

Efficient.
Flexible.
Durable.



HYBO CABINET INVERTERS

OUTDOOR FAMILY

Innovative Hybrid Inverters for BESS Applications ON and OFF grid

120 kW - 300 kW

HYBO TL

IP 55 **OUTDOOR**



HYBO TL PCS
Single Door

Scalable Up To :

3 MW PCS



HYBO TL HYBRID
Single Door

Scalable Up To:

1.2 MW PCS / 1.2MW PV
1.2 MW PCS / 1.8 MW PV



HYBO TL HYBRID
Dual Door

Scalable Up To:

2.4 MW PV / 2.4 MW PCS

Black RAL 9011



COLOURS



White RAL 9003

HYBO TL OUTDOOR

Scalability x10
Transfer Time 20 ms

ON/OFF GRID CAPABILITY

HYBO TL & BESS

IP 55 **OUTDOOR**



HYBO TL OUTDOOR & Li-Kool 233 kWh



HYBO TL OUTDOOR & A-Kool 115 kWh ~ 215 kWh

HYBO TL OUTDOOR + LI-KOOL & A-KOOL

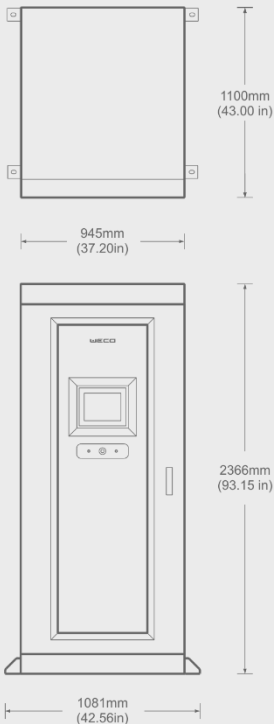
SIDE BY SIDE SEAMLESS ASSEMBLY

HYBO TL IBRIDO

OUTDOOR VERSION SINGLE DOOR

Specifications

		120/120	120/180
PV INPUT	MPPT Max. Voltage Input	650 V	
	MPPT Max. Current Input	200 A	
	MPPT Max. Power Output	60 kW x 2	60 kW x 3
	PV Max. Design Power Input	84 kW x 2	84 kW x 3
	MPPT Input Terminals	2 x 70 mm ²	3x 70 mm ²
	MPPT Start Up Voltage	200 V	
	MPPT Low Voltage Cut Off	130 V	
	MPPT Operative Working Range	200-650 V	
	MPPT Input Breaker And Capacity	2 x 250 A	3 x 250 A
	MPPT Input Protection Breaker	Automatic Over Current Protection / 20 kA Interruption Capacity	
	Combiner Box Strings Inputs Per MPPT	12 Strings 6 mm ² per input	
	Number Of Combiner Box Per Each HYBO	2	3
PV COMBINER BOX	PV String Max. Current Per Channel	16 A	
	Anti Reverse Connection Protection Per Channel	Yes	
	Max. PV Input Design Power Per Channel	7000 W	
	Max. Voltage Input	650 V	
	Combiner Output Per MPPT	70 mm ² (1x Positive 1x Negative)	
	Input String Protection Fuse	1 x Channel 20 A (Positive Line)	
	PV Combiner Box IP Rating	IP65	
	PV Combiner Communication Mode	RS485	
	Combiner Box Remote Controlled Breaker	250 A	
	Remote Emergency Button	Yes (Integrated With The Inverter Emergency Function)	
BATTERY	Min. Battery Voltage	680 V	
	Min. Number Of Batteries In Series	15 Battery Modules	
	Max. Battery Voltage	1000 V	
