

VarioPRO 4K

Signal router, Logger unit

CAN-Router (up to 4 CAN)/ CAN-Gateway

OBD2-input (ISO15765/4)

WWH OBD Conversion for EURO VI (ISO27145)

4 analog inputs

4 analog/TTL outputs

20 Hz GPS receiver integrated

128 G-Byte data memory via exchangable SD-card



Adjustment and flexibility required!

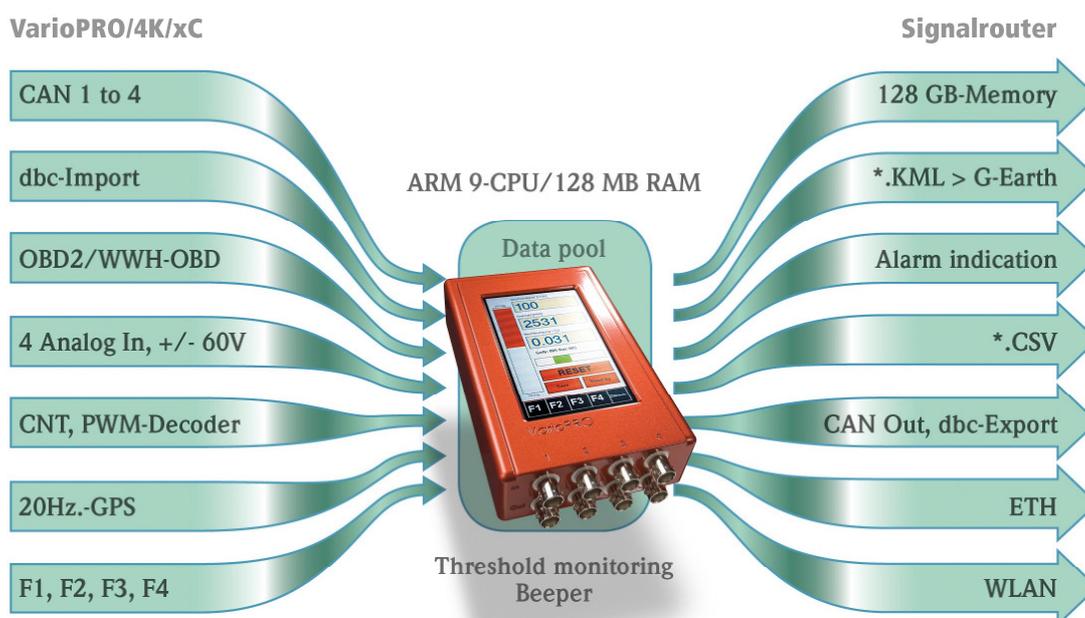
With the continuously increasing number of data networks in the automotive measurement technology, the requirements concerning analysis and measurement systems rise in the test drive. Along with it goes the necessity to implement networks and network segments for the connection with downstream network nodes with various operational parameters. This, in turn, requires flexible signal routers and gateway functions.

Flexible assistant VarioPRO

With its versatile interface equipment the system VarioPRO can be used as a signal converter, signal router, CAN-gateway and display device.

Via the touch screen of the instrument or the PC-configuration software the necessary operational parameters are comfortably selected. Via up to 4 CAN-channels all the signal inputs for CAN2.0 A&B can be output with selectable baud rates and individual CAN-IDs. For a comfortable and timesaving use on different vehicles the instrument settings can be stored with incorporated different dbc-files. (dbc-files are not part of the delivery!) Complementary, all the incoming signals can be converted into proportional TTL-sequences and/or analog voltage.

From a range of optionally available application modules the system can be upgraded for the use on special applications.



Signal tap via OBD2

Minimum of setup times/minimum of setup costs!

Only one cable link! Costly and time-consuming setup work and precarious accesses to the vehicle-CAN connected with error memory records are a thing of the past!

Sensorless tapping of the engine's rpm

Among the common applications is the tapping of the engine's rpm in order to control acoustic measurements; also the tapping of the vehicle speed in order to determine the fuel consumption; besides, it serves as a reference magnitude concerning brake measurements. All the signals are either output as TTL-impulse, as proportional analog voltage or as CAN-ID.

Application on third-party vehicles

Via the OBD2-jack it is also possible to tap third-party vehicles.

