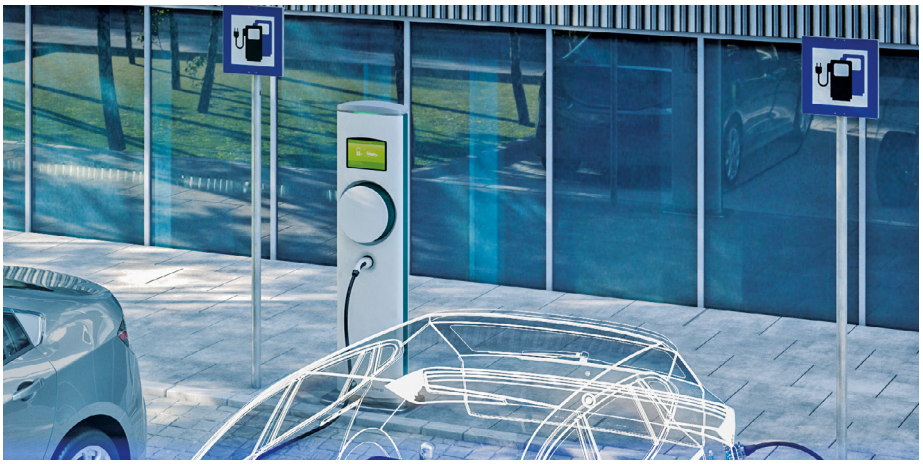
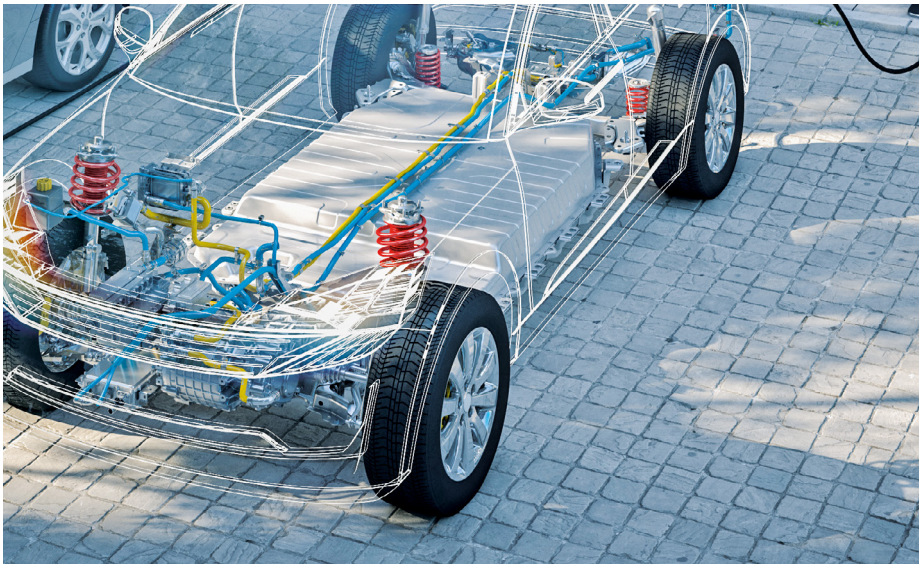
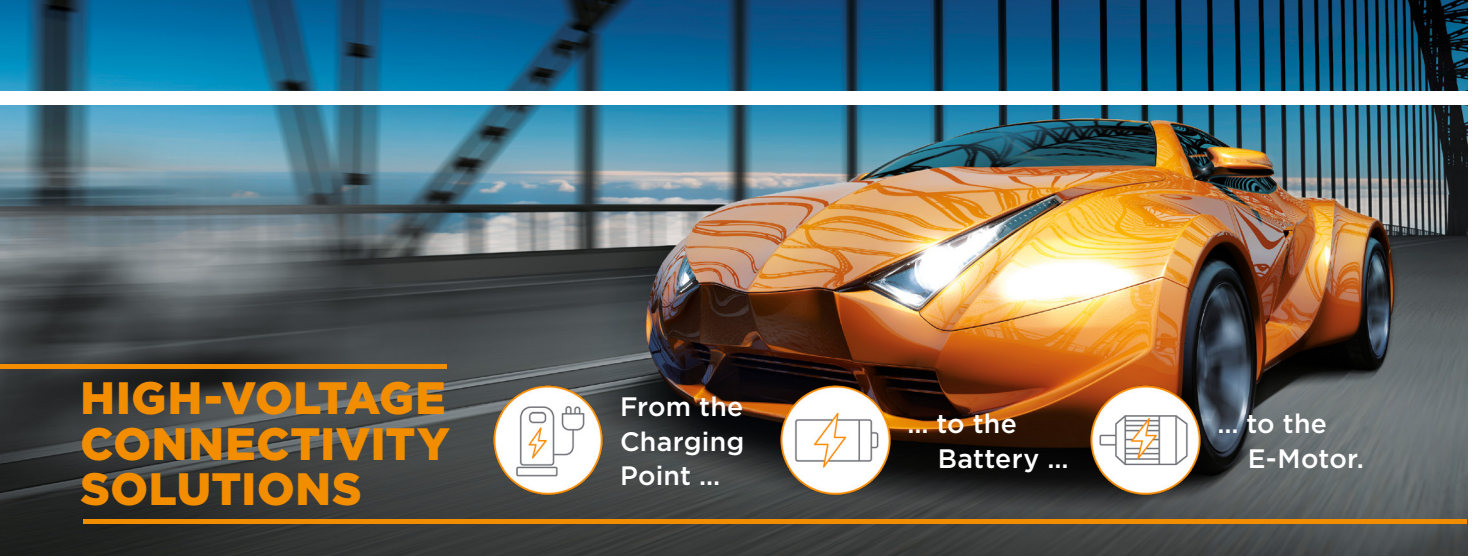
NEXT GENERATION AMP+ CHARGING INLETS

