
# AST DC-Meter

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ADVANCED SENSOR TECHNOLOGIES

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## Transaction S.A.F.E. OCMF

- Billing according to S.A.F.E. OCMF protocol
- Transparent billing
- Cloud operated

## IoT

- Communication supporting Ethernet, RS485 and CAN
- LCD display (legal data, energy and alarm)
- NTP (Network Time Protocol)
- Cloud operated

## Design (New & Retrofit)

- Compact and versatile as one unit or with detached display up to 5 meter cable length
- Continuous high current and voltage measurement up to 1000A and 1000V (Megawatt charging for trucks and buses)
- Class B accuracy, bi-directional meter

## International Metering Standards

- Complies with the German (Eichrecht), French and US calibration laws and regulations
- EN 50470, EN 61000, IEC 62052
- IEC 62053-41:2021
- According to VDE-AR-E-2418-3-100

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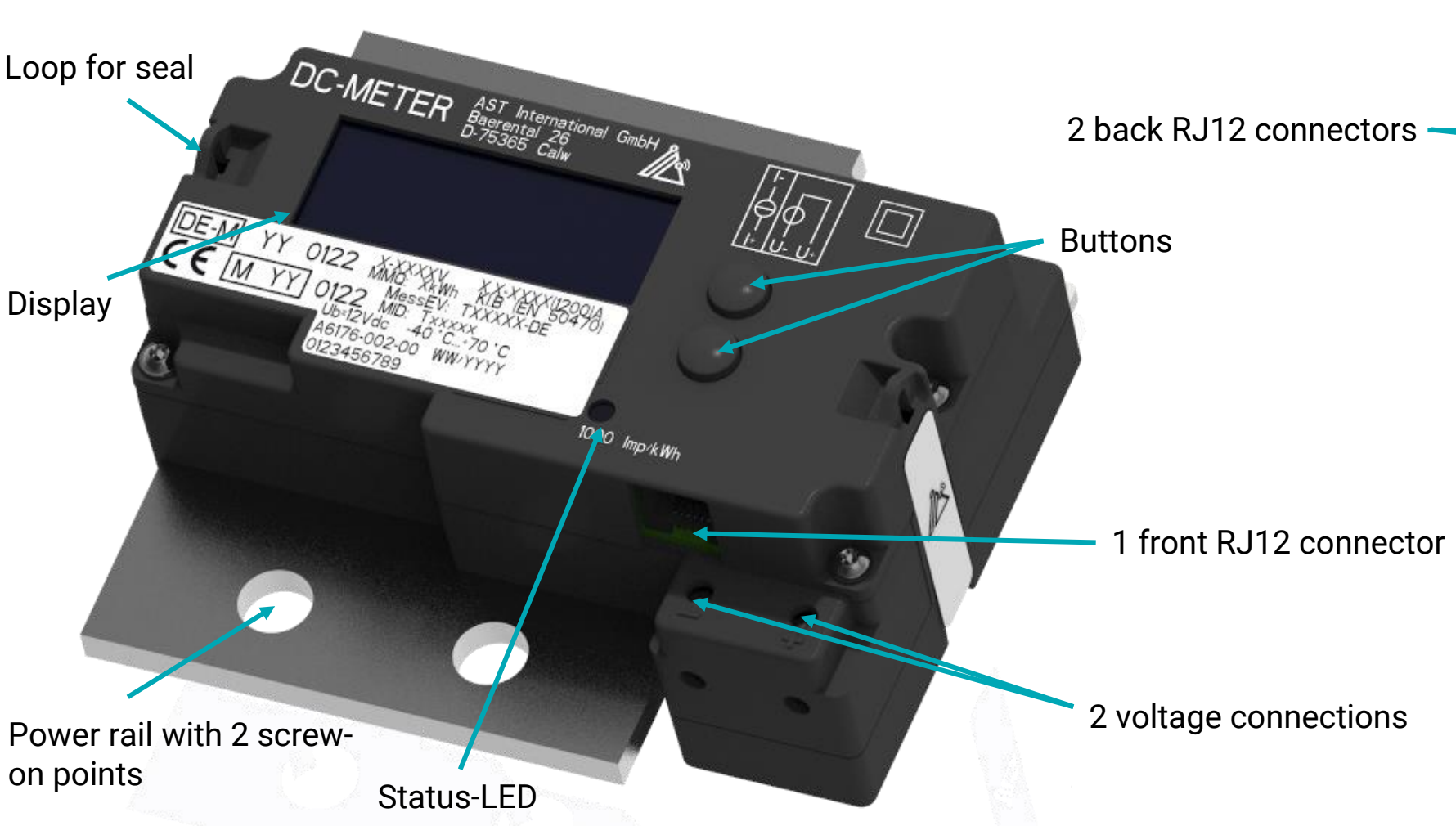
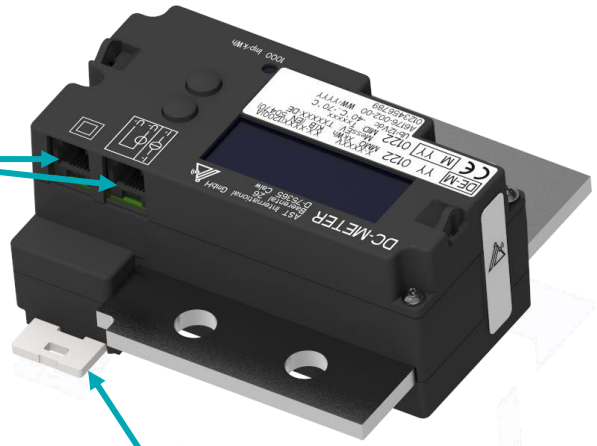
## Details and control elements



