VN5610A/VN5640

Powerful and Multifunctional USB Network Interfaces for Automotive Ethernet and CAN

What is VN5610A/VN5640

The VN5610A and VN5640 are compact and very powerful interfaces with USB host connection for accessing Ethernet and CAN (FD) networks.

There are many use cases for the VN5610A and VN5640 such as Ethernet monitoring, frame- as well as load generation or synchronous tracing of Ethernet frames with other bus systems such as CAN.

Furthermore the VN5640 interface offers with its numerous Ethernet channels a powerful platform for extensive analysis, simulation or complex testing tasks within an Automotive Ethernet network.

Overview of Advantages

- Two (VN5610A) or up to 16 (VN5640) independent Ethernet channels for the IEEE standards 100BASE-T1 (BroadR-Reach) as well as 10BASE-T/ 100BASE-TX/1000BASE-T
- Two CAN highspeed channels (CAN FD capable)
- Ethernet monitoring between two nodes
- Additional IO interface for setting (e.g. the DoIP Activation Line) or sampling of digital values
- Comprehensive analysis on a network with multiple nodes (VN5640)
- Optimal support of Diagnostics over IP through additional DoIP Activation Line
- Hardware filtering of Ethernet and CAN data already integrated on the interface
- Integrated Layer 2 switch for optimized remaining bus simulation with several channels (VN5640)
- Hardware load generators for low jitter and full bandwidth
- Stand-alone mode capability ensures uninterrupted operation
- Host connection via USB 2.0 and/or USB 3.0 as well as USB-bus-powered power supply (VN5610A)
- Precise time stamps
- Optimal performance when used with CANoe/ CANalyzer.Ethernet
- Synchronization between multiple devices and with other bus systems (CAN, LIN, FlexRay, MOST)
- Fastest flashing with the Vector flash tool vFlash
- Open interface for third-party tools with the XL Driver Library (CAN and Ethernet)
- High flexibility by reconfigurable FPGA hardware architecture
- Rugged housing, power supply and temperature range ideal for automotive or other industrial applications
- With CANoe.AFDX or CANalyzer.AFDX access to the Ethernet-based AFDX® protocol that is widely used in the aerospace industry (VN5610A)

VN5640 Ethernet/CAN interface
16 Ethernet + 2 CAN (FD) channels

VN5610A Ethernet/CAN interface
2 Ethernet + 2 CAN (FD) channels

Application Areas

> **Remaining bus simulation:**
Independent channels for Ethernet and CAN. On all channels, simultaneous operation of remaining bus simulation is possible with CANoe/CANalyzer.Ethernet.

> **Media converter:**
Data link between 100BASE-T1 (BroadR-Reach) and 100BASE-TX/1000BASE-T physical layer.
Benefit: Standard Ethernet logger and Ethernet accessories can be connected.

> **Direct access:**
Individual access to each channel, for example, for reprogramming of ECUs for vehicle diagnostics or testing of several identical systems on a test bench.

> **Ethernet monitoring:**
Transparent connection (in/out/monitor) between two nodes (e.g. Diagnostic over IP Monitoring) and monitoring with exact time stamps.

Accessories

BRcable2Y:
Y cable for Vector Ethernet Interface VN5610A/VN5640 with D-SUB9 double assignment. Splits the double assignment into two separate D-SUB9 connectors (CH A and CH B), each with a separate 100BASE-T1 channel.

Cable for power supply:
Different power supply cables are available (AC adapter, vehicle power plug, banana plugs)

More information:
www.vector.com/vn56xx

Technical Data

	VN5610A	VN5640
Ethernet		
channels/transceiver	2x BCM89811, 2x BCM54810 (selectively 2 usable)	12x NXP TJA1100, 4x Atheros AR8031
supported physical layer	100BASE-T1 (BroadR-Reach) and 10BASE-T/100BASE-TX/1000BASE-T	
CAN/CAN FD		
channels/transceiver/physical layer	2 x NXP TJA1051 CAN highspeed (CAN FD capable)	
Connectors		
Ethernet	2 x RJ45 for 10BASE-T/100BASE-TX/1000BASE-T 1 x D-SUB9 for 100BASE-T1 (BroadR-Reach; dual channel)	4 x RJ45 for 10BASE-T/100BASE-TX/1000BASE-T 6 x D-SUB9 for 100BASE-T1 (BroadR-Reach; dual channel)
CAN/CAN FD	1 D-SUB9 (dual channel)	1 D-SUB9 (dual channel)
Analog and digital I/O	1 x digital in/out, e.g. for DoIP Activation Line	1 x analog input 2 x digital input 1 x digital output (open collector) 2 x digital in/out, e.g. for DoIP Activation Line
Time stamp accuracy		
within one device	1 µs	
synchr. of multiple devices	typ. 50 µs	
with sync cable	typ. 1 µs	
Baudrates		
Ethernet	10 Mbit/s, 100 Mbit/s, 1000 Mbit/s	
CAN/CAN FD	up to 8 Mbit/s	
Mean reaction time	250 µs	
Operating system	Windows 7/8 (32 and 64 bit), Windows 10 (64 bit)	
PC interface	USB 2.0	USB 3.0
Power supply	without external power supply: (bus-powered) at 100 Mbit operation mode, with external power supply: 7...50 V DC, typ. 12 V DC, power-up: 8 V DC	8...50 V (typ. 12 V) power-up: min. 5 V, voltage drop down (< 1 min) to 5 V
Driver libraries	XL Driver Library for CAN and Ethernet	
Temperature range	Operating: -40..+65 °C, storage: -40..+85 °C	Operating: -40..+60 °C, storage: -40..+85 °C
Dimensions (L/B/H)	125 mm x 106 mm x 32 mm	186 mm x 172 mm x 55 mm
Weight	330 g	1300 g
Housing	Rugged aluminum housing	

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