HYBRID & ELECTRIC MOBILITY SOLUTIONS







HIGH-VOLTAGE CONNECTIVITY SOLUTIONS

TE Connectivity's (TE) portfolio of connectivity solutions for hybrid and electric vehicles cover the entire range of electric powertrains, providing a complete line of connectors, relays, contactors, harnesses and disconnects to safely connect and protect the power flow.

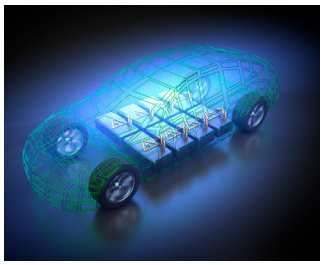
Our hybrid and electric mobility connectivity technologies leverage decades of experience with high-voltage generation, transmission and distribution. These are classified in the following four application areas:

HV AUXILIARY MODULES

- DC / DC Converter
- On-Board Charger
- HV Heater
- HV Climate Compressor

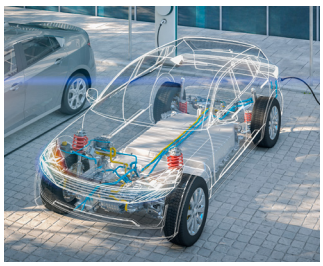
HV POWERTRAIN

- Inverter
- E-Motor
- HV Battery



BATTERY CONNECTIVITY

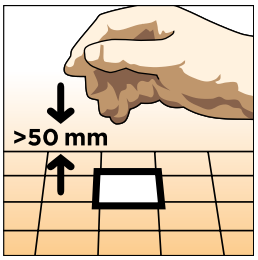
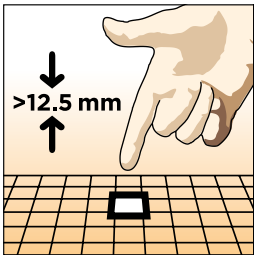
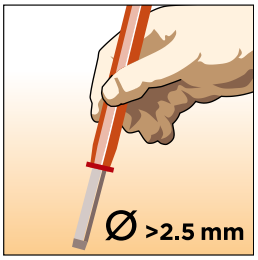
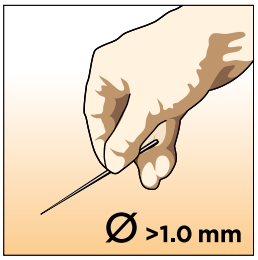
- Battery Modules
- Battery Protection
- Battery Cells



CHARGING INLET

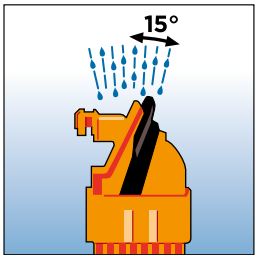
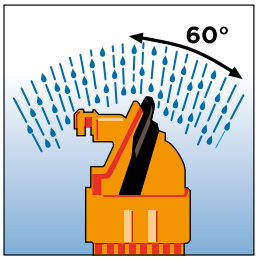
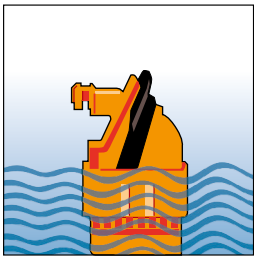
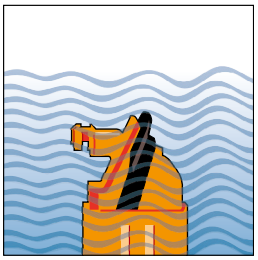
- AC charging
- Fast charging:
  combined charging system (CCS)

IP Code | Elements and Significance acc. to IEC 60529 and DIN 40050

1st Digit	Against Foreign Objects (incl. Dust)	
0		Not protected.
1		Protected against solid objects greater than 50 mm (ex. back of hand).
2		Protected against solid objects greater than 12.5 mm (ex. finger).
3		Protected against solid objects greater than 2.5 mm (ex. tool).
4		Protected against solid objects greater than 1.0 mm (ex. wire).

1st Digit	Against Foreign Objects (incl. Dust)	
5K		Dust protected.
6K		Dust tight.

IP Code | Elements and Significance acc. to IEC 60529 and DIN 40050

2nd Digit	Against Water		2nd Digit	Against Water	
0		Not protected.	5		Protected against jetting water.
1		Protected against vertically dripping water.	6		Protected against powerfully jetting water.
2		Protected against dripping water when tilted up to 15°.	6K		Protected against powerfully jetting water with increased pressure (Automotive).
3		Protected against spraying water (up to 60° inclination).	7		Protected against the temporary effects of immersion up to 1 meter.
4		Protected against splashing water.	8		Protected against continuous submersion agreed with customer, but more severe than code 7.
4K		Protected against splashing water with increased pressure.	9K		Protected against high-pressure/ steam-jet cleaning (Automotive).

