



VERMAC

FACTSHEET

VERA 3.0 COMPACT

Compact and powerful ECU with advanced automotive network connection.

- Closes the gap between RCP systems and high volume control systems
- Model-based toolchain
- Compact design for in-vehicle use
- Integrated sensor and actuator outputs

VERMAC.DE

PRODUCT DESCRIPTION

VERA 3.0 compact combines VEMAC's technology in flexible control units for prototypes and small series with a compact and cost optimized design. The standardized and rugged enclosure without any compromises in calculation power makes VERA 3.0 compact best choice for many vehicle applications.

MARKETS AND GOALS

Today's markets are characterized by shorter development cycles and increasing competition. In order to succeed in this environment, the limits of possibility have to be kept in sight. Based on our widely used and highly configurable VeRa 3.0 system we developed VeRa 3.0 compact for cost sensitive powertrain and body applications. Additionally, to prototype and A-sample use it is designed for small series and to bridge the gap between prototype and series.

The consequent use of model-based development methods makes the VeRa 3.0 family with its comfortable tool-chain VeRa TC a highly cost effective platform, because the developer can concentrate on the function itself, while the interfaces to all automotive sensors and actuators are available and integrated for easy use.

AUTOMOTIVE REQUIREMENTS FOR 2020+

Advanced powertrain components like new sensors and actuators in body and powertrain systems lead to more comfort, safety and environmental functions. And all these functions have to be integrated in the highly distributed E/E-architecture of modern passenger cars, heavy duty vehicles and agricultural and construction machines as well.

Hence the requirements for flexible fleet test and small series ECUs are the combination of many and various network interfaces as CAN, LIN or SENT with on-board actuator power-stages and dedicated sensor inputs.

The full diagnostic capability for all inputs and outputs is a natural demand and the control units have to be robust against any environmental influences. Our systems are both splash and dust proof according to IP6K9K (DIN 40 050). The temperature range fulfils industry standards and allows operation from -40°C to +85°C, and optionally up to 105 °C.

INPUTS

Analog Inputs

Input Range	8x 0...10 V input voltage Pull-Up or Pull-down configuration Passive input filter
Sampling	2 ADC Multiplex-Chains with 2 ADCs Processor internal max. sample rate per ADC 1 MSPS FPGA internal 8 simultaneous ADCs with 3 MSPS
Resolution	12 bit

Digital Inputs

Input Range	8x 5V/12V/24V logic levels Schmitt-Trigger inputs TTL-level compatible Pull-up or Pull-down configuration
Resolution	Max. 8x CPU/TPU channels (2x VRS/HALL Input) Frequency measurement PWM (Pulse Width Modulation) measurement

OUTPUTS

Analog Outputs

Configuration	0...5V or 0...10 V output voltage Max. 1 MSPS
Number of channels	4x analog output channels 12 bit resolution

Digital Outputs Standard

Configuration	8x digital signal output channels 0...5V Push/Pull outputs 24 mA maximum output short circuit current
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Digital Outputs Performance

Low-side outputs	4x Open-Drain Outputs Control as digital - or PWM - outputs Current: 20 A (continuous), 30A (peak current) Load voltage: max 20 V 0 ... 100 kHz, 0 ... 100 % duty cycle Output current-feedback (1MSPS)
High-side outputs	4x High-Side Outputs Control as digital - or PWM - outputs Current: 6 A (continuous), 20A (peak current) Minimum shut down current 25 A 0 ... 100 kHz, 0 ... 100 % duty cycle Output current- feedback (1MSPS)

COM

Communication

CAN

LIN
Serial
SENT

SPECIFICATION

Max. 4x CAN Bus, 1x CAN for the calibration access over XCP
Max. 1 MBit/s
1x LIN Bus
1x RS-232 (optional)
1x SENT input (with Pull-Up-resistor)
1x SENT out

Sensors

Temperature

Pressure

Acceleration

ECU onboard temperature
16 bit resolution, +/-0.5% accuracy
ECU absolute pressure In housing
15...115 kPa
Triaxial 12bit acceleration sensor
Triaxial 16bit, +/-2000°/s gyroscope

DEVICE

Mechanical

Main Connector

Housing

Operating
Temperature

Power Supply

Input voltage
range

Output voltage

Current
consumption

SPECIFICATION

Cinch Modice LE60pol.

Chinch Modice LE

-40...85°C

6...40V
According to ISO 7637
Reverse polarity protection
Overvoltage protection

5V, 500mA, stabilized for sensor supply
Protected battery output
Overcurrent protected

Current consumption ca. 320 mA(@12 V) (CPU working)
Current consumption when turned off ISTBY < 20 µA

SOFTWARE

Software

SPECIFICATION

- VeRa TC 3.0
- Project management
- Configuration and generating of Simulink libraries
- Compiler call and code generation for configuration components
- Flashing on hardware
- Generation of A2L- and HEX files for calibration software

Compiler

WindRiver C-Compiler (Diab-Compiler)
Suited for developments according to ISO 26262

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