



SPOLEČNĚ NA CESTĚ V



**FORMULA**  
STUDENT  
CZECH REPUBLIC

# EVENT HANDBOOK 2023

V1.2

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# EVENT INFO

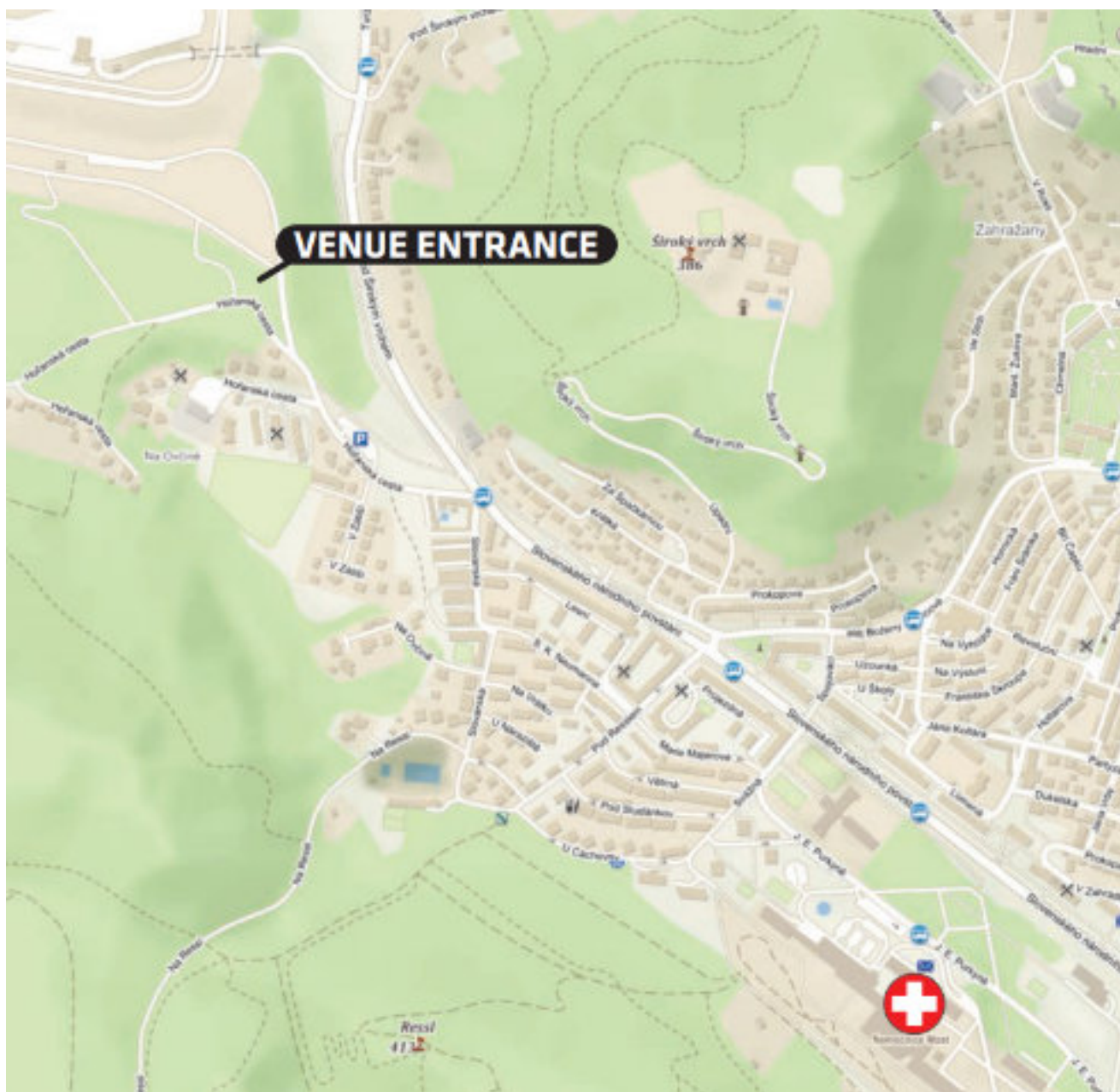


# HOSPITAL

## NEARBY HOSPITAL WITH EMERGENCY (24H)

Hospital Most  
E. Purkyně 270  
434 64 Most

**PLEASE REPORT ALL INJURY SITUATIONS TO THE OFFICIALS AT INFO POINT!**



# FIRE

## REGULAR FIRE

- Call for help before attempting to extinguish a serious fire.
- Check for your own safety before starting to extinguish a fire.
- Assess the fire.
- Check the type of extinguisher.
  1. Class A: All solid materials, usually of organic origin nature (contains compounds of carbon) and generally produce glowing embers - i.e. wood, textiles, curtains furniture, and plastics.
  2. Class B: All flammable liquids and solids.
  3. Class C: Fires involve Natural Mains Gas, Liquid Petroleum Gases (LPG) such as Butane & Propane etc.
  4. Class D: Fires involving metals or powdered metals, etc (where water is generally ineffective and/or dangerous)
- Ready the fire extinguisher.
- Aim for the base of the fire.
- Extinguish the fire.

## FIRE OF ELECTRIC DEVICES

Electrical fires is not considered to constitute a fire class on their own, as electricity is a source of ignition that will feed the fire until removed.

- Call for the help of firefighters by finding an Official with a radio.
- Assist persons in danger of fire to leave if it is safe for you. Try to extinguish the fire with suitable extinguishers if it is possible and safe.
- Leave the area.
- Wait for the firefighters/ambulance to arrive. If you are in the hidden area, assist them to find you (i.e. send somebody to the entrance gate).

## FIRE OF ACCUMULATOR

- All team members have to leave the space of Accumulator fire immediately
- Officials have to be informed about the situation immediately
- No team member is allowed to extinguish the fire
- Team members at a reasonable distance from the fire are allowed to move away the stuff and leave the space immediately
- Only firemen or officials are allowed to extinguish the fire

# REGISTRATION

## EVENT REGISTRATION

For the 2023 event there will be a maximum of 20 CV and 40 EV slots open.

In case any registered CV or EV team will have autonomous functions integrated, it will have the option to register also in the Optional Driverless Cup and participate in DV dynamic events and present its Autonomous Functionality Engineering Design. Yes, this means a team can win the CV/EV category and the Optional DV Cup. Or any team can compete in CV/EV while not having autonomous functions in a vehicle on the other hand.

Up to 10 slots of a total of 60 can be used for participation in the Optional DV Cup, but any registered team from CV or EV category can apply for it. The list of Optional DV Cup participants will be closed on July 7 considering the position of a team on the Registered List and its DV abilities demonstrated by the VSV video.

Event registration will take place on January 27th at 3:00 pm (CET) on <https://portal.fsczech.cz>. It will consist of the Rules and an engineering quiz. The team captain, who will be the only one eligible to participate, must complete all questions correctly to be registered.

Teams are sorted according to the quiz completion time to the "Registered" (20 CV, 40 EV) and "Waiting" Lists.

