Complies with EU regulation 165/2014

DTCO® 4.0

Smart Tachograph

The new DTCO® 4.0 has the legally required GNSS interface and an integrated antenna, receiving secure GNSS data. With this technology positioning data of the vehicle is recorded at the beginning and end of the daily working time as well as after three hours of accumulated driving time.

The DTCO® 4.0 DSRC interface (Dedicated Short Range Communication) enables control authorities to retrieve vehicle data and information remotely such as current speed, driver activity and recorded events while driving. The DTCO® 4.0 essentially consists of the proven registration unit incl. mass memory, two chip card readers, an integrated printer and a display. Correctly connected to the KITAS 4.0 speed sensor, the DTCO® 4.0 complies with the requirements of the new EU Regulation No. 799/2016.

Vehicle-related activities and positioning data are stored in the integrated mass memory, which has a capacity of approx. 365 days. Driver related data is recorded on the personal driver card (chip card), which is inserted into the digital tachograph before the trip begins. The DTCO® 4.0 allows secure data exchange via the ITS interface (Intelligent Transportation System) to the fleet management systems such as VDO TIS-Web® or VDO FleetVisor. Hereby it is indicated, whether the driver has approved the transfer of his or her personal data.

The DTCO® 4.0 also records digital data such as driving times, rest periods (business-friendly, 1-minute rule), speed, engine speed, vehicle weight and additional events (via D1/D2).

The data transmission of DTCO® 4.0 occurs cyclic via one of the two CAN connections. With this connection, all tachograph events and other physical variables present in the vehicle (e.g. fuel consumption, tire pressure) can be assigned to time and location. The KITAS velocity signal is compared with a velocity signal derived from the positioning data and checked for manipulation. As another special feature, the extended VDO counter calculates the remaining driving and rest periods in real time and shows them directly inside the DTCO® 4.0. The driver is also able now to enter the begin and end time for a ferry / train crossing period. Data from the mass memory can be evaluated and archived for business purposes, for example.

The DTCO® 4.0 offers the driver the option of transmitting mass memory and driver card data conveniently remotely using the Download Device (DLD®).

VDO offers suitable solutions, such as the TIS-Web® online service. With a DTCO® SmartLink, the information from the extended VDO counter can also be retrieved on a smartphone and additional information, such as the minimum duration of the next break or the latest start of the weekly rest period, can be displayed. It is also possible to conveniently retrieve the last driving, working and rest times. Since DTCO® 3.0, various DTCO® settings can be made directly from a smartphone using a company card, even by the driver or entrepreneur. In addition, after authorization on the tachograph, manual entries, for example, a change to a activity setting can be done remotely via a smartphone.

VDO

DTCO® 4.0

Smart Tachograph

System components of the digital tachograph
- DIN radio format, 2 chip card readers, printer, display, real-time clock, operating elements and memory.
- Intelligent speed sensor KITAS 4.0.
- Can be connected to an analogue speed display or an instrument cluster.
- Global satellite navigation system (GNSS) for the acquisition of location data.
- DSRC remote communication to control the truck while driving.

Classic Data Collection
The DTCO® 4.0 registers the driving, working, standby and rest times of drivers and co-drivers, the momentary velocity, the distance travelled and the application-specific parameters such as speed engine and other work processes or additional events on the vehicle. The data is stored in relation to the vehicle. Driving times and rest periods are also registered on the personal driver card. Based on the new legal regulation, positioning data is now also recorded.

DTCO® 4.0 Highlights
- Acquisition of up to 8 CAN messages
- Internal GNSS antenna compatible for easy integration of the system into existing vehicles.
- Optional connector for external GNSS antenna.
- DTCO remote control via smartphone (plus DTCO® SmartLink).
- Extended VDO Counter keeps the driver constantly informed about the status of his driving and rest times like a personal assistant. "Team operation" and consideration of ferry/train are also carried out on time, now with information on the minimum duration of the next break and the latest start of the weekly rest period.
- Entrepreneur-friendly driving time calculation based on an interpretation accurate to the second (1-minute rule).
- Remote download/local download.
- Context-sensitive menu and simplified user guidance (manual supplement).
- Negative display/keyboard illumination available in 8 different colors.
- Graphical printouts.
- One-time entry of the 1. official label with company card after initial calibration.
- Various settings can be made by the driver or contractor via the DTCO® Configuration App (Smartphone/SmartLink) if a valid company card is in slot 1 or 2.

The following configuration parameters are available:
- Entry of the 1st registration number
- Display of the VDO counter with extended information (historical data)
- Active remote control
- Change of activities for ignition off
- Company logo for the printouts
- Downloads reminders
- Warning about over speeding

Operation and functions
- Acquisition of additional data (e.g. 168 hours – speed recording, mileage at vehicle stop).
- Consideration of the driver's consent for the additional recording of personal data.
- Early warnings (reference to periodic inspection, reference to expiry of tachograph cards, driver card download).
- Unique user guidance with menu text.
- The download status is shown on the display.

Interfaces
- 2 CAN interfaces to on-board electronics, DTCO® Download Device (DLD®) (optional).
- Sensor interface for intelligent sender (KITAS 4.0).
- Signal outputs (3x V pulse, 1x 4 pulse/m).
- Logical CAN diagnostic interface.
- Ignition-independent info interface for onboard computers or other telematics systems.
- 6-PIN front-interface for programming, calibration, data download (also optimal via radio).

Technical data
- 1-DIN radio slot format, installation dimensions:
  178 x 50 x 150 mm (W x H x D)
- Protection class: IP54
- Real time clock based on UTC time
- Operating voltage: 24V (optional 12V)
- Power consumption: typical 5 mA (24 V)   typical 7 mA (12 V)*
  On operation: typical 3 A (24 V)   typical 4,2 A (12 V)
- Measuring range: 0 to 250 km/h
- Operating temp.: -20°C to +70°C
  (-20°C to +65°C in ADR)
- Storage temp.: -40°C to +85°C
- Pulse range: 2.400 to 25.000 pulse/km, max. 1,5 kHz
- Inputs: KITAS 4.0 2185, speed sensor (RPM), additional inputs
- Outputs: 3x V pulse, 1x 4 pulse/m
- Accuracy: Speed: ±1 km/h,
  Track: ±1%, Zeit: ±2 s/Tag,
- Weight: approx. 600g.
- DSRC: FAKRA Interface L- Coding (optional)
  FAKRA Interface K- Coding (optional)
- GNSS: FAKRA Interface C- Coding (optional)

*Stand-by: Averaged Average value over 24h of a standard DTCO variant.
For ADR variants see technical manual.*