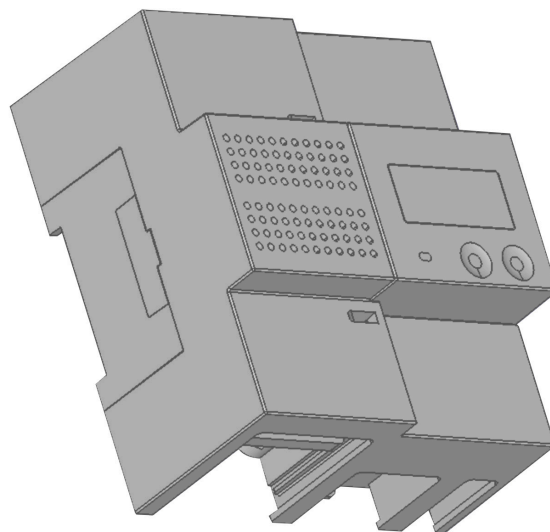


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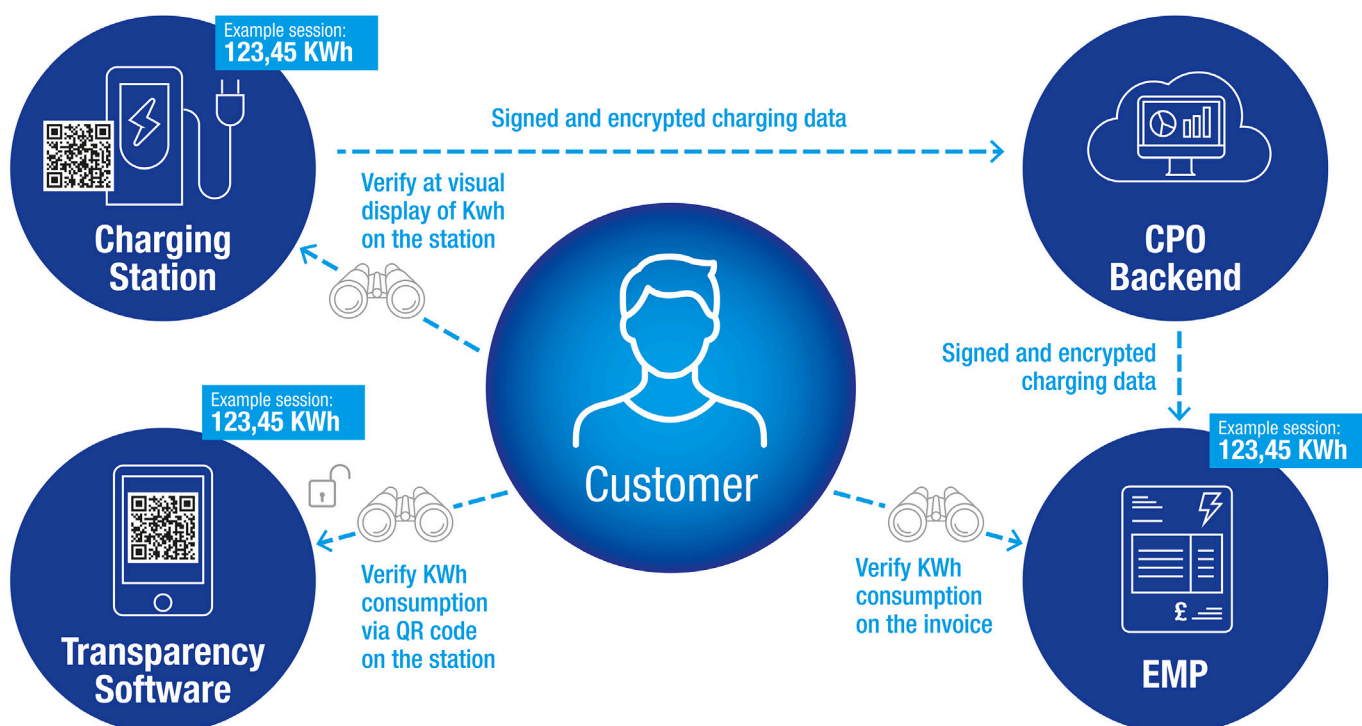


1 Introduction

The DCM650-H is a DC electricity meter for measurement within an e-mobility charging station. It has a dedicated microcontroller for crypto function in order to comply with 'Eichrecht'.

Furthermore, all charging processes are stored within the internal data storage of the meter.