	Max. Number Of Batteries In Series	17 Battery Modules	
	Battery Input Channels	4	
	Max. Charging / Discharging Power	120/120 kW	180/120 kW
AC SIDE	Grid Type	3L + N + GND	
	Rated Power Output AC Side	120 kW	120 kW
	Rated Current	172 A	172 A
	AC Breakers And Interruption Capacity	250 A / 50 kA	250 A / 50 kA
	Rated Voltage	400 Vac	
	Voltage Range	400 Vac ± 15 %	
	Rated Frequency (Hz)	50 Hz / 60 Hz	
	Frequency Range	± 3 Hz	
	Power Factor (Off Grid)	- 0.8 ~ +0.8	
	Frequency Accuracy	0.2 Hz	
	Voltage Ripple	< 3 %	
	Current Ripple	< 2 %	
BACKUP (Optional)	Output Harmonic Wave	< 3 %	
	Phase Unbalance Load (Off-Grid W/STS Only)	100%	
	STS For EPS	Optional Accessory	
	STS Switch Time On To Off Grid	20ms (Linear Load)	
	STS Switch Time OFF To ON Grid	30 ms	
	EPS Overload Support	0%	
AC AUXILIARY INPUT	EPS Max. Power (Only With STS installed)	Support 100% of the Inverter Full Power	
	EPS Output AC Breaker Interruption Capacity	250 A / 50 kA	250 A / 50 kA
	AC Generator Input Voltage	400 V 3P + N + GND	
	AC Input Voltage Range	400 V +/- 15%	
SYSTEM	AC Input Voltage Protection Breaker	250 A / 50 kA	250 A / 50 kA
	Reaction Time To External Commands	200 ms	
	Switch Time From Charge To Discharge	20 ms	
	Switch Time From Discharge To Charge	20 ms	
	Operation Mode PV + Grid Only (No Battery)	Supported	
	System Start Up Capability On-Grid (No Battery)	PV + Grid = Operation Granted	
ENVIRONMENT	System Start Up Capability Off-Grid	Battery Only = Operation Granted	
	Emergency Stop Intervention	600 ms	
	IP rating	IP55	
	Working Temperature	-20 °C ~ 55 °C (Derating T > 45 °C)	
	Humidity	0 % RH ~ 95 % RH, Non-condensing	
	Working Altitude	T < 45 °C: 2000 m (No Derating), 2000 m ~ 4000 m Derating	
INTERFACE	Noise	< 75 dB	
	Communication Protocol	RS485, CAN, Wi-Fi (SUNSPEC)	
	Installation	Indoor In Controlled Temperature Room	
	Maximum Efficiency	97%	
OTHERS	Isolation	Transformer-less	
	Protection Class	Class I	
	Cooling Type	Forced Air	
	Dimensions (W x D x H) (mm)	1081 x 1100 x 2366	
	Weight	670 kg	700 kg



