

**Class 1**



**Product Specification**  
**AMP+ Charging Inlet Type 2**  
**Generation 1**

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## 1. SCOPE

### 1.1. Introduction

The TE AMP+ Charge Inlet is designed to charge battery electric and hybrid electric vehicles that comply with IEC-standard 62196, Type 2, with AC charge currents.

The content of this specification covers the technical characteristics, performance and test requirements for the EV CHARGE INLET Type 2.

When tests are performed the following specifications and standards shall be applied. 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
114-94163-2	CHARGE INLET, ASSY, Type 2, KIT
C-2177804	ACTUATOR LOCKING UNIT

#### Specifications

Specification	Description
114-94163-2	Application Spec. Vehicle Charge Inlet Type 2, general version

### 2.2. Other Documents

Norm and Standards	Description
IEC 62196-1: 2014/06	Plugs, Socket-outlets, Vehicle Connectors and Vehicle Inlets – Conductive Charging of Electric Vehicles - Part 1: General Requirements
IEC 62196-2: 2011/10	Dimensional compatibility and interchangeability requirements for AC pin and contact-tube accessories
IEC 61851-1: 2015/04	Electric Vehicle Conductive Charging System – Part 1: General Requirements
IEC 20653: 2013/02	Road Vehicles – Degrees of Protection (IP code)
DIN EN 60664-1: 01/2008	Insulation Coordination for Equipment within Low Voltage Systems

### 3. PRODUCT CHARACTERISTICS

#### 3.1. Design and Construction

The product has been designed for compatibility with the referred specifications and to withstand the environmental effects described there.

#### 3.2. Material

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

#### 3.3. Product Ratings

##### Dimensions and Configurations

Mating-Face Geometry	compatible with IEC62196-2 Standard Sh. 2-If
Cable Exit directions	see Drawing 114-94163-2
Mounting interface to vehicle	see Drawing 114-94163-2
Temperature Control with sensor	One or two temperature sensors can be applied see Drawing 114-94163-2 Consult TE Connectivity for measurement accuracy and temperature reading prior to setting up temperature control system!

##### Environmental Conditions

Operation temperature for charging process	-40°C ... +50°C
Ambient temperature for application in vehicle	-40°C ... +85°C
Protection degree	Front side: IP 44 (with mated Connector) Rear side: IP44 (cabling and rear cover) Water drain system for mating zone of inlet

##### Electrical Properties

Max. charging performance	max. 7,4kW single phase, 14,7kW two phase, 22kW three phase
Type of charging current	AC
Number and type of terminals	Single phase: 5 (PE, L1, N, CP, PP) Two phase: 6 (PE, L1, L2, N, CP, PP) Three phase: 7 (PE, L1, L2, L3, N, CP, PP)
Rated current	max. 32A AC
Rated voltage	max. 250V AC / 440V AC
Signal pin rated current	2A
Signal pin rated voltage	30V
Type of signal transmission	Analog

##### HV Insulation Coordination

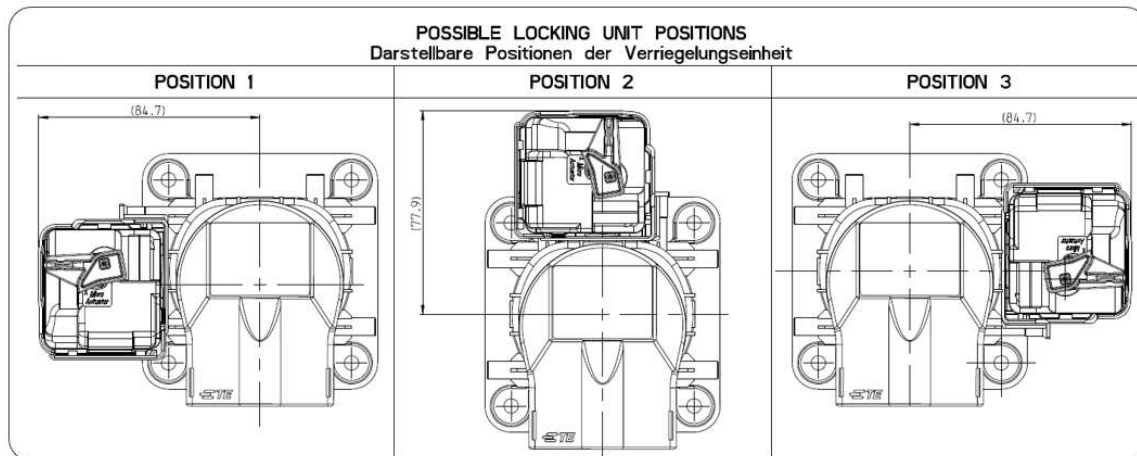
Max. altitude for operation	5000m above sea-level
Max. operation voltage	500V
Dielectric withstand voltage	4000V
Pollution Degree	3
Insulation resistance of adjacent contacts	min. 200MΩ

