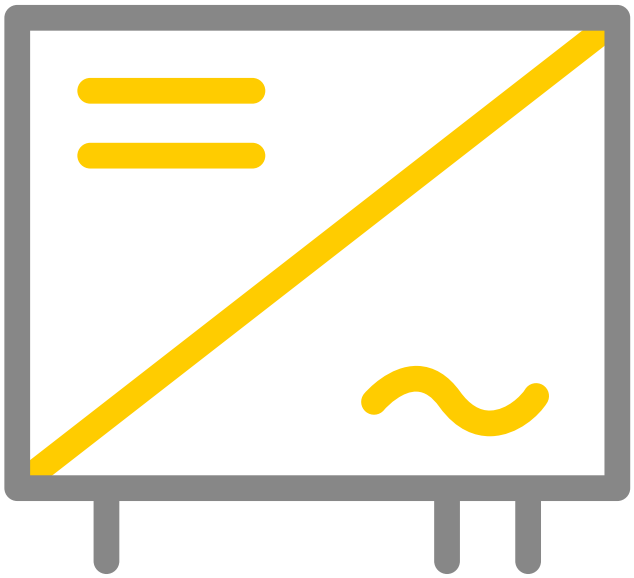
OVERVIEW

C&I INVERTER SYSTEMS



COMMERCIAL
INDUSTRIAL
UTILITY SCALE

krannich

Inverter manufacturer

DELTA

Series Project inverter	M30A Flex	M50A Flex	M70A Flex	M100A Flex	M125HV 111 Gen2
Quantity MPPT	3	6		8	1
Connections per MPPT	2 each		3 each	2 each	20
Max. Current MPPT (A)	30 each	26 each		30 each	20 each
Type of DC connections	Amphenol H4 (included in delivery)			Amphenol H4 (included)	Amphenol H4 plus
DC string fuses	○			○	●
DC system voltage (V)	1100				1500
Surge protection DC / AC	Type 2 / Type 2	Typ 2 (Typ 1+2 opt.) / Typ 2 (Typ 1+2 opt.)		Type 2 (Type 1+2 opt.) / Type 2	Type 2 (Type 1+2 opt.) / Type 2 (Type 1+2 opt.)
Arc fault detection AFCI	●			●	
DC I/V Curve measurement	●			●	○
Shading management	○				
AC Nominal power (kW)	30	50	70	100	125
Grid voltage	400V				600V
Grid certificates	VDE 4105				
Warranty / Extendable to	5 years / up to 20 years				
Interfaces Communication / FRE	WLAN, 2 x RS485, 6 x dig. In (FRE)		WLAN opt., 2 x RS485, 6 x dig. In (FRE)		
Monitoring	Delta DC1 Gateway on Delta Portal				
Measurement grid connection + Self consumption (measurement type)	Delta DC1 Gateway + Delta P3 Power 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	Flexible wall/floor mounting, active cooling system			

* Release and availability according to manufacturer's specifications
** Discontinuation announced by manufacturer

Inverter manufacturer	Fronius		
Series Project inverter	**Tauro 50-3-P (precombined)**	**Tauro Eco 50-3-P (precombined)**	**Tauro 50-3-D (direct)**
Quantity MPPT	3	1	3
Connections per MPPT	2 each		4 / 4 / 7
Max. Current MPPT (A)	36 / 36 / 72	75 / 75	36 / 36 / 72
Type of DC connections	Clamps		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		50
Grid voltage	400V		400V
Grid certificates	VDE 4105 / VDE 4110		
Warranty / Extendable to	5 years (registration required) / up to 20 years		
Interfaces Communication / 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 connection + 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 individually 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.		

Inverter manufacturer	Fronius	
Series Project inverter	**Verto 25.0 / 27.0 / 30.0 / 33.3**	**Argeno 125**
Quantity MPPT	4	10
Connections per MPPT	2	2
Max. Current MPPT (A)	28 each	30 each
Type of DC connections	Stäubli MC4	Phoenix Contact Sunclix
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)	25 / 27 / 30 / 33,3	125
Grid voltage	400V	
Grid certificates	VDE 4105	VDE 4105/4110
Warranty / Extendable to	5 years (registration required) / up to 20 years	
Interfaces Communication / FRE	WLAN, 2 x Ethernet, 2 x RS485, 6 x dig. In/Out (FRE)	2 x Ethernet, RS485, TUE / THU
Monitoring	Data logger and web server integrated on Fronius Portal	
Measurement grid connection + 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 individually with grid provider)	with compatible park controller	
System information	with compatible park controller	