No dbc-file is required! By using the VarioPRO, OBD-sensor values can be converted into CAN-IDs and can be transferred to downstream networks for further processing via a CAN-output.

Customer-specific connector sockets

Being equipped with customer-specific connector sockets the VarioPRO can be integrated economically and time-saving into already existing measurement setups as a signal router or logger.

Interface equipment on demand:

In order to meet various requirements the system VarioPRO can be optionally equipped with the established interfaces of the automotive measurement technology.

The functions listed on page 1 are available with all the basicsystems. Furthermore, the first step can be made on the basis of a number of instrument variants:

VarioPRO/4K/1C = 1 CAN-transceiver, with galvanic isolation, selectable 120 Ohm termination

VarioPRO/4K/2C = 2 CAN-transceiver, with galvanic isolation, selectable 120 Ohm termination

VarioPRO/4K/4C = 4 CAN-transceiver, with galvanic isolation, selectable 120 Ohm termination

For various fields of application the universal hardware platform can be optionally extended with adequate function modules:

- Option GW:** Level crossing monitoring regarding all the incoming signals and error memory contents.
- Option GEARTH:** Data projection in Google Earth TM, synchronized to the roads and proving grounds.
- Option FSP:** Read out error memory, display FSP contents, delete FSP
- Option CNT/PWM:** Pulse width decoding, PWM-meter, frequency measurement, pulse divider.
- Option CME:** Can Message Editor. Predefine CAN-messages for triggered or continuous output. Including an example showing a 20 function keys-terminal with for function control and single output of individual CAN-ID.



Scope of supply:

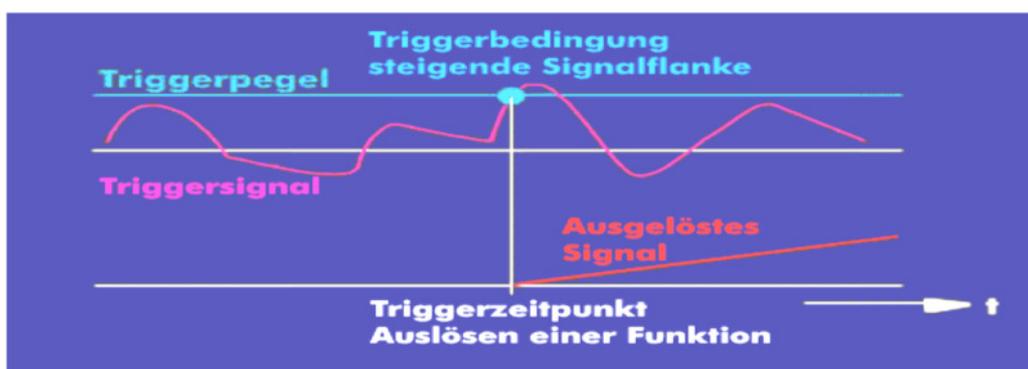
Basic unit VarioPRO4K/xC
OBD-cable, 2 metres
USB-cable
2 GB SD-card
GPS-antenna, magnetic base, cable of 5 metres
configuration software on CD (MS-WIN-XP required!)
manual

HW options:

carrying case
Mounting plate including suction cup for VarioPRO
CAN-cable adapter, 30 cm, 9-pole sub D in compatibility with vector standards
BNC-connection cable, 1 meter RG 178
32 GB SDHC-card
AC-power supply

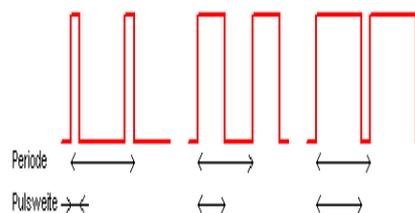
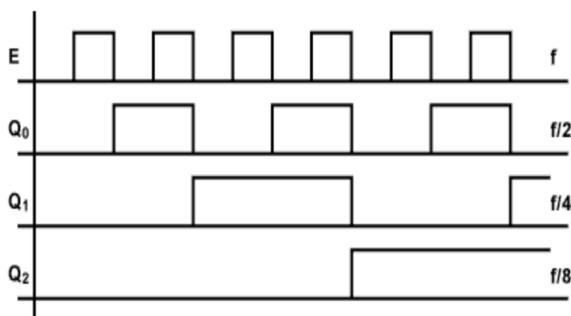
Option: GW, level crossing monitoring