## Mechanical Properties

Mating / un-mating endurance	max. 10000 cycles
Connector mating force	typical <100N (depending on connector)
Connector retention force	typical <100N (depending on connector)
Mechanical Stability of charging socket	max. 400N vertically (Force applied 100mm from inlet front plane)
Vibration Level	LV214 PG17 Severity 2 (Body mount)
Protection degree	IPxxB (finger protection)

## Connector Locking

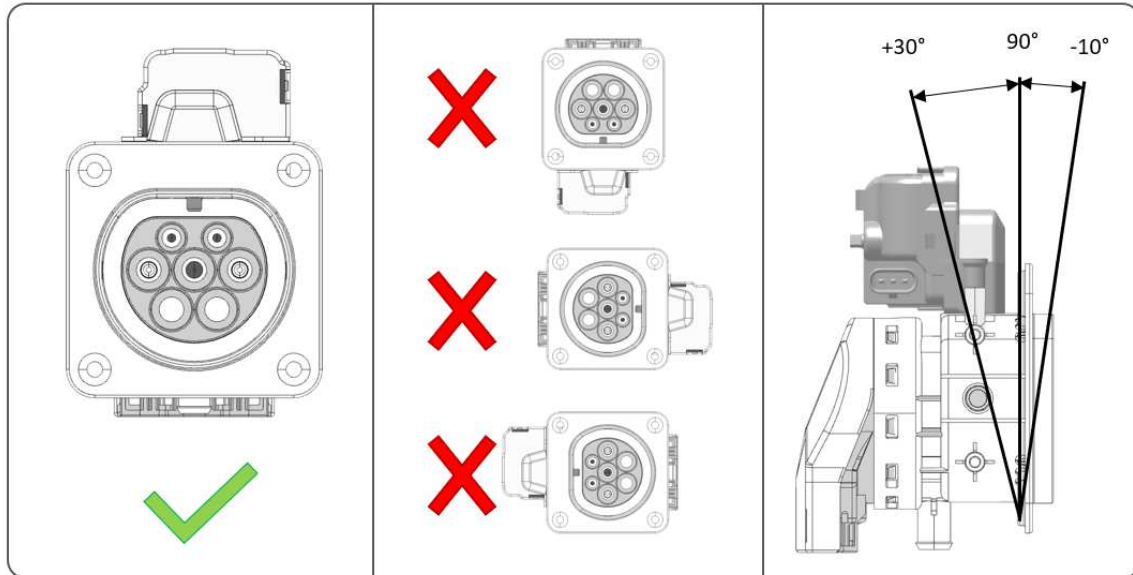
Assembly position of locking unit	Top, Left or Right
Locking method	Pin travelling inboards into connector lock window
Lock confirmation signal switch	When reaching lock position
Operation voltage	9 ... 15,5V
For full specification see Actuator Locking Unit drawing C-2177804	



## Installation

Orientation  
Max. Angle

see picture below  
 $90^{\circ} +30^{\circ} / -10^{\circ}$



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LTR	REVISION RECORD	DWN	APP	DATE
A	INITIAL DOCUMENT	D. WEYRAUCH	F. WITTROCK	16 Apr 2021
B	SHEET 5: QUANTITY AND TERMINAL DETAILS FOR 2-PHASE VARIANT ADDED IN ELECTRICAL PROPERTIES	ARUN.N	KAREPPA.K	20 APR 2022