

PEAK System

Innovations from CAN FD to CAN XL

PCAN-XL Starter Bundle

All-In-One Bundle for Getting Started with CAN XL



Designed for transmitting large data streams and cooperating with Automotive Ethernet, the new standard CAN XL offers data bit rates up to 20 Mbit/s combined with up to 2048 data bytes per frame. Our PCAN-XL Starter Bundle provides all you need to get started with CAN XL.

Scope of Supply

- PCAN-USB XL: Single channel USB interface for CAN CC, CAN FD, and CAN XL connection
- Interface drivers for Windows® 11 (x64/ARM64) and Windows® 10 (x64)
- Professional CAN monitoring software with CAN XL support for Windows®
- Programming interface for developing applications with CAN CC, CAN FD, and CAN XL connection for Windows®

PCAN-USB XL Features

- Interface for High-speed USB 2.0 (compatible to USB 3.0)
- FPGA implementation of the CAN XL core by PEAK-System
- Validated with the CAN XL Evaluation Board by C&S (www.cs-group.de)
- Supports all protocol types: CAN CC, CAN FD, CAN XL
- High-speed CAN connection
  - CAN bit rates 20 kbit/s up to 1 Mbit/s
  - CAN FD data bit rates up to 8 Mbit/s
  - CAN XL data bit rates up to 20 Mbit/s
- CAN SIC XL transceiver TI TCAN6062V
- CAN bus connection via D-Sub, 9-pin (in accordance with CiA® 106)
- Galvanic isolation up to 500 V

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PEAK System

CAN & CAN FD Interfaces

All-Inclusive Solutions for PC and Embedded Applications



PEAK-System provides versatile solutions for accessing CAN CC and CAN FD buses.

- Interfaces for USB, PCI Express, PCI Express Mini, and M.2
- With up to 6 High-speed CAN channels
- Compatible with CANopen®, J1939, NMEA 2000®, and DeviceNet

Included Drivers, Software, and APIs:

- Drivers for Windows® 11 (x64/ARM64), Windows® 10 (x64), and Linux
- PCAN-View: Monitoring software for CAN CC and CAN FD buses
- PCAN-Basic/PCAN-developer 4 API: Developing applications with CAN CC and CAN FD connection for Windows® and Linux
- PLIN-API: API for Developing Applications with LIN Connection
- PCAN-CCP API: ECU communication according to the CCP protocol
- PCAN-XCP API: ECU communication according to the XCP protocol
- PCAN-PassThru: Using applications based on Pass-Thru (SAE J2534) with PCAN interfaces
- PCAN-RP1210 API: Communication according to TMC's Recommended Practice 1210-C with support for CAN, J1939, and ISO-TP
- PCAN-ISO-TP API: Transfer of data packages according to ISO-TP (ISO 15765-2:2016)
- PCAN-UDS API: ECU communication according to UDS (ISO 14229-1)
- PCAN-OBD-2 API: Vehicle diagnostics according to OBD-2 (ISO 15765-4)
- PCAN-OBDonUDS API: Vehicle diagnostics according to OBDonUDS (SAE J1979-2)

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PCAN-RS-232 FD

Programmable Converter for RS-232 to CAN and CAN FD



The new PCAN-RS-232 FD allows the integration of systems with an RS-232 interface such as PLCs, sensors, or actuators into CAN CC or CAN FD buses. The conversion of the data traffic can be programmed freely for individual applications using the development package provided.

Features:

- NXP LPC54618 microcontroller with Arm® Cortex® M4 core
- High-speed CAN connection
  - Complies with CAN CC and CAN FD specifications
  - CAN bit rates 40 kbit/s to 1 Mbit/s
  - CAN FD bit rates up to 10 Mbit/s
  - CAN transceiver NXP TJA1043
  - CAN termination can be activated
- Wake-up via CAN bus switchable
- RS-232 connection
  - Texas Instruments transceiver TRSF3221E
  - Bit rates up to 460,800 bit/s
- 2 digital I/Os, each usable as input (High-active) or output (Low-side)
- Voltage supply from 8 to 32 V
- Extended operating temperature range from -40 to +85 °C
- Firmware upload via CAN

PCAN-CHIP USB

Stamp Module for the Implementation of CAN FD to USB Connections



For custom hardware designs a CAN connection can be implemented with the Stamp module, which communicates via USB 2.0 with the hardware. The Stamp module with its single-sided mounting and plated half-holes is suitable for automatic assembly.

