

Formula Student
Czech Republic
Dataloggers 2026

v1.1

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Location in the car

The entire data logger has to be put into a TS enclosure. Such enclosures may not be shielded to ensure wireless connectivity.

Data readout

Data logger automatically connects to the dedicated wireless network access points to upload the data. Data is uploaded once the connection to the server is established, thus it is recommended to power down LVS before arriving at the DTLG Download Station and power on the LVS once at the Download Station.

Connection progress can be monitored in the Mobile APP, where each team can see the current state of the datalogger. If it shows ONLINE+IDLE the team may power down the LVS and leave the Download Station. If the download takes more than 2 minutes, contact the Datalogger responsible person.

Blinking pattern

Logger repeatedly blinks the color sequence.

1. ■ Yellow
2. General state
 - a. ■ Green - OK
 - b. ■ Blue - Safe mode
 - c. ■ Red - fatal error - report to event organizer immediately!
3. RTC time

- a. ■ Green - valid
- b. ■ Orange - invalid

4. Logging

- a. ■ Green - active
- b. □ White - not active (logging conditions not met)

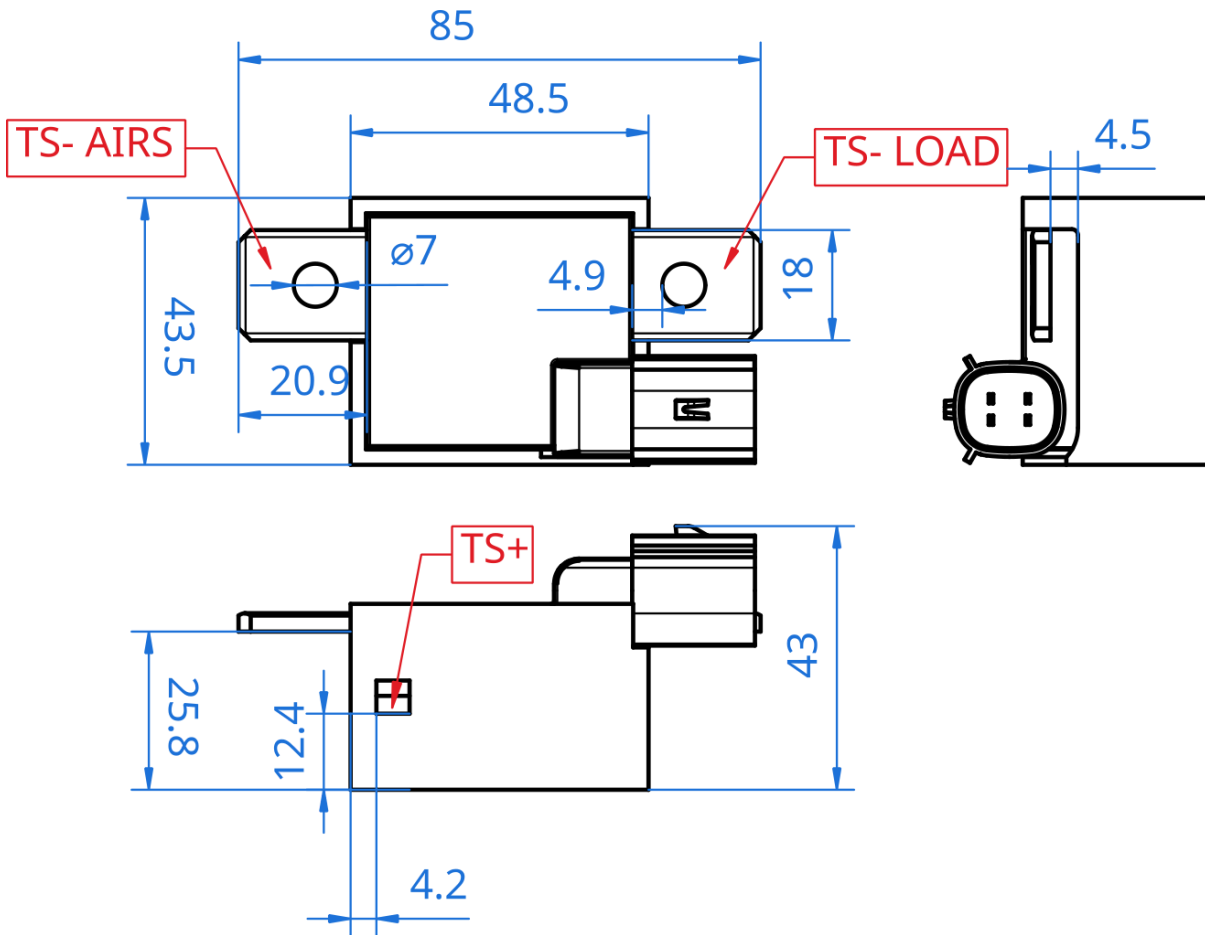
5. CAN baud rate

- a. ■ Green - synced
- b. □ White - not synced

6. Connection

- a. □ White - none
- b. ■ Blue - network only
- c. ■ Green - server reached

Dimensions



Mechanical attachment

Datalogger may be attached by any side, except sides with stickers (top and LV connector sides), using adhesive material that does not leave any residues when removed (3M dual-lock and similar). Use of liquid glues is prohibited (CA, epoxy, ...). Severe damage to the stickers or adhesive material residues upon return will result in deposit deduction.