IP 55 OUTDOOR

HYBO TL IBRIDO

OUTDOOR VERSION DOUBLE DOOR

Specifications		180/120	180/180	180/240	240/180	240/240
PV INPUT	MPPT Max. Voltage Input	650 V				
	MPPT Max. Current Input	200 A				
	MPPT Max. Power Output	60 kW x 2	60 kW x 3	60 kW x 3	60 kW x 4	60 kW x 4
	PV Max. Design Power Input	84 kW x 2	84 kW x 3	84 kW x 3	84 kW x 4	84 kW x 4
	MPPT Input Terminals	2 * 70 mm²	3x 70 mm²	4x 70 mm²	3x 70 mm²	4x 70 mm²
	MPPT Start Up Voltage	200 V				
	MPPT Low Voltage Cut Off	130 V				
	MPPT Operative Working Range	200-650 V				
	MPPT Input Breaker And Capacity	2 x 250 A	3 x 250 A	4 x 250 A	3 x 250 A	4 x250 A
	MPPT Input Protection Breaker	Automatic Over Current Protection / 20 kA Interruption Capacity				
PV COMBINER BOX	Combiner Box Strings Inputs Per MPPT	12 Strings 6 mm² per input				
	Number Of Combiner Box Per Each HYBO	2	3	3	3	4
	PV String Max. Current Per Channel	16 A				
	Anti Reverse Connection Protection Per Channel	Yes				
	Max. PV Input Design Power Per Channel	7000 W				
	Max. Voltage Input	650 V				
	Combiner Output Per MPPT	70 mm² (1x Positive 1x Negative)				
	Input String Protection Fuse	1 x Channel 20 A (Positive Line)				
	PV Combiner Box IP Rating	IP65				
	PV Combiner Communication Mode	RS485				
BATTERY	Combiner Box Remote Controlled Breaker	250 A				
	Remote Shut Down	Yes (Integrated With The Inverter Emergency Function)				
	Min. Battery Voltage	680 V				
	Min. Number Of Batteries In Series	15 Battery Modules				
	Max. Battery Voltage	1000 V				
AC SIDE	Max. Number Of Batteries In Series	17 Battery Modules				
	Battery Input Channels	4				
	Max. Charging / Discharging Power (kW)	180/180	180/180	240/180	240/240	240/240
	Grid Type	3L + N + GND				
	Rated Power Output AC Side	180 kW	180 kW	180 kW	240 kW	240 kW
	Rated Current	258 A	258 A	258 A	344 A	344 A
	AC Breakers And Interruption Capacity	315 A / 70 kA	315 A / 70 kA	315 A / 70 kA	400 A / 70 kA	400 A / 70k A
	Rated Voltage	400 Vac				
	Voltage Range	400 Vac ± 15 %				
	Rated Frequency (Hz)	50 Hz / 60 Hz				
	Frequency Range	± 3 Hz				
	Power Factor (Off Grid)	-0.8 ~ +0.8				
	Frequency Accuracy	0.2 Hz				
	Voltage Ripple	< 3 %				
	Current Ripple	< 2 %				
BACKUP EPS (OPTIONAL)	Output Harmonic Wave	< 3 %				
	Phase Unbalance Load (Off-Grid, W/STS Only)	100%				
	STS For EPS	Optional				
	STS Switch Time On To Off Grid	20 ms (Linear Load)				
	STS Switch Time OFF To ON Grid	30 ms				
AC AUXILIARY INPUT	EPS Overload Support	0%				
	EPS Max. Power (Only With STS Installed)	100%				
	EPS Output AC Breaker Interruption Capacity	315 A / 70 kA	315 A / 70 kA	315 A / 70 kA	400 A / 70 kA	400 A / 70 kA
	AC Generator Input Voltage	400 V 3P + N + GND				
SYSTEM	AC Input Voltage Range	400 V +/- 15%				
	AC Input Voltage Protection Breaker	315 A / 70 kA	315 A / 70 kA	315 A / 70 kA	400 A / 70 kA	400 A / 70 kA
	Reaction Time To External Commands	200 ms				
	Switch Time From Charge To Discharge	20 ms				
	Switch Time From Discharge To Charge	20 ms				
	Operation Mode PV + Grid Only (No Battery)	Supported				
	System Start Up Capability ON Grid (No Battery)	PV + Grid = Operation Granted				
ENVIRONMENT	System Start Up Capability OFF Grid	Battery Only = Operation Granted				
	Emergency Stop Intervention	600 ms				
	IP rating	IP55				
	Working Temperature	-20 °C ~ 55 °C (Derating T > 45°C)				
	Humidity	0 % RH ~ 95 % RH, Non-condensing				
INTERFACE	Working Altitude	T < 45 °C: 2000 m (No Derating), 2000 m ~ 4000 m Derating				
	Noise	< 75 dB				
OTHERS	Communication Protocol	RS485, CAN, Wi-Fi (SUNSPEC) CAN, ModBus TCP, ModBus RTU				
	Installation	Indoor In Controlled Temperature Room				
	Maximum Efficiency	97%				
	Isolation	Transformer-less				
	Protection Class	Class I				
	Cooling Type	Forced Air				
	Dimensions (W x D x H) (mm)	1527 x 1100 x 2366				
Weight		920 kg	950 kg	980 kg	980 kg	1010 kg