Features

- Stamp module PCAN-Chip USB; Depending on quantity, as cut tape or reel for automatic placement machines
- FPGA implementation of the CAN FD controller
- Complies with CAN specifications 2.0 A/B and FD
- High-speed USB 2.0 (compatible to USB 1.1 & 3.0)
- 100-percent compatible with the USB device drivers and the software from PEAK-System
- Power supply 3.3 V DC
- Dimensions: 25 x 20 mm
- Measurement of bus load including error frames and overload frames on the physical bus
- Induced error generation for incoming and outgoing CAN messages

PCAN-Chip USB Eval

- CAN bus connection via D-Sub, 9-pin (in accordance with CiA® 106)
- CAN transceiver NXP TJA1044GT
- USB connector type B, standard ESD protection circuit
- Dual-color LED for CAN status and power supply
- Power supply via USB

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PCAN-DIAG FD

Mobile Diagnostic Device for CAN and CAN FD Buses

The PCAN-Diag FD is a **handheld device** for diagnosing communication on a CAN bus. Diagnostic options are available both at the protocol level, with the evaluation of CAN 2.0 and CAN FD messages, and at the physical level, with the help of an oscilloscope function and additional measurement functions for voltage and resistance.



Features

- Analysis of CAN and CAN FD networks at physical and protocol level
- Recording of incoming CAN messages on the **internal memory card 4GB)**, with CAN ID filtering if required. Additional use as a mass storage device via USB connection to a PC
- Easily operated using a rotary switch and four function keys
- Power supply via the internal battery or via the supplied power adapter (low voltage socket on the device)

Protocol Function

- Incoming CAN traffic is displayed in list form, additionally in symbolic form for better interpretability
- Individual CAN messages or entire sequences of CAN messages can be sent to the connected CAN bus, for example, to query diagnostic data.
- Recorded CAN traces can also be played back.
- All protocol-level functions are available for both CAN 2.0 and CAN FD.

Oscilloscope Function

- Two independent measurement channels sample the two lines, CAN High and CAN Low, at up to 100 MHz.
- Based on the signal flow, the PCAN-Diag FD decodes CAN frames and displays their components graphically.
- Output of various properties and measurement data of the decoded CAN frame with the report function

J1939 Function Upgrade for the PCAN-Diag FD

- Enables CAN data traffic to be interpreted according to the included J1939 database
- Includes functions such as the decoding of multi-packet messages, address claiming, and the handling of diagnostic information.

PCAN-Diag FD Editor software

- Convenient configuration of all available settings
- Compilation of broadcast lists and sequences
- Saving device configuration, transmit lists, transmit sequences and symbol files in projects
- Transferring projects to the memory card of the PCAN-Diag FD via a USB connection

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PCAN-MicroMod FD ECU

Configurable Control Unit with I/Os and CAN FD Connection



With a CAN FD connection, a mix of digital and analog I/Os, and its tough case, the PCAN-MicroMod FD ECU can be used for integrating custom accessories in utility and heavy duty vehicles operating under harsh conditions.

Features:

- High-speed CAN connection
  - Complies with CAN CC and CAN FD specifications
  - CAN bit rates 40 kbit/s to 1 Mbit/s
  - CAN FD bit rates up to 10 Mbit/s
- Wake-up via CAN or a separate input
- 4 digital inputs (pull-up or pull-down)
- 8 digital outputs (High-side switches)
  - 2 outputs with 5 A and 6 with 2 A
  - 4 alternatively usable as inputs or for reading back the output level
- 8 analog inputs (16 bit, adjustable range ±2.5 V, ±5 V, ±10 V, ±20 V)
- 4 analog inputs alternatively usable as analog output (12 bit, adjustable range 0 to 5 V or 0 to 10 V)
- 2 frequency outputs
  - Low-side switches (3 A)
  - Adjustable range from 0 to 20 kHz
  - Alternatively usable as analog inputs with voltage range from 0 to 60 V
- Connections via two 20-pole automotive connectors (Molex MX150)
- Case with increased protection IP67
- Operating voltage 8 to 32 V; suitable for 12 and 24 V vehicle electrical systems
- Configuration with a Windows® software via the CAN bus
- Extended operating temperature range from -40 to +85 °C

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PCAN-GPS Pro FD

Configurable Sensor Module with CAN FD Connection



The PCAN-GPS Pro FD is a sensor module for detecting position, orientation, and acceleration which can be configured with a Windows® software via USB.
The CAN connection via 2 interconnected LEMO circular connectors is designed for integration into measuring chains.