The top 3 teams from the 2022 Event have their slots for the 2023 Event pre-registered, thus do not need to take part in the Quiz. We ask these teams to confirm their interest before January 27th by emailing [registration@fsczech.cz](mailto:registration@fsczech.cz).

### PRE-REGISTERED TEAMS

- WHZ Racing Team
- eForce FEE Prague Formula
- BRS Motorsport
- FS Team Tallinn Driverless
- KA-RaceIng Driverless
- FaSTDa Racing
- BME Motorsport
- UniBo Motorsport

Registration for Czech teams only opens on January 25 at 3:00 pm CET. The following teams can register:

- CULS Prague Formula Racing
- Formula TU Ostrava
- FS TUL Racing
- CTU CarTech
- TU Brno Racing

- UWB Racing Pilsen

## PROCEDURE

1. Participate in event registration (online)
  - Create a user account on <https://portal.fsczech.cz> and apply for team participation (Team Captain approves it). In case there is not your team listed, create it. You become its Team Captain automatically. Your role is listed in your profile after login (top right corner).
  - Event registration link will be displayed on January 27th at 12:00 am (CET) under the tab Event → Registration.
  - Pass the registration quiz by answering all questions correctly.
  - In case your team will get on the list of registered teams in any category, you are allowed to apply for participation in Optional DV Cup
2. Pay the Fee or Deposit
  - Wire transfer instructions are emailed by the <https://portal.fsczech.cz> at the moment of the Quiz completion with information about the team's position.
  - Team on the Registered List
    - Registration Fee of 1 700 EUR (excl. 21% tax) must be paid or a wire transfer confirmation must be provided (to [registration@fsczech.cz](mailto:registration@fsczech.cz)) before February 3rd for participation in the CV or EV. 90% of the Registration Fee is refundable before April 3rd. A later refund is not possible.
    - Participation in the Optional DV Cup is charged 300 EUR (excl. 21% tax) and must be paid or a wire transfer confirmation must be provided (to [registration@fsczech.cz](mailto:registration@fsczech.cz)) before July 14th. Refunds are not possible.
  - Team on the Waiting List
    - Registration Deposit of 750 EUR must be paid or a wire transfer confirmation provided (to [registration@fsczech.cz](mailto:registration@fsczech.cz)) before February 3rd.
      - Registration Deposit is fully refundable under the following conditions:
        - Team will not move to the Registered List three weeks before the Event.
        - Team will actively withdraw no later than three weeks before the Event.
      - Deposit is NOT refundable under the following conditions:
        - Team on the Waiting List rejects the offered position on the Registered List.

## ON-SITE REGISTRATION PROCEDURE

- Team Captain accompanied by drivers and ESO/ASR (in the case of the EV/DV team) starts the process by entering the Registration Desk.
- Approval of the Team Member List allows to register drivers and ESO/ASR.
  - Drivers must show their valid driver's license.
  - ESO/ASR must show a valid certificate.
- Team captain must fill up to two cell phone contacts, which will be used as an official communication channel in case of unexpected changes or important notices.
- Team must pay the Pit Deposit 20€, which will be returned after pit check-out on Saturday (6pm-8pm). Please see section Paddock Rules for details.
- Team must pay the Dynamics Pass Deposit 20 € and EV/DV teams ESO/ASR Badge Deposit 20€, which will be refundable on Saturday (2pm-8pm) if all 4 Dynamic Passes and ESO/ASR Badges are returned at the Info Point.
- EV/DV teams will pick up the Energy Meter after successfully passed the Accumulator Inspection at Info Point. It is protected by a 200€ deposit. The energy meter must be returned before Saturday 12.8. 7pm at the Info Point.
- Audio and video recordings throughout the event can be taken only with Media Pass. It is available for 20 € deposit and each Media Pass is limited to one per Team. The Media Pass consists of one FSCzech vest and one Media Badge.

## LATE ARRIVALS

- Later arrival of the team member is allowed, but they must be registered by the Team Captain during operating hours. Team Captain is responsible then to pass the badge and wristband to the involved person. The same applies to camp registration.

## PROCEDURE TEAM ON-SITE REGISTRATION

Day	Operating hours
Sunday 6. 8.	3 pm - 8 pm (ODV cup only)
Monday 7.8.	10 am - 12 am (ODV cup only), 1 pm - 8 pm
Tuesday 8.8.	8 am - 12 am

## CAMP REGISTRATION

Teams willing to stay at the campsite must pay for their team members at the Camp Desk or in advance. The price is 72€ (excl. 15% tax) per person for the whole event. Please note that payment on site can be made only in cash and the nearest ATM or exchange office is in the city Most (not in the venue). Payments on the basis of Pro-forma invoices are preferred - please ask invoice before the event on [registration@fsczech.cz](mailto:registration@fsczech.cz), no later than one-week prior event. The campsite can be taken by teams starting on Sunday 6. 8. 6 pm, but payment must be done at regular working times. Electricity will be available on Monday from the morning. Showers will be available on Monday from 12 am.

## Camp Check-in Availability

Day	Operating hours	Location
Sunday 6. 8.	3 pm - 8 pm	Registration Desk
Monday 7. 8.	10 am - 12 am, 1 pm - 8 pm	Registration Desk
Tuesday 8. 8.	8 am - 12 am	Registration Desk

In case of need, you can ask us for an alternative check-in time.

## Latest Check-out

Sunday 13. 8. till 12 am.

## PARKING

- Cars are allowed to park in front of the Paddock for the time (max. 2 hours) of unloading and loading only. The car must be designated with the Unload/Load permission card. The Unload/Load permission card is available at the Registration Desk during Registration and is strictly limited to one card per Team. The permission card is transferable between vehicles after exiting the venue.
- Long-time parking is allowed in the designated locations only.
- Long-time parking is allowed in the campsite for passenger cars and small vans only.
- To unload/load your team members and supplies (food, ...) during the whole event, you can go to PickUp Point (preliminary 7:20 am - 8:00, 12:00 - 13:00 pm, 20:00 pm - 20:40 pm). Your vehicle must be accompanied by the PickUp Point permission card which you can get at the Registration Desk during Registration. The PickUp Point permission card is strictly limited to one card per Team.
- Parking of the trucks must be agreed on at the Info Point/Registration Desk. Let us know before the event if you bring a truck with you.

## TRUCK UNLOADING/LOADING

Forklift will be available on-site for truck crate unloading (from Monday 7.8. 3 pm) and loading (until Sunday 13.8. 12 am). Its load capacity is 1,5 tons. Please note that full load capacity is limited by the length of the forks and decreases with the position of the crate's COG distance from the tip of the forks. The approximate load capacity of 1m in front of the fork tip is 1 ton. Please plan the distribution of the weight according to that. Your crate should also be robust to withstand manipulation.

If you wish to use the service of our forklift, please arrange a term with us to avoid a long waiting time.

