



Data Sheet CODESYS PROFINET Device SL

The CODESYS PROFINET Device enables a CODESYS PLC to act as a PROFINET Device that is programmable with the CODESYS Development System.

Product description

PROFINET (Process Field Network) is an open standard for realtime industrial Ethernet systems in automation technology. It is promoted by the user organization PI (PROFIBUS & PROFINET International as an umbrella group of the PROFIBUS user organization PNO) and is regarded as the successor of PROFIBUS. PROFINET uses UDP/IP and IEEE 802.3 (Standard Ethernet) for acyclic services and/or I/O communication

The fully integrated CODESYS PROFINET Device Solution provides a uniform configurator for different variants of underlying PROFINET Device communication stacks:

- CODESYS PROFINET Device (IEC)
Protocol stack in the form of a CODESYS library (in IEC 61131-3 code), operates on standard network interface cards.
The Ethernet adapter is not used exclusively, it's still available for all other applications using TCP/IP on this adapter (e.g. CODESYS Visualization, Web Browser).

CODESYS PROFINET Device Configurator

- Configurator for settings of PROFINET Device
- Sample GSDML file included in scope of delivery
- Configuration of module's in- and output-mapping
- Status page with detailed view of currently pending diagnostics

Profinet-Stack (IEC)

CODESYS PROFINET Device Stack in principle can run on any standard Ethernet adapter hardware (see requirements and restrictions). This Ethernet adapter is still be used for other services like CODESYS Communication (with IDE), Web-Server, or other CODESYS Fieldbuses (except EtherCAT). The CODESYS Runtime and the operating system (e.g. firewall) have to be configured correctly. For details, see CODESYS Online Help / Fieldbus Support (<https://help.codesys.com/>)

Feature	CODESYS PROFINET Device (IEC)
PROFINET Specification	V2.3
Conformance Class	A
Max. IO-Data	1440 input and 1440 byte output
Max. acyclic data	4068 bytes
Platforms / OS (see restrictions)	Windows, Linux, VxWorks, WinCE
CPU	32/64 Bit Little-/Big-Endian
Provider-/Consumer-Status	yes
Shared Device	no
Device Access AR	no
Dual Port	see below

CODESYS PROFINET Device (IEC) and Dual-Port Interface:

With standard Ethernet Adapter hardware only single port devices are possible, i.e. each PROFINET Device can handle just one port. (The system itself may have more than one Ethernet adapter, maybe running a PROFINET Controller on it).

A Dual-Port Device (e.g. for a 'daisy-chain') may be implemented with special dual-port Ethernet chipsets, but this requires some runtime adaptations by the OEM.

Programming Interface (API for IEC application)

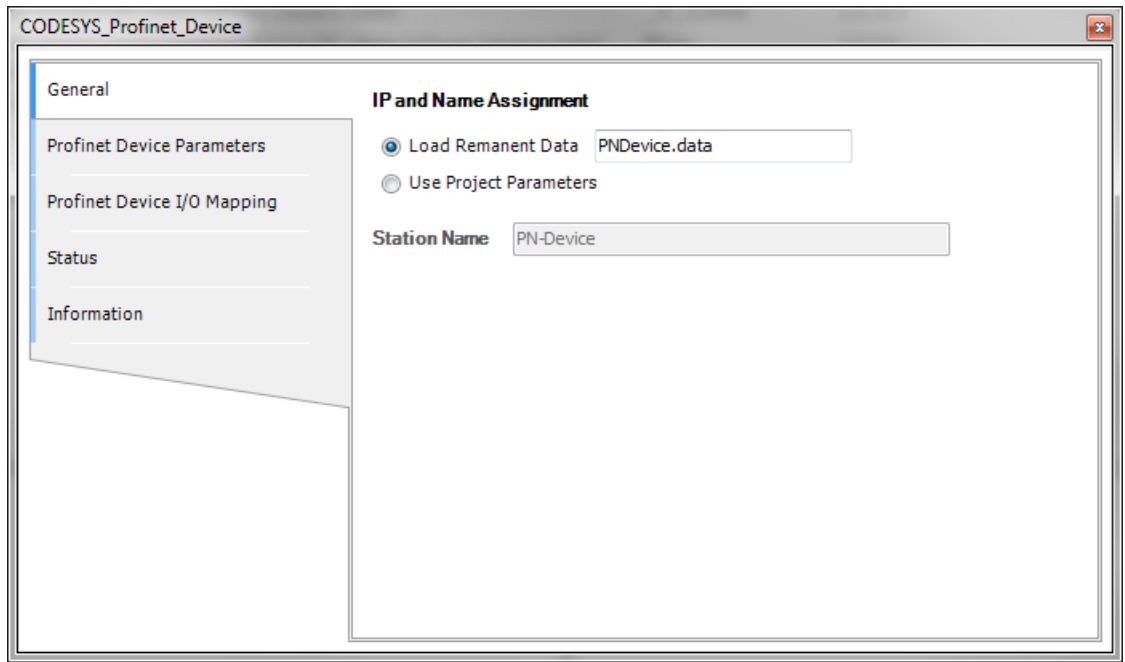
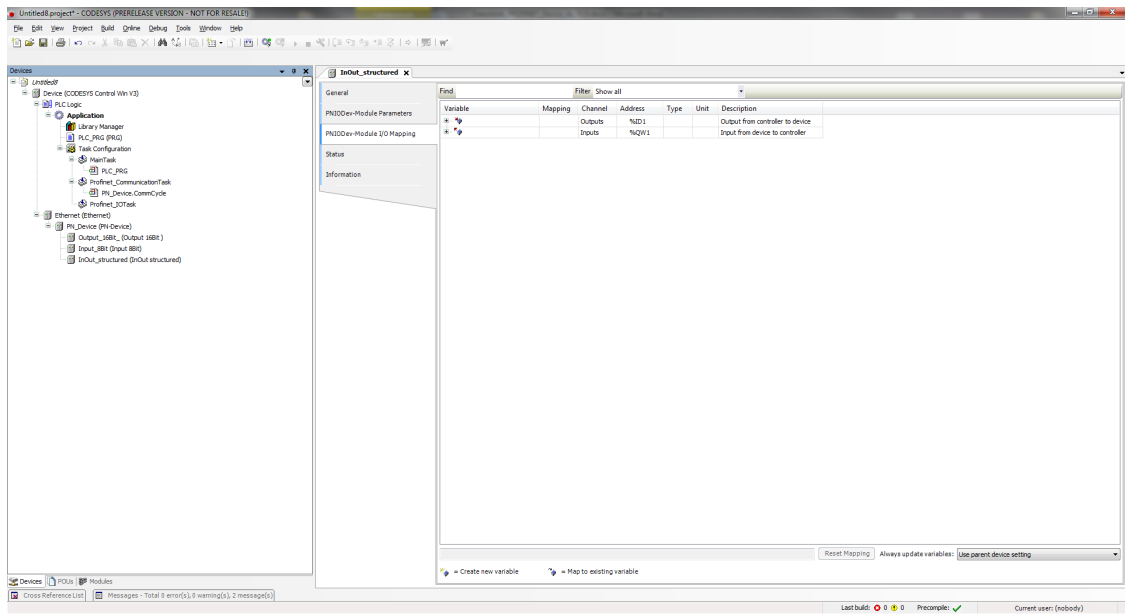
The PROFINET Device provides an API for Profinet related functions and utilities that can be used by the application at runtime.

