



See the Big Picture



ibaPDA-Interface-TwinCAT-Xplorer

PLC-Xplorer Data Interface to Beckhoff Systems

Manual
Issue 1.1

**Measurement Systems
for Industry and Energy**

Manufacturer

iba AG
Koenigswarterstr. 44
90762 Fuerth
Germany

Contacts

Head office +49 911 97282-0
Fax +49 911 97282-33
Support +49 911 97282-14
Engineering +49 911 97282-13
E-Mail: iba@iba-ag.com
Web: www.iba-ag.com

Unless explicitly stated to the contrary, it is not permitted to pass on or copy this document, nor to make use of its contents or disclose its contents. Infringements are liable for compensation.

© iba AG 2018, all rights reserved.

The contents of this publication has been checked with the hardware and software described herein. Nevertheless, discrepancies cannot be ruled out, and we do not provide guarantee for complete conformity. However, the information furnished in this publication is updated regularly. Any corrections required are incorporated in subsequent editions or can be downloaded from the Internet.

The current version is available for download on our web site <http://www.iba-ag.com>.

Issue	Date	Revision	Author	Version SW
1.1	15-05-2018	updated, chapter 2, 3.3	RM/IP	6.36

Windows® is a brand and registered trademark of Microsoft Corporation.

TwinCAT is a brand and registered trademark of Beckhoff Automation GmbH & Co KG, Verl, Germany

Other product and company names mentioned in this documentation may be brand names or trade names of the respective owners.

Table of Contents

1	About this Manual.....	3
1.1	Target group and previous knowledge	3
1.2	Notations	3
1.3	Used symbols.....	4
2	System requirements	5
3	PLC-Xplorer data interface to TwinCAT PLCs	7
3.1	General information	7
3.2	System topologies	7
3.3	Configuration and engineering TwinCAT.....	8
3.4	Configuration and engineering ibaPDA.....	11
3.4.1	General interface settings.....	11
3.4.2	Add module	12
3.4.3	General module settings.....	13
3.4.4	Connection settings	14
3.4.5	Signal configuration	17
3.4.6	Module diagnostics.....	20
3.4.7	Module Technostring	20
4	Diagnostics	23
4.1	License.....	23
4.2	Log files.....	23
4.3	Connection diagnostics with PING.....	24
4.4	Connection table	25
4.5	Module diagnostics.....	25
5	Support and contact.....	26

1 About this Manual

This documentation contains a comprehensive description of the *ibaPDA-Interface-TwinCAT-Xplorer* individual PLC-Xplorer data interface.

This documentation is a supplement to the *ibaPDA* manual. Information about all the other characteristics and functions of *ibaPDA* may be found in the *ibaPDA* manual or in the online help.

1.1 Target group and previous knowledge

This documentation addresses qualified professionals, who are familiar with handling electrical and electronic modules as well as communication and measurement technology. A person is regarded as a professional if he/she is capable of assessing the work assigned to him/her and recognizing possible risks on the basis of his/her specialist training, knowledge and experience and knowledge of the standard regulations.

This documentation in particular addresses persons, who are concerned with the configuration, test, commissioning or maintenance of Programmable Logic Controllers of the supported products. For the handling of *ibaPDA-Interface-TwinCAT-Xplorer* the following basic knowledge is required and/or useful:

- Windows operating system
- Basic knowledge of *ibaPDA*
- Knowledge of configuration and operation of the relevant control system

1.2 Notations

In this manual, the following notations are used:

Action	Notation
Menu command	Menu <i>Logic diagram</i>
Calling the menu command	<i>Step 1 – Step 2 – Step 3 – Step x</i> Example: Select the menu <i>Logic diagram - Add - New function block</i> .
Keys	<Key name> Example: <Alt>; <F1>
Press the keys simultaneously	<Key name> + <Key name> Example: <Alt> + <Ctrl>
Buttons	<Key name> Example: <OK>; <Cancel>
File names, paths	"Filename", "Path" Example: "Test.doc"

1.3 Used symbols

If safety instructions or other notes are used in this manual, they mean:

DANGER

The non-observance of this safety information may result in an imminent risk of death or severe injury:

- From an electric shock!
 - Due to the improper handling of software products which are coupled to input and output procedures with control function!
-

WARNING

The non-observance of this safety information may result in a potential risk of death or severe injury!

CAUTION

The non-observance of this safety information may result in a potential risk of injury or material damage!



Note

A note specifies special requirements or actions to be observed.



Important note

Note if some special features must be observed, for example exceptions from the rule.



Tip

Tip or example as a helpful note or insider tip to make the work a little bit easier.



Other documentation

Reference to additional documentation or further reading.



Example

Configuration and application examples for a better understanding

2 System requirements

The following system requirements are necessary for the use of the TwinCAT-Xplorer data interface:

- ❑ *ibaPDA* V6.36 or more recent
- ❑ *ibaPDA* base license + license for *ibaPDA-Interface-PLC-Xplorer* or *ibaPDA-Interface-TwinCAT-Xplorer*
- ❑ If you need more than 16 connections, you will require additional *one-step-up-Interface-TwinCAT-Xplorer* licenses.



Note

The *ibaPDA-Interface-PLC-Xplorer* license contains, among others, the license for the interface TwinCAT-Xplorer.

- ❑ The TwinCAT ADS communication library of Beckhoff must be installed on the *ibaPDA* computer. If TwinCAT v2 or v3 is installed on the computer where the *ibaPDA* is running, then the library is usually available.
If TwinCAT is not installed on the *ibaPDA* computer, then you will have to download the TwinCAT 3 ADS runtime from the Beckhoff website <http://www.beckhoff.com>. There, navigate to *Download - Software - TwinCAT 3 - TC1xxx - Runtime - TC1000 - TC3.1 ADS*.
Start the installer and select full install.
The TwinCAT 3 ADS runtime supports also TwinCAT 2.

For further requirements for the used computer hardware and the supported operating systems, please refer to the *ibaPDA* documentation.

License information

Order No.	Product name	Designation
31.001.042	ibaPDA Interface PLC-Xplorer	Extension license for an ibaPDA system adding all available Xplorer data interfaces.(Full specification under www.iba-ag.com)
31.000.005	ibaPDA-Interface-TwinCAT-Xplorer	Extension license for an ibaPDA system adding the data interface: + TwinCAT-Xplorer (interface to TwinCAT)
31.100.005	one-step-up-Interface-TwinCAT-Xplorer	Extension license for 16 further TwinCAT-Xplorer connections, a maximum of 14 extension licenses is permissible

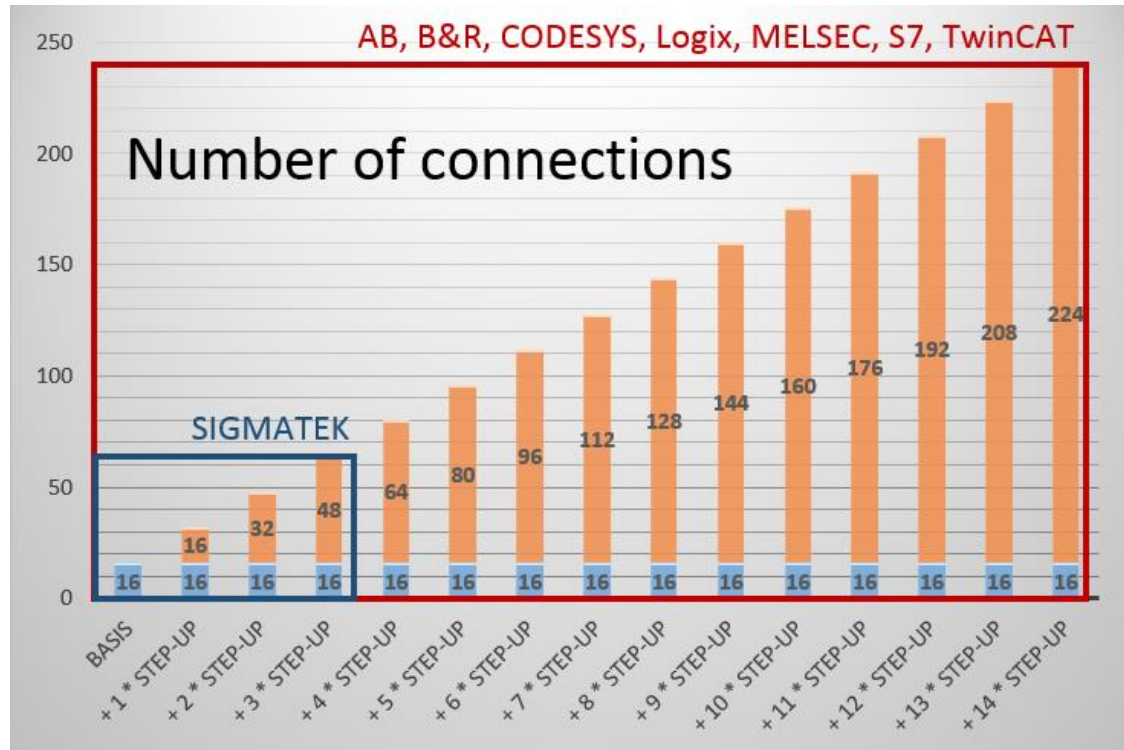
Table 1: Table 1: Available TwinCAT-Xplorer licenses, as at ibaPDA-V6.36.0