## FIRST ACCESS

Only one car per team (having Team Captain aboard) is allowed to park in the vicinity of the entrance for the purposes of on-site registration. Other team cars must wait until Team Captain finishes registration on the parking and will be allowed to enter the venue with wristbands only (after successful registration).



# SCHEDULE

*Schedule may change!!*

## MONDAY 7. 8.

AM: Registration Optional DV Cup only, Optional DV Cup Pits open, Optional DV Cup technical inspections

PM: Registration All Categories, Optional DV Cup technical inspections

## TUESDAY 8. 8.

AM: CV&EV Pits open, Registration All Categories, Optional DV Cup technical inspections

PM: Technical inspections - all categories

Business Plan Event

## WEDNESDAY 9. 8.

Technical inspections - all categories

Business plan event

Cost & Manufacturing Event

PM: AM: Acceleration & SkidPad Optional DV Cup

## THURSDAY 10. 8.

Technical inspections - EV&CV without Optional DV Cup

Engineering Design Event

Cost & Manufacturing Event

AM: Acceleration & SkidPad Optional DV Cup

PM: AutoX Optional DV Cup, SkidPad EV&CV, Acceleration EV&CV

## FRIDAY 11. 8.

AM: Technical inspections - all categories, SkidPad EV&CV, Acceleration EV&CV, Optional DV Cup TrackDrive

PM: AutoX EV&CV

## SATURDAY 12. 8.

Endurance EV&CV

# PENALTIES

## PENALIZED ACTIONS

Action	Penalty*
Wearing open shoes in designated areas (outside the campsite area)	5
Power tool usage outside designated area	25
Welding outside designated area	25
Engine / E-motor running outside designated area	Team disqualification
Alcohol ** / smoking outside designated areas	100
Driving scooter in any area	25
Too many members in the Dynamic Area	10
Media Pass holder assisting a team in the Dynamic Area	10
Registering for technical inspection without being ready	5

\* If repeatedly violated, the penalty is doubled every time.

\*\* If any team member is tested with an alcohol level higher than 0.0 ‰, he or she will be immediately disqualified for the rest of the competition. A second team member is found to have an alcohol level higher than 0.0 ‰ will result in the entire team being disqualified immediately.

# RESULTS

## RESULT PUBLISHING

The results will be posted on the results board at the Info Point as soon as they are available. Furthermore, they will be published online on the FSCzech website.

Expected Date & time of result publishing (without top 3 names)

Day	Time	Event
Friday	11 am	Engineering Design
Friday	11 am	Business Plan Presentation
Friday	11 am	Cost & Manufacturing
Saturday	7:30 am	Endurance running order
Saturday	11 am	Acceleration
Saturday	11 am	Skid Pad
Saturday	11 am	Autocross
Saturday	11 pm (online)	Endurance, Fuel Economy, Energy Efficiency

## PROTESTS

Required Review: Any team that intends to protest a rule, score, judge's decision or any other aspect of the competition, must present the issue to the FSCzech Officials. Please contact Info Point, they will arrange a meeting with a representative.

- Cause for Protest: A team may protest any rule interpretation, score, or official action (unless specifically excluded from protest) that they feel has caused some actual, non-trivial, harm to their team, or has had a substantive effect on their score. Teams may not protest rule interpretations or actions that have not caused them any substantive damage.
- Protest Period: Protests must be filed within one hour after the action being protested has occurred or the scores for the activity involving the protest subject are posted.
- Protest Format: Protests must be handed in in written form and submitted by the team captain to Info Point.
- Protest Bond: The protesting team must post a 25 points bond to be deducted from their score if the protest is denied.
- Decision: The decision of the officials regarding any protest is final.



# RULES



# CAMP SITE

## SAFETY

- Do not leave valuables in your tent, lock them in the car, if needed.
- Venue/Organizer is not responsible for any stuff lost or stolen and for damage to property and health of campers, despite the fact that camping will be protected. It is recommended not to bring valuable items or lock them in the team's car for safety.
- No animals, weapons, or drugs are allowed. It's strictly prohibited to bring any things that can be classified as dangerous.
- No open flames.
- No pit-bike running. All vehicles must be operated on designated roads with a speed limit of 5kph.
- Any operation with the fences is prohibited.
- Leaving or entering the Campsite is possible only with the proper (official red) wristband.
- There will be on-site security at all times.

## CONSIDERATION

Campers are expected to behave in a manner that is courteous to other campers. The law of the Czech Republic implies a time between 10 pm and 6 am as nighttime with noise regulation of 40dB.

## ELECTRICITY

Camp is equipped with mains electricity of 230V. Bring the extension wire (EU socket) and think when using it, especially in bad weather conditions. Think about possible overloading.

## WATER

Tap water is safe to drink.

## SANITARY FACILITIES

Campground is equipped with water sinks, electricity, toilets, and showers. Please save water and respect your colleagues.

## REFRESHMENT

Restaurant is located at the race track, see map.

## COMPLIANCE

While receiving the wristband camper agrees with the established rules of the Campsite. Organizers have the right at their discretion to apply the following sanctions against violators of the rules:

## WARNING

Expulsion from the campsite without a refund.

## GUESTS

Guests can enter the race track for free. In case of team's guest wants to stay at the campsite, please contact the Officials about the procedure.

# Paddock

Paddock is open 7:30 am - 8:30 pm.

If any of the below-mentioned instructions are not obeyed, it may result in the deduction of points, team member role disownment, or disqualification.

## All participants are advised to follow the general workplace safety rules

- Never distract another person's attention, as you might cause him or her to be injured. If necessary to get the attention of another person, wait until it can be done safely.
- Where required, you must wear protective equipment, such as goggles, safety glasses, masks, gloves, etc. appropriate to the task.
- Keep your work area clean.
- Do not block access to fire extinguishers.
- Do not operate machines or equipment until you have been properly instructed
- Do not engage in such other practices as may be inconsistent with ordinary and reasonable common sense safety rules.
- Help to prevent accidents.
- Lift properly, use your leg muscles, not your back muscles. For heavier loads, ask for assistance.
- Do not throw objects.
- Clean up spilled liquid, oil, or grease immediately.
- Place trash and paper in proper containers.

## The following activities are strictly forbidden

- Running and horseplay are strictly forbidden
- Welding outside of the designated area.
- Storage of pressurized tanks with volumes larger than 10 liters.
- Grinding using power tools outside of the designated area.
- Storage and handling of fuels (Drain of the fuel or oil system only after agreement with the Pit Marshall).

## GUIDES

- Grinding using power tools is allowed in the designated workplace, ask at Info Point.
- Welding is allowed in the designated workplace under the supervision of the authorized person.
- Welding of the frame and other parts of the assembled vehicle is allowed when the fuel system and all batteries have been removed.

## LEAVING THE PADDOCK

- Paddock must be left before Saturday 8 pm in the condition it has been received. Its condition will be approved by the Pit Marshall and the team may apply for the deposit withdrawal between 6 pm - 8 pm only.
- Team is allowed to take the team tag when leaving the Paddock.

