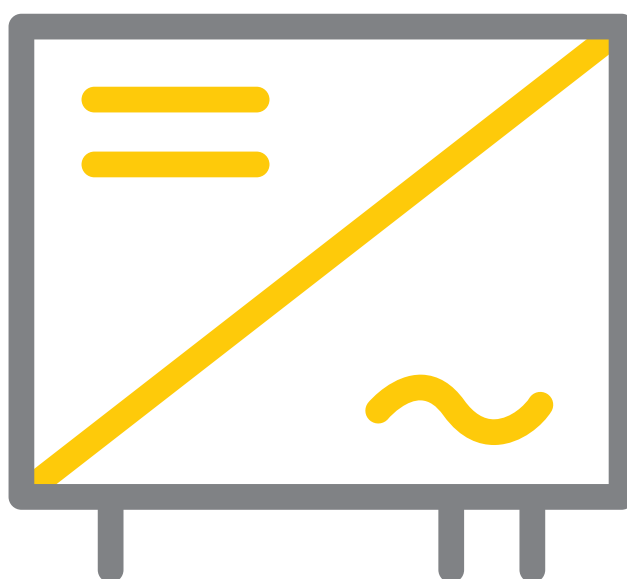


PROJECT INVERTER



PROJECT
COMMERCIAL
INDUSTRY

krannich

**Inverter
manufacturer**


Series Project inverter	Tauro 50-3-D (direct)	Tauro Eco 50-3-D (direct)	Tauro Eco 99-3-D (direct)	Tauro Eco 100-3-D (direct)
Quantity MPPT	3	1		
Connections per MPPT	4 / 4 / 7	7 / 7	7 / 7 / 8 (depending on DC fuse protection)	
Max. Current MPPT (A)	36 / 36 / 72	75 / 75	75 / 75 / 75	
Type of DC connections	Stäubli MC4			
DC string fuses	integrated (20/ 30 A)			
DC system voltage (V)	1000			
Surge protection DC / AC	Type 1+2 / Type 1+2			
Arc fault detection AFCI	optional			
DC I/V Curve measurement	☐			
Shading management	☐			
AC Nominal power (kW)	50		99	100
Grid voltage	400V			
Grid certificates	VDE 4105 / VDE 4110			
Warranty / Extendable to	5 years (registration required) / up to 20 years			
Interfaces Communi- cation / FRE	WLAN, 2 x Ethernet, 2 x RS485, 6 x dig. In/Out (FRE)			
Monitoring	Data logger and web server integrated on Fronius Portal			
Measurement grid connec- tion + Self consumption (measurement type)	Fronius Smart Meter (direct / indirect)			
Approval of use of grid relay for external NA protection (VDE-AR-N 4105, up to 135kVA)	☒			
Implementation of direct marketing > 100kWp	Feed-in management via integrated data logger			
Control interfaces according to VDE-AR-N 4110 / 4120 (to be coordinated individu- ally with grid provider)	with compatible park controller			
System information	Unit location with direct sunlight as well as inclined mounting position enabled, active cooling system, AC daisy chaining up to 200 kW.			

* Release and availability according to manufacturer's specifications

** Discontinuation announced by manufacturer

Inverter
manufacturer

GOODWE

Series Project inverter	GW25K-MT	GW30K-MT	GW36K-MT	GW50KS-MT	GW60KS-MT
Quantity MPPT	3			5	6
Connections per MPPT	2 each				
Max. Current MPPT (A)	30 each				
Type of DC connections	Stäubli MC4 (included in delivery)				
DC string fuses	☐				
DC system voltage (V)	1100				
Surge protection DC / AC	Type 2 / Type 2				
Arc fault detection AFCI	optional				
DC I/V Curve measurement	☐				
Shading management	☒				
AC Nominal power (kW)	25	30	36	50	60
Grid voltage	400V				
Grid certificates	VDE 4105				
Warranty / Extendable to	5 years / up to 20 years				
Interfaces Communi- cation / FRE	RS485 / Wifi, connection FRE with Goodwe EZLogger				
Monitoring	Direct network connection or Goodwe EZLogger on Goodwe portal + app or external manufacturer				
Measurement grid connec- tion + Self consumption (measurement type)	SEC1000 Smart Meter (indirect measurement)				
Approval of use of grid relay for external NA protection (VDE-AR-N 4105, up to 135kVA)	Control via ext. NA monitor enabled				
Implementation of direct marketing > 100kWp	with compatible park controller				
Control interfaces according to VDE-AR-N 4110 / 4120 (to be coordinated individu- ally with grid provider)	with compatible park controller				
System information	active cooling system				

