TELEMETRY

Presentation

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Telemetry System Overview

1.0

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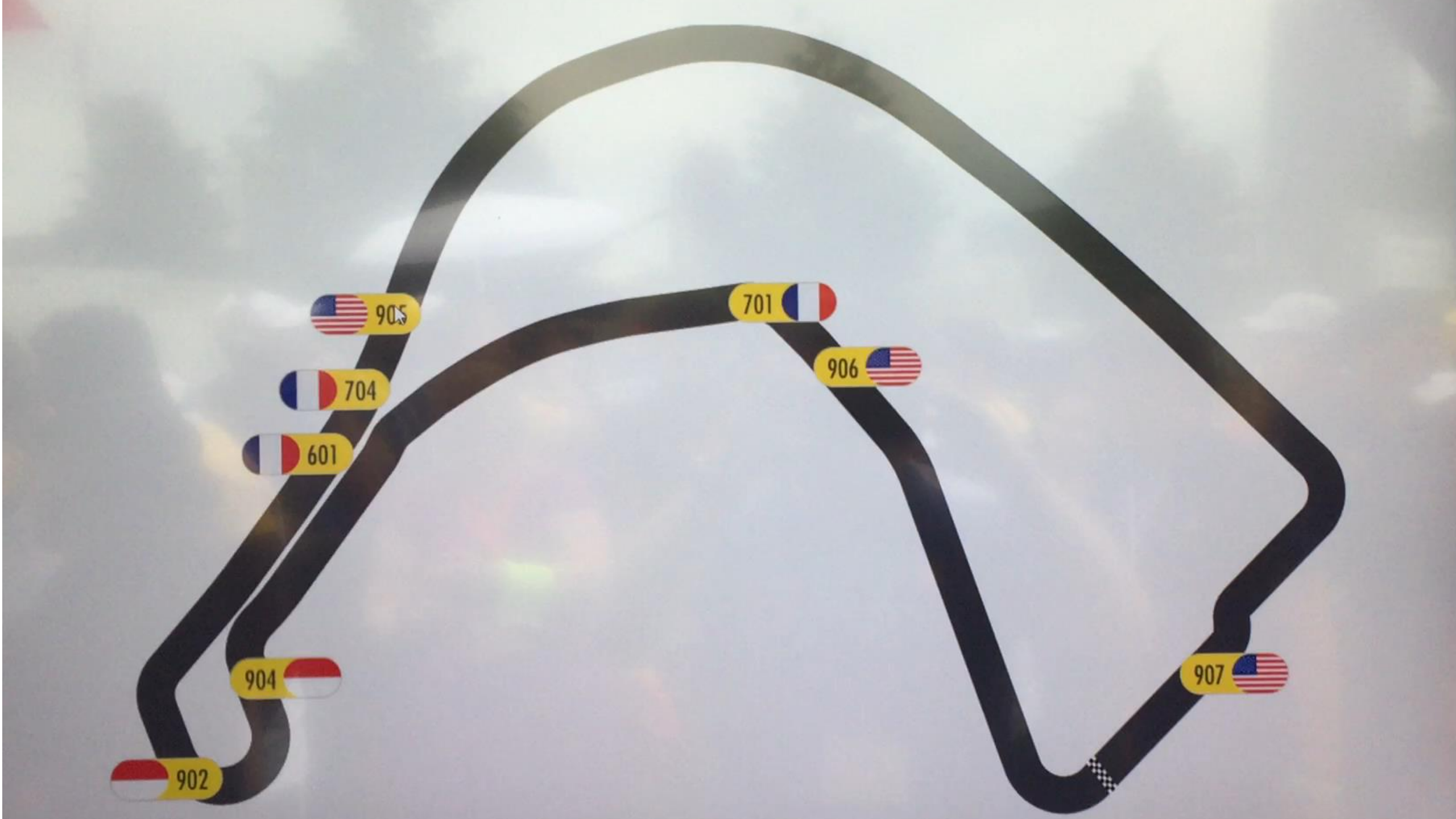
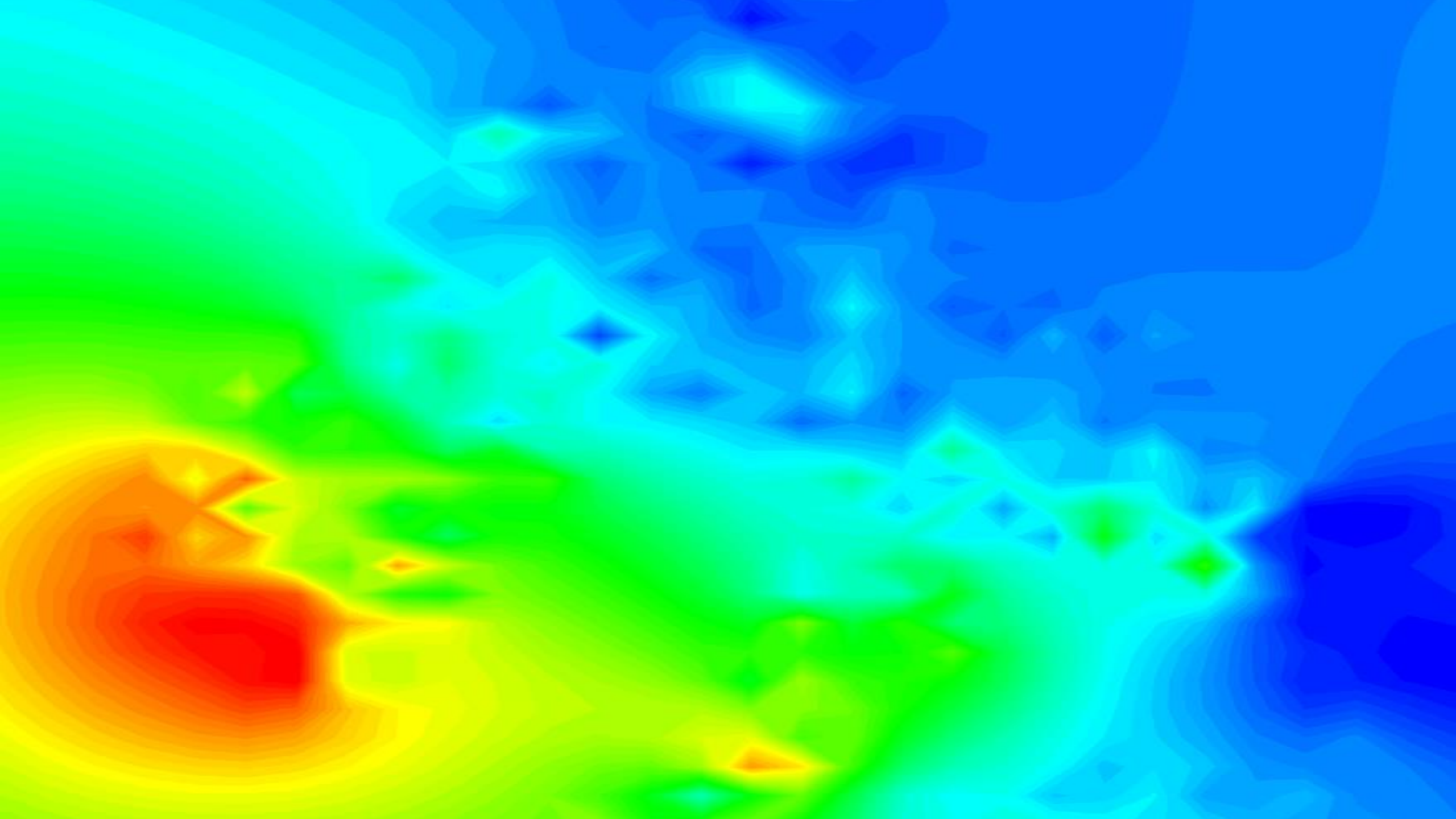
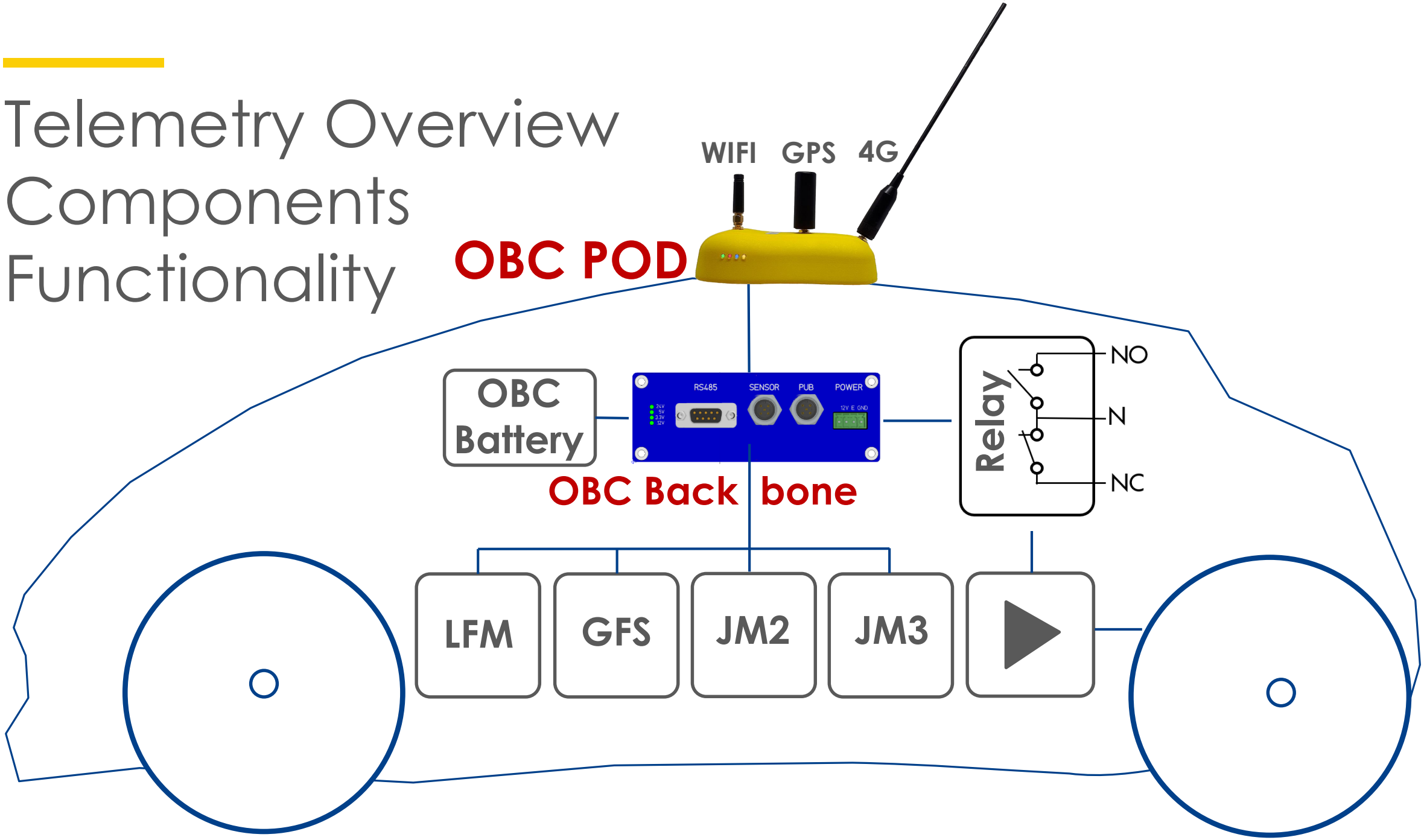
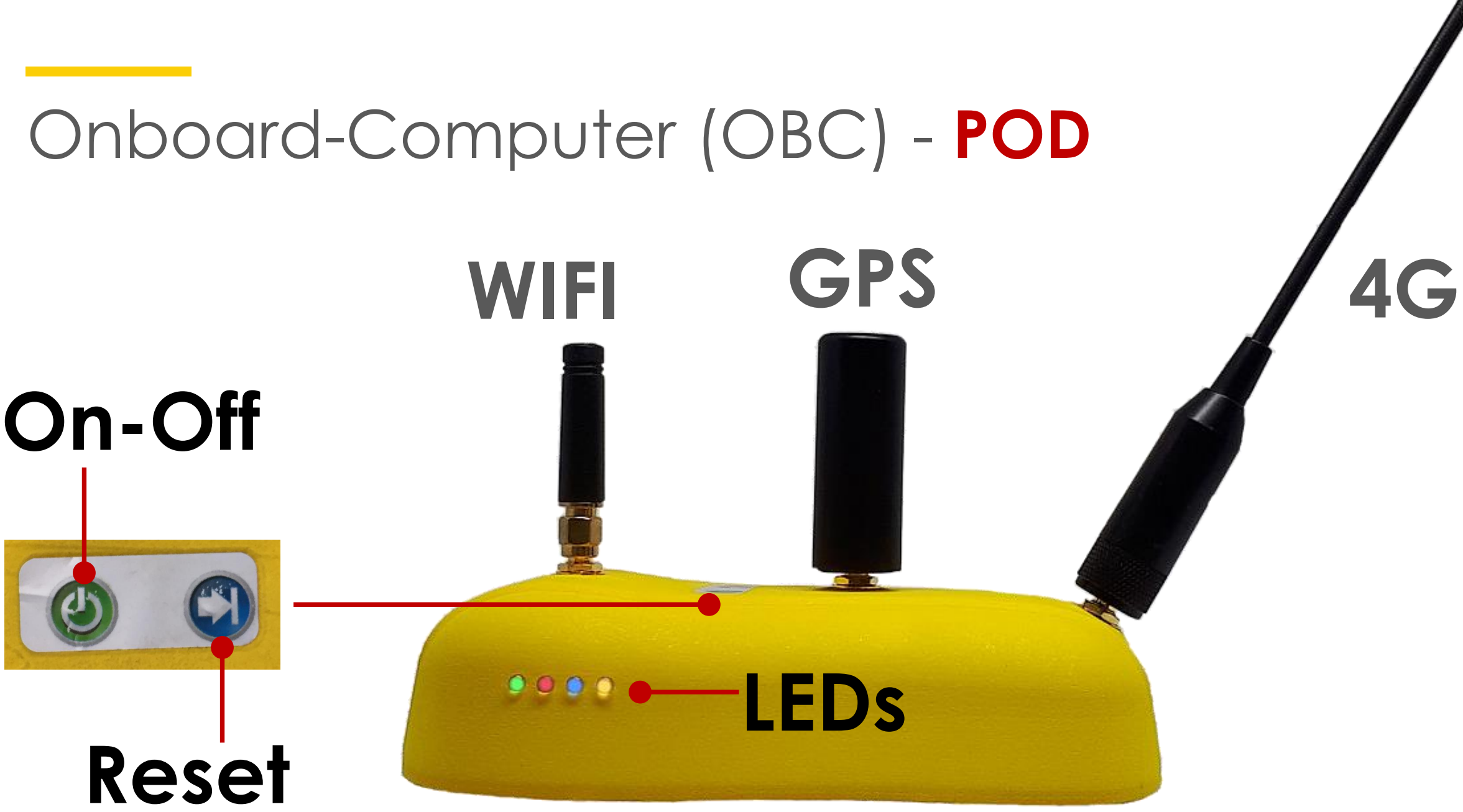

