

WECO



HYBO CABINET INVERTERS

OUTDOOR FAMILY

Innovative Hybrid Inverters for BESS Applications ON and OFF grid

120 kW - 300 kW

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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

Grey RAL 9006



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 kW



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

HYBO TL OUTDOOR + LI-KOOL & A-KOOL

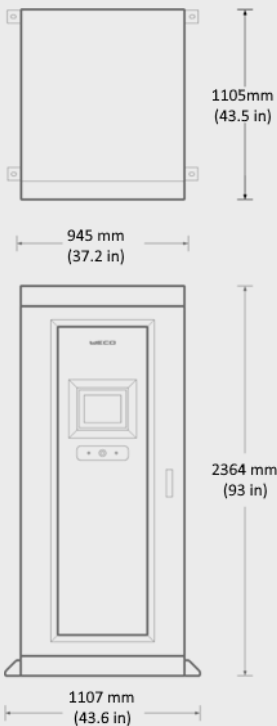
SIDE BY SIDE SEAMLESS ASSEMBLY

HYBO TL HYBRID

OUTDOOR VERSION SINGLE DOOR

Specifications

		120/120	180/120
PV INPUT	MPPT Max. Voltage Input	680 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 $\varnothing 70$ mm	3x $\varnothing 70$ mm
	MPPT Start Up Voltage	200 V	
	MPPT Low Voltage Cut Off	130 V	
	MPPT Operative Working Range	200-680 V	
	MPPT Input Breaker And Capacity	2 x 250 A	3 x 250 A
	MPPT Input Protection Breaker	Automatic Over Current Protection / 16 kA Interruption Capacity	
	Combiner Box Strings Inputs Per MPPT	12 Strings $\varnothing 12$ mm per input	
	Number Of Combiner Box Per Each HYBO	2	3
	PV String Max. Current Per Channel	18 A	
PV COMBINER BOX	Anti Reverse Connection Protection Per Channel	Yes	
	Max. PV Input Design Power Per Channel	7000 W	
	Max. Voltage Input	680 V	
	Combiner Output Per MPPT	$\varnothing 70$ 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)	
	Min. Battery Voltage	680 V	
BATTERY	Min. Number Of Batteries In Series	15 Battery Modules	
	Max. Battery Voltage	934 V	
	Max. Number Of Batteries In Series	17 Battery Modules	
	Battery Input Channels	4	
	Max. Charging / Discharging Power	120/1120 kW	180/120 kW
	Grid Type	3L + N + GND	
AC SIDE	Rated Power Output AC Side	120 kW	120 kW
	Rated Current	258 A	258 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 %	
	Output Harmonic Wave	< 3 %	
	Phase Unbalance Load (Off-Grid W/STS Only)	100%	
BACKUP (Optional)	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%	
	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 AUXILIARY INPUT	AC Generator Input Voltage	400 V 3P + N + GND	
	AC Input Voltage Range	400 V +/- 15%	
SYSTEM	AC Input Voltage Protection Breaker	250 A / 40 kA	250 A / 40 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	
	System Start Up Capability Off-Grid	Battery Only = Operation Granted	
	Emergency Stop Intervention	600 ms	
ENVIRONMENT	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	
	Noise	< 75 dB	
INTERFACE	Communication Protocol	RS485, CAN, Wi-Fi (SUNSPEC) CAN, ModBus TCP, ModBus RTU	
	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)	1107 x 1105 x 2364	
	Weight	420 kg	450 kg



