

Your Global Automation Partner

Simatic Step 7 TIA Portal Profibus/Profinet Installation Guide

G1039

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Software

Simatic Step 7 TIA Portal – Current Version is V13. Go to the below link to download the necessary GSD/EDS files.

Turck GSD(ML) Files. In this example, find your device on the TURCK website. Select the **Info Material** tab, then click on Download for GSDML files.

| Products → Fieldbus Technology → Block I/O → | | | | | | | | |
|--|----------------------|--|--|----------|--|--|--|--|
| PRODUCT SEARCH | Product TBE | N-L4-16DXP | | | | | | |
| SENSORS > | | Compact multi 16 configurable outputs | Compact multiprotocol I/O module for Ethernet 16 configurable digital channels, as PNP inputs or 2 A outputs | | | | | |
| IDENTIFICATION > | | Order numbe | r: 6814012 | | | | | |
| CONNECTIVITY | 2365 | | | | | | | |
| FIELDBUS TECHNOLOGY | - | | | | | | | |
| Modular I/O | SPECIFICATION S | INFO MATERIAL CAD | DOWNLOAD | NLOAD | | | | |
| Block I/O | | | | | | | | |
| Foundation Fieldbus & PROFIBUS-PA | Data Sheet (English) | | 307 KB | Download | | | | |
| Accessories | Catalog | Networks Catalog | 83714 KB | Download | | | | |
| INTERFACE TECHNOLOGY | Configuration file | GSDML files | 17 KB | Download | | | | |
| MACHINE SAFETY > | O Configuration file | EDS files and Catalog files | 259 KB | Download | | | | |
| | | TBEN-L/ TBDP-L - | | | | | | |
| | User manual | Compact I/O modules for Ethernet and PROFIBUS-DP | 5797 KB | Download | | | | |
| DOWNLOADS > | | | | | | | | |

Target Files

Target files are required for Turck Programmable Gateways. The only applicable gateway for Profibus is the BL67-PG-DP. Turck Target Files

Simatic Step 7 TIA Portal Setup

Create a new project in TIA portal using **Project -> New.** Save the project in the desired location with the desired name.

| | Pro | oject | Edit | View | Insert | Online | Options | Tools | Windo | w | Help |
|---|---------------------------------------|----------------------------|---------------------|-------------------|--------|--------|--------------------|------------------------------|------------|------------|----------------|
| | i i i i i i i i i i i i i i i i i i i | New Open. Migrat | te proje | ect | | | Ctrl+O |)± (~ ª± nris Test | □ . ► D | IU evic | Ⅰ↑ 里 es & r |
| l | | Close | | | | | Ctrl+W | | | | |
| | - | Save Save | as | | | Ctrl- | Ctrl+S ⊦Shift+S | Network | u | Conn | ections |
| | | Delete Archiv Retrie | e proje e ve | ct | | | Ctrl+E | | | | |
| | . | Card F Memo | Reader/ ory card | /USB me I file | emory | |) | | | | |
| | | Upgra | de | | | | | | | | |
| | - | Print Print p | oreview | <i>I</i> | | | Ctrl+P | | | 3 | |

Load the previously downloaded GSD(ML) files by going to **Options -> Manage General Station Description Files (GSD)**.

| Pro | oject Edit View Insert Online | 0 | ptions | Tools | Window | Help | |
|-----|-------------------------------|---|------------------|---------------------|-----------------------------|----------------------------|----------|
| Ż | i 📑 🔚 Save project ا 🐰 📝 | 1 | Setting | IS | | | e , |
| | Project tree | | Suppo | rt packa | ges | | |
| | Devices | | Manag Start A | e gener utomati | al station o ion License | lescription fil Manager | es (GSD) |
| .ks | | # | Show r | Show reference text | | | |
| ē | | |) Global | libraries | - | | |



Navigate to where the GSD(ML) files were saved. Select them in the list and select **Install**. Once the files are installed, click **Close**.

| Manage general | station description | files | | | × | | | | | | |
|----------------|---|---------|--------------|-------------------|-------------|--|--|--|--|--|--|
| Source path: | rce path: C:\Users\Turck User\Documents\Automation\Chris Test\AdditionalFiles\GSD | | | | | | | | | | |
| Content of imp | orted path | | | | | | | | | | |
| File | | Version | Language | Status | Info | | | | | | |
| GSDML-V2.3-T | URCK-BL20_E_GW_E | V2.3 | English, Ger | Already installed | BL20-E-GW | | | | | | |
| GSDML-V2.3-T | URCK-TBEN_S-2014 | V2.3 | English, Ger | Already installed | TBEN Line T | | | | | | |
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Now that the GSD files have been saved, a PLC can be added. To do this, open the drop down menu underneath the project name in the project tree on the left hand side. Then double-click **Add new device**.

