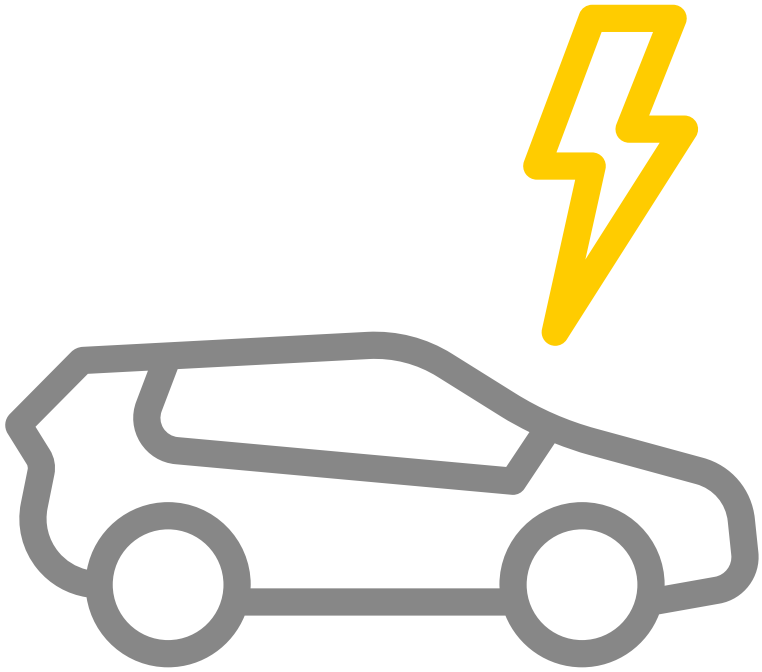
OVERVIEW

EMOBILITY PV CHARGING SOLUTIONS



PV CHARGING SOLUTIONS
RESIDENTIAL
COMMERCIAL

krannich

Manufacturer ENPHASE

Product series		IQ EV Charger	
Product name		IQ EV Charger 2	IQ EV-Charger 2 Calibration-law compliant
Wallbox / Charging station / Charging type (AC / DC)		Wallbox / AC	
Cable / Socket		Type 2 Cable / Female	
Suitable for	**Private**	●	
	Semi-public	●	
	In public	○	●
Max. charging power (kW)		22 kW	
Mains connection		1- or 3-phase 230/400V / 32A, 50Hz	
Protection + access authorization	**Residual-current circuit breaker**	DC fault current detection > 6mA (on-site Residual current circuit breaker type A required)	
	Dynamic load management	○	
	RFID / App	● / ●	
SMART charging features: PV surplus, dynamic electricity tariffs, limitation pursuant to Section 14a EnWG, requirements for public charging points under EN ISO 15118-20:2022		PV surplus; dynamic electricity tariffs; fixed charging times; Limitation by EVU (via eebus)	PV surplus (within the system); Dynamic electricity tariffs; fixed charging times; Limitation by the utility (via eebus); Prepared for ISO 15118-20
Collection of charging data Manufacturer portal - APP / MID meter / calibration law compliant		● / ● / ○	● / ● / ●
Communication / Interfaces		WLAN, LAN, RS485, CAN	
Special features		Flexible AC connection 1- or 3-phase, autom. Phase switching;	Flexible 1- or 3-phase AC connection; automatic phase switching; Prepared for bidirectional charging

