EC52377B01
Datasheet

V 1.4

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Chapter 1 System Introduction

EVCC (Electric Vehicle Communication Controller) is an abbreviation for Electric Vehicle Communication Controller. It is a key core component in the overall charging solution, used to handle communication and interaction information during the charging process, ensuring the smooth progress of the charging process in accordance with the CCS (Combined Charging System) standard. It supports advanced PLC (Powerline Communications) communication methods.

1.1 Functions

EC52377B01 has the following functions:

Table 1.1.1.1 EC52377B01 Features

Functions
1-channel key signal (KEYON)
1-channel hard-wired wake-up signal (ENABLE)
2-channel power voltage (BATT)
2-channel CAN communication interface (supports CAN flashing): CAN0 supports specific frame wake-up
1-channel PLC communication interface (PLC – CP, PP, PE, CC2), supports CP wake-up
1-channel RS232 communication interface (not soldered by default, can be modified)
1-channel H-bridge output
2 digital signal input ports, Active-Low
5 analog signal input ports, including 1 resistive AI and 4 PT1000 sensor inputs. (NTC is optional)
6-channel high-side driver control output, of which 6 channels can be configured as PWM output
Hardware watchdog
RTC Function

1.2 Mechanical Properties

The housing of the EVCC is die-cast aluminum and assembled with a silicone seal. There is no special treatment or plating on the outside of the housing, no sharp burrs, and sharp edges.

The nominal dimensions of the housing shape of the EVCC are 132*160*40 (excluding the female end of the EVCC connector, in mm):

Please use a Torx T15 screwdriver to disassemble and assemble the housing.

The EVCC housing is affixed with a product identification label containing the product identification code, including customer information, production date, batch number, serial number, etc.

1.3 Technical Specs

Feature	Detail
Micro Control Core	32-bit SAK-TC377TP-96F300S AA
Maximum Frequency	300MHz
Flash	6M
SRAM	1.1M
Float Point Capability	Yes

1.4 Power Supply

The EC52377B01 requires two continuous power supplies (M3, M4) to power on the EVCC via a key switch (K3).

A 5A fuse in series with M3 and M4 is recommended for EC52377B01 power supply. For specific fuse selection, customers are advised to select a fuse of appropriate specifications based on the actual application scenario.

1.5 Description of Bootloader

The EC52377B01 BootLoader supports the UDS protocol by factory default.

Chapter 2 Technical Performance

2.1 Electrical Characteristic Parameters

Characteristic	Design Specification
Operating Voltage	DC 12/24V (9~32V)
Operating Temperature	-40~85 °C
Operating Humidity	0~95%, no condensation
Storage Temperature	-40~85 °C
Quiescent Current	<2mA
Rated Power Consumption	3W (not including load power)
Protection Level	IP67
Weight	≤700g
Dimensions	158*132*38.5 mm
Housing Material	Die-cast Aluminum
Housing Characteristics	Equipped with waterproof ventilation valve, good heat dissipation

2.2 Electrical Performance Test Standards

Item	Test Standard
DC Supply Voltage	ISO 16750-2
Overvoltage (12V, high temperature)	ISO 16750-2
Supply Voltage Ramp Down and Ramp Up	ISO 16750-2
AC Voltage Superposition Test	ISO 16750-2
Reverse Voltage	ISO 16750-2
Low Voltage Reset Feature	ISO 16750-2
Low Voltage Startup Feature	ISO 16750-2
Open Circuit Experiment - Single-Line Interruption	ISO 16750-2
Open Circuit Experiment - Multi-Line Interruption	ISO 16750-2
Short Circuit Protection	ISO 16750-2
Withstand Voltage	ISO 16750-2
Insulation Resistance	ISO 16750-2

2.3 Environmental Test Standards

Item	Test Standard
Waterproof (IP67)	IEC/EN 60529
Dustproof (IP67)	ISO 20653
Salt Spray Leak Function and Corrosion Test	ISO 16750-4
Mechanical Vibration Shock Test	ISO 16750-3
Vibration Test	ISO 16750-3
Drop Test	ISO 16750-3
Temperature Shock	ISO 16750-4
Electrical Operation at Cycling Ambient Temperatures	ISO 16750-4
High and Low Temperature Operation Experiment	ISO 16750-4
High and Low Temperature Experiment	ISO 16750-4
Temperature and Humidity Cycle	IEC 60068-2-30
Constant Temperature and Humidity	ISO 16750-4

2.4 EMC Test Standards

Item	Test Standard
Transient Conducted Emission	ISO 7637-2
Conducted Emission Experiment CE-V	CISPR25
Conducted Emission Experiment CE-C	CISPR25
Radiation Emission Experiment RE-ALSE Method	CISPR25
Radiation Immunity Test (I/O)-ICC Method	ISO 7637-3
Radiated Immunity Test BCI-substitution Method	ISO 11452-4
Radiation Immunity Experiment RI	ISO 11452-2
Low Frequency Magnetic Field Immunity	ISO 11452-8
Electrostatic Discharge (ESD)	ISO10605

Chapter 3 Installation Requirements

It is recommended to install the EVCC in the cockpit. If the OEM wants to assemble the EVCC in another location, Ecotron's engineers and the OEM's engineers should evaluate the corresponding installation location together.