| | Project tree | |
|--------|---------------------------|---|
| | Devices | |
| | 🖻 O 🖉 🔲 | • |
| orks | | |
| Ę. | Chris Test | |
| ŭ | 📑 Add new device 🥿 | |
| 8 8 | Devices & networks | |
| i e | 🕨 🙀 Common data 🛛 🔪 | |
| Jev | Documentation settings | |
| | 🕨 🐻 Languages & resources | |
| | Online access | |
| | Card Reader/USB memory | |
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The Add new device window should pop up. Select the correct Simatics controller, CPU and the correct part number of your PLC. This information should be located on the side of your PLC. In this case, we're using Simatics S7-1200 -> CPU -> CPU 1211C DC/DC/DC -> 6ES7 211-1AE31-0XB0. Select OK when done.



Select the Topology tab to add other devices to the PLC.





If **Hardware Catalog** is not already open, click on the **Hardware Catalog** tab located on the far right side of the screen.



Adding a Profinet Device

To add a Profinet device, click on the **Other field devices** drop down menu, select the appropriate device. In this example, a Turck BL67-GW-EN is added by selecting **Other field devices -> Profinet IO -> I/O -> Turck -> Turck -> Head Module -> BL67 -> BL67-GW-EN**.





Once double clicked, the BL67 Gateway will be added to the workspace as seen below. The PLC and the Gateway can be connected by clicking on the appropriate green square of the PLC and dragging it over to the green square of the BL67.

| 114 🔛 🔍 ± | | 3 |
|--------------------|--|---|
| PLC_1 CPU 1211C | turck-bl67 BL67-GW-EN Not assigned | |

Clicking the BL67 Gateway will open up the properties for the BL67. The IP address can be changed under the **IP Protocol** section.

| turck-bl67 [Module] | | 🔯 Properties 🚺 Info 🔒 🗓 Diagnostics 🚽 🗏 |
|--------------------------------------|-------------------------|---|
| General IO tags Sy | stem constants Texts | |
| General Catalog information | PROFINET interface [X1] | |
| General | General | |
| Ethernet addresses | | |
| Advanced options | Name: | PN-IO |
| Interface options | Comment | |
| Media redundancy | | |
| Real time settings | | |
| Port 1 [X1 P1 R] | | × |
| Fort 2 [X1 P2 R] | | |
| Diagnostics addresses | Ethernet addresses | |
| Module parameters | | |
| bignesies understes | Subnet: | PN/E_1 |
| | Use IP protocol | |
| | | Set IP address in the project X |
| | | IP address: 192 . 168 . 0 . 2 |
| | | Subnet mask: 255 . 255 . 0 |
| | | Use router |
| | | Router address: 0 0 0 |
| | | O IP address is set directly at the device |
| | PROFINET | |
| | | Generate PROFINET device name automatically |
| | PPOFINET device name | turckbl67 |

Adding Module to Profinet Device

Double click the BL67 Gateway to bring up the **Device View**. BL67 modules can be added from the **Hardware Catalog** tab located on the right. Open the **Module** branch and select the correct modules attached to the BL67.



Once the BL67 modules are selected, the modules should populate in the **Device Overview** tab.



By selecting a BL67 module, the module properties will open. The parameters of the selected module can be changed by selecting **Module parameters**. The station parameters should now



Adding a Profibus-DP Device

To add a Profibus-DP device, double click back on the PLC under the **Topology View** tab. In the **Hardware Catalog** section, add the appropriate Profibus-DP card by selecting **Communication Modules -> Profibus ->** card part number.