AMP+ Charging Inlets Generation 2

Current and Voltage Performance Overview





	Type 1 CCS *)	Type 2 CCS *)	Type 1	Type 2	Type GB AC
Applicable Standard	IEC 62196-3	IEC 62196-3	SAE J1772 (IEC 62196-2)	IEC 62196-2	GB/T 20234.2
Max. Rated Current					
AC Path	32 A	32 A	32 A	32 A	32 A
DC Path	200 A	200 A	–	–	–
Max. Rated Voltage					
AC Path	250 V	480 V / 250 V	250 V	480 V / 250 V	440 V / 250 V
DC Path	600 V	1,000 V	–	–	–

*) Combined Charging System (CCS)

Ingress Protection (IP) Performance

Inlet Type		Standard Applied	Ingress Protection (IP) Mated		Ingress Protection (IP) Unmated		Ingress Protection (IP) Backside	
			Required by Standard	TE Connectivity	Required by Standard	TE Connectivity	Required by Standard	TE Connectivity
	Type 1 CCS	IEC 62196-3	IP44	IP44	IP54	To be ensured by OEM	–	IP67
	Type 2 CCS	IEC 62196-3	IP44	IP44	IP54	To be ensured by OEM	–	IP67
	Type 1 AC	SAE J1772 (IEC 62196-2)	IP44	IP44	IP54	To be ensured by OEM	–	IP67
	Type 2 AC	IEC 62196-2	IP44	IP44	IP54	To be ensured by OEM	–	IP67
	Type GB AC	GB/T 20234.2	IP44	IP44	IP54	To be ensured by OEM	–	IP67

NEXT GENERATION AMP+ CHARGING INLETS

AMP+ charging inlets are ready to meet the challenges of today's and tomorrow's hybrid and electric vehicles. They enable smarter, faster and safe charging for vehicles across all regions.

Our extended AMP+ charging inlets portfolio includes AC, DC and CCS (Combined Charging System) inlets for the European, North American and Japanese as well as Chinese markets.

Designed for increased performance demands they are scalable to fit all electrical/electronic architectures inside the vehicle, from discrete point-to-point operation, or via distributed intelligent control.

Technical Features

Poles:
5

Terminal Size / System:
Round contact

AC Contacts:
6 mm²

DC Contacts:
50 mm²

Voltage Rating AC:
250 VAC

Voltage Rating DC:
600 VDC

Temperature Range:
-30°C to +50°C

Current Carrying Capability:
32 A

IP Rating, Mated:
IP44
Cable outlet backside IP67

Cable Outlet:
90° and 180°

Finger Protection:
Yes

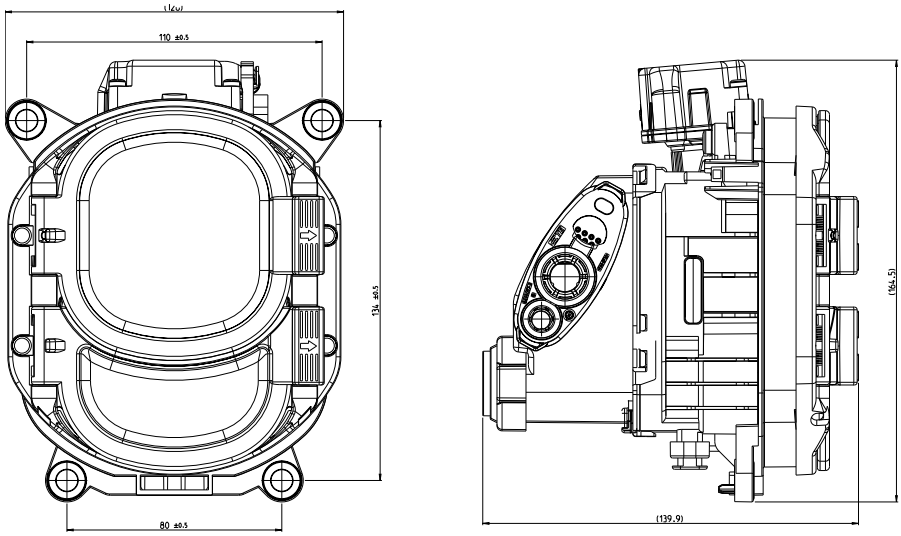
Vibration Level:
SG 2 (LV 215-1)

Application Specification:
114-94648 (90°)
114-94649 (180°)