Inverter
manufacturer

GOODWE

Series Project inverter	GW100K-HT	GW110K-HT	GW120K-HT	GW225K-HT	GW250K-HT
Quantity MPPT	10	12			
Connections per MPPT	2 each				
Max. Current MPPT (A)	30 each				
Type of DC connections	Stäubli MC4 (included in delivery)				
DC string fuses					
DC system voltage (V)	1100			1500	
Surge protection DC / AC	Type 2 / Type 2				
Arc fault detection AFCI	optional				
DC I/V Curve measurement					
Shading management					
AC Nominal power (kW)	100	120		225	250
Grid voltage	400V			800V	
Grid certificates	VDE 4105 / 4110			VDE 4110 / 4120	
Warranty / Extendable to	5 years / up to 20 years				
Interfaces Communi- cation / FRE	RS485 / Wifi, connection FRE with Goodwe EZLogger			RS485, connection FRE with GoodWe EZLogger	
Monitoring	Direct network connection or Goodwe EZLogger on Goodwe portal + app or external manufacturer				
Measurement grid connec- tion + Self consumption (measurement type)	SEC1000 Smart Meter (indirect measurement)			---	
Approval of use of grid relay for external NA protection (VDE-AR-N 4105, up to 135kVA)	Control via ext. NA monitor enabled				
Implementation of direct marketing > 100kWp	with compatible park controller				
Control interfaces according to VDE-AR-N 4110 / 4120 (to be coordinated individu- ally with grid provider)	with compatible park controller				
System information	active cooling system				

* Release and availability according to manufacturer's specifications

** Discontinuation announced by manufacturer

Inverter
manufacturer



Series Project inverter	SUN2000-20KTL-M5	SUN2000-25KTL-M5	SUN2000-30KTL-M3	SUN2000-40KTL-M3	SUN2000-50KTL-M3 *
Quantity MPPT	2		4		
Connections per MPPT	2 each				
Max. Current MPPT (A)	30 each		26 each		30 each
Type of DC connections	Stäubli MC4 (included)		Amphenol Helios H4 (included in delivery)		
DC string fuses	☐				
DC system voltage (V)	1000				
Surge protection DC / AC	Type 2 / Type 2				
Arc fault detection AFCI	☒				
DC I/V Curve measurement	☐				☒
Shading management	☒				
AC Nominal power (kW)	20	25	30	40	50
Grid voltage	400V				
Grid certificates	VDE 4105 / 4110		VDE 4105		
Warranty / Extendable to	5 years / up to 20 years				
Interfaces Communication / FRE	RS485, WLAN, Ethernet with smart dongle / integrated FRE connections				
Monitoring	Directly via Ethernet (optional smart dongle) to Huawei portal				
Measurement grid connection + Self consumption (measurement type)	Huawei Smart Meter				
Approval of use of grid relay for external NA protection (VDE-AR-N 4105, up to 135kVA)	☐				
Implementation of direct marketing > 100kWp	with compatible park controller				
Control interfaces according to VDE-AR-N 4110 / 4120 (to be coordinated individually with grid provider)	with compatible park controller				
System information	passive cooling system, opt. Huawei optimizer				

Inverter
manufacturer



Series Project inverter	SUN2000-100KTL-M2 *	SUN2000-115KTL-M2	SUN2000-330KTL-H3
Quantity MPPT	10	10	6
Connections per MPPT	2 each		4 / 5 / 5 / 4 / 4 / 5
Max. Current MPPT (A)	30 each	30 each	65 each
Type of DC connections	Stäubli MC4 (included)	Amphenol HH4 (included)	
DC string fuses	☐		
DC system voltage (V)	1100	1100	
Surge protection DC / AC	Type 2 / Type 2		
Arc fault detection AFCI	☒		
DC I/V Curve measurement	☒		
Shading management	☒		
AC Nominal power (kW)	110	115	330
Grid voltage	400V	400	
Grid certificates	VDE 4105 / 4120		
Warranty / Extendable to	5 years / up to 20 years		
Interfaces Communication / FRE	RS485, FRE connection via Huawei Smart Logger		
Monitoring	Huawei Smart Logger on Huawei Portal		
Measurement grid connection + Self consumption (measurement type)	Huawei Smart Meter		
Approval of use of grid relay for external NA protection (VDE-AR-N 4105, up to 135kVA)	☐		
Implementation of direct marketing > 100kWp	with compatible park controller		
Control interfaces according to VDE-AR-N 4110 / 4120 (to be coordinated individually with grid provider)	with compatible park controller		
System information	passive cooling system	active cooling system	

