

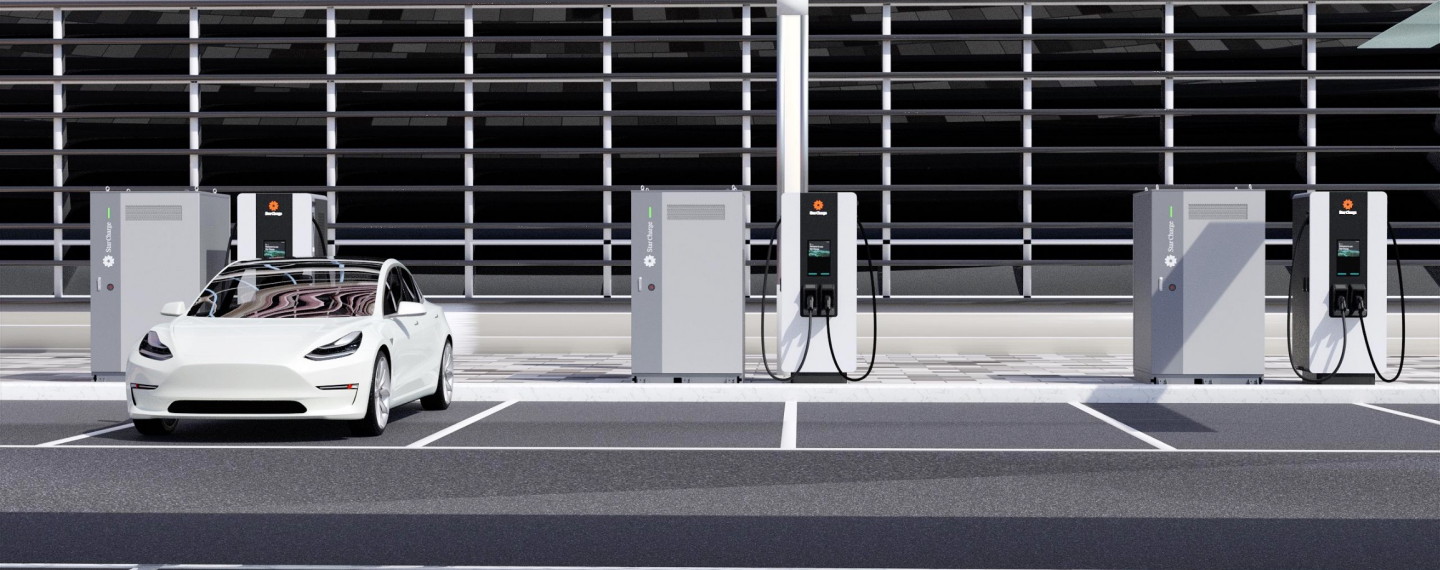


Smart Energy Solution

Commercial

Starcharge International Corp.

2024-01



eBox-215
(All-in-one ESS)

A turn-key stationary energy storage system for commercial scenario. Highly integrated with LFP, BMS, PCS, CCU, HVAC, FES and EMS all in one cabinet with 200kWh scalable system usable power capacity.



eHub
(ECC Cabinet)

An intelligent micro-grid energy balance and scheduling system with efficient management of photovoltaic, storage, charging and power grid to achieve optimal use of green energy.



Metis 60
(Inverter)

Starcharge commercial & industrial PV inverter with 4 ports to manage energy of Solar, Battery, high power Chargers and Grid through various connection options to Energy Central Controller.



Energy Central Controller
(Coordinator)

An Energy and Load balance device which could integrate power grid, photovoltaic, battery, charger and platform as a whole system.



Athena Pro
60kW



Titan V3
120 / 150 / 180kW



Nova 360 V2
360kW cabinet + Dispensers

HPC EVSE Product Family

Starcharge High Power charging devices for EV public charging. Various power rating 60kW, 120kW, 150kW, 180kW, 240kW, 300kW and 360kW are available.



eBox denotes a lithium energy storage system to realize the balance and optimization of energy supply and demand among the power grid, batteries, and loads by using local and remote EMS management systems, facilitating the access to new energy equipment such as photovoltaics, and bring application value in peak and valley electricity consumption, grid capacity expansion, and electricity safety, and serves as a core node to achieve smart micro-grid access.



eBox-215 All-in-one Energy Storage System



High-performance

Energy efficiency up to more than 90%, high charging & discharging rate with superior cycle life.