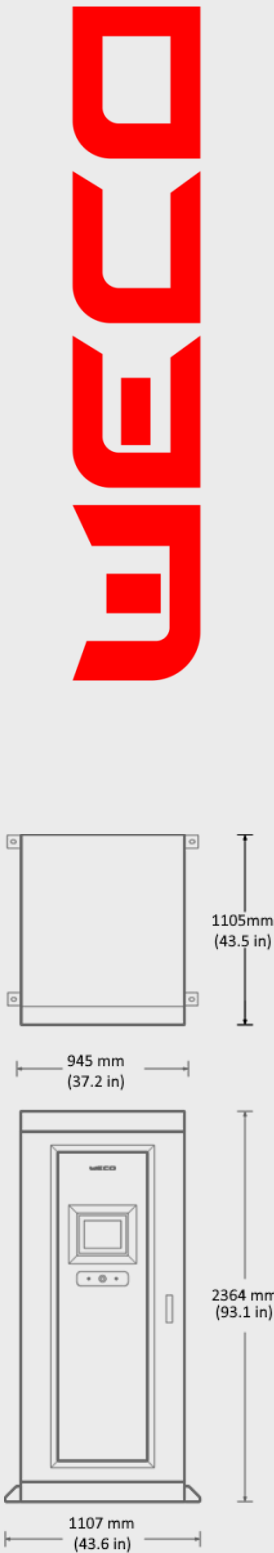
IP 55 OUTDOOR

HYBO TL HYBRID

OUTDOOR VERSION DOUBLE DOOR

Specifications

		120/180	180/180	180/240	240/180	240/240
PV INPUT	MPPT Max. Voltage Input	680 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*ø70 mm	3x ø70 mm	3x ø70 mm	4x ø70 mm	4x ø70 mm
	MPPT Start Up Voltage	200 V				
	MPPT Low Voltage Cut Off	130 V				
	MPPT Operative Working Range	200-680 V				
	MPPT Input Breaker And Capacity	2 x 250 A	3 x 250 A	3 x 250 A	4 x 250 A	4 x250 A
	MPPT Input Protection Breaker	Automatic Over Current Protection / 16 kA Interruption Capacity				
PV COMBINER BOX	Combiner Box Strings Inputs Per MPPT	12 Strings ø12 mm per input				
	Number Of Combiner Box Per Each HYBO	2	3	3	4	4
	PV String Max. Current Per Channel	18 A				
	Anti Reverse Connection Protection Per Channel	Yes				
	Max. PV Input Design Power Per Channel	7000 W				
	Max. Voltage Input	680 V				
	Combiner Output Per MPPT	ø 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				
	Combiner Box Remote Controlled Breaker	250 A				
	Remote Shut Down	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	934 V				
	Max. Number Of Batteries In Series	17 Battery Modules				
	Battery Input Channels	4				
AC SIDE	Max. Charging / Discharging Power (kW)	180/180	180/180	240/240	240/180	240/240
	Grid Type	3L + N + GND				
	Rated Power Output AC Side	180 kW	180 kW	240 kW	180 kW	240 kW
	Rated Current	258 A	258 A	344 A	258 A	344 A
	AC Breakers And Interruption Capacity	315 A / 70 kA	315 A / 70 kA	400 A / 70 kA	315 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 %				
	Output Harmonic Wave	< 3 %				
	Phase Unbalance Load (Off-Grid, W/STS Only)	100%				
BACKUP EPS (OPTIONAL)	STS For EPS	Optional				
	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 Output AC Breaker Interruption Capacity	315 A / 70 kA	315 A / 70 kA	400 A / 70 kA	315 A / 70 kA	400 A / 70 kA
AC AUXILIARY INPUT	AC Generator Input Voltage	400 V 3P + N + GND				
	AC Input Voltage Range	400 V +/- 15%				
	AC Input Voltage Protection Breaker	315 A / 70 kA	315 A / 70 kA	400 A / 70 kA	315 A / 70 kA	400 A / 70 kA
SYSTEM	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				
	System Start Up Capability OFF Grid	Battery Only = Operation Granted				
	Emergency Stop Intervention	600 ms				
ENVIRONMENT	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				
	Noise	< 75 dB				
INTERFACE	Communication Protocol	RS485, CAN, Wi-Fi (SUNSPEC)				
	Protocol	CAN, ModBus TCP, ModBus RTU				
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)	1450 x 1200 x 2100				
Weight		560 kg	590 kg	620 kg	620 kg	650 kg