- Trigger generation by level crossing of all the inputsignals
- Trigger generation by error memory records (option FSP!)
- Distribution of individual CAN-ID depending on trigger events
- Logic output high/low depending on trigger events
- Storage depending on trigger events



Option CNT/PWM: PWM-meter and pulse width decoding

- Pulse width decoder, PWM-meter function, pulse distributor
- Determination of PWM-degree 0-100%
- Determination of PWM-carrier frequency 1-10 kHz
- Display/storage of PWM-degree together with other measurands from the analog input, OBD2, CAN-input, GPS
- Output of PWM-degree via proportional analog output
- Output of PWM-degree via CAN-ID
- Pulse distributor 1:255 including edge regeneration



Option Hybrid, OBD2 on third-party-hybrid vehicles

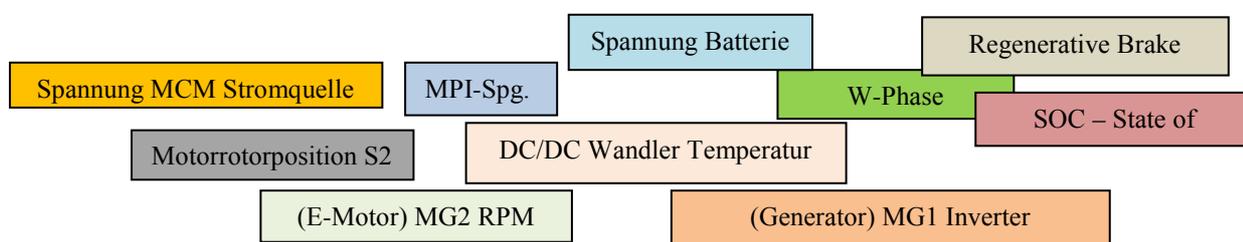
Tapping of specific sensor sizes on third-party-hybrid vehicles

Comfortable access via the OBD2-jack

Numerical display of hybrid-specific magnitudes

Conversion into scaled analog voltages + CAN-ID

Display/storage of hybrid values together with further measurands from the analog input, OBD2, CAN-input, GPS.



Option: FSP, read out/reset error memory

Display of the error memory records of several ECUs

Access via the "OBD2-diagnosis-CAN" according to ISO 15765

Automatic vehicle and error detection

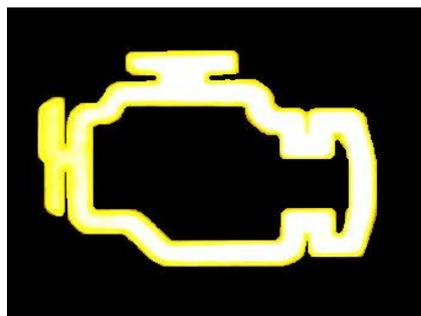
Display of the number of error memory records (P1, P0, P2, P3 and U0)

Display of the errors in the standardised ISO-HEX-Code (e.g. P0100)

Optionally: Error records in plain language according to ISO 15765

Optionally: Error records in plain language according to customer requirement

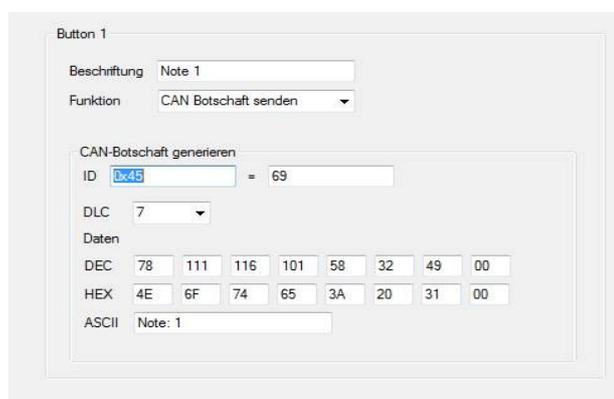
Reset of engine control lamp and FSP at the touch of a button