Convenience

Standard and scalable, easy for transportation, installation and maintenance.



Turnkey

Highly integrated with LFP, BMS, PCS, CCU, HVAC, FES and EMS all in one cabinet.



 Specifications

Performance	
Cell capacity / Material	280 Ah / LFP Prismatic
Operation voltage	720V to 852V DC
Rated voltage	768 V
System rated capacity	215 kWh
System usable capacity	200 kWh (93% DOD)
Charge discharge rate	≤ 0.5 P
Fire-extinguishing system	Gas fire extinguishing equipment
Interior PCS	
Rated output power	100 kVA
Max. output power	110 kVA
Rated grid voltage	400 V AC, L1+L2+L3+N+PE
Max. AC current	151 A
Frequency	50Hz / 60Hz
THDi	< 3% (@ rated power)
Protection	
Protection function	Overvoltage, undervoltage, over frequency, underfrequency, overcurrent, overpower, overtemperature, short circuit, anti-reverse wiring protection
Detection function	Insulation impedance detection, Buzzing alarm, Combustible gas (smoke) monitoring, Water immersion monitoring (floating ball type), Access control monitoring(travel switch)
Environmental	
Operating temperature range	-20 °C to +55 °C
Humidity	≤ 85%
Operating altitude	≤2000 m
Communication	
Display	7" LED touch screen
Interface	RS485, CAN, LAN
Mechanical	
Ingress protection	IP 54
Dimension (W x H x D)	1,257 x 2,200 x 1,438 (AC cooling included) mm
Weight	2,545 kg
Thermal management	Industrial air-controlled system
Installation type	Ground mounting
Enclosure material	Aluminum alloy
Standards and Compliance	
Standards	IEC/EN 62619, IEC/EN 63056, IEC/EN 62477-1, IEC/EN 61000-6-2, IEC61000-6-4, UN38.3

Main Features

- Integrated HV box, PCS and AC power distribution functions. Reduce device, save system cost and volume.
- Multi-level topology, low loss modulation. Improve battery capacity utilization.
- Functional safety design. Multiple protection protects system security.
- High protection grade. Support EtherCAT high speed communication.



Specifications

Battery Port	
Operating voltage range	650 – 950 V
Rated input/output power	100 kW
Max. charging and discharging power	110 kW
Max. continuous current	158 A
AC Port (On-grid Mode)	
Max. output power	100 kVA
Rated current	145 A
Rated grid voltage	400 Vac, 3W+N+PE or 3W+PE
Frequency	50/60 Hz
Power factor range	-1...+1
THDi	<3% (rated power)
AC Port (Off-grid Mode)	
Output voltage ⁽¹⁾	400 Vac, 3W+N+PE
Max. output power	100 kVA
Max. alternating current	145 A (linear load) / 90 A (nonlinear load)
Max. unbalance loaf	17.5 kVA
Frequency	50/60 Hz
Max. allowable crest factor	2.5
THDv	<3% (rated conditions, resistively balanced load)
Protection	
Protect functions	Anti-reverse connection protection, DC overvoltage and undervoltage protection, Anti-AC phase sequence error protection, AC overcurrent protection, Overtemperature protection, Anti-islanding protection, AC surge protection
General Data	
Topology	Transformer-less
Peak efficiency	98.1%
Operating temperature range	-25°C ~ +60°C), derating >45°C
Humidity	0% ~ 95%
Operating altitude	3000 m
Audible noise	<75 dBA @ 1 m
Parallel connection	Up to 6 in parallel connections

Note: Pictures are for reference only, please prevail in kind.



Mechanical	
Dimension (W X H X D)	700 × 266 × 820 mm
Weight	85 kg
Cooling	Intelligent forced air cooling
Enclosure material	Aluminum alloy
Installation type	Rack-mounted
Protection grade	IP 65
Salt-mist protection	C5
Interface	
Display	LED
Communication mode	RS485 / CAN
Firmware update mode	Remote update supported
Standards	
Safety	IEC 62477-1
EMC	IEC61000-6-2/-4
Grid connection standards	EN 50549-1/-2, CEI0-21, RENblad 342, G99, VDE-AR-N4105, AS4777.2

(1) Additional transformers are required to support single-phase loads.



Dynamic Management

Dynamic management of chargers to ensure orderly and safe charging in case of transformer overcapacity.