* Release and availability according to manufacturer's specifications

** Discontinuation announced by manufacturer

Inverter manufacturer

GOODWE

Series Project inverter	GW50KS-MT	GW60KS-MT	GW100K-GT	GW125K-GT	GW150K-GT-G10
Quantity MPPT	5	6	8	10	10
Connections per MPPT	2 each		each 2		
Max. Current MPPT (A)	30 each		each 42		
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 1+2 / Type 2		
Arc fault detection AFCI	optional				
DC I/V Curve measurement	○				
Shading management	●				
AC Nominal power (kW)	50	60	100	125	150
Grid voltage	400V				
Grid certificates	VDE 4105		VDE 4105 / 4110		
Warranty / Extendable to	5 years / up to 20 years				
Interfaces Communication / FRE	RS485 / Wifi, connection FRE with Goodwe EZLogger		RS485, LAN, Wifi / ripple control receiver connection via COM Port (Single-Use), with Goodwe EZLogger (Multi-Use)		
Monitoring	Direct network connection or Goodwe EZLogger on Goodwe portal + app or external manufacturer				
Measurement grid connection + 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 individually with grid provider)	with compatible park controller				
System information	active cooling system				

Inverter manufacturer

HUAWEI

Series Project inverter	SUN2000-30K-MC0	SUN2000-40K-MC0	SUN2000-50K-MC0
Quantity MPPT	4		
Connections per MPPT	per 2		
Max. Current MPPT (A)	per 27		30 / 33 / 33 / 30
Type of DC connections	Amphenol Helios H4 (included in scope of delivery)		
DC string fuses	○		
DC system voltage (V)	1100		
Surge protection DC / AC	Type 1+2 / Type 2		
Arc fault detection AFCI	●		
DC I/V Curve measurement	○		
Shading management	●		
AC Nominal power (kW)	30	40	50
Grid voltage	400V		
Grid certificates	VDE 4105		
Warranty / Extendable to	5 years / up to 20 years		
Interfaces Communication / FRE	RS485, WiFi + Ethernet with Smart Dongle / integrated ripple control receiver connections		
Monitoring	direct via Ethernet (optional Smart Dongle) 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 Huawei Smart Logger		
Control interfaces according to VDE-AR-N 4110 / 4120 (to be coordinated individually with grid provider)	with Huawei Smart Logger		
System information	smart system component for small C&I applications; optional Huawei optimizer		

* Release and availability according to manufacturer's specifications
** Discontinuation announced by manufacturer

Inverter manufacturer

HUAWEI

Series Project inverter	SUN2000-100KTL-M2 *	SUN2000-115KTL-M2	SUN2000-150K-MG0	SUN5000-150KTL-MG0
Quantity MPPT	10	10	7	- (via optimizer)
Connections per MPPT	per 2	per 2	3	12 total
Max. Current MPPT (A)	per 30	per 30	48	66 total
Type of DC connections	Stäubli MC4 (included)	Amphenol HH4 (included)	Stäubli MC4 (included)	Amphenol HH4 (included)
DC string fuses	○			
DC system voltage (V)	1100	1100	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	150	150
Grid voltage	400V			
Grid certificates	VDE 4105 / 4120	VDE 4105 / 4120	VDE 4105	VDE 4105 / 4110 / 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 Huawei Smart Logger			
Control interfaces according to VDE-AR-N 4110 / 4120 (to be coordinated individually with grid provider)	with Huawei Smart Logger			
System information	passive cooling system	active cooling system		can only be used fully optimized; monitoring and shutdown at module level

Inverter manufacturer

HUAWEI

Series Project inverter	SUN2000-215KTL-H0	SUN2000-215KTL-H3	SUN2000-330KTL-H3
Quantity MPPT	9	3	6
Connections per MPPT	per 2	4 / 5 / 5	4 / 5 / 5 / 4 / 4 / 5
Max. Current MPPT (A)	per 30	per 100	per 65
Type of DC connections	Stäubli MC4 EVO2 (included in scope of delivery)		
DC string fuses	○		
DC system voltage (V)	1500		
Surge protection DC / AC	Type 2 / Type 2		
Arc fault detection AFCI	○		
DC I/V Curve measurement	●		
Shading management	●		
AC Nominal power (kW)	215	215	330
Grid voltage	800V		
Grid certificates	on request		
Warranty / Extendable to	5 years / on request		
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 Huawei Smart Logger		
Control interfaces according to VDE-AR-N 4110 / 4120 (to be coordinated individually with grid provider)	with Huawei Smart Logger		
System information	active cooling system		