905
704
601
902
904
701
906
907



Telemetry Overview
Components Functionality

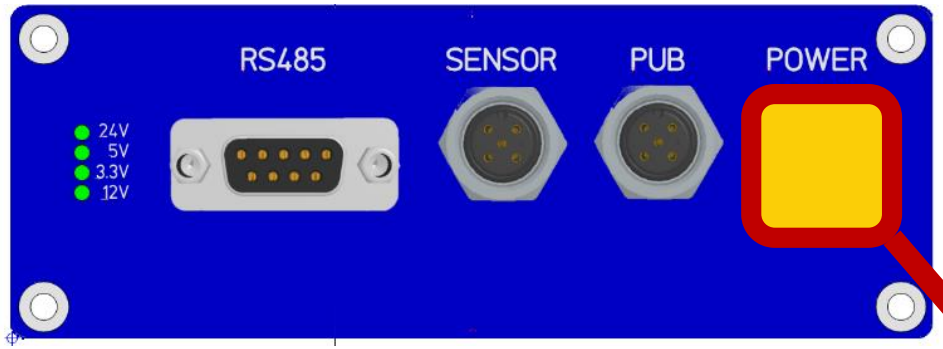


Onboard-Computer (OBC) - **POD**

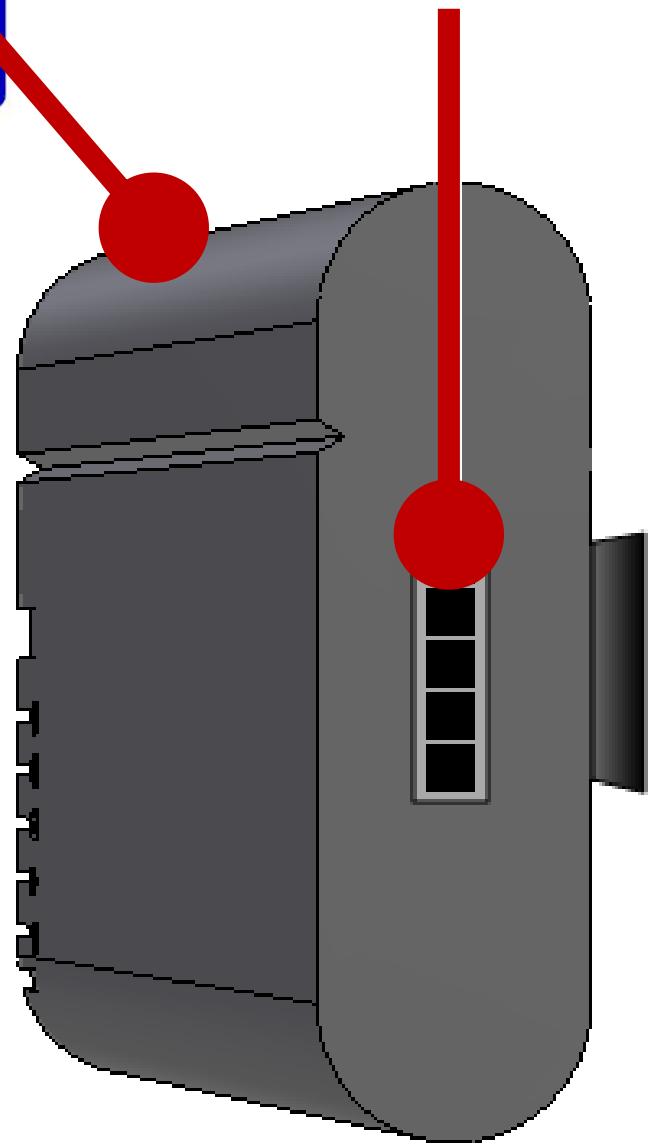


Onboard-Computer (OBC) - **BACKBONE**

OBC-Battery



Battery Level Indicator



- 12V **Lithium-Ion**-Battery
- Holder + **Charger**
- Visible Level **Indicator**
- If down to **0%** → Tech Team

YOU MUST charge the battery before attempts!

4 Types of Energy sensors

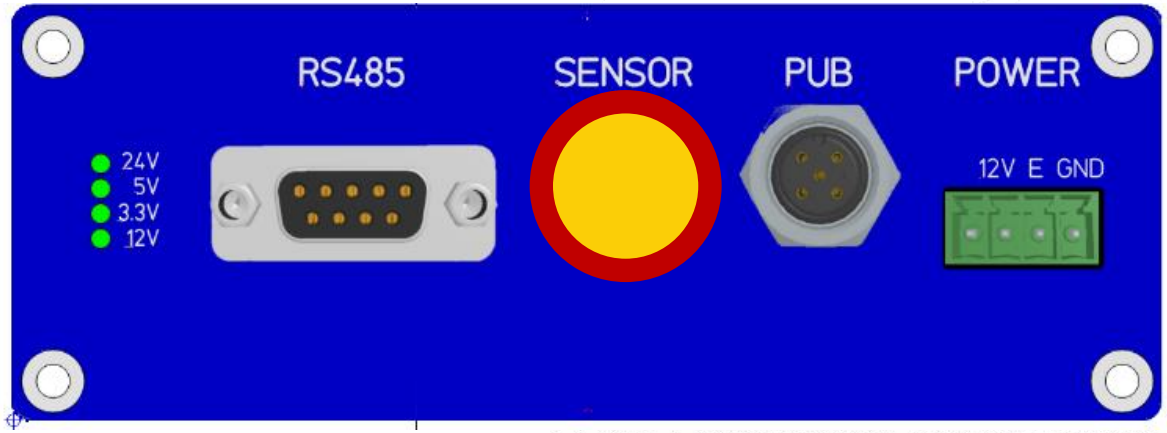
Liquid flowmeter
(ICE)

Joulemeter 2
(All vehicles)

Joulemeter 3
(All vehicles)

Gasflow
-meter
(Hydrogen)

Liquid flowmeter (LFM)

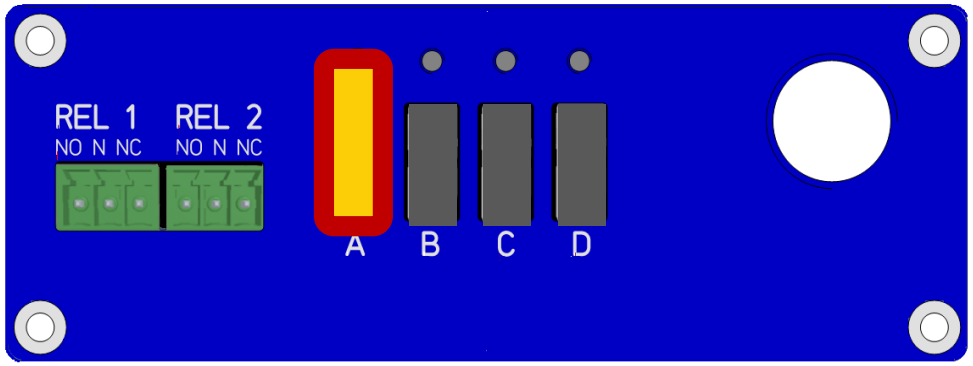


OUT

IN

Fittings

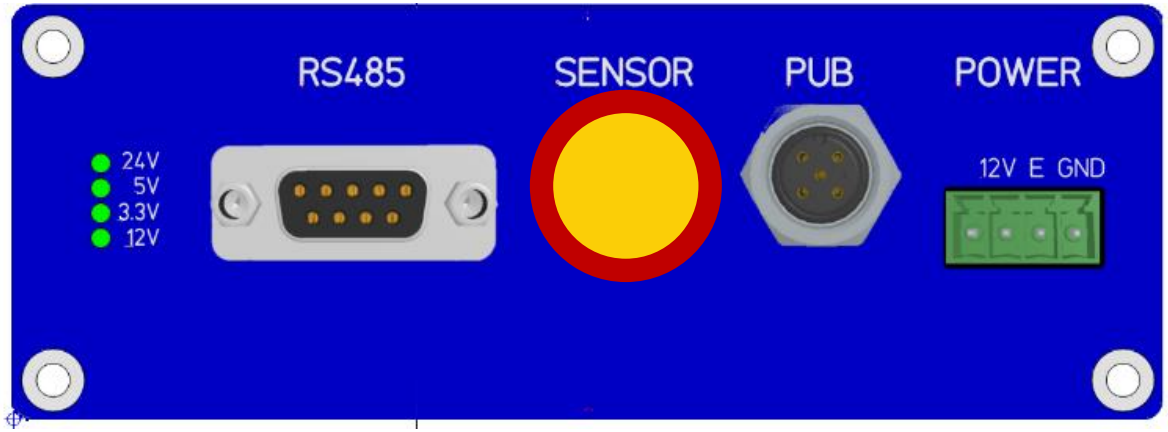
Joulemeter (JM2)