| | | | | | | | | | 🖉 Topolog | view | h Net | twork view | Device view | Options |
|----------|-----|------|-----|----|---------------------|-----|------|--------------|------------|------|-----------------|------------|------------------------|--|
| de PLC_1 | | • | | 60 | 🔍 ± | - | Devi | ce overview | | | | | | |
| | | | | | | ^ | | Module | s | | address | O address | Type | ✓ Catalog |
| | | | | | | | - | | 10 | з | | | 11 | <searchs mit="" mit<="" td=""></searchs> |
| | | | | | | = | | | 10 | 2 | | | | Filter |
| | | | | 57 | | | | | 1(| 1 | | | | |
| | | | | 4 | | | | PLC_1 | 1 | | | | CPU 1211C DC/DC/DC | Signal heards |
| | | | | | | | | DI 6/DQ 4_1 | 1 | | 0 | 0 | DI 6/DQ 4 | Communications beards |
| | 102 | 100 | 101 | | | | | AI 2_1 | 1 | 2 (| 6467 | | AI 2 | Rattery beards |
| | 105 | 102 | 101 | | 1 | | | | 1 | 3 | | | | |
| Rack_0 | | | | | 2012/12/00 | | | HSC_1 | 1 | 6 | 1 000 10 | | HSC | |
| | | | | | l | | | HSC_2 | 1 | 7 | 100410 | | HSC | |
| | | | | | | | | HSC_3 | 1 | 8 | 100810 | | HSC 🔪 | ▶ 🖬 AI |
| | | | | 10 | CHU IANS DEALCOR | | - | HSC_4 | 1 | 9 | 101210 | | HSC |) AQ |
| | | | | | | | • | HSC_5 | 1 | 20 | 101610 | | HSC | |
| | | | | | | | | HSC_6 | 1 | 21 | 1 020 10 | | HSC | Communications modules |
| | | | | | | | | Pulse_1 | 1 | 32 | | 100010 | Pulse generator (PTO/P | Industrial Remote Communication |
| | | _ | | | | | | Pulse_2 | 1 | 33 | | 100210 | Pulse generator (PTO/P | - ROFIBUS |
| | | | | | | | | Pulse_3 | 1 | 84 | | 100410 | Pulse generator (PTO/P | - CM 1242-5 |
| | | | | | | | | Pulse_4 | 1 | 35 | | 100610 | Pulse generator (PTO/P | 6GK7 242-5DX30-0XE0 |
| | | | | | | | | PROFINET int | erface_1 1 | C1 | | | PROFINET interface | CM 1243-5 |
| | | | | | | | _ | | | | | | | Point-to-point |
| | | | | | | | | | | | | | | Identification systems |
| | | | | | | | | | | | | | | AS interface |
| | | | | | | | | | | | | | | Technology modules |
| | | | | | | ~ | | | | | | | | |
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The Profibus card can be double clicked to add the card to the first available slot or clicked and dragged to the appropriate spot.





From here, a Profibus-DP module can be added by selecting the PLC. Then selecting **Other field devices** under **Hardware Catalog.** If **Other field devices** is not available, uncheck the filter button. Select **Profibus DP -> I/O -> Turck Inc. -> TURCK -> BL COMPACT -> BLCDP ->** Profibus DP module to add the module to the project. A BLCDP slave is added in this example.

| ✓ Catalog |
|---|
| <search></search> |
| Filter |
| Controllers |
| 🕨 🧰 HMI |
| PC systems |
| Drives & starters |
| Image: |
| Detecting & Monitoring |
| Distributed I/O |
| Field devices |
| • Im Other field devices |
| Additional Ethernet devices |
| PROFINET IO |
| ✓ Im PROFIBUS DP |
| Drives |
| Encoders |
| 🕨 📶 Gateways |
| 🕨 🛅 General |
| ▼ 1/0 |
| ▼ Im Turck Inc. |
| TURCK |
| ✓ I BL COMPACT |
| |
| Ident systems |
| PLCs |

Select the **Network View** tab to view the entire project. As before, the Profibus-DP device can be connected to the card by clicking and dragging between the two purple squares.

| | | 6 | Р Тор | ology view 🔥 Network | : view 🔤 👔 Device v | iew |
|--|-----|---|-----------|----------------------|---------------------|-----|
| 💦 Network 🔡 Connections HMI connection 💌 📅 🖽 🔍 ± | | | Netwo | ork overview Connect | tions | • • |
| | ^ | | ** | evice | Туре | Add |
| | | | • | 57-1200 station_1 | S7-1200 station | |
| PLC 1 | | | | CM1242-5 | CM1242-5 | |
| CPU 1211C | | | | PLC_1 | CPU 1211C DC/DC/DC | |
| Not assigned | | | • | GSD device_1 | GSD device | |
| | | | | Slave_1 | BLCDP | 2 |
| | | | | GSD device_2 | GSD device | |
| PROFIBUS_1 PN/IE_1 | | | | turck-bl67 | BL67-GW-EN | |
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Double-click the Profibus-DP module to open the Device view. From here, the device address and the device parameters can be changed.