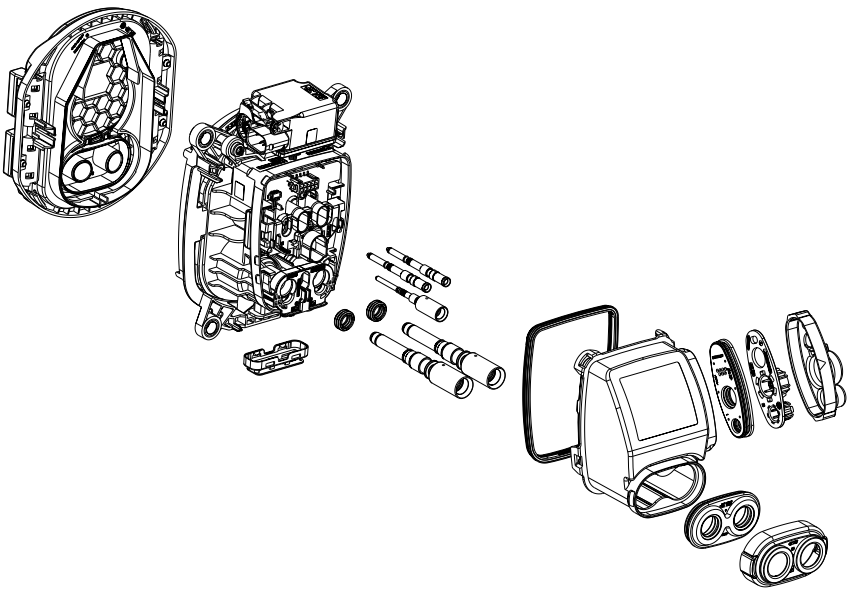
Product Specification:
108-94777

For documentation and more information online visit:
AMP+ Charging Inlets, Type 1, AC & CCS

AMP+ Charging Inlet, Type 1, Combined Charging System (CCS 1)

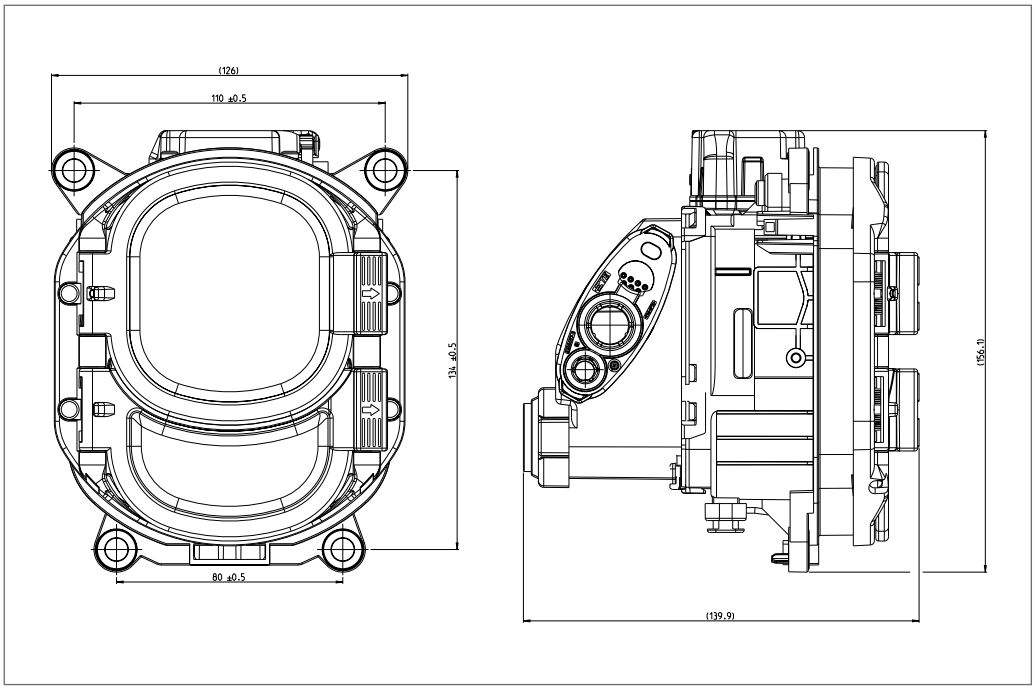


Drawing 2337006 *
Drawing includes all required parts to order a complete charging inlet.

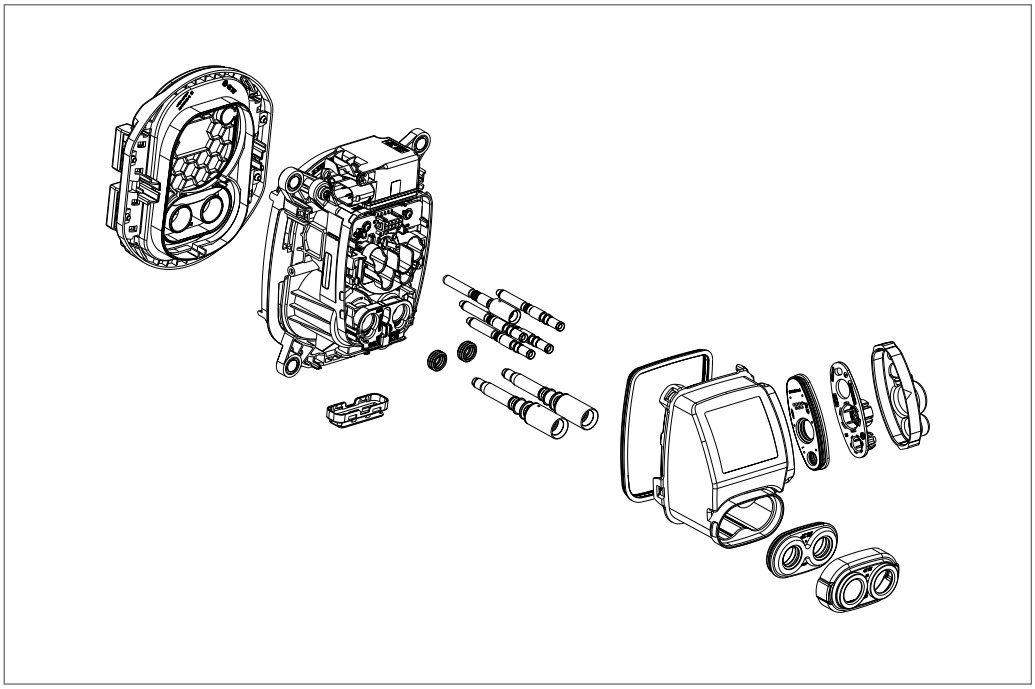


* Drawing Number is NOT the Order Number!

