

Manual | EN

TS6280-0030

TwinCAT 2 Ethernet/IP Slave CE



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1 Foreword

1.1 Notes on the documentation

This description is only intended for the use of trained specialists in control and automation engineering who are familiar with applicable national standards.

It is essential that the documentation and the following notes and explanations are followed when installing and commissioning the components.

It is the duty of the technical personnel to use the documentation published at the respective time of each installation and commissioning.

The responsible staff must ensure that the application or use of the products described satisfy all the requirements for safety, including all the relevant laws, regulations, guidelines and standards.

Disclaimer

The documentation has been prepared with care. The products described are, however, constantly under development.

We reserve the right to revise and change the documentation at any time and without prior announcement. No claims for the modification of products that have already been supplied may be made on the basis of the data, diagrams and descriptions in this documentation.

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Patent Pending

The EtherCAT Technology is covered, including but not limited to the following patent applications and patents:

EP1590927, EP1789857, EP1456722, EP2137893, DE102015105702
with corresponding applications or registrations in various other countries.



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1.2 Safety instructions

Safety regulations

Please note the following safety instructions and explanations!
Product-specific safety instructions can be found on following pages or in the areas mounting, wiring, commissioning etc.

Exclusion of liability

All the components are supplied in particular hardware and software configurations appropriate for the application. Modifications to hardware or software configurations other than those described in the documentation are not permitted, and nullify the liability of Beckhoff Automation GmbH & Co. KG.

Personnel qualification

This description is only intended for trained specialists in control, automation and drive engineering who are familiar with the applicable national standards.

Description of symbols

In this documentation the following symbols are used with an accompanying safety instruction or note. The safety instructions must be read carefully and followed without fail!

DANGER

Serious risk of injury!

Failure to follow the safety instructions associated with this symbol directly endangers the life and health of persons.

WARNING

Risk of injury!

Failure to follow the safety instructions associated with this symbol endangers the life and health of persons.

CAUTION

Personal injuries!

Failure to follow the safety instructions associated with this symbol can lead to injuries to persons.

NOTE

Damage to the environment or devices

Failure to follow the instructions associated with this symbol can lead to damage to the environment or equipment.



Tip or pointer

This symbol indicates information that contributes to better understanding.

1.3 Notes on information security

The products of Beckhoff Automation GmbH & Co. KG (Beckhoff), insofar as they can be accessed online, are equipped with security functions that support the secure operation of plants, systems, machines and networks. Despite the security functions, the creation, implementation and constant updating of a holistic security concept for the operation are necessary to protect the respective plant, system, machine and networks against cyber threats. The products sold by Beckhoff are only part of the overall security concept. The customer is responsible for preventing unauthorized access by third parties to its equipment, systems, machines and networks. The latter should be connected to the corporate network or the Internet only if appropriate protective measures have been set up.

In addition, the recommendations from Beckhoff regarding appropriate protective measures should be observed. Further information regarding information security and industrial security can be found in our <https://www.beckhoff.com/secguide>.

Beckhoff products and solutions undergo continuous further development. This also applies to security functions. In light of this continuous further development, Beckhoff expressly recommends that the products are kept up to date at all times and that updates are installed for the products once they have been made available. Using outdated or unsupported product versions can increase the risk of cyber threats.

To stay informed about information security for Beckhoff products, subscribe to the RSS feed at <https://www.beckhoff.com/secinfo>.

2 Getting Started

The TwinCAT EtherNet/IP Slave enables EtherNet/IP Connectivity to the TwinCAT System.

Requirements:

- **Win2000 / Windows XP:** TwinCAT 2.10 Build 1309 or newer
- **Windows CE:** Windows CE 5.0 (Beckhoff Windows CE image Build version 2.16) or newer
- License Key for TwinCAT EtherNet/IP Slave Supplement product
- Intel PRO Network Interface Card (Ethernet Controller Intel 825X)

Installation

Download TwinCAT Supplement Installer for EtherNet/IP connectivity.

Operating System:

Windows 2000 / XP/ Windows XP Embedded:

[TwinCAT Supplement System](#), please select the TS628000030 and download the file via the download-cart.

Windows CE:

[TwinCAT Supplement System](#), please select the TS6280-0030 and download the file via the download-cart.

Run the Installer on your programming PC and follow its instructions.

If the target operating system is Windows 2000 / Windows XP or Windows XP Embedded, the TwinCAT EtherNet/IP-Slave is now ready for Start-Up (go on with chapter "Start-Up!").

If the target operating system is Windows CE, please follow the instructions below:

- The folder `..\TwinCAT\CE\TwinCAT EtherNetIP Slave CE\Install\ARM` contains a Cabinet-File (CAB file) for ARM-based CE runtime systems (e.g. CX9001, CX9010, CP66xx,...).
The folder `..\TwinCAT\CE\TwinCAT EtherNetIP Slave CE\Install\X86` contains a Cabinet-File for X86-based CE runtime systems (e.g. CX1000, CX1020, CP77xx, CP62xx, CP72xx, C69xx,...)
- Copy the file: `TcEtherNetIP_S_Ce.XXXXX.CAB` into a folder on the CE runtime system.
- On the CE system: Please install (double-click the CAB file) the CE components.
- **IMPORTANT:** Please suspend the CE device once after installation via "Start-> Suspend"!

