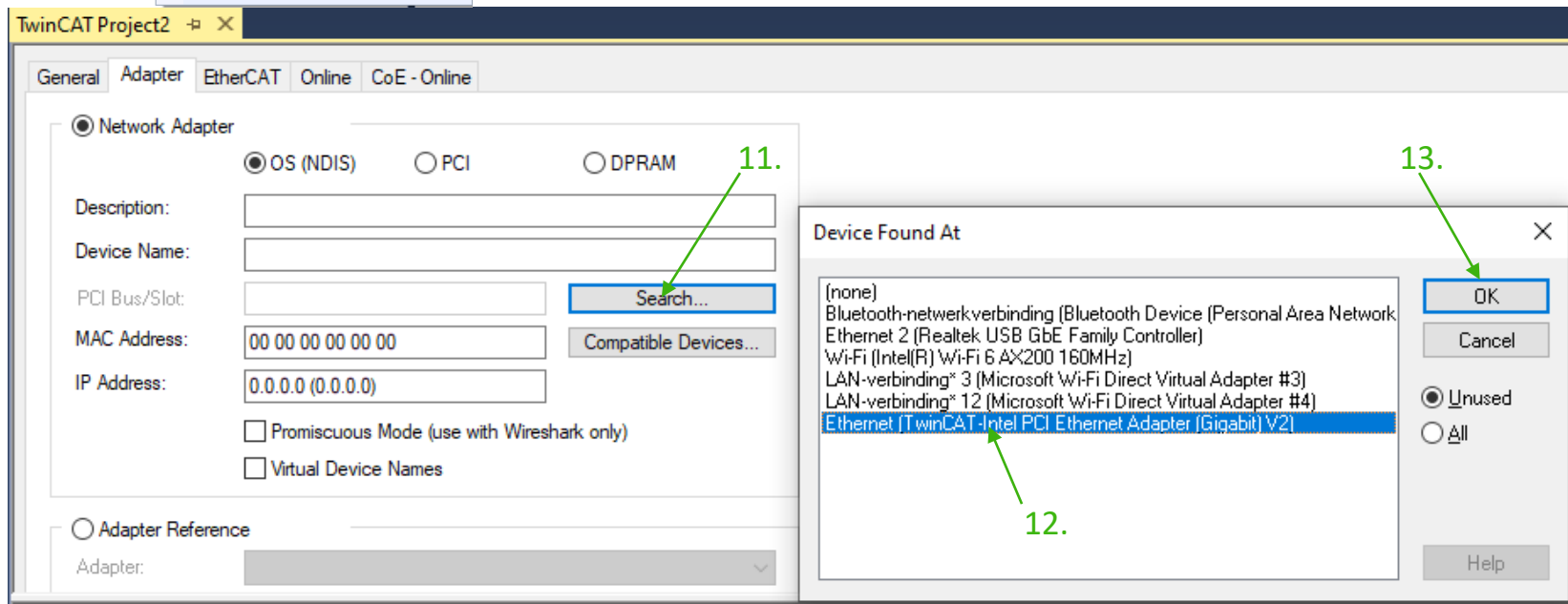


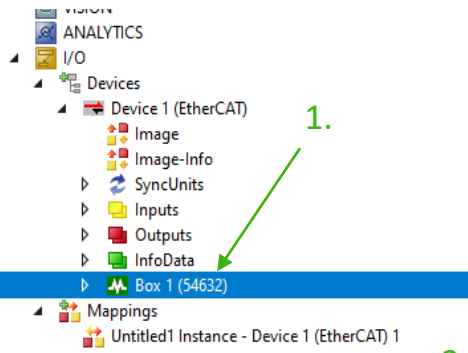


## Topic 5

# Module toevoegen

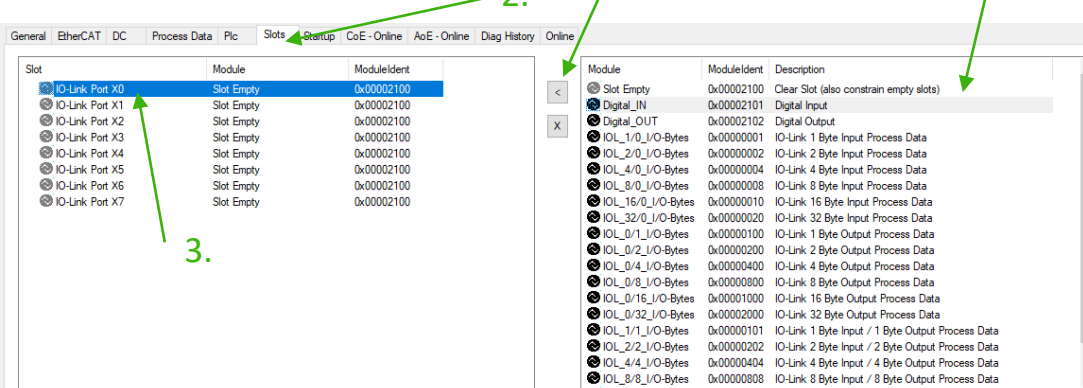
11. Klik op "Search"
12. Klik vervolgens op Adapter die je eerder geïnstalleerd had
13. Klik op "OK"
14. Zorg ervoor dat je in config mode zit
15. Rechter muisklik op "Devices"
16. Klik op "Scan"














## Topic 6

## Port definiëren



1. Dubbelklik op “Box 1”.
2. Klik op “Slots”.
3. Selecteer de port die je wilt aanpassen.
4. Je kiest een poort definities.
5. Klik op “” hier mee zet je de geselecteerde waarde op de poort.
6. Doe dit bij alle poorten.

| Slot  | Module            | ModuleIdent |
|---|-------------------|-------------|
|  IO-Link Port X0 | Digital_IN        | 0x00002101  |
|  IO-Link Port X1 | Digital_IN        | 0x00002101  |
|  IO-Link Port X2 | Digital_IN        | 0x00002101  |
|  IO-Link Port X3 | Digital_IN        | 0x00002101  |
|  IO-Link Port X4 | IOL_2/2_I/O-Bytes | 0x00000202  |
|  IO-Link Port X5 | Digital_OUT       | 0x00002102  |
|  IO-Link Port X6 | Digital_OUT       | 0x00002102  |
|  IO-Link Port X7 | Digital_OUT       | 0x00002102  |

## Topic 7

### Submodules uitleg

Slot Empty

0x00002100 Clear Slot (also constrain empty slots) → 1.

#### 1. Slot empty

- De bijbehorende IO-Link-poort is uitgeschakeld, d.w.z. het kanaal wordt noch als digitale in- of uitgang gebruikt, noch als IO-Link-poort.
- De inputbyte is gereserveerd.

|                      |            |   |
|----------------------|------------|---|
| IO_L_1/1_I/O-Bytes   | 0x00000101 | IO-Link 1 Byte Input / 1 Byte Output Process Data   |
| IO_L_2/2_I/O-Bytes   | 0x00000202 | IO-Link 2 Byte Input / 2 Byte Output Process Data   |
| IO_L_4/4_I/O-Bytes   | 0x00000404 | IO-Link 4 Byte Input / 4 Byte Output Process Data   |
| IO_L_8/8_I/O-Bytes   | 0x00000808 | IO-Link 8 Byte Input / 8 Byte Output Process Data   |
| IO_L_16/16_I/O-Bytes | 0x00001010 | IO-Link 16 Byte Input / 16 Byte Output Process Data |
| IO_L_32/32_I/O-Bytes | 0x00002020 | IO-Link 32 Byte Input / 32 Byte Output Process Data |

#### 2. IO-Link In/Out x/y byte(s): x Byte(s) In, y Byte(s) Out

- IO-Link-apparaat met x byte(s) inputgegevens en y byte(s) outputgegevens.
- Rangschikking van de inputgegevens in de volgende volgorde
  - actuele inputgegevens van het IO-Link-apparaat
  - een opvulbyte indien nodig.
- Parametrering van diagnose- en IO-linkeigenschappen is mogelijk.