AMP+ Charging Inlet, Type 2, Combined Charging System (CCS 2)



Drawing 2337016 *
Drawing includes all required parts to order a complete charging inlet.



Technical Features

Poles:
5 / 7

Terminal Size / System:
Round contact

AC Contacts:
6 mm²

DC Contacts:
50 mm²

Voltage Rating AC:
up to 480 VAC

Voltage Rating DC:
up to 1,000 VDC

Temperature Range:
-30°C to +50°C

Current Carrying Capability:
32 A

IP Rating, Mated:
IP44
Cable outlet backside IP67

Cable Outlet:
90° and 180°

Finger Protection:
Yes

Vibration Level:
SG 2 (LV 215-1)

Application Specification:
114-94650 (90°)
114-94651 (180°)

Product Specification:
108-94778

For documentation and more information online visit:
AMP+ Charging Inlets, Type 2, AC & CCS

* Drawing Number is NOT the Order Number!

Technical Features

Poles:
5

Terminal Size / System:
Round contact

Conductor Cross-Sections:
0.75 to 1.00 mm² / 4.00 mm² / 6.00 mm²

Voltage Rating:
250 VDC

Temperature Range:
-30°C to +50°C

Current Carrying Capability:
32 A

IP Rating, Mated:
IP44
Cable outlet backside IP67

Cable Outlet:
90° (can be rotated)

Finger Protection:
Yes

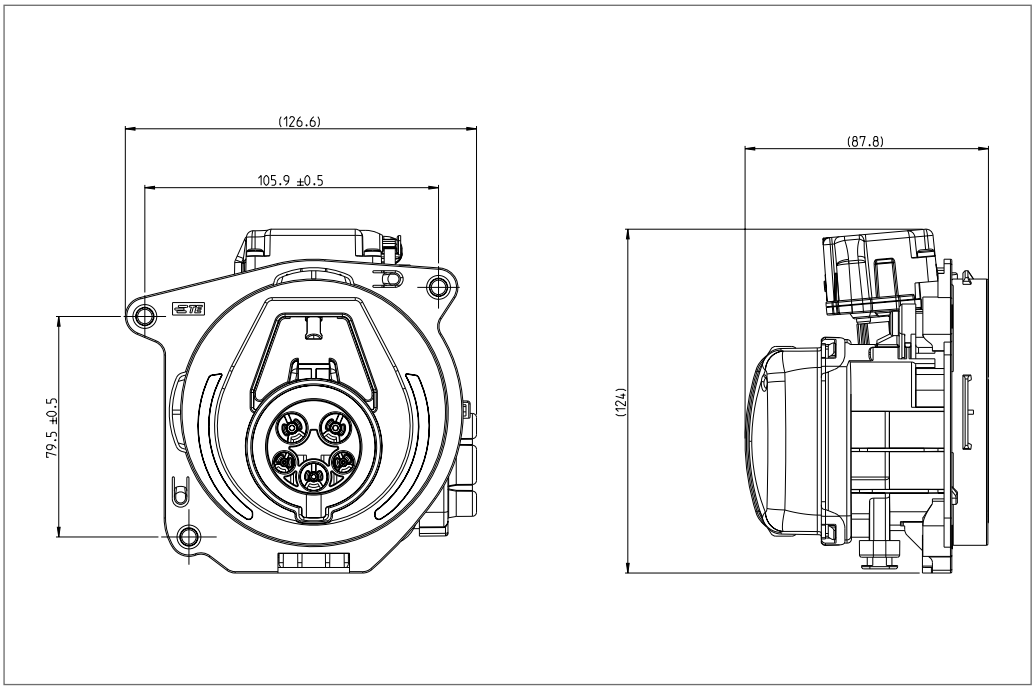
Vibration Level:
SG 2 (LV 215-1)

