Class 1

Product Specification

Vehicle Charge Inlet

Type CCS 2

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1. SCOPE

1.1. Introduction

The TE CCS2 charging inlet was designed to power electric and hybrid vehicles that comply with IEC-standard 62196. The maximum rated current for AC is 32A and for DC it is 200A at the maximum voltage of 480V for AC and 1000V for DC.

The content of this specification covers the technical characteristics, performance and test requirements for the EV CHARGE INLET Combined Charging System Type 2 further mentioned as CCS2.

When tests are performed the following specifications and standards shall be used. All inspections shall be performed using the applicable inspection plan and customer drawing.

2. APPLICABLE DOCUMENTS

The following mentioned documents are part of this specification. Unless otherwise specified, the latest edition of the documents applies. In the event of conflict between the requirements of this specification and the information contained in the referenced documents, this specification shall take precedence.

2.1. TE Connectivity Documents

General Requirements

Requirement	Description
109-1 Rev. J	General Requirements for Testing

Drawings

Drawing	Description
CD-2337016	CHARGE INLET, ASSY, CSS2 KIT

Specifications

Specification	Description
114-94650	Application Spec. Vehicle Charge Inlet CCS 2 (90°)
114-94651	Application Spec. Vehicle Charge Inlet CCS 2 (180°)
114-94436	Crimp Spec. (90° DC-Contact)
114-13000	Micro MATE-N-LOK Connectors
108-94519	Actuator-Specification

2.2. Other Documents

Specification	Description
IEC 62196-1: 2014/06	General requirements
IEC 62196-2: 2016/02	Dimensional compatibility and interchangeability requirements for AC pin and contact-tube accessories
IEC 62196-3: 2014/06	Dimensional compatibility and interchangeability requirements for DC and AC/DC pin and contact-tube vehicle couplers

3. REQUIREMENTS

3.1. Design and Construction

The product has been designed to withstand its environment and the effects it has on it.

3.2. Material

The Material data is available in the IMDS (International Material Data System of the Automotive Industry).

3.3. Product Ratings

Dimensions

Mating-Face Geometry	compatible with IEC 62196-2 Sheet 2-IIf and IEC 62196-3 Sheet 3-IVa
Screw Points	see Drawing

Environmental conditions

Ambient temperature (active, during charging)	-30 °C …. +50 °C
Ambient temperature (passive, no charging)	-40 °C …. +85 °C
Max. altitude	5000m above sea-level
Protection degree	IP 55 (Mating face when mated with CCS2 vehicle connector acc. IEC62196-3 or Type2 vehicle connector acc. IEC62196-2 with flap assy 9- or 8-2337030-2 to cover the DC portion.) IP 67 (Rear Cover)

Electrical Properties

Max. charging performance	22 kW (AC) / 200 kW (DC)
Type of charging current	AC / DC
Number of AC-phases	3
Number of Terminals	9 (PE, L1, L2, L3, N, DC+, DC-, CP, PP)
Rated current	32A AC / 200A DC
Rated voltage	480V AC / 1000V DC
Signal pin rated current	2A
Signal pin rated voltage	30V
Type of signal transmission	Analog
Insulation resistance of adjacent contacts	200MΩ
Resistor coding	acc. IEC 61851-1

Mechanical Properties

Mating / un-mating endurance	10000 cycles
Insertion force	typical <100N (depending on connector)
Retention force	typical <100N (depending on connector)
Mechanical Stability of charging socket	500N in all directions (Lever-Length 100mm)
Vibration Level	LV214 PG17 Severity 2 (Body mount)

Temperature Sensoring

Temperature Sensor Type	NTC
Recommended measuring current	nominal 0.1mA / max. 1mA (1V at 0°C)
Proposed Shutdown DC	85°C measured temperature at Sensor (Equivalent to max. contact temperature 90°C)
Proposed Shutdown AC	78°C measured temperature at Sensor (Equivalent to max. contact temperature 90°C)