## Topic 7

### Submodules uitleg

|                      |            |                                    |
|----------------------|------------|------------------------------------|
| 🔍 IOL_1/0_I/O-Bytes  | 0x00000001 | IO-Link 1 Byte Input Process Data  |
| 🔍 IOL_2/0_I/O-Bytes  | 0x00000002 | IO-Link 2 Byte Input Process Data  |
| 🔍 IOL_4/0_I/O-Bytes  | 0x00000004 | IO-Link 4 Byte Input Process Data  |
| 🔍 IOL_8/0_I/O-Bytes  | 0x00000008 | IO-Link 8 Byte Input Process Data  |
| 🔍 IOL_16/0_I/O-Bytes | 0x00000010 | IO-Link 16 Byte Input Process Data |
| 🔍 IOL_32/0_I/O-Bytes | 0x00000020 | IO-Link 32 Byte Input Process Data |

#### 1. IO-Link In x bytes: x Byte(s) In.

- IO-Link-apparaat met x byte(s) inputgegevens.
- Rangschikking van de inputgegevens in de volgende volgorde.
  - ❑ eventueel een opvulbyte.

|                      |            |                                     |
|----------------------|------------|-------------------------------------|
| 🔍 IOL_0/1_I/O-Bytes  | 0x00000100 | IO-Link 1 Byte Output Process Data  |
| 🔍 IOL_0/2_I/O-Bytes  | 0x00000200 | IO-Link 2 Byte Output Process Data  |
| 🔍 IOL_0/4_I/O-Bytes  | 0x00000400 | IO-Link 4 Byte Output Process Data  |
| 🔍 IOL_0/8_I/O-Bytes  | 0x00000800 | IO-Link 8 Byte Output Process Data  |
| 🔍 IOL_0/16_I/O-Bytes | 0x00001000 | IO-Link 16 Byte Output Process Data |
| 🔍 IOL_0/32_I/O-Bytes | 0x00002000 | IO-Link 32 Byte Output Process Data |

#### 2. IO-Link out x bytes: x Byte(s) out.

- IO-Link-apparaat met x byte(s) outputgegevens.
- Rangschikking van de outputgegevens in de volgende volgorde.
  - ❑ eventueel een opvulbyte.

## Topic 7

### Submodules uitleg

|               |            |                |      |
|---------------|------------|----------------|------|
| 🔍 Digital_IN  | 0x00002101 | Digital Input  | ← 3. |
| 🔍 Digital_OUT | 0x00002102 | Digital Output |      |

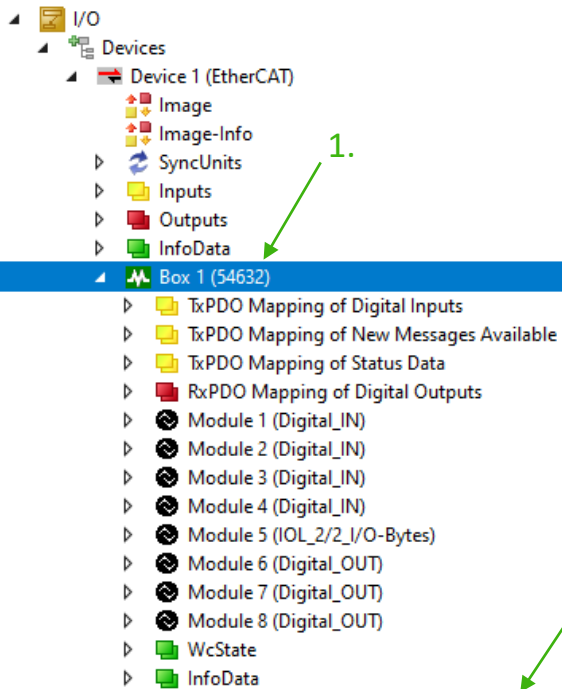
#### 3. Standard digital input: 0 Bytes In, 0 Bytes Out.

- IO-Link standaard IO-modus.
- De output wordt geadresseerd via slot 1.1 "SIO Data".
- De ingang wordt geadresseerd via slot 1.1 "SIO Data/Module-parameters".

|               |            |                |      |
|---------------|------------|----------------|------|
| 🔍 Digital_IN  | 0x00002101 | Digital Input  |      |
| 🔍 Digital_OUT | 0x00002102 | Digital Output | ← 4. |

#### 4. Standard digital output: 0 Bytes In, 0 Bytes Out.

- IO-Link standaard IO-modus.
- De output wordt geadresseerd via slot 1.1 "SIO Data".
- De ingang wordt geadresseerd via slot 1.1 "SIO Data/Module-parameters".



## Topic 8

### Pin 2 configureren

1. Dubbelklik op “Box 1”
2. Klik op “Startup”
3. Dubbelklik op  
“Not supported (4)      Port X0 Pin 2 (IQ)”

General EtherCAT DC Process Data Plc Slots Startup CoE - Online AoE - Online Diag History Online

| Transition | Protocol | Index      | Data                           | Comment   |
|------------|----------|------------|--------------------------------|---|
| C<PS>      | CoE      | 0x1A03 C 0 | 01 00 08 01 30 60              | download pdo 0x1A03 entries   |
| C<PS>      | CoE      | 0x1604 C 0 | 01 00 08 01 40 70              | download pdo 0x1604 entries   |
| C<PS>      | CoE      | 0x1605 C 0 | 01 00 08 01 50 70              | download pdo 0x1605 entries   |
| C<PS>      | CoE      | 0x1606 C 0 | 01 00 08 01 60 70              | download pdo 0x1606 entries   |
| C<PS>      | CoE      | 0x1607 C 0 | 01 00 08 01 70 70              | download pdo 0x1607 entries   |
| C<PS>      | CoE      | 0x1C12 C 0 | 05 00 10 16 04 16 05 16 0...   | download pdo 0x1C12 index   |
| C<PS>      | CoE      | 0x1C13 C 0 | 07 00 10 1A 11 1A 80 1A ...    | download pdo 0x1C13 index   |
| A<IP, PS>  | AoE      | 1/3        | 0A 14 0A 3B 02 02              | AoE Init Cmd (download NetId)   |
| E<IP, PS>  | EoE      |            | 3F 00 00 00 02 01 05 10 0...   | eeo init  |
| C PS       | CoE      | 0x2001:00  | Port based (0)                 | PD-Layout Configuration: 0=Port Based, 1=Pin Based  |
| C PS       | CoE      | 0x2002:01  | Set low (0)                    | DO Substitute Mode: 0=Set Low, 1=Substitute Value, 2=Hold last  |
| C PS       | CoE      | 0x2100:01  | false: Digital Input NO nor... | Port X0 Pin 4 (CQ) - DI Invert: false=Digital Input NO normally open, true=Digital Input NC normally closed   |
| C PS       | CoE      | 0x2100:02  | no filter (0)                  | Port X0 Pin 4 (CQ) - DI Filter Time: 0=no Filter, 10=1ms, 30=3ms, 50=5ms, 100=10ms, 150=15ms  |
| C PS       | CoE      | 0x2100:03  | Static off (0)                 | Port X0 Pin 4 (CQ) - DO Static On: false=off, true=on   |
| C PS       | CoE      | 0x2100:04  | Not supported (4)              | Port X0 Pin 2 (IQ) - Digital Mode: 0=Digital Input NO normally open, 1=Digital Input NC normally closed, 2=Digital Output, 3=Static On, 4=Not supported |
| C PS       | CoE      | 0x2100:05  | no filter (0)                  | Port X0 Pin 2 (IQ) - DI Filter Time: 0=no Filter, 10=1ms, 30=3ms, 50=5ms, 100=10ms, 150=15ms  |
| C PS       | CoE      | 0x2110:01  | false: Digital Input NO nor... | Port X1 Pin 4 (CQ) - DI Invert: false=Digital Input NO normally open, true=Digital Input NC normally closed   |
| C PS       | CoE      | 0x2110:02  | no filter (0)                  | Port X1 Pin 4 (CQ) - DI Filter Time: 0=no Filter, 10=1ms, 30=3ms, 50=5ms, 100=10ms, 150=15ms  |
| C PS       | CoE      | 0x2110:03  | Static off (0)                 | Port X1 Pin 4 (CQ) - DO Static On: false=off, true=on   |

Move Up

Move Down

New...

Delete...

Edit...

Edit CANopen Startup Entry

Transition

I -> P

P -> S     S -> P

S -> 0     0 -> S

Index (hex):

Sub-Index (dec):

Validate     Complete Access

OK    Cancel

Data (hexbin):     Hex Edit...

Validate Mask:

Comment:     Edit Entry...

| Index   | Name                        | Flags | Value                                  |
|---------|-----------------------------|-------|--|
| 2100:0  | Configuration Port XD       | RD    |  |
| 2100:01 | DI Invert CQ Pin            | RW    | false: Digital Input NO normally op... |
| 2100:02 | Digital Input Filter CQ Pin | RW    | no filter (0)                          |
| 2100:03 | DO Static On CQ Pin         | RW    | Static off (0)                         |
| 2100:04 | Digital Mode IQ Pin         | RW    | Not supported (4)                      |
| 2100:05 | Digital Input Filter IQ Pin | RW    | no filter (0)                          |

1.

## Topic 8

## Pin 2 configureren

## SIO mode

1. Dubbelklik op "Digital Mode IQ Pin"
2. Klik op "Not supported"
3. Kies of je de Pin 2 een input of output maakt en of je de input normally open of normally closed wil

Set Value Dialog

Dec:     OK    Cancel

Hex:     Edit...

Enum: 

- Not supported
- Digital Input NO normally open
- Digital Input NC normally closed
- Digital Output
- Static On
- Not supported

Boot:

Binary:     1

Bit Size:  1     8     16     32     64     ?