Function	Description
Generic access on device- and module-configuration	Function Block ProfinetCommon.Deviceliterator and Submoduleiterator Generic API for iterating Slave- or Module Configuration and Status
Add/Remove Diagnosis Entries	Function Block ProfinetCommon.UpdateDiagnosisEntry Update the device's local Diagnosis Database, send diagnosis-alarm
Send Alarms	Function Block CommFB.SALARM
Acyclic Services	Function Block CommFB.PRIVREC / RCVREC e.g. Receive Parameters from PROFINET Controller
Connection Establishment	Function Block ProfinetCommon.DeviceAR A Profinet Device application uses this function block for controlling all phases of the connection establishment.
Reconfigure	Function Block DED.Reconfigure Enable/Disable modules or the complete PROFINET stack

Screenshots

The screenshot displays the CODESYS IDE interface for a Profinet Ethernet device. The main window shows the 'Profinet Ethernet' configuration for the 'PN_Device' instance. The 'Status' section indicates the device is 'Online' and 'IP Active' is set to 'TRUE'. The 'Information' section provides details about the device's IP address, station name, and Ethernet statistics. The 'Breakpoints' window at the bottom shows the application is running in 'RUN' mode.

Driver Diag	Profinet IO Device Driver diagnostic information
PN-Device Status	Open
Connections	0
Online	TRUE
IP Active	FALSE
Stationname	pn-device
IPParameter	current Name of Station
Ethernet Statistic	currently active IP-Settings
Link Status	Up
MAUType	100BASE-TX full duplex mode



General information

Vendor:

CODESYS GmbH
 Memminger Strasse 151
 87439 Kempten
 Germany

Support:

<https://support.codesys.com>

Item:

CODESYS PROFINET Device SL

Item number:

2303000021

Sales:

CODESYS Store

<https://store.codesys.com>

Included in delivery:

- License key

System requirements and restrictions

Programming System	CODESYS Development System V3.5.10.0 or higher
Runtime System	CODESYS Control V3.5.10.0 or higher CODESYS Control V3.5.14.0 or higher required for certification !
Supported Platforms/ Devices	<p>CODESYS runtime system with these components</p> <ul style="list-style-type: none"> * SysEthernet * SysSocket <p>Note: Use the project <i>Device Reader</i> to find out the supported features of your device. <i>Device Reader</i> is available for free in the CODESYS Store.</p>
Additional Requirements	<p>Technical requirements</p> <ul style="list-style-type: none"> * Ethernet Adapter (for Control RTE with Intel or Realtek chip) <p>Legal requirements</p> <p>A certification by a PI Test Lab is mandatory for every PROFINET Controller or Device that is sold to end-users. Details on certification can be found here: www.profibus.com/products/product-certification/</p>
Restrictions	<p>Certification is currently possible for</p> <ul style="list-style-type: none"> * Control RTE > V3.5.16.10 * Linux based runtimes > V3.5.14.0
Licensing	License activation optional on CODESYS Key or Soft Key (Soft Key: free of charge component of CODESYS Controls)
Required Accessories	Optional: CODESYS Key

Note: Not all CODESYS features are available in all territories. For more information on geographic restrictions, please contact sales@codesys.com.

Note: Technical specifications are subject to change. Errors and omissions excepted. The content of the current online version of this document applies.