# AST DC-Meter

## Market needs

- Continuous current and voltage measurement for fast & ultra charging stations as well as Megawatt charging stations.
  - High current up to 650A or 1000A
  - High voltage up to 1000V

- DC-Meter conformity - German „Eichrecht“ (metrological legislation)
- Finland and Austria to follow German lead and adapt
- Similar legislations based on the German „Eichrecht“ in France and the United States of America (California), other countries will follow
- 4-wire-measurement which allows cable compensation
- Full accuracy over complete measurement range (7.8A to 650A and 10A to 1000A)
- Compact DC-Meter or variant with a detached display

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## AST DC-Meter – product overview

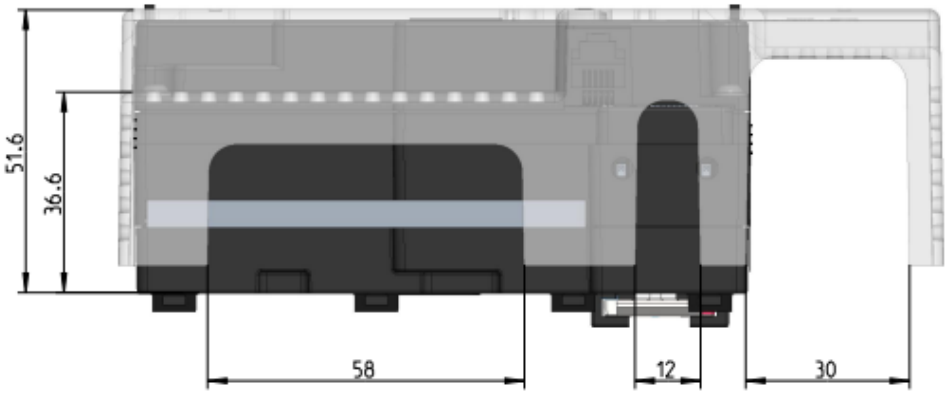
| DC650 | DC1000 |
|---|---|
| **Current** | |
| $I_n$ = 650A | $I_n$ = 1000A |
| $I_{min}$ = 7.8A | $I_{min}$ = 12A |
| $I_{tr}$ = 15.6A | $I_{tr}$ = 24A |
| $I_{max}$ = 780A | $I_{max}$ = 1200A |
| $I_{st}$ = 0.62A | $I_{st}$ = 0.96A |
| **Voltage** | |
| $U_n$ = 1000V | $U_n$ = 1000V |
| $U_{max}$ = 1200V | $U_{max}$ = 1200V |
| $U_{min}$ = 150V | $U_{min}$ = 150V |
| **Accuracy class** | |
| • Class 1, IEC 62053-41:2021<br>• Class B<br>• MID (according to 2014/31/EU of the EUROPEAN PARLIAMENT AND COUNCIL, attachment V, MI-003) | • Class 1, IEC 62053-41:2021<br>• Class B, accuracy starting at 10A<br>• MID (according to 2014/31/EU of the EUROPEAN PARLIAMENT AND COUNCIL, attachment V, MI-003) |