## **TAKING THE CAR OUT OF THE Paddock**

- All cars must be accompanied by a wingman, who walks in front of a car and is responsible for a straightforward way ahead.

## **WORKING ON THE TRACTIVE SYSTEM (EV AND OPTIONAL DV CUP BASED ON EV)**

- An ESO accompanied by trained team members who can interfere in case of emergency must attend every activity which involves an active tractive system.
- Opening any tractive system enclosure is only permitted if it is de-energized and disconnected from any high-voltage source. If the enclosure is inside the vehicle, the accumulator container needs to be removed from the vehicle.
- Opening the accumulator containers is only permitted in the charging area. Opening the accumulator container in the pits leads to the team's disqualification.
- The tractive system in pits may only be activated in compliance with all following rules:
  1. Complete technical inspections must be successfully finished.
  2. The car must be jacked up and all driven wheels removed.
  3. One team member must be prepared to push an emergency button at any time, and another person secures the perimeter around the car.
  4. Team members who perform a task on the vehicle must wear compliant safety gloves and use appropriate measurement devices and tools.
  5. The tractive system must only be active for the minimum necessary time (the team should estimate the time needed for a task beforehand).
  6. Maximum 2 members of the vehicle's team are allowed to stay in the vicinity of a car and one of them must be ESO.
  7. Dedicated pit area around the vehicle must be visibly separated but must not be an obstacle in case of emergency (e.g. warning tape).
  8. Appropriate extinguisher must be nearby and instructed person must be ready to use it in case of emergency.

## **ACCUMULATOR HANDLING PROCEDURES**

1. When not needed for scrutineering, testing or racing, Accumulator has to be stored out of the car, especially when pits are closed (20:30 – 7:30)
2. Accumulator should be stored using the trolley made for this purpose, fully compliant with the rules
3. Every time in pits, Accumulator trolley should be placed close to the emergency exit way on the edge of pit space dedicated to the team
4. In the charging area, only team ESO members (E2 or E3) can be present
5. During the charging procedure and at least one hour after it, Accumulator temperature has to be continuously monitored by the team ESO (E2 or E3) and it can't be left alone
6. If the Accumulator abnormal behaviour is observed, team member should immediately inform Officials in the Charging Area / Accumulator scrutineering
7. Accumulator in the non-regular state will be placed into the dedicated quarantine area, where only one team ESOQ member (E2 or E3) can stay and continuously monitor accumulator state



8. If the team fails rain-test procedure, accumulator should be taken out from the car and placed into the quarantine area for, at least, one hour with continuous monitoring by the ESO (E2 or E3) team member
9. At least two hours after successful passing the rain test, team is not allowed to charge the Accumulator

## **RUNNING ENGINES OR MOTORS**

- Running engines (IC) or activation of ready-to-drive mode (EV, E-DV) is allowed after completed technical inspections in the designated areas only. Activation of ready-to-drive mode in pits leads to team disqualification.

# RULES ADDENDUM

## FSCZ RULES 2023

The Formula Student Czech Republic (FSCZ) competition will comply with the FSG Rules 2023. Changes and additions specific to FSCZ are located within this document and supersede the respective sections of the published FSG Rules 2023 document.

The Formula Student Czech Republic Handbook 2023 is to be considered part of the rules. In case of any contradiction between this document and FSG Rules 2023, here mentioned rules are to be considered valid.

Additionally, any team in the combustion class can either run a standard combustion vehicle according to the standard rules or run a hybrid combustion vehicle according to the FS CV Hybrid rules.

## FSCZ DOCUMENT SUBMISSION

The Event documents are uploaded using <https://portal.fsczech.cz> via the section Team Documents.

March 17 12:00:00 CET	Impact Attenuator Data (IAD)	ALL
March 17 12:00:00 CET	Structural Equivalency 3D Model (SE3D)	ALL
March 17 12:00:00 CET	Structural Equivalency Spreadsheet (SES)	ALL
March 31 12:00:00 CEST	Autonomous System Form (ASF)	Optional DV Cup applicants
March 31 12:00:00 CEST	Electrical System Form (ESF)	EV
April 14 12:00:00 CEST	SES Approval (SESA)	ALL
April 14 12:00:00 CEST	Hybrid System Description (HSD)	CV with Hybrid powertrain
June 2 12:00:00 CEST	Business Plan Pitch Video (BPPV)	ALL
June 2 12:00:00 CEST	Design Spec Sheet (DSS)	ALL
June 2 12:00:00 CEST	Engineering Design Report (EDR)	ALL
June 2 12:00:00 CEST	Autonomous Design Report (ADR)	Optional DV Cup applicants
July 7 12:00:00 CEST	ASR Qualification (ASRQ)	Optional DV Cup applicants
July 7 12:00:00 CEST	Electrical System Officer Qualification (ESOQ)	EV
July 7 12:00:00 CEST	Team Member Designation (TMD)	ALL
July 7 12:00:00 CEST	Vehicle Status Video (VSV)	ALL
July 7 12:00:00 CEST	Cost Report Documents (CRD)	ALL

In case the team has any documents approved in the FSG system, providing evidence of it can be used to get direct approval by FSCZ. The team has to upload the evidence of approval from FSG and the approved version of the document to <https://portal.fsczech.cz>.

The event accepts templates from all EU events as these are united. There is no need to fill out another form than you did for a different event. In case of need, templates are available at <https://portal.fsczech.cz>.

## FSCZ PROCEDURES AND SCORING

The Event will be run with three classes – CV (including CV Hybrid), EV, and a separate Optional DV Cup. Static and dynamic (except Optional DV Cup) events will run together but scored separately. Vehicles that are built according to the FS CV Hybrid rules will be scored together with non-hybrid combustion vehicles.

Category	CV	EV	Optional DV cup
Business Plan Presentation	75	75	-
Cost and Manufacturing	100	100	-
Engineering Design	150	150	300
Skid Pad	75	75	100
Acceleration	75	75	100
Autocross	100	100	150
Endurance	325	325	-
Trackdrive	-	-	275
Efficiency	100	100	75
<b>Total</b>	<b>1 000</b>	<b>1 000</b>	<b>1 000</b>

No autonomous system is required for CV and EV categories - Autonomous System components may be removed from the car or left in the car at the team's discretion. However, each team shall make this decision before passing technical inspections. Any changes afterward will require repeating technical inspection.

In case the team is participating in the Optional DV cup autonomous system components have to stay on the car all time to avoid repeating technical inspection.

## FSCZ SPECIFIC ADDENDUM TO THE FSG RULES:

Below FSCZ specific rules are listed. Listed rules are linked to the mentioned chapter/specific rule in FS-Rules 2023 v1.1.pdf published on <https://www.formulastudent.de/fsg/rules/> on the day of the FSCZ handbook release.

**CZ-TR-1:** FS-Rules 2023 v1.1. Section T 14 & T 15 do apply for teams registered for the Optional DV Cup and will be enforced in technical inspections.