* Release and availability according to manufacturer's specifications

** Discontinuation announced by manufacturer

Series Project inverter	Blueplanet 20.0 NX3 M3	Blueplanet 25.0 / 30.0 / 33.0 NX3 M3 *			Blueplanet 50.0 TL3 M1 INT	Blueplanet 60.0 TL3 M1 INT	Blueplanet 87.0 TL3 M1 INT	Blueplanet 92.0 TL3 M1 INT	Blueplanet 105 TL3 M1 INT	
Quantity MPPT	2	3			1			1		
Connections per MPPT	2 each				S/B/M: 1, XL: 10	B/M: 1, XL: 12				1
Max. Current MPPT (A)	32 each				90	107	160	160	183	
Type of DC connections	Phoenix Contact Sunclix				S/B/M: Cable lug + clamp / XL: Sunclix					Cable lug + clamp
DC string fuses					XL: 					
DC system voltage (V)	1000							1500		
Surge protection DC / AC	Type 2 / Type 2	 *			XL: Type 1+2 / -					Type 1+2 / -
Arc fault detection AFCI										
DC I/V Curve measurement										
Shading management										
AC Nominal power (kW)	20	25 *	30 *	33 *	50	60	87	92	99,9	
Grid voltage	400V							400V		
Grid certificates	VDE 4105	VDE 4105 *			VDE 4105 / 4110			VDE 4105 / 4110		
Warranty / Extendable to	5 years / up to 10 years							5 years / up to 10 years		
Interfaces Communi- cation / FRE	Wifi / RS485, FRE to Kaco Powador protect				Ethernet, RS485, opt.: 4 x dig. In (FRE)			Ethernet, RS485, opt.: 4 x dig. In (FRE)		
Monitoring	directly or with Kaco blue'log S series on Kaco Portal						directly or with Kaco blue'log S series on Kaco Portal			
Measurement grid connec- tion + Self consumption (measurement type)	Kaco blue'log with ext. meter / Kaco NX3 Smart Meter						Kaco blue'log with ext. meter / Kaco NX3 Smart Meter			
Approval of use of grid relay for external NA protection (VDE-AR-N 4105, up to 135kVA)										
Implementation of direct marketing > 100kWp	 to Kaco Powador protect				 to Kaco Powador protect					
Control interfaces according to VDE-AR-N 4110 / 4120 (to be coordinated individu- ally with grid provider)	Kaco blue'log X-Serie							Kaco blue'log X-Serie		
System information	Ultra-flat design, active cooling system				versions with string fuses available			DC input up to 1500V		

Inverter
manufacturer



Series Project inverter	STP X 12 / 15 / 20 / 25 - 50				STP 50-41 Core1	STP 110-60 Core2	Sunny Highpower 100-21	Sunny Highpower 150-21
Quantity MPPT	3				6	12	1	
Connections per MPPT	2 each						1	
Max. Current MPPT (A)	24 each				20 each	26 each	180	
Type of DC connections	Phoenix Contact Sunclix (included in delivery)						Bolt clamps with cable lug	
DC string fuses	☐							
DC system voltage (V)	1000					1100		1500
Surge protection DC / AC	opt. / -				opt. / opt.	Type 1+2 / Type 2	☐	
Arc fault detection AFCI	☒						☐	
DC I/V Curve measurement	☒					☐		
Shading management	yes						no	
AC Nominal power (kW)	12	15	20	25	50	110	100	150
Grid voltage	400V							600V
Grid certificates	VDE 4105 / 4110						VDE 4110 / 4120	
Warranty / Extendable to	5 years / up to 20 years							
Interfaces Communi- cation / FRE	WLAN, 2 x Ethernet, RS485 (opt.), 6 x dig. In (FRE)				WLAN, 2 x Ethernet, RS485 (opt.), FRE via I/O module (opt.)		2 x Ethernet, FRE via Data Manager M	
Monitoring	SMA Sunny Portal / SMA Sunny Portal ennexOS							
Measurement grid connec- tion + Self consumption (measurement type)	SMA Home Manager / Energy Meter (direct / indirect)							☐
Approval of use of grid relay for external NA protection (VDE-AR-N 4105, up to 135kVA)	☒				with I/O module ☒		☒	☐
Implementation of direct marketing > 100kWp	via integrated system manager with SMA SPOT				via SMA Data Manager M			
Control interfaces according to VDE-AR-N 4110 / 4120 (to be coordinated individu- ally with grid provider)	via integrated system manager (SMA Dynamic Power Control opt.) / SMA Data Manager M				via SMA Data Manager M			
System information	Integrated system manager (up to 5 WR / 135kVA), Integrated interface for direct marketing SMA SPOT				free setup possible		inclined mount- ing position possible	DC terminal box must be assembled by the customer