The Eichrecht measurement and calibration act, which is an amendment to Measuring and Verification Act (Mess und Eichgesetz / MessEG) and the Measuring and Verification Ordinance (Mess- und Eichverordnung / MessEV) is the solution giving the user transparency for detailed billing for each charging event.



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2 Technical Specification

Voltage	
U _{max}	1000V DC
U _{min}	150V DC
Auxiliary power supply voltage	9-40V DC
Current	
I _{st} (Starting current)	0.52A
I _{min} (Minimum current)	6.5A
I _{tr} (Current)	13A
I _{ref} (Normal current)	130A
I _{max} (Maximum current)	650A
Accuracy	
Class	B
Active Energy	
Total Mains energy	+A (anti-reverse)
Meter Constant	
LED	100imp/kWh
Display	
LCD	Dot Matrix
Life Cycle	>12 Years
Serial Output	
Type	3 x RS485 (RTU)
Ports	2 x RJ12 + 1 plug-in terminal
RS485 interface 1 and 2	
4800~115200bps (19200bps default) 8N1 (Settable)	
RS485 interface 3	
4800~115200bps (19200bps default) 8N1 (Settable)	

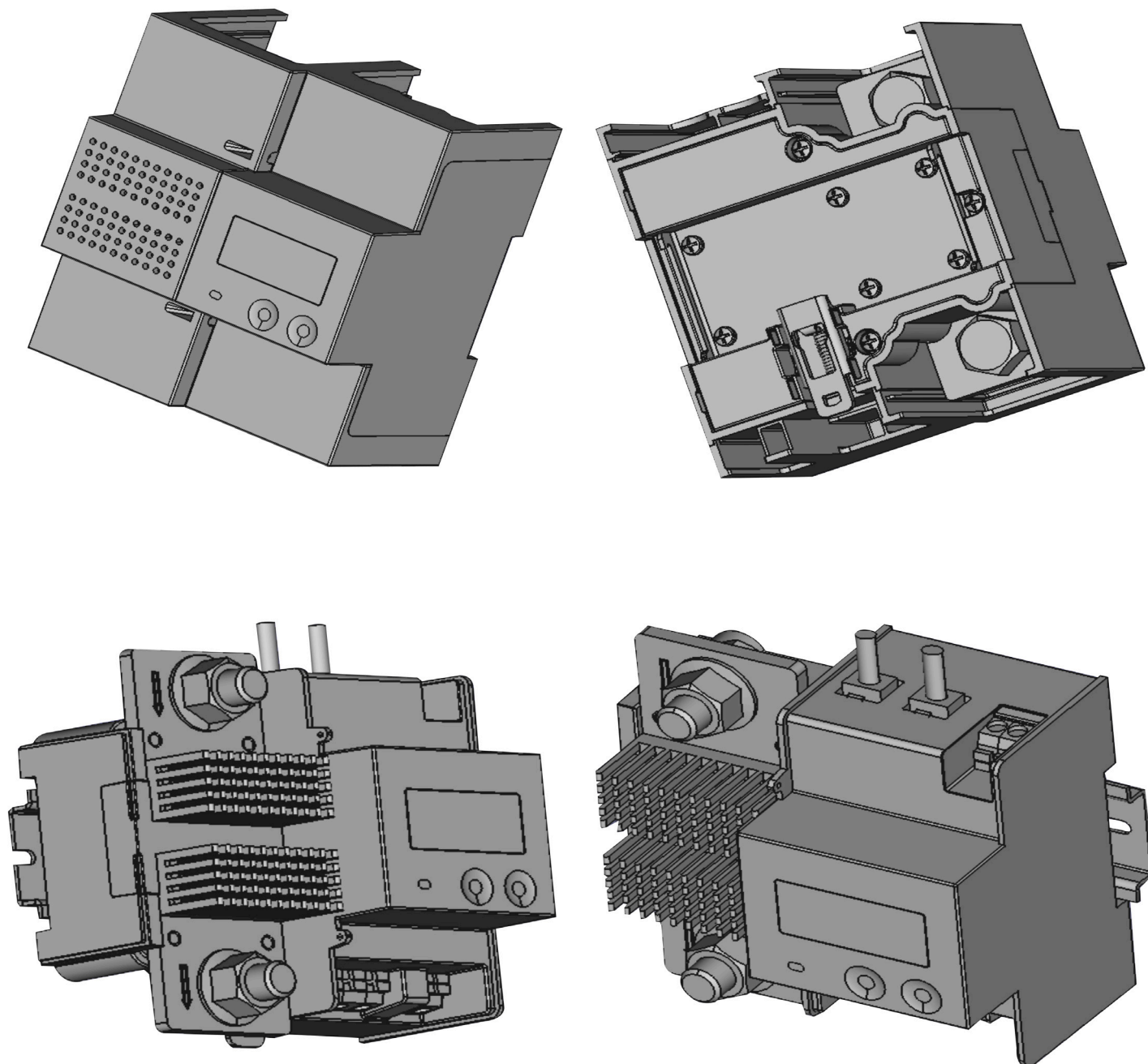
Power Consumption	
Voltage circuit	<0.5W@Un
Current Circuit	<0.12W @ I _{max}
Auxiliary power supply	<2W
Temperature range	
Operation	-40C to +80C
Storage	-40C to +80C
Humidity	
Max	97.5%, not condensing
EN60068-2-30:1999	
Environmental conditions	
Mechanical environmental conditions	M1
Electromagnetic environmental conditions	E2
Housing	
Dimensions	115mm (L) x 103mm (W) x 64mm (H)
Material	Polycarbonate and Flame retardant
Storage	
Capacity for start and stop charge records	229000
Capacity of logbook	5000