On/Off

Ensure to route the USB-Cable **far away** from **POWER ELECTRONICS**

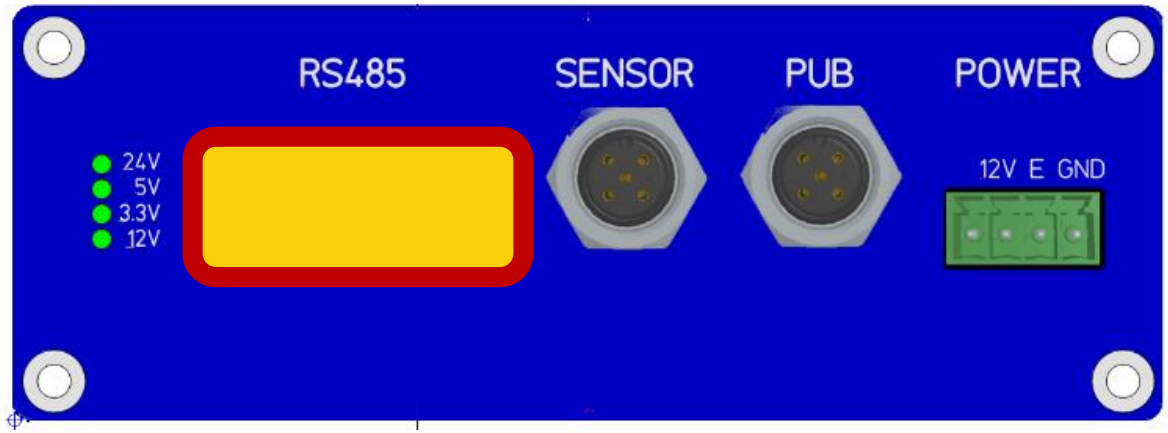
Joulemeter (JM3)



Hydrogen flowmeter

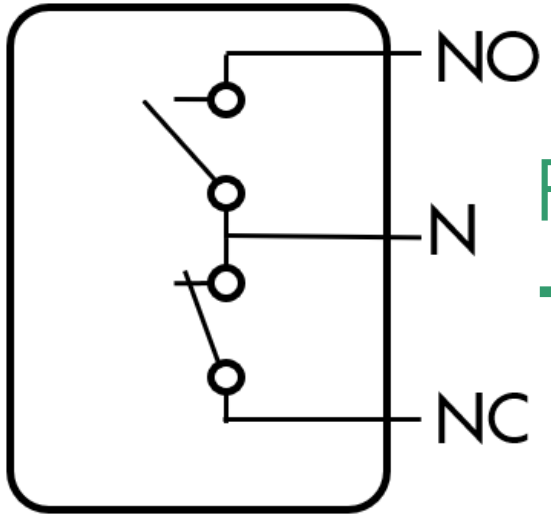
- Hydrogen gas flow in normal litres
- NO leaks
- NO Teflon tape
- DSUB9: Must be tight

SUB D-9 cable

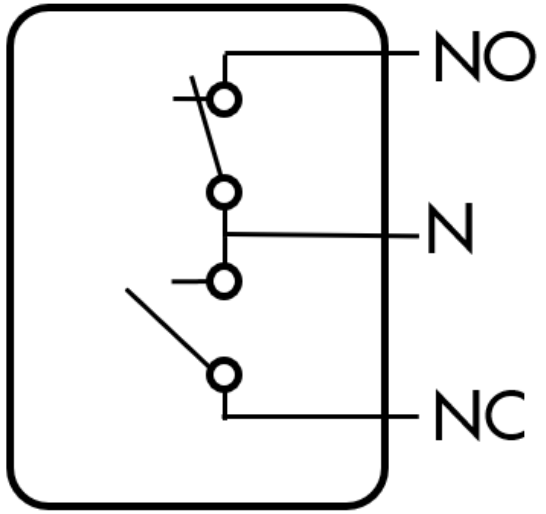


Shutdown relays

- Shut **propulsion** down
- **Two** Relays, use either
- **NO** and **NC**
- **MUST be wired!**
- Do a **SELF TEST**



Relay deactivated
→ **Motor ENABLED**



Relay activated
→ **Motor DISABLED**

Mounting & Verification

2.0

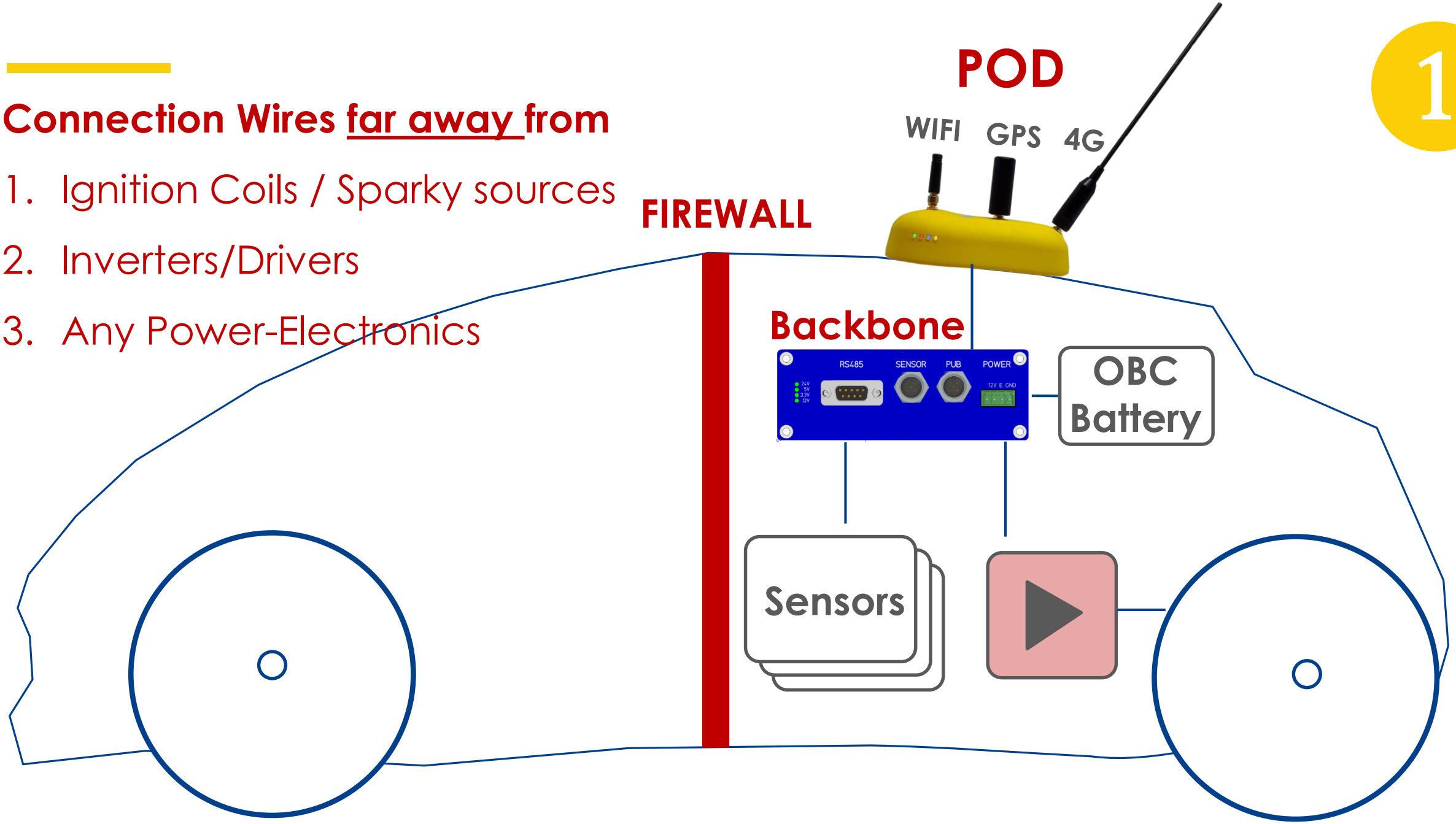
Quick **Self-Diagnostic** before inspection

Once all components installed:

- Check **OBC battery**
- Turn **on** OBC
- Wait max **60** seconds

Connection Wires far away from

1. Ignition Coils / Sparky sources
2. Inverters/Drivers
3. Any Power-Electronics

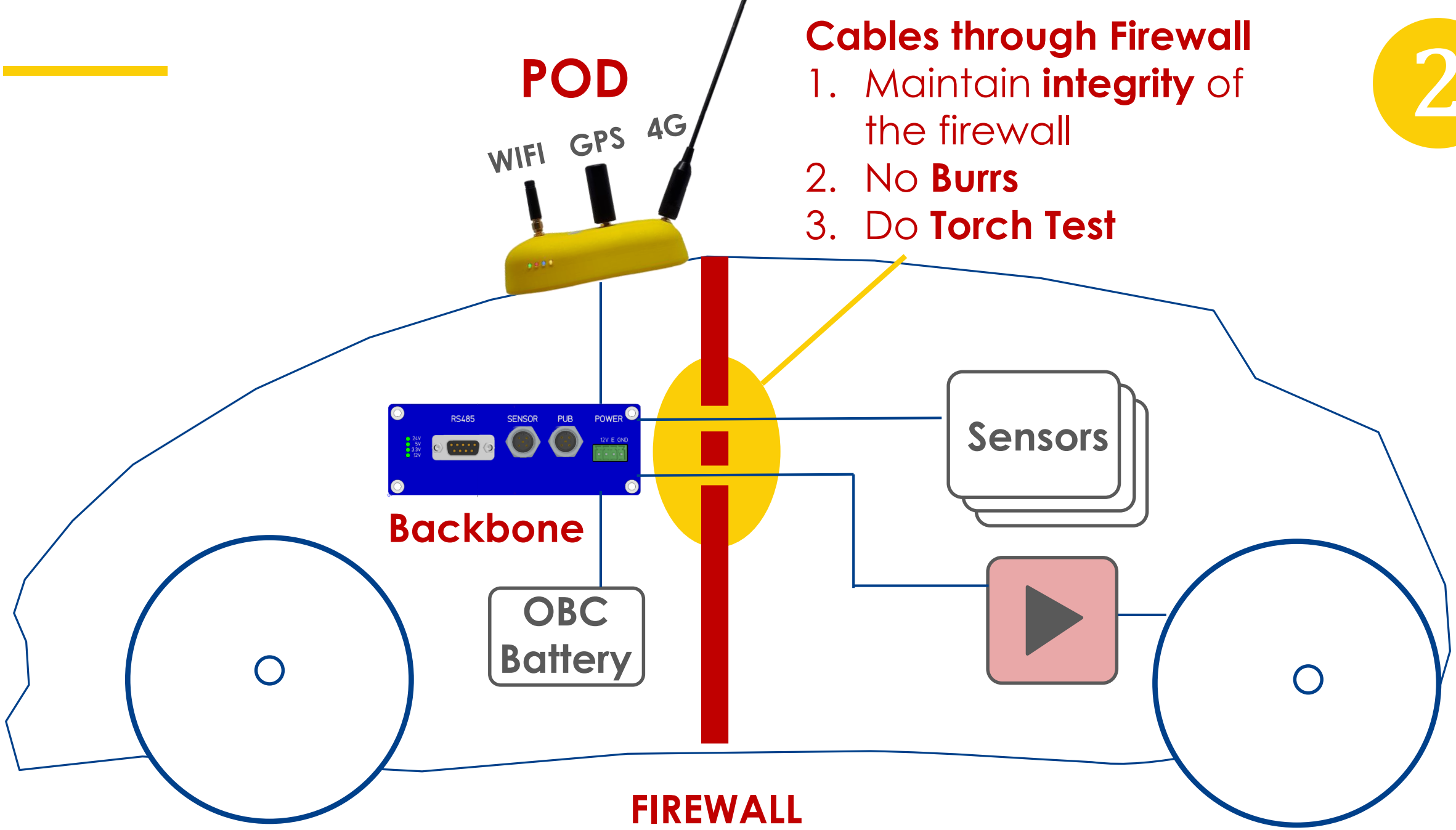


1

Cables through Firewall

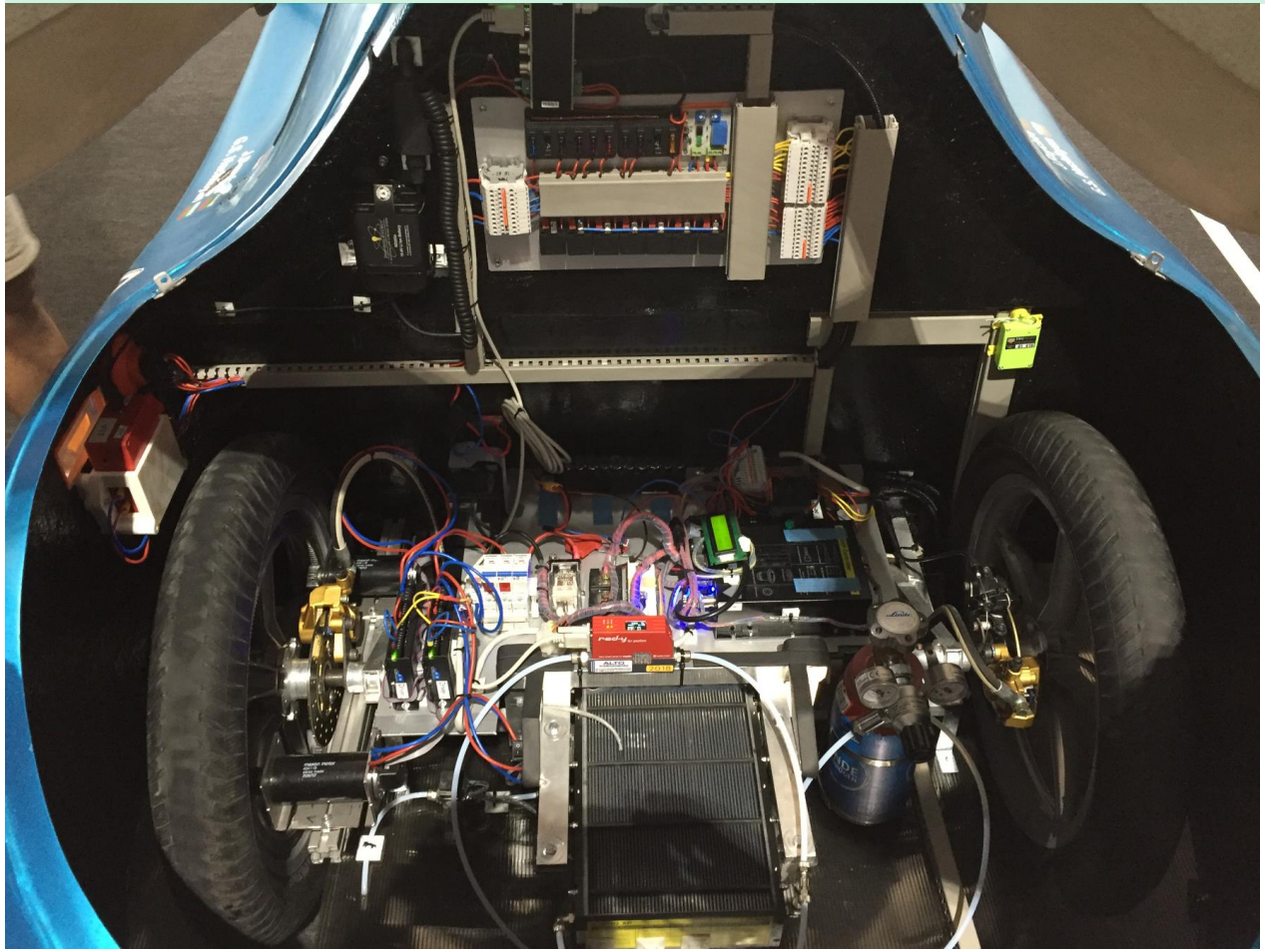
1. Maintain **integrity** of the firewall
2. No **Burrs**
3. Do **Torch Test**