** Dependent on release and provision date of the manufacturer

Manufacturer Fronius

Product series		Wattpilot			
Product name		Wattpilot Go 11 Y / 22 J	Wattpilot Home 11 Y / 22 J	Wattpilot Flex Home 11 / 22 C6	Wattpilot Flex Pro 11 / 22 C6E
Wallbox / Charging station / Charging type (AC / DC)		Wallbox / AC			
Cable / Socket		Type 2 socket		Type 2 Cable	
Suitable for	**Private**	●		●	
	Semi-public	○		○	●
	In public	○		○	
Max. charging power (kW)		11 kW / 22 kW	11 kW / 22 kW	11 kW / 22 kW	11 kW / 22 kW
Mains connection		1-phase 230 V / 3-phase 400V, 50 Hz (by means of adapter)	1-phase 230 V / 3-phase 400V, 50 Hz (fixed connection)	1-phase 230 V / 3-phase 400V, 50 Hz (fixed connection)	1-phase 230 V / 3-phase 400V, 50 Hz (fixed connection)
Protection + access authorization	**Residual-current circuit breaker**	Integrated residual current cutSwitch type A and DC fault current detection > 6mA		Integrated residual current cutSwitch type A and DC fault current detection > 6mA	
	Dynamic load management	●		●	
	RFID / App	● / ●		● / ●	
SMART charging features: PV surplus, dynamic electricity tariffs, limitation pursuant to Section 14a EnWG, requirements for public charging points under EN ISO 15118-20:2022		PV surplus + fixed charging times (within the system); Limitation by the utility (via integrated analog input)	PV surplus + fixed charging times (within the system); Dynamic electricity tariffs; Limitation by the utility (via integrated analog input)	PV surplus + fixed charging times (within the system); Dynamic electricity tariffs; Limitation by the utility (via integrated DI); Prepared for ISO 15118-20	
Collection of charging data Manufacturer portal - APP / MID meter / calibration law compliant		● / ○ / ○		● / ○ / ○	● / ● / ○
Communication / Interfaces		Wi-Fi		LAN + WLAN / 2 x DI	
Special features		Mobile solution with variable power plug and APp connection, switching 1/3-phase charge	Up to 3 systems in parallel, unlimited with EMIL control, switching 1/3-phase charge, standalone app, Eco / NextTrip mode	Permanently installed solution for 1/3-phase AC connection, LaduNg with PV surplus, 1P/3P phase switching	Permanently installed solution for 1-/3-phase AC connection, charging with PV excess, 1P/3P phase switching, can also be used in semi-public areas by MID counters

Manufacturer		GOODWE	
Product series		HCA G2	
Product name		GW 11K-HCA-20	GW 22K-HCA-20
Wallbox / Charging station / Charging type (AC / DC)		Wallbox / AC	
Cable / Socket		Type 2 Cable	
Suitable for	**Private**	●	
	Semi-public	○	
	In public	○	
Max. charging power (kW)		11 kW	22 kW
Mains connection		3-phase 230V / 16A, 50Hz	3-phase 400V / 32A, 50Hz
Protection + access authorization	**Residual-current circuit breaker**	DC fault current detection > 6mA (on-site Residual current circuit breaker type A required)	
	Dynamic load management	●	
	RFID / App	● / ●	
SMART charging features: PV surplus, dynamic electricity tariffs, limitation pursuant to Section 14a EnWG, requirements for public charging points under EN ISO 15118-20:2022		PV surplus + fixed charging times (within the system); Limitation by the utility	
Collection of charging data Manufacturer portal - APP / MID meter / calibration law compliant		● / ○ / ○	
Communication / Interfaces		WLAN, LAN, RS485	
Special features		Close networking with Goodwe home storage system; phase switching; load management	