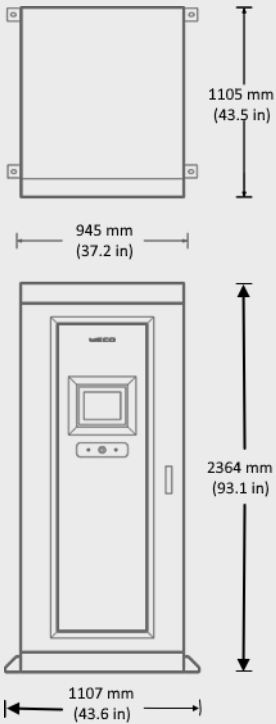
IP 55 OUTDOOR

HYBO TL PCS

OUTDOOR VERSION SINGLE DOOR

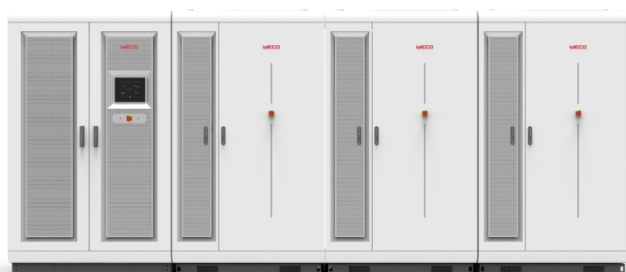
Specifications

	120	180	240	300
BATTERY	Min. Battery Voltage			
	680 V			
	Min. Number Of Batteries In Series			
	15 Battery Modules			
	Max. Battery Voltage			
	934 V			
AC SIDE	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
	Grid Type			
	3L + N + GND			
	Rated Power AC Side			
	120 kW	180 kW	240 kW	300 kW
BACKUP EPS (OPTIONAL)	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 ± 15 %			
	Rated Frequency (Hz)			
	50 Hz / 60 Hz			
SYSTEM	Frequency Range			
	± 3 Hz			
	Power Factor (Off Grid)			
	-0.8 ~ +0.8			
	Frequency Accuracy			
	0.2 Hz			
	Voltage Ripple			
	< 3 %			
	Current Ripple			
	< 2 %			
ENVIRONMENT	Output Harmonic Wave			
	< 3 %			
	Phase Unbalance Load (Off-Grid W/TS Only)			
	100%			
	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			
INTERFACE	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			
OTHERS	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
	Emergency Stop Intervention			
	600 ms			
	IP Rating			
	IP55			
OTHERS	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			
	Communication			
	RS485, CAN, Wi-Fi (SUNSPEC)			
OTHERS	Protocol			
	CAN, Modbus TCP, Modbus RTU			
	Installation			
	Indoor In Controlled Temperature Room			
	Maximum Efficiency			
	97%			
	Isolation			
	Transformer-less			
	Protection Class			
	Class I			
OTHERS	Cooling Type			
	Forced Air			
	Dimensions (W x D x H) (mm)			
	1107 x 1105 x 2364			
	Weight			
	360 kg	390 kg	420 kg	450 kg



IP 55 OUTDOOR

BATTERY MATCHING CHART



HYBO TL + LI-KOOL 233

0.5C CHARGE



	Power Device	ESS Model	Number of ESS	PV Power	AC Power	Std Capacity	Ratio C-rate	Max. Capacity ESS	Systems in parallel	Max. Parallel Combined Capacity
PCS	HYBO TL PCS 120	Li-Kool 233	1	-	120 kW	215 kWh	0.5	430 kWh	10	1.2 MW / 4.3 MWh
	HYBO TL PCS 180		1		180 kW	215 kWh	0.8	430 kWh		1.8 MW / 4.3 MWh
	HYBO TL PCS 240		2		240 kW	430 kWh	0.5	860 kWh		2.4 MW / 8.6 MWh
	HYBO L PCS 300		2		300 kW	430 kWh	0.5	860 kWh		3.0 MW / 8.6 MWh