Note

The license for individual data interfaces can be enabled multiple times on one dongle, so that it is possible to use more than 16 connections per interface. To this end, you can purchase the *one-step-up-...* extension licenses separately for each interface. Up to 16 further connections to PLCs can be established on each *one-step-up*-license. Up to 240 connections can be configured and used per data interface with the multiple purchase or multiple release of these licenses (up to 15 in total).

Exception of SIGMATEK: here, only up to 4 licenses (64 connections) can be activated.



You have to take into consideration the limitation of the number of signals by the *ibaPDA* base license.

3 PLC-Xplorer data interface to TwinCAT PLCs

3.1 General information

The TwinCAT-Xplorer data interface is suitable for the recording of measured data on a Beckhoff PLC using the Beckhoff ADS protocol over standard network cards. Access is transparent for the controller. It is not necessary to configure or program the controller especially.

Up to 16 connections can be configured with a TwinCAT-Xplorer interface on each license. A total of a maximum of 240 connections can be implemented by the additional purchase of up to 14 further one-step-up-TwinCAT-Xplorer licenses. One connection is required for each Beckhoff PLC.

The interface supports TwinCAT versions 2 and 3 running on industrial PCs, embedded PCs (CX series) and bus controllers (BC/BX series).

The signals to be measured can be conveniently selected using their symbolic names with support from the *ibaPDA* Symbol Browser. This allows access to all measurable symbols, which are stored in the PLC itself or which are available in a symbol file (.tpy).

3.2 System topologies

The connections to the controllers can be established via the computer's standard Ethernet ports.

No further software is necessary for operation.



Note

It is recommended carrying out the TCP/IP communication on a separate network segment to exclude a mutual influence by other network components.

3.3 Configuration and engineering TwinCAT

No particular configuration and programming is required on the controller side as a matter of principle. In particular, it is not necessary to call any program modules.

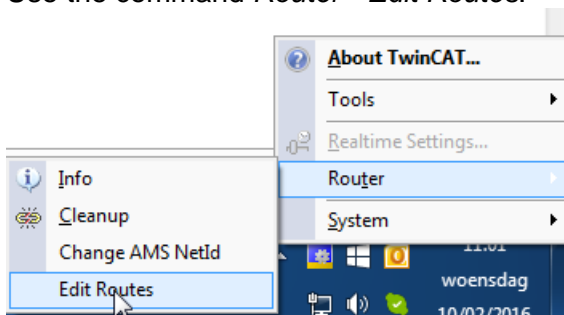
However, you should consider the following.

Edit routes

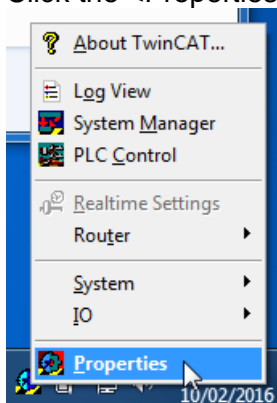
On the *ibaPDA* server computer there is also an ADS router installed when the TwinCAT ADS library is installed. An entry to the remote PLC needs to be entered in the routing table of this ADS router. Also an entry for the *ibaPDA* server computer's AMS Net ID needs to be entered in the routing table of the remote ADS router. This can be done by the ADS router configuration tool. If the TwinCAT software is installed on the *ibaPDA* computer, the routes may already be set because TwinCAT uses the same routes to the PLC.

There are different ways to open the configuration tool:

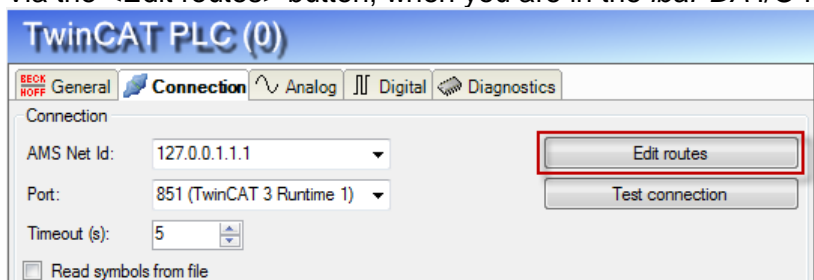
- ❑ Via the context menu on the TwinCAT system tray icon
Use the command *Router - Edit Routes*.



- ❑ Via the context menu on the TwinCAT system tray icon.
Click the <Properties> button.



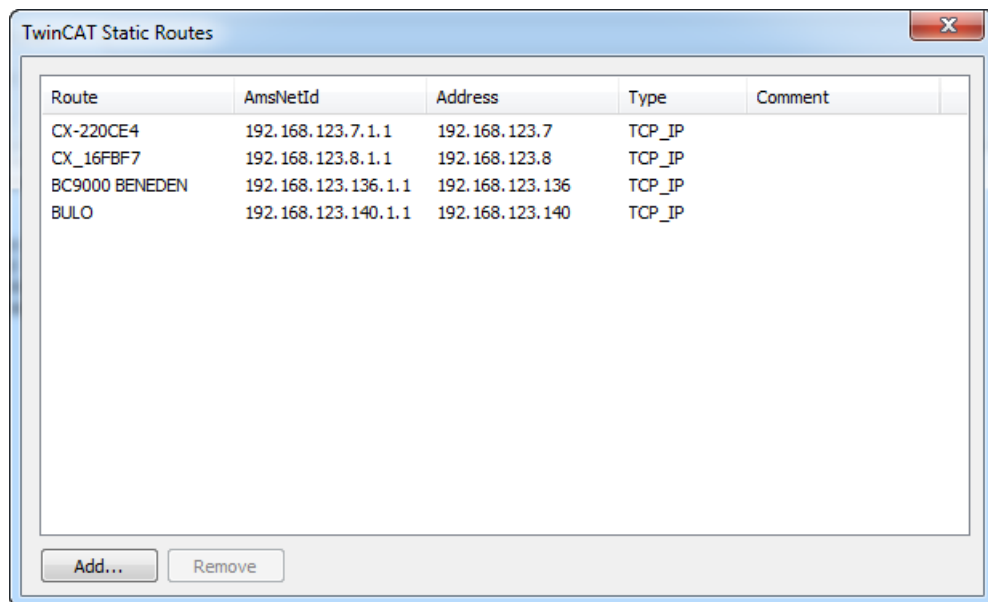
- ❑ Via the <Edit routes> button, when you are in the *ibaPDA* I/O Manager



