

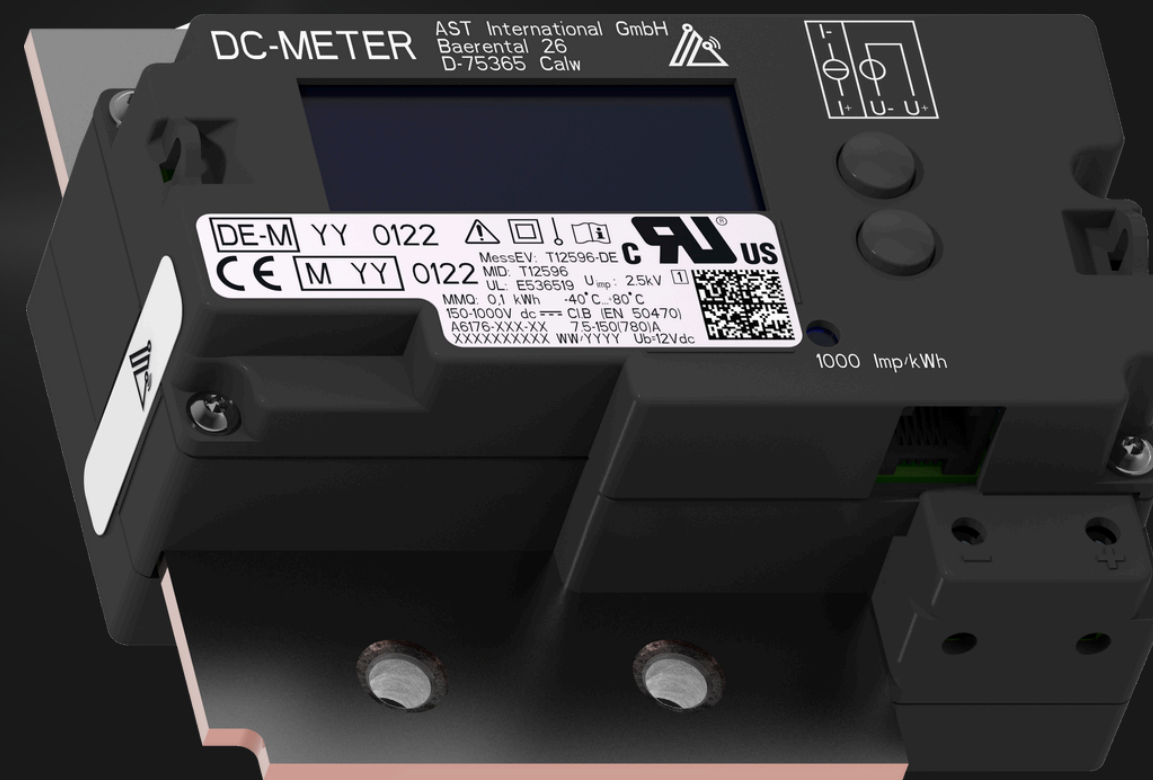


AST INTERNATIONAL
ADVANCED SENSOR TECHNOLOGIES

DC Meter

SAFE - PRECISE - LEGAL METROLOGY COMPLIANT

The AST DC Meters are the innovative solution for continuous measurement of energy



byAST

Based on our in-house developed 3D-Hall ASIC (AST proprietary), our DC Meters enable a continuously highly precise and bi-directional measurement of provided energy



MARKET NEEDS:

- Continuous current and voltage measurement for DC wallboxes, fast and ultra fast charging stations as well as Megawatt Charging Systems (MCS)
- High currents up to 250A, 780A or 1500A
- High voltages up to 1000V (1500V)

LEGAL METROLOGY COMPLIANT:

- German Calibration Law: Module B, production site according to Module D
- MID 2014/32/EU: EN 50470-4, IEC 62052-31, IEC 62052-11
- UL 61010
- French Calibration Law: Décision n° 22.00.570.001.1

Our DC Meters comply with the accuracy requirements of Class B (MID 2014/32/EU) and Accuracy Class 1 of IEC 62053-41.