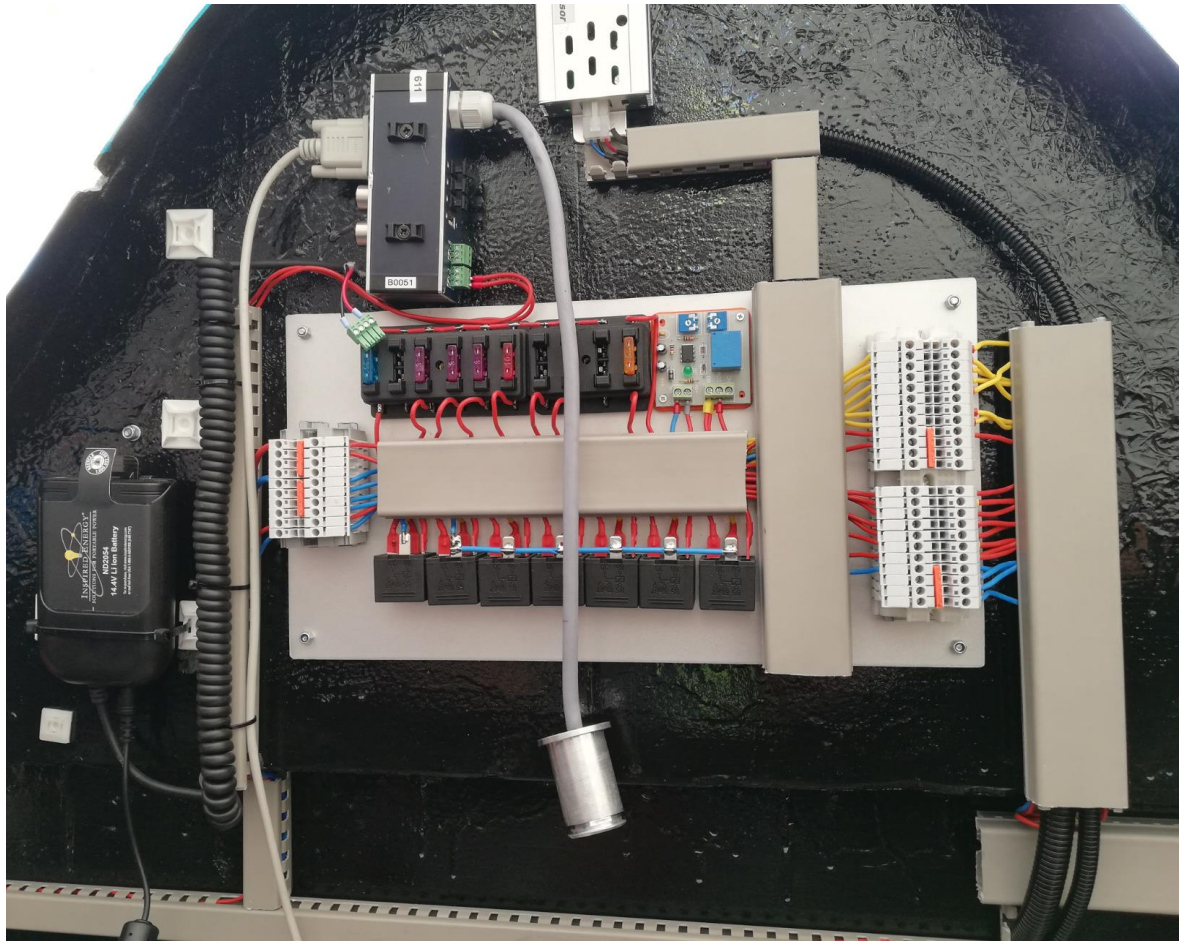
2

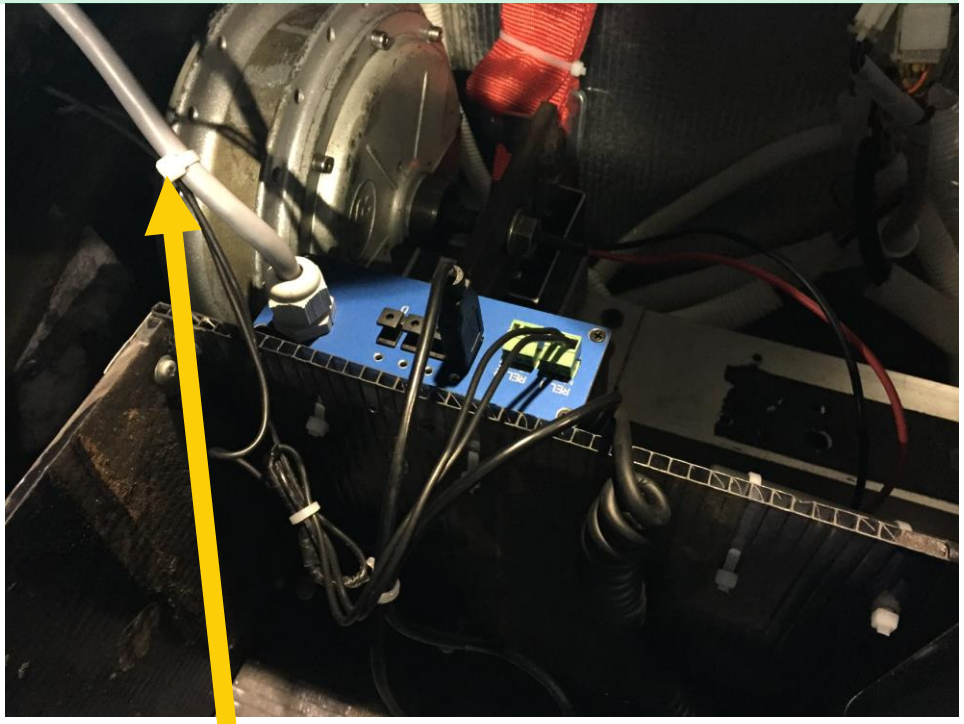


General Recommendation: **NO LOOPS!**

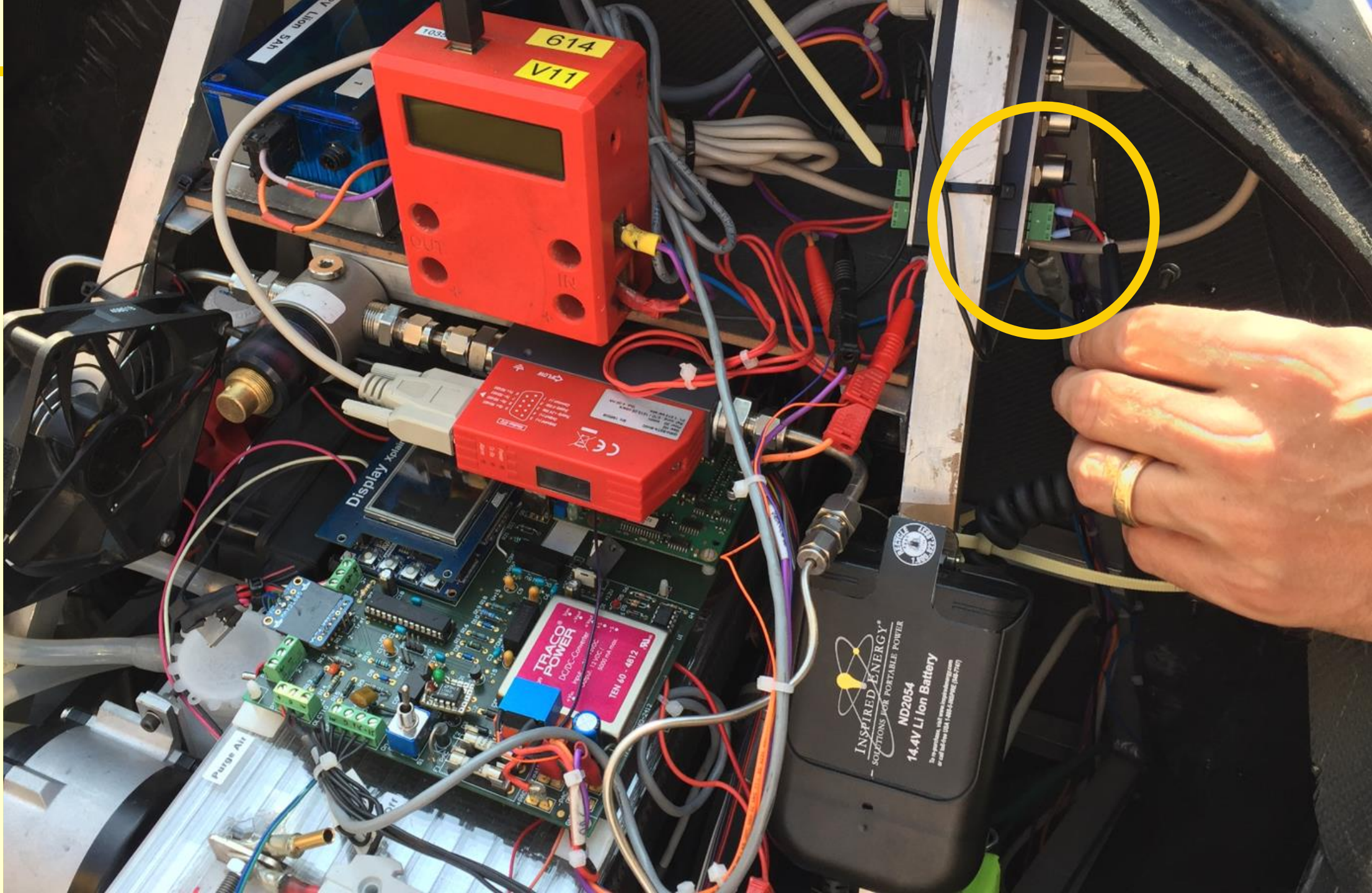
Alternative:
Packages

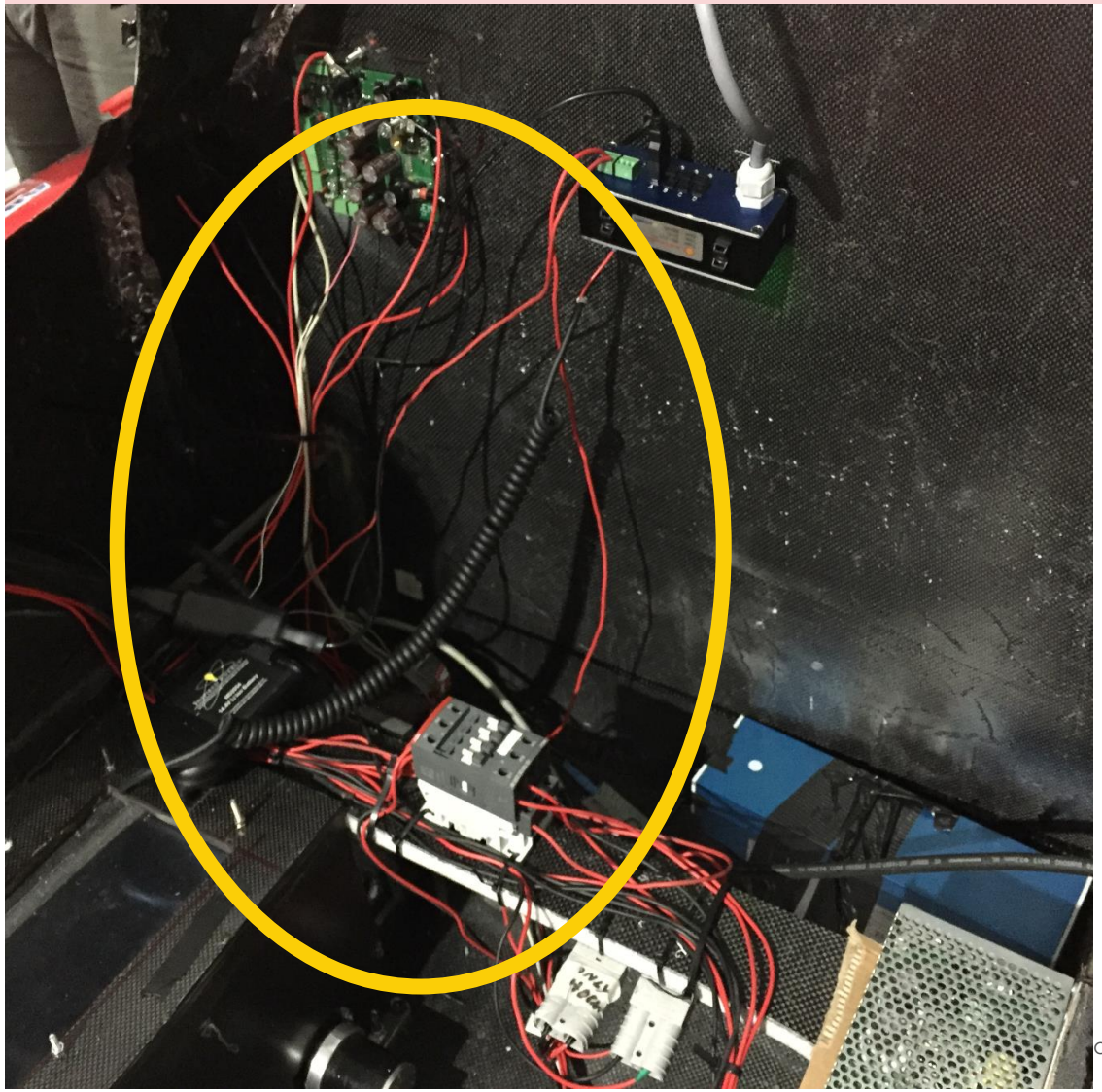


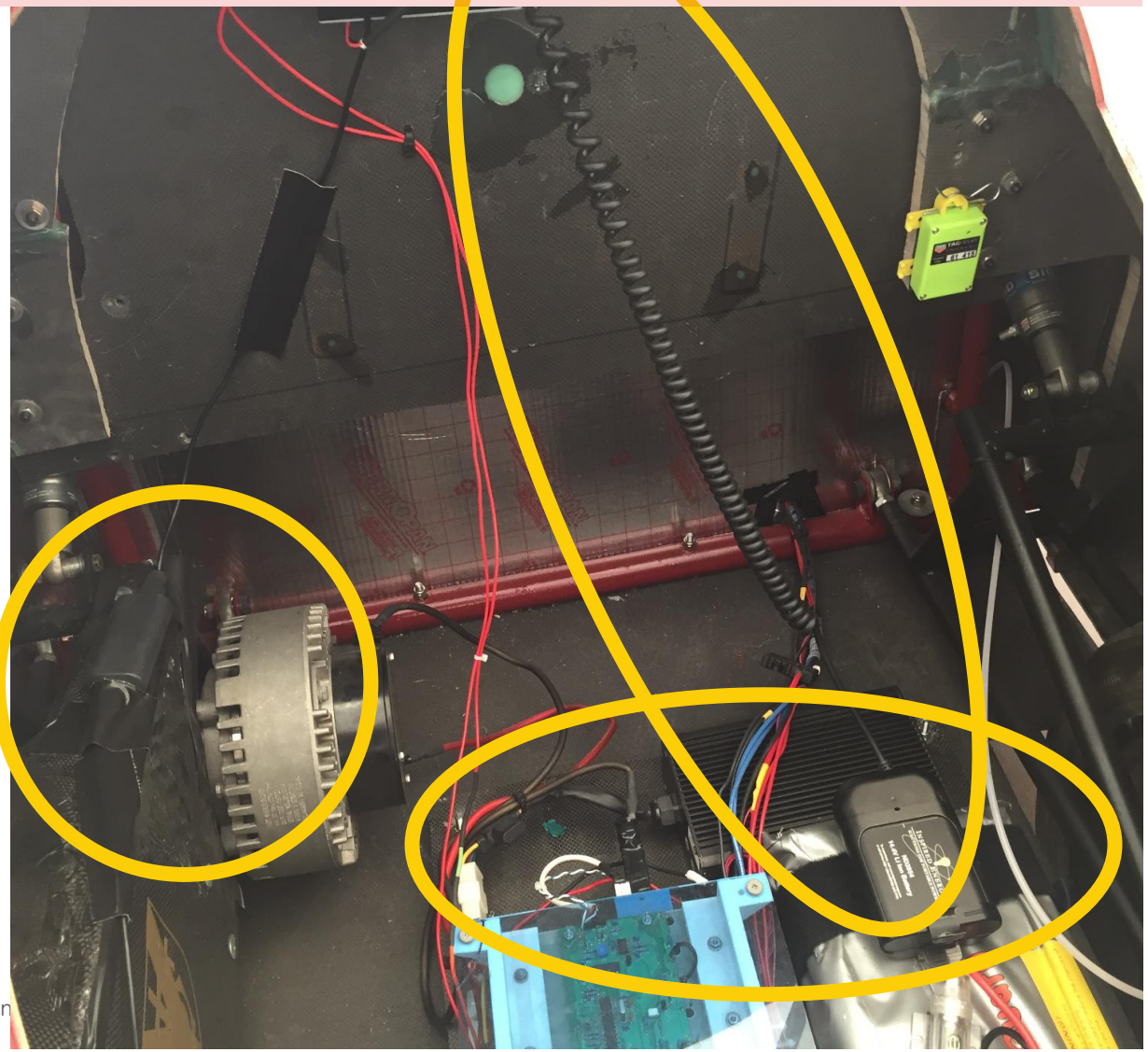


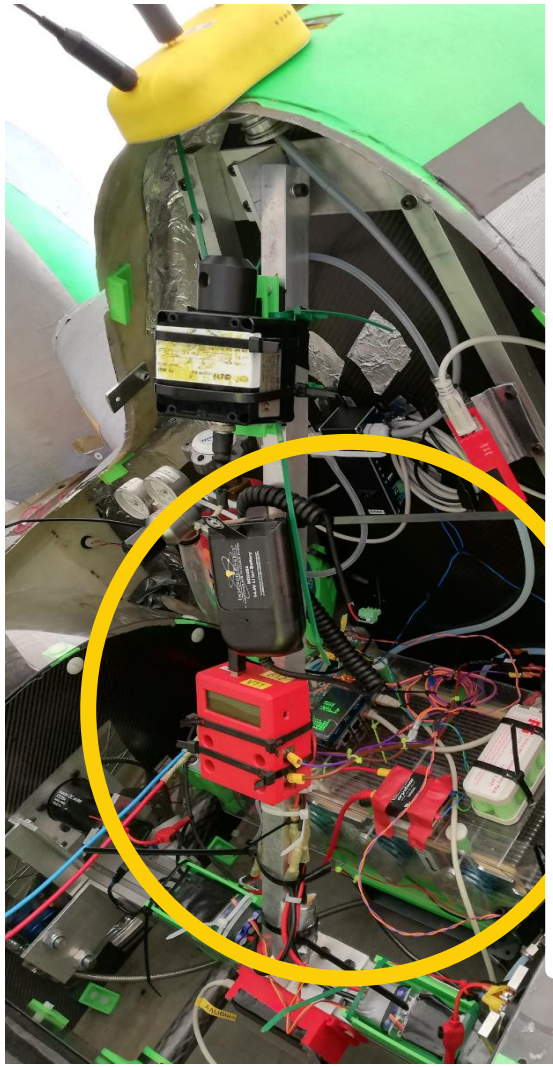


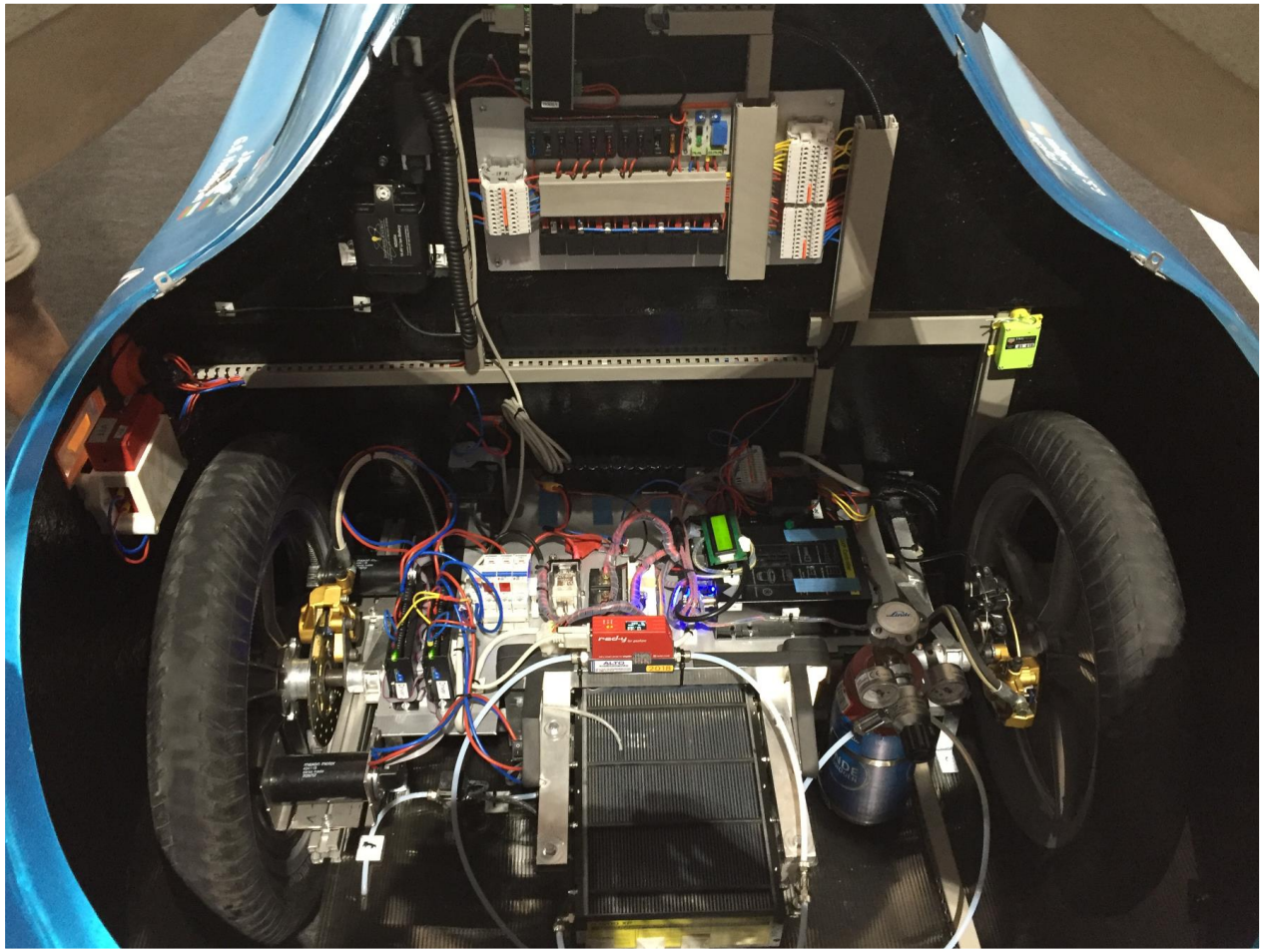
Strain Relieves


614
V11
Display
TRACO POWER
TEN 60 - 4812
Purge Air
INSPIRED ENERGY
SOLUTIONS FOR PORTABLE POWER
ND2054
14.4V Li Ion Battery