** Dependent on release and provision date of the manufacturer

Manufacturer		HUAWEI		KOSTAL Solar Electric	
Product series		Huawei Smart Charger		Enector	
Product name		Smart Charger AC 7.4 / 22		Enector AC Wallbox	Enector G2 Wallbox 3,7 / 11
Wallbox / Charging station / Charging type (AC / DC)		Wallbox / AC		Wallbox / AC	
Cable / Socket		Type 2 socket		Type 2 Cable	Type 2 cable
Suitable for	**Private**	●		●	
	Semi-public	○		○	● (with MID)
	In public	○		○	○
Max. charging power (kW)		7.4 kW	22 kW (11 kW throttled)	3.7 (1-phase); 11 (3-phase)	3,7 (1-phase); 11 (3-phase)
Mains connection		1-phase 230V / 32A, 50Hz	3-phase 400V / 32A, 50Hz	1-phase 230V/16A, 50Hz, 3-phase 400V/16A, 50Hz	1-phase 230V / 16A, 50Hz, 3-phase 400V / 16A, 50Hz
Protection + access autho-rization	**Residual-current circuit breaker**	DC fault current detection > 6mA (on-site Residual current circuit breaker type A required)		DC residual current detection > 6mA, residual current circuit breaker type A installed	DC residual-current detection > 6 mA (Type A residual-current circuit breaker required on site)
	Dynamic load ma-nagement	○		○	Yes (within the system)
	RFID / App	● / ●		○ / ○	● / ●
SMART charging features: PV surplus, dynamic electricity tariffs, limitation pursuant to Section 14a EnWG, requirements for public charging points under EN ISO 15118-20:2022		PV surplus or fixed charging times (within the system); Dynamic electricity tariffs (via EMMA); Utility limitation (via Modbus)		PV surplus (with Kostal KSEM and activation code) Fixed charging times, Limitation EVU (integrated terminals)	PV surplus (with Kostal KSEM and activation code) fixed charging times; Utility limitation; Prepared for ISO 15118-20 (update announced for 2027)
Collection of charging data Manufacturer portal - APP / MID meter / calibration law compliant		● / ○ / ○		● / ○ / ○	● / ● opt.) / ○
Communication / Interfaces		WLAN + LAN		RS485	WLAN + LAN
Special features		Autom. Switching 1-/3-phase charge; 2-fold cascade incl. PV excess char-ging with EMMA		Monitoring in the Kostal Portal, 7.5 m charging cable	Flexible charging solution for system integration; automatic phase switching; prepared for bidirectional charging in accordance with ISO 15118-20

Manufacturer SIGENERGY

Product series		Sigenergy EV Charger	
Product name		EV AC Wallbox 7 / 11 / 22	SigenStor EV DC
Wallbox / Charging station / Charging type (AC / DC)		Wallbox / AC	Charger module / DC
Cable / Socket		Type 2 cable / socket	CCS Combo-2 plug
Suitable for	**Private**	●	
	Semi-public	○	
	In public	○	
Max. charging power (kW)		7 (1-phase) kW 11 / 22 (3-phase) kW	12,0 / 25,0 kW (option)
Mains connection		1-phase 230V / 16A, 50Hz, 3-phase 400V / 32A, 50Hz	no direct AC connection
Protection + access authorization	**Residual-current circuit breaker**	DC residual-current detection > 6 mA; Type A residual-current circuit breaker installed	Connection within the system on the DC side
	Dynamic load management	●	
	RFID / App	● / ●	
SMART charging features: PV surplus, dynamic electricity tariffs, limitation pursuant to Section 14a EnWG, requirements for public charging points under EN ISO 15118-20:2022		PV surplus + fixed charging times; Dynamic electricity tariffs; Limitation by the utility	PV surplus + fixed charging times; Dynamic electricity tariffs; Limitation by the utility; ISO 15118 prepared
Collection of charging data Manufacturer portal - APP / MID meter / calibration law compliant		● / ○ / ○	
Communication / Interfaces		WLAN + LAN + RS485	within the system via inverter
Special features		Flexible charging solution with phase switching; load management and integrated residual-current circuit breaker.	Direct integration into the SIGENStack system; efficient DC charging from PV + battery

** Dependent on release and provision date of the manufacturer

Manufacturer SMA

Product series		SMA EV Charger	
Product name		SMA eCharger 22	SMA EV Charger Business
Wallbox / Charging station / Charging type (AC / DC)		Wallbox / AC	
Cable / Socket		Type 2 socket	2 x Type 2 cable
Suitable for	**Private**	●	○
	Semi-public	○	●
	In public	○	○
Max. charging power (kW)		22 kW	2 x 22 kW
Mains connection		3-phase 400V / 32A, 50Hz	3-phase 400V / 64A, 50Hz
Protection + access authorization	**Residual-current circuit breaker**	DC residual-current detection > 6 mA (Type A residual-current circuit breaker required on site)	DC residual-current detection > 6 mA; Type A residual-current circuit breaker installed
	Dynamic load management	●, with SMA Home Manager	●, with a compatible meter
	RFID / App	● / ○	
SMART charging features: PV surplus, dynamic electricity tariffs, limitation pursuant to Section 14a EnWG, requirements for public charging points under EN ISO 15118-20:2022		PV surplus + fixed charging times (within the system); Dynamic electricity tariffs (via Home Manager); Limitation by the utility (via Home Manager); ISO 15118 prepared	PV surplus + fixed charging times (within the system); Dynamic electricity tariffs + Limitation by the utility (via Home Manager); ISO 15118 prepared
Collection of charging data Manufacturer portal - APP / MID meter / calibration law compliant		● / ● / ○	●** / ●** / ○
Communication / Interfaces		WLAN + LAN + RS485	LAN
Special features		Three units can be cascaded; RFID; boost function; blackout protection; forecast-based charging; prepared for bidirectional charging	Boost function; blackout protection; forecast-based charging; includes 5 years of free use of the SMA backend