Electrical connection

In case of any connection issues, visit DTLG pickup-point for help.

LV connection

Data logger has a built-in LV connector which mates with the Molex [MX150 33472-4001](#) female connector.

The team is responsible for an appropriate harness with a connector as a counterpart for the data logger. FSCZ may provide spare connectors and/or pins on the event site.

- housing: [Molex 33472-4001](#)
- terminals: [Molex 33012-2002](#)
- pinout: 1 LV+, 2 LV-, 3 CAN-H, 4 CAN-L, (CAN relative to LV-)
- Supply voltage between 9 V and 36 V
- Maximum current power draw: 4 W

Pin insertion and extraction - follow [Molex MX150 manual](#).

- Pin insertion - page 29
 - Follow Push, Click, Pull method of terminal installation.
 - See the manual for correct pin depth insertion!
- Housing lock - page 30
- Housing unlock - page 38
- Pin extraction - pages 40, 41, 42
 - If the extraction tool is not available, use 1mm solid steel wire with a *rounded end*.

- Make sure the extraction tool enters TPA through a semi-circular cutout of pin cavity, aligned vertically.
- Extraction tool insertion depth to release the pin is around 14.5 mm from the top side of the unlocked TPA.
- Extraction tool pressure is typically around 6 N, not higher than 10 N.
- Pin release occurs during the last ~1 mm travel of the extraction tool.

TS connection

TS+

AMPHENOL ANYTEK HB0101800000G. Accepts bare stranded conductor. Avoid using crimped ferrules and solid conductors.

- Conductor strip length: 9 ~ 10 mm
- Conductor cross section range: 0.5 ~ 1 mm²
- **Recommended conductor: 0.5 mm² or AWG20, stranded**

When inserting the conductor into the terminal, **use the FSCZ provided “button”** to open the terminal (get one at DTLG pick-up point).

Damage to the TS+ terminal will result in deposit deduction.

TS-

Bolted high current path terminals. Refer to drawings for dimensions. The team is responsible for appropriate fasteners.

CAN Interface

- Data logger features CAN 2.0B compatible interface
- Interface GND is tied to the input LV-.
- Supports automatic bit rate. Any node on the bus has to send any CAN message at least until the data logger starts sending its own periodic message (baud rate lock).
- Supported baud rates: 125 kbit/s, 250 kbit/s, 500 kbit/s, 1Mbit/s
- Logs team generated messages according to Driverless Specification 2026 v1.1, and RES messages
- **Can message ID ranges defined in Driverless Specification 2026 v1.1 are strictly reserved for this purpose even in non DV cars! (In case the DTLG is connected to any CAN bus)**

Periodic Report Message

- Standard ID 0x7F0 (can be adjusted on request)
- 10 Hz (can be adjusted on request)
- Payload, LSbyte first + LSbit first notation, little endian integers, DLC = 8 bytes
 - TS voltage, unsigned integer 16 bits, 0.01 V step
 - TS current, signed integer 16 bits, 0.02 A step
 - TS power (after moving average – D9.4.1), signed integer 16 bits, 5 W step
 - wrapping “up-counter”, increments on every message transmitted, unsigned integer 4 bits
 - STORAGE USED: Memory used, ratio, unsigned integer 4 bits
 - OP DET: “Over-power” flag, set at OP event (D 9.4.1) and remains set for another 500 ms, bool 1 bit

- BSYNC: high during first 5 s after CAN bus sync, bool 1 bit
- TIME VALID: 1 when the logger has valid time, otherwise keep the LV system powered for 1h and then visit upload station
- NET CONN: 1 when connected to the DTLG network, 0 otherwise
- SRV CONN: 1 when connected to the DTLG server, 0 otherwise
- GEN ERROR: 1 when DTLG is in non standard state - **report to event organizer immediately!**, 0 otherwise
- reserved, 3 bits

Message layout	0	1	2	3	4	5	6	7
byte 0	TS_voltage _{0:7}							
byte 1	TS_voltage _{8:15}							
byte 2	TS_current _{0:7}							
byte 3	TS_current _{8:15}							
byte 4	TS_power _{0:7}							
byte 5	TS_power _{8:15}							
byte 6	counter				STORAGE USED			
byte 7	OP DET	BSYNC	TIME VALID	NW CONN	SRV CONN			GEN ERROR