Multi-functional

Support PV inverter, ESS, EV charger connection and communication.



Intelligent

Photovoltaic, energy storage, charging, and power grid – a ‘4-in-one’ intelligent energy balance and scheduling system to optimize green energy use efficiency.



eHub Energy Balancing System

Specifications

Model	eHub-300	eHub-400	eHub-400-Plus
Rated voltage	230/400 V AC		
Rated current	630 A		
Rated frequency	50/60 Hz		
Rated insulation voltage	500V		
RS 485	4 channels		
CAN	2 channels		
Ethernet	7 channels, 10 / 100 Mbps		
4G	LTE-CAT4		
Dimension (W×D×H)	600 × 800 × 2000 mm	800 × 800 × 2000 mm	800 × 800 × 2000 mm
Weight	200 kg	350 kg	355 kg
Automatic on/off-grid switching	Not supported	Not supported	Supported
Safety protection	Smoke sensing, automatic switch release		
Operation temperature	-20°C~ +50°C		
Protection grade	IP54 / IK10		
Humidity	5% to 95%		
Installation altitude	≤2000 m		
Installation method	Ground mounted		
Security level	IEC62443 4-1		
Electrical protection	Breaker auto trip, surge protection Class II		
Certificate / Compliance	CE / IEC 61439-1 2020 CE / IEC 61439-2 2020		

Note: Pictures are for reference only, please prevail in kind.



Metis is a key device with PV ports to manage energy of Solar, Battery, high power Chargers and Grid through various connection options to Energy Central Controller for commercial and industrial scenarios.



Metis 60 PV Inverter



Efficiency

Provides four-channel MPPT, and enables high power generation in complicated scenarios. The maximum MPPT current can reach up to 27A.



Safety

The aluminum alloy shell makes Metis lightweight and rust-proof. Protection rating up to IP65, suitable for various installation environments.



Connectivity

Supports Wi-Fi, Bluetooth, Ethernet, 4G communication via an optional smart communication gateway.



Specifications

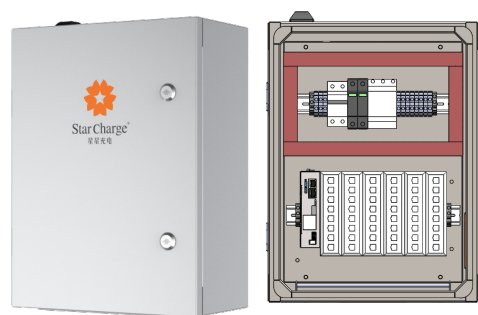
DC Input (PV)	
Max. input voltage	1050V DC
MPPT operating voltage range	200V to 900V DC
Peak efficiency	98.5%
Max. input current per MPPT	27A
Number of PV input	8
Number of MPP Trackers	4
AC Port	
Max. output power	60kVA
Rated grid voltage	230V / 400 V AC, L1+L2+L3+N+PE
Max. AC current	87A
Frequency	50Hz
Power factor range	-0.8 to +0.8
THDi	< 3% (@ rated power)
Protection	
Protection function	Anti-islanding protection, output overcurrent protection, DC surge protection, AC surge protection
Detection function	Insulation impedance detection, residual current detection, string formation fault detection
General Parameter	
Topology	Transformer-less
Operating temperature range	-25 °C to +60 °C (Derating above 45°C @ Rated output power)
Humidity	0% to 100%
Operating altitude	≤4000 m (Derating above 3000 m)
Communication	
Display	LED
Interface	RS485, CAN, 4G (optional), Wi-Fi (optional), Ethernet (optional)
Mechanical	
Dimension (W x H x D)	700 x 615 x 290 mm
Weight	62.5 kg
Cooling	Forced air cooling
Installation type	Wall - mounting
Ingress protection	IP 65
Standards and Compliance	
Safety	IEC 62109-1 / -2
EMC	IEC61000-6-2, IEC61000-6-4
Grid connection standards	CEI0-21, VDE-AR-N4105



ECC is an extensible load management device with intelligent power prediction and control algorithm for a wholesome highly efficient green energy use solution.



