

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) independent Ethernet channels for the IEEE standards 100BASE-T1 (BroadR-Reach) as well as 10BASE-T/100BASE-TX/1000BASE-T
- > Twelve (VN5640) independent Ethernet channels for the IEEE standards 100BASE-T1 (thereof up to six channels 1000BASE-T1 in the Option 1000BASE-T1) and four additional channels 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)
- > 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 (VN5640) 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)
- > Open interface for third-party tools with the XL Driver Library (CAN and Ethernet)
- > 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)



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. VN5640 Option 1000BASE-T1 with additional data link between 1000BASE-T1 and 1000BASE-T.

> 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

Different cable solutions for adapting 100BASE-T1/1000BASE-T1 networks and different cables for the power supply are available (AC adapter, vehicle power plug, banana plugs).

More information:

www.vector.com/vn56xx

Technical Data

	VN5610A	VN5640	
		Option 100BASE-T1	Option 1000BASE-T1
Ethernet channels/transceiver	2x BCM89811, 2x BCM54810 (selectively 2 usable)	12x NXP TJA1101, 4x Atheros AR8031	6x Marvell 88Q2112 (100BASE-T1/1000BASE-T1), 6 x BCM89811 (100BASE-T1), 4x Atheros AR8031
supported physical layer	100BASE-T1 (BroadR-Reach) and 10BASE-T/100BASE-TX/1000BASE-T		additional 1000BASE-T1
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)	4 x RJ45 for 10BASE-T/100BASE-TX/1000BASE-T 3 x Industrial® for 100BASE-T1/1000BASE-T1 (dual channel) 3 x D-SUB9 for 100BASE-T1 (BroadR-Reach; dual channel)
CAN/CAN FD	1 D-SUB9 (dual channel)	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 synchr. of multiple devices with sync cable	1 µs typ. 50 µs 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		