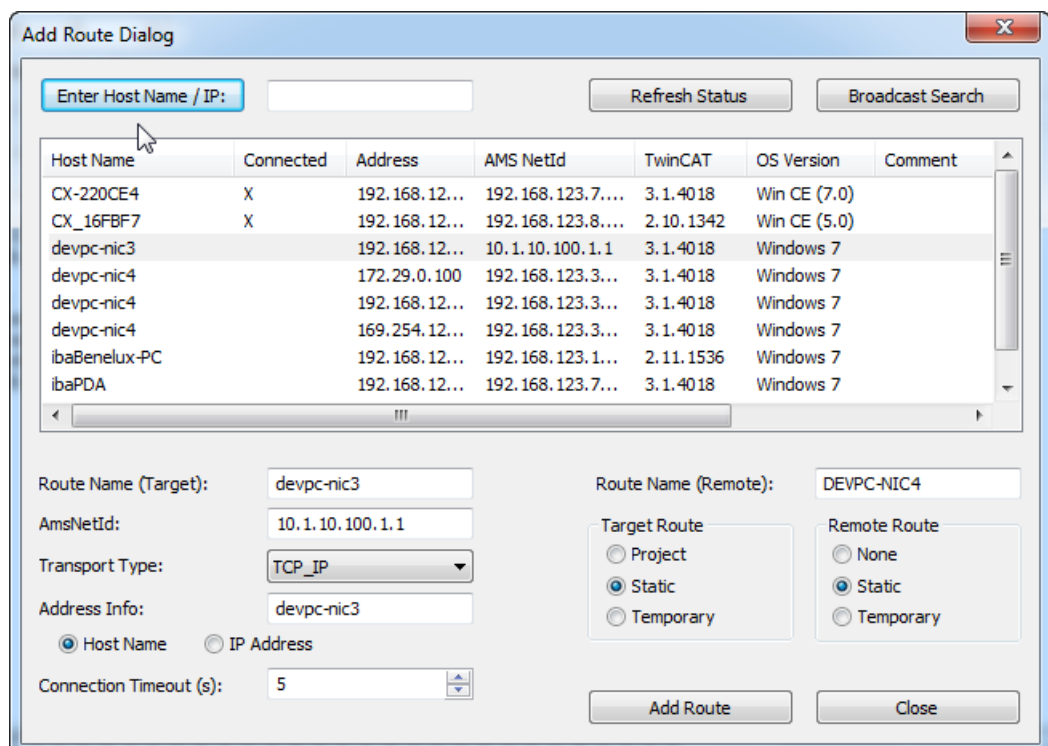
In order to configure the required routes follow these steps:

If TwinCAT 3 or the TwinCAT 3 ADS runtime is installed

1. After starting the tool, the following dialog will be opened.



2. Click the <Add...> button to add a new route.

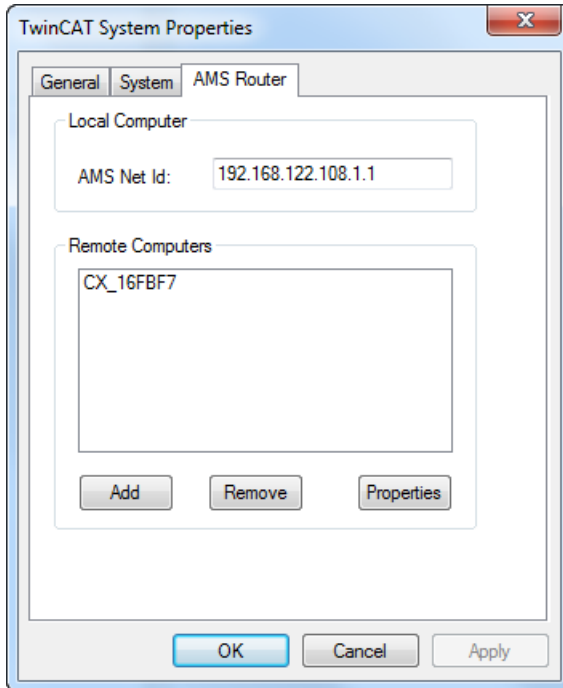


3. Use the <Broadcast Search> button to look on the local network for compatible TwinCAT PLCs.
4. Then either select a found PLC or enter the *Route Name*, *AmsNetId* and *Address Info* manually.
5. Select *Static* for *Target Route*.
6. Select *Static* for *Remote Route* when connecting to a TwinCAT PLC. Select *None* for *Remote Route* when connecting to a bus controller.
7. Finally click the <Add Route> button to add the route into the routing table.

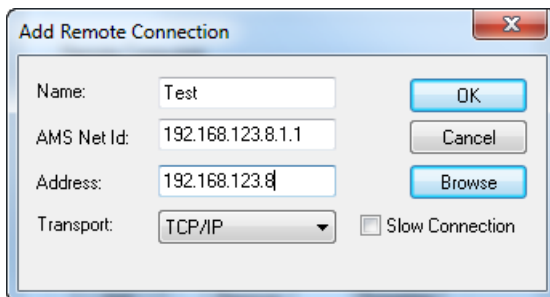
The router will try to connect to the remote ADS router and might require a user name and password. If the connection was successful then an X will appear in the "Connected" column.

If TwinCAT 2 is installed

1. After starting the tool, the following dialog will be opened:



2. Click the <Add> button to add a new route.



3. Enter manually the *Name*, *AMS Net Id*, *Address* fields.
4. Click the <OK> button to add the route into the routing table.


Once the routing tables are correct, you can connect to the PLC in *ibaPDA*.



Note

If "ADS Error 1796 (0x704): ADS ERROR: reading/writing not permitted" appears, be sure to enter username only without domain, hostname or IP address as prefix.

3.4 Configuration and engineering ibaPDA

Open the I/O manager from the toolbar . 

If all system requirements are met (see *System requirements*, page 5), the TwinCAT-Xplorer interface will be displayed in the signal tree.

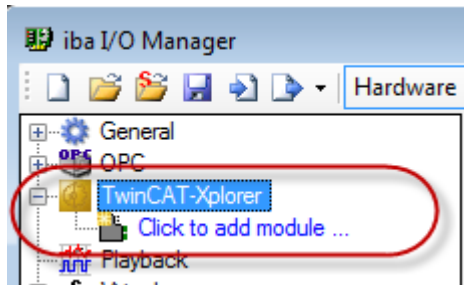


Figure 1: TwinCAT-Xplorer interface in the I/O manager

3.4.1 General interface settings

The interface itself has the following functions and configuration options:

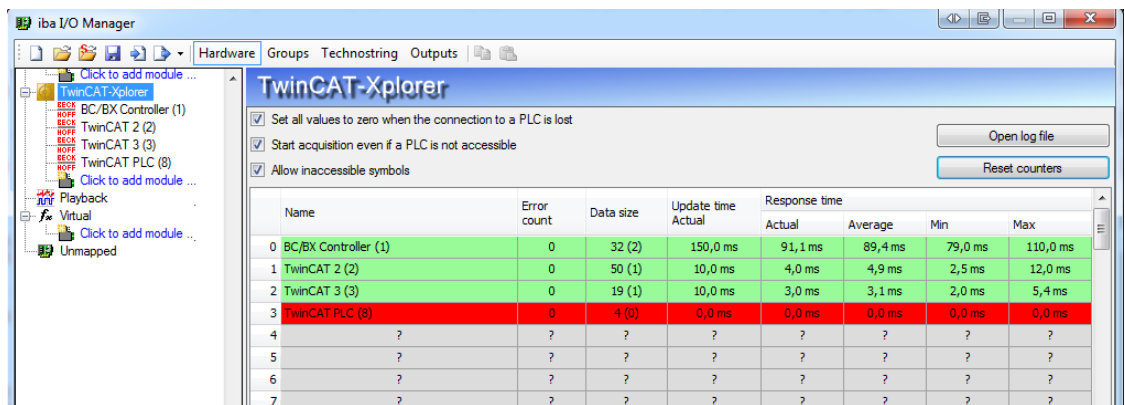


Figure 2: General interface settings

- Set all values to zero when the connection to a PLC is lost
If enabled, all measured values of the PLC are set to zero as soon as the connection is lost. If this option is disabled, *ibaPDA* will keep the last valid measured data in memory at the time the connection was lost.
- Start acquisition even if a PLC is not accessible
If this option is enabled, the acquisition will start even if the controller is not accessible. In case of an error, a warning is indicated in the validation dialog. If the system has been started without a connection to the controller, *ibaPDA* will periodically try to connect to the PLC.
- Allow inaccessible symbols
Enable this option if you wish to start acquisition even if symbols are not accessible. The inaccessible symbols are issued as warnings in the validation dialog box and not as errors.
This can only occur if the address book is not up-to-date.
Measurement will not start when inaccessible symbols are present if you do not enable this option.

