

# DATA LOGGER SPECIFICATION



**JULY 28 <> AUG 3  
2024**

<DATA LOGGER SPEC>

**#FSEASTJULY28<>AUG3**

RELEASE

**VERSION 1.0**

RELEASE DATE: 23RD OF APRIL 2024

FURTHER DETAILS AT [FSEAST.EU](https://fseast.eu)

**#FSEAST #FSEASTJULY28<>AUG3**

## PARTS PROVIDED BY THE ORGANISER FOR EV (INCLUDING DV WITH EV DRIVETRAIN) VEHICLES:

- Current- and voltage-sensor with mounting assembly
- Data logger electronics with optional mounting plate
- Sensor cable (more information later in this document)
- Power supply cable (more information later in this document)

Note: Data Logger for DV vehicles with CV drivetrain is optional

Paramtere	Minimum	Typical	Maximum
LV supply voltage	10VDC	-	60VDC
LV supply current	-	160mA @ 10VDC 130mA @ 12VDC 80mA @ 24VDC 45mA @ 48VDC 40mA @ 60VDC	320mA @ 10VDC 260mA @ 12VDC 160mA @ 24VDC 90mA @ 48VDC 80mA @ 60VDC
RES CAN termination	No termination		
RES CAN speed	1mbit/s		

**SENSOR ASSEMBLY**  
CURRENT AND VOLTAGE

**SENSOR CABLE**

**DATA LOGGER**

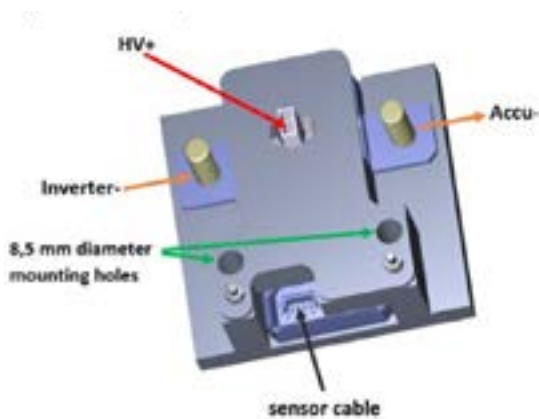
**DATA LOGGER POWER SUPPLY AND  
DV RES CAN CABLE**

## SENSOR ASSEMBLY

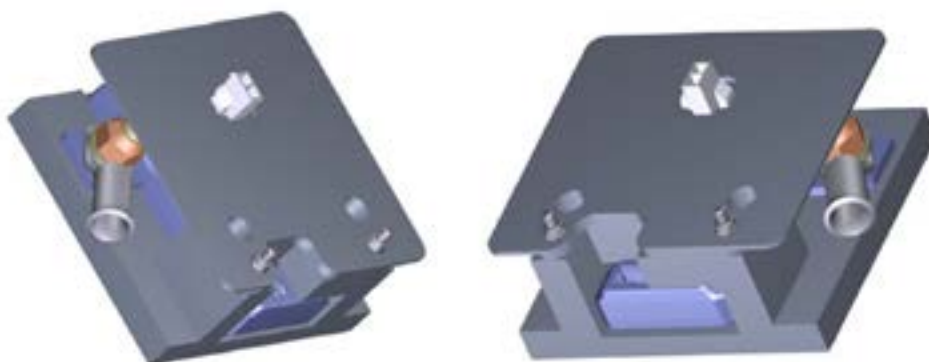
**SENSOR ASSEMBLY** | CURRENT- AND VOLTAGE:

(Drawing and step model provided in the FS East data logger information pack.)

**SENSOR ASSEMBLY COVER:**



**SENSOR ASSEMBLY WITH COVER AND CABLE LUGS:**



# <LOGGER>

## DATA LOGGER ASSEMBLY

### DATA LOGGER:

(Drawing and step model provided in the FS East data logger information pack. You may mount the data logger in/to any other component of the vehicle, but please pay attention to:

- Sensor cable length
- Power supply cable length
- The data logger transmits the data using WiFi connection. The officials will download the log between dynamic runs, so they must be able to connect to the data logger.



### DATA LOGGER MOUNTING PLATE:

(This is an optional part to mount the data logger on the main hoop.)



### DATA LOGGER ASSEMBLY:



### SENSOR ASSEMBLY CONNECTIONS/CONNECTORS:

1. Battery- connection  
M8, 10.9 bolt
2. Inverter- connection  
M8, 10.9 bolt
3. HV+ connector (sensor side):  
Mini-Fit Jr. Series, Plug, 2 Ways, 4.2 mm  
Molex: 39-01-2026  
Farnell: 1697125  
(Pin contacts on the sensor side.)