* Release and availability according to manufacturer's specifications

** Discontinuation announced by manufacturer

Series Project inverter	25 / 30 / 33 / 36 KTLX-G3				40 / 45 / 50 KTLX-G3		60 KTLX-G3	80 KTLX-G3	
Quantity MPPT	3				4		6		
Connections per MPPT	2 each								
Max. Current MPPT (A)	40 each				32 each		40 each		
Type of DC connections	Stäubli MC4 (included in delivery)								
DC string fuses	☐								
DC system voltage (V)	1100								
Surge protection DC / AC	Type 2 / Type 2				Type 2 (Type 1 opt.) / Type 2				
Arc fault detection AFCI	☐								
DC I/V Curve measurement	☒								
Shading management	☒								
AC Nominal power (kW)	25	30	33	36	40	45	50	60	80
Grid voltage	400V								
Grid certificates	VDE 4105 / 4110 (prototype)						VDE 4105 / 4110		
Warranty / Extendable to	10 years / up to 20 years								
Interfaces Communi- cation / FRE	RS485, Wifi, Bluetooth, Ethernet (opt. with LAN dongle), 4 x dig. In (FRE)								
Monitoring	Sofar Portal + App								
Measurement grid connec- tion + Self consumption (measurement type)	with compatible Energy Meter								
Approval of use of grid relay for external NA protection (VDE-AR-N 4105, up to 135kVA)	☒								
Implementation of direct marketing > 100kWp	with compatible park controller								
Control interfaces according to VDE-AR-N 4110 / 4120 (to be coordinated individu- ally with grid provider)	with compatible park controller								
System information	active cooling system								

Inverter
manufacturer

SCFAR

Series Project inverter	100 KTL-G4	110 KTLX-G4	125 KTL-G4	255 KTL-HV
Quantity MPPT	10			12
Connections per MPPT	2 each			
Max. Current MPPT (A)	40 each			30 each
Type of DC connections	Stäubli MC4 (included in delivery)			MC4 EVO 2
DC string fuses	☐			
DC system voltage (V)	1100			1500
Surge protection DC / AC	Type 2 / Type 2			
Arc fault detection AFCI	☒			
DC I/V Curve measurement	☒			
Shading management	☒			
AC Nominal power (kW)	100	110	125	255
Grid voltage	400V			800V
Grid certificates	VDE 4105 / 4110			VDE 4105 / 4110 (prototype)
Warranty / Extendable to	10 years / up to 20 years			
Interfaces Communication / FRE	RS485, Wifi, Bluetooth, Ethernet (opt. with LAN dongle), 4 x dig. In (FRE)			
Monitoring	Sofar Portal + App			
Measurement grid connection + Self consumption (measurement type)	with compatible Energy Meter			
Approval of use of grid relay for external NA protection (VDE-AR-N 4105, up to 135kVA)	☒			☐
Implementation of direct marketing > 100kWp	with compatible park controller			
Control interfaces according to VDE-AR-N 4110 / 4120 (to be coordinated individually with grid provider)	with compatible park controller			
System information	active cooling system			