Features:

- STM32H745 microcontroller with Arm® Cortex® M7 and M4 dual core
- High-speed CAN connection
  - Complies with CAN CC and CAN FD specifications
  - CAN bit rates 40 kbit/s to 1 Mbit/s
  - CAN FD bit rates up to 10 Mbit/s
  - CAN transceiver NXP TJA1043
- CAN termination can be activated via DIP switch
- CAN connection and supply via 9-pin Lemo circular connectors
- GNSS receiver u-blox NEO-M9N
  - Supports GPS, Galileo, BeiDou, GLONASS, SBAS, and QZSS
  - Simultaneous reception of 4 navigation systems
  - Maximum update rate 25 Hz
  - 3.3 V or 5 V supply for GPS antennas
  - Direct access to the u-blox via USB
- Electronic 3-axis magnetic field sensor ST IIS2MDC
- Gyroscope and 3-axis accelerometer ST ISM330DLC
- Supercap for preserving the RTC and GPS data to shorten Time To First Fix
- Voltage supply from 8 to 32 V
- Extended operating temperature range from -40 to +85 °C

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PCAN-PCI Express FD

CAN and CAN FD Interface for PCI Express



The plug-in card PCAN-PCI Express FD allows the connection of a PC with PCI Express slots to CAN FD and CAN networks. There is galvanic isolation of up to 500 Volts between the computer and CAN sides.

Features

- PC plug-in card (PCIe x1) for PCI Express slots
- 1, 2, or 4 High-speed CAN channels (ISO 11898-2)
- CAN bus connection via D-Sub, 9-pin
- FPGA implementation of the CAN FD controller
- PCIe data transfer via bus master DMA (32/64 bit)
- Induced error generation for incoming and outgoing CAN messages
- 5-Volt supply to the CAN connection can be connected through a solder jumper, e.g. for external bus converter

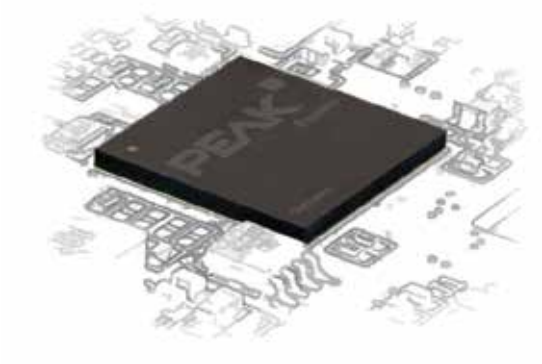
PCAN-M.2: CAN and CAN FD Interface for M.2 (PCIe)

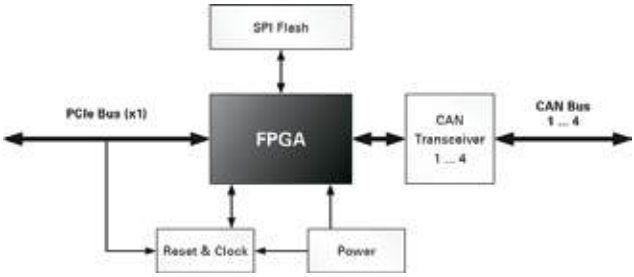
The PCAN-M.2 allows the connection of CAN and CAN FD networks via the M.2 interface (PCIe) of modern computer boards.



PCAN-Chip PCIe FD

Chip Solutions for the CAN FD Connection to PCI Express





With PCAN-Chip PCIe FD, up to 4 CAN channels can be implemented via the PCI Express bus. With the license from PEAK-System, the FPGA can be programmed via an image with the corresponding functionality. Windows and Linux device drivers are available.

Features

- FPGA implementation of the CAN FD controller
- Configuration image for FPGA programming depending on the version:
  - PCI Express 2 Channel
  - PCI Express 4 Channel (Quad)
- Complies with CAN specifications 2.0 A/B and FD
- CAN bus connection for PCI Express x1 with bit rates up to 2.5 Gbit/s
- PCIe data transfer via bus master DMA
- 100-percent compatible with the PCI Express device drivers and the software from PEAK-System
- Measurement of bus load including error frames and overload frames on the physical bus
- Induced error generation for incoming and outgoing CAN messages

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Ixxat Mobilizer

Flexible Automotive Gateway Solution



Ixxat Mobilizer is a powerful and versatile solution for automotive uses, integrating Automotive Ethernet, FlexRay, LIN, SENT, K-Line, EtherCAT, and CAN FD. It‘s ideal for logging, gateway, and rest bus simulation tasks.