**CZ-TR-2:** FS-Rules 2023 v1.1 A 1.2.6, A 1.2.7 and A 1.2.8 are void. For FS Czech DC is replaced by Optional DV Cup, which is scored separately, and points are not added to the EV or CV category scoring. The registration procedure is described in this handbook's "Registration" section.

**CZ-TR-3:** FS-Rules 2023 v1.1. Section A 4.4 is applicable for teams registered for the Optional DV Cup.

**CZ-TR-4:** FS-Rules 2023 v1.1. A 5.6.3 all points marked [DC only] shall be included in the VSV for teams registered for Optional DV Cup.

**CZ-TR-5:** FS-Rules 2023 v1.1. CV 2.1.1 - Only 98RON will be available.

**CZ-TR-6:** FS-Rules 2023 v1.1. IN 6 does apply for teams registered for the Optional DV Cup.

**CZ-TR-7:** FS-Rules 2023 v1.1. S 2.4.4 the Autonomous System is not considered a “system” for EV&CV categories (read: it is not required but may remain in the car).

**CZ-TR-8:** FS-Rules 2023 v1.1. S 3 Autonomous System will not be considered in the CV&EV Engineering Design Event. But will be applicable for teams participating in Optional DV Cup. See Static event section for more details

**CZ-TR-9:** FS-Rules 2023 v1.1. S 3.7 is replaced by CZ-ED-7 & CZ-ED-8. See the Static Event section for more details.

**CZ-TR-10:** FS-Rules 2023 v1.1. Rules marked with [DC Only] or describing driverless procedures will apply for teams participating in Optional DV Cup.

**CZ-TR-11:** FS-Rules 2023 v1.1. T 14.2. Due to technical reasons, the official data logger won't capture DV car CAN traffic. Teams have to be able to provide logged data as CSV file. Contents are in the **table below**.

Signal	Unit	Decimals
Speed_actual	km/h	1
Speed_target	km/h	1
Steering_angle_actual	°	1
Steering_angle_target	°	1
Brake_hydr_actual	%	1
Brake_hydr_target	%	1
Motor_moment_actual	%	1
Motor_moment_target	%	1
Acceleration_longitudinal	m/s <sup>2</sup>	3
Acceleration_lateral	m/s <sup>2</sup>	3
Yaw_rate	°/s	2
AS_state	int	0
EBS_state	int	0
AMI_state	int	0
Steering_state	bool	0
Service_brake_state	int	0
Lap_counter	int	0
Cones_count_actual	int	0
Cones_count_all	int	0
RES_Estop	bool	0

RES_GoSignal	bool	0
RES_Radio_Quality	%	0
Other SCS defined in ASF	N/A	N/A

NOTE: bool data type is expressed as "0" or "1", integers as decimal numbers

### AS\_state

Value	Description
1	off
2	ready
3	driving
4	emergency_brake
5	finish

### EBS\_state

Value	Description
1	unavailable
2	armed
3	activated

### AMI\_state

Value	Description
1	acceleration
2	skidpad
3	trackdrive
4	braketest
5	inspection
6	autocross

### Service\_brake\_state

Value	Description
1	disengaged
2	engaged
3	available

**CZ-TR-12:** FS-Rules 2023 v1.1. D 4.3.1. Each team has a maximum of four runs.

**CZ-TR-13:** FS-Rules 2023 v1.1. D 4.3.3. Staging – The foremost part of the vehicle is staged 10m - 15m in front of the timekeeping line. The final distance might be published before the starts according to the real conditions of the track.

**CZ-TR-14:** FS-Rules 2023 v1.1. D 4.3.6. The vehicle will exit at the intersection moving in the same direction as entered and must come to a full stop inside the marked exit lane. The length of the finish line may be shorter than 25 m according to the real possibilities of the track. The final distance will be published at the event. Usage of the EBS inside the marked exit lane will not lead to the DSQ.

**CZ-TR-15:** FS-Rules 2023 v1.1. D 5.3.1. Each team has a maximum of four runs.

**CZ-TR-16:** FS-Rules 2023 v1.1. D 6.4.2 Each team has a maximum of four runs.

**CZ-TR-17:** FS-Rules 2023 v1.1. D 8.2.3. Each team has two runs consisting of ten laps.

**CZ-TR-18:** Optional DV Cup only: Energy efficiency is measured during the track drive event. The final evaluation is based on a faster run from two valid runs.

**CZ-TR-19:** FS-Rules 2023 v1.1. D 6.1.2: Additionally to that is specified in FSG rule D6.1.2, each session can run without break. This will be announced on the day of the Endurance event. All teams are required to follow the procedure according to the announcement.

**CZ-TR-20:** FS-Rules 2023 v1.1 D6.1.7: During the FSCzech event there will be two special time windows for teams to run out of order. The morning session will start immediately after the last team from the morning session will finish their run. The afternoon session will be possible only after the final session.

**CZ-TR-21:** FS-Rules 2023 v1.1 D1.1.1: For the FSCzech event in total, a minimum of four and a maximum of six drivers are allowed for each team.





# EVENTS



# STATIC EVENTS

## ENGINEERING DESIGN

### CZ-ED-1: General

Teams submit EDR and DSS according to the Rules. The event will be held live in the Paddock.

### CZ-ED-2: Schedule

Engineering design event timeline. Time Slots may change. Final schedule will be published on 4th of August 2023

	Timeslot	Engineering design groups												
		C1	C2	C3	E1	E2	E3	E4	E5	E6	E7	E8	DV1	DV2
1	Thu: 09:00 - 09:45	C51	C68	C42	E19	E77	E4	E28	E12	E55	E15	E27	E24	E11
2	Thu: 10:05 - 10:50	C77	C80	C5	E13	E38	E92	E32	E49	E24	E11	E31	E77	E4
3	Thu: 12:10 - 12:55	C82	C22	C30	E57	E43	E50	E45	E25	E16	E06	E44	E13	E49
4	Thu: 13:15 - 14:00	C69	C57	C87	E79	E62	E84	E76	E87	E74	E95	E97	C22	E44
5	Thu: 14:20 - 15:05	C13	C73	C62	E96	E67	E17	E73	E42	E72		E29		
6	Thu: 15:25 - 16:10	C2	C41	C26										
7	Thu: 16:35 - 17:20	C91												

### CZ-ED-3: Timeslot description

Every team has a time slot of 45 minutes reserved for:

- 05 minutes - Short presentation of the Season 2023 goals by team captain (up to 5 minutes).
- 40 minutes - Following discussion with judges in breakout groups according to the list of categories.

**CZ-ED-4:** Judges will be visiting teams in their pits. Teams are advised to be there on time with a car in the race ready condition. There will always be at least one judge per each judging category.

### CZ-ED-5: Feedback procedure

FSCzech event will provide two types of feedback.

1. Live feedback session with judges will be organized on Thursday 17:30 - 19:00. Feedback session will run at Skoda lounge and business plan tents.
2. Each team will receive a scanned copy of the scoring sheet from each category and overall summary via <https://portal.fsczech.cz/>.