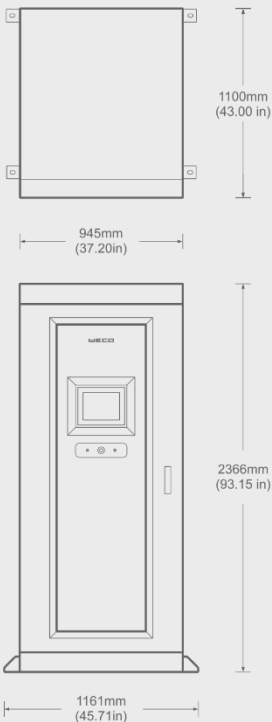
IP 55 OUTDOOR

HYBO TL PCS

OUTDOOR VERSION SINGLE DOOR

Specifications

	120	180	240	300
BATTERY	Min. Battery Voltage			
	680 V			
	Min. Number Of Batteries In Series			
	15 Battery Modules			
	Max. Battery Voltage			
	1000 V			
	Max. Number Of Batteries In Series			
	17 Battery Modules			
	Battery Input Channels			
	4			
	Max. Charging / Discharging Power			
	120 kW	180 kW	240 kW	300 kW
AC SIDE	Grid Type			
	3L + N + GND			
	Rated Power AC Side			
	120 kW	180 kW	240 kW	300 kW
	Rated Current AC Side			
	172 A	258 A	344 A	430 A
	AC Breakers And Interruption Capacity			
	250 A / 70 kA	315 A / 70 kA	400 A / 70 kA	500 A / 70 kA
	Rated Voltage			
	400 Vac			
	Voltage Range			
	400 Vac $\pm$ 15 %			
	Rated Frequency (Hz)			
	50 Hz / 60 Hz			
	Frequency Range			
	$\pm$ 3 Hz			
	Power Factor (Off Grid)			
	-0.8 ~ +0.8			
	Frequency Accuracy			
	0.2 Hz			
	Voltage Ripple			
	< 3 %			
	Current Ripple			
	< 2 %			
	Output Harmonic Wave			
	< 3 %			
	Phase Unbalance Load (Off-Grid W/TS Only)			
	100%			
BACKUP EPS (OPTIONAL)	STS For EPS (Blackout Load Support)			
	Optional Accessory			N/A
	STS Switch Time ON To Off Grid			
	20 ms (Linear Load)			
	STS Switch Time OFF To ON Grid			
	30 ms			
	EPS Overload Support			
	0%			
	EPS Max. Power (Only With STS Installed)			
	100%			
	EPS Critical Load Support			
	EPS Output Can Support Individually Connected Loads Under Each Inverter			
	EPS Output AC Breaker Interruption Capacity			
	250 A / 70 kA	315 A / 70 kA	400 A / 70 kA	N/A
	Reaction Time To External Commands			
	200 ms			
SYSTEM	Switch Time From Charge To Discharge			
	20 ms			
	Switch Time From Discharge To Charge			
	20 ms			
	System Start Up Capability OFF Grid			
	OFF Grid + Battery = Operation Granted			N/A
ENVIRONMENT	Emergency Stop Intervention			
	600 ms			
	IP Rating			
	IP55			
	Working Temperature			
	-20 °C ~ +55 °C (Over 45 °C Derating)			
	Humidity			
	0 % RH ~ 95 % RH, Non-condensing			
	Working Altitude			
	At 45 °C, 2000 m (No Derating), 2000 m ~ 4000 m Derating			
	Noise			
	< 75 Db			
INTERFACE	Communication			
	RS485, CAN, Wi-Fi (SUNSPEC)			
	Protocol			
	CAN, Modbus TCP/IP			
OTHERS	Installation			
	Indoor In Controlled Temperature Room			
	Maximum Efficiency			
	97%			
	Isolation			
	Transformer-less			
	Protection Class			
	Class I			
	Cooling Type			
	Forced Air			
	Dimensions (W x D x H) (mm)			
	1161 x 1100 x 2366			
	Weight			
	570 kg	600 kg	630 kg	630 kg



IP 55 OUTDOOR

BATTERY MATCHING CHART



HYBO TL + LI-KOOL 233

0.5C CHARGE



	Power Device	ESS Model	Number of ESS	AC Power	PV Power	Std Capacity	Ratio C-rate	Systems in parallel	Max. Parallel Combined Capacity
PCS	HYBO TL PCS 120	Li-Kool 233	1	120 kW	-	233 kWh	0.5	10	1.2 MW / 2.3 MWh
	HYBO TL PCS 180		1	180 kW		233 kWh	0.5		1.8 MW / 2.3 MWh
	HYBO TL PCS 240		2	240 kW		466 kWh	0.5		2.4 MW / 4.6 MWh
	HYBO L PCS 300		2	300 kW		466 kWh	0.5		3.0 MW / 4.6 MWh