MAXIMUM VERSATILITY:

- Compact DC Meter or detached display version
- Bi-directional energy measurement
- Software based cable compensation or 4-wire-measurement





COMMUNICATION PROTOCOL:

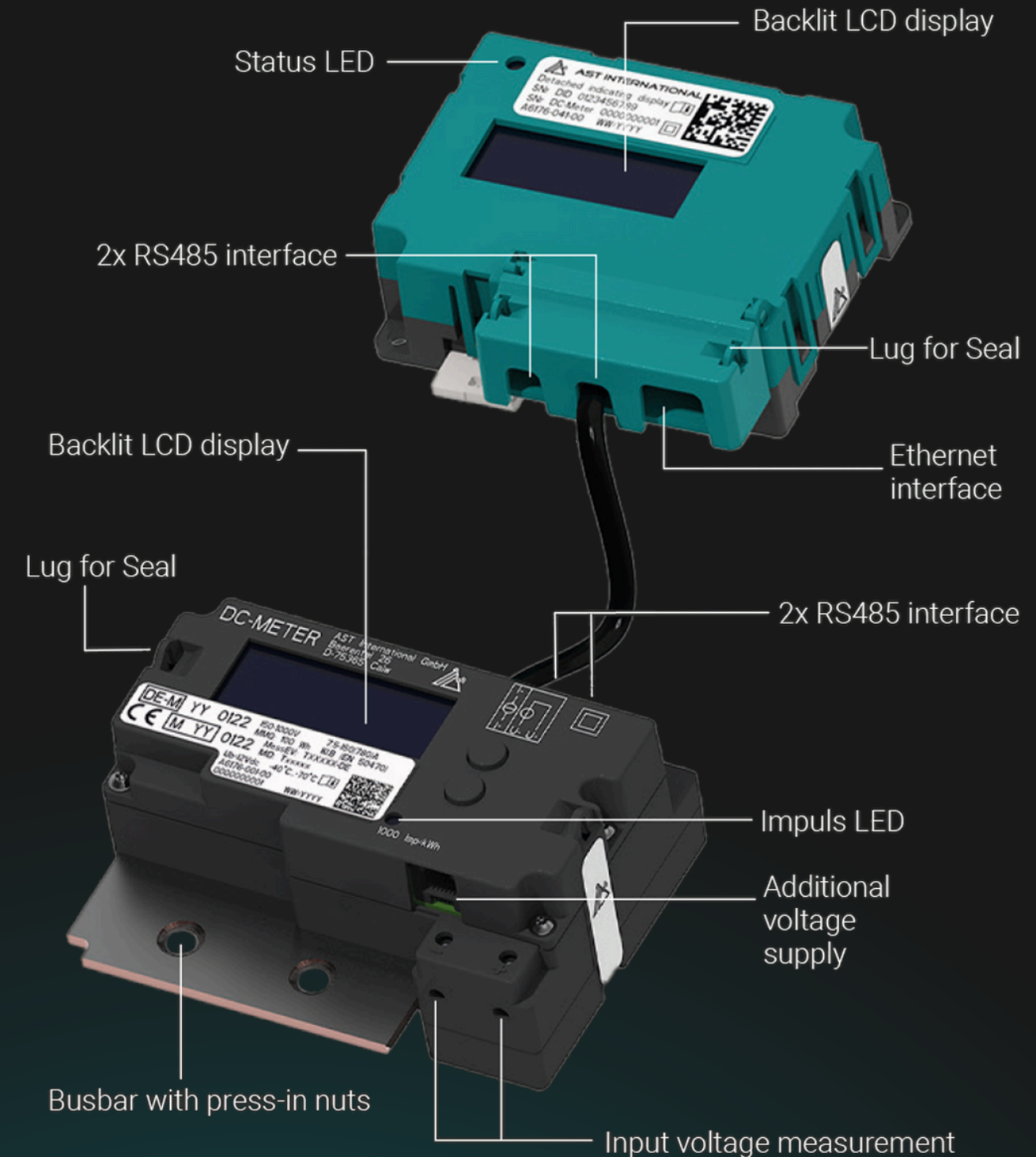
- Transparent billing according to OCMF protocol
- Compatible with S.A.F.E. transparency software
- Designed according to WELMEC software guidelines
- Permanent data provided: energy, current, voltage, temperature