### CZ-ED-6: replaces S 3.4.3 - Engineering design finals

Some teams may be chosen to participate in the design finals to determine the engineering design event winner. The design finals will be held separately from the initial judging and teams will be informed about their participation during the event.

- Design finals will be held only for CV&EV categories on Thursday 10.08.
- Best team from each group will be invited to participate in the ED finals.
- Teams invited to the ED finals will be informed at 17:30 latest.

**CZ-ED-7:** replaces S 3.7.1 - maximum number of points

The overall engineering design event maximum scoring is 150 points for CV&EV and 300 points for Optional DV Cup categories.

**CZ-ED-8:** replaces S 3.7.2 - ED points breakdown

The maximum scores listed in the table below apply for the engineering design event on FSCzech 2023 event:

Category	CV/EV	Optional DV Cup
Overall Vehicle Concept	35	-
Vehicle Performance	30	-
Mechanical / Structural Engineering	25	-
Tractive System / Powertrain	25	-
LV-Electrics / Electronics / Hardware	20	-
Driver Interface	10	-
<b>Autonomous Functionality</b>		
DV - Vehicle concept		40
DV - Hardware		40
DV - Sensor Perception	-	40
DV - Localization and Mapping	-	40
DV - Planning and Control	-	40
DV - Data Processing and Usage of Tools	-	40
DV - SW Development, FuSa and Cyber Security	-	40
Engineering Design Report (EDR)	5	-
Autonomous Design Report (ADR)	-	20
<b>Total</b>	<b>150</b>	<b>300</b>

## BUSINESS PLAN PRESENTATION

### CZ-BP-1: General

Teams submit BPPV according to the Rules. The event will be held live in tents equipped with a beamer or LED screen. Be ready to use VGA and HDMI connections.

### CZ-BP-2: Schedule

Presentations are held in the circuit's tents.

### CZ-BP-3: Timeslot description

Business plan presentation event will take place on Tuesday 8. 8. - Wednesday 9. 8. for EV&CV categories

### CZ-BP-4: Every team has a time slot of 20 minutes reserved for:

1. Business plan presentation max 10 minutes including deep dive topic presentation
2. Q&A session with judges 10 minutes

### CZ-BP-5: replaces S 1.4.3 - Business plan presentation finals

BP finals will be held only for EV&CV categories. EV and CV finals will take place on Wednesday in the evening on the main stage.

4 best teams from CV category and 6 best teams from EV category will be chosen to participate in the BPP finals to determine the BPP winner. The BPP finals will be held separately from the initial judging and teams will be informed about their participation on Wednesday 3pm CEST.

### CZ-BP-6: Time slots assignment

Time Slots may change. Final schedule will be published on 4th of August 2023

	Timeslot	Judging group				
		BP1	BP2	BP3	BP4	BP5
1	Tue: 13:00 - 13:20	C5	C30	C68	E77	E11
2	Tue: 13:40 - 14:00	C42	C87	C22	E49	E4
3	Tue: 14:30 - 14:50	C57	C73	C51	E62	E13
4	Tue: 15:10 - 15:30	C62	C26	C82	E24	E44
5	Tue: 16:00 - 16:20	C80	C77	C69	E28	E50
6	Tue: 16:40 - 17:00	C41	C2	C13	E42	E43
6.1	Tue: 17:20 - 17:40			C91		

	Timeslot	Judging group				
		BP1	BP2	BP3	BP4	BP5
7	Wed: 09:00 - 09:20	E17	E79	E57	E19	E73
8	Wed: 09:40 - 10:00	E31	E72	E15	E60	E25
9	Wed: 10:30 - 10:50	E96	E45	E74	E16	E76
10	Wed: 11:10 - 11:30	E87	E32	E12	E06	E29
11	Wed: 12:50 - 13:10	E38	E67	E84	E97	E95
12	Wed: 13:30 - 13:50	E92	E55		E27	

### CZ-BP-7: Deep Dive Topic

A total of 5.18 billion people around the world were using the internet at the start of Q2 2023, which is equivalent to 64.6 percent of the world's total population. Internet users continue to grow too, with the latest data indicating that the world's connected population grew by close to 147 million users in the 12 months to April 2023. There is a growing number of individuals aged 60 and above who are actively using the internet and social media on a daily basis.

In your business plan presentation explain specifically how you would modify your business to have a product/service just for this target audience. Elaborate on how you would communicate to them to properly reach and engage with them and get them to buy your product/service.

### CZ-BP-8: BPP Hard copy

Each team has to bring with them to the presentation event one hard copy of their presentation so that judges can use it for scoring purposes. Failure to do so can influence the overall team score for BPP and potential participation in BPP finals.

### CZ-BP-8: Feedback procedure

Each team will receive a digital copy of the scoring sheet with feedback from judges via <https://portal.fsczech.cz/>.

## COST & MANUFACTURING

### CZ-CM-1: General

Teams submit CRD according to the Rules. The event will be held live in the Paddock.

### CZ-CM-2: Schedule

Cost & Manufacturing event will take place on Wednesday 09.08. and Thursday 10.08. for CV & EV categories

### CZ-CM-3: Timeslot description

Every team has a time slot of 45 minutes reserved for:

1. Discussion Part 1 BOM discussion
2. Discussion Part 2 DBOM discussion
3. Discussion Part 3 CBOM discussion "Cost Understanding"

**CZ-CM-4:** Judges will be visiting teams in their pits. Teams are advised to be there on time. Be aware that judges are taking into account only what is on the car, not what should be on it, thus the car should be in ready-to-race condition.

### CZ-CM-5: Costed bill of material

For FSCZ 2023 a CBOM for the "Brake and Steering System" must be submitted.

### CZ-CM-6: Detailed bill of material

For FSCZ 2023 a DBOM for the "Engine and Drivetrain" must be submitted.

### CZ-CM-7: Real case scenario task

There will be no real case for FSCzech 2023

### CZ-CM-8: Cost & Manufacturing event scoring - replaces S2.10.1

Category	CV/EV
Format and Accuracy of Documents	5
Knowledge of Documents and Vehicle	5
Discussion Part 1 BOM discussion	20
Discussion Part 2 DBOM discussion	25
Discussion Part 3 CBOM discussion "Cost Understanding"	45
Total	100

**CZ-CM-9:** Time slots assignment

Time Slots may change. Final schedule will be published on 4th of August 2023

	Timeslots	Judging groups					
		C&M 1	C&M 2	C&M 3	C&M 4	C&M 5	C&M 6
1	Wed: 9:00 - 9:45	E44	E24	E11	C57	C42	C87
2	Wed: 10:05 - 10:50	E12	E13	E4	C77	C69	C22
3	Wed: 11:10 - 11:55	E62	E77	E49	C62	C82	C68
4	Wed: 13:15 - 14:00	E96	E76	E79	C80	C5	C30
5	Wed: 14:20 - 15:05	E74	E25	E29	C26	C51	C13
6	Wed: 15:25 - 16:10	E87	E97	E84	C2	C41	C73
6.1	Wed: 16:30 - 17:15						C91
7	Thu: 9:00 - 9:45	E06	E31	E38	E16	E92	
8	Thu: 10:05 - 10:50	E28	E27	E15	E19	E55	
9	Thu: 11:10 - 11:55	E32	E50	E45	E43	E57	
10	Thu: 13:15 - 14:00	E72	E42	E73	E17	E67	
11	Thu: 14:20 - 15:05	--	---	--	---	E95	