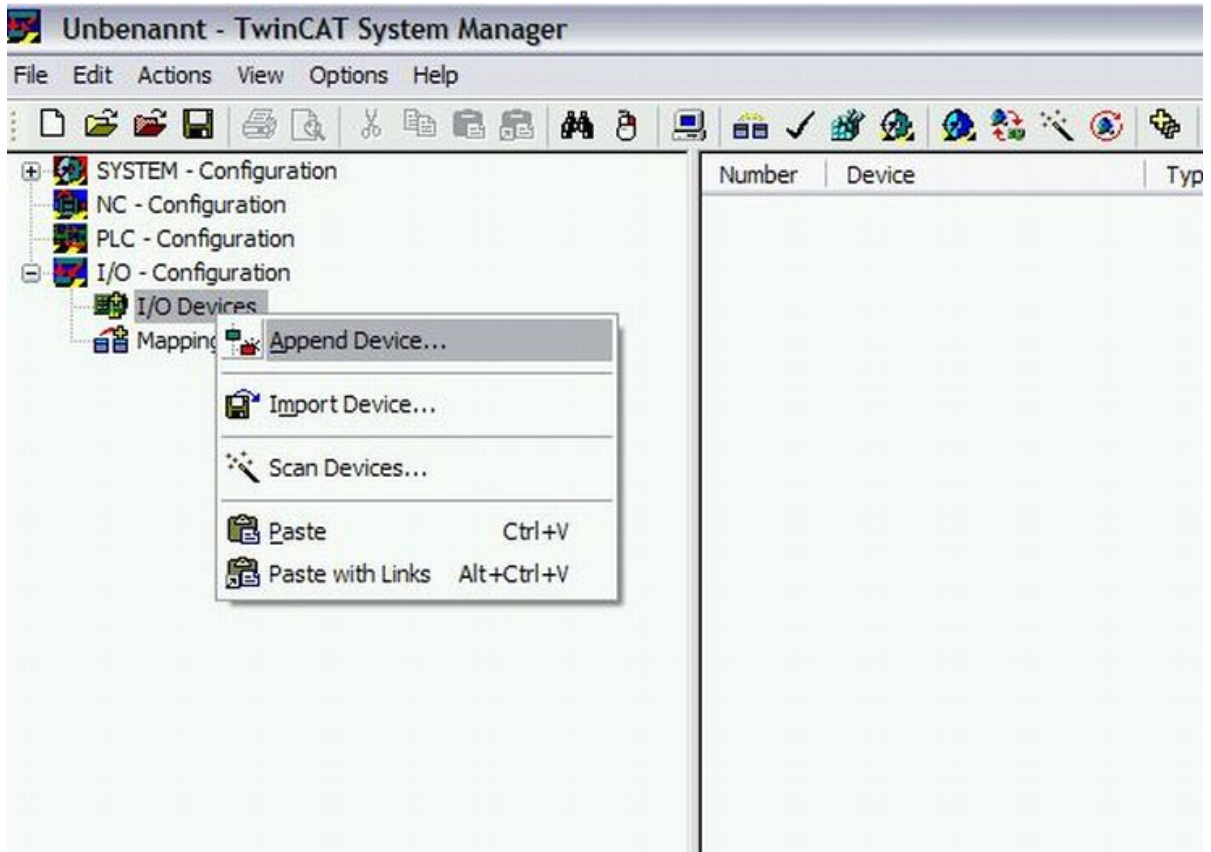
Start-Up

General information

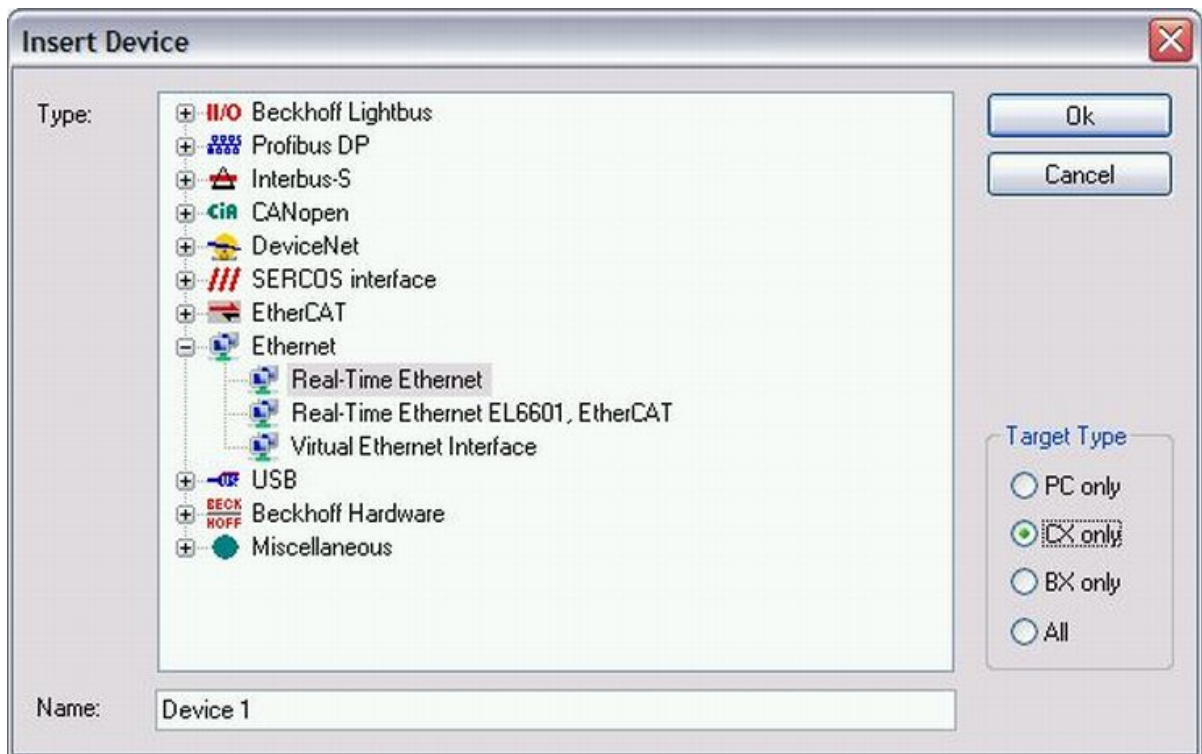
- Now, the TwinCAT EtherNet/IP Slave does only support static IP-Address configurations.
When the TwinCAT EtherNet/IP Slave configuration is being activated, the System is only going to start up in RUN-Mode if the actual address settings match the stored configuration.