DESIGN:

- Compact DC Meter or DC Meter with a detached display (up to 3m cable length)
- Continuous high current and voltage measurement up to 1500A and 1000V (1500V)
- Operating temperature range: -40°C to +80°C
- Rated insulated voltage at 1000VDC (1500VDC)
- Different covers for metrological sealing available

CONNECTIVITY AND DISPLAY:

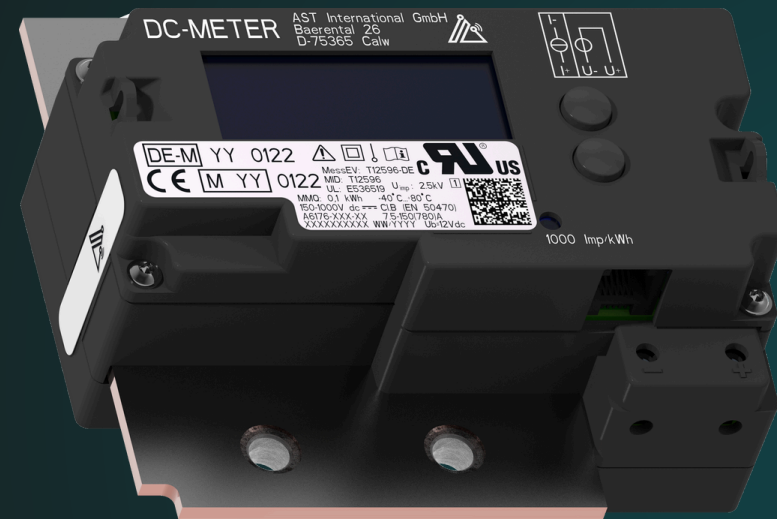
- Supporting Ethernet and RS485 communication protocols
- Backlit LCD display (legal data and energy values)
- NTP (Network Time Protocol)
- Plug-and-Play solution with EcoG, PIONIX and Vector





COMPONENTS:

DC METER:



Measures the current and voltage.
The calculated energy values (in kWh) is transmitted directly to the charging station or to the detached display.

CABLE:



Transmits data from the DC Meter to the detached display. Cables available between length of 0,5 meters to 3,0 meters.

DETACHED DISPLAY:



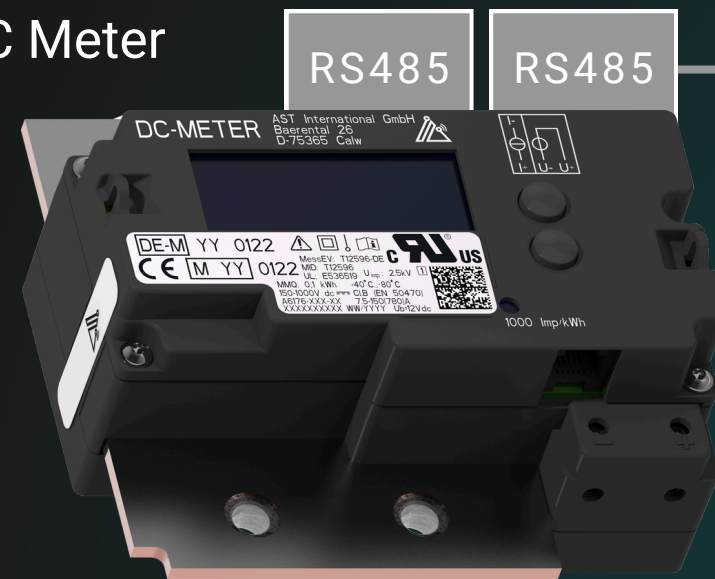
Interface between the charging station (via Ethernet or RS485) and the DC Meter as well as presenting the measuring data to the end-customer.