HYBRID	HYBO TL HYBRID 120/120	Li-Kool 233	1	120 kW	120 kW	233 kWh	0.5	466 kWh	10	1.2 MW PV/1.2 MW AC/4.3 MWh
	HYBO TL HYBRID 180/120		1	180 kW	120 kW	233 kWh	0.8	466 kWh		1.8 MW PV/1.2 MW AC/4.3 MWh
	HYBO TL HYBRID 240/180		2	240 kW	180 kW	466 kWh	0.5	932 kWh		2.4 MW PV/1.8 MW AC/8.6 MWh
	HYBO TL HYBRID 240/240		2	240 kW	240 kW	466 kWh	0.5	932 kWh		2.4 MW PV/2.4 MW AC/8.6 MWh



HYBO TL + A-KOOL 215

0.5C CHARGE



	Power Device	ESS Model	Number of ESS	PV Power	AC Power	Std Capacity	Ratio C-rate	Max. Capacity ESS	Systems in parallel	Max. Parallel Combined Capacity
PCS	HYBO TL PCS 120	A-Kool 215	1	-	120 kW	215 kWh	0.6	430 kWh	10	1.2 MW / 4.3 MWh
	HYBO TL PCS 180		1		180 kW	215 kWh	0.8	430 kWh		1.8 MW / 4.3 MWh
	HYBO TL PCS 240		2		240 kW	430 kWh	0.6	860 kWh		2.4 MW / 8.6 MWh
	HYBO TL PCS 300		2		300 kW	430 kWh	0.6	860 kWh		3.0 MW / 8.6 MWh

HYBRID	HYBO TL HYBRID 120/120	A-Kool 215	1	120 kW	120 Kw	233 kWh	0.6	430 kWh	10	1.2 MW PV/1.2 MW AC/4.3 MWh
	HYBO TL HYBRID 180/120		1	180 kW	120 kW	233 kWh	0.8	430 kWh		1.8 MW PV/1.2 MW AC/4.3 MWh
	HYBO TL HYBRID 240/180		2	240 kW	180 kW	466 kWh	0.6	860 kWh		2.4 MW PV/1.8 MW AC/8.6 MWh
	HYBO TL HYBRID 240/240		2	240 kW	240 kW	466 kWh	0.6	860 kWh		2.4 MW PV/2.4 MW AC/8.6 MWh



HYBO TL + A-KOOL 115

1C FAST CHARGE



	Power Device	ESS Model	Number of ESS	PV Power	AC Power	Std Capacity	Ratio C-rate	Max. Capacity ESS	Systems in parallel	Max. Parallel Combined Capacity
PCS	HYBO TL PCS 120	A-Kool 115	1	-	120 kW	115 kWh	1.0	230 kWh	10	1.2 MW / 1.15 MWh
	HYBO TL PCS 180		1		180 kW	230 kWh	0.8	230 kWh		1.8 MW / 2.3 MWh
	HYBO TL PCS 240		2		240 kW	230 kWh	1.0	460 kWh		2.4 MW / 2.3 MWh
	HYBO PCS 300		2		300 kW	230 kWh	1.0	460 kWh		3.0 MW / 2.3 MWh

HYBRID	HYBO TL HYBRID 120/120	A-Kool 115	1	120 kW	120 kW	115 kWh	0.6	230 kWh	10	1.2MW PV/1.2 MW AC/1.15 MWh
	HYBO TL HYBRID 180/120		1	180 kW	120 kW	230 kWh	0.8	230 kWh		1.8 MW PV/1.2 MW AC/2.3 MWh
	HYBO TL HYBRID 240/180		2	240 kW	180 kW	230 kWh	0.6	460 kWh		2.4 MW PV/1.8 MW AC/4.6 MWh
	HYBO TL HYBRID 240/240		2	240 kW	240 kW	230 kWh	0.6	460 kWh		2.4 MW PV/2.4 MW AC/4.6 MWh



HYBO TL SYSTEMS

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.
Rugged.



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