Connection table

The table shows the response time values (actual, average, minimum and maximum) and error counters for the individual connections during data measurement. To reset the calculated times and error counters to zero, simply click on the <Reset counters> button.

➤ See chapter *Connection table*, page 25 in this regard.

The data size column shows how much data is read per read. The number in brackets shows how many ADS commands are required to read the data. The higher the number of required ADS commands is, the slower the response time will be.

Open log file

If connections to TwinCAT controllers have been established, all connection-specific actions are logged in a text file. Using this button, you can open and see this file. In the file system on the harddisk, you will find the log file in the program path of the *ibaPDA* server (...\\Programs\\iba\\ibaPDA\\Server\\Log\\). The file name of the current log file is **TwinCATLog.txt**, the name of the archived log files is **TwinCATLog_yyyy_mm_dd_hh_mm_ss.txt**.

3.4.2 Add module

Add a module by clicking below the interface.

There are 2 types of modules available, which you can add to the TwinCAT-Xplorer interface:

TwinCAT PLC

Use this when you want to measure from an industrial PC or embedded PC (CX series).

BC/BX Controller

Use this when you want to measure from a bus controller.

Select the desired module type and click <OK>.

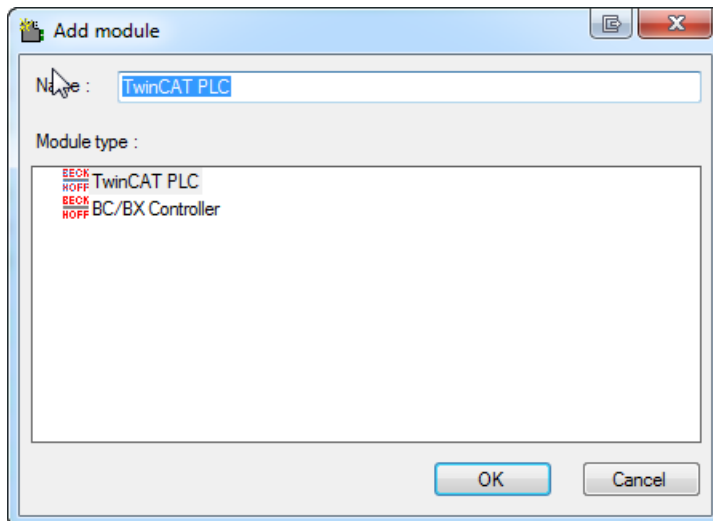


Figure 3: Add modules

A connection is allocated for each module.

3.4.3 General module settings

All modules have the following common settings.

Basic	
Module Type	TwinCAT PLC
Locked	False
Enabled	True
Name	TwinCAT PLC
Module No.	0
Timebase	10 ms
Use name as prefix	False
Module Layout	
No. analog signals	32
No. digital signals	32
PLC	
Address mode	Indirect
Update time	10 ms
Name The name of the module.	
Select symbols	

Figure 4: General module settings

Basic settings

Module type

Indicating the type of the current module (TwinCAT PLC or BC/BX Controller)

Locked

A module can be locked to prevent accidental or unauthorized modification of the module settings.

Enabled

Disabled modules are excluded from signal acquisition.

Name

The plain text name should be entered here as the module designation.

Module No.

Internal reference number of the module. This number determines the order of the modules in the signal trees of *ibaPDA* client and *ibaAnalyzer*.

Timebase

All signals of the module will be sampled on this time base.

Use name as prefix

Puts the module name in front of the signal name.

Module Layout

Number of analog and digital signals

Defines the number of configurable analog and digital signals in the signal tables. The default value is 32 for each. You can change the number. The maximum value is 1000.

PLC

Address mode (type TwinCAT PLC only)

This setting determines how the data for symbols is read from the PLC.

- **Direct address mode**
Data is read directly from the symbol address listed in the address book. This mode is faster than the indirect mode. In case of online change or after loading a new configuration in the PLC which may cause a change of addresses, *ibaPDA* might read the wrong data.
- **Indirect address mode**
Data is read via a handle that is generated by the PLC from the symbol name. In indirect mode, *ibaPDA* will always read the correct data even when the symbol address has changed.

Indirect mode is not supported on BC/BX devices, which is why this setting is not available for BC/BX Controller modules.

Update time

Gives the reference update time in which the data is retrieved from the PLC. During measurement, the actual update time can be higher than the specified value if the PLC needs more time to transmit the data. You can check in the connection table how quickly the data is actually updated.

Link "Select symbols"

Click on this link after the connection has been successfully established in order to configure the signals to be measured.

➤ For more information, see chapter *Signal configuration*, page 17

3.4.4 Connection settings

The connection of the module to the controller is configured in the *Connection* tab. You should enter the required parameters.

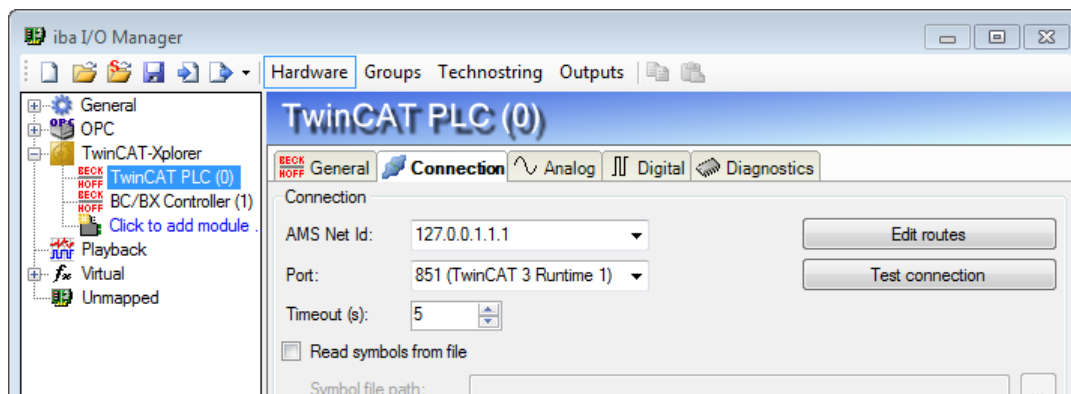


Figure 5: Connection settings

AMS Net-ID

Enter the AMS Net Id here.

This is the address of an ADS router. It is an extension of the IP address. It consists of 6 bytes. Usually the first 4 bytes are the IP address and the last 2 bytes are 1.

Port

The port number determines the ADS device that is connected to the router. There are predefined port numbers for the TwinCAT runtimes:

- 800: for BC/BX bus controllers
- 801, 811, 821, 831: for the 4 possible TwinCAT 2 runtimes
- 851, 852, 853, 854: for the 4 possible TwinCAT 3 runtimes

Timeout

Here you can specify a value for the timeout in seconds for establishing the connection and for read accesses. Exceeding the time specified here can lead to the controller being declared not accessible or not responsive.

<Edit routes> button

Pressing this button will open the ADS router configuration tool provided TwinCAT ADS library is installed on the *ibaPDA* computer.

➤ For more information, see chapter *Configuration and engineering TwinCAT*, page 8

Once the routing tables are correct, you can connect to the PLC in *ibaPDA*. Use the <Test connection> button on the *Connection* tab.