TWO DESIGN VARIATIONS:

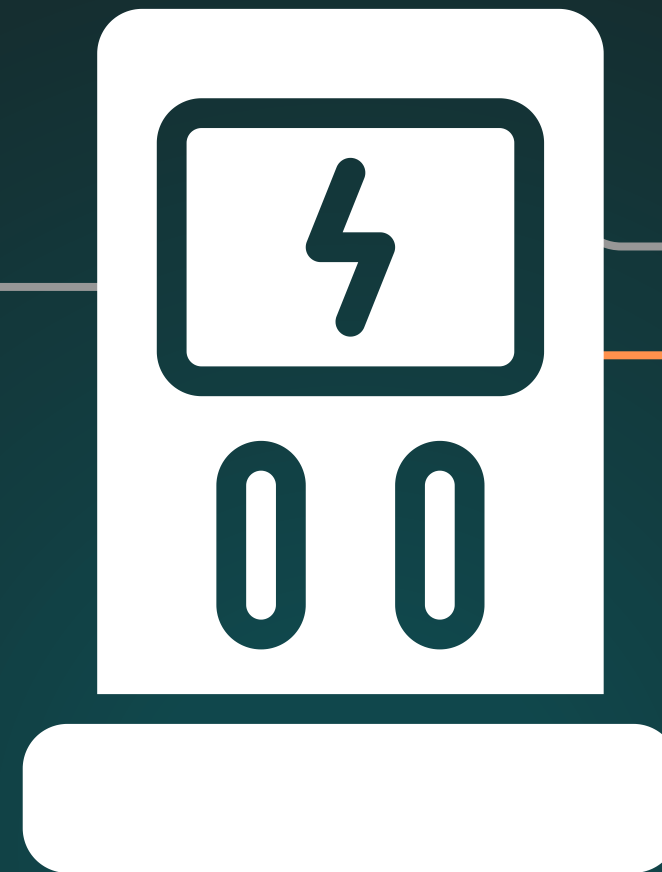
Option 1:
Compact Version

DC Meter



SLIP

Master



SLIP

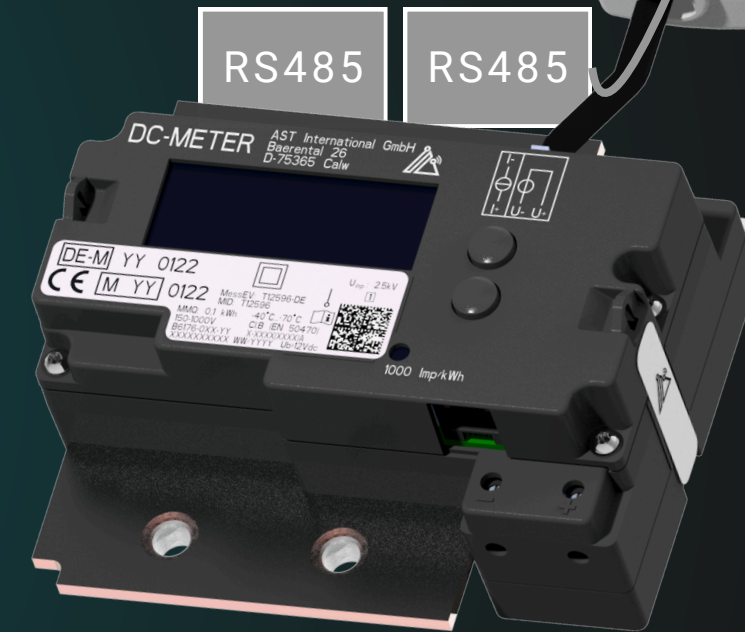
Ethernet

Option 2:
Detached Display Version

Detached Display



DC Meter



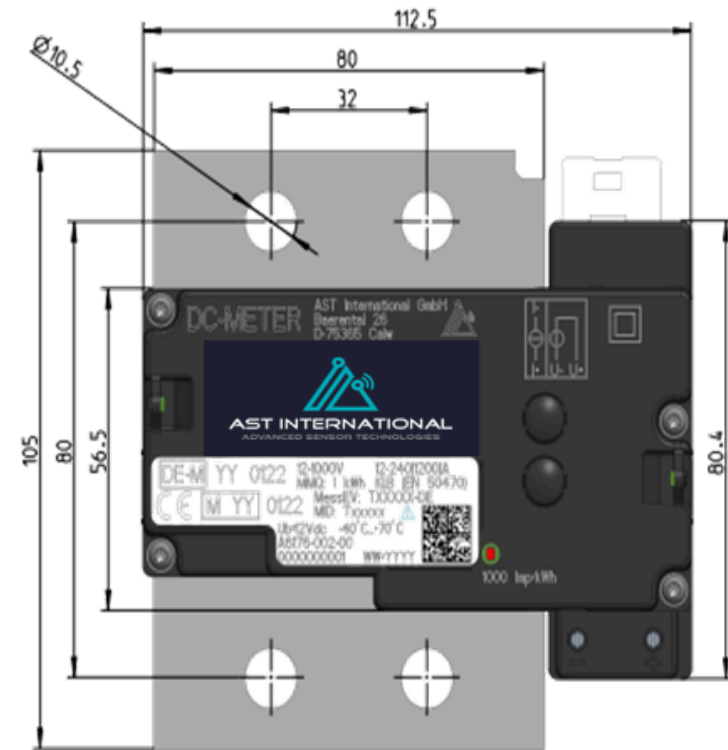


TECHNICAL DATA:

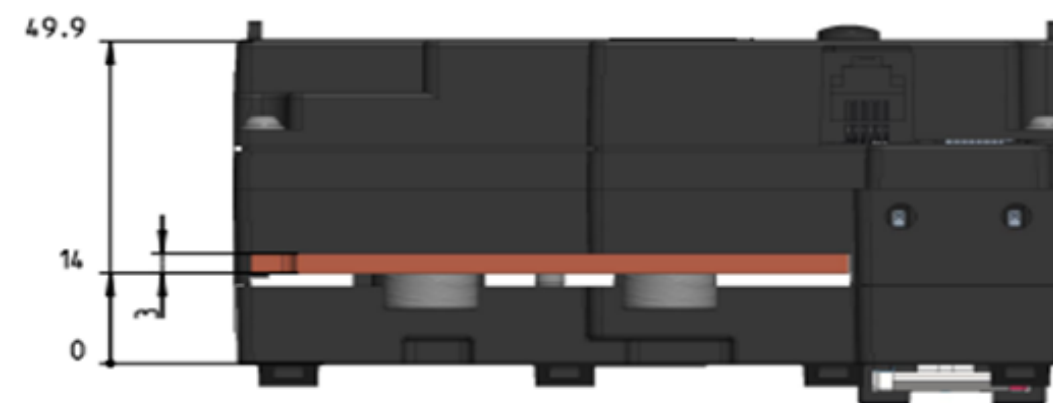
	DC200	DC650	DC1500
Current measurement			
I n	50A	150A	300A
I min	2A	5A	10A
I tr	5A	15A	30A
I max	250A	780A	1500A
I st	0.2A	0.6A	1.2A
Voltage measurement			
U n	1000V		1000V (1500V)
U min	150V		150V



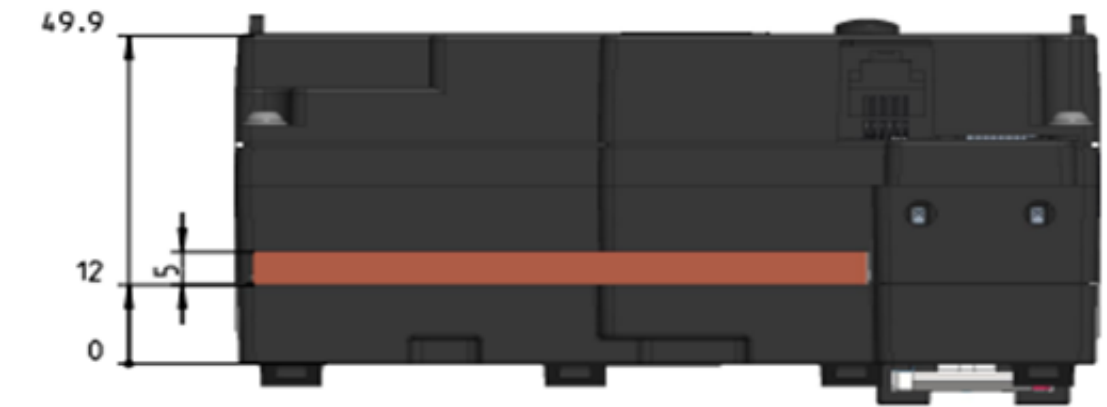
DIMENSIONS DC METER:



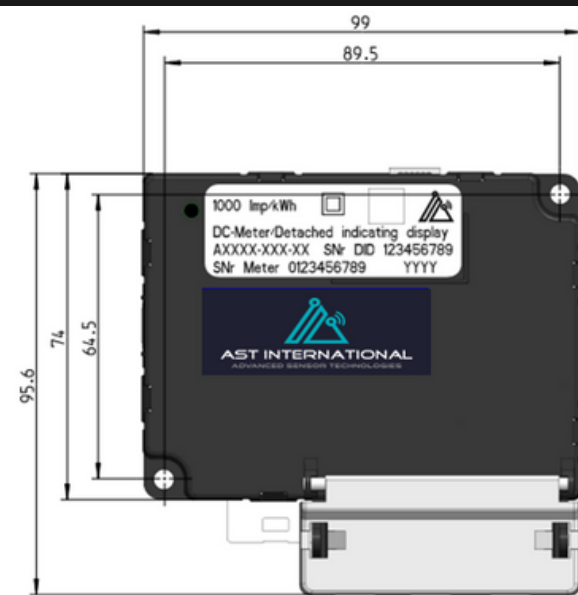
DC200 / DC650



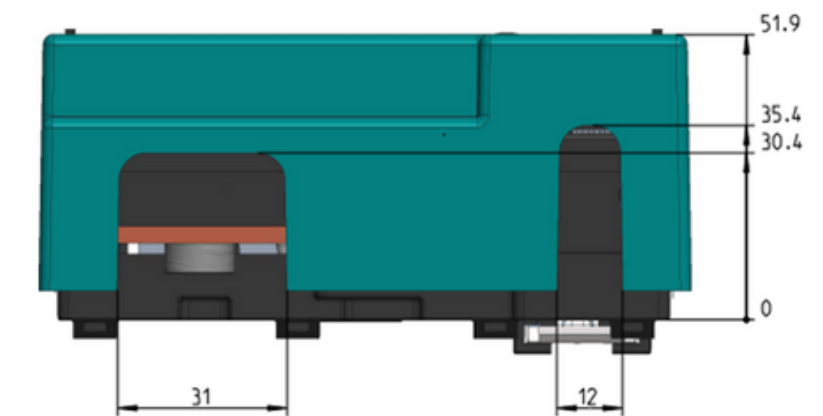
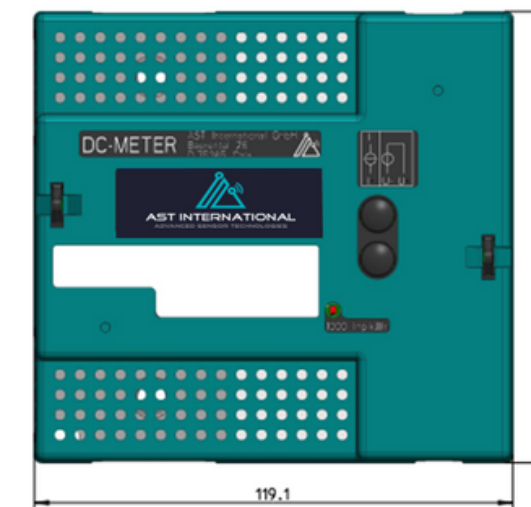
DC1500



DIMENSIONS DETACHED DISPLAY:



SMALL HOUSING:





LEGAL METROLOGY COMPLIANTS:

NMI

EU-type examination certificate

Number **T12596** revision 5
Project number 3792805
Page 1 of 1

Issued by NMI Certin B.V., designated and notified by the Netherlands to perform tasks with respect to conformity assessment procedures mentioned in article 17 of Directive 2014/32/EU, after having established that the measuring instrument meets the applicable requirements of Directive 2014/32/EU, to:

Manufacturer AST (Advanced Sensor Technologies) International GmbH
Bärental 26
75365 Calw
Germany

Measuring instrument **A static DC electrical energy meter**

Type	: DC-Meter
Manufacturer's mark or name	: AST International GmbH
Reference voltage	: 150 VDC ... 1.000 VDC
Reference current	: 150 A
Destined for the measurement of	: electrical energy, in a - DC electrical network
Accuracy class	: A or B
Environment classes	: M1 / E2
Temperature range	: -40 °C / +70 °C

Further properties are described in the annexes:
- Description T12596 revision 5;
- Documentation folder T12596-4.

Valid until 16 October 2033
Initially issued 16 October 2023

Remark This revision replaces the earlier versions, including the documentation folder.

Issuing Authority **NMI Certin B.V., Notified Body number 0122**
23 April 2024
Certification Board

NMI Certin B.V., Thijssweg 11, 2629 JA Delft, The Netherlands. T +31 88 636 2332, certin@nmi.nl, www.nmi.nl

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The designation of NMI Certin B.V. as Notified Body can be verified at <http://ec.europa.eu/growth/tools-databases/andnd/>

PRODUCTS RvA C 001

NMI

Baumusterprüfbescheinigung

Nummer **T12596-DE** Ausgabe 3
Projektnummer 3784346
Seite 1 von 1

Ausgestellt von NMI Certin B.V., anerkannte Konformitätsbewertungsstelle für Konformitätsbewertungsverfahren gemäß den Modulen in der Mess- und Eichverordnung vom 11. Dezember 2014, Artikel 1, Abschnitt 2, §9 (MessEV), nach Feststellung der Konformität im Rahmen der geltenden Anforderungen der Mess- und Eichverordnung, für:

Hersteller AST International GmbH
Bärental 26
75365 Calw
Deutschland

Messinstrument Messgerät mit Transaktionsdatensignaturmodul im Anwendungsbereich E-Mobilität

Typ : DC-Meter
Temperaturbereich : -40 °C / +80 °C

Weitere Eigenschaften sind in den Anhängen beschrieben:
- Beschreibung T12596-DE Revision 3:

Gemäß Anhang 4, Modul B der Mess- und Eichverordnung vom 11.12.2014 (BGBl. I S. 2010)

Erste Ausgabe 16. Oktober 2023
Gültig bis 16. Oktober 2033

Bemerkung Diese Revision ersetzt die frühere Version, ausschließlich des Dokumentationsordners.

Ausstellungsbehörde **NMI Certin B.V., Benannte Konformitätsbewertungsstelle Kennnummer D0122**
04. März 2024
Zertifizierungsausschuss

NMI Certin B.V., Thijssweg 11, 2629 JA Delft, Niederlande. T +31 88 636 2332, certin@nmi.nl, www.nmi.nl

Dieses Dokument wird unter dem Vorbehalt ausgestellt, dass keine Haftung übernommen wird und dass der Hersteller die Haftung gegenüber Dritten freistellt.

Nur die Vervielfältigung des gesamten Dokuments ist erlaubt. Dieses Dokument ist digital signiert und geschützt. Die digitale Signatur kann in dem blauen Band am oberen Rand der elektronischen Version dieses Zertifikates überprüft werden.