First Steps

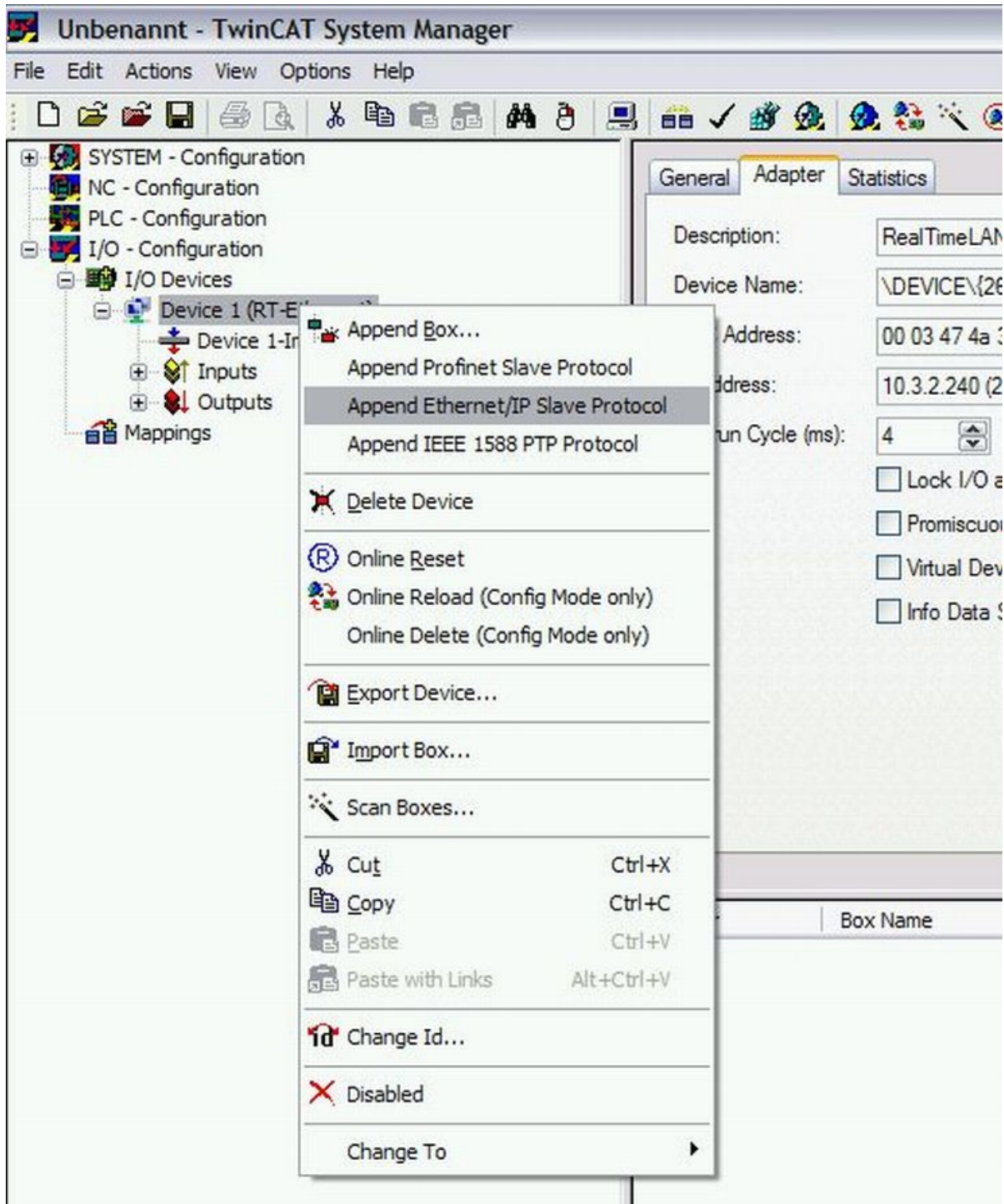
1. Start the TwinCAT System Manager, create a new project and use the context menu after a mouse-click on "I/O Devices", to append a device in the I/O-Configuration



2. Choose "Real-Time Ethernet" from the Ethernet device type section as shown below



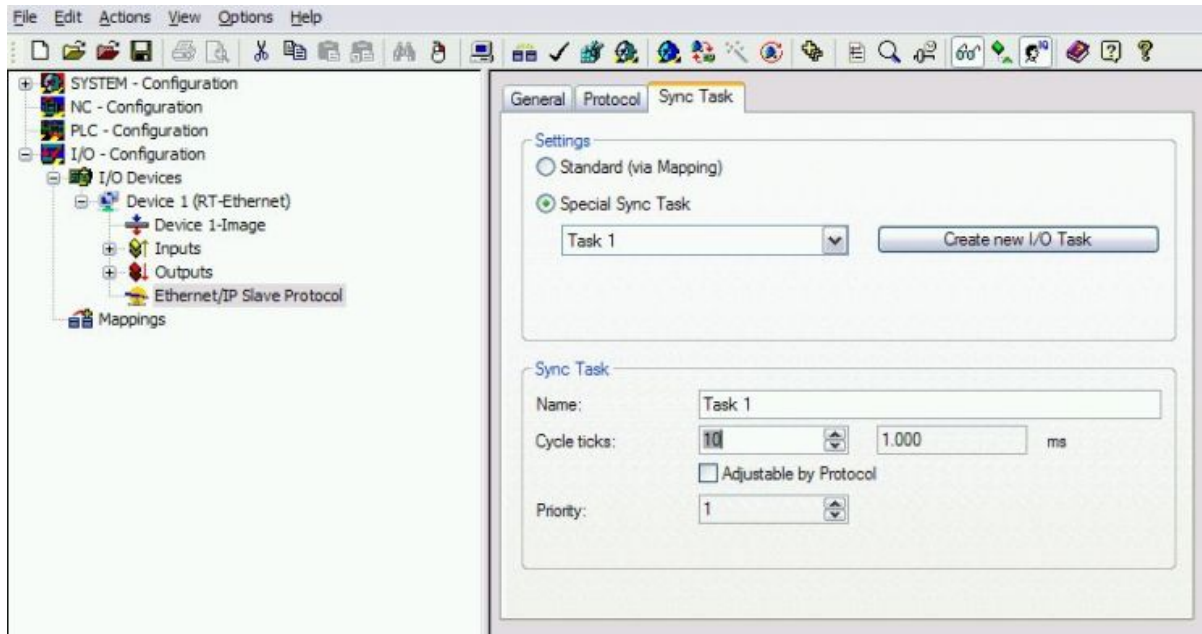
- On the newly added "Real-Time Ethernet" device, append the "EtherNet/IP Slave Protocol" via the context menu.