Manufacturer smappee

Product series		Smappee EV Charger			
Product name		EV Wall Home 22	EV One Home 22	EV Ultra Single 80S / 240S	"EV Ultra Dual 40D / 120D
Wallbox / Charging station / Charging type (AC / DC)		Wallbox / AC	Charging station / AC	Charging station / DC	Charging station / DC
Cable / Socket		Type 2 socket	Type 2 socket	CCS Combo-2 plug	2 x CCS Combo-2 connectors
Suitable for	**Private**	●	●	○	
	Semi-public	● (only version with calibration right)	●	● (with Pay Station)	
	In public	● (mit Pay Station)	○	● (with Pay Station)	
Max. charging power (kW)		22 kW	22 kW	80 / 240 kW	2 x 40 / 2 x 120 kW
Mains connection		1-/3-phase 230/400V / 16/32A, 50Hz	3-phase 400V / 32A, 50Hz	3-phase 400V / 120A/350A, 50Hz	3-phase 400V / 120A/350A, 50Hz
Protection + access authorization	**Residual-current circuit breaker**	PV surplus (with Infinity Kit + Solar Add-on), fixed charging times; limitation by utility (Infinity Kit + Solar Add-on + SG Ready); ISO 15118 via Smappee Pay Station		Dynamic electricity tariffs (via Business subscription plan); fixed charging times; limitation by utility; ISO 15118 via Smappee Pay Station	
	Dynamic load management	● (with Infinity Kit)	● (with Infinity Kit)	●	
	RFID / App	● / ●			
SMART charging features: PV surplus, dynamic electricity tariffs, limitation pursuant to Section 14a EnWG, requirements for public charging points under EN ISO 15118-20:2022		PV surplus (with Infinity Kit + Solar Add-on), fixed charging times; Limitation by the utility (Infinity Kit + Solar Add-on + SG Ready); ISO 15118 from Gen4 onward (requires another firmware update)		PV surplus (accessories required); Dynamic electricity tariffs (via Business subscription plan); fixed charging times; Limitation by the utility; ISO 15118 from Gen4 onward (requires another firmware update)	
Collection of charging data Manufacturer portal - APP / MID meter / calibration law compliant		● / ● / Optional	● / ● / ○	● / ● / ●	
Communication / Interfaces		WLAN + LAN	WLAN + LAN	LAN + 4G	
Special features		Wallbox for home use; incl. 5 year subscription for Smappee Smart subscription plan	Charging station for home use; incl. measuring converters for PV surplus charging; incl. 5 year subscription for Smappee Smart Subscription Plan	DC-Charger, cascadeable, 1 / 2 charging points; calibration law compliant; with optional payment terminal (Pay Station); additional functions via Smappee Business subscription plan	

** Dependent on release and provision date of the manufacturer

Manufacturer		SOFAR
Product series		Sofar EV-Charger
Product name		EV11k-AC-02
Wallbox / Charging station / Charging type (AC / DC)		Wallbox / AC
Cable / Socket		Type 2 Cable
Suitable for	**Private**	●
	Semi-public	○
	In public	○
Max. charging power (kW)		11 kW
Mains connection		3-phase 230V / 16A, 50Hz
Protection + access autho-rization	**Residual-current circuit breaker**	DC residual current detection > 6mA, residual current circuit breaker type A installed
	Dynamic load ma-nagement	○
	RFID / App	●
SMART charging features: PV surplus, dynamic electricity tariffs, limitation pursuant to Section 14a EnWG, requirements for public charging points under EN ISO 15118-20:2022		PV surplus + fixed charging times (within the system)
Collection of charging data Manufacturer portal - APP / MID meter / calibration law compliant		● / ○ / ○
Communication / Interfaces		RS485, WLAN,
Special features		Monitoring in the Sofar Portal; 7.0 m charging cable