PRODUCTS RvA C 001

NMI

Quality System Approval

Anerkennung Qualitätssicherungssystem

Certificate: DE-024
Zertifikat: DE-024

NMI Certin B.V., designated and notified by the German Federal Ministry for Economic Affairs and Climate Action to perform tasks with respect to conformity modules mentioned in the German Measures and Verification Ordinance (MessEV), declares that the quality system of NMI Certin B.V.,
Von dem Bundesministerium für Wirtschaft und Klimaschutz bestimmt und benannt für die Durchführung von Aufgaben in Bezug auf Konformitätsmodule, angeführt in Mess EV: Mess- und Eichverordnung (MessEV), erklärt, dass das Qualitätssicherungssystem von

AST International GmbH
Bärental 26
75365 Calw
Germany

meets the applicable requirements of:
die anwendbaren Anforderungen des:

Annex 4 Module D of the Measures and Verification Ordinance dated 11-12-2014 (Federal Law Gazette I, p. 2010), last amended by article 1 of the Ordinance of 26-10-2021 (BGBl. I S. 4742)
Anlage 4 Modul D des Mess- und Eichverordnung vom 11. Dezember 2014 (BGBl. I S. 2010, 2011), die zuletzt durch Artikel 1 der Verordnung vom 26. Oktober 2021 (BGBl. I S. 4742) geändert worden ist

for the conformity assessment of instrument category:
für die Konformitätsbewertung der folgenden Gerätekategorie erfüllt:

- **6.6 ZE: separated of integrated ancillary devices including Smart Meter Gateway for electricity meters**
- **6.6 ZE: getrennt oder integriert angeordnete Zusatzeinrichtungen einschl. Smart-Meter-Gateway für Elektrizitätsmessgeräte**

Scope of the certificate and certification dates are described in the annex of DE-024.
Der Geltungsumfang dieses Zertifikats und Zertifizierungsdaten sind beschrieben im Anhang des DE-024.

This certificate remains valid until **16 October 2026**.
Dieses Zertifikat ist bis zum **16. Oktober 2026** gültig.

NMI Certin B.V., Notified Body number 0122
NMI Certin B.V., Benannte Stelle Nummer 0122
16 October 2023
Certification Board

NMI Certin B.V., Thijssweg 11, 2629 JA Delft, The Netherlands. T +31 88 636 2332, certin@nmi.nl, www.nmi.nl

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PRODUCTS RvA C 001

CERTIFICATE OF COMPLIANCE

Certificate Number	2024-03-21-E536519
Report Reference	E536519-D1000-1/A0/CO-UL
Date	2024-03-21
Issued to:	AST (Advanced Sensor Technology) International GmbH
Applicant Company:	Bärental 26 75365 Calw, Baden-Wuerttemberg, Germany
Listed Company:	Same as Applicant

This is to certify that representative samples of Vehicle Charging Station DC Meter
DC Meter 650, variants: A6176-021; A6176-023; A6176-026

Have been investigated by UL in accordance with the component requirements in the Standard(s) indicated on this Certificate. UL Recognized components are incomplete in certain constructional features or restricted in performance capabilities and are intended for installation in complete equipment submitted for investigation to UL LLC.

Standard(s) for Safety: UL 61010-1, 3rd Edition, May 11, 2012, Revised July 19, 2019, CAN/CSA-C22.2 No. 61010-1(2012-05), 3rd Edition, with revisions through 2018-11

Additional Standards: UL 61010-2-030, Edition 2, Revision Date 05/24/2023
CSA C22.2 No. 61010-2-030:18, Edition 2, Revision Date 12/21/2018

Additional Information: See the UL Online Certifications Directory at <https://iq.ulprospector.com> for additional information.

This Certificate of Compliance does not provide authorization to apply the UL Recognized Component Mark. Only the UL Follow-Up Services Procedure provides authorization to apply the UL Mark.

Only those products bearing the UL Recognized Component Mark should be considered as being UL Certified and covered under UL's Follow-Up Services.

Look for the UL Recognized Component Mark on the product.

Signature
Bruce Mahabadi, Director North American Certification Program
UL LLC
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UL

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AST INTERNATIONAL

ADVANCED SENSOR TECHNOLOGIES

Get in touch with us!

AST is your global innovation partner for sensors and controls. We develop high-quality sensor solutions in the fields of energy infrastructure, industry and mobility.

AST is specialized in sensors and controls for high-currents, liquids and gases.

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