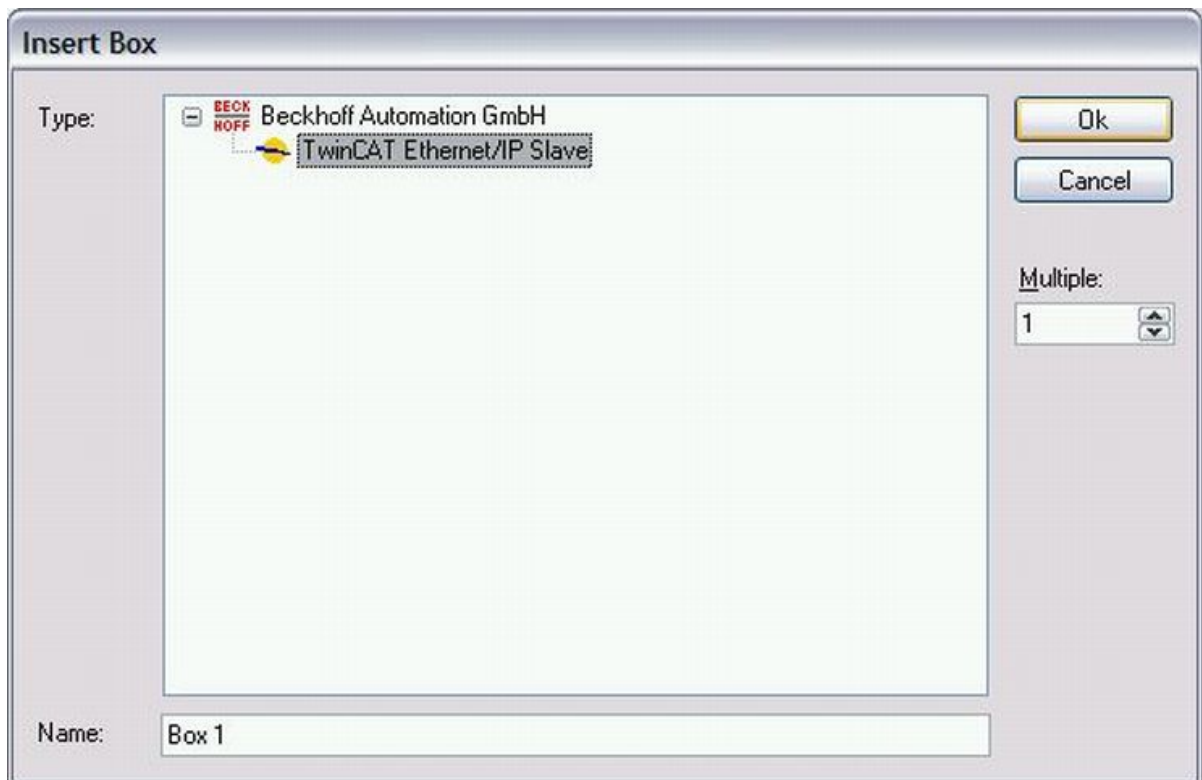
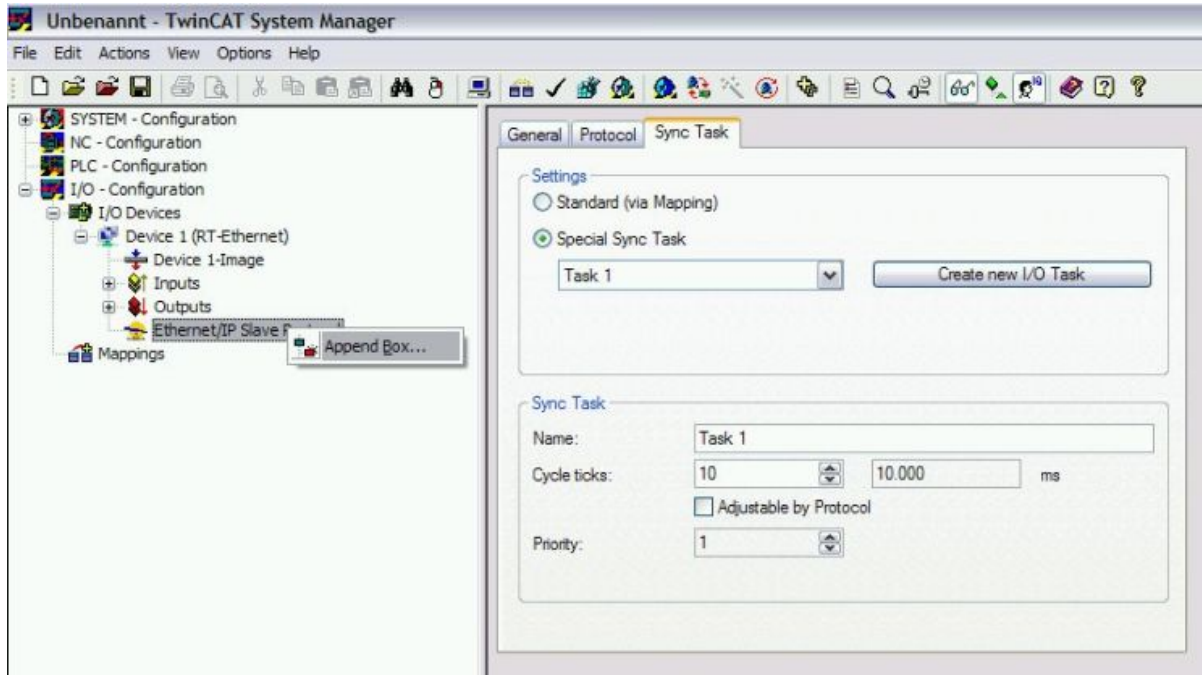
- It's necessary to define a sync master for triggering EtherNet/IP Slave Protocol.
 - Option "Standard": the sync master has to be defined manually by the user. (f. e. PLC Task) (this option is not supported by CX9000series)
 - Option "Special Sync Task": a additional task will be created automatically