2.1 Technical Standards

- 1 EN50470-1: " Allgemeine Anforderungen, Prüfungen und Prüfbedingungen - Messeinrichtungen (Genauigkeitsklassen A, B und C)", Revision date 21.02.2019
- 2 EN50470-3:" Besondere Anforderungen - Elektronische Wirkverbrauchszähler der Genauigkeitsklasse A, B und C", Revision date June 2007
- 3 IEC62052-41: "Electricity metering equipment (AC) – General requirements, tests and test conditions", Revision date February 2003
- 4 DIN EN62052-11: „Wechselstrom – Elektrizitätszähler Allgemeine Anforderungen, Prüfungen und Prüfbedingungen Teil 11: Messeinrichtungen“, Revision date November 2003
- 5 VDE-AR-E 2418-3-100: „Elektromobilität – Messsysteme für Versorgungseinrichtungen“, Revision date 29.08.2019
- 6 EN 62053-41: "Electrical Energy Measurement and Control", Revision date 17.04.2020
- 7 OCMF1.0: "Open Charge Metering Format", Revision date 21.02.2019
- 8 PTB – A 20.1: " Messgeräte für Elektrizität: Elektrizitätszähler und deren Zusatzeinrichtungen", Revision date December 2003
- 9 PTB – A 50.7: " Anforderungen an elektronische und softwaregesteuerte Messgeräte und Zusatzeinrichtungen für Elektrizität, Gas, Wasser und Wärme", Revision date April 2002

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3 Housing

3D CAD Drawing of the housing

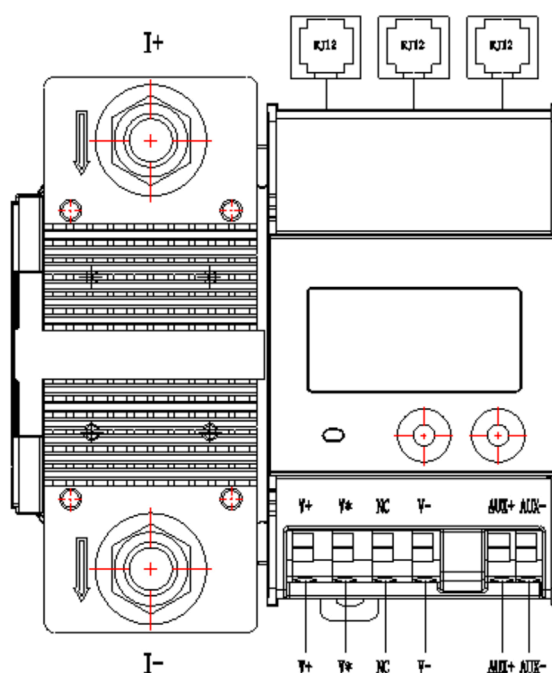
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4 Installation and Safety