2.

3.



Edit CANopen Startup Entry

Transition

I -> P

P -> S     S -> P

S -> O     O -> S

Index (hex):    

Sub-Index (dec):    

Validate     Complete Access

Data (hexbin):    

Validate Mask:

Comment:    

| Index   | Name                        | Flags | Value                                  |
|---------|-----------------------------|-------|--|
| 2100:0  | Configuration Port X0       | RO    |  |
| 2100:01 | DI Invert CQ Pin            | RW    | false: Digital Input NO normally op... |
| 2100:02 | Digital Input Filter CQ Pin | RW    | no filter (0)                          |
| 2100:03 | DO Static On CQ Pin         | RW    | Static off (0)                         |
| 2100:04 | Digital Mode IQ Pin         | RW    | Not supported (4)                      |
| 2100:05 | Digital Input Filter IQ Pin | RW    | no filter (0)                          |

1.

## Topic 8

### Pin 2 configureren

### IO-link class B

1. Dubbelklik op "DO Static On CQ Pin"
2. Klik op "Static off"
3. Klik op "Static on"

Set Value Dialog

Dec:    

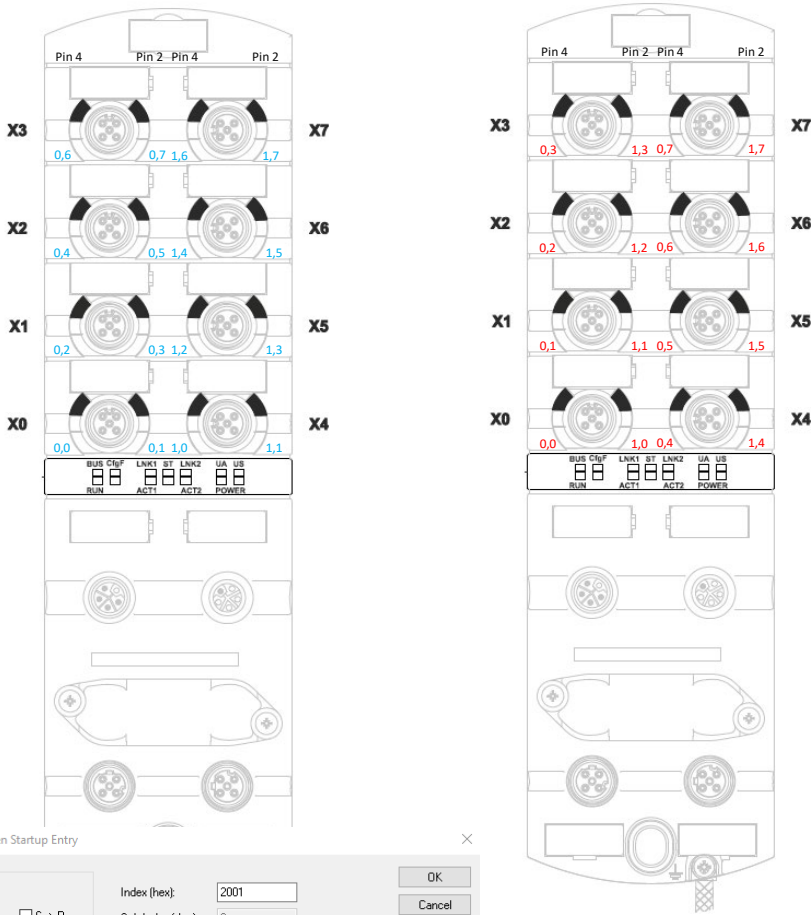
Hex:    

Enum:     2.

Bool:  0     1        3.

Binary:

Bit Size:  1     8     16     32     64     ?



# Topic 9

## Module port config

1. Dubbelklik op "Port based"
2. Dubbelklik op "PD Layout Configuration"
3. Kies bij "Enum" of je port- of pin based wil

**Port-based I/O data / Qualifier, D/I/O**

| I/O Byte 0       |                  |                  |                  |                  |                  |                  |                  |
|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| Bit 0            | Bit 1            | Bit 2            | Bit 3            | Bit 4            | Bit 5            | Bit 6            | Bit 7            |
| Port X0<br>Pin 4 | Port X0<br>Pin 2 | Port X1<br>Pin 4 | Port X1<br>Pin 2 | Port X2<br>Pin 4 | Port X2<br>Pin 2 | Port X3<br>Pin 4 | Port X3<br>Pin 2 |
| I/O Byte 1       |                  |                  |                  |                  |                  |                  |                  |
| Bit 0            | Bit 1            | Bit 2            | Bit 3            | Bit 4            | Bit 5            | Bit 6            | Bit 7            |
| Port X4<br>Pin 4 | Port X4<br>Pin 2 | Port X5<br>Pin 4 | Port X5<br>Pin 2 | Port X6<br>Pin 4 | Port X6<br>Pin 2 | Port X7<br>Pin 4 | Port X7<br>Pin 2 |

Tab. 8-8: Port-based data layout

**Pin-based I/O data / Qualifier, D/I/O**

| I/O Byte 0       |                  |                  |                  |                  |                  |                  |                  |
|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| Bit 0            | Bit 1            | Bit 2            | Bit 3            | Bit 4            | Bit 5            | Bit 6            | Bit 7            |
| Port X0<br>Pin 4 | Port X1<br>Pin 4 | Port X2<br>Pin 4 | Port X3<br>Pin 4 | Port X4<br>Pin 4 | Port X5<br>Pin 4 | Port X6<br>Pin 4 | Port X7<br>Pin 4 |
| I/O Byte 1       |                  |                  |                  |                  |                  |                  |                  |
| Bit 0            | Bit 1            | Bit 2            | Bit 3            | Bit 4            | Bit 5            | Bit 6            | Bit 7            |
| Port X0<br>Pin 2 | Port X1<br>Pin 2 | Port X2<br>Pin 2 | Port X3<br>Pin 2 | Port X4<br>Pin 2 | Port X5<br>Pin 2 | Port X6<br>Pin 2 | Port X7<br>Pin 2 |

Tab. 8-9: Pin-based data layout

Edit CANopen Startup Entry

Transition:  I -> P,  P -> S,  S -> P,  S -> D,  D -> S

Index (hex): 2001, Sub-Index (dec): 0

Validate Mask:  Validate,  Complete Access

Data (hexbin): 00, Hex Edit...

Comment: PD Layout Configuration, Edit Entry...

| Index | Name                    | Flags | Value          |
|-------|-------------------------|-------|----------------|
| 2001  | PD Layout Configuration | R/W   | Port based (0) |

Set Value Dialog

Dec: 0, Hex: 0x00

Enum: Port based (selected), Port based, Pin based

Boot: 0, 1

Binary: 00, 1

Bit Size: 1, 8, 16, 32, 64, ?

PS CoE 0x2001:00 Port based (0) PD-Layout Configuration: 0=Port Based, 1=Pin Based

2.

1.