Energy Central Controller



ECC Box ((Device for ECC installation)



Intelligentize

With intelligent power prediction and control algorithm, to realize smart charging site load management



Multi-function

Photovoltaic, energy storage, charger and power grid 'four-in-one' energy balance, to maximize green energy use efficiency



Safety

Provides perfect power allocation in case of overload for a systematic protection design to ensure charging safety



ECC Specifications

Performance Index	
Operating system	Linux
Data recording	Common real-time data, cloud viewing, 20 years of storage
Log recording	> 10000 pieces
Function	Group orderly charging, energy management and scheduling
Supported charger qty. / ECC	36 sets (24 sets by RS485, 12 sets by CAN)
Operating system	Linux
Power Input	
Rated voltage	12 – 24 Vdc (±10%) isolated power supply
Power consumption	15 W Peak
Communication	
4G communication	LTE – CAT4
Ethernet	2 channels, RJ-45, 10/100Mbps
RS485	4 channels
CAN	2 channels
Communication protocol	Modbus TCP, Modbus RTU, DL/T645, ProtoBuf
Cloud protocol	Starcharge
Environmental Parameter	
Operating temperature range	-20 °C to + 50 °C
Humidity	0% to 95% RH (no condensation)
Operating altitude	≤2000m
Ingress protection	IP 20
Mechanical Parameter	
Dimension (WxHxD)	108x137x36 mm
Weight	0.7 kg
Installation	DIN Rail Mounting
Certification and Standards	
Standards and compliance	EN 62368-1(LVD), EN IEC 61000-6-1/3 (RED + EMC/Class B) , EN301908-1 (3G&4G), EN 50665 (MPE)
Certification	CE, RED

ECC Box Specifications

Power Input	
Rated voltage	230 Vac, single phase, 50/60Hz, L+N+PE
Power consumption	20 W (single ECC configuration)
Environmental Parameter	
Operating temperature range	-20 °C to + 50 °C
Ingress protection	IP 55
Mechanical Parameter	
Dimension (WxHxD)	375x500x220 mm
Weight	15 kg
Installation	Wall mounting / Pole mounting(optional)
Installation capacity	1 ECC and 7 Network Switches for 40 devices connection max.



Main Features

- 95% peak efficiency & 200A high output current.
- Installation space-saving: support wall-mounted installation, only 350mm thickness of the wall box.
- Connect to any backend based on OCPP 1.6J protocol.
- Equipped cable management system. (Optional)



Specifications

General Information	
Input Rating	400Vac±10%, 3-phases, 50/60Hz, L1+L2+L3+PE
Input Current Rating	AC 90A
Power Factor	≥0.99 @ Full Load
Efficiency	95%
Grid Type	TN-S, TN-C-S, TT, IT
Output Interface	CCS2+CCS2 or CCS2+CHAdeMO
Output Power	60kW max.
Output Voltage	CCS2: 150-1000Vdc, CHAdeMO: 150-500Vdc
Output Current	CCS2: 200A max./connector, CHAdeMO: 125A max./connector
User Interface	
Display	7-inch touch screen
Support Language	English (Other languages available upon request)
Button and Switch	Mechanical Buttons & Emergency Button
User Authentication	RFID card, App (optional), Credit card (optional)
RFID Reader	ISO/IEC 14443 A/B, ISO/IEC 18092, IEC/ISO 15693
Communication	
Network Interface	4G, Wi-Fi, Ethernet
Protocol (EVSE&Backend)	OCPP 1.6J
Protocol (EVSE&EV)	DIN 70121, ISO 15118
Environmental	
Operating Temperature	-30°C to 55°C (> 50°C derating)
Storage Temperature	-30°C to 70°C
Humidity	5% to 95% no condensation
Altitude	≤2000m above sea level
Mechanical	
IP Rating	IP55
IK Rating	IK10
Cooling	Forced Air
Noise	≤65dB @ 1m & full load
Charging Cable Length	4.5m
Dimensions (WxHxD)	750*750*350mm(excluding cable management system) (Pole: 240*740*180mm)
Weight	Approx. 125kg (including power modules) , Cable Management system approx. 35kg
Installation	Wall mounting, Pole mounting (Pole is optional)
Certification and standards	
Standards and compliance	IEC 61851-1, IEC 61851-21-2, IEC 61851-23, LVD 2014/35/EU, RED 2014/53/EU
Certification	CE-RED

*Cable Management System and Pole are optional.