4.1 Safety

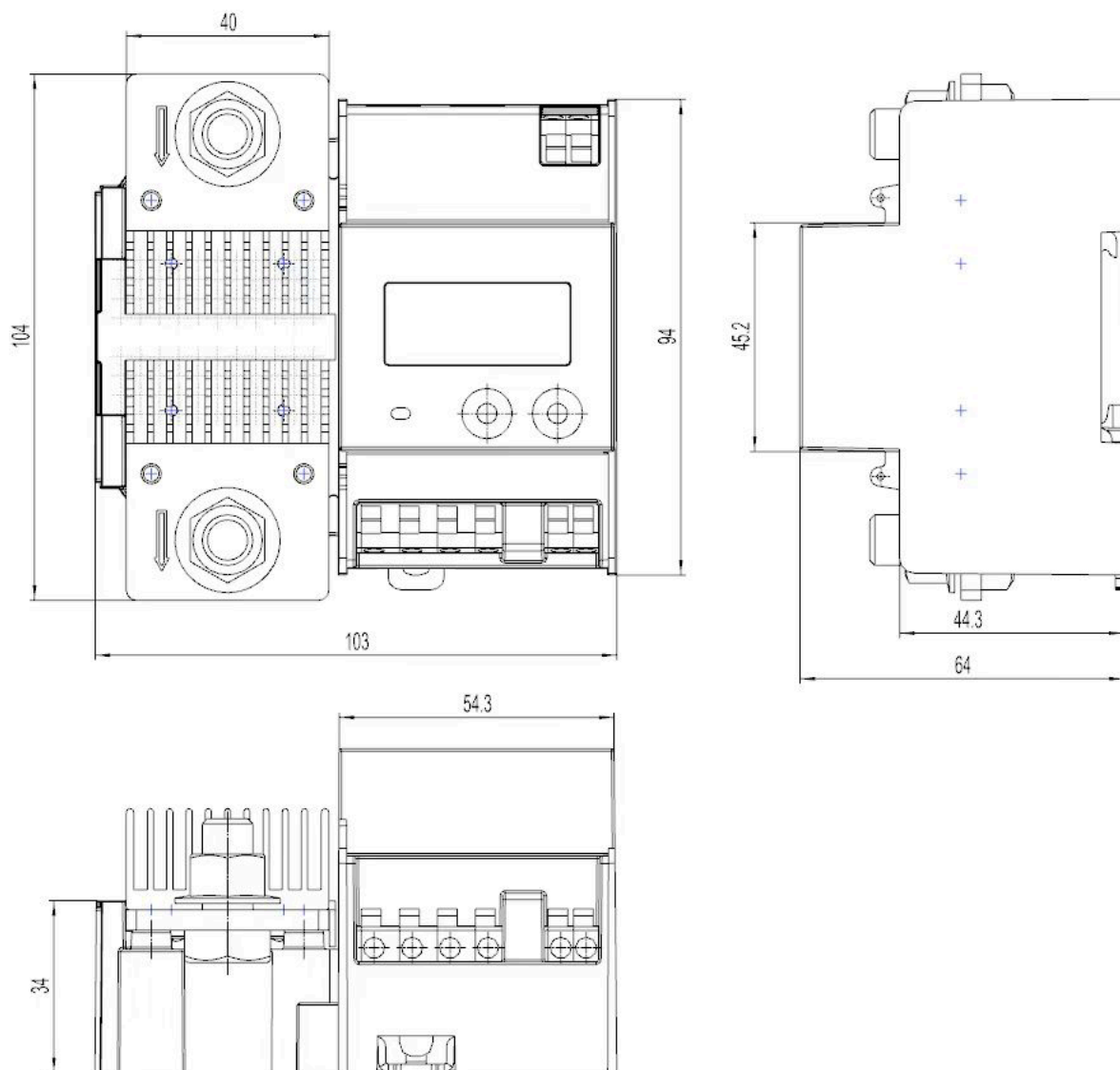
- The meter and all associated components may only be installed in compliance with all safety regulations. Ignoring these instructions may endanger life and the manufacturer will not take any responsibility.
- It is always mandatory to ensure the maximum peak voltage and maximum peak. current of the desired application do not exceed the maximum peak values of the meter. Otherwise, the meter gets damaged due to overvoltage and or overcurrent. These peak values are 1000VDC (Max Voltage) + 3102V overvoltage margin and 650 A (Max Current) and 15 kA overcurrent margin.
- In order to ensure smooth operation of the meter, the manufacturer's seal of approval has to be obtained before installation. If this has expired or is missing, the meter has to be sent back to the manufacturer for a new test.
- The meter should be installed in dry and well-ventilated area. The meter should be installed on a top-hat rail away from flammable or vibrating components. During installation, the meter has to be ensured to operate properly. meter has to be prevented by protective measures such as enclosures or protective caps.
- The connection has to be made according to Figure 5. The current-carrying lines are connected to the shunt of the meter using M10 nut screws. In order to prevent damage or corrosion due to a bad connection, a tightening torque of 17.5 to 20 Nm has to be applied.
- If additional modules are used in conjunction with the meter, a communication link between these two devices can be established via one of the three RJ12 interfaces.
- After installation of the meter, it is mandatory to change the operating mode from assembling mode to normal mode. The manufacturer is not responsible for any damage caused by disregarding this instruction.