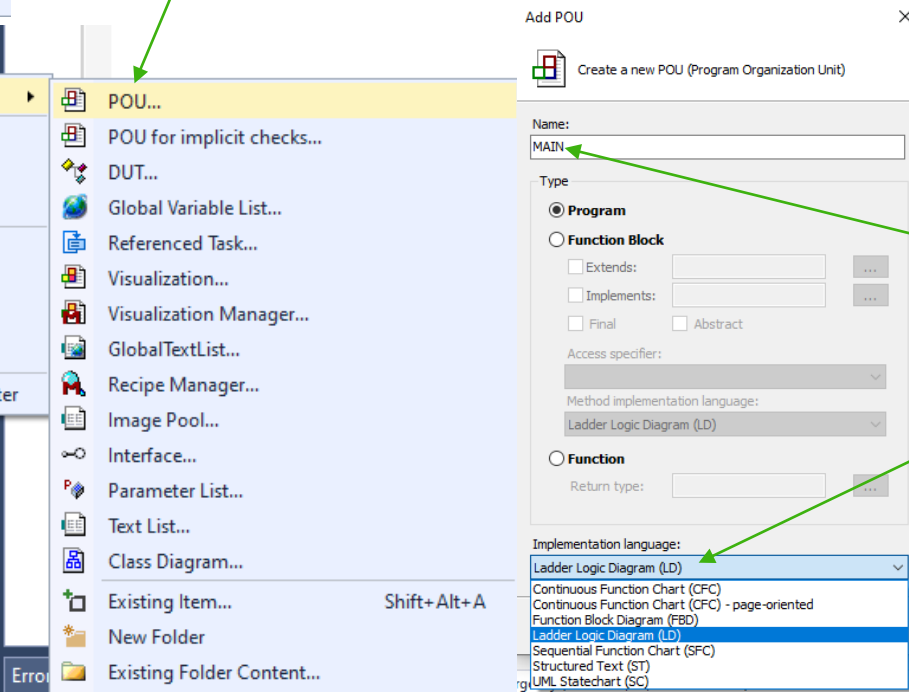
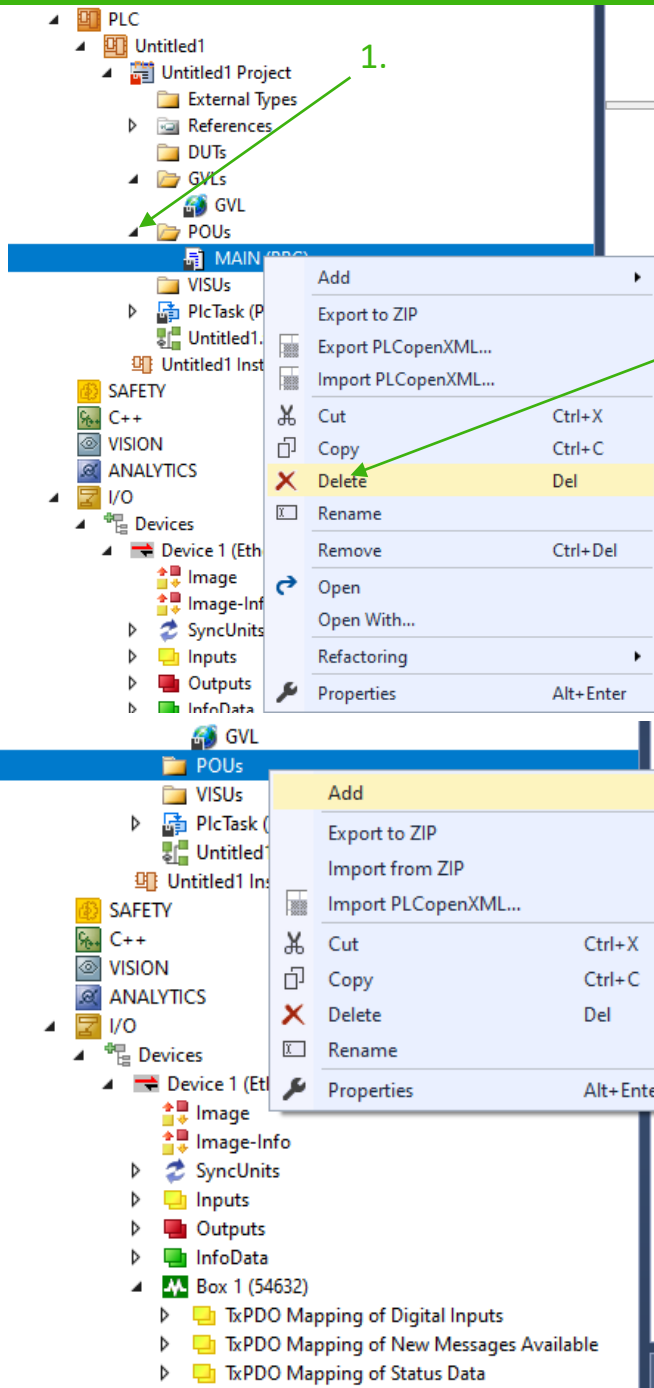
3.

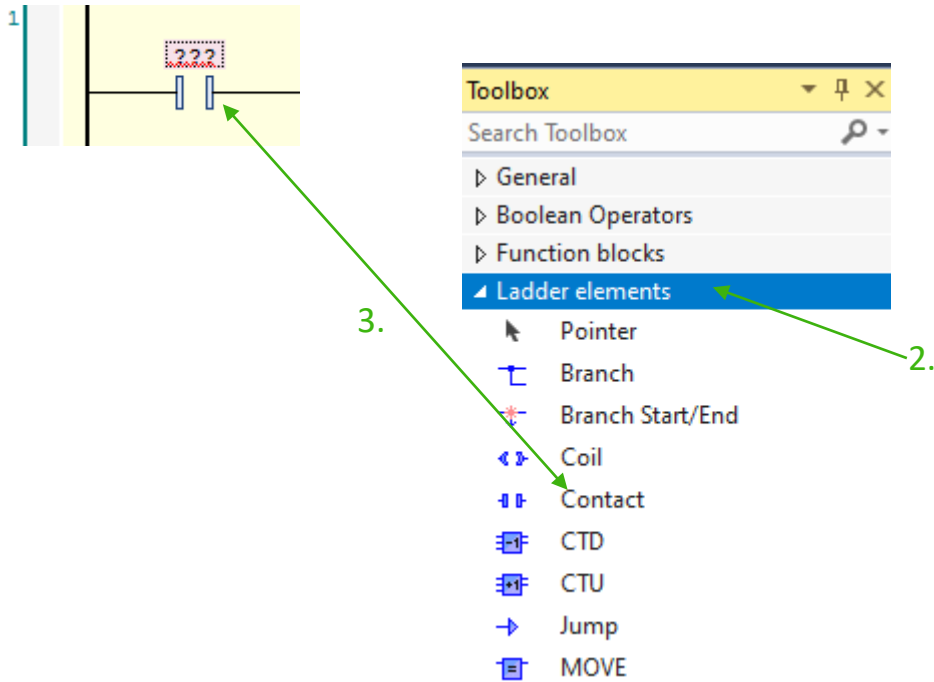
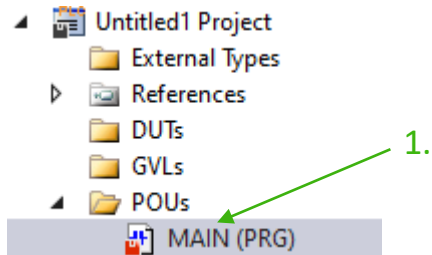
## Topic 10

# Programma maken

## Optioneel

1. Klik op "POUs"
2. Rechter muisklik op MAIN > Delete
3. Rechter muisklik op POU's > Add > POU
4. Bij "Name:" typ je "MAIN" in
5. Open in dit menu de onderste balk en kies de methode waarin je wil programmeren





```

PROGRAM MAIN
VAR
  DigIn AT %I^: UINT;
  DigOut AT %Q^: UINT;
END_VAR

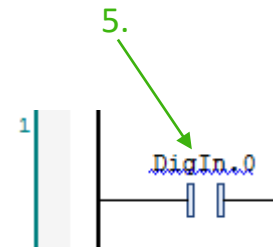
```

4.

## Topic 10

### Programma maken

1. Dubbelklik op “MAIN(PRG)”
2. Klik op “Ladder elements” om deze te openen in de toolbox
3. Sleep een input naar de eerste rij
4. Maak boven in je scherm onder “VAR” twee variabelen aan die je straks koppelt aan je digitale inputs en outputs
5. Noem de input DigIn. en typ achter de . het bitje wat je aan wil sturen (in mijn geval is dit bit 0)



| Slot            | Module            |
|-----------------|-------------------|
| IO-Link Port X0 | Digital_IN        |
| IO-Link Port X1 | Digital_IN        |
| IO-Link Port X2 | Digital_IN        |
| IO-Link Port X3 | Digital_IN        |
| IO-Link Port X4 | IOL_2/2_I/O-Bytes |
| IO-Link Port X5 | Digital_OUT       |
| IO-Link Port X6 | Digital_OUT       |
| IO-Link Port X7 | Digital_OUT       |

Master write:  
Process Data

|             | Bit 7          | Bit 6 | Bit 5 | Bit 4         | Bit 3       | Bit 2 | Bit 1 | Bit 0     |
|-------------|----------------|-------|-------|---------------|-------------|-------|-------|-----------|
| Byte 0 data | N/N            | N/N   | N/N   | Buzzer on/off |             |       |       | LED Color |
| Byte 1 data | Buzzer Pattern |       |       |               | LED Pattern |       |       |           |

Tab. 8-1: Byte order: Big-Endian

LED and Buzzer mode

| Name           | Value | Configuration                          |
|----------------|-------|--|
| LED Color      | 0     | OFF                                    |
|                | 1     | Red                                    |
|                | 2     | Green                                  |
|                | 3     | Amber                                  |
|                | 4     | Blue                                   |
|                | 5     | Purple                                 |
|                | 6     | Cyan                                   |
|                | 7     | White                                  |
| Buzzer on/off  | 0     | OFF                                    |
|                | 1     | ON                                     |
| LED Pattern    | 0     | Continuous Lightning                   |
|                | 1     | Blinking Slow                          |
|                | 2     | Blinking Middle                        |
|                | 3     | Blinking Fast                          |
|                | 4     | Flashing Single                        |
|                | 5     | Flashing Double                        |
|                | 6     | Flashing Tripple                       |
|                | 7     | Sine Slow                              |
|                | 8     | Sine Fast                              |
| Buzzer Pattern | 0     | Continuous tone                        |
|                | 1     | Intermittent tone                      |
|                | 2     | High-low tone                          |
|                | 3     | Sweep sound                            |
|                | 4     | Continuous tone 500ms ON / 500ms OFF   |
|                | 5     | Intermittent tone 500ms ON / 500ms OFF |
|                | 6     | High-low tone 500ms ON / 500ms OFF     |
|                | 7     | Sweep sound 500ms ON / 500ms OFF       |
|                | 8     | OFF                                    |