- Available in 3 versions with different interface setups
- Compatibility with advanced standards such as Automotive Ethernet, FlexRay, and EtherCAT
- Embedded platform with its own processing power for stand-alone operation
- Easily configurable with the Ixxat Advanced Configuration Tool (ACT)
- Parallel operation of gateway, logger, and RBS applications

Technical Features:

- 8 x CAN FD/CAN, 2 x LIN, FlexRay, K-Line, Automotive Ethernet, EtherCAT, SENT
- Up to 6 digital inputs/outputs, 2 analog inputs, and 4 analog outputs – for direct sensor and actuator connection
- Galvanically isolated interfaces for CAN (1 kV DC) and Ethernet (2.25 kV DC)
- USB 3.0 host and USB 2.0 client for PC connection and extension
- i.MX 8M Plus, Quad-Core Cortex-A53 processor with 1.8 GHz
- 1 GB RAM and 4 GB eMMC flash
- Voltage supply from 6 to 36 V DC; Power consumption of 310/620 mA at 24/12 V DC
- Operating temperature range from -40 to +70 °C
- Linux-based operating system
- Robust aluminum housing

CanEasy professional

Enabling diagnostics, software-based residual bus simulation and analysis



CanEasy is a Windows-based analysis and test environment for CAN (FD), LIN and Automotive Ethernet. The tool simulates the bus traffic, has a high degree of automation, can be easily configured and extended with the help of plug-ins. CanEasy can be used throughout the development process, from testing to commissioning.

Features and benefits

Functions for Bus Analysis and Monitoring

- Recording and Playback Functionality
- Trace Window: Detail, Difference and Statistics views for displaying the time flow of events
- Display bus statistics, Graphic display of Signal Responses, Trigger & Alarm Functions
- Trigger: Control data logging (CAN, CAN FD, LIN, ISO11783 [ISOBUS], J1939)
- Reuse of measurement setups from other CANalyzer or CANoe configurations
- Symbol mapping: Link system variables/environment variables/signals
- Data Export: Use the logged data in other programs

Diagnostic Functions

- Import and export from/to different exchange formats (ODX, AUTOSAR DEXT, CSV, RTF, HTML, A2L, XML, CDI)
- Support of different protocols on different networks (UDS, KWP2000, OBD, WWH-OBD, CAN, CAN FD, LIN, DoIP)
- Reading and writing of ECU variables (via XCP and UDS)
- Editing services and parameters

CanEasy professional

Enabling diagnostics, software-based residual bus simulation and analysis

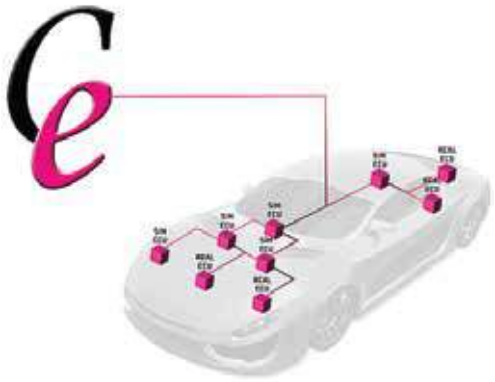


Illustration of a remaining bus simulation with CanEasy

Rest Bus Simulation

- Automated remaining bus simulation
- Import of the communication matrix (DBC, ARMXL, LDF)
- Support of various protocols (ISO-TP, UDS, DoIP, CCP/XCP, SOME/IP)
- Interactive Signal Generator (CAN, CAN FD, LIN, Ethernet (AUTOSAR PDUs))
- Graphically create command sequences for stimulation and testing

Vehicle Description Files and Editors

- DBC file importer/editor/exporter for CAN / CAN FD
- LDF file importer/editor (text based) / explorer for LIN
- ARXML AUTOSAR System Descriptions (CAN, CAN FD, Ethernet, FlexRay)
- Display of AUTOSAR files for CAN, CAN FD and FlexRay