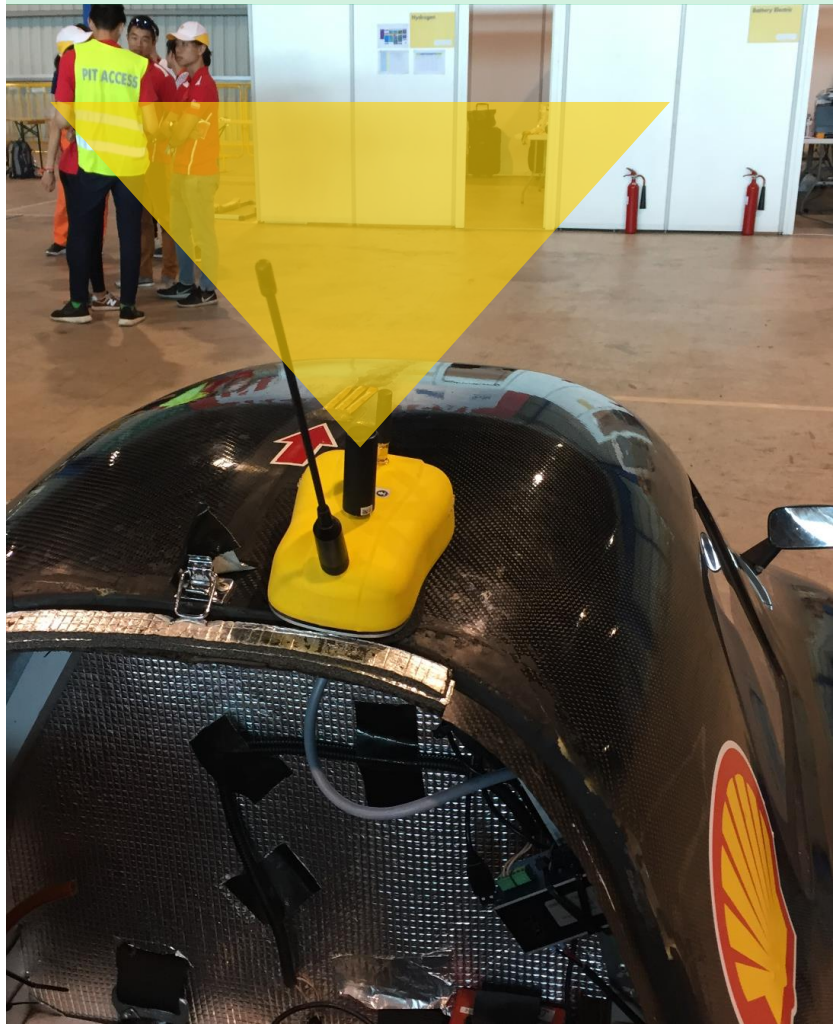


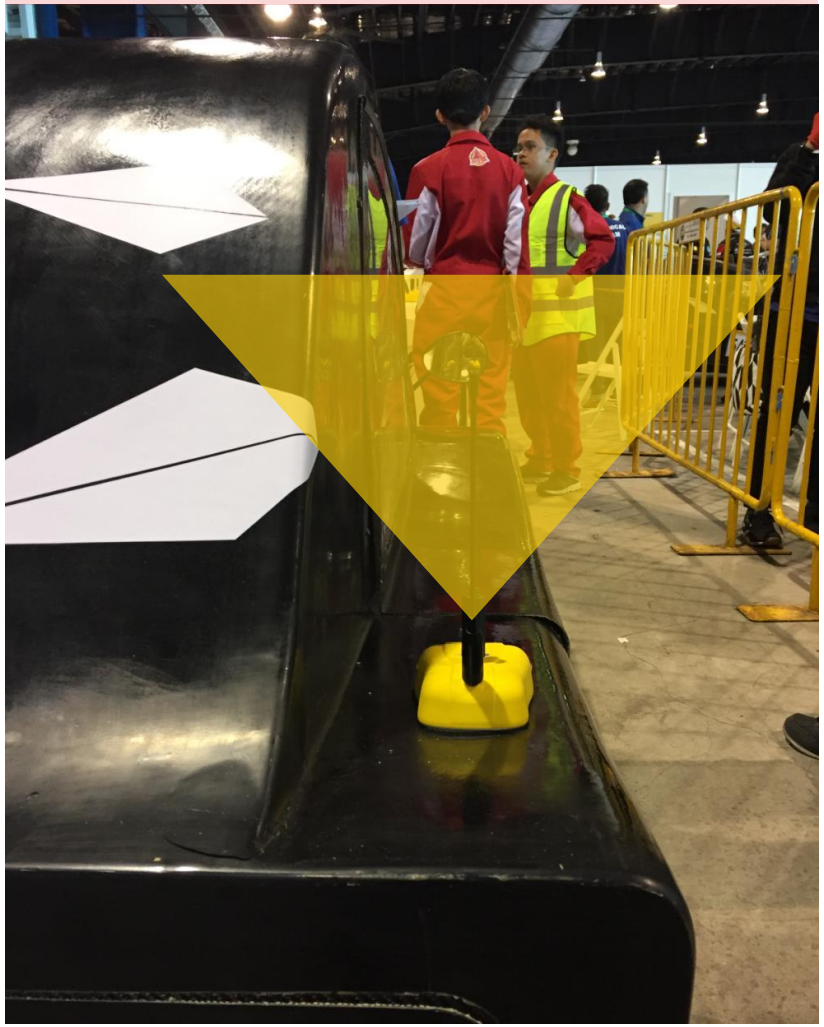


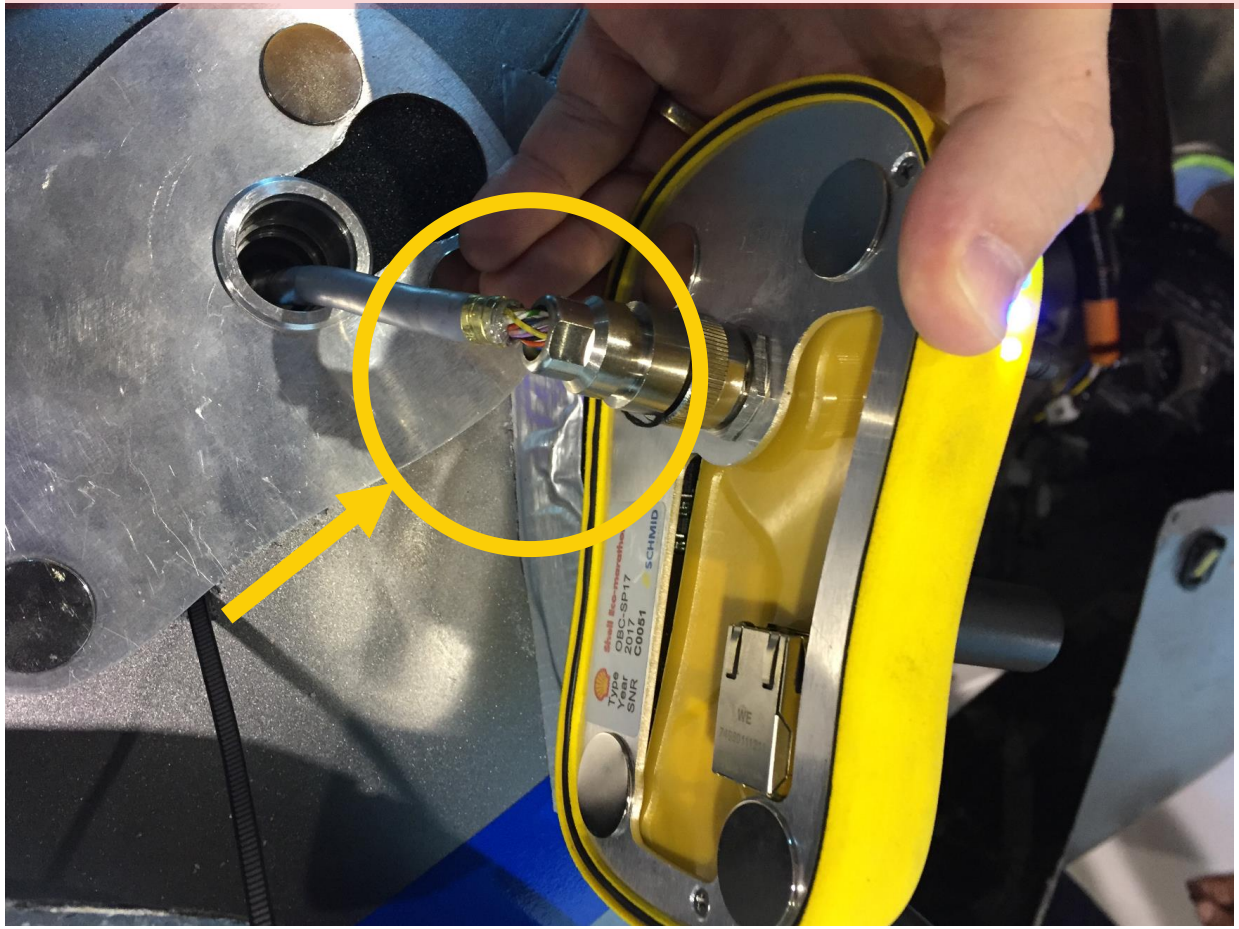




V11


PIT ACCESS




SCHMID

DO NOT COME TO TELEMETRY INSPECTION UNTIL:

1. you passed **Vehicle Design** & **Energy verification**
2. OBC **Pod** and **Backbone** installed correctly
3. OBC **Battery** installed and charged
4. Main **Battery** charged / Engine runs 5mins
5. Energy **Sensors** installed
6. Shutdown **Relay** connected
7. Telemetry System verified (**LED**)

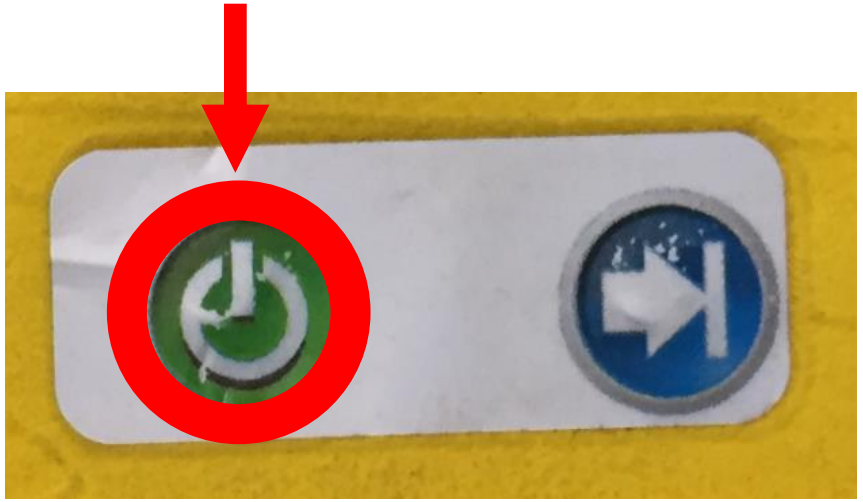
VERY IMPORTANT!