Application Specification:
114-94652

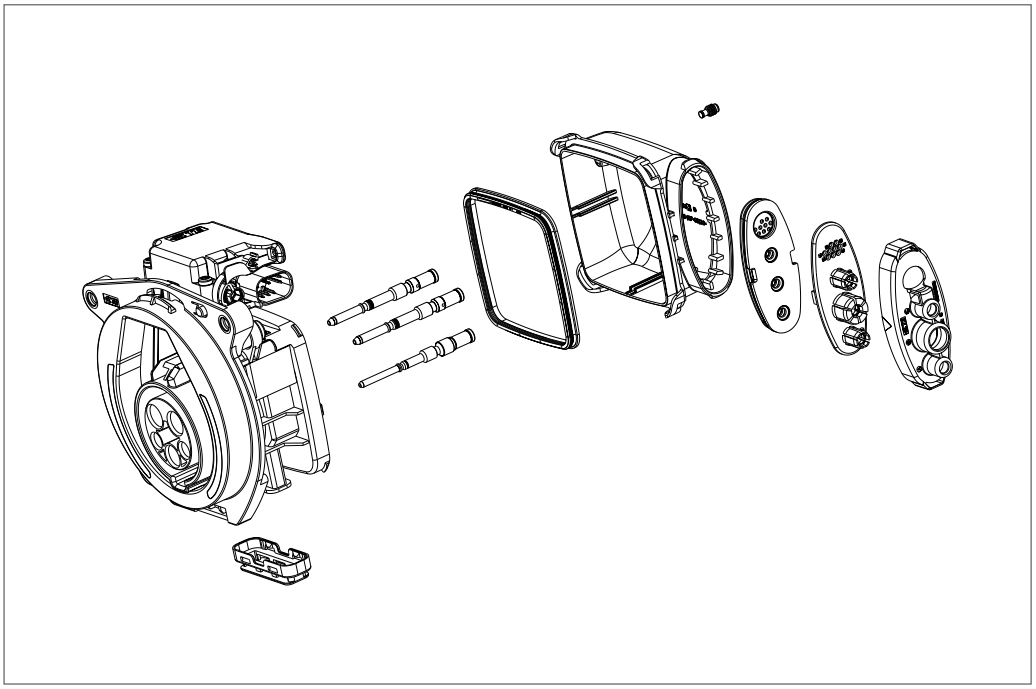
Product Specification:
108-94779

For documentation and more information online visit:
AMP+ Charging Inlets, Type 1, AC & CCS

AMP+ Charging Inlet, Type 1, AC

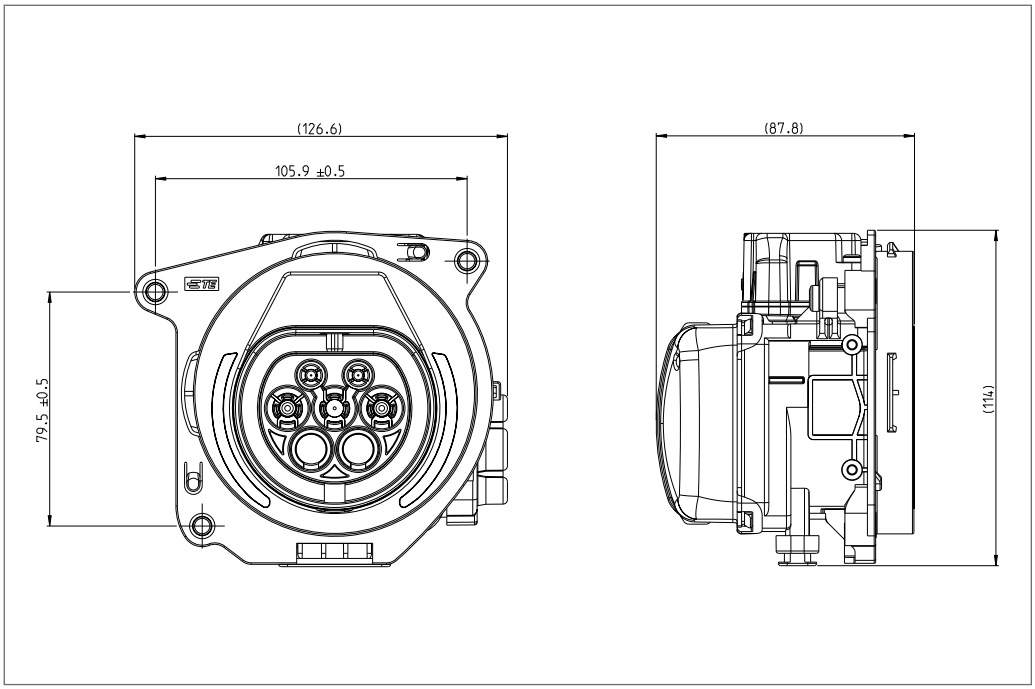


Drawing 2368475 *
Drawing includes all required parts to order a complete charging inlet.

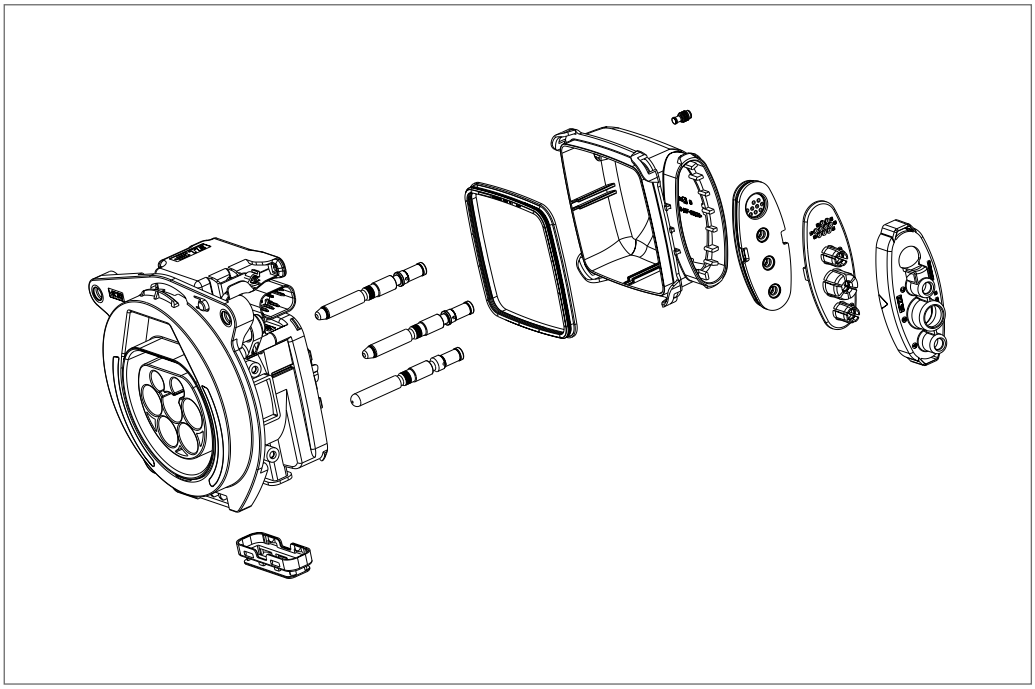


* Drawing Number is NOT the Order Number!

