VN1670

Multi-Channel CAN/LIN Interface

What is the VN1670?

The VN1670 is a multi-channel CAN/LIN interface with up to 15 channels, additionally providing digital and analog IOs. The interface can be connected to the host PC via USB or Ethernet. This provides a high flexibility and an optimal network access for analysis, test and simulation purposes, especially for setups with high channel count. Thanks to its robust housing and the various mounting and stacking capabilities, the device is perfectly suited for the use in vehicles.

Overview of Advantages

Flexible

> 15 channel solution for CAN and LIN by combining
  > 5 flexible piggyback slots for CAN / CAN FD / CAN XL and LIN piggybacks
  > 5 onboard CAN / CAN FD channels
  > 5 onboard LIN channels
> Two choices of PC connection:
  > USB 3.1 Gen. 1 (SuperSpeed)
  > Gigabit Ethernet (1000BASE-T)

Prepared for the future

> High performance CPU and FPGA architecture enabling many possibilities for future features and extensions
> Support of CAN XL

Robust

> A robust housing with easy mountability in the standardized 19-inch rack and for secure mounting in the vehicle

Application Areas

The VN1670 interface is intended for several engineering use cases like analysis, test and simulation of CAN and LIN networks:

> Analysis, test and simulation of ECUs, sensors, actuators and gateways
> Setups with a high number of CAN and/or LIN channels, especially
  > the complete car with a large number of networks and
  > gateways with high channel count
> High performance remaining bus simulations
> Measurement and calibration of ECUs via XCP
> Precise timing analysis of communication data
> Customer-specific applications

Ideally Suited for On-Board Usage

> Robust housing with various mounting possibilities
> Large range of power supply and temperature
> Low power consumption in standby

Functions

CAN, CAN FD & CAN XL support

> CAN: up to 2 Mbit/s
> CAN FD: up to 8 Mbit/s
> CAN / CAN FD: fast flashing/CAN Transport Protocol acceleration
> CAN XL:
  > up to 20 Mbit/s with CAN SIC XL Transceiver
  > Support of the operating modes Error Signaling Enabled and Error Signaling Disabled

Compared to other devices of the VN1600 family, the VN1670 can flexibly and optimally be used for setups with high channel count.

LIN support

> Support for LIN 2.1 conformance tests with CANoe
> Stress functionality, e.g. disturbance of dominant and recessive bits
> LIN Flash-Mode: up to 115,2 kbit/s (depending on wiring higher baud rates are possible)

IO

> Digital and analog IOs via the new, upcoming VNpiggy30 IO 8644[1] (optional)

General

> Time synchronization
> > IEEE 1588 - PTP
> > Hardware Synchronization with Sync Cable
> > Software Synchronization
> Support of customer applications via free XL Driver Library
> Transparent Vector Tool Integration
> > Support of CANoe/CANalyzer starting with Version 15.0 SP3
> > Support of CAN XL as of CANoe 17

Technical Data

	CAN Channels	LIN Channels
Max. channels	15	
No. of D-SUB connectors	5 (three channels per connector)	
Variable channels (via optional piggybacks)	5	
	Max. 5 configurable via piggybacks CAN XL support	Max. 5 configurable via piggybacks
Onboard channels	5 x CAN / CAN FD NXP TJA1057GT electrically decoupled	5 x LIN Infineon TLE7295-3 electrically decoupled
Bit rates	CAN: up to 1 Mbit/s (up to 2 Mbit/s depending on wiring and transceivers) CAN FD: up to 5 Mbit/s (up to 8 Mbit/s depending on wiring and transceivers) CAN XL: up to 16 Mbit/s (up to 20 Mbit/s depending on wiring and transceivers)	Normal- Mode: up to 20 kbit/s Flash-Mode: up to 115,2 kbit/s (depending on wiring higher bit rates are possible)
Digital / analog input / output	via VNpiggy30 IO 8644[1] (optional)	
Time stamp accuracy		
Resolution	8 ns	
within one device	1 µs	
SW sync. of multiple devices	typ. 50 µs	
with Sync cable	typ. 1 µs	
IEEE1588 - PTP	typ. 1 µs	
Operating system	Windows 10 (64 bit) / Windows 11 (64 bit)	
Power Supply	8V - 32V (typ. 12V), externally	
Power consumption	10 W[2]	
Host PC connection	USB 3.1 Gen. 1 Ethernet 1000BASE-T	
Driver libraries	XL Driver Library	
Temperature range		
Operation	-40...+65 °C,	
Shipping and Storage	-40...+85 °C	
Dimensions (LxWxH)	159 mm x 219 mm x 54 mm (height with housing feet)	
Weight	1,4 kg	

1) Please contact Vector for information on planned availability.

2) Setup: 10 x CAN (1 MBit, 100 % busload) + 1 x LIN, USB host connection, 25 °C ambient temperature, 12V ext. power supply