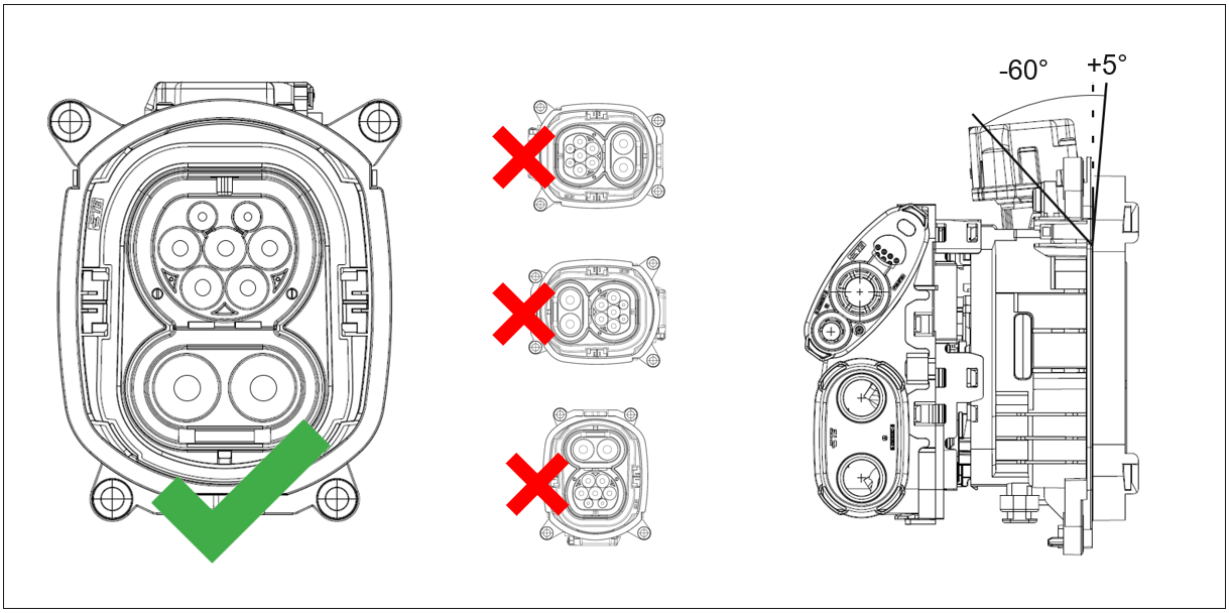
*Shutdown NTC-Values include safety margin

Actuator

see TE Actuator-Specification TE-108-94519

Installation

Orientation	see pictures
Max. Angle	180° -60°/+5°



3.4. Performance and Test Description

Specification	Description
ISO20653	IP67 – Fixed cable side (Rear Cover) IP55 – Water and Dust Protection (vehicle inlet mated)
IEC 62196-1:2014	Plugs, socket-outlets, vehicle connectors and vehicle inlets – Conductive charging of electric vehicles – Part 1: General requirements
IEC 62196-2:2016	Plugs, socket-outlets, vehicle connectors and vehicle inlets – Conductive charging of electric vehicles – Part 2: Dimensional compatibility and interchangeability requirements for a.c. pin and contact-tube accessories
IEC 62196-3:2014	Plugs, socket-outlets, vehicle connectors and vehicle inlets – Conductive charging of electric vehicles – Part 3: Dimensional compatibility and interchangeability requirements for d.c.and a.c./d.c. pin and contact-tube vehicle couplers
Additional: selected tests of automotive standards LV124, LV214, LV215-2	

LTR	REVISION RECORD	DWN	APP	DATE
A	INITIAL DOCUMENT	M. MAENCHE	S. KUMAR	09 June 2020
A1	FORMAL CORRECTION	M. MAENCHE	S. KUMAR	11 June 2020
A2	PRODUCT RATINGS UPDATED	M. MAENCHE	S. KUMAR	11 Nov 2020
A3	PRODUCT RATINGS UPDATED	M. MAENCHE	S. KUMAR	29 Mar 2021
A4	INSTALLATION ANGLE UPDATED	M. MAENCHE	S. KUMAR	07 Jun 2021
A5	AMBIENT TEMPERATURE SPECIFIED	M. MAENCHE	S. KUMAR	14 SEPT 2021
A6	TEMPERATURE SENSORING IS UPATED IN PAGE 6	PRADEEP KUMAR	PHILIPP KOWARSCH	09 MAY 2023
A7	TEMPERATURE SENSORING AND MECHANICAL PROPERTIES AND ENVIROMNENTAL CONDITIONS AND ELECTRICAL PROPERTIES UPDATED IN PAGE 4	PRADEEP KUMAR K	FRANK WITTROCK	19 SEP 2023

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