Manufacturer solaredge

Product series		One EV Charger	One EV Charger 2
Product name		One / One Pro	One Pro S1
Wallbox / Charging station / Charging type (AC / DC)		Wallbox AC	Wallbox AC
Cable / Socket		Type 2 socket	Type 2 socket
Suitable for	**Private**	●	●
	Semi-public	● (only Pro version)	●
	In public	○	○
Max. charging power (kW)		22 kW (11 kW throttled)	22 kW (11 kW limited)
Mains connection		1-/3 phase 400V / 32A, 50Hz	1-/3-phase 400V / 32A, 50Hz
Protection + access authorization	**Residual-current circuit breaker**	DC fault current detection > 6mA (on-site Residual current circuit breaker type A required)	DC residual-current detection > 6 mA (Type A residual-current circuit breaker required on site)
	Dynamic load management	●	●
	RFID / App	● / ●	● / ●
SMART charging features: PV surplus, dynamic electricity tariffs, limitation pursuant to Section 14a EnWG, requirements for public charging points under EN ISO 15118-20:2022		PV surplus (within the system); Dynamic electricity tariffs + fixed charging times (with SolarEdge ONE Controller); Limitation by the utility (with SolarEdge ONE Controller)	"PV surplus (within the system); Dynamic electricity tariffs + fixed charging times (with SolarEdge ONE Controller); Limitation by the utility (with SolarEdge ONE Controller); ISO 15118 prepared"
Collection of charging data Manufacturer portal - APP / MID meter / calibration law compliant		● / ● / ○	● / ● / ○
Communication / Interfaces		WLAN + LAN (LTE only Pro version)	WLAN + LAN + LTE
Special features		Wallbox for home use; Pro version with MID counter; autom. Phase switching; dyn. Load management; 1- and 3-phase operation possible	Wallbox for home use; MID meter; automatic phase switching; dynamic load management; 1- and 3-phase operation possible; Prepared for ISO 15118-20

** Dependent on release and provision date of the manufacturer

Manufacturer		SOLAX POWER	
Product series		Smart EV Charger G2	
Product name		X3-HAC-11	X3-HAC-22
Wallbox / Charging station / Charging type (AC / DC)		Wallbox / AC	
Cable / Socket		Type 2 cable / socket	
Suitable for	**Private**	●	
	Semi-public	○	
	In public	○	
Max. charging power (kW)		11 kW	22 kW
Mains connection		3-phase 400V / 16A, 50Hz	3-phase 400V / 32A, 50Hz
Protection + access authorization	**Residual-current circuit breaker**	Integrated residual current cutSwitch type A and DC fault current detection > 6mA	
	Dynamic load management	●, with Solax Smart Meter	
	RFID / App	● / ○	
SMART charging features: PV surplus, dynamic electricity tariffs, limitation pursuant to Section 14a EnWG, requirements for public charging points under EN ISO 15118-20:2022		PV surplus (within the system); Dynamic electricity tariffs + fixed charging times; Limitation by the utility (integrated terminals / Datahub)	
Collection of charging data Manufacturer portal - APP / MID meter / calibration law compliant		● / ○ / ○	
Communication / Interfaces		LAN + WLAN + 4G (opt.) / 2 x RS485	
Special features		E-phase Wallobox; autom. Phase switching; dyn. Load management	