* Release and availability according to manufacturer's specifications
** Discontinuation announced by manufacturer

Inverter manufacturer	KACO new energy.				
Series Project inverter	**Blueplanet 25.0 NX3 M3 ***	**Blueplanet 50.0 NX3 M5**	**Blueplanet 60.0 NX3 M5**	**Blueplanet 100 NX3 M8**	**Blueplanet 125 NX3 M10**
Quantity MPPT	3	5	5	8	10
Connections per MPPT	2 each				
Max. Current MPPT (A)	32 each	2 x 40 + 3 x 32		30 each	
Type of DC connections	Phoenix Contact Sunclix	Phoenix Contact Sunclix			
DC string fuses	○	○			
DC system voltage (V)	1000	1100			
Surge protection DC / AC	○ *	Type 2 / Type 2		Type 2 (Type 1+2 opt.) / Type 2 (Type 1+2 opt.)	
Arc fault detection AFCI	○			optional	
DC I/V Curve measurement	○			●	
Shading management	○				
AC Nominal power (kW)	25*	50	60	100	125
Grid voltage	400V				
Grid certificates	VDE 4105 *	VDE 4105 / 4110			
Warranty / Extendable to	5 years / up to 10 years	5 years / up to 10 years			
Interfaces Communication / FRE	Wifi / RS485, FRE to Kaco Powador protect	Ethernet, Wifi, RS485, 4G		Ethernet, RD485, Wifi (opt.)	
Monitoring	directly or with Kaco blue'log S series on Kaco Portal				
Measurement grid connection + Self consumption (measurement type)	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				
Control interfaces according to VDE-AR-N 4110 / 4120 (to be coordinated individually with grid provider)	Kaco blue'log X-Serie				
System information	Ultra-flat design, active cooling system	Multi-MPPT project inverter; 5-wire grid connection; active cooling system.		Multi-MPPT project inverter; integrated web server; active cooling system; 4-wire grid connection (in symmetrical grids) possible	

Inverter manufacturer

KOSTAL Solar Electric

Series Project inverter	Piko CI 30	Piko CI 30 G2	Piko CI 50	Piko CI 50 G2	Piko CI 60	Piko CI 100
Quantity MPPT	2	3	4	4	4	8
Connections per MPPT	3 / 3	2 / 2 / 2	3 / 3 / 2 / 2	2 / 2 / 2 / 2	3 / 3 / 3 / 3	2 each
Max. Current MPPT (A)	40,5 / 40,5	40 / 32 / 32	39 / 39 / 26 / 26	40 / 32 / 32 / 32	39 / 39 / 39 / 39	MPPT 1-3: je 40 MPPT 4-8: je 32
Type of DC connections	Amphenol H4 (included in delivery)					
DC string fuses	integrated for >2 inputs					
DC system voltage (V)	1100					
Surge protection DC / AC	Type 2 / Type 2					
Arc fault detection AFCI	○					
DC I/V Curve measurement	○					
Shading management	●					
AC Nominal power (kW)	30	30	50	50	60	100
Grid voltage	400V (4-core)					
Grid certificates	VDE 4105 / 4110					
Warranty / Extendable to	5 years / up to 10 years					
Interfaces Communication / FRE	WLAN, 2 x Ethernet, RS485, 4 x dig. In (FRE)					
Monitoring	Data logger integrated, Kostal Portal, App					
Measurement grid connection + Self consumption (measurement type)	Kostal Smart Energy 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	with compatible parking controller					
Control interfaces according to VDE-AR-N 4110 / 4120 (to be coordinated individually with grid provider)	with compatible parking controller					
System information	System voltage up to 1100V, integrated web server with various interfaces, active cooling system, 4-wire network connection (in symmetrical networks) possible					