### RECOMMENDED PARTS FOR THE HV+ CONNECTION (VEHICLE SIDE)(PROVIDED BY THE TEAM):

1. HV+ connector:  
Mini-Fit Jr. Series, Receptacle, 2 Ways, 4.2 mm  
Molex: 39-01-2020  
Farnell: 151866
2. HV+ connector's socket contact:  
Molex: 39-00-0429  
Farnell: 1783775
3. HV+ wire:  
Wire, Stranded, Hook Up MIL-W-76B Type MW, PVC, Orange, 20 AWG, 0.51 mm<sup>2</sup>  
Voltage rating: 1kV  
Alpha wire: 1553 OR005  
Farnell: 2291077

## SENSOR CABLE ASSEMBLY:

					Recommendations			
	Connector type	Part name	Manufacturer	Part number	Distributor	Order number	OPTION A	OPTION B
Data logger side	DTM06 series	Connector housing	TE connectivity	DTM06-12SB	mouser	571-DTM06-12SB	provided by organizer	provided by the team
		Pin	TE connectivity	1062-20-0222	mouser	571-1062-20-0222-LP	provided by organizer	provided by the team
		Wedgelock	TE connectivity	WM-12S	farnell	2138288	provided by organizer	provided by the team
Sensor side	DuraClik ISL RECPT HSG 4CKT	Connector housing	Molex	560123-0400	mouser	538-560123-0400	provided by organizer	provided by the team
		Pin	Molex	560124-0101	mouser	538-560124-0101-CT	provided by organizer	provided by the team

Pin No. at data logger side	Signal	Pin No. at sensor side
B2	12V	4
B3	GND	1
B12	CANL	3
B11	CANH	2



### OPTION A: PROVIDED BY THE ORGANIZER

- Connector - sensor side  
DuraClik ISL RECPT HSG 4CKT, see table for more information (Drawing and step model provided in the FS East data logger information pack.)
- Connector - data logger side  
DTM-12B type, see table for more information
- Cable  
Outer diameter max: 8 mm  
(this is only the diameter of the cable, without the connectors)  
Outer diameter min: 4 mm  
Length: 1,5 m



### OPTION B: PROVIDED BY THE TEAM

The team provides the cable assembly as the part of the car wire harness, connector type definitions can be found in the table above

**DATA LOGGER POWER SUPPLY AND RES CAN CABLE ASSEMBLY:**

					Recommendations			
Connector type	Part name	Manufacturer	Part number	Distributor	Order number	non DV EV	DV	
Data logger side	Connector housing	TE connectivity	DTM06-12SA	mouser	571-DTM06-12SA	provided by organizer	provided by organizer or by the team	
	Pin	TE connectivity	1062-20-0222	mouser	571-1062-20-0222-LP	provided by organizer	provided by organizer or by the team	
	Wedglock (needed part, not optional!)	TE connectivity	WM-12S	farnell	2138288	provided by organizer	provided by organizer or by the team	
Car harness side plug	ATM series	Connector housing	Amphenol	ATM06-2S	x	x	provided by organizer optional	
Car harness side receptacle (part of the car wire harness)	ATM series	Connector housing	Amphenol	ATM04-2P	farnell	2361175	<b>provided by the team</b>	provided by the team or not applicable
		Pin machined	Amphenol	AT60-202-20141	farnell	2361204	<b>provided by the team</b>	provided by the team or not applicable
		Pin stamped	Amphenol	AT60-20-0122	farnell	2361202 , 2529244	<b>provided by the team</b>	provided by the team or not applicable
		Wedglock (needed part, not optional!)	Amphenol	AWM-2P	farnell	2318739	<b>provided by the team</b>	provided by the team or not applicable

Pin No. at data logger side	Signal
A1	10-60VDC supply
A12	iGND
A3	CANH
A4	CANL



**FOR EV (NON DV) VEHICLES (ONLY POWER SUPPLY IS NEEDED) (PROVIDED BY THE ORGANIZER):**

1. Connector - data logger side  
DTM-12SA
2. Connector - vehicle side  
ATM Series, Plug, 2 Ways (with socket contacts)
3. Cable  
Outer diameter max: 8 mm (this is only the diameter of the cable, without the connectors)  
Outer diameter min: 4 mm  
Length: 1,5 m



## FOR DV VEHICLES (POWER SUPPLY AND RES OPTIONALLY CAN BUS) (PROVIDED BY THE TEAM):

Two options:

- The team provides the whole cable assembly as the part of the car wire harness
  - The ATM series intermediate connector is optional in this case
  - CAN communication is possible with 1 mbit/s
- Only power supply is provided to the data logger
  - DV team can use the power supply cable provided by the organizer in this case

## RES CAN DATA SPECIFICATION (DV ONLY)(OPTIONAL)

The Remote Emergency System (RES) and the data logger must share the same CAN bus.

The RES has to be configured to Node-ID 0x011 with 1 mbit/s CAN speed

The DV vehicle state must be provided as a CAN message defined by the following table with 100ms cycle time:

CAN-ID	Name	Length	Format
0x502	DV system status	5 B	
	ASSI_state_off		1
	ASSI_state_ready		2
	ASSI_state_driving	bit 0-2	3
	ASSI_state_emergency_brake		4
	ASSI_state_finish		5
	EBS_state_unavailable		1
	EBS_state_armed	bit 3-4	2
	EBS_state_triggered		3
	AMI_state_acceleration		1
	AMI_state_skidpad		2
	AMI_state_trackdrive	bit 5-7	3
	AMI_state_braketest		4
	AMI_state_inspection		5
	Steering_state	bit 8	bool
	Service_brake_state_disengaged		1
	Service_brake_state_engaged	bit 9-10	2
	Service_brake_state_available		3
	Lap_counter	bit 11-14	unsigned
	Cones_count_actual	bit 15-22	unsigned
	Cones_count_all	bit 23-39	unsigned

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### CHANGELOG

Version	Date	Modification	Page
1.0.0	23rd of April 2024	Initial release	-



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