# TECHNICAL INSPECTION

## PROCEDURE

- CV technical inspections contain: Pre-Inspection, Mechanical Inspection, Vehicle Weighing, Tilt Test, Noise Test, Brake Test.
- EV technical inspections contains: Pre-Inspection, Accumulator Inspection, Mechanical Inspection, LV Electrical Inspection, HV Electrical Inspection, Vehicle Weighing, Tilt Test, Rain Test, and Brake Test.
- Optional DV Cup technical inspections contains: Pre-Inspection, Accumulator Inspection(EV only), Mechanical Inspection, LV Electrical Inspection(EV only), HV Electrical Inspection(EV only), Autonomous Systems Inspection, Vehicle Weighing, Tilt Test, Rain Test(EV only), Brake Test, and EBS test, Noise Test(CV only).

## IMPORTANT POINTS

- The officials may inspect other points not mentioned on the technical inspection sheet to ensure compliance with the rules.
- Teams are responsible for confirming that their vehicle and the required equipment **satisfy** the requirements and restrictions of the rules **before** presenting it for technical **inspection**.
- Vehicles must be presented for technical inspection in **ready-to-race** condition.
- The officials reserve the right to prohibit the use of parts that could pose a safety risk to drivers, track marshals or the environment.
- The vehicle must maintain all required specifications throughout the competition.
- We strongly advise teams to prepare well for all mechanical and electrical parts - know your car! Long phone consultations with your teammates at home will not be accepted.

## INSPECTION RESPONSIBLE PERSON

To accelerate the technical inspection process, the team must appoint one team member as the inspection responsible person. [EV ONLY] For electrical inspection and accumulator inspection this has to be an ESO.

Inspection responsible person must be:

- Familiar with the vehicle.
- Able to show compliance of the vehicle with all points mentioned on the technical inspection sheet.
- Able to perform the technical inspection autonomously observed by the officials, when asked.

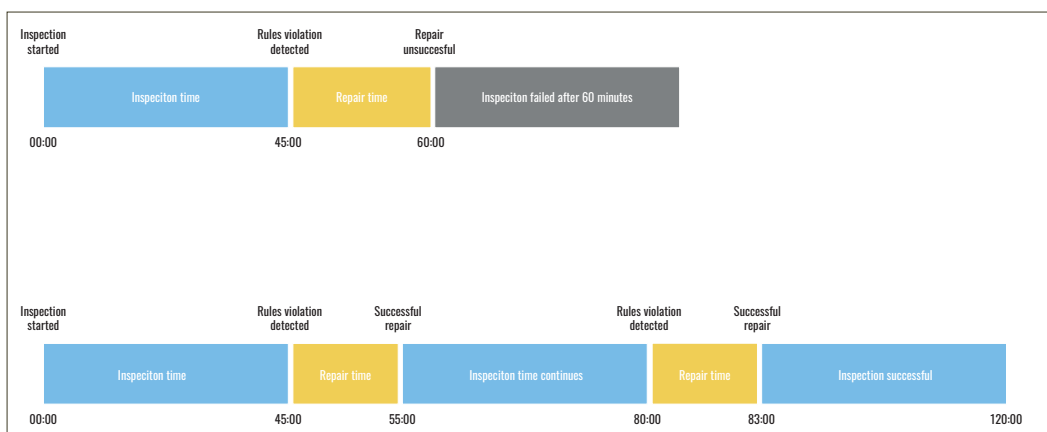
Should the inspection responsible person be unable to perform one of these requirements, or the vehicle and all necessary items are not ready, the technical inspection will be aborted and the team will be asked to leave the technical inspection area.



# SCHEDULE AND TIME MANAGEMENT

- Technical inspection requests will be handled by the virtual queue system. Login will be possible through the <https://portal.fsczech.cz> or QR code displayed in the pits (only team captain). No physical lanes will be formed for technical inspections.
- Once the team is ready for the 1st attempt of technical inspections, the team representative fills in an online form. The team is not allowed to enter the 1st attempt of technical inspections before this procedure.
- Teams are staying in the pit and when the time slot for the dedicated team is ready, the Official will notify Team Captain by email and pick them up to enter the 1st attempt of technical inspections.
- Every next attempt of technical inspections is also managed by the online form system with priority setting first come, first served but teams with significantly less attempts might be prioritized.
- 1st attempt of the technical inspections is always prioritized over the 2nd attempt.
- There will be 8 accumulator inspection, 6 EV inspection and 3 CV inspection slots
- FSE teams are allowed to be in queue for accumulator and mechanical inspection at the same time

## HOW SCRUTINEERING WORKS



# TECHNICAL INSPECTIONS RULES

## ELECTRIC CARS

- Team has dedicated time for the technical inspection attempts:

Technical inspection	Maximum time for one attempt	Fixing time for one attempt
Accumulator Inspection	2 hours	Mandatory fixing, 15 minutes
Electrical Inspection (LV+HV)	2 hours	Mandatory fixing, 15 minutes
Mechanical Inspection	75 minutes	15 minutes
Autonomous System Inspection	30 minutes	-

- Mandatory fixing (Accumulator Inspection and Electrical Inspection):
  - Up to 15 minutes from the total attempt time may be used for fixing the eventual violations against the rules.
  - If “Maximum time for one attempt” of total time or 15 minutes of fixing time runs out, the technical inspection attempt ends, and the team must leave the technical inspection slot immediately.
  - If there is a rules violation team must start with fixing or leave the technical inspection slot immediately.
- Team may register for technical inspection attempt only when they are ready.
- Technical inspection stages must be performed in the following order; Accumulator inspection, LV inspection, HV inspection, Autonomous inspection (if applicable). Mechanical inspection can be performed in parallel with Accumulator inspection or separately, but must be finished before LV inspection.
- During time for problem-solving, the technical inspection can continue with other points from technical inspection sheet if possible (cumulative fixing timer is not stopped).
- Pre-inspection is not limited in time and will be performed in the pit automatically after first attempt registration.
- Repeated technical inspection attempts must be requested via the same form as standard technical inspection attempt ([portal.fsczech.cz](https://portal.fsczech.cz))
- Technical inspection takes place in the dynamic area - only 4 team members with dynamic passes and 1 team member with media pass are allowed to accompany the car. Team member with a media pass can not touch the car or participate in the technical inspection procedure in any way.
- Be prepared - have all your necessary documents, tools, equipment and car ready for the whole technical inspection procedure.
- The accumulator must remain quarantined in the charging tent for one hour after finishing charging. If this quarantine exceeds pit closing time, the accumulator will remain there overnight. In this case, the team has to pick up their accumulator the next day, no later than 30 minutes after pit opening time.

