Energica Ego – the Italian Electric Sportbike
The Energica project was started in 2010 in Modena, Italy, by CRP Group, an international player for cutting edge CNC Machining, Additive Manufacturing with advanced Selective laser sintering materials Windform®.

Energica Motor Company srl was officially founded in 2014 with the aim of creating high-performance sustainable motorcycles.

The Energica concept comes from the eCRP 1.4, the runner-up World Champion and European Champion electric racing motorcycle.

Energica benefits from the close relationship and consultation with parent company CRP Group. Energica first prototypes were manufactured using 3D printing, Windform® materials and F1 technologies.
Energica at a glance

- Synchronous oil-cooled motor (100 kW, 195 Nm, top speed 240 km/h)
- No gearbox or clutch
- ABS system (Bosch)
- High-energy lithium-polymer batteries (range 100 km)
- 110-220 V on board battery charger
- Digital dashboard (4.3 inches TFT color display)
Vehicle Technical Functions

The main functions are:

- Vehicle Power Management
- RESS Management
- Drive train Control (Drive By Wire, Enable/Disable Sequences, Error Handling)
- User actions handling
- On-Board Diagnostics
- Vehicle and User Safety
- Data Logging
Rechargeable Energy Storage System Management (1)

- Main ECU manages charge and discharge control together with Battery Management System (BMS) and Charge Manager ECU (CM);
- CM supports connection with Mode 1, 2, 3 or 4 charge;
- BMS monitors Cell Voltages, Temperature, calculates battery state of charge (SOC), state of health (SOH) and current rating;
Rechargeable, Energy, Storage System Management (2)

- Energica Ego can be recharged in 3.5 h (0-100% SOC) in MODE 1, 2 OR 3 CHARGE and in 30 min (0-85% SOC) in MODE 4 DC FAST CHARGE

- Energica Ego can be recharged through the columns in the outdoor charging stations or at home.

- All charging parameters can be displayed directly on the dashboard or remotely via Bluetooth connectivity/GPRS

- The vehicle's on board charging socket is equipped with automatic locking device cable.
Drivetrain Control

✓ The Drivetrain (Motor and Power Converter) power supply and behaviour is under main ECU control. In particular:

- Drivetrain Control;
- Ride By Wire Control;
- Dynamic Stability Control;

✓ Motor Drive is a 100kW liquid cooled inverter. Inverter has a CAN interface to provide:

- Motor Control;
- Diagnostic and Monitoring Functions;
- User Adjustable Configuration;
Main ECU can handle all User Controls including:

- Throttle Control;
- High/Low Beam Control;
- Horn;
- Brake Switch;
- Engine Start;
- Turn Indicator Switches;
- Mode Select Switch;
HMI Interface: Dash

- Interface bike electronics to the driver;
- Display live data to the driver;
- Store information;
- Log data;
- Provide GPS and short range connectivity via Bluetooth connection;
- Four different display mode: Check Screen, Driving Perspective, Main Menu, Charge:
  - Diagnostic Info Page (Main MENU) :
    - Mimic Diagram of the vehicle;
    - Active Zone at are connected with specific grouped diagnostic code;