<Test connection> button

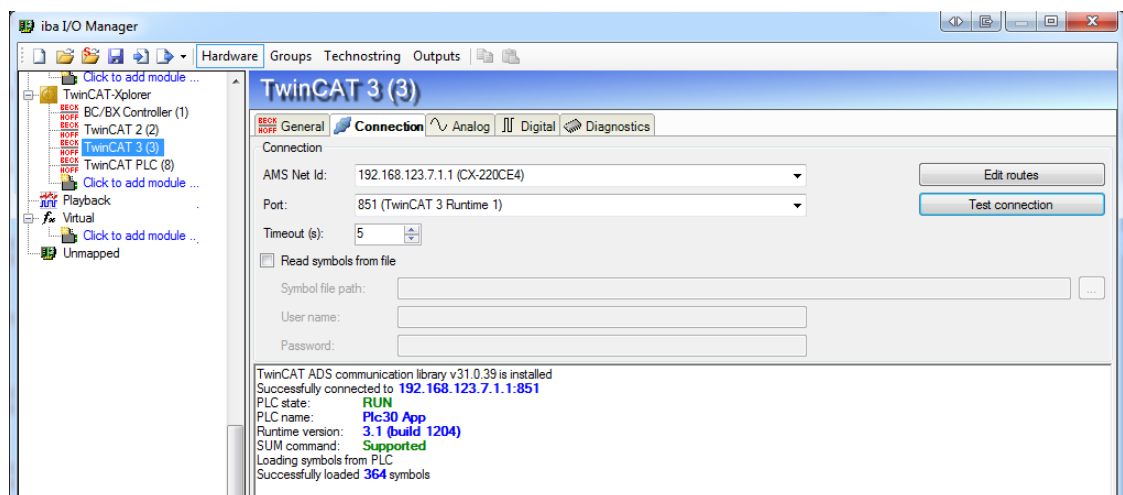
An attempt is made to establish a connection to the controller using the connection parameters specified. If successful, the information relating to the PLC will be displayed, such as status, name, runtime version and whether it supports the SUM command.



Note

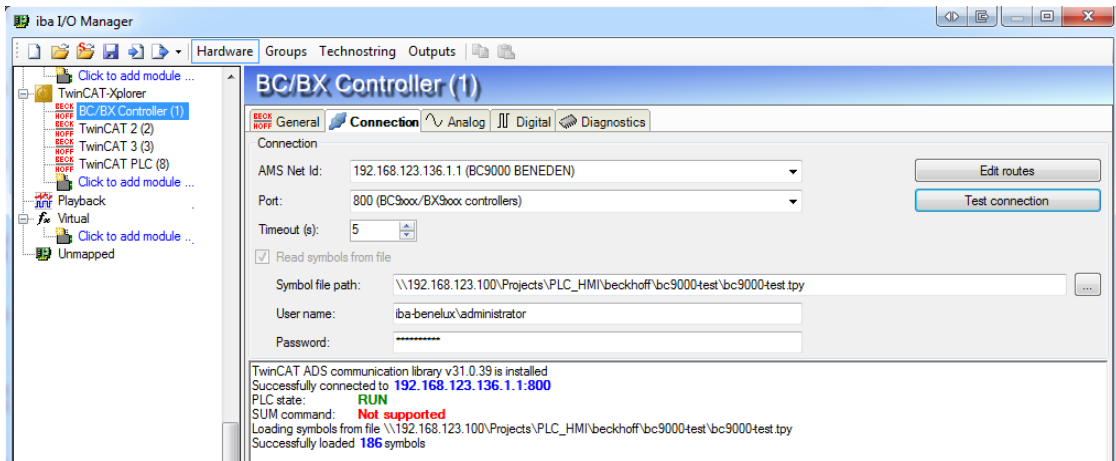
The SUM command is used to send multiple ADS read commands inside of a single ADS SUM command. This speeds up the response time a lot.

On most TwinCAT PLCs the symbols are stored on the PLC itself. If this is the case then *ibaPDA* will load the symbols from the PLC during the connection test.



If the symbols are not stored on the PLC, which is the case for bus controllers, then a symbol file needs to be specified. The symbol file is a .tpy file that is generated by the TwinCAT compiler. It is normally located in the same directory as the project file. The *ibaPDA* service is going to access the symbol file. This means that if the symbol file is

located on a network share then you need to specify the UNC path and proper user credentials for it.



3.4.5 Signal configuration

The variables to be measured are configured in the Analog and Digital tabs.

The length of the signal tables, i.e. the number of signals per table, is specified in the general module settings, module layout (see *General module settings*, page 13).



Note

Observe the maximum number of signals permitted by your license.



Note

Take into consideration that the number of signals, which are read by a CPU, influences the minimum achievable update cycle. The more signals acquired, the longer the achievable update time.

Selection of the signals to be measured

You have two options to select the signals to be measured:

1. Click on the Select symbols hyperlink in the module's *General tab*.

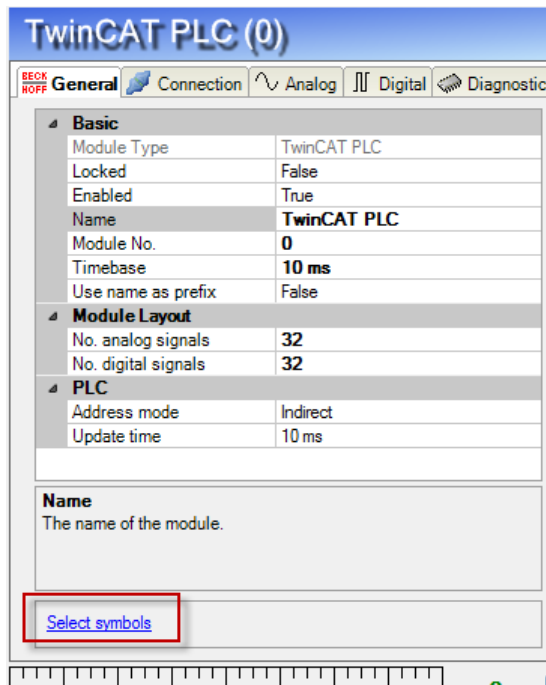



Figure 6: Calling the symbol browser

Clicking on the link opens the TwinCAT symbol browser.

2. Clicking on a field in the Symbol column of the Analog or Digital tab.

The icon  is displayed. A click on the icon opens the TwinCAT symbol browser.

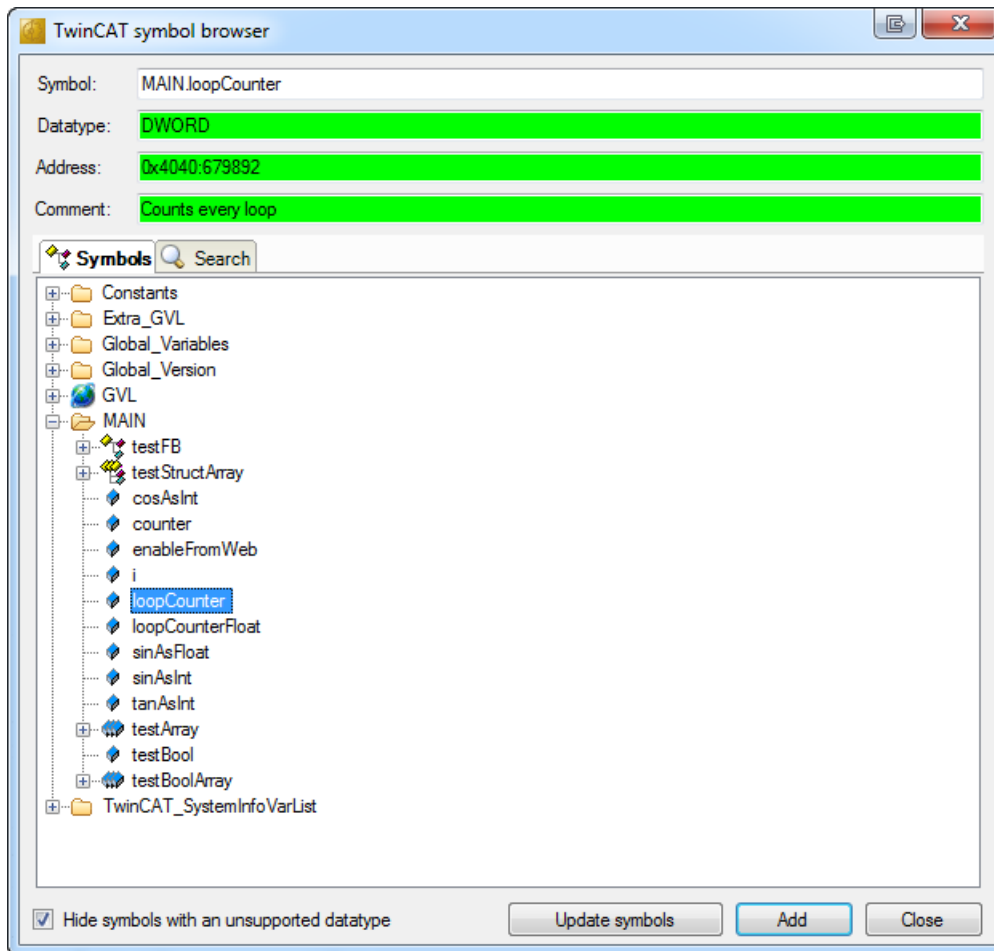


Figure 7: TwinCAT symbol browser, symbol selection

The symbol browser shows all the symbols that were loaded from the PLC or imported from the symbol file. You can select single or multiple symbols in the tree.