* Release and availability according to manufacturer's specifications

** Discontinuation announced by manufacturer

Inverter manufacturer	SMA				
Series Project inverter	**STP X 12 / 15 / 20 / 25 - 50**	**STP X 50 / 60 -80**	**STP 125-70**	**Sunny Highpower 100-21**	**Sunny Highpower 150-21**
Quantity MPPT	3	5	12	1	
Connections per MPPT	2 each			1	
Max. Current MPPT (A)	24 each	each 40	30 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	1100		1500
Surge protection DC / AC	opt. / -	Type 1+2 / Type 2	Type 1+2 / Type 2	○	
Arc fault detection AFCI	●			○	
DC I/V Curve measurement	●			○	
Shading management	●			○	
AC Nominal power (kW)	12 / 15 / 20 / 25	50 / 60	125	100	150
Grid voltage	400V				600V
Grid certificates	VDE 4105 / 4110		VDE 4105 / 4110 / 4120	VDE 4110 / 4120	
Warranty / Extendable to	5 years / up to 20 years				
Interfaces Communication / FRE	WLAN, 2 x Ethernet, RS485 (opt.), 6 x dig. In (FRE)	WLAN, 2 x Ethernet, RS485 (opt.), 4 x DI (FRE), 2 x RSD	WLAN, 2 x Ethernet, RS485 (opt.), 4 x DI (FRE), 2 x RSD	2 x Ethernet, ripple control receiver via Data Manager M	
Monitoring	SMA Sunny Portal / SMA Sunny Portal ennexOS				
Measurement grid connection + 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)	●	○	●	○	
Implementation of direct marketing > 100kWp	via integrated system manager with SMA SPOT	via integrateden Systemmanager with SMA SPOT	via SMA Data Manager M		
Control interfaces according to VDE-AR-N 4110 / 4120 (to be coordinated individually with grid provider)	via integrated system manager (SMA Dynamic Power Control opt.) / SMA Data Manager M	"via integrateden Systemmanager (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	Integrierter Systemmanager (up to 5 WR / 135kVA), Integrierte Schnittstelle zur Direktvermarktung SMA SPOT	Ideal for commercial and utility applications	DC terminal box must be assembled by the customer	

Inverter manufacturer	SOFAR					
Series Project inverter	**25 / 30 KTLX-G3**		**40 / 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	opt.				○	
DC I/V Curve measurement	●					
Shading management	●					
AC Nominal power (kW)	25	30	40	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 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	SOFAR			
Series Project inverter	**100 KTL-G4**	**110 KTLX-G4**	**125 KTL-G4**	**350 KTL-XO**
Quantity MPPT	10			8
Connections per MPPT	2 each			4 each
Max. Current MPPT (A)	40 each			60 each
Type of DC connections	Stäubli MC4 (included in delivery)			In clarification
DC string fuses	○			Electronic
DC system voltage (V)	1100			
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	350
Grid voltage	400V			800V
Grid certificates	VDE 4105 / 4110			VDE 4110 / 4120 (Prototyp)
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			

Inverter manufacturer

solaredge

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 Communication / FRE	WLAN (antenna required), Ethernet, 2 x RS485, FRE via CCG		
Monitoring	SolarEdge Portal		
Measurement grid connection + 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 individually with grid provider)	○		
System information	quick and easy commissioning via setapp, active cooling system		

* Release and availability according to manufacturer's specifications
** Discontinuation announced by manufacturer

Inverter manufacturer

solaredge

Series Project inverter	SE-DBL 50K / 66.6 Multi-Range	SE50K	SE66.6K	SE-TRI 90K / 100K Multi-Range	SE90K	SE100K
Quantity MPPT	- (2 Synergy units)			- (3 Synergy units)		
Connections per MPPT	4 each Einheit (8 total)			4 each Einheit (12 total)		
Max. Current MPPT (A)	each 36,25 / each 48,25	36.25 each (per unit)	48.25 each (per unit)	each 43,5 / each 48,25	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	50	66,6	90 / 100	90	100
Grid voltage	400V					
Grid certificates	VDE 4105 / 4110					
Warranty / Extendable to	5 years / up to 20 years					
Interfaces Communication / FRE	WLAN (opt.), Ethernet, 2 x RS485, FRE via CCG					
Monitoring	SolarEdge Portal					
Measurement grid connection + 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 individually with grid provider)	through SolarEdge communication gateway SE1000 CCG					
System information	modular Synergy topology; multi-range devices with selectable power class; surge protection for the RS485 interfaces; active cooling system					