AMP+ Charging Inlet, Type 2, AC



Drawing 2368472 *
Drawing includes all required parts to order a complete charging inlet.



Technical Features

Poles:
5 / 7

Terminal Size / System:
Round contact

Conductor Cross-Sections:
0.75 to 1.00 mm² / 4.00 mm² / 6.00 mm²

Voltage Rating:
up to 480 VDC

Temperature Range:
-30°C to +50°C

Current Carrying Capability:
32 A

IP Rating, Mated:
IP44
Cable outlet backside IP67

Cable Outlet:
90° left, right and downwards

Finger Protection:
Yes

Vibration Level:
SG 2 (LV 215-1)

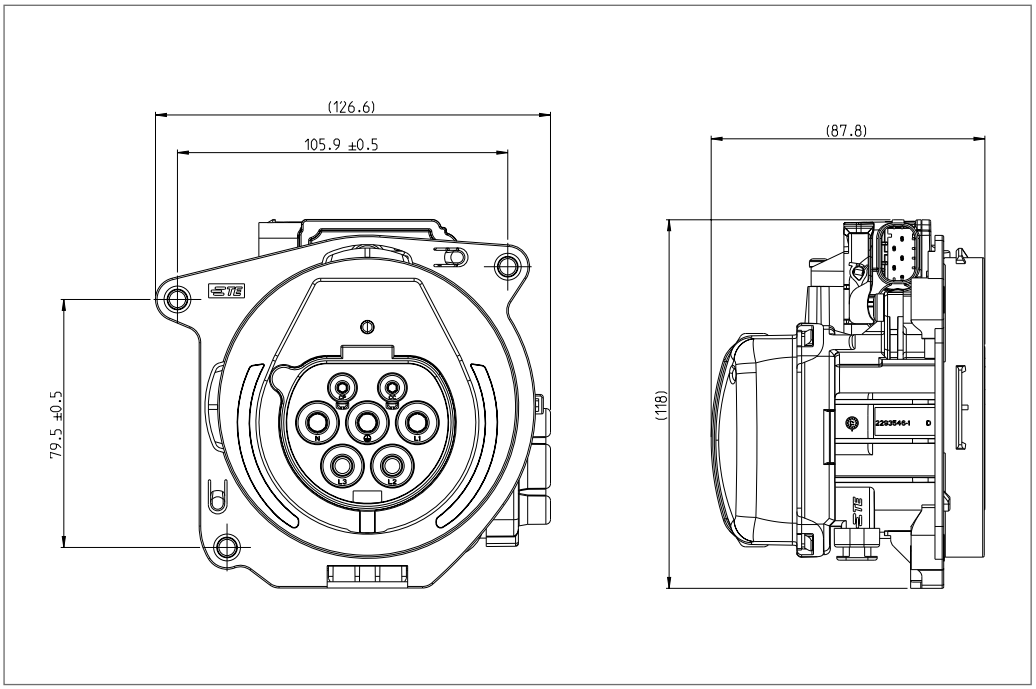
Application Specification:
114-94653

Product Specification:
108-94780

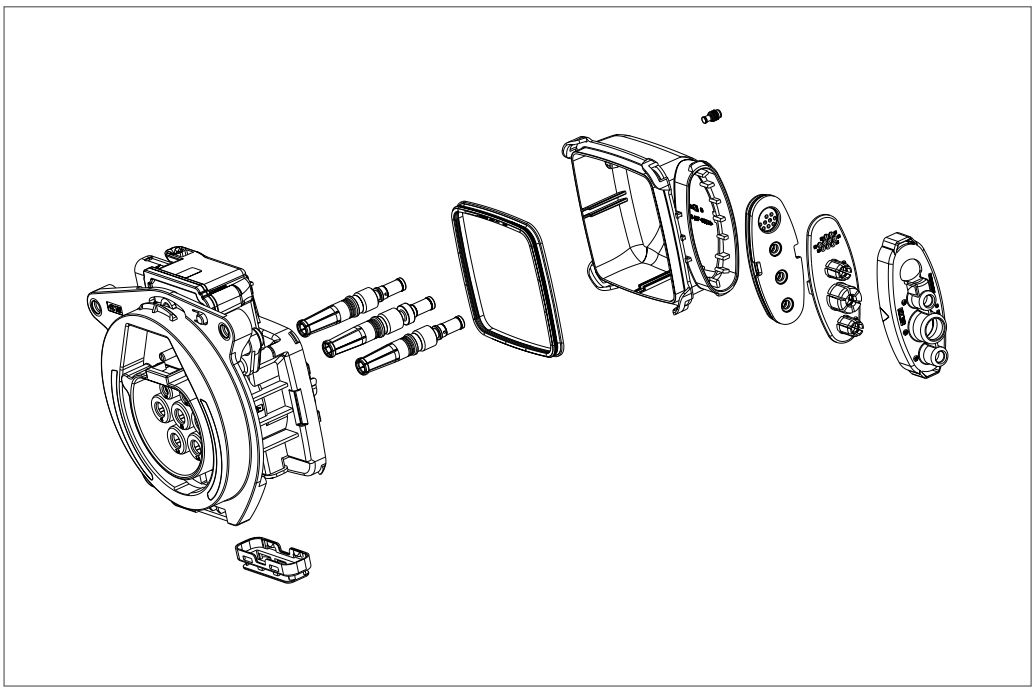
For documentation and more information online visit:
AMP+ Charging Inlets, Type 2, AC & CCS