Click the <Add> button to add them to the corresponding analog or digital signal table. If you selected a single symbol then the next symbol will be selected after you clicked the <Add> button. This allows you to hit <Add> multiple times in order to add consecutive symbols. You can also double click a symbol to add it to the signal table. Use the <Update symbols> button to read the symbols again from the PLC or to read the symbol file again.

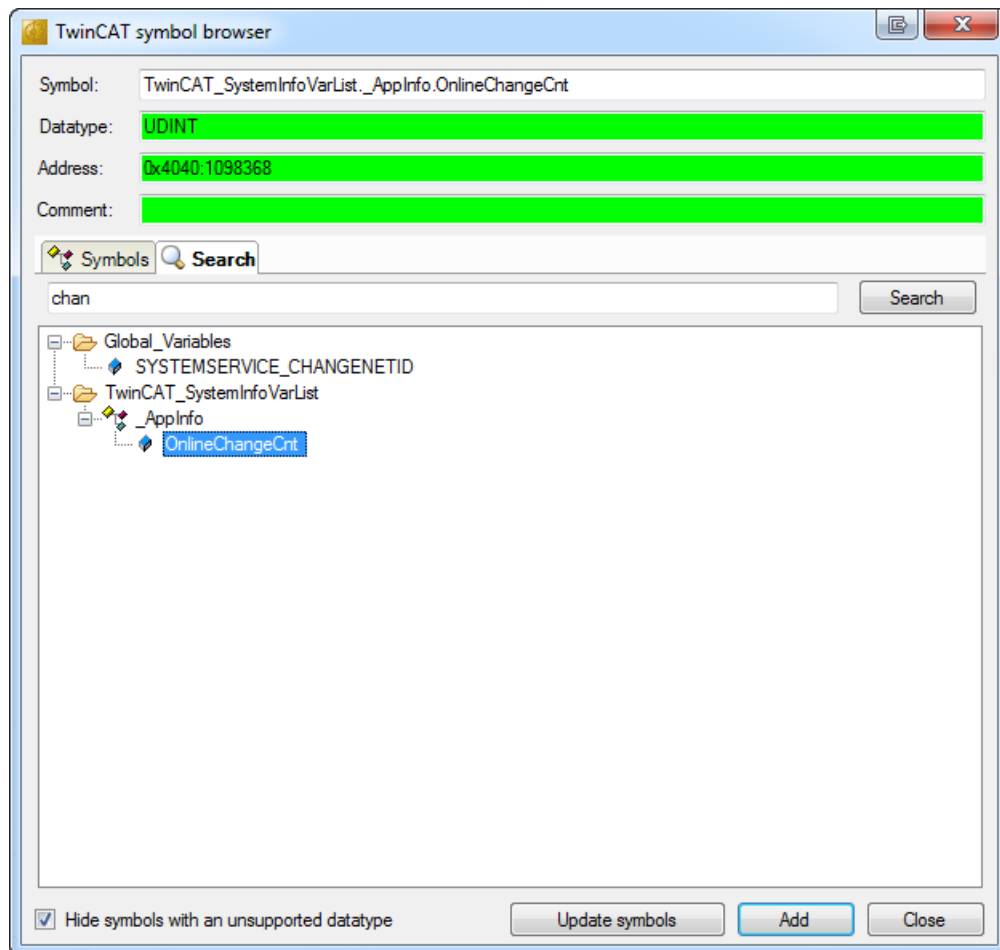


Figure 8: TwinCAT symbol browser, search function

On the *Search* tab, you can search symbols by name. The search result tree works in the same way as the complete symbol tree.



Note

You can hide all unsupported datatypes by checking the "Hide symbols with an unsupported datatype" checkbox.

The data type, address and comment of the selected symbol are also shown in the browser.

The address consist of an Index Group (in hex) followed by an Index Offset (in decimal). The address of a symbol can change when a project is recompiled or when the project is changed and extra symbols are added or symbols are removed.

Remarks about symbols and addressing mode

ibaPDA can read the data for a symbol via the symbol address or via the symbol name. When *ibaPDA* reads via the symbol name then it first requests a handle to the symbol from the PLC. This handle then points to the actual address of the symbol. When a new version of the project is loaded on the PLC then the addresses that the handles point to are updated automatically by the PLC. This way *ibaPDA* will always read the correct data for the symbol when it reads via the handle. This addressing mode is called *Indirect*.

The other addressing mode is called *Direct*. In direct mode *ibaPDA* uses the symbol address directly to read data for a symbol. In this case *ibaPDA* could read incorrect data

after a project download to the PLC. You can configure the addressing mode that *ibaPDA* will use on the *General* tab of the module. It is recommended to use the *Indirect* address mode. Bus controllers do not have symbol information on them so they only support *Direct* address mode.

3.4.6 Module diagnostics

All the configured signals are listed in tabular format with their datatype and current actual value in the *Diagnostics* tab of the TwinCAT-Xplorer module.

Name	Symbol	Address	Datatype	Value
0 MAIN.ANALOGIN0	MAIN.ANALOGIN0	0x4040:652	INT	-2
1 MAIN.ANALOGIN1	MAIN.ANALOGIN1	0x4040:654	INT	-2
2 MAIN.ANALOGIN2	MAIN.ANALOGIN2	0x4040:656	INT	-10
3 MAIN.COSASINT	MAIN.COSASINT	0x4040:648	INT	-19621
4 MAIN.I	MAIN.I	0x4040:658	INT	0
5 MAIN.LOOPCOUNTER	MAIN.LOOPCOUNTER	0x4040:640	DWORD	35674329
6 MAIN.LOOPCOUNTER...	MAIN.LOOPCOUNTERFLOAT	0x4040:644	REAL	329
7 MAIN.SINASINT	MAIN.SINASINT	0x4040:498	INT	-25279
8 MAIN.TANASINT	MAIN.TANASINT	0x4040:650	INT	-11817
9 MAIN.STRUC.VALUE1	MAIN.STRUC.VALUE1	0x4040:660	INT	-25279
10 MAIN.STRUC.VALUE2	MAIN.STRUC.VALUE2	0x4040:662	INT	-19621
11 MAIN.STRUC.DWOR...	MAIN.STRUC.DWORDVAL	0x4040:664	DWORD	35674329
12 MAIN.STRUC.FLOAT...	MAIN.STRUC.FLOATVAL	0x4040:668	REAL	329
13 MAIN.STRUC.NONAL...	MAIN.STRUC.NONALIGNED	0x4040:672	BYTE	0
14 MAIN.TESTAR[0].D...	MAIN.TESTAR[0].DWORDVAL	0x4040:680	DWORD	35674329
15 MAIN.TESTAR[2].D...	MAIN.TESTAR[2].DWORDVAL	0x4040:712	DWORD	107022987
16				
17				
18				
19				
20				
21				
22				

Figure 9: Module diagnostics analog values

Grey rows in table indicate inactive signals.

3.4.7 Module Technostring

Using Technostrings allows the storage of additional (ASCII) data with technological information in the data file. This may be, for example, product information, primary data, reference values, process information or customer data.

The TwinCAT interface supports the processing of symbols of the STRING or WSTRING data type as Technostring. The connection that has been established by one of the configured modules, yet, is used for transferring the strings from the PLC to *ibaPDA*. You can freely select the module.