## COMBUSTION CARS

- Team has dedicated time for the technical inspection attempts:

Technical inspection parts	Maximum time for one attempt	Fixing time for one attempt
Mechanical Inspection	75 minutes	15 minutes
Autonomous System Inspection	30 minutes	-

- Fixing (Mechanical Inspection):
  - Up to 15 minutes from the total attempt time may be used for fixing the eventual violations against the rules.
  - If the “Maximum time for one attempt” of total time or 15 minutes of fixing time runs out, the technical inspection attempt ends, and the team must leave the technical inspection slot immediately.
- Pre-inspection is not limited in time and will be performed in the pit automatically after first attempt registration.

- Repeated technical inspection attempts must be requested via the same form as standard technical inspection attempt ([portal.fsczech.cz](https://portal.fsczech.cz))
- Technical inspection takes place in the dynamic area - only 4 team members with dynamic passes and 1 team member with media pass are allowed to accompany the car. Team member with a media pass can not touch the car or participate in the technical inspection procedure in any way.
- Be prepared - have all your necessary documents, tools, equipment and car ready for the whole technical inspection attempt.

### OPTIONAL DV CUP

- Be prepared - have all your necessary documents, tools, equipment and car ready for the whole technical inspection procedure.
- As Optional DV cup cars are based on EV/CV cars, relevant technical inspection rules for EV/CV cars also apply.

## WAY TO TECHNICAL INSPECTION

- TBD

## DATA LOGGER SPECIFICATION

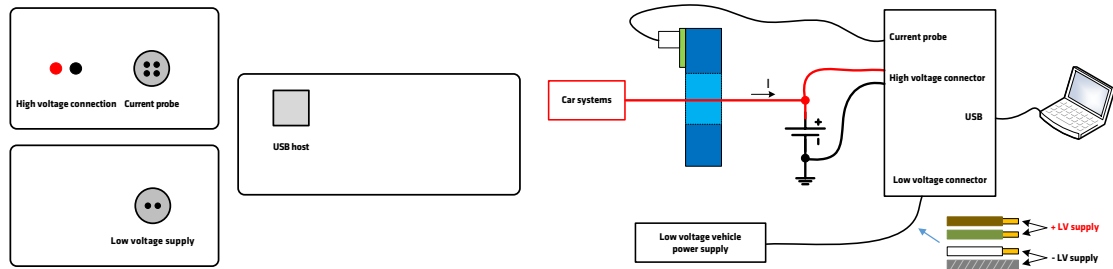
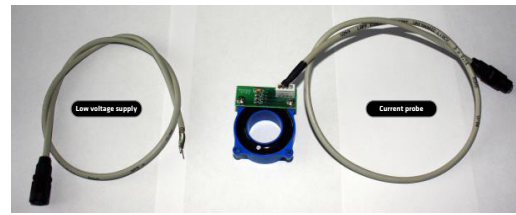
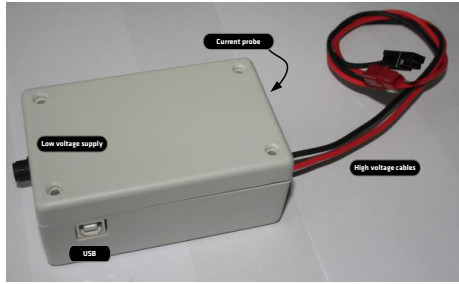
FSCzech is preparing a new data logger with advanced features to be on par with newest cars, including DV. There will be a limited number of beta units for use. Organizer is reserving the right to choose whether the team receives [Legacy data logger](#) or [Next generation data logger \(beta\)](#).

### LEGACY DATA LOGGER

Entire data logger has to be put into the TS enclosure with only the USB cable going out. Ensure sufficient USB cable separation from non insulated TS components inside the enclosure, due to USB cable not having maximum TS voltage rating. Refer to EV 4.5, mainly EV 4.5.2. Provided cable has to be returned in the original state.

1 m of data cable with USB A connector has to be available from outside of the car. Team is allowed to use multiple cables and connect the external part of the cable on demand.

## Drawings



## Technical data

- Wired data export connection by USB (B-A) cable. (provided by organizer)
- Low voltage supply harness will be provided by the organizer. Minimum length 50 cm.
- Supply voltage range **TBD** V
- Maximum current draw **TBD** A
- High voltage sensing wires are terminated with **TBD** connectors. Matching connectors are provided by the organizer. The team is responsible for connector crimping.
- You can find the 3D model on our website: <https://fsczech.cz/documents/>
- The serial number of the main unit must match with the correct current probe.
- The orientation of the current must be wired according to the basic connection diagram.

## NEXT GENERATION DATA LOGGER (BETA)

Entire data logger has to be put into the TS enclosure. TS enclosure with data logger can't be shielded to ensure wireless connectivity.

## Drawings

Refer to "Vishay WSBM8518". Total height **TBD**

## Technical data

- Wireless data connection (2.4 GHz).
- Low voltage supply (including CAN) harness will be provided by the organizer. Minimum length 50 cm.
- Supply voltage between 9 V and 30 V
- Maximum current draw **TBD** A
- Bolted high current path terminals. Refer to drawings for dimensions. Team is responsible for appropriate fasteners.
- High voltage sensing terminal: **TBD**, note the conduit cross section range.
- Dimensions **TBD**,

More details are coming!

# HANDY PLACES

## CONSTRUCTION MATERIAL

Are you looking for metal sheets, tubes, accessories for your angle grinder?

- Kondor <https://en.mapy.cz/s/lozozuzuja>
- BauMax <https://en.mapy.cz/s/nagupabura>
- Obi Most <https://en.mapy.cz/s/kapubonafu>
- Luma Steel <https://en.mapy.cz/s/repuketode>

## FOOD AND BEVERAGES

- Kaufland <https://en.mapy.cz/s/domepupuvu>
- Tesco <https://en.mapy.cz/s/fogefatoha>
- Hypermarket Albert <https://en.mapy.cz/s/defonopola>
- Lidl <https://en.mapy.cz/s/mugekaluhe>
- Penny Market <https://en.mapy.cz/s/labujacoha>

## CAR PARTS

- Auto Kelly <https://en.mapy.cz/s/cenadepaga> - general store for car parts
- Motor and gear oils, greases, lubes - Prodej olejů - <https://en.mapy.cz/s/caresususo>

## COMPUTER PARTS, CONSUMER ELECTRONICS

Use eshop first and then use delivery to local store. For basic stuff like USB cable go directly to:

- Alza.cz <https://en.mapy.cz/s/pavehukuke>
- CZC.cz <https://en.mapy.cz/s/bomamucaza>

## ELECTRICAL COMPONENTS

Like cable lugs, fuses, etc.

- ielektra.cz <https://en.mapy.cz/s/bumumusomo>
- ELFETEX <https://en.mapy.cz/s/fojejasabu>