Quick check before inspection

Hint
if any of those LEDs are **FLASHING**
Please contact us

Once the Pod has fully started:

- **Amber LED** must be ON and **NOT flashing**
- Turn **off** OBC



5 Seconds

IMPORTANT when entering START/FINISH:

1. **Battery** must be charged **> 60%**
2. **Turn on** the **POD** in the **Start-Finish-Tent**
3. Check **LED**: yellow LED steady (not flashing) ?
4. After attempts:

   Turn off the **POD** in **paddock**

THANK YOU!

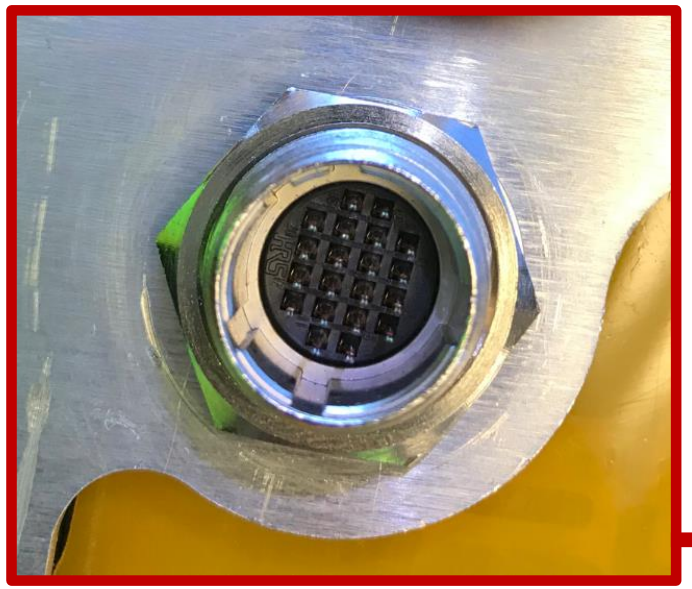
5 Common Issues

3.0

1.Pod mounting

Interference with your built-in Radio

Check High-Density Connector for Damage



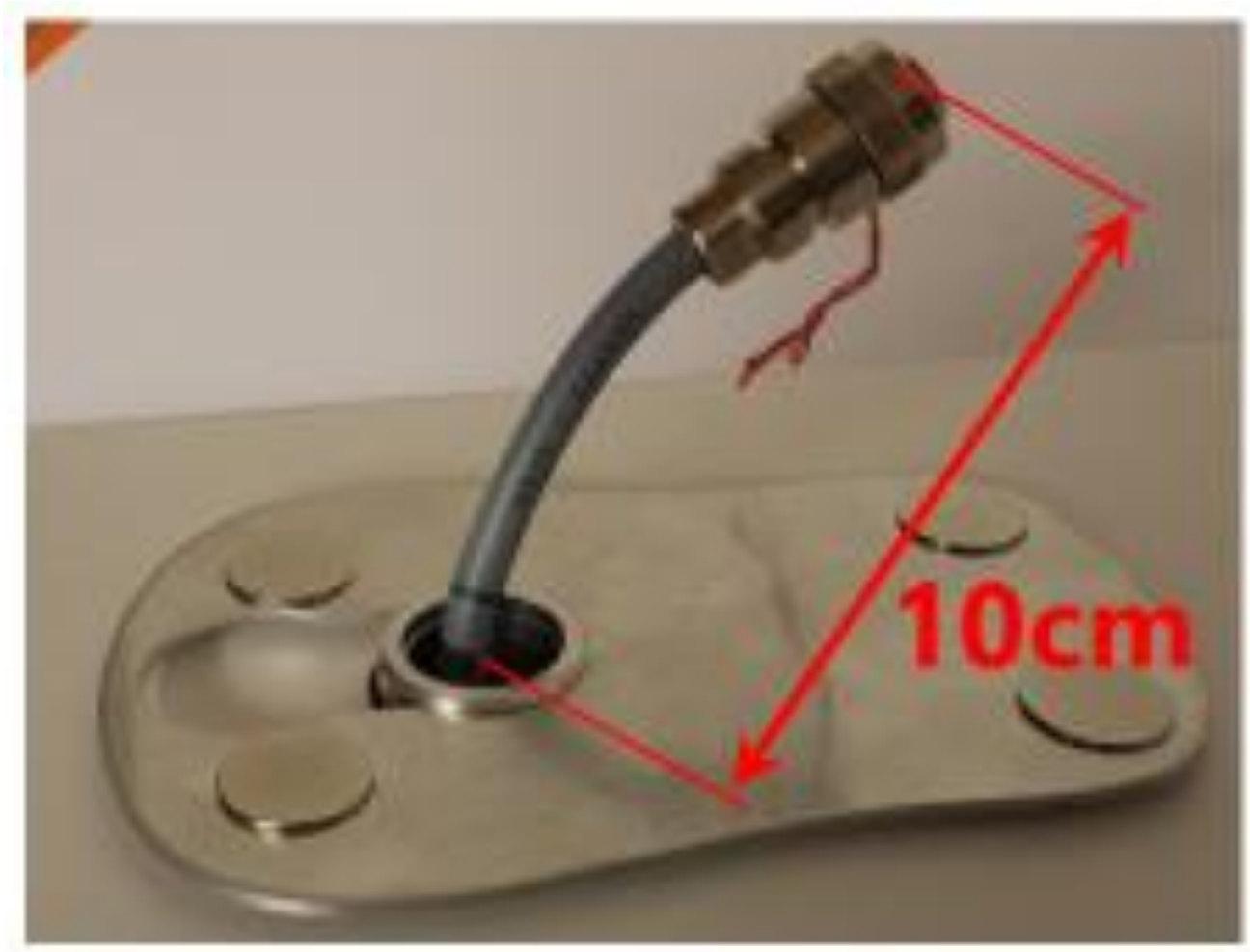
2.Backbone installation

Allow for

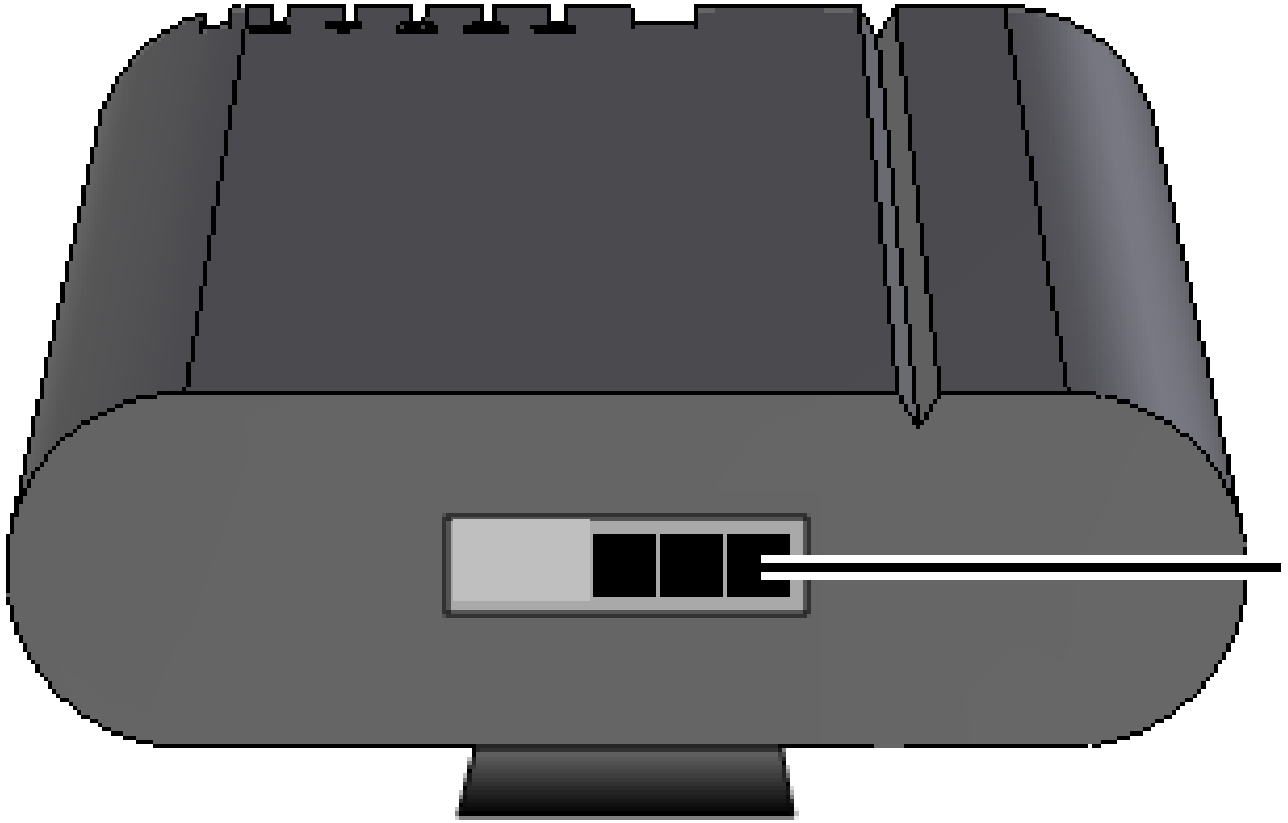
4 inches of cable

lift available

(A “Fist” in between)