Further documentation

A detailed description of the Technostring functionality can be found in the *ibaPDA* manual, in the *Technostring* chapter.

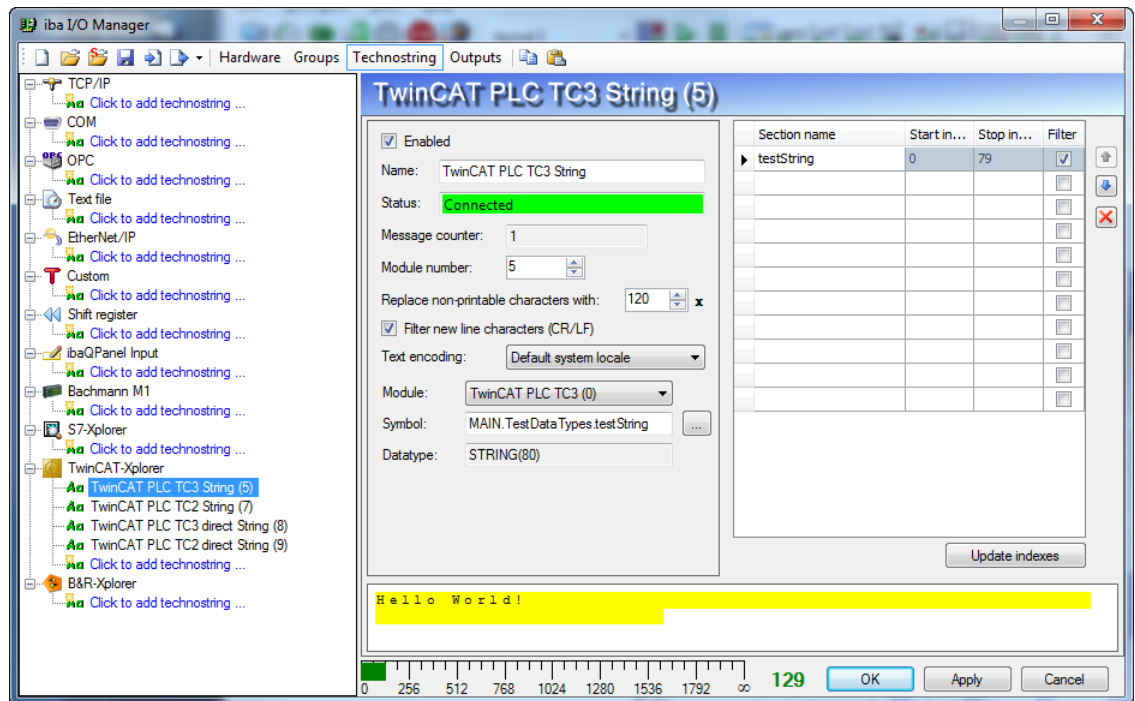


Figure 10: Configuration dialog for Technostrings via the TwinCAT-Xplorer interface, example

The *Technostring* module has the following module-specific setting parameters:

Name

A unique name for this Technostring should be entered, here.

Module number

The Module number is assigned automatically. The Technostring is displayed with this Module No. in the *ibaPDA* signal tree as well as in the signal tree of the data file. You can change the Module number if required.

Replace non-printable characters with...

In case the text contains non-printable characters, these are replaced by a character you can select freely. The default value is 'x' (= 120 ASCII).

Filter new line characters (CR/LF)

If there are new lines in the text, these are ignored when reading the text, in case this option is enabled.

Text encoding

For a correct representation of the text, this setting can be adapted for the locale. "Default system locale" is the default setting.

Module

Here, select the module you want to use for transferring the string. Previously, you have to configure the module under the category *Hardware* in the I/O manager. The module can contain optionally analog and digital values.

The default setting is "None". It is compulsory to select a module.




Note

The Technostrings are read with the update time of the selected module. Conversely, this means that the response time of the module is influenced by the Technostrings to which it is connected.

❑ Symbol

Selected symbol with text information (data type STRING or WSTRING)

For selecting the symbols, open the symbol browser with a click on the button . In the symbol browser, only the appropriate symbols are displayed.

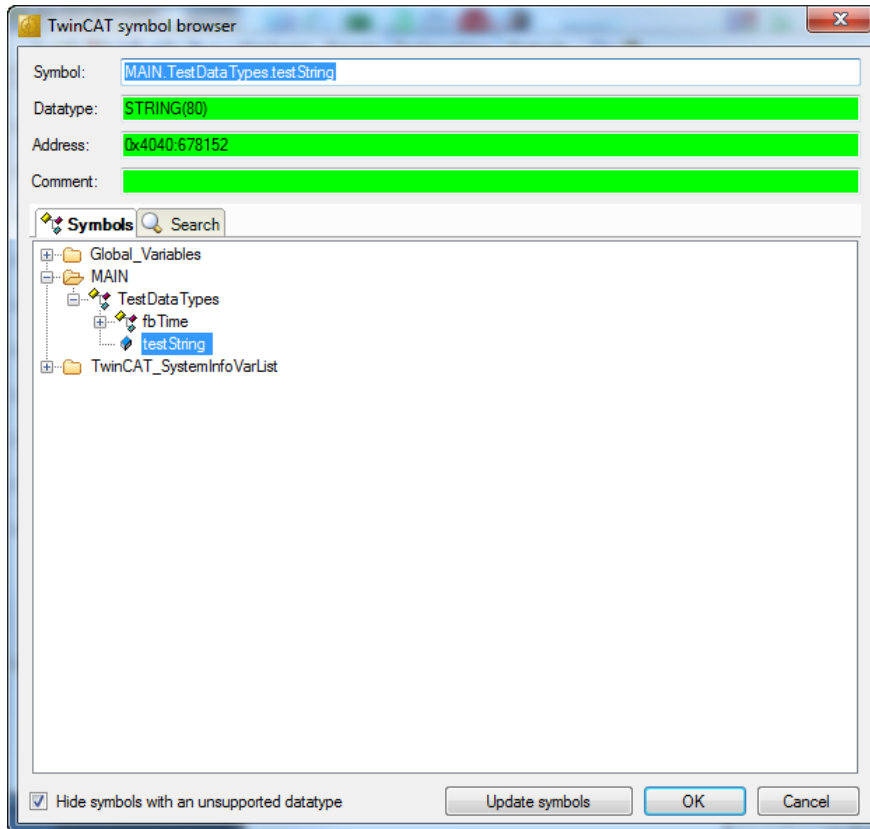


Figure 11: Selecting text symbols with the symbol browser

When selecting a symbol, a Technostring section with the symbol name and the full length of the symbol is created automatically. Then, you can define more sections with parts of the string, if required.

❑ Data type

Data type of the selected symbol



Note

Technostrings are only read when the data acquisition is running. In case you add a Technostring when the data acquisition is not running, no preview is shown in the configuration dialog.

4 Diagnostics

4.1 License

If the "TwinCAT-Xplorer" interface is not displayed in the signal tree, you can either check in *ibaPDA* under *General - Settings - License info* in the I/O manager or in the *ibaPDA* service status application, whether your license "Interface TwinCAT-Xplorer" has been properly recognised. The number of licensed connections is indicated in brackets.

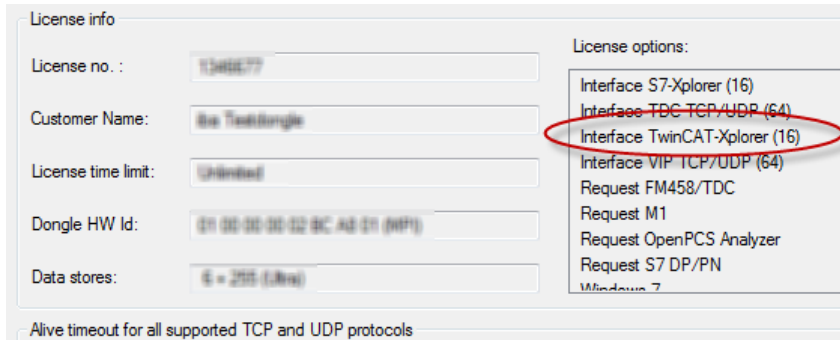


Figure 12: License displayed in the ibaPDA I/O manager, example of the TwinCAT-Xplorer license.