Inverter manufacturer	SOLAX POWER						
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	9	9	12	12	12	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 Communication / FRE	Pocket Wifi (opt.), RS485, FRE via Solax DataHub1000						
Monitoring	Solax Cloud Portal						
Measurement grid connection + 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 individually 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	SG125CX-P2
Quantity MPPT	3	5	12
Connections per MPPT	2 each		
Max. Current MPPT (A)	30 each		
Type of DC connections	Stäubli MC4 (included in delivery)		MC4 EVO2 (included in scope of delivery)
DC string fuses	○		
DC system voltage (V)	1000		1100
Surge protection DC / AC	Type 1+2 / Type 2		
Arc fault detection AFCI	●		
DC I/V Curve measurement	●	○	●
Shading management	○		●
AC Nominal power (kW)	33	50	125
Grid voltage	400V		
Grid certificates	VDE 4105 / 4110		VDE 4105 / 4110
Warranty / Extendable to	5 years / up to 20 years		
Interfaces Communication / FRE	RS485, WLAN (opt.), Ethernet (opt.), FRE via Sungrow Logger		RS485, FRE via logger
Monitoring	Sungrow iSolar Cloud Portal		
Measurement grid connection + 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 individually 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	**SG125HX**	**SG350HX - V135 / V134**	**SG350HX - V114 / V115**	**SG350HX - 20**
Quantity MPPT	6	16	12	6
Connections per MPPT	2 each			5 each
Max. Current MPPT (A)	30 each		40 each	75 each
Type of DC connections	MC4 EVO2 (included in scope of delivery)			
DC string fuses	○			Electronic
DC system voltage (V)	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	350
Grid voltage	800V			
Grid certificates	VDE 4110 / 4120			
Warranty / Extendable to	5 years / up to 20 years			
Interfaces Communication / FRE	RS485, FRE via logger	RS485, PLC, FRE via logger		
Monitoring	Sungrow iSolar Cloud Portal			
Measurement grid connection + Self consumption (measurement type)	○			
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	Connection to medium voltage mains, inclined mounting position enabled, active cooling system			

Explanation of the specifications	Information
Series Project inverter	Name of the device series / model.
Quantity MPPT	Number of MPP trackers installed in the device.
Connections per MPPT	Number of physical DC connections per MPP tracker.
Max. Current MPPT (A)	Maximum current that can be processed by the device per MPP tracker.
Type of DC connections	Possible variants of string connections: Terminals, Stäubli MC4, Stäubli EVO2, Phoenix Contact Sunclix, Amphenol, …
DC string fuses	Are DC fuses for the inputs installed in the device?
DC system voltage (V)	Maximum DC input voltage from module side.
Surge protection DC / AC	Is surge protection installed in the device on the AC / DC side / optionally retrofittable? Which protection class (type 2 / type 1+2)?
Arc fault detection AFCI	Does the inverter have detection for arcing on the string side?
DC I/V Curve measurement	Does the inverter have an integrated characteristic curve measurement for the module strings?
Shading management	Does the inverter have a function to work best even in shaded conditions?
AC Nominal power (kW)	AC output power of the device.
Grid voltage	Voltage level at the mains connection.
Grid certificates	According to which standards is the device certified?
Warranty / Extendable to	Duration of standard warranty / Extendable to X years.
Interfaces Communication / FRE	Which integrated communication interfaces does the device have? To which can the required radio ripple control receiver be connected?
Monitoring	On which portal and with which additional components can a visualization of the plant take place?
Measurement grid connection + Self consumption (measurement type)	Which additional components are required for measuring the self-consumption share at the grid connection point?
Approval of use of grid relay for external NA protection (VDE-AR-N 4105, up to 135kVA)	Can the mains relays installed in the device be controlled externally by an NA monitor? This must be expressly approved by the manufacturer.
Implementation of direct marketing > 100kWp	Which additional components can be used to implement direct marketing, which is mandatory from 100 kW?
Control interfaces according to VDE-AR-N 4110 / 4120 (to be coordinated individually with grid provider)	Which additional components can be used by the utility to implement the prescribed control interfaces?
System information	Additional information about the system, special features, etc.

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