## Topic 10

# Programma maken

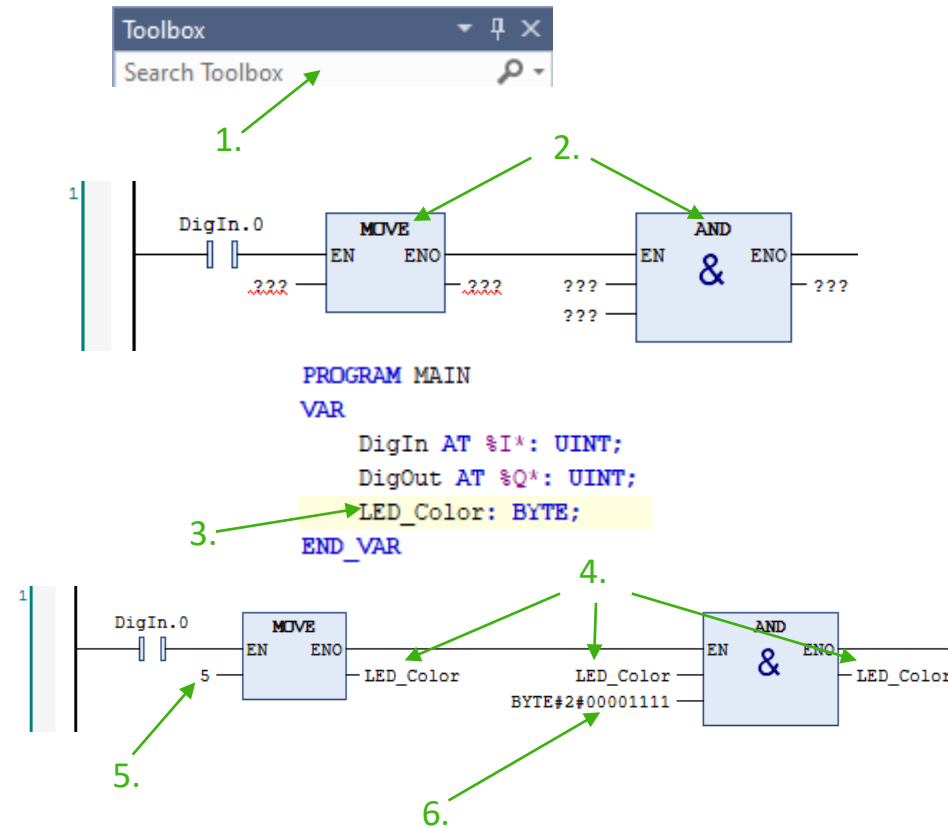
1. Ik heb een IO-link lampje in port X4 aangesloten
2. Hier zie je hoe de twee bytes zijn verdeelt
3. Per kopje heb je value's die je tijdens het programmeren nodig gaat hebben



## Topic 10

### Programma maken

1. Zoek "MOVE" en "AND" op
2. Sleep deze in je eerste rij
3. Maak een variabele aan om LED Color aan te spreken
4. Zet deze zoals aangegeven de variabele in de rij
5. Voor de eerste variabele van "MOVE" vul je een value in naar keuze
6. Bij de tweede input van "AND" type je "BYTE#2#00001111" hierdoor worden alleen de bits gelezen die nodig zijn voor "LED Color"

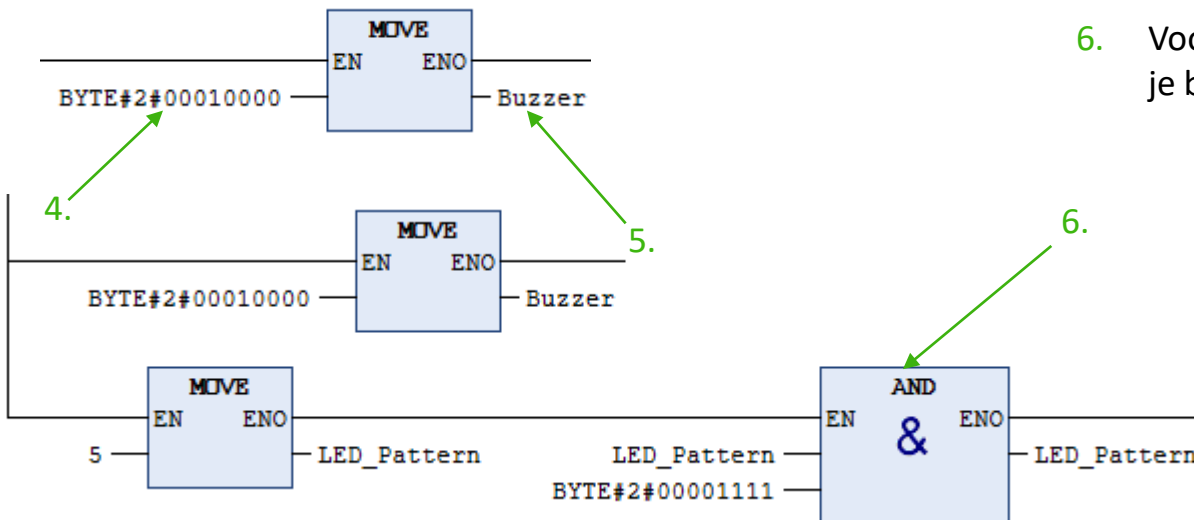
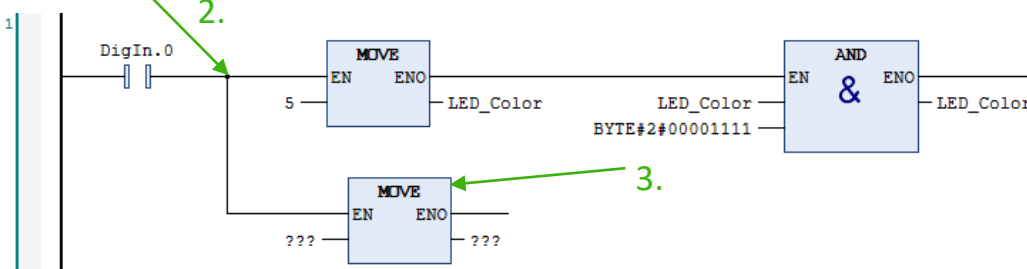
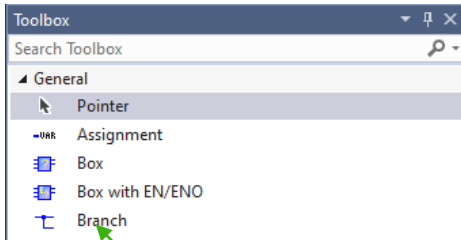


| LED Color | 0 | OFF    |
|-----------|---|--------|
|           | 1 | Red    |
|           | 2 | Green  |
|           | 3 | Amber  |
|           | 4 | Blue   |
|           | 5 | Purple |
|           | 6 | Cyan   |
|           | 7 | White  |

5. →

|             | Bit 7          | Bit 6 | Bit 5 | Bit 4         | Bit 3       | Bit 2 | Bit 1 | Bit 0 |
|-------------|----------------|-------|-------|---------------|-------------|-------|-------|-------|
| Byte 0 data | N/N            | N/N   | N/N   | Buzzer on/off | LED Color   |       |       |       |
| Byte 1 data | Buzzer Pattern |       |       |               | LED Pattern |       |       |       |

|             | Bit 7          | Bit 6 | Bit 5 | Bit 4         | Bit 3 | Bit 2 | Bit 1       | Bit 0 |
|-------------|----------------|-------|-------|---------------|-------|-------|-------------|-------|
| Byte 0 data | N/N            | N/N   | N/N   | Buzzer on/off |       |       | LED Color   |       |
| Byte 1 data | Buzzer Pattern |       |       |               |       |       | LED Pattern |       |