Important: The Sync Tasks Cycle Time represents the lowest border of the EtherNet/IP cycle time

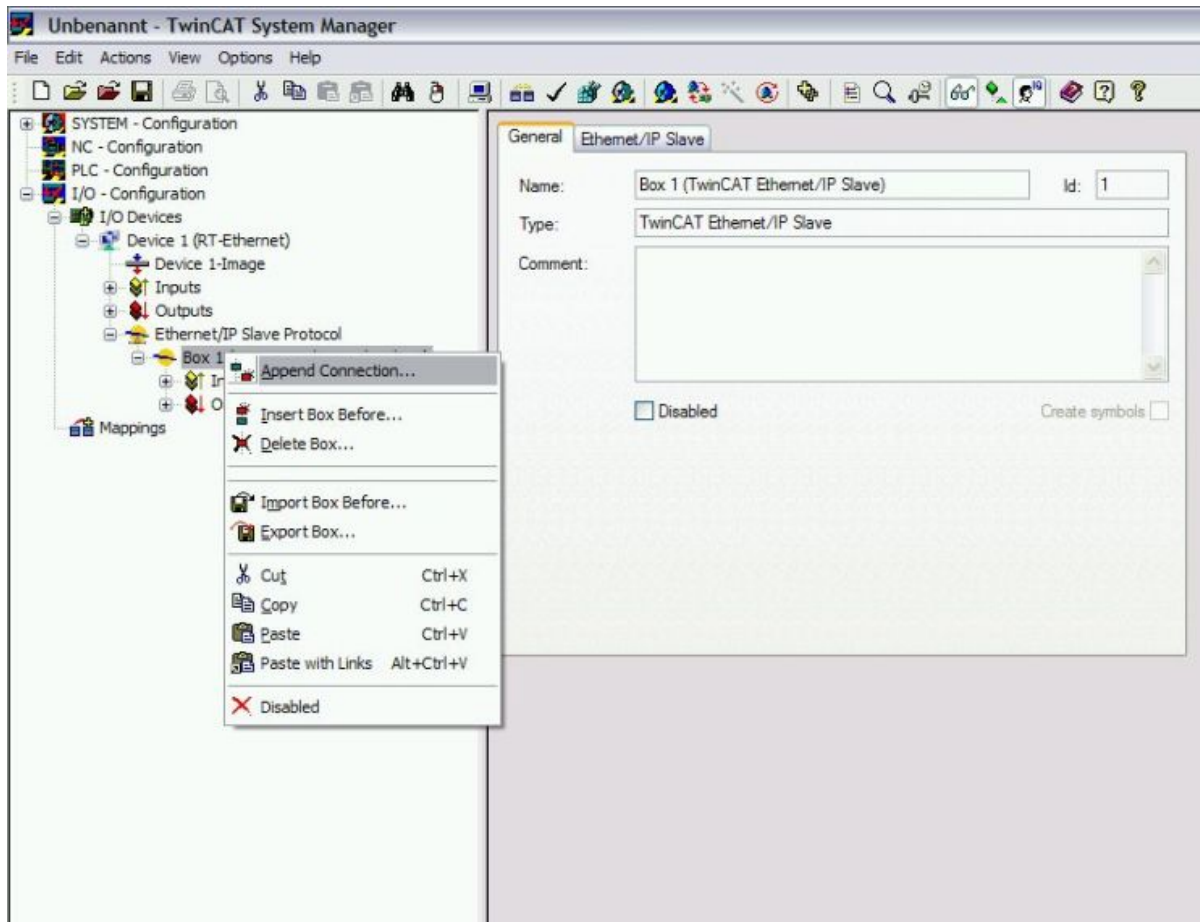
(RPI)
 (e.g. task cycle time = 10ms ==> EtherNet/IP RPI_{min}=10ms)