4.2 Log files

For many interfaces, there is an <Open log file> button in the specific interface overview in the I/O Manager.

If connections to target platforms have been established, all connection-specific actions are logged in a text file. Using this button, you can open this (current) file and, e.g., scan it for indications of possible connection problems.

In the file system on the harddisk, you will find the log files in the program path of the *ibaPDA* server (...\\Programs\\iba\\ibaPDA\\Server\\Log). The file names of the log files include the name or abbreviation of the interface type.

Files named `interface.txt` are always the current log files. Files named `interface_yyyy_mm_dd_hh_mm_ss.txt` are archived log files.

Examples:

- `ethernetipLog.txt` (EtherNet/IP connections log)
- `AbEthLog.txt` (log of Allen-Bradley Ethernet connections)

4.3 Connection diagnostics with PING

PING is a system command with which you can check if a certain communication partner can be reached in an IP network.

Open a Windows command prompt.



Enter the command “ping” followed by the IP address of the communication partner and press <ENTER>.

With an existing connection you receive several replies.

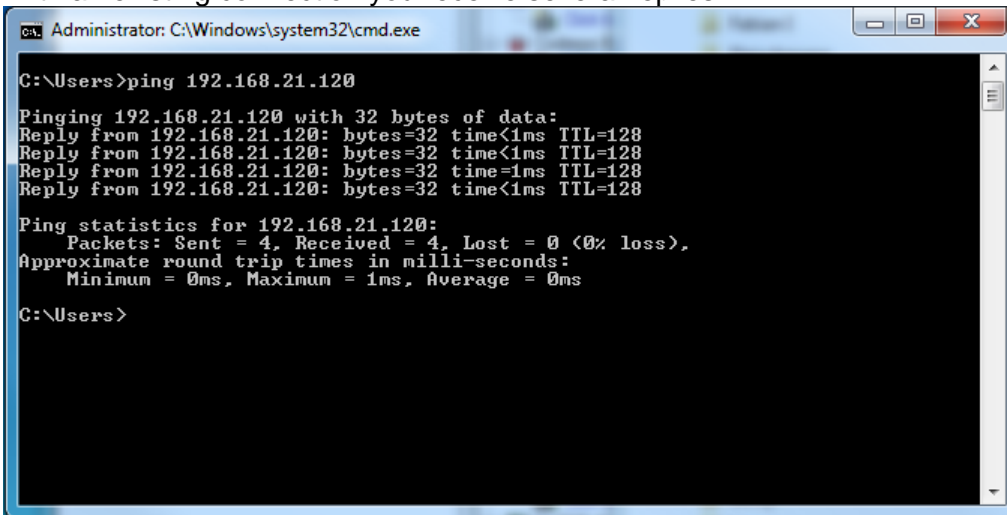
A screenshot of a Windows command prompt window titled 'Administrator: C:\Windows\system32\cmd.exe'. The prompt shows the command 'ping 192.168.21.120' being entered and executed. The output shows four successful replies from 192.168.21.120, each with a time of less than 1ms and a TTL of 128. Ping statistics for 192.168.21.120 are also displayed, showing 4 packets sent, 4 received, and 0% loss. The prompt ends with 'C:\Users>'.

Figure 13: PING successful

With not existing connection you receive error messages.

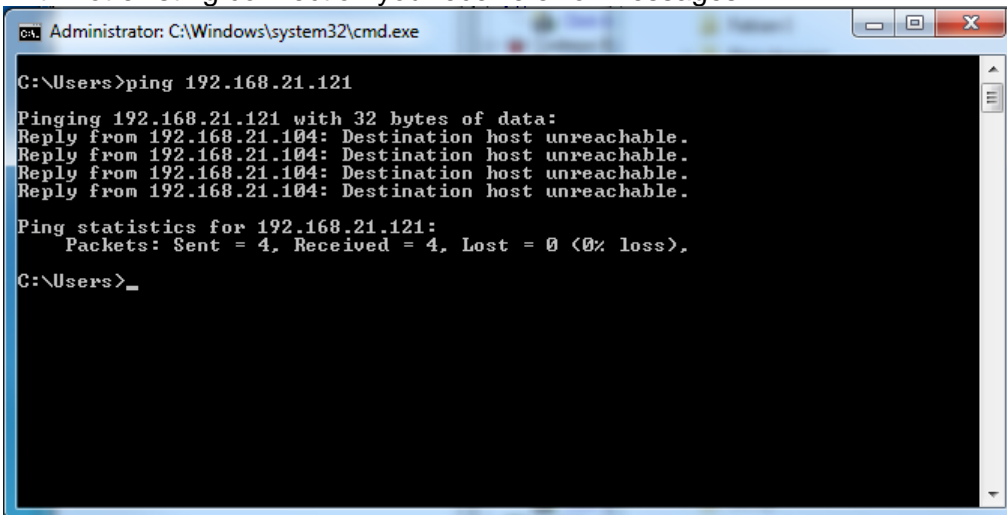
A screenshot of a Windows command prompt window titled 'Administrator: C:\Windows\system32\cmd.exe'. The prompt shows the command 'ping 192.168.21.121' being entered and executed. The output shows four 'Destination host unreachable' error messages from 192.168.21.104. Ping statistics for 192.168.21.121 are also displayed, showing 4 packets sent, 4 received, and 0% loss. The prompt ends with 'C:\Users>'.

Figure 14: PING unsuccessful.

4.4 Connection table

For every Ethernet-based interface, there is a table available in the I/O manager which shows the status of each connection. Each line represents one connection.

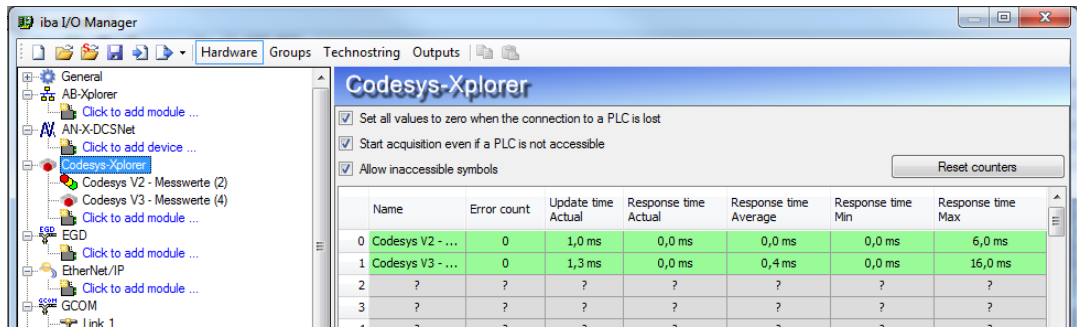


Figure 15: Connection table, example for Codesys-Xplorer

The connected target systems (controllers) are identified by their name or IP address in the first (left) column.

The table shows the cycle times of the different connections during the data acquisition. Click the <Reset counters> button to reset the error counters and the calculation of the response times.

Additional information is provided by the background color of the table rows:

Color	Meaning
Green	The connection is OK and the data are read.
Yellow	The connection is OK, however the data update is slower than the configured update time.
Red	The connection has failed.
Grey	No connection configured.

Table 2: Meaning of background colors

4.5 Module diagnostics

You will find another diagnostic aid with a tabular display of the actual analog and digital values and the data types on the *Diagnostics* tab of each Xplorer module.

➤ For further information, see chapter *Module diagnostics*, page 20

5 Support and contact

Support

Phone: +49 911 97282-14
Fax: +49 911 97282-33
Email: support@iba-ag.com



Note

If you require support, indicate the serial number (iba-S/N) of the product.

Contact

Headquarters

iba AG
Koenigswarterstr. 44
90762 Fuerth
Germany

Phone: +49 911 97282-0
Fax: +49 911 97282-33
Email: iba@iba-ag.com
Contact: Mr Harald Opel

Regional and worldwide

For contact data of your regional iba office or representative please refer to our web site

www.iba-ag.com.