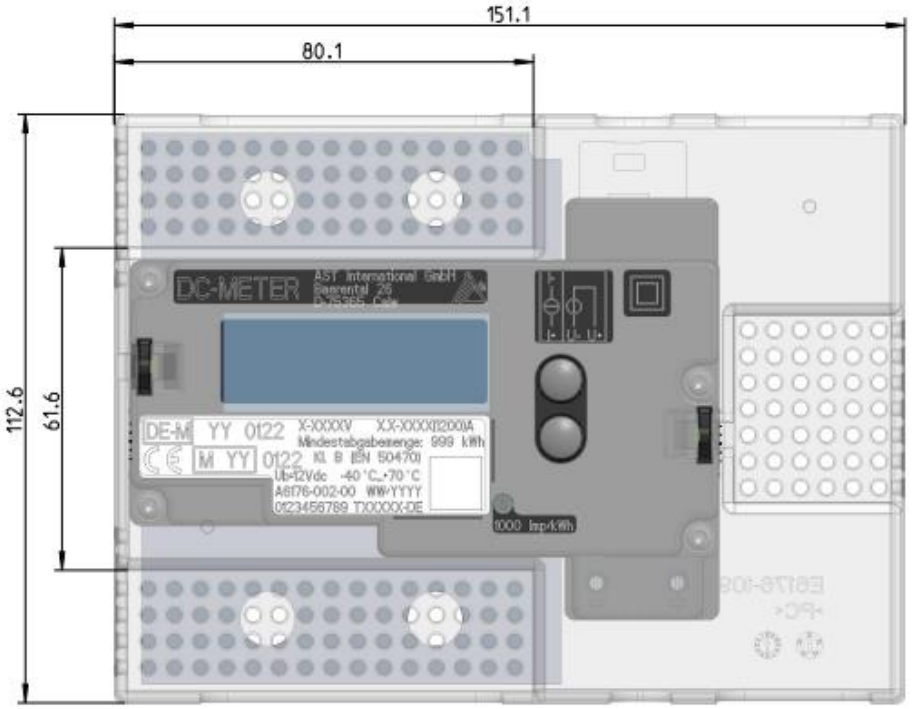
Both available in following design variations:

Compact Version


Detached Display Version

# Dimensions with housing DC650 / DC1000 - Compact Version



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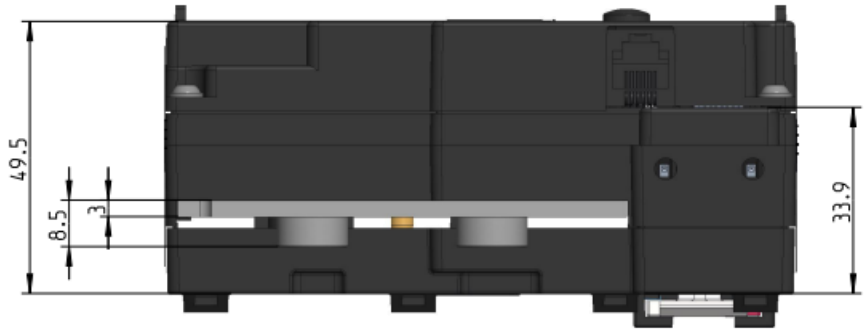
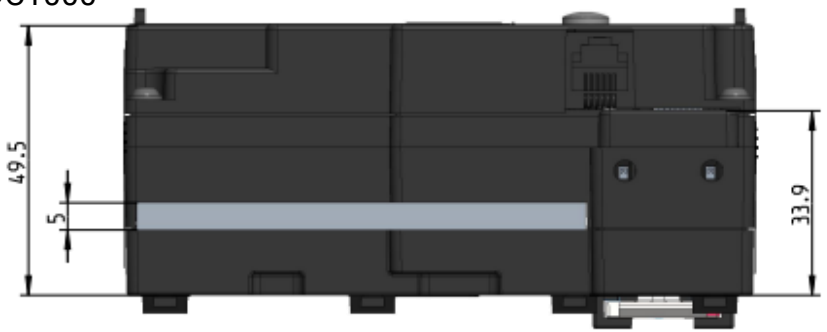
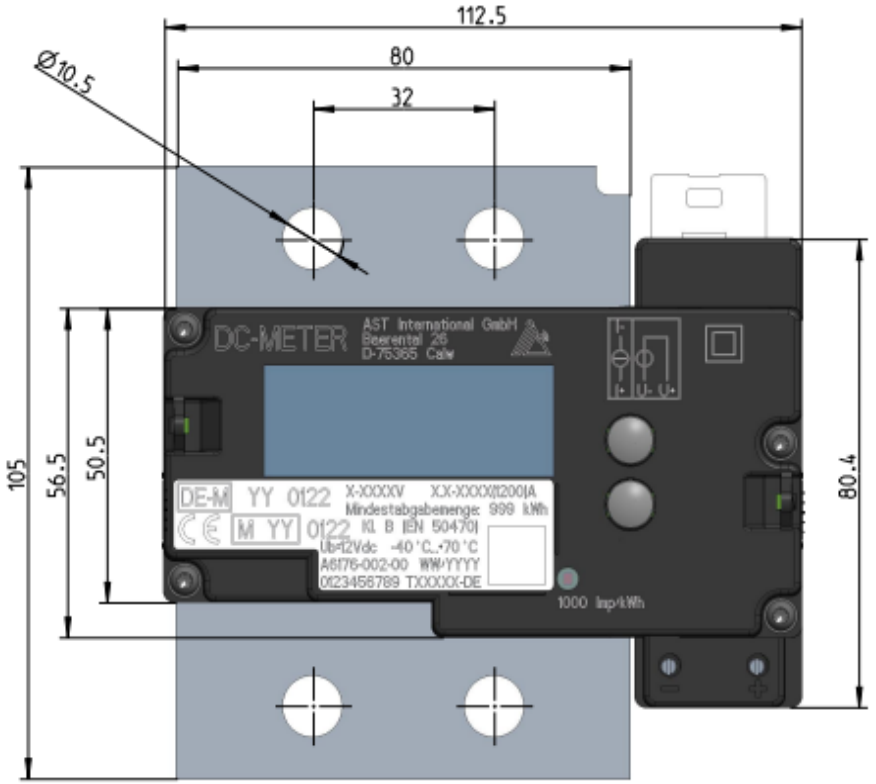
# Dimensions without housing DC650 / DC1000 - Compact Version