## Topic 10

### Programma maken

1. Om de buzzer aan te zetten hoeft maar één bit actief zijn
2. Zet een "Branch" voor de "MOVE"
3. Zet een "MOVE" onder de andere "MOVE"
4. Zet als input variabel "BYTE#2#00010000" neer. Dit zorgt ervoor dat alleen bit 4 word aangezet waardoor de buzzer aangaat
5. Als output van de "MOVE" gebruik je de naam van wat je wil aangestuurd
6. Voor LED Pattern doe je hetzelfde als wat je bij LED Color hebt gedaan

```

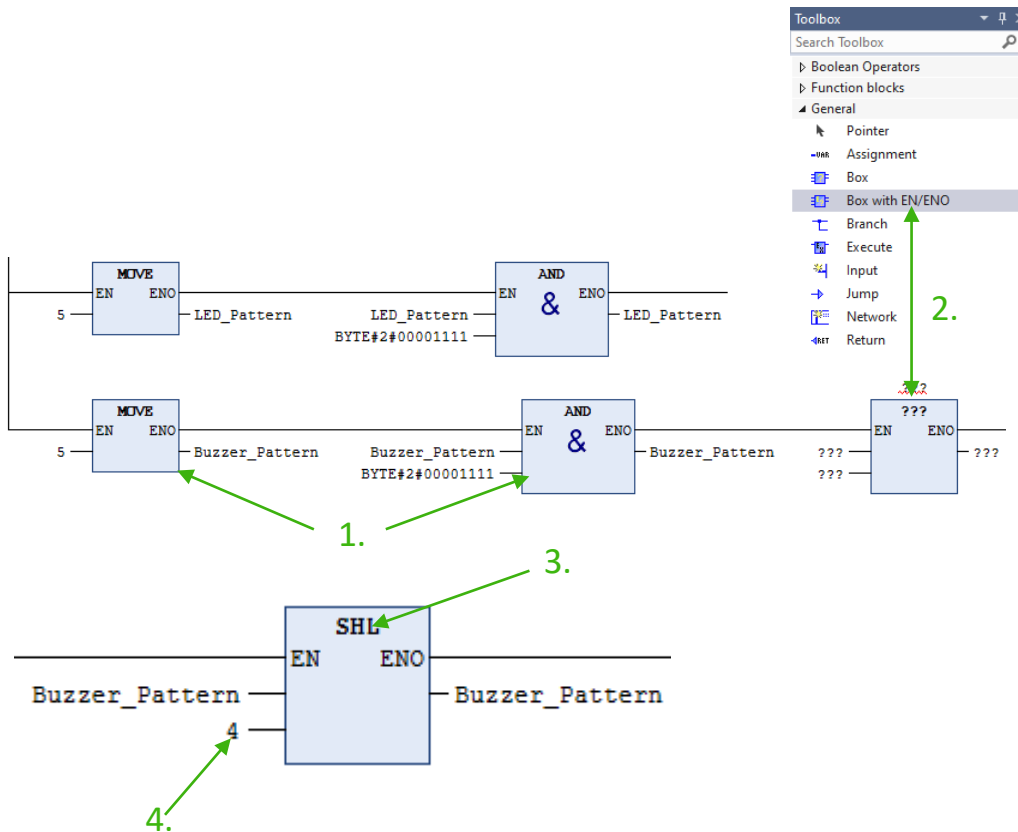
PROGRAM MAIN
VAR
    DigIn AT %I*: UINT;
    DigOut AT %Q*: UINT;
    LED_Color: BYTE;
    Buzzer: BYTE;
    LED_Pattern: BYTE;
END_VAR

```

|             | Bit 7          | Bit 6 | Bit 5 | Bit 4         | Bit 3     | Bit 2 | Bit 1 | Bit 0 |
|-------------|----------------|-------|-------|---------------|-----------|-------|-------|-------|
| Byte 0 data | N/N            | N/N   | N/N   | Buzzer on/off | LED Color |       |       |       |
| Byte 1 data | Buzzer Pattern |       |       | LED Pattern   |           |       |       |       |

## Topic 10

# Programma maken



1. Doe voor Buzzer Pattern hetzelfde als LED Color en LED Pattern
2. Sleep een “Box with EN/ENO” achter de “AND”
3. Vul “SHL” in in de box die je net hebt toegevoegd
4. Vul bij “Num” 4 in. Hierdoor wordt de BYTE#2#00001111 een BYTE#2#11110000 als je dit niet doet klopt de value die in het schema van de lamp staat niet

| Buzzer Pattern |   |  |
|----------------|---|--|
| 0              | 0 | Continuous tone                        |
| 1              | 1 | Intermittent tone                      |
| 2              | 2 | High-low tone                          |
| 3              | 3 | Sweep sound                            |
| 4              | 4 | Continuous tone 500ms ON / 500ms OFF   |
| 5              | 5 | Intermittent tone 500ms ON / 500ms OFF |
| 6              | 6 | High-low tone 500ms ON / 500ms OFF     |
| 7              | 7 | Sweep sound 500ms ON / 500ms OFF       |
| 8              | 8 | OFF                                    |

```
PROGRAM MAIN
```

```
VAR
```

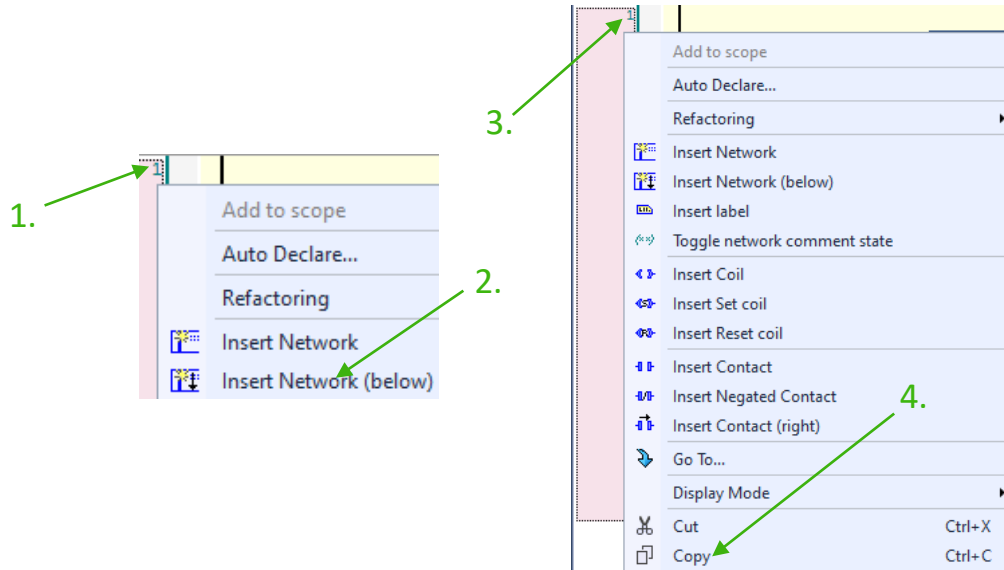
```
  DigIn AT %I*: UINT;
  DigOut AT %Q*: UINT;
  LED_Color: BYTE;
  Buzzer: BYTE;
  LED_Pattern: BYTE;
  Buzzer_Pattern: BYTE;
```

```
END_VAR
```

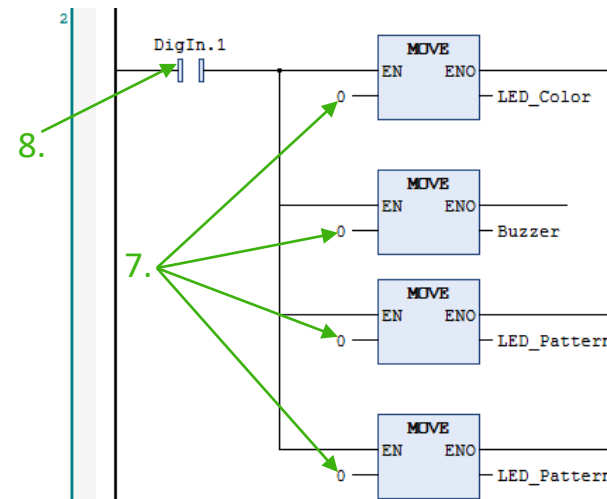
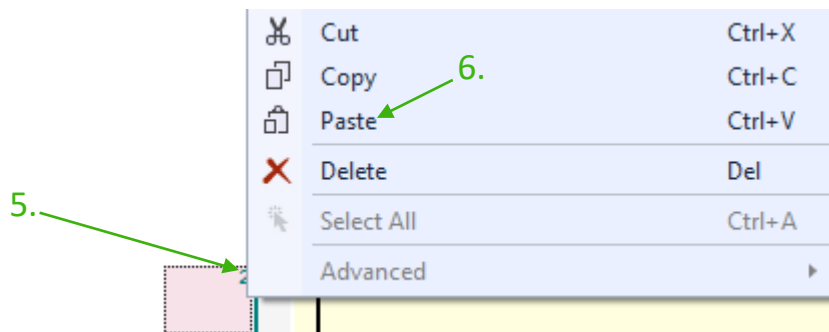


## Topic 10

### Programma maken



1. Rechterklik op network 1
2. Klik op “Insert Network (below)”
3. Rechterklik op network 1
4. Klik op “Copy”
5. Rechterklik op network 2
6. Klik op “Paste”
7. Vul bij alle MOVE instructies een 0 in zodat alles word gedeactiveerd
8. Gebruik een andere drukknop