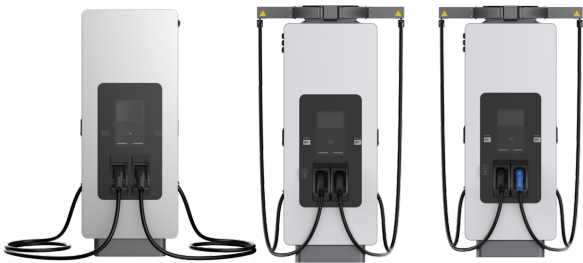
*Cable Management System will be packaged separately from EVSE.

Titan 180 V3



Main Features

- 200-1000Vdc wide output voltage range.
- Flexible configuration, CCS2 and CHAdeMO optional.
- Cable management system (Optional) and ADA compliance.
- Connect to any backend based on OCPP 1.6J protocol.
- Equipped with payment terminal.



Specifications

General Information	
Input Rating	400Vac±10%, 3 phases, 50/60Hz, L1+L2+L3+N+PE (No neutral line for IT system)
Input Current Rating	AC 290A (AC 240A for 150kW output and AC 190A for 120kW output)
Power Factor	≥0.98 @ Full Load
Efficiency	95%
Grid Type	TN-S, TN-C, TN-C-S, TT, IT
Output Interface	CCS2+CCS2 or CCS2+CHAdeMO
Output Power	CCS2: 180kW max. (150kW max. & 120kW max. are optional) CHAdeMO: 62.5kW max.
Output Voltage	CCS2: 200-1000Vdc, CHAdeMO: 200-500Vdc
Output Current	CCS2: 300A max., CHAdeMO: 125A max.
User Interface	
Display	10.4-inch touch screen
Support Language	English (Other languages available upon request)
Button and Switch	Emergency button
User Authentication	RFID card, App (optional), Credit card (optional)
RFID Reader	ISO/IEC 14443 A/B, ISO/IEC 18092, IEC/ISO 15693
Communication	
Network Interface	4G, Wi-Fi, Ethernet
Protocol (EVSE&Backend)	OCPP 1.6J
Protocol (EVSE&EV)	DIN70121, ISO 15118
Environmental	
Operating Temperature	-30°C to 50°C
Storage Temperature	-40°C to 70°C
Humidity	5% to 95% no condensation
Altitude	≤2000m above sea level
Mechanical	
IP Rating	IP55
IK Rating	IK10
Cooling	Forced Air
Charging Cable Length	5m or 6m(optional)
Operating Range with Cable Management System	5m cable @ approx. 3m operating range (cable will not touch ground) 6m cable @ approx. 4m operating range (0.3m cable will be on ground)
Dimensions (WxHxD)	800*2050*750mm (without connector holder and cable management system) 800*2235*750mm (with cable management system)) Approx. 390kg (excluding power modules) Approx. 36kg (cable management system)
Weight	
Installation	Ground mounting
Certification and standards	
Standards and compliance	IEC 61851-1, IEC 61851-21-2, IEC 61851-23, LVD 2014/35/EU, RED 2014/53/EU
Certification	CE-RED, CB, UKCA, RCM, WPC, NBTC(ongoing), SDPPI(ongoing), SIRIM(ongoing), ICT(ongoing)

*Cable Management System is optional.



Main Features

- Advanced dynamic power allocation
- Max. 500A output current/connector with liquid cooling system
- User-friendly Cable Management System
- Dynamic status display
- Great scalability, support 6 charging points per power cabinet



Specifications (Liquid-Cooling Connector)

User Unit					
Rendering					
Power Input		Auxiliary power supply: 230Vac±10%, single-Phase, 50/60 Hz, L+N+PE			
Output Interface		2 × CCS2 (Liquid-cooling)	1 × CCS2 (Liquid-cooling)	1 × CCS2 (Liquid-cooling) + 1 × CHAdeMO (Natural-cooling)	
Output Power		360kW max.			
Output Voltage		150-1000Vdc	150-1000Vdc	CCS2: 150-1000Vdc, CHAdeMO: 150-500Vdc	
Output Current		500A max./connector	500A max.	CCS:500A max., CHAdeMO: 200A max.	
Simultaneous Charging		Yes(400A max./connector simultaneous charging)	N/A	Yes	
Display		10.4-inch LCD touch screen			
Support Language		English (Other languages available upon request)			
Button and Switch		Emergency button & 4 x Mechanical buttons for screen operation			
Authentication		RFID Card, QR code, Credit Card (Optional)			
RFID Reader		ISO/IEC 14443 A/B, ISO/IEC 18092, IEC/ISO 15693			
Network Interface		4G, Ethernet			
Protocol (EVSE&Backend)		OCPP 1.6J			
Protocol (EVSE&EV)		DIN 70121, ISO 15118			
Operating Temperature		-30℃ to 55℃ (> 50℃ derating)			
Storage Temperature		-30℃ to 70℃			
Humidity		5% to 95% no condensation			
Altitude		≤2000m above sea level			
IP Rating		IP55			
IK Rating		IK10 (Screen is IK08)			
Charger Cooling		Forced Air			
Noise		65dB @ 1m			
Charging Cable Length		5m			
Dimensions (HxWxD)	including cable management system	2200*1050*707mm	2200*835*450mm	2200*1050*707mm	
Weight	including cable management system	260kg	235kg	260kg	
Installation		Ground mounting			