DC650



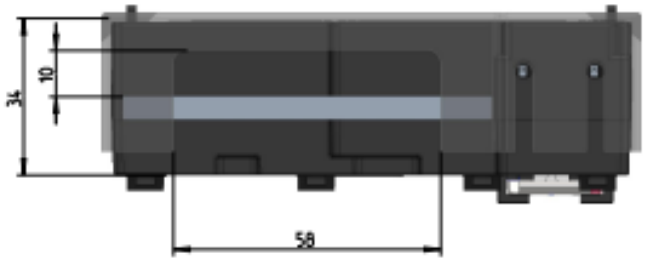

DC1000

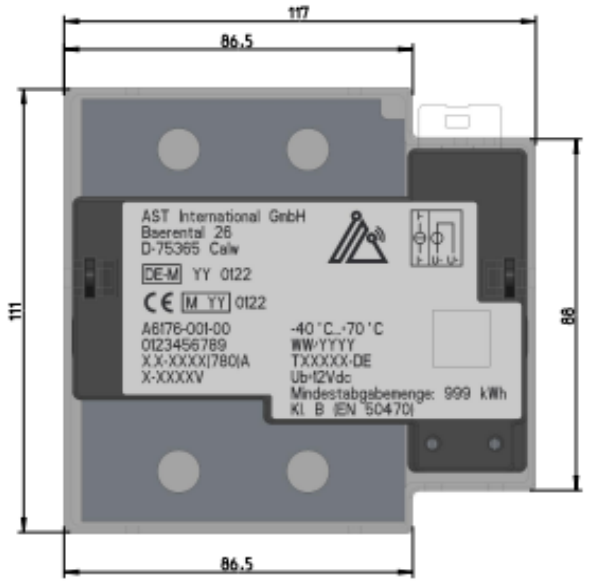


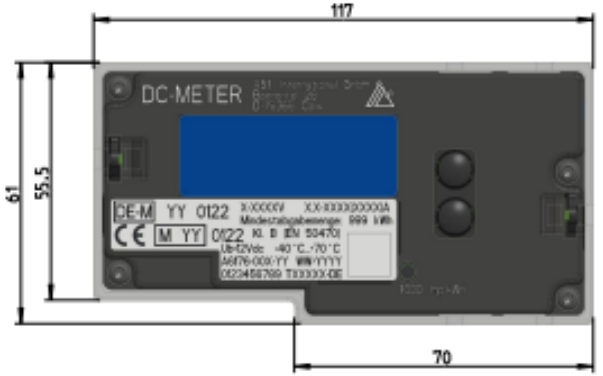
# Dimensions with housing DC650 / DC1000 - Detached Display Version

## Sensor Unit



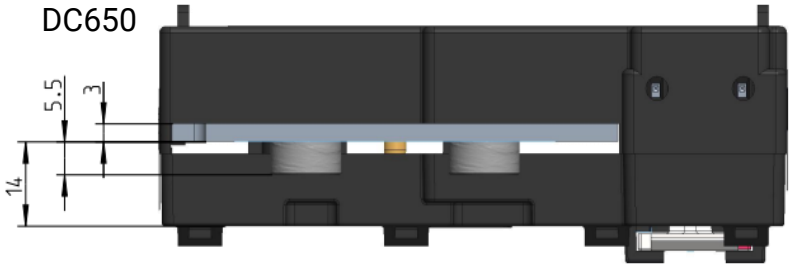

## Meter Unit

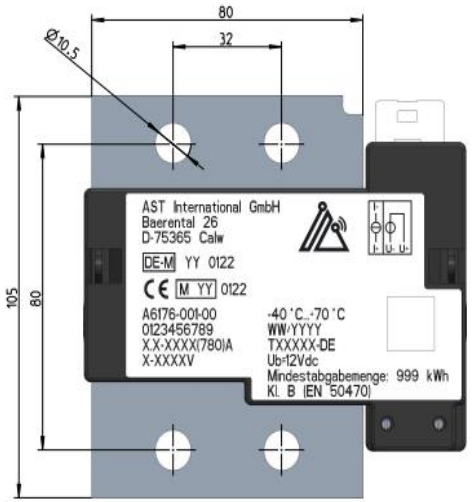
# Dimensions without housing DC650 / DC1000 - Detached Display Version

## Sensor Unit

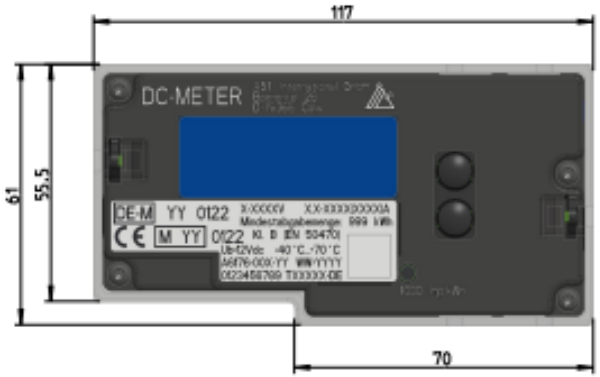
DC650




DC1000


## Meter Unit

# AST DC-Meter

## Key features

- Compact and robust design
- Bi-directional meter
- EN 50470, EN 61000, IEC 62052
- IEC 62053-41:2021
- According to VDE-AR-E-2418-3-100
- Charging cable resistance compensation Class Accuracy B
- Supply Voltage: 12V DC (24V DC possible)
- Meter Unit operating temperature range: -30°C to +80°C
- Sensor Unit operating temperature range: -30°C to +80°C
- Instantaneous data provided with a fresh rate at 1Hz, current, voltage, energy positive and negative
- Communication via Ethernet, RS485 or CAN
- Encapsulated with OCMF protocol (S.A.F.E., transparency software) and signed data
- Rated insulated voltage at 1000V DC

## Description

- Meter Unit: interface between the charging station (via Ethernet, RS485, CAN) and sensor unit as well as presenting the measuring data to the client.