* Drawing Number is NOT the Order Number!

AMP+ Charging Inlet, Type GB, AC



Drawing 2368478 *
Drawing includes all required parts to order a complete charging inlet.



Technical Features

Poles:
5

Terminal Size / System:
Round contact

Conductor Cross-Sections:
0.75 to 1.00 mm² / 4.00 mm² / 6.00 mm²

Voltage Rating:
250 VDC

Temperature Range:
-30°C to +50°C

Current Carrying Capability:
32 A

IP Rating, Mated:
IP44
Cable outlet backside IP67

Cable Outlet:
90° (can be rotated)

Finger Protection:
Yes

Vibration Level:
SG 2 (LV 215-1)

Application Specification:
114-94654

Product Specification:
108-94781

For documentation and more information online visit:
AMP+ Charging Inlets, Type GB, AC

* Drawing Number is NOT the Order Number!

NOTES

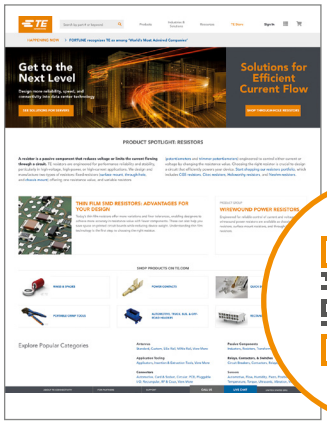
TE CONNECTIVITY ONLINE

TE.com offers an enhanced digital experience, with more than 250,000 parts profiled. The site has deep, rich product data and easier access to tools and services. Other offerings include improved search and navigation and knowledge and idea sharing.

HYBRID & ELECTRIC MOBILITY APPLICATION

Learn more about TE Connectivity's hybrid and electric mobility solutions and applications under:

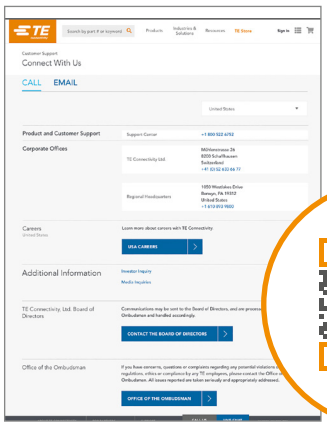
www.te.com/hybrid-electric-mobility



PRODUCT INFORMATION

Search for a specific product by category, part number or document number.

www.TE.com



STAY CONNECTED

You can rely on TE's PIC Team to answer your general or technical questions. To contact a PIC representative, visit

www.TE.com/support-center

CONTACT | IMPRINT

EUROPE
Germany

Product Information Center:
Phone: +800 0440-5100
Fax: +49 6251-133-1988

UNITED STATES
United States – Harrisburg

Product Information Center:
Phone: +1 800-522-6752
Fax: +1 717-986-7575

SOUTH AMERICA
South America

Phone: +54 11-4733-2015
Fax: +54 11-4733-2083

AFRICA
South Africa – Port Elizabeth

Phone: +27 41-503-4500
Fax: +27 41-581-0440

ASIA/PACIFIC
Australia – Sydney

Product Information Center:
Phone: +61 2-9840-8200
Fax: +61 2-9634-6188

People's Republic of China

Hong Kong
Phone: +852 2738-8731
Fax: +852 2735-0243

People's Republic of China

Shanghai
Phone: +86 21-3398-0000
Fax: +86 21-3398-1999

Korea – Seoul

Phone: +82 2-3415-4500
Fax: +82 2-3486-3810

DISCLAIMER

This document reflects the state-of-the-art result of the work of TE Connectivity (TE). While TE has made every reasonable effort to ensure the accuracy of the information in this document, TE does not guarantee that it is error-free, nor does TE make any other representation, warranty or guarantee that the information is accurate, correct, reliable or current. TE expressly disclaims all implied warranties regarding the information contained herein, including, but not limited to, any implied warranties of merchantability or fitness for a particular purpose. The document is subject to change without notice. Consult TE for the latest dimensions and design specifications.

TRADEMARKS

AMP+, TE, TE Connectivity, TE connectivity (logo), and EVERY CONNECTION COUNTS are trademarks owned or licensed by the TE Connectivity Ltd. family of companies.

Other product names, logos, and company names mentioned herein may be trademarks of their respective owners.

COPYRIGHT

3-1773984-7 | Revision 01-2021

TE Connectivity Germany GmbH
Ampèrestrasse 12–14
64625 Bensheim
Germany