Manufacturer SUNGROW Clean power for all

Product series		Sungrow EV Charger			
Product name		AC22E-01	IDC30E	IDC180E	ChargeStack 1000
Wallbox / Charging station / Charging type (AC / DC)		Wallbox / AC	Wallbox / DC	Charging station / DC	Charging station / DC
Cable / Socket		Type 2 Cable	CCS Combo-2 plug	2 x CCS Combo-2 connectors	CCS Combo-2 / MCS plug
Suitable for	**Private**	●			○
	Semi-public	○	●	●	●
	In public	● (only MID version)	○	●	●
Max. charging power (kW)		22 kW	30 kW	180 kW	depending on configuration
Mains connection		3-phase 400V / 32A, 50Hz	3-phase 400V / 63A, 50Hz	3-phase 400V / 275A, 50Hz	3-phase 400V, 50Hz
Protection + access authorization	**Residual-current circuit breaker**	DC fault current detection > 6mA (on-site Residual current circuit breaker type A required)	DC fault current detection > 6mA (on-site Residual current circuit breaker type A required)	DC fault current detection > 6mA and Residuar current circuit breaker type ARequired on site	depending on configuration
	Dynamic load management	●			●
	RFID / App	● / ●	● / ○	● / ●	● / ●
SMART charging features: PV surplus, dynamic electricity tariffs, limitation pursuant to Section 14a EnWG, requirements for public charging points under EN ISO 15118-20:2022		PV surplus (within the system); Dynamic electricity tariffs + fixed charging times (with iHomeManager); Limitation by the utility (via Modbus + OCCP)	PV surplus (within the system); Dynamic electricity tariffs + fixed charging times (via iHomeManager); ISO 15118 prepared	PV surplus + Dynamic electricity tariffs + fixed charging times (via an external EMS system); ISO 15118 prepared	Components for charging parks; controlled via external EMS; ISO 15118
Collection of charging data Manufacturer portal - APP / MID meter / calibration law compliant		● / ● / ○	● / ● / ●	● / ○ / ●	● / ● / ● (opt.)
Communication / Interfaces		Wi-Fi		Ethernet, 2G, 3G, 4G	Ethernet, RS485
Special features		Autom. Switching 1/3-phase charge; compatible with SHRT V11, V112 and SHRT-20. The iHomeManager is required for connection to SH-T.	DC-CharGer, cascadable, with optional payment terminal	DC charger, cascadeable, compliant with the law; with optional payment terminal	Modular concept for large DC charging parks; separate power unit (master with 1,000 kW, expandable in 500 kW increments, max. 3,500 kW); charging stations available with CCS and MCS charging cables

** Dependent on release and provision date of the manufacturer

Manufacturer SUNWODA ENERGY

Product series		SunESS Power Wallbox
Product name		SWACW11K400DQ
Wallbox / Charging station / Charging type (AC / DC)		Wallbox AC
Cable / Socket		Type 2 cable
Suitable for	**Private**	●
	Semi-public	○
	In public	○
Max. charging power (kW)		11 kW
Mains connection		3-phase 400V / 16A, 50Hz
Protection + access autho-rization	**Residual-current circuit breaker**	DC residual current detection > 6mA, Type A residual current device installed
	Dynamic load ma-nagement	○
	RFID / App	● / ●
SMART charging features: PV surplus, dynamic electricity tariffs, limitation pursuant to Section 14a EnWG, requirements for public charging points under EN ISO 15118-20:2022		PV surplus + Dynamic electricity tariffs + fixed charging times + Limitation by the utility (within the system via the Sunwoda SunESS home storage system)
Collection of charging data Manufacturer portal - APP / MID meter / calibration law compliant		● / ○ / ○
Communication / Interfaces		RS485
Special features		Wallbox for home use; only in combination with Sunwoda home storage system

Explanation of the specifications		Instructions
Product series		Model series of the manufacturer
Product name		Name of the article
Wallbox / charging station / charging type (AC / DC)		Design and charging type of the charger
Cable / Socket		Design of the charging connection
Suitable for	**Private**	Application for home use
	Half-Public	Application in commercial / company charging park
	Public	Use in public areas with billing
Max. charging power (kW)		Maximum charging capacity
Grid connection		Type of mains connection
Protection + access authorisation	**Residual-current circuit breaker**	Integrated DC residual current circuit breaker
	Dynamic load management	Monitoring of the maximum power consumption at the grid connection point
	RFID / App	Access authorization with RFID
SMART charging features: PV surplus, dynamic electricity tariffs, limitation pursuant to Section 14a EnWG, requirements for public charging points under EN ISO 15118-20:2022		Available charging modes (PV surplus / fixed charging times / externally controlled charging times via exchange, energy supply company, etc.)
Acquisition of charging data Manufacturer portal - APP / MID meter / calibration law compliant"		Version for recording the charging data (app - residential / MID for commercial / calibration law for public use)
Communication / Interfaces		Integrated com interfaces (WLAN, LAN, etc.)
Features		Various special features for the charger

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