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REVISION	DATE ISSUED (DD/MM/YYYY)	DESDRIPTION	PM
V1.0.3	26/07/2019	PATENTS ADDED	ALISA CHEN
V2	15/05/2021	CAN ID ADDED	ALISA CHEN
V2.1	10/07/2021	Modified on page 4_Kbps	ALISA CHEN
V2.2	14/07/2021	Modified Molex connector on page 5	ALISA CHEN
V3	27/07/2022	Modified on page 4_connector pins	ALISA CHEN
V3.1	21/09/2022	Modified on page 3_Supported	ALISA CHEN

CCS communication module
MODEL NO. AT-EVCC-500

Legal Information

Patents

The technology discussed in this document is protected by one or more of the following patent grants:
U.S. Patent No. x,xxx,xxx, y,yyy,yyy. Canadian Patent No. xx,xxx,xxx, and so on. Other relevant patent grants may also exist.

Table of Contents

1 OVERVIEW

AT-EVCC-500 is an **E**lectric **V**ehicle **C**ommunication **C**ontroller (EVCC) within the EV for rapid charging in accordance with the international standard DIN SPEC 70121 and the ISO/IEC 15118 that are core parts of the **C**ombined **C**harging **S**ystem (CCS). For charging communication between EV and **E**lectric **V**ehicle **S**upply **E**quipment (EVSE), it supports **C**ontrol **P**ilot (CP), PP **P**roximity **P**ilot (PP) as well as PWM signaling including Home Plug Green PHY communication. Moreover, the charging CAN-BUS control and IEC-61851 functionality has already been integrated to offer optimal flexibility and efficiency.

Figure 1: Image of AT-EVCC-500

Specification

1.1 Supported Standards

- HomePlug Green PHY™ 1.1(IEEE 1901)
- ISO/IEC 15118-2, DIN SPEC 70121
- IEC61851-1, IEC 61851-23, IEC 61851-24
- GB/T 27930-2015, GB/T 18487.1-2015 (Physical Layer conforming to this standard shall refer to ISO 11898-1:2003 and SAE. J1939-11: 2006. The communication between charger and BMS in this standard)
- ISO/IEC 15118-20 & TLS will be supported in Q2 2023

1.2 Technical Data

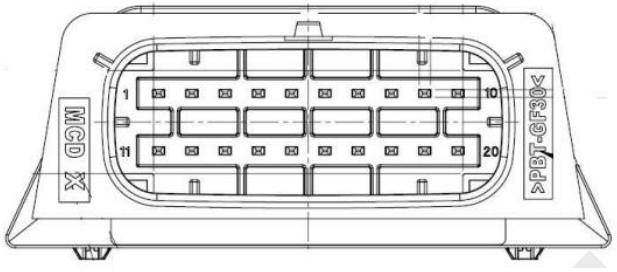
- Communications
  - 2 x CAN:
    - 1 x CAN 2.0B, 250Kbps, Charging CAN(INTL CAN between EVCC & BMS)

- 1 x CAN-FD, 500Kbps, UDS CAN(PT CAN between EVCC & VCU))
  - 1 x Power Line Communication (Spectrum: 2~30MHz)
- Wake-up Mechanisms
  - Vehicle CAN
  - Control Pilot
  - Real Time Clock
  - Reserved digital IO
- Connector Interlocking
  - Support 3-wire/4-wire Inlet Actuator
  - Interlocking of the connector with the inlet during charging process
  - Read-back channel to check if connector is properly plugged and locked
- Power Dissipation
  - Active: 145mA (Vin DC12V)
  - Standby: **60uA**

2 INTERFACE

2.1 Definition: CAN ID

CAN BUS SPEED: 250 / 500 Kbps (OPTIONAL)



Pin	Symbol	Type	Description
1	KL30	Analog Input	Auxiliary Battery Power supply
2	KL15/ACC	Digital Input	Ignition
3	INT-CANL	Digital Input/output	Internal CAN Low
4	PT-CANL	Digital Input/output	PT CAN Low
5	LOCK-F	Digital Output	Lock– Forward, Lock
6	LOCK-R	Digital Output	Locker – Reverse, Unlock
7	AUX-PWR	Digital Output	Auxiliary power output - 12V@50mA （GB Detection）
8	CC2	Digital Output	GB/T Connect Confirm 2
9	PP	Digital Input	Proximity Detection
10	CP	Analog/Digital Input	Control Pilot
11	KL31	GND	Auxiliary Battery GND

