

CIS Turbo Inverter*

Technical data

* Only available in the PowerSets of Solar Frontier

DC input side (PV generator connection)	Turbo 1P Mini	Turbo 1P	Turbo 3P1	Turbo 3P2
Maximum input voltage	420 V	845 V	1,000 V	1,000 V
Operating input voltage range	75 V ... 350 V	350 ... 700 V	250 ... 800 V	250 ... 800 V
Number of MPP trackers	1	1	1	1
Maximum input current	11.5 A	12 A	11 A	11 A
Maximum input power at maximum output active power	2,050 W	4,310 W	4,100 W	6,330 W
AC output side (mains grid connection)	Turbo 1P Mini	Turbo 1P	Turbo 3P1	Turbo 3P2
Output voltage (depending on the country setting)	185 V ... 276 V	185 V ... 276 V	320 V ... 480 V	320 V ... 480 V
Rated output voltage	230 V	230 V	400 V	400 V
Maximum output current	12.0 A	18.5 A	7 A	10 A
Maximum active power (cos φ = 1)	2,000 W	4,200 W	4,000 W	6,200 W
Maximum active power (cos φ = 0.95)	2,000 W	3,990 W	3,800 W	5,890 W
Maximum active power (cos φ = 0.9)	–	–	3,600 W	5,580 W
Maximum apparent power (cos φ = 0.95)	2,100 VA	4,200 VA	4,000 VA	6,200 VA
Maximum apparent power (cos φ = 0.9)	–	–	4,000 VA	6,200 VA
Rated frequency	50 Hz and 60 Hz			
Grid frequency (depending on the country setting)	45 Hz ... 65 Hz			
Power losses in nighttime operation	< 2 W	< 1 W	< 3 W	< 3 W
Feeding phases	single-phase	single-phase	three-phase	three-phase
Distortion factor (cos φ = 1)	< 2 %	< 2 %	< 1 %	< 1 %
Power factor cos φ	0.95 capacitive ... 0.95 inductive	0.95 capacitive ... 0.95 inductive	0.8 capacitive ... 0.8 inductive	0.8 capacitive ... 0.8 inductive
Characterisation of the operating behaviour	Turbo 1P Mini	Turbo 1P	Turbo 3P1	Turbo 3P2
Maximum efficiency	98.0 %	98.6 %	98.6 %	98.7 %
European efficiency	97.5 %	98.2 %	98.1 %	98.3 %
MPP efficiency	> 99.7 % (static) > 99 % (dynamic)	> 99.7 % (static) > 99 % (dynamic)	> 99.8 % (static) > 99 % (dynamic)	> 99.8 % (static) > 99 % (dynamic)
Own consumption	< 4 W	< 4 W	< 8 W	< 8 W
Derating at full power	50 °C (T _{amb})	from 45 °C (T _{amb})	from 50 °C (T _{amb})	from 50 °C (T _{amb})
Safety	Turbo 1P Mini	Turbo 1P	Turbo 3P1	Turbo 3P2
Isolation principle	No galvanic isolation; transformerless			
Grid monitoring	Yes, integrated			
Residual current monitoring	Yes, integrated ¹⁾			
Application conditions	Turbo 1P Mini	Turbo 1P	Turbo 3P1	Turbo 3P2
Area of application	Indoor rooms, with or without air conditioning			
Ambient temperature range (T _{amb})	–15 °C ... +60 °C			
Storage temperature	–30 °C ... +80 °C	–30 °C ... +80 °C	–30 °C ... +70 °C	–30 °C ... +70 °C
Relative humidity	0 % ... 95 %, non-condensing			
Noise emission (typical)	<31 dBA	<31 dBA	<29 dBA	<29 dBA
Equipment and design	Turbo 1P Mini	Turbo 1P	Turbo 3P1	Turbo 3P2
Degree of protection	IP21 (Casing: IP51; Display: IP21)			
Overvoltage category	III (AC), II (DC)			
DC connection	Phoenix Contact SunClix (1 pair)			
AC connector	Wieland RST25i3 plug	Wieland RST25i3 plug	Wieland RST25i5 plug	Wieland RST25i5 plug
Dimensions (W x H x D)	340 x 608 x 222 mm (49.5 x 38.5 x 1.4 in)			
Weight	8.3 kg (18.30 lbs)	9 kg (19.84 lbs)	10 kg (19.84 lbs)	10 kg (19.84 lbs)
Communication interface	RS485 (2 x RJ45 sockets: Connection to Meteocontrol WEB'log or Solar-Log™, 1 x RJ10 socket: Connection to Modbus RTU meter), ethernet interface for PowerMonitoring (1 x RJ45)			
Feed-in management as per EEG 2012	EinsMan Ready, via RS485 interface			
Integrated DC circuit breaker	yes, VDE 0100-712 compliant			
Cooling principle	Temperature-controlled fan, variable speed, internal (dust protected)			
Certifications	please refer to certification download on www.solar-frontier.eu			

¹⁾ The design of the inverter prevents it from causing DC leakage current.