5. Append an Ethernet/IP Slave Box as shown below

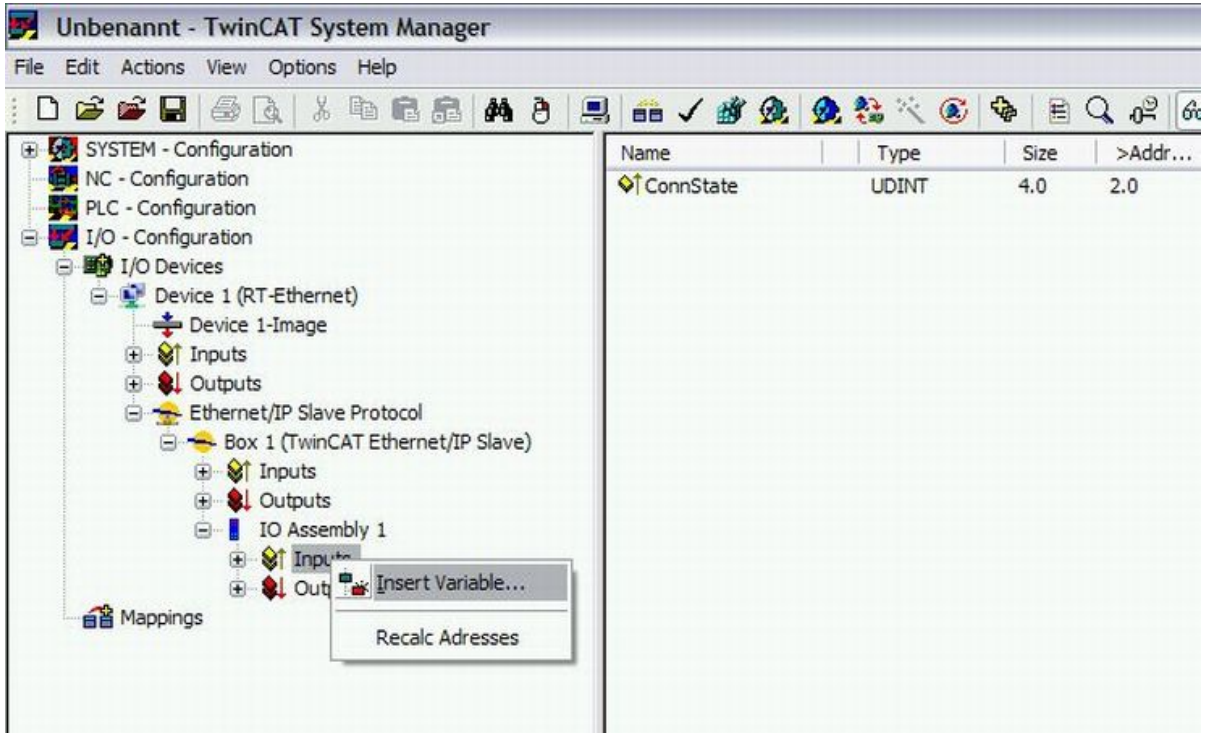


- Append a Connection (Assembly) on the EtherNet/IP Slave Box as shown below

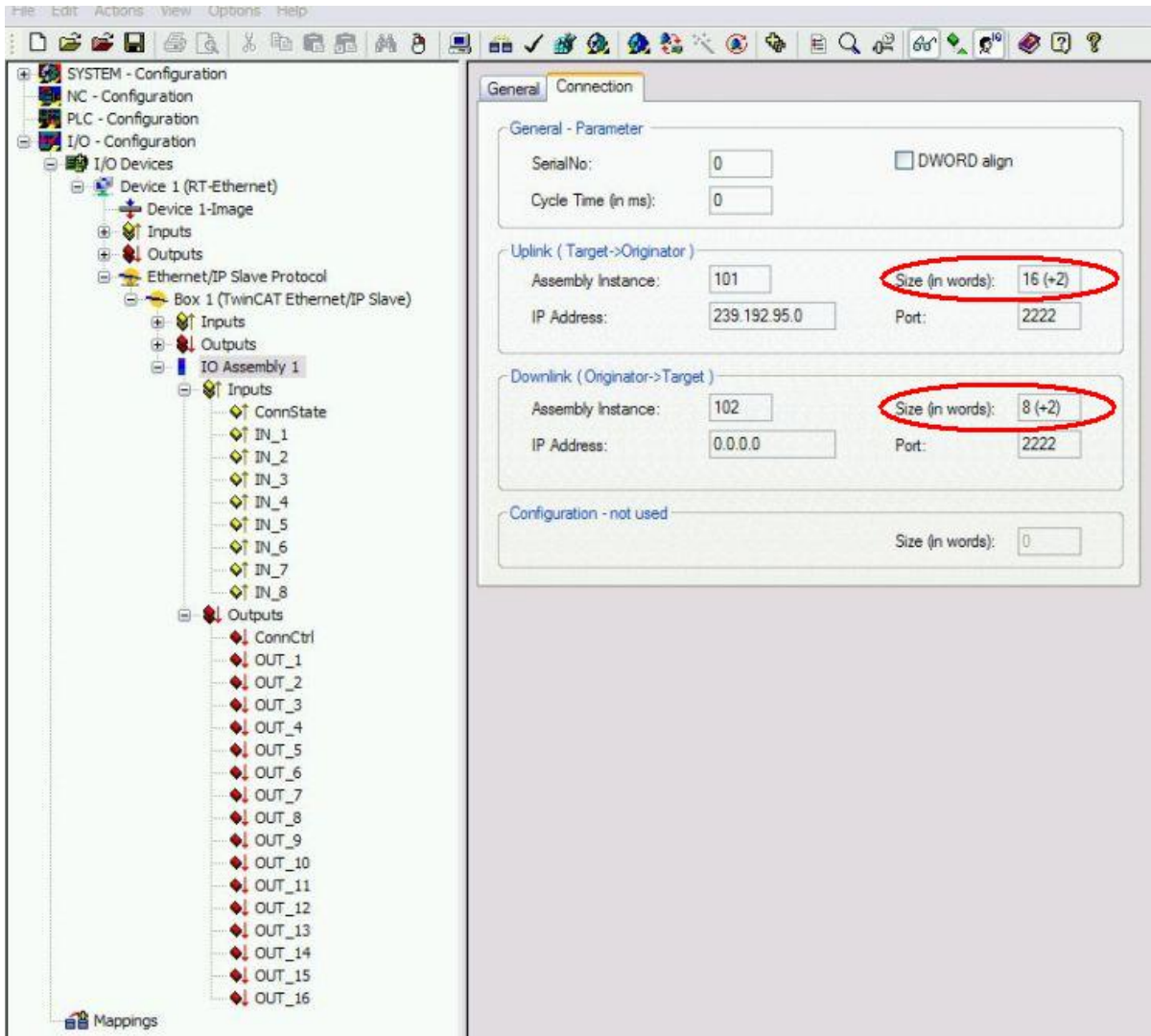


- Depending on application requirements it's possible to define the size of Processdata Image separately for inputs and outputs from 1 up to 502 bytes. Please find an example for defining 8 Word Input Processdata as

shown below.



8. A valid EtherNet/IP Configuration is shown below



9. The Pre-Configuration of TwinCAT EtherNet/IP Slave is finished now. Activate the configuration and go on with Integration in RSLogix5000.

Integration in RSLogix5000

1. Open RSLogix 5000 and Create a new PLC project. When creating a new project make sure to select the correct controller type and controller settings. This example uses a CompactLogix (L32E) with the TwinCAT EtherNet/IP Slave Example configured as shown above.