- Cable: transmits data from the sensor unit to the meter unit. Capable to reach length up to 5 meters.

- Sensor Unit: measures the current and voltage. The calculated kWh are transmitted to the meter unit.

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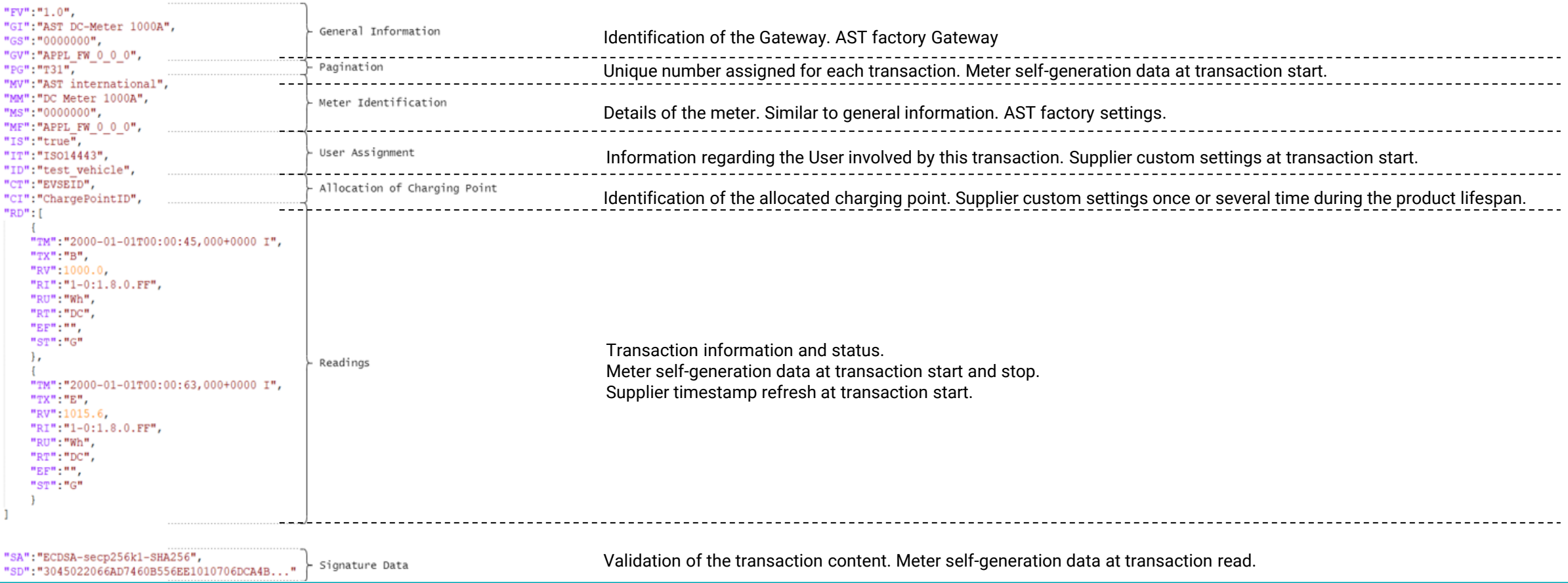
# Communication protocol

Transaction dataset is provided by JSON file format. This file is populated following the OCMF formatting. The DC-Meter handles both export and import energy in individual JSON file. The public key is retrieved from the meter by a specific command dissociation from the command to get the transaction dataset. The manufacturer must associate the DC-Meter public key to any transaction dataset to validate the content integrity by independent organisation.



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