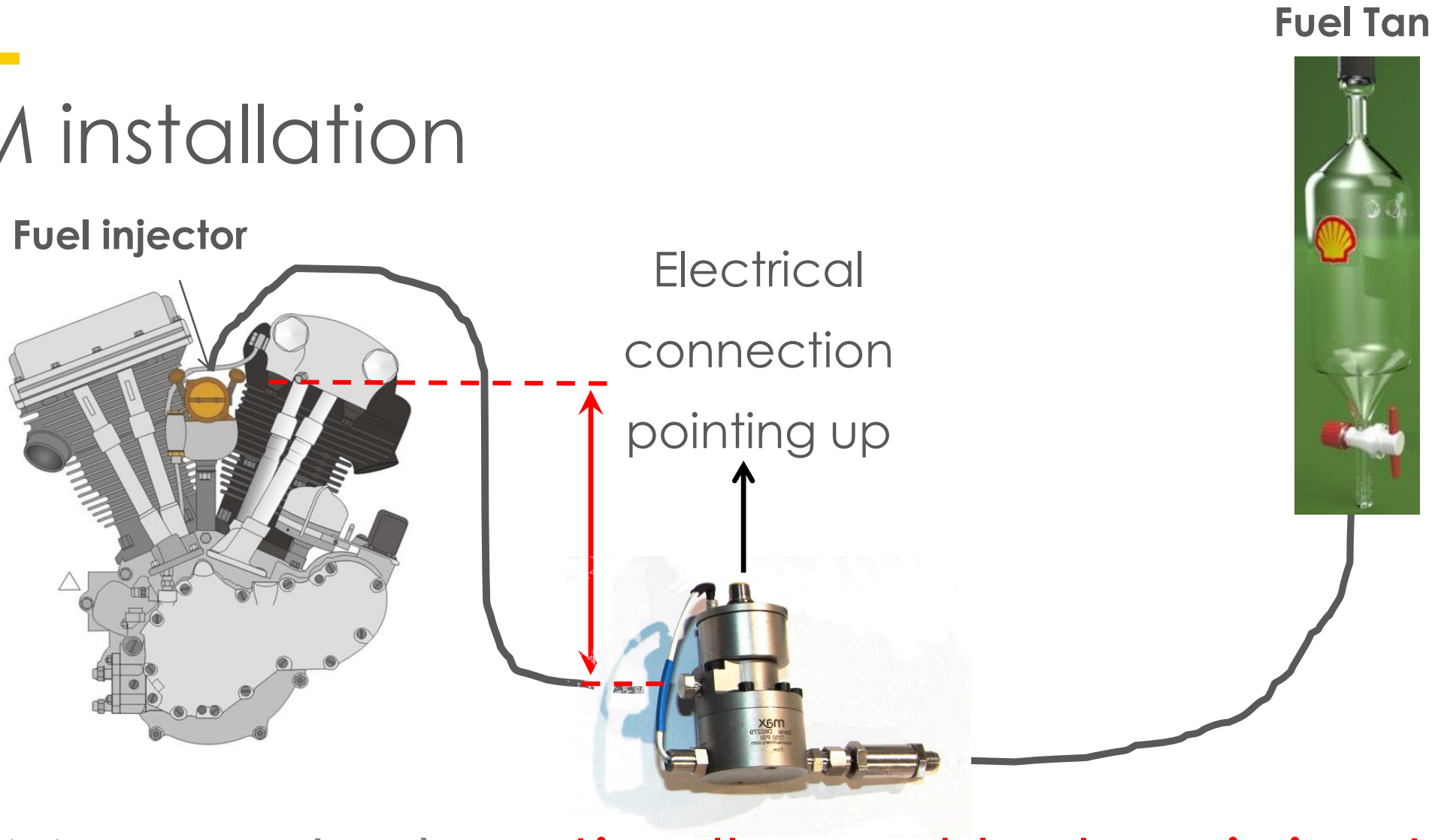
3.Battery Charging & Mounting



No access to track
if red LED is flashing

> 60%

4.LFM installation

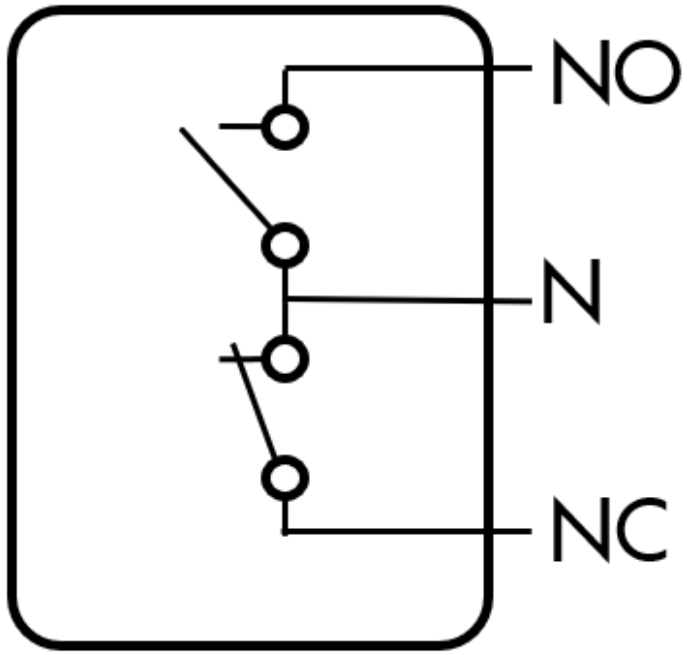


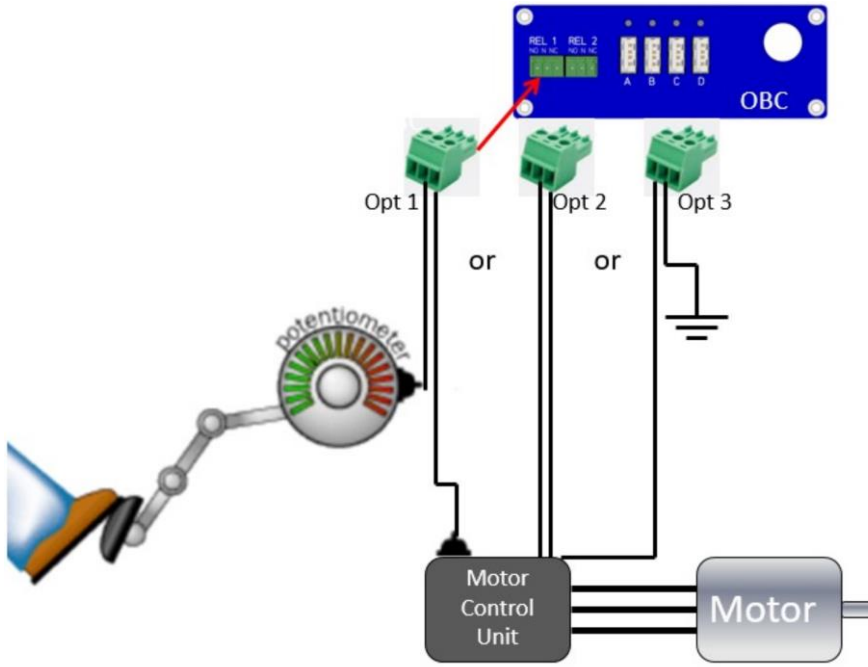
LFM mounted vertically and below injector

5.Shutdown relays wired

- **ICE: Do NOT connect via IGNITION COIL**
- **ECU** instead
- To be completed **before inspection**
- Wiring **specific** to your **energy class**

→CHECK WIKI





https://telemetry.sem-app.com

Telemetry **WIKI**

No Credentials Required

4.0

https://telemetry.sem-app.com

Info Point

FAQ

Shell Eco-marathon Student Data and Technology Portal

Search

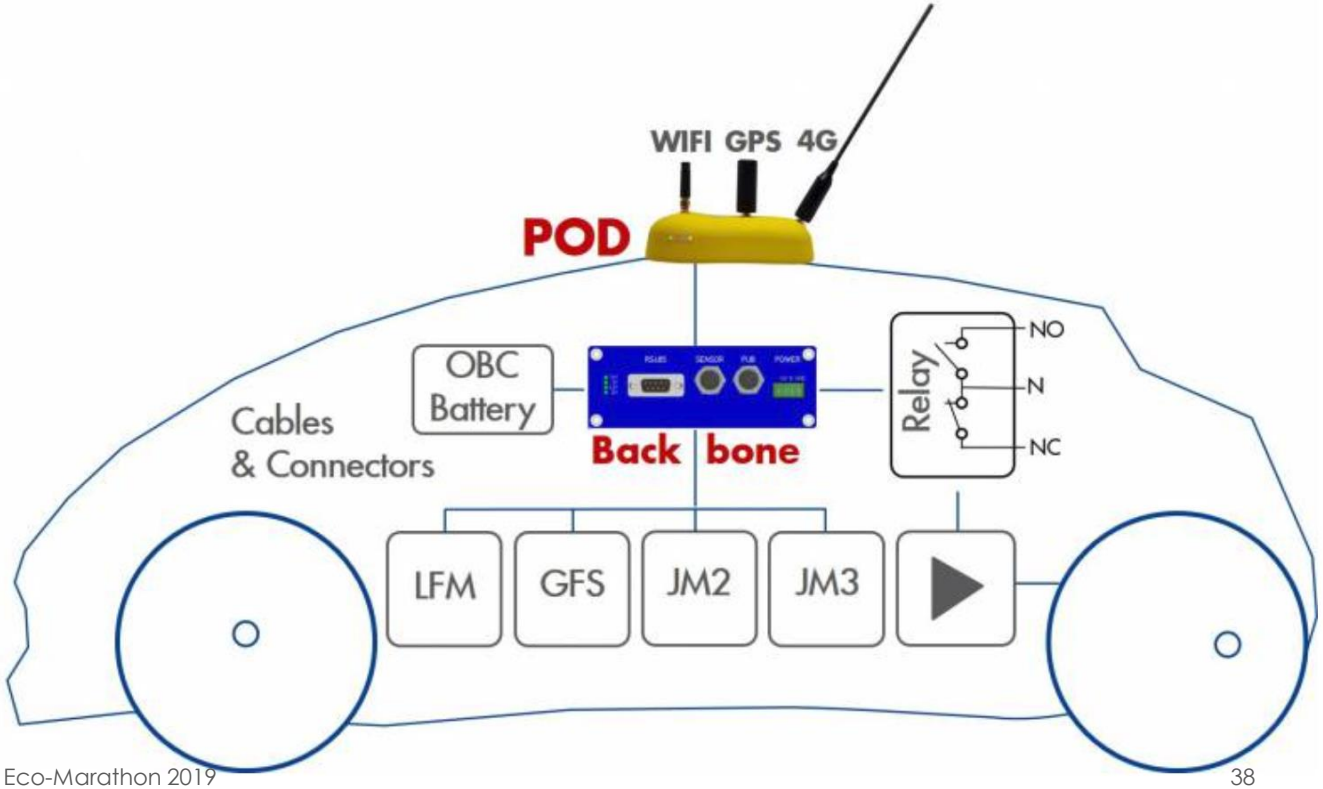
Recent Changes Media Manager Sitema

Trace: • start • intro

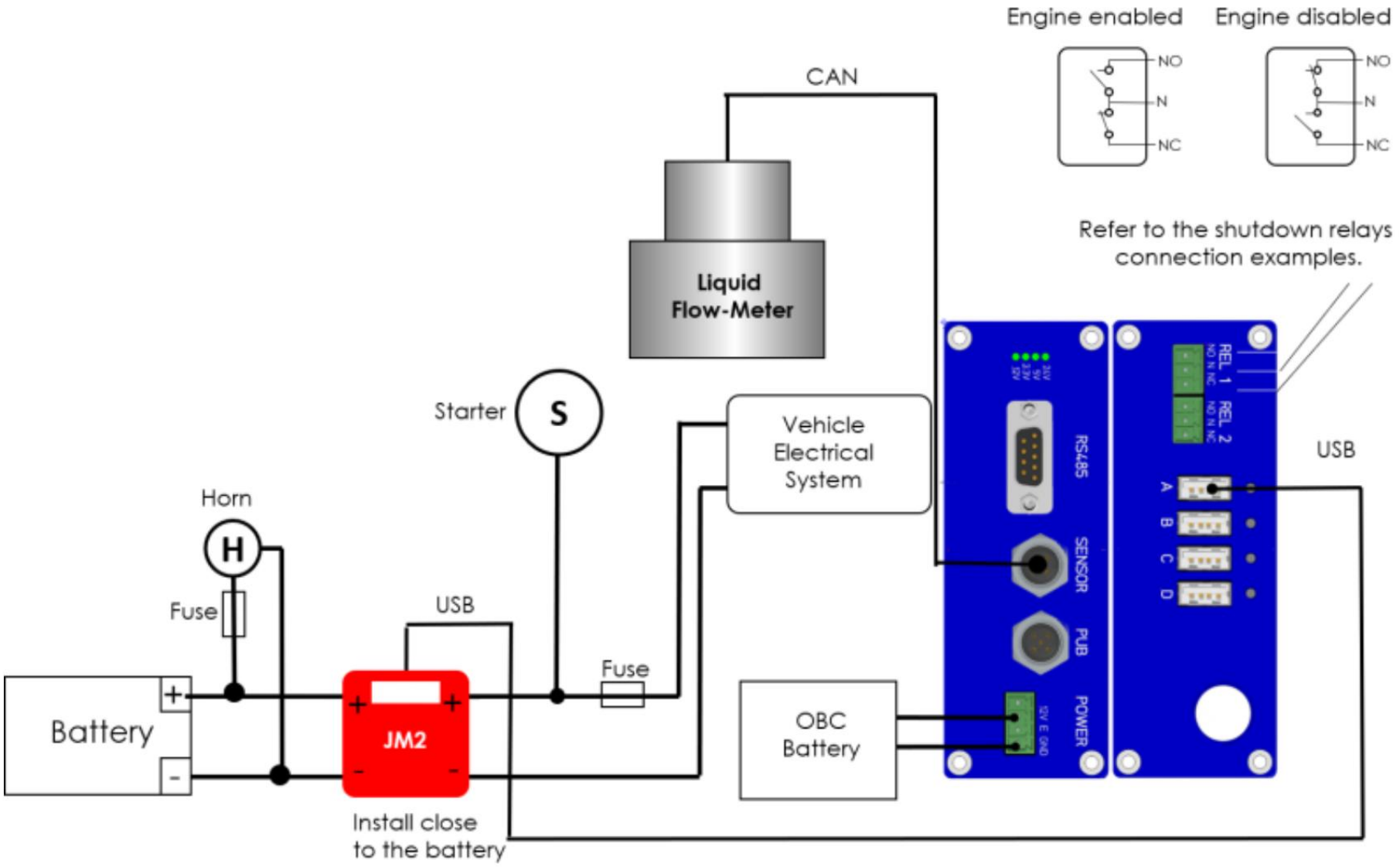
student_documentation:intro

- Home
- Student Documentation
- Team Telemetry Data
- Volunteers
- Telemetry Team
- Frequently Asked Questions

Student Documentation



https://telemetry.sem-app.com



https://telemetry.sem-app.com

FAQ

Your **Next** Steps

5.0

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http://www.sem-app.com/asia18/501

USER:

Password:

DO NOT COME TO TECHNICAL INSPECTION UNTIL:

- Hole drilled
- Joulemeter installed
- Liquid Flowmeter, Union and barbs installed on fuel line
- Battery fully charged
- Shutdown relay connected
- Printed technical documentation
- Battery installed

For documentation, FAQ and feedback, please **first** visit the WIKI:

telemetry.sem-app.com

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501 ICE

Get your

TELEMETRY KIT

at the

Distribution Desk

THANK YOU

Good Luck on the Track!