New Controller

Vendor: Allen-Bradley

Type: 1769-L32E CompactLogix5332E Controller

Revision: 15

Redundancy Enabled

Name: TEST

Description:

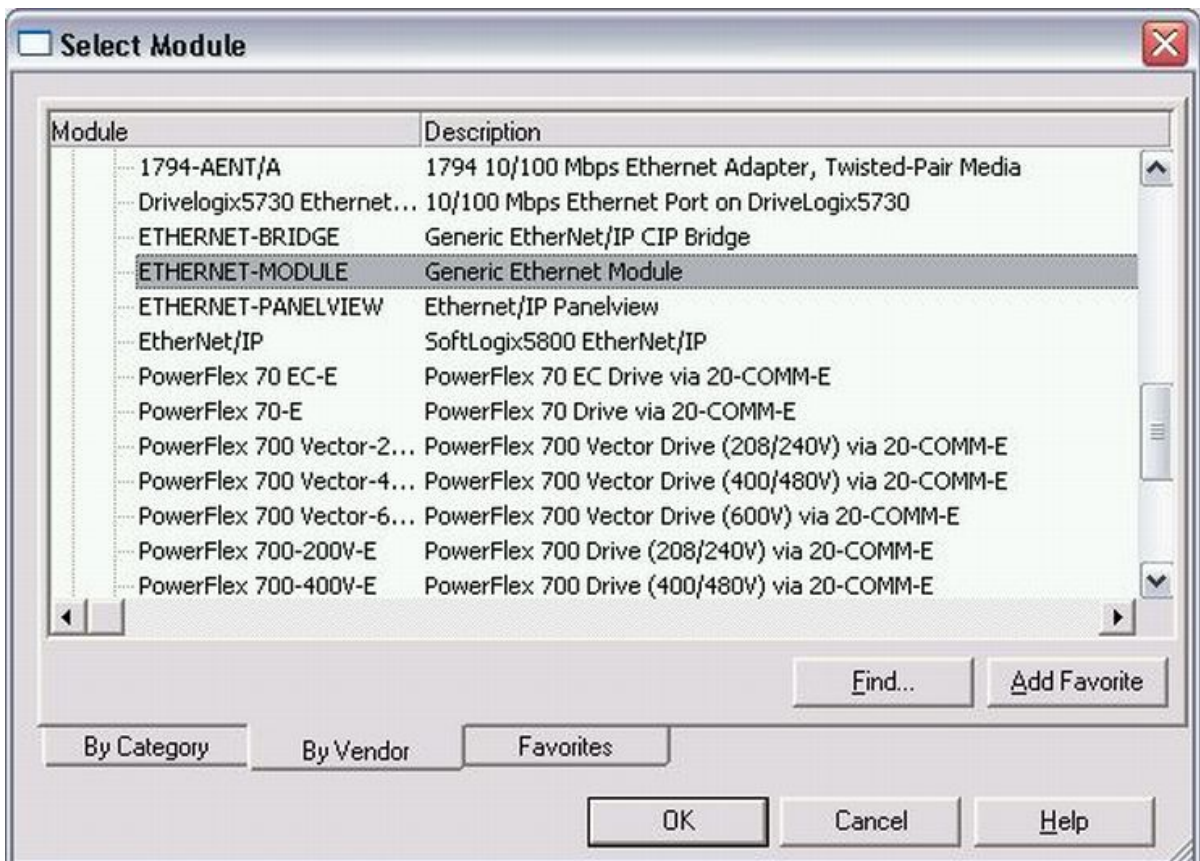
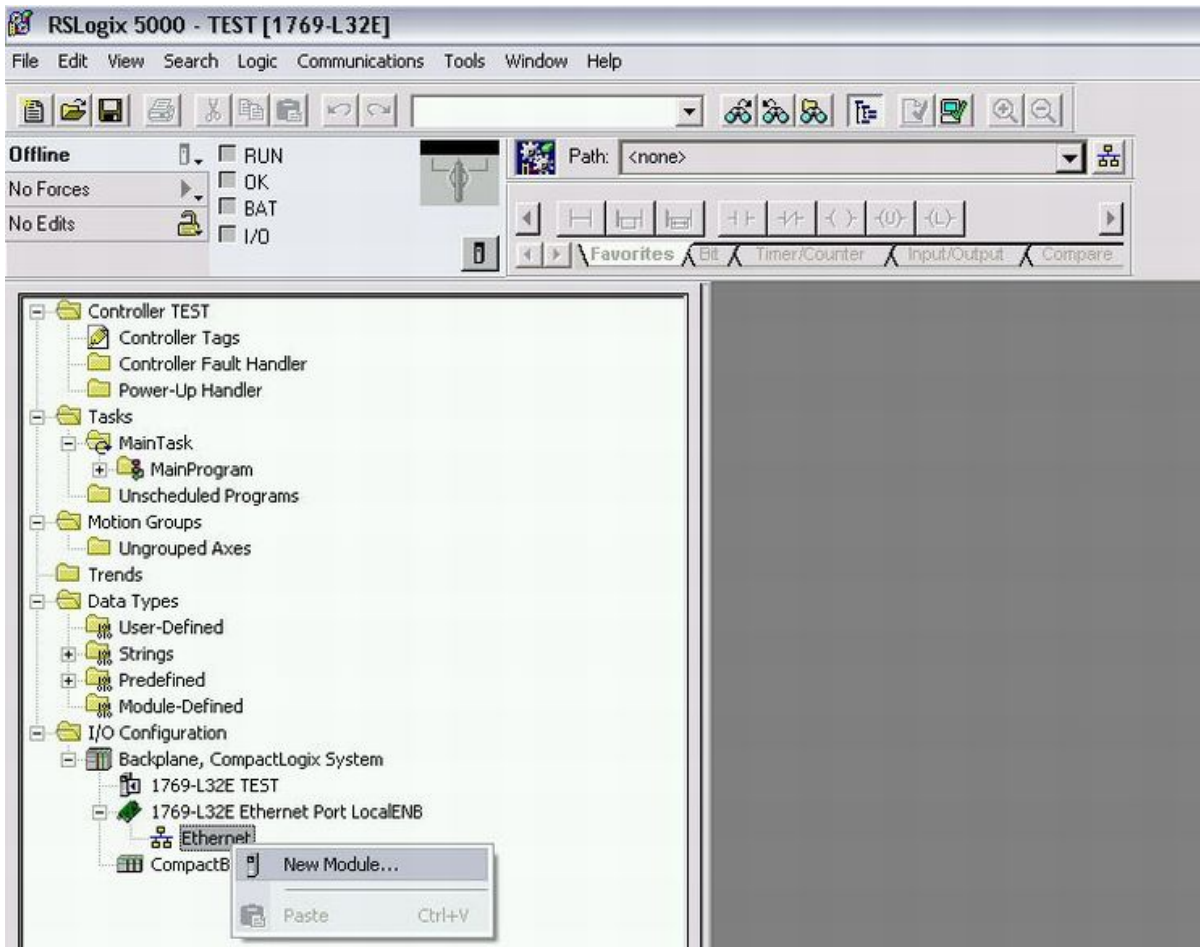
Chassis Type: <none>