12	KL31	GND	Auxiliary Battery GND
13	INT-CANH	Digital Input/output	Internal CAN High
14	PT-CANH	Digital Input/output	PT CAN High
15	LOCK-P	Digital Input	Lock-Feedback
16	LOCK-G	GND	Lock-GND
17	AUX-PWR-Return	GND	Auxiliary power GND
18	DO	Digital Output	Wake-up other ECU，use High-SideSwitch
19	DI*	Digital Input	Reserved
20	PE	GND	Chassis Ground

3 TECHNICAL CHARACTERISTICS

3.1 Physical Features

Item	Description
Operation Voltage	+9V~ 32V DC
Operation Temperature	-40℃ ~ +85℃
Storage Temperature	-40℃ ~ +105℃
Operation Humidity	0 ~ 90%RH
Housing Degree of Protection	IP67
Fire Rating	V-0
Dimensions (L*W*H)	147mm * 140mm * 31mm
Header and Connector	RECEPTACLE 0348302001 PLUG 0334722001

3.2 Wiring Harness Recommendations

Wiring Harness	Rate Voltage	Peak Current	Type	Diameter (mm^2)
CP/PE			Twisted-Pair	0.75
PT_CAN			Twisted-Pair	0.75/0.5
INT_CAN			Twisted-Pair	0.75/0.5
KL30	24V	0.5A		0.75
KL31	24V	0.5A		0.75

Molex CONNECTOR

PART NAME	MODEL NUMBER	REFERENCE
RECEPTACLE	0348302001 https://www.molex.com/webdocs/datasheets/pdf/en-us/0348302001_PCB_HEADERS.pdf	
PLUG	0334722001 https://www.digikey.cn/zh/products/detail/molex/0334722001/1756781?amp%3BWT.z_header=search_go&s=N4IgTCBcDaIMxwCwHYxgAzoIwgLoF8g	

4 TYPICAL SYSTEM WIRING SCENARIO

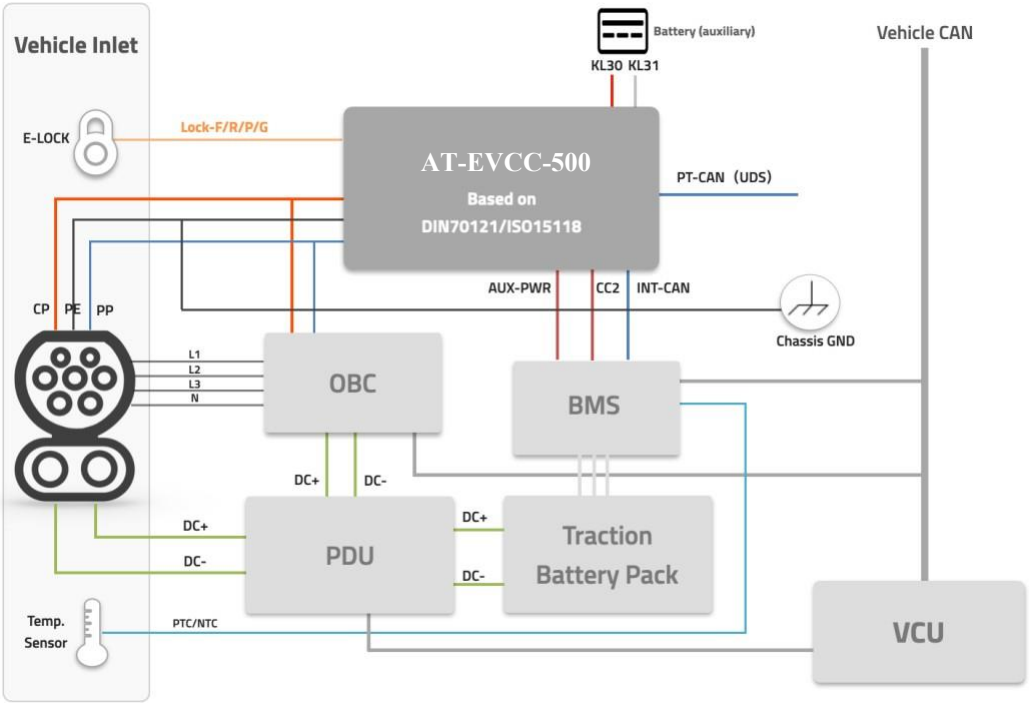


Figure 4: Typical System Wiring Scenario of AT-EVCC-500

5. ORDER INFORMATION

Model No.	CAN Code	VERSION	SW
AT EVCC-500	**AT-E1111-1**	**V1.0.1**	ISO15118-2 ED1 DC + DIN70121 Combo Stack

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