HYBRID	HYBO TL HYBRID 120/120	Li-Kool 233	1	120 kW	120 kW	233 kWh	0.5	10	1.2 MW AC/1.2 MW PV/2.3 MWh
	HYBO TL HYBRID 180/120		1	180 kW	120 kW	233 kWh	0.5		1.8 MW AC/1.2 MW PV/2.3 MWh
	HYBO TL HYBRID 240/180		2	240 kW	180 kW	466 kWh	0.5		2.4 MW AC/1.8 MW PV/4.6 MWh
	HYBO TL HYBRID 240/240		2	240 kW	240 kW	466 kWh	0.5		2.4 MW AC/2.4 MW PV/4.6 MWh



HYBO TL + A-KOOL 215

0.5C CHARGE



	Power Device	ESS Model	Number of ESS	AC Power	PV Power	Std Capacity	Ratio C-rate	Systems in parallel	Max. Parallel Combined Capacity
PCS	HYBO TL PCS 120	A-Kool 215	1	120 kW	-	215 kWh	0.5	10	1.2 MW / 4.3 MWh
	HYBO TL PCS 180		1	180 kW		215 kWh	0.5		1.8 MW / 4.3 MWh
	HYBO TL PCS 240		2	240 kW		430 kWh	0.5		2.4 MW / 8.6 MWh
	HYBO TL PCS 300		2	300 kW		430 kWh	0.5		3.0 MW / 8.6 MWh

HYBRID	HYBO TL HYBRID 120/120	A-Kool 215	1	120 kW	120 Kw	215 kWh	0.5	10	1.2 MW AC/1.2 MW PV/2.1 MWh
	HYBO TL HYBRID 180/120		1	180 kW	120 kW	215 kWh	0.5		1.8 MW AC/1.2 MW PV/2.1 MWh
	HYBO TL HYBRID 240/180		2	240 kW	180 kW	430 kWh	0.5		2.4 MW AC/1.8 MW PV/4.3 MWh
	HYBO TL HYBIRD 240/240		2	240 kW	240 kW	430 kWh	0.5		2.4 MW AC/2.4 MW PV/4.3 MWh



HYBO TL + A-KOOL 115

1C FAST CHARGE



	Power Device	ESS Model	Number of ESS	AC Power	PV Power	Std Capacity	Ratio C-rate	Systems in parallel	Max. Parallel Combined Capacity
PCS	HYBO TL PCS 120	A-Kool 115	1	120 kW	-	115 kWh	1.0	10	1.2 MW / 1.15 MWh
	HYBO TL PCS 180		1	180 kW		115 kWh	1.0		1.8 MW / 1.15 MWh
	HYBO TL PCS 240		2	240 kW		230 kWh	1.0		2.4 MW / 2.3 MWh
	HYBO TL PCS 300		2	300 kW		230 kWh	1.0		3.0 MW / 2.3 MWh

HYBRID	HYBO TL HYBRID 120/120	A-Kool 115	1	120 kW	120 kW	115 kWh	1.0	10	1.2MW AC/1.2 MW PV/1.1 MWh
	HYBO TL HYBRID 180/120		1	180 kW	120 kW	115 kWh	1.0		1.8 MW AC/1.2 MW PV/1.1 MWh
	HYBO TL HYBRID 240/180		2	240 kW	180 kW	230 kWh	1.0		2.4 MW AC/1.8 MW PV/2.3 MWh
	HYBO TL HYBRID 240/240		2	240 kW	240 kW	230 kWh	1.0		2.4 MW AC/2.4 MW PV/2.3 MWh

HYBO TL

HYBRID INVERTER



WECO

The Next
Generation
**BESS
INVERTER** is
here and
it's WeCo.

HYBO hybrid outdoor inverters encompass economic, environmental, and operational benefits, making them a compelling choice for those seeking a sustainable and reliable energy solution for outdoor spaces.

Efficient.
Flexible.
Durable.

WECO

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