Slot: 0 Safety Partner Slot

Create In: c:\RSLogix 5000\Projects

OK
Cancel
Help
Browse...

2. Add a new module. When adding the TwinCAT EtherNet/IP Slave box, select the "ETHERNET-MODULE", since it is a generic Ethernet/IP device, and it will be configured to work with the TwinCAT EtherNet/IP Slave



3. Configuring the TwinCAT EtherNet/IP Slave in RSLogix:

- Enter IP-Address of TwinCAT EtherNet/IP Slave
- Choose Data Type (Comm Format)
- The Assembly Instances will be as follows:
 - Input(Target->Originator: 101
 - Output(Originator->Target: 102
 - Configuration: 100
- Things to keep in mind when entering the data size for I/O:
 - There will always be 4 bytes of input and 4 bytes of output data used for diagnostics.
 - The EtherNet/IP Slave Dialog View in TwinCAT Systemmanager (Subchapter "First Steps", Picture 8) assist you to find the correct data sizes.

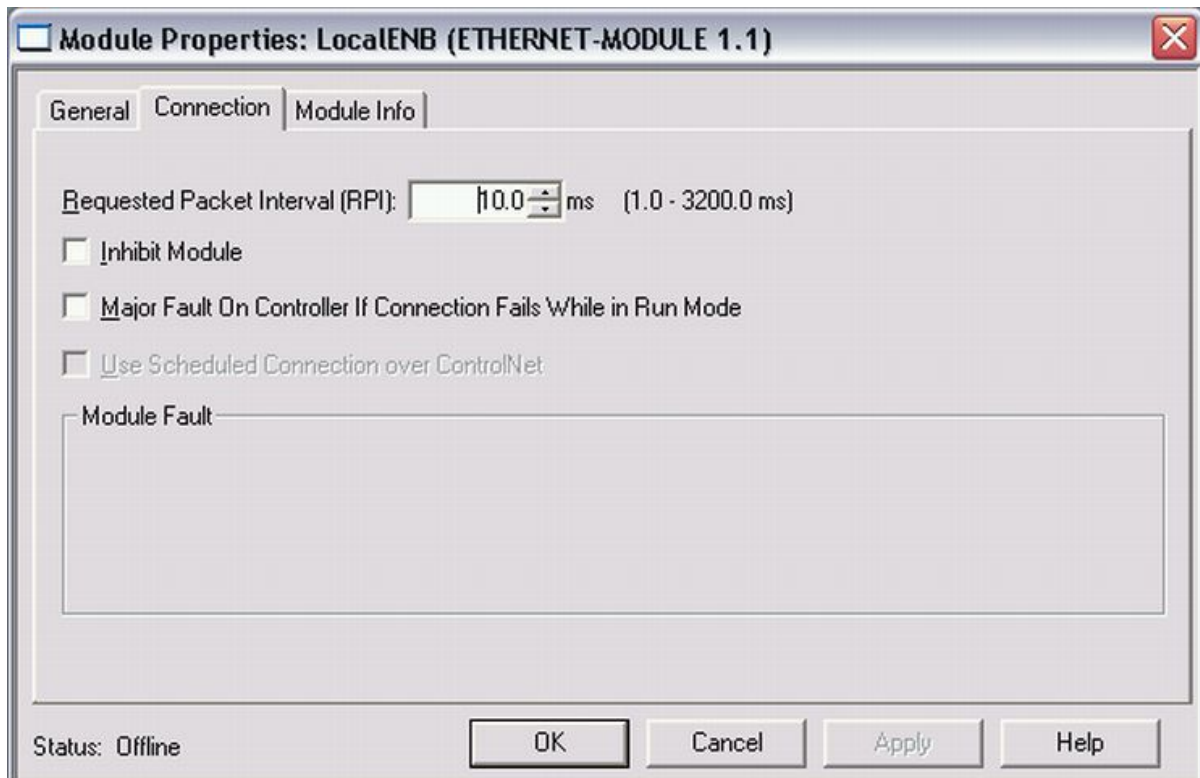
New Module

Type: ETHERNET-MODULE Generic Ethernet Module
 Vendor: Allen-Bradley
 Parent: LocalENB
 Name: TwinCAT_EtherNetIP_Slave
 Description:
 Comm Format: Data - INT
 Address / Host Name
 IP Address: 10 . 3 . 2 . 99
 Host Name:
 Connection Parameters

	Assembly Instance:	Size:	
Input:	101	18	(16-bit)
Output:	102	10	(16-bit)
Configuration:	100	0	(8-bit)
Status Input:			
Status Output:			

 Open Module Properties
 OK Cancel Help

1. Choose Requested Packet Interval in ms (shall not be lower than TwinCAT EtherNet/IP Slave Sync Task Cycle Time)
(Cycle Time in the TwinCAT Slave Example was set to 10ms)



More Information:
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