P0100 Luftmassen/Mengenmesser Signal zu groß/ klein
P0101 Luftmassenmesser Signal nicht im Sollbereich
P0110 Ansauglufttemperatur Sensor Spannung zu hoch/ niedrig
P0115 Motor Kühlmitteltemperatur Signal zu groß
P0335 Kurbelwellen-Positionsgeber "A" Funktionsstörung
P0335 Kurbelwellen-Positionsgeber "A" Stromkreis offen
P0340 Nockenwellen-Positionsgeber Signal zu groß/ klein
P0340 Signal Nockenwellensensor nicht vorhanden
P0038 Lambdasondenheizung Kontrollschaltkreis hoch (Bank 1 Sensor 2)
P0042 Lambdasondenheizung Kontrollschaltkreis (Bank 1 Sensor 3)

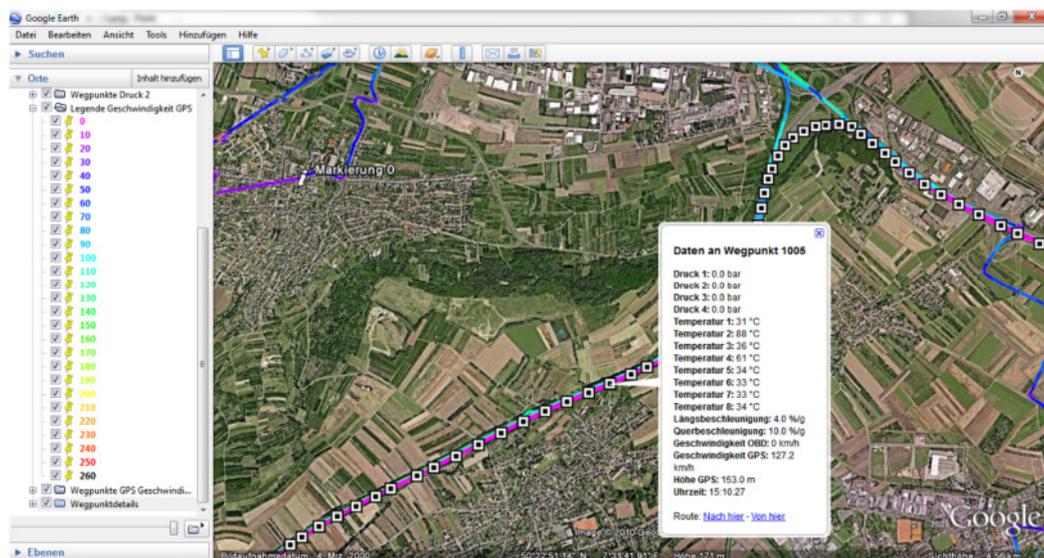
Option: CME, Can Message Editor

- 20 function keys that can be labelled individually
- Individual key labelling, e.g. note 1 to 10
- Signal generation to control external instruments e.g. analog output logic high>low / low>high
- Output of predefined individual CAN-ID by keystroke
- Insertion of different markers into the data stream



Option: GEARTH, data projection in Google Earth

- Data converter VarioPRO/Google Earth
- Road-synchronous fade-in of up to 8 measurement signals
- Defintion of route waypoints including numerical display of up to 16 individually selectable signal values
- Detection and display of "waypoints" every second.



Related systems:

VarioVIEW7,

Intelligent 7"-touch display

Intelligent interaction driver/measurement system

Interface equipment as required

Online calculation of message contents including online display

Display elements with free assignment of functions via PC-SW

Comprehensive system extensions / options:

4CAN, OBD2, LIN2.x, Ethernet, GPS, 128 GB SDHC-memory.

Extended Operation temperature -20°C up to $+70^{\circ}\text{C}$!)



OBD/CANID,

Converter OBD2 to CAN-ID

Conversion of OBD-sensor values into CAN-ID

Selectable interrogation cycle for OBD-sensor values

Processing of OBD-sensor values into dbc-files

OBD-sensor values can be integrated into

CAN-measurement chains



OBD/RPM/V, combined rpm and Vehicle speed (TTL)

Comfortable tap via vehicle OBD2-jack. No tooling times!

Speed signal or rpm signal obtained after 5 seconds!

Signal output as proportional TTL-pulse sequence

Numerical and graphical signal display