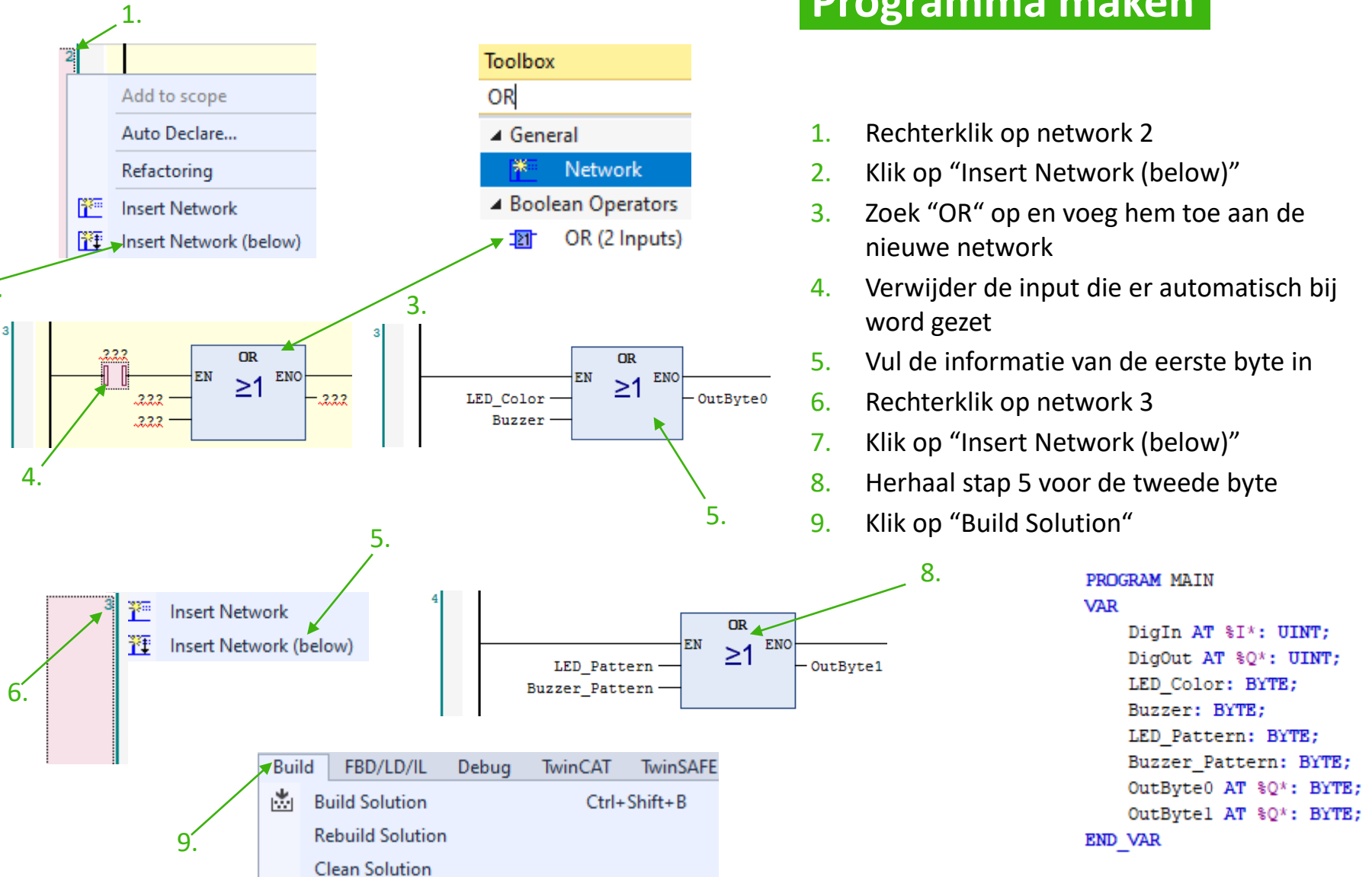


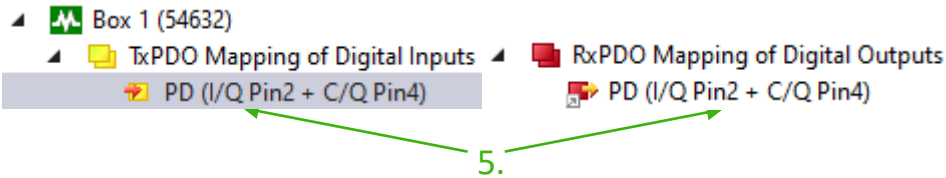
|             | Bit 7          | Bit 6 | Bit 5 | Bit 4         | Bit 3       | Bit 2 | Bit 1 | Bit 0 |
|-------------|----------------|-------|-------|---------------|-------------|-------|-------|-------|
| Byte 0 data | N/N            | N/N   | N/N   | Buzzer on/off | LED Color   |       |       |       |
| Byte 1 data | Buzzer Pattern |       |       |               | LED Pattern |       |       |       |

## Topic 10

# Programma maken

1. Rechterklik op network 2
2. Klik op "Insert Network (below)"
3. Zoek "OR" op en voeg hem toe aan de nieuwe network
4. Verwijder de input die er automatisch bij word gezet
5. Vul de informatie van de eerste byte in
6. Rechterklik op network 3
7. Klik op "Insert Network (below)"
8. Herhaal stap 5 voor de tweede byte
9. Klik op "Build Solution"

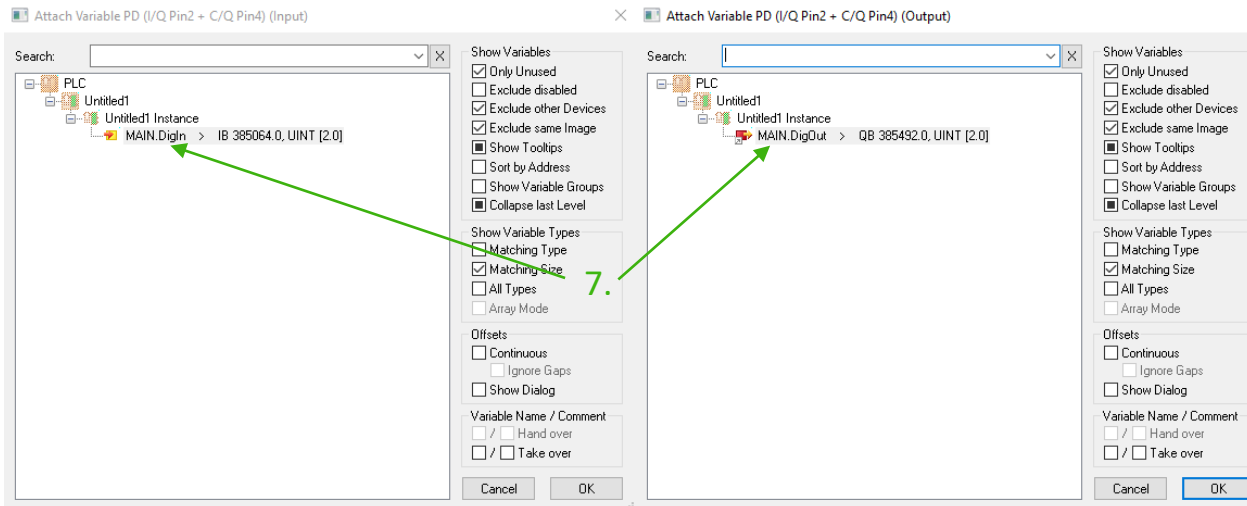
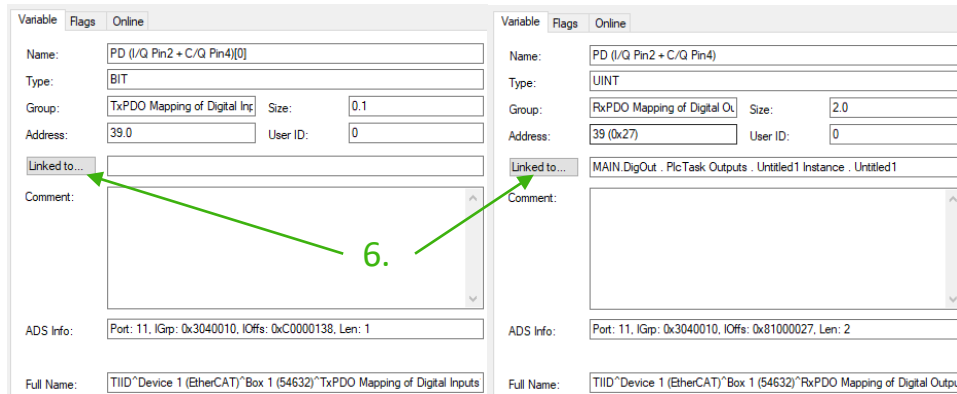




## Topic 10

# Programma maken

- Om de DIO te linken klik je op de ingangen of uitgangen onder box.
- Klik op Linked to.
- Selecteer de UINT die je wilt koppelen.