4.2 Wiring configuration



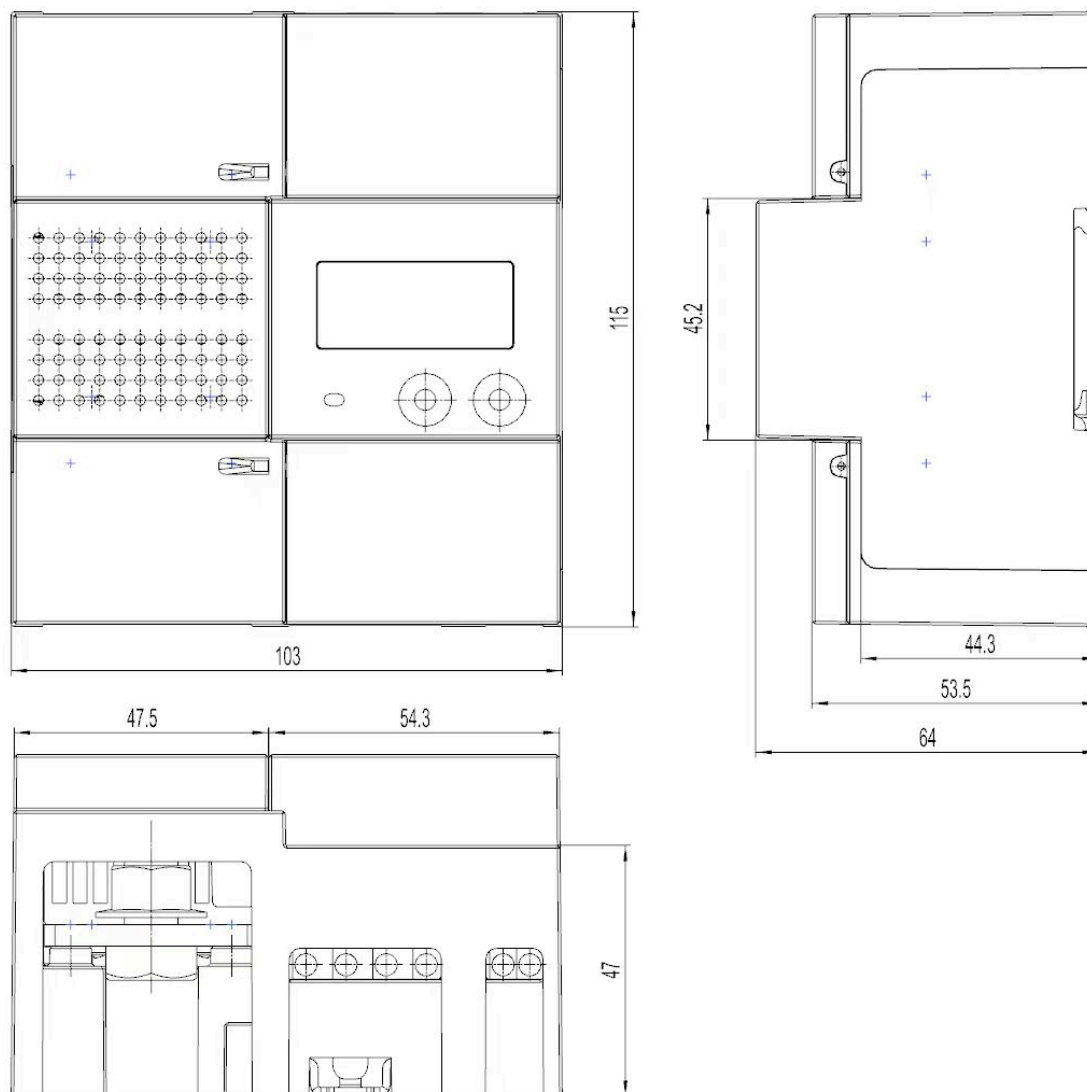
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4.3 Dimensions

Datasheet

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4.3 Dimensions (continued)

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5 Operation

5.1 Display

The LCD is dot matrix type with resolution of 192*96, sized at 37x16mm

5.2 Buttons

There are two buttons at front of the meter panel.

Left button short press: scroll the display content

Left button long press: show the public key QR code

Right button long press: check historical charging records