Compatibility

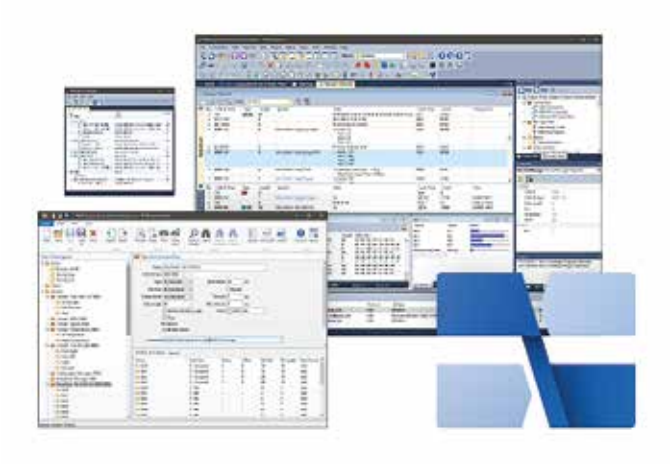
- Import of complete CANoe configurations
- Using CANoe Panels
- Conversion of CAPL nodes as CanEasy plug-ins
- Execution of CAPL test modules
- Support of the file formats CFG, BLF, ASC, CAN, XVP, CNP

Supported Hardware

- Peak
- HMS Ixxat
- Vector
- Intrepid
- Kvaser

PCAN – Explorer 6

Professional Windows Software to Communicate with CAN and CAN FD Buses



The PCAN-Explorer 6 is a versatile, professional program for working with CAN and CAN FD networks. The PCAN-Explorer 6 can connect to several CAN and CAN FD buses at the same time.

A key feature of the PCAN-Explorer 6 is its ability to symbolically represent CAN messages and their payloads. By utilizing Symbol files, raw hexadecimal data is converted into a readable and meaningful format.

Since version 6, the trace function not only records data traffic but also supports the playback of existing traces.

Both recorded and incoming CAN messages can be filtered based on a variety of criteria.

Features and benefits

Transmission and Reception

- Representation of the CAN data traffic in sortable receive and transmit lists with configurable columns display
- Display of messages showing the ID, length, data bytes, time-outs, number of messages received, and receiving interval
- Display of error frames can be activated for each connection
- Display of receive, transmit, and error states
- Manual and periodic transmission of messages with a maximum resolution of 1 ms
- Transmission of CAN messages in response to remote frames
- Messages can be grouped as transmit lists, stored and loaded as desired, e.g., in order to emulate CAN nodes

PCAN – Explorer 6

Professional Windows Software to Communicate with CAN and CAN FD Buses

Symbolic Representation

- Clear and readable representation of CAN messages based on the symbol format from PEAK-System
- Easy Symbol file creation with the supplied Windows software PCAN-Symbol Editor or with the integrated text editor
- User-friendly real-time monitoring of several signals via the Watch window
- Graphical display of up to 4 signals with a simple line writer (Line Writer Add-in)

Recording and Playback

- Logging of the CAN data traffic along with the errors
- Playback of trace files with optional loop function
- Representation of the logged messages with details such as time stamp, type, ID, length, and data bytes
- Representation of the data bytes in hexadecimal, decimal, or ASCII format
- Filtering of messages to be logged via message filters during and after a recording
- Recording of CAN data traffic directly to files or to the RAM (in linear, dynamic, or circular buffer mode)
- Playback of logged CAN messages directly from files or the buffer
- Storing of the logged data to readable text files or CSV files

Automation

- Automation of small tasks or complex processes with macros or VBScript like for example:
  - Send an e-mail if a temperature is exceeded
  - Calculate variables from the data of incoming CAN messages
- Access with VBScript to almost all program elements via the PCAN-Explorer object model
- VBScript macros also run in the background even without the PCAN-Explorer interface
- Automation with callback libraries
  - Integration of self-implemented callback functions as native libraries (*.dll, 32-bit)
  - Calling of callback functions on events such as receipt, before transmission, and after transmission of a CAN message

Add-Ins

- Offers add-ins that provide even better opportunities to analyse and influence data
- The Plotter produces a graphical representation of the signals' time course by live recording or on the basis of traces
- The Instruments Panel is used for an own arrangement of various displays, controls, and switches
- Support for J1939
- Further more add-ins enable the import of third-party configurations based on the DBC/ARXML format

PEAK System

Modern Products
for CAN, CAN FD, CAN XL, and LIN applications

High Quality
certified according to ISO 9001

Professional Software
for communication, diagnosis, and simulation

Sales & Support
easy, fast, and reliable

Development
of innovative solutions on your behalf

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