Main Features

- Advanced dynamic power allocation
- Great scalability, support max. 12 charging points per power cabinet
- Flexible configuration – Natural & Liquid Cooling User Unit integrated in one system
- User-friendly Cable Management System
- Dynamic status display
- Liquid-cooling and Natural-cooling connector options



Specifications (Natural-Cooling Connector)

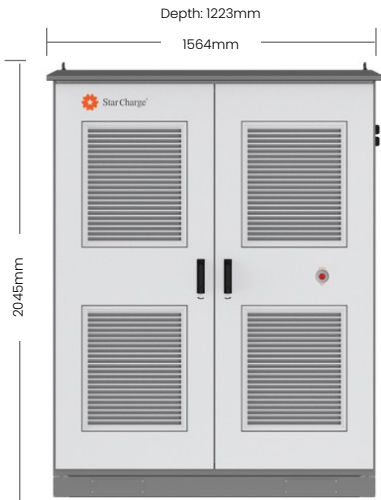
User Unit		
Rendering		
Power Input		Auxiliary power supply: 230Vac±10%, single-Phase, 50/60 Hz, L+N+PE
Output Interface		2 × CCS2 (Natural-cooling)
Output Power		360kW max.
Output Voltage		150-1000Vdc
Output Current		300A (400A max.) / connector
Simultaneous Charging		Yes
Display		10.4-inch LCD touch screen
Support Language		English (Other languages available upon request)
Button and Switch		Emergency button & 4 x Mechanical buttons for screen operation
Authentication		RFID Card, QR code, Credit Card (Optional)
RFID Reader		ISO/IEC 14443 A/B, ISO/IEC 18092, IEC/ISO 15693
Network Interface		4G, Ethernet
Protocol (EVSE&Backend)		OCPP 1.6J
Protocol (EVSE&EV)		DIN 70121, ISO 15118
Operating Temperature		-30°C to 55°C (> 50°C derating)
Storage Temperature		-30°C to 70°C
Humidity		5% to 95% no condensation
Altitude		≤2000m above sea level
IP Rating		IP55
IK Rating		IK10 (Screen is IK08)
Charger Cooling		Forced Air
Noise		≤55dB @ 1m
Charging Cable Length		6m
Dimensions (HxWxD)	including cable management system	2200*1050*707mm
Weight	including cable management system	244kg
Installation		Ground mounting



Power Cabinet	
Input Rating	400Vac±10%, three-phase, 50/60Hz, 2 × (L1+L2+L3+N+PE)
Input Current Rating	AC 550A
Power Factor	≥0.99 @ Full Load
THDi	≤5%
Efficiency	95%
Grid Type	TN-S, TN-C, TN-C-S, TT
Output Power	360kW max.
Output Voltage	150-1000Vdc
Output Current	1200A in total, 100A/power module, 500A max/channel
Overvoltage	CAT III
Scene conditions	C3-M
Output Channel	Max. 12
Noise	≤65dB @ 1m & full load
Button and Switch	Emergency button
Network Interface	4G, Wi-Fi, Ethernet
Operating Temperature	-30°C to 55°C (> 50°C derating)
Storage Temperature	-30°C to 70°C
Humidity	5% to 95% no condensation
Altitude	≤2000m above sea level
IP Rating	IP55
IK Rating	IK10
Cooling	Forced Air
Dimensions (WxHxD)	1564*2045*1223mm
Weight	Approx. 655kg (excluding power modules)
Installation	Ground mounting
Certificate	CE-RED



Dimensions





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