* Release and availability according to manufacturer's specifications

** Discontinuation announced by manufacturer

**Inverter
manufacturer**


Series Project inverter	SE25K Setapp	SE30K Setapp	SE33.0K Setapp
Quantity MPPT	no		
Connections per MPPT	3 total	4 total	
Max. Current MPPT (A)	37 total	43.5 total	48.25 total
Type of DC connections	Stäubli MC4		
DC string fuses	☐		
DC system voltage (V)	☐		
Surge protection DC / AC	Type 2 (opt.) / -	Type 2 / Type 2 (opt.)	
Arc fault detection AFCI	☒		
DC I/V Curve measurement	yes, through SE optimizer		
Shading management	yes, through SE optimizer		
AC Nominal power (kW)	25	29,99	33,3
Grid voltage	400V		
Grid certificates	VDE 4105		
Warranty / Extendable to	5 years / up to 20 years		
Interfaces Communi- cation / FRE	WLAN (antenna required), Ethernet, 2 x RS485, FRE via CCG		
Monitoring	SolarEdge Portal		
Measurement grid connec- tion + Self consumption (measurement type)	SolarEdge Modbus Meter (indirect) / Inline Energy Meter (direct)		
Approval of use of grid relay for external NA protection (VDE-AR-N 4105, up to 135kVA)	☒		
Implementation of direct marketing > 100kWp	via SolarEdge Communication Gateway SE1000 CCG		
Control interfaces according to VDE-AR-N 4110 / 4120 (to be coordinated individu- ally with grid provider)	☐		
System information	quick and easy commissioning via setapp, active cooling system		

**Inverter
manufacturer**


Series Project inverter	SE50K	SE66.6K	SE90K	SE100K
Quantity MPPT	no (2 synergy units)		no (3 synergy units)	
Connections per MPPT	4 per unit (8 total)		4 per unit (12 total)	
Max. Current MPPT (A)	36.25 each (per unit)	48.25 each (per unit)	43.5 each (per unit)	48.25 each (per unit)
Type of DC connections	Stäubli MC4			
DC string fuses	 (opt.)			
DC system voltage (V)				
Surge protection DC / AC	Type 2 / Type 2 (opt.)			
Arc fault detection AFCI				
DC I/V Curve measurement	yes, through SE optimizer			
Shading management	yes, through SE optimizer			
AC Nominal power (kW)	50	66,6	90	100
Grid voltage	400V			
Grid certificates	no	VDE 4105 / 4110		
Warranty / Extendable to	5 years / up to 20 years			
Interfaces Communi- cation / FRE	WLAN (opt.), Ethernet, 2 x RS485, FRE via CCG			
Monitoring	SolarEdge Portal			
Measurement grid connec- tion + Self consumption (measurement type)	SolarEdge Modbus Meter (indirect) / Inline Energy Meter (direct)			
Approval of use of grid relay for external NA protection (VDE-AR-N 4105, up to 135kVA)				
Implementation of direct marketing > 100kWp	via SolarEdge Communication Gateway SE1000 CCG			
Control interfaces according to VDE-AR-N 4110 / 4120 (to be coordinated individu- ally with grid provider)	through SolarEdge communication gateway SE1000 CCG			
System information	modular Synergy topology, overvoltage protection of RS485 interfaces, active cooling system			

* Release and availability according to manufacturer's specifications

** Discontinuation announced by manufacturer

Inverter
manufacturer



Series Project inverter	X3-PRO-20K-G2	X3-PRO-25K-G2	X3-PRO-30K-G2
Quantity MPPT	2	3	
Connections per MPPT	2 each		
Max. Current MPPT (A)	32 each		
Type of DC connections	Vaconn MC4 (included in delivery)		
DC string fuses	☐		
DC system voltage (V)	1100		
Surge protection DC / AC	Type 2 / Type 2		
Arc fault detection AFCI	yes (opt.)		
DC I/V Curve measurement	☐		
Shading management	yes		
AC Nominal power (kW)	20	25	30
Grid voltage	400V		
Grid certificates	VDE 4105		
Warranty / Extendable to	5 years / up to 20 years		
Interfaces Communi- cation / FRE	Pocket Wifi (opt.), RS485, FRE via Solax DataHub1000		
Monitoring	Solax Cloud Portal		
Measurement grid connec- tion + Self consumption (measurement type)	Solax Smart Meter (version direct + version indirect with CT's)		
Approval of use of grid relay for external NA protection (VDE-AR-N 4105, up to 135kVA)	with compatible park controller		
Implementation of direct marketing > 100kWp	with compatible park controller		
Control interfaces according to VDE-AR-N 4110 / 4120 (to be coordinated individu- ally with grid provider)	with compatible park controller		
System information	Compact design, active cooling system		

