### VT System Overview

#### Module Overview and Accessories

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<th>Description</th>
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| **Load and Measurement Modules:** VT1004A | Measurement of ECU outputs and connection of actuators | 4 | - Differential inputs  
- Electronic load  
- Current carrying capacity up to 16 A (continuous)  
- Also available with user-programmable FPGA |
| **Stimulation Module:** VT2004A | Stimulation of ECU inputs and connection of sensors | 4 | - Differential outputs  
- Decade resistor  
- Arbitrary curve generator  
- Also available with user-programmable FPGA |
| **Digital Module:** VT2516A | Connection of ECU inputs and outputs that are used in digital form | 16 | - Voltage and PWM measurement  
- Output of digital and PWM signals  
- Also available with user-programmable FPGA |
| **Serial Interface Module:** VT2710 | Simulation of intelligent sensors and ECUs with serial interface | 10 | - Up to 4 freely configurable PSi5 and SENT channels  
- 2 SPI channels with 5 chip select lines each  
- 2 UART / RS232 / RS422 / RS485 channels  
- 2 I2C channels  
- Additional 2 LVDS channels for active probes |
| **Piggyboard Module:** PSI5SENTPiggy | Piggyboard module for the realisation of one PSI5 or SENT channel on the Serial Interface Module VT2710 | 1 | - Sensor supply with up to 25 V / 200 mA  
- Generation of PSI5 synchronisation pulses with freely adjustable voltage, slope und hold time  
- Generation of current modulated signals with free setting of low and high current levels and data rates up to 200 kBit/s  
- Creation of shortcuts on PSI5 or SENT channels  
- Simulation of various resistive or capacitive loads for the complete bus channel or single components |
| **General-Purpose Analog I/O Modules:** VT2816 | Analog inputs and outputs with signal conditioning | 16 | - 4 analog outputs  
- 12 analog measuring channels up to 60 V  
- 8 current measurement channels up to 5 A  
- Also available with user-programmable FPGA |
| **General-Purpose Relay Module:** VT2820 | Relays for individual wiring and use | 20 | - Current-carrying capacity up to 6 A per relay |
| **General-Purpose Digital I/O Modules:** VT2848 | Digital inputs and outputs with signal conditioning | 48 | - Processes signals up to 60 V  
- Generating and measuring of PWM signals  
- Also available with user-programmable FPGA |
| **Real-time Module:** VT6011 | PC module for executing the real-time part of CANoe with the VT System | 2 PCI Express | - Intel® Celeron® 2.0 GHz processor  
- PCI Express connections for VT System network modules  
- Passive cooling, no fan |
| **Real-time Module:** VT6051A | High-performance PC module for executing the real-time part of CANoe with the VT System | 4 PCI Express | - Intel® Core™ i7, 2.50 GHz processor  
- PCI Express connections for VT System network modules  
- Regulated fan, requires 2 slots  
- Support of Extended Realtime (ERT) from the Vector Tool Platform (VTP) |
| **Network Module:** VT6104A | Network interface for the real-time modules VT6011 and VT6051A in the VT System | 4 | - Supports CAN, LIN, J1708, CAN FD, K-Line  
- Switchable termination resistors  
- Relays for line breaks and short circuits |
| **Network Module:** VT6204 | Identically to VT6104A | 4 | - Identically to VT6104A, supports additionally FlexRay |
| **Ethernet Network Module:** VT6306 | Automotive Ethernet network interface for the real-time modules VT6011 and VT6051A in the VT System | 6 | - 6 Automotive Ethernet channels on specific piggy  
- Two 100BASE-TX/1000BASE-T channels  
- High precision time stamps for Ethernet frames  
- HW sync (1µs) with multiple bus interfaces  
- Media conversion between ethernet networks  
- Flexible hardware-based frame filter  
- Multiple, configurable TAP units  
- Configurable layer-2 switch mode |
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| Piggyboard Module: 100BASE-T1piggy 1101 | Piggyboard module for the realization of six 100BASE-T1 channels on the Ethernet Network Module VT6306 | 6        | - Electrical error injection and signal switching  
- Adjustable signal attenuation on 3 channels  
- Resistive damping values of 5 Ω … 2,555 Ω  
- Transceiver NXP TJA1101 on all channels |
| Power Supply Module: VT7001A            | Power connection to an ECU’s power supply terminals (e.g. Terminal 15 and Terminal 30 of an ECU) | 2        | - Controls 2 external power supplies by RS-232 and analog voltage  
- Internal power supply (max. 2 A)  
- Current carrying capacity up to 70 A (continuous)  
- Current measurement (auto-ranging 100 µA … 100 A) |
| Rotation Sensor Module: VT7820          | Application board for the Extension Module VT7900 FPGA to simulate rotational sensors | 4        | - Simulation of wheel speed sensors (S-, I- and V-type)  
- Simulation of cam- and crankshaft sensors  
- Number of encoder wheel teeth and gaps freely configurable  
- Voltage or current modulated signal  
- Digital levels and slew rate freely adjustable |
| Smart Charge Communication Test Module:  | Application board for the Extension Module VT7900 to test the smart charge communication of electric vehicles | 1        | - Simulation of an electric vehicle (EV) or an electric vehicle supply equipment (EVSE)  
- PWM and PLC communication |
| Power Supply Module: VT7900A VT7900A FPGA| Extension of VT System by easy integration of application-specific electronics | -       | - Platform for application-specific application board  
- Full integration in CANoe  
- Also available with user-programmable FPGA |
| Backplane: VT8006A                      | Backplane for communication with the VT System modules in half-width 19” housings | 6 Slots  | - Unused slots automatically deactivated  
- Multiple backplanes may be cascaded |
| Backplane: VT8001A                      | Backplane for communication with the VT System modules in 19” frames/housings | 12 Slots | - Automatic deactivation of unused slots  
- Multiple backplanes may be cascaded |
| Power Supply Module: VTC8920 (available in Europe) | 12 V power supply as slide-in module for supplying the VT System | 2 Connections | - 200 W output power |
| Desktop Housing 42 HP                   | Desktop housing in half 19” width                                           | 6 Slots  | - For installing the VT8006A backplane  
- Additional space for circulation of cooling air |
| Desktop Housing 84 HP                   | Desktop housing in full 19” width                                           | 12 Slots | - For installing the VT8006A backplane  
- Additional space for circulation of cooling air |
| Subrack 84 HP                           | Subrack in full 19” width for mounting in 19” racks                         | 12 Slots | - For installing the VT8012A backplane |
| Desktop Power Supply                    | 12 V desktop power supply for supplying the VT System                      | 1 Connection | - 150 W output power |