

5014000040

European Standard

7kW 1P Single Gun

AC Main Control Board

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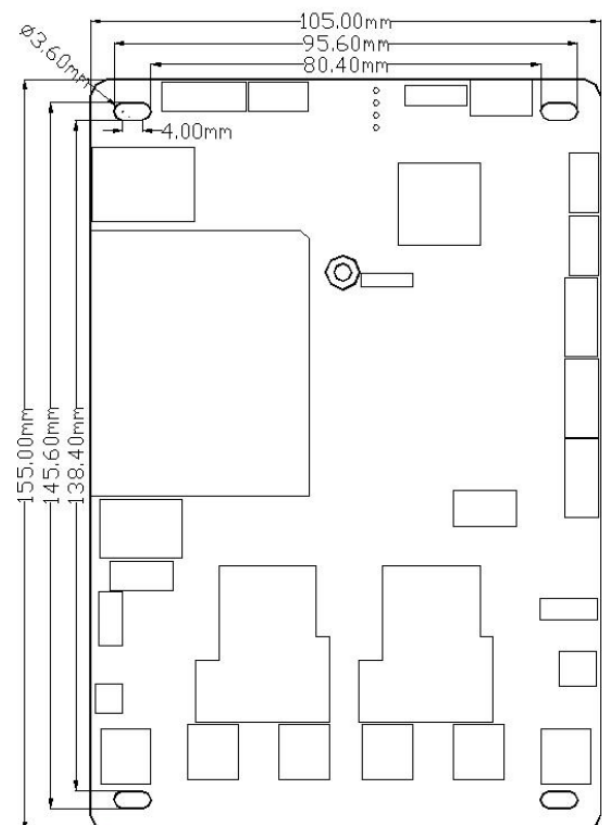
Introduction:

5014000040 main control board for single-gun AC charging piles is powered by a highly reliable integrated ACDC module and supports multiple charging methods such as plug-and-charge, card swiping, and QR code scanning. It includes a high-precision metering unit and supports multi-period and multi-tariff billing modes. It integrates various protection functions including emergency stop detection, door open detection, overvoltage, undervoltage, overcurrent, undercurrent, CP pin disconnection, and CP grounding. It also supports the latest national standard Type A + DC 6mA leakage detection function and voice broadcast function.

Features:

- The hardware supports simultaneous integration of four networking modules: Ethernet, 4G, Bluetooth, and WiFi, allowing free switching of connection methods via the on-screen interface;
- Features onboard OCPP1.6J communication protocol, scalable to OCPP2.0; supports splash screens and connects to overseas main control board maintenance platforms;
- Compatible with various displays (typically 4.3/7-inch), supports multi-language display, and allows UI customization;
- Supports multiple charging methods including Plug & Charge, card swiping (POS machine supported), password authentication, and QR code scanning;
- Supports integration with EMS systems, power limiting, remote diagnostic logs, and OTA upgrades (via operation platform, maintenance platform, or device screen update).

Product Appearance & Size:



Interface Definition Description:

This product has multiple functional interfaces for controlling the operation of each component of the charging pile. All pins are defined as follows:

Port group name	Match all ports	Port definition	Function Description
ETHERNET	RJ45	Ethernet Module Interface	Built-in Ethernet
SCREEN	5V, GND, TX RX, NC, GND	External display interface with TTL level and serial communication, providing 5V power to the display. The motherboard TX connects to the display RX, and the motherboard RX connects to the display TX.	External display reserved
LED	3V3, R, B, G	External power strip interface, providing 3.3V power to the light strip. R connects to the alarm light, B to the charging light, and G to the standby light.	Reserve an external indicator strip
NETWORKING MODULE	4G / WIFI	Insert 4G module, WIFI and Bluetooth module	Reserved external networking module
SWD	CLK, DIO, GND 3.3	SWD joggle	Local firmware upgrade interface
RESERVED	12V, GND, DO3, DI3	Reserved	Reserved
RF	5V, GND RX, TX	External card reader interface with 232 level serial communication, providing 5V power to the card reader. The motherboard TX connects to the card reader RX, and the motherboard RX connects to the card reader TX.	Reserve external card reader communication
DEBUG	GND, RXD TXD, 5V	On the motherboard, TX, RX and GND are respectively connected to the RX, TX and GND of the serial port cable.	Debug serial port
DI2	DI2	In, normally open	Reserved
DI1	DI1, GND	In, normally open	Stop detection, alarm when closed
METER	NC, GND, 485A 485B	External meter interface, RS-485 level, DL/T645-2007 communication protocol	Reserve an external meter
CP	CP, PE	CP interface, connect the CP and PE wires of the charging gun	CP joggle
HALL	Current CT	External current transformer. The charging gun's L line passes through this transformer.	Current Transformer (CT) Interface
USB1	USB1	UBS Type-A	Reserved
L-IN	Enter the fire line	Enter the fire line	Electric Input
N-IN	Neutral line in	Neutral line in	
L-OUT	On the line	Hot Wire Out to Charging Port L	Power output
N-OUT	Neutral line out	Neutral wire to charging gun N	
PE	Ground lead	Power ground wire and charging gun ground wire converge	Ground lead
A+6	TypeA+ DC6mA	External Type A+ DC6mA power supply. Both the L and N lines of the motherboard power supply pass through this detection module.	TypeA+DC6mA leakage detection module interface

Technical Parameter:

Model	5014000040
Power	7 kW (1P)
Input Voltage	85V-305V
Input Current	0~32A
Card Reader Interface	RS 232 Support /customized agreement
Display Interface	The TTL supports a 4.3-inch color touch display
Indicator Light Interface	RGB Green (standby) Blue (charging) Red (fault)
Emergency Stop DI Interface	Normally open
Threshold DI Interface	Normally open
Board-mounted Metering	Support, accuracy level 2.0
Leakage Detection	Optional TypeA+DC6mA
Network Communication Interface	Optional Ethernet /4G/ Bluetooth/WiFi
Working Temperature	-20°C~ +65°C
Storage Temperature	-40°C~ +85°C
Motherboard Size	155 mm*105 mm
The compliance of the lead-free requirements	Lead free/conforms to Directive (RoHS 3) on the restriction of hazardous substances

Parameter Configuration:

- Use USB to 232 serial cable to connect the computer and motherboard, through the configuration tool software " ParamConfigTool. exe" to configure local parameters;
- In the case of networking, remote parameter configuration is carried out through the first power "master control board full life cycle management platform".

Typical Applications:

As the main control board in automotive AC charging piles, it is widely used in wall-mounted, portable and column-mounted AC dual-gun charging piles.

Installation Instructions:

Installed in a waterproof plastic or sheet metal housing.

Disclaimer:

The product will be continuously upgraded and iterated, as well as make technical modifications. Subsequent product assembly and technical parameters will have corresponding changes. This document is an introduction to the main control board; the images, data, and descriptions contained herein are not used as the basis for order acceptance. OSWELL reserves the final right of interpretation for this document.