Inverter
manufacturer



Series Project inverter	X3-FTH-80K	X3-FTH-100K	X3-FTH-110K	X3-FTH-120K	X3-FTH-125K	X3-FTH-136K-MV	X3-FTH-150K-MV
Quantity MPPT	9			12			
Connections per MPPT	2 each						
Max. Current MPPT (A)	32 each						
Type of DC connections	Vaconn MC4 (included in delivery)						
DC string fuses	no						
DC system voltage (V)	1100						
Surge protection DC / AC	Type 2 / Type 2						
Arc fault detection AFCI	yes (opt.)						
DC I/V Curve measurement	☒						
Shading management	☐						
AC Nominal power (kW)	80	100	110	120	125	136	150
Grid voltage	400V					500V	
Grid certificates	VVDE 4105 / 4110 / 4120					on request	
Warranty / Extendable to	5 years / up to 20 years						
Interfaces Communi- cation / FRE	Pocket Wifi (opt.), RS485, FRE via Solax DataHub1000						
Monitoring	Solax Cloud Portal						
Measurement grid connec- tion + Self consumption (measurement type)	Solax Smart Meter (version direct + version indirect with CT's)					☐	
Approval of use of grid relay for external NA protection (VDE-AR-N 4105, up to 135kVA)	X3-Forth series does not have any integrated NA protection, must always be implemented on site						
Implementation of direct marketing > 100kWp	with compatible park controller						
Control interfaces according to VDE-AR-N 4110 / 4120 (to be coordinated individu- ally with grid provider)	with compatible park controller						
System information	Multistring-WR for large plants, active cooling system						

* Release and availability according to manufacturer's specifications

** Discontinuation announced by manufacturer

Inverter
manufacturer

SUNGROW

Clean power for all

Series Project inverter	SG33CX - P2	SG50CX - P2
Quantity MPPT	3	5
Connections per MPPT	2 each	
Max. Current MPPT (A)	30 each	
Type of DC connections	Stäubli MC4 (included in delivery)	
DC string fuses	☐	
DC system voltage (V)	1000	
Surge protection DC / AC	Type 1+2 / Type 2	
Arc fault detection AFCI	☒	
DC I/V Curve measurement	☒	no
Shading management	no	
AC Nominal power (kW)	33	50
Grid voltage	400V	
Grid certificates	VDE 4105 / 4110	
Warranty / Extendable to	5 years / up to 20 years	
Interfaces Communi- cation / FRE	RS485, WLAN (opt.), Ethernet (opt.), FRE via Sungrow Logger	
Monitoring	Sungrow iSolar Cloud Portal	
Measurement grid connec- tion + Self consumption (measurement type)	Sungrow Smart Meter	
Approval of use of grid relay for external NA protection (VDE-AR-N 4105, up to 135kVA)	☒	
Implementation of direct marketing > 100kWp	with compatible park controller	
Control interfaces according to VDE-AR-N 4110 / 4120 (to be coordinated individu- ally with grid provider)	with compatible park controller	
System information	inclined mounting position enabled, active cooling system	

Inverter
manufacturer

SUNGROW

Clean power for all

Series Project inverter	SG125CX-P2	SG125HX	SG350HX - V135 / V134	SG350HX - V114 / V115
Quantity MPPT	12	6	16	12
Connections per MPPT	2 each			
Max. Current MPPT (A)	30 each			40 each
Type of DC connections	MC4 EV02 (included in scope of delivery)			
DC string fuses	☐			
DC system voltage (V)	1100	1500		
Surge protection DC / AC		Type 2 / Type 1+2	Type 2 / Type 2	
Arc fault detection AFCI	☒	☐		
DC I/V Curve measurement	☒			
Shading management	☒	☐		
AC Nominal power (kW)	125		350	350
Grid voltage	400V	800V		
Grid certificates	VDE 4105 / 4110	VDE 4110 / 4120		
Warranty / Extendable to	5 years / up to 20 years			
Interfaces Communi- cation / FRE	RS485, FRE via logger		RS485, PLC, FRE via logger	
Monitoring	Sungrow iSolar Cloud Portal			
Measurement grid connec- tion + Self consumption (measurement type)	Sungrow Smart Meter	☐		
Approval of use of grid relay for external NA protection (VDE-AR-N 4105, up to 135kVA)	☒	☐		
Implementation of direct marketing > 100kWp	with compatible park controller			
Control interfaces according to VDE-AR-N 4110 / 4120 (to be coordinated individu- ally with grid provider)	with compatible park controller			
System information	inclined mounting position enabled, active cooling system	Connection to medium voltage mains, inclined mounting position enabled, active cooling system		