1. Click on "Module 5"

3. Double-click on "output byte 0"

6. Do this also for "output byte 1" and link these with "OutByte0"

Variable Properties for "output byte 0":

| Variable     | Flags         | Online     |
|--------------|---------------|------------|
| Name:        | output byte 0 |            |
| Type:        | USINT         |            |
| Group:       | RxPDO         | Size: 1.0  |
| Address:     | 41 (0x29)     | User ID: 0 |
| Linked to... |               |            |

## Topic 10

# Programma maken

1. Klik op "Module 5"
2. TwinCAT begint de bytes te lezen van de hoogste byte naar de laagste. (in dit geval leest TwinCAT dus eerst byte 1 en daarna byte 0)
3. Dubbelklik op "output byte 0"
4. Klik op "Linked to"
5. Dubbelklik op "OutByte1"
6. Doe dit ook voor "output byte 1" en link deze met "OutByte0"

5. Double-click on "OutByte1"

Dialog Box: Attach Variable output byte 0 (Output)

Search: [ ]

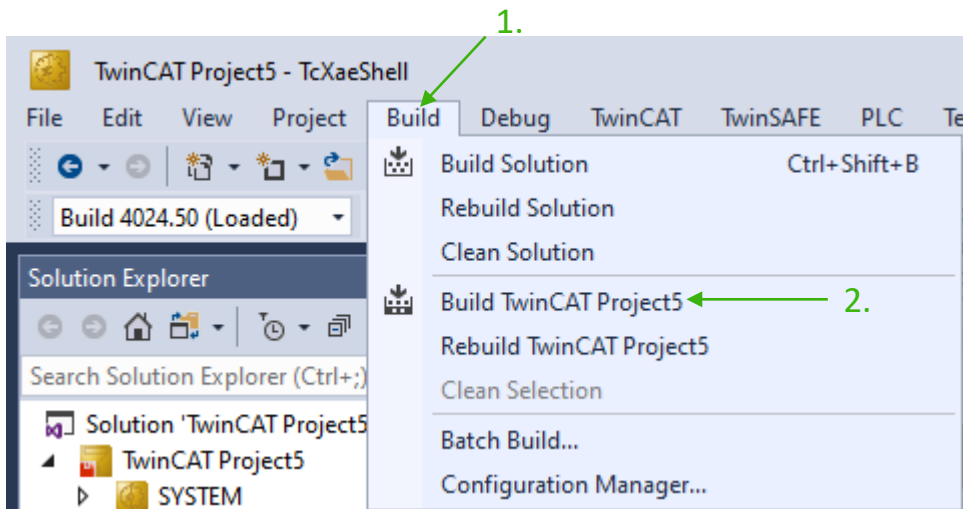
Variables found:

- MAIN.OutByte0 > QB 385016.0, BYTE [1.0]
- MAIN.OutByte1 > QB 385017.0, BYTE [1.0]

Options:


- Show Variables:
  - Only Unused
  - Exclude disabled
  - Exclude other Devices
  - Exclude same Image
  - Show Tooltips
  - Sort by Address
  - Show Variable Groups
  - Collapse last Level
- Show Variable Types:
  - Matching Type
  - Matching Size
  - All Types
  - Array Mode
- Offsets:
  - Continuous
    - Ignore Gaps
  - Show Dialog
- Variable Name / Comment:
  - /  Hand over
  - /  Take over

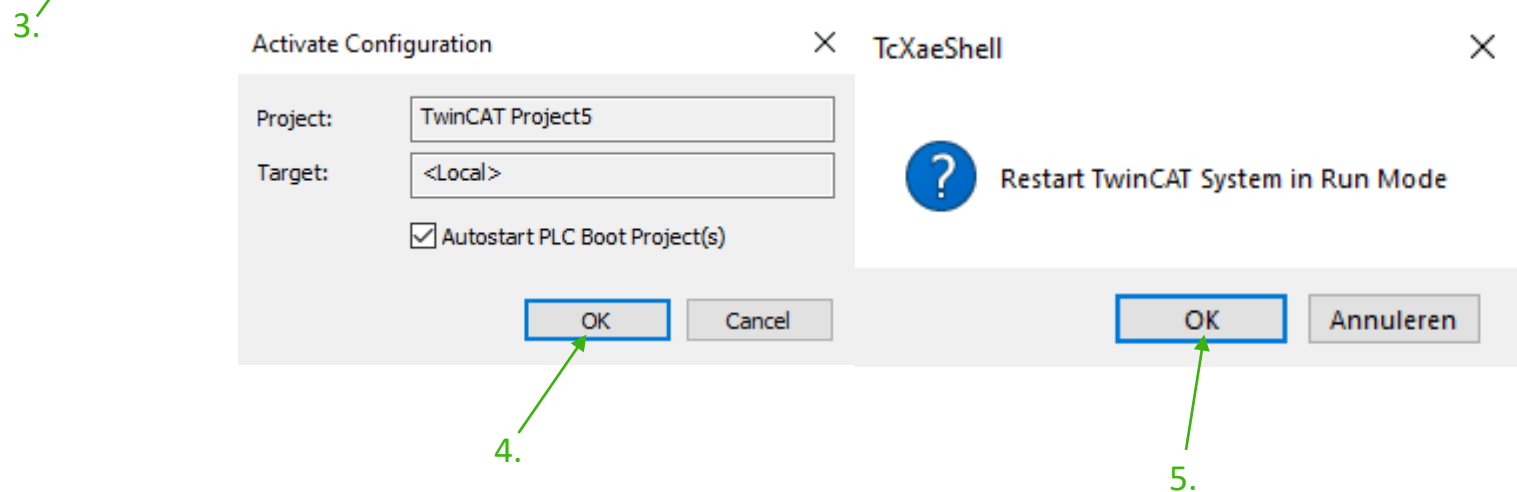
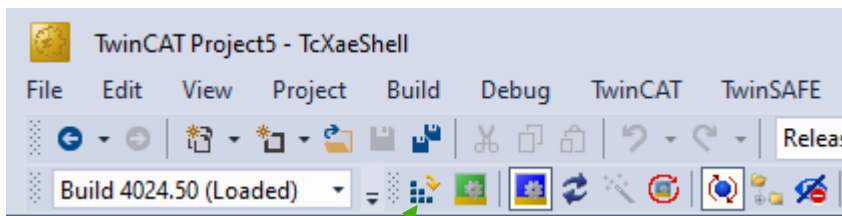
Buttons: Cancel, OK

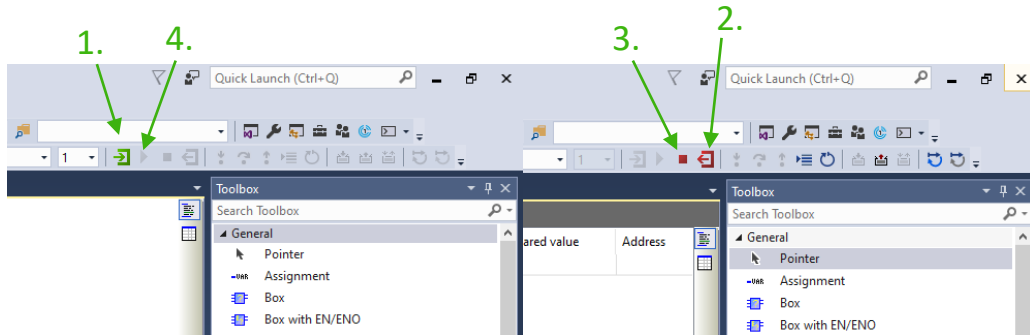


## Topic 11

### Build hardware





1. Klik op "Build"
2. Klik op "Build (naam project)"
3. Klik op  om je software over te zetten naar de module
4. Klik op "OK"
5. Klik op "OK"





## Topic 12

### Online kijken

1. Druk op  om online te gaan
2. Druk op  om offline te gaan
3. Druk op  om de Runtime te stoppen
4. Druk op  om de Runtime weer te starten

Controleer\_project.Untitled1.MAIN

| Expression     | Type | Value | Prepared value | Address | Comment |
|----------------|------|-------|----------------|---------|---------|
| DigIn          | UINT | 1     |                | %I*     |         |
| DigOut         | UINT | 0     |                | %Q*     |         |
| LED_Color      | BYTE | 5     |                |         |         |
| Buzzer         | BYTE | 16    |                |         |         |
| LED_Pattern    | BYTE | 5     |                |         |         |
| Buzzer_Pattern | BYTE | 80    |                |         |         |
| OutByte1       | BYTE | 21    |                | %Q*     |         |
| OutByte2       | BYTE | 85    |                | %Q*     |         |
| InByte1        | BYTE | 0     |                | %I*     |         |

Heb je vragen of opmerkingen?

Stuur een e-mail naar [techniek@murrelektronik.nl](mailto:techniek@murrelektronik.nl)

Thank You!



*stay connected*