Precautions for EVCC installation are as follows:

1) The installation of EVCC and harness shall be firm and reliable without looseness, and please avoid supporting the harness through EVCC. At the same time, the layout of EVCC harness shall protect all wires in the harness from damage due to wear and overheating.

2) Try to avoid installing in the place where dust is easy to gather. A large amount of dust accumulation will affect the reliability of the EVCC.

3) It shall be kept away from the position where the temperature of its shell may exceed 85 ° C as far as possible, and the heat released by surrounding parts shall be prevented from radiating to EVCC.

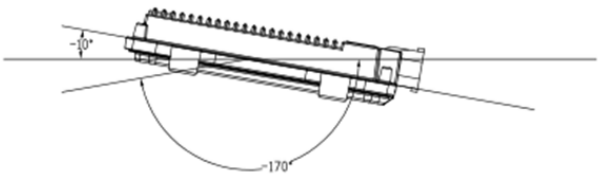
4) Avoid installing EVCC in places where oil, moisture and water droplets are easy to splash.

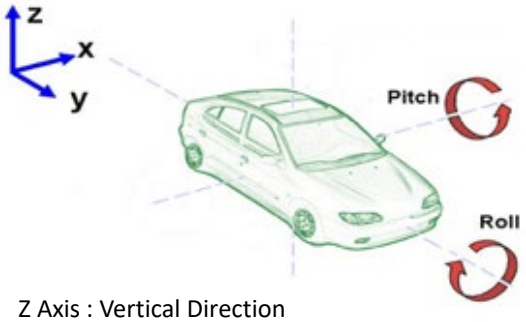
5) Avoid the possibility of additional mechanical vibration and external force impact due to the installation position and fixing method of EVCC and avoid installing EVCC at the resonance point of vehicle body.

6) Avoid installing the EVCC near the parts that may contact the battery or other acid-base solutions that are easy to seep out, and the places where the EVCC is easy to be corroded.

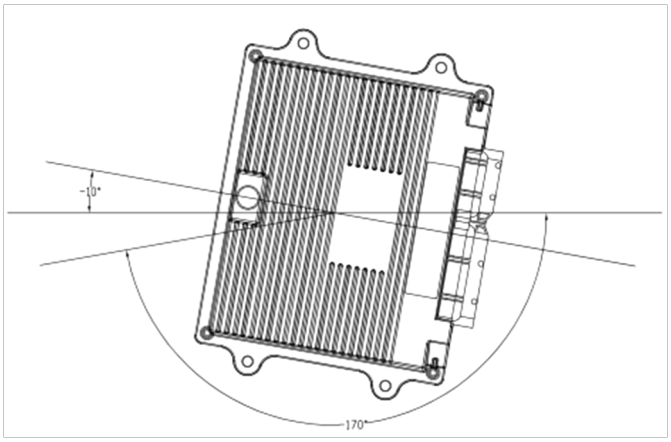
7) Avoid installing the EVCC near the positive terminal of the battery and the terminal of the ignition power supply.

8) The EVCC shall be installed at a certain angle to avoid the inflow of water from the connector. In the horizontal direction, the recommended installation angle is - 170 ° to - 10 °. In the vertical direction, the recommended installation angle is - 170 ° ~ - 10 °. As shown in the figure below.





Z Axis : Vertical Direction
X Y Axes : Horizontal Direction



ECOTRON recommends using the four mounting holes on the EVCC for installation. It is recommended to use metal materials such as aluminum alloy for the mounting bracket. The housing should have a reliable electrical connection with the vehicle body through the bracket.

If other materials are used, the customer must ensure that they can meet the requirements of EVCC for vibration, heat dissipation, temperature, EMC, etc. If there is any deviation, it needs to be confirmed with ECOTRON.

The EVCC system connects to ground through the vehicle's body. The specific requirement is to directly connect the ground wire in the wiring harness to the vehicle's body and ensure reliable electrical connections.