

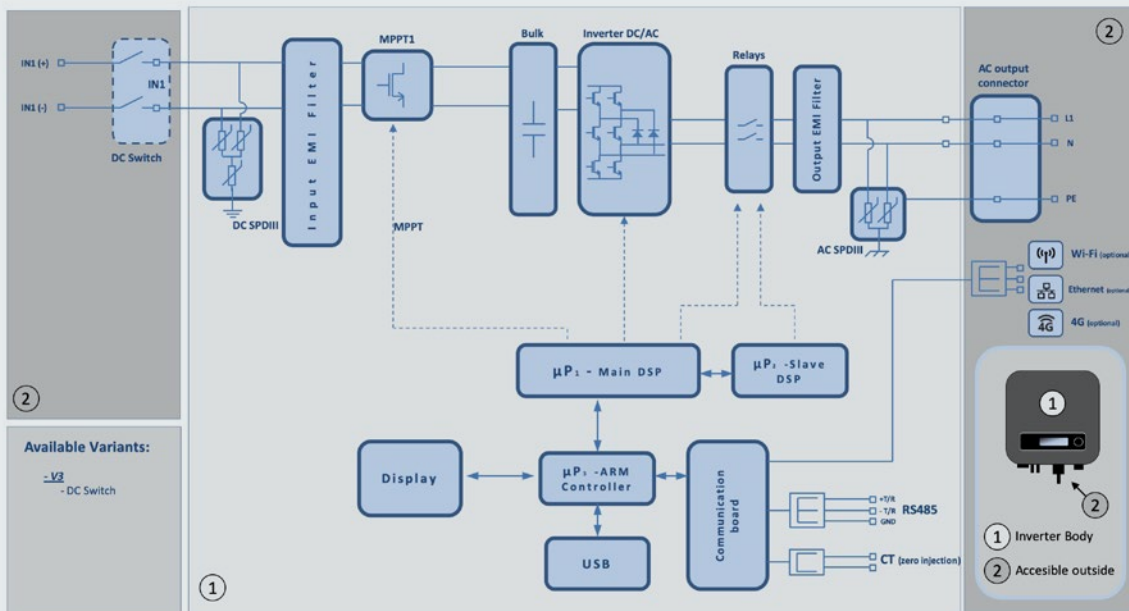
ZCS AZZURRO - SINGLE-PHASE STRING INVERTER

1PH 1100TL-V3/1PH 1600TL-V3/1PH 2200TL-V3/1PH 2700TL-V3/1PH 3000TL-V3/1PH 3300TL-V3



- » Maximum yield 97.7%
- » Single MPPT channel
- » Fast and safe installation with all required parts included
- » Ultra compact
- » 5 or 10 year ZCS warranty
- » Wide input operating range from 50V to 550V

FLOW CHART



TECHNICAL DATA	1PH 1100TL-V3	1PH 1600TL-V3	1PH 2200TL-V3	1PH 2700TL-V3	1PH 3000TL-V3	1PH 3300TL-V3
DC Input data						
Typical DC power*	1210 W	1760 W	2420 W	2970 W	3300 W	3630 W
No. of independent MPPTs / No. of strings per MPPT	1/1					
Maximum DC input voltage	500V			550V		
Start-up voltage	70V					
Nominal DC input voltage	360V					
MPPT DC voltage range	50V-500V			50V-550V		
DC voltage range at full load	110V-450V	150V-450V	200V-450V	250V-500V	275V-500V	300V-500V
Maximum input current for each MPPT	12A					
Maximum absolute current for each MPPT	15A					
AC Output data						
Rated AC power	1100 W	1600 W	2200 W	2700 W	3000 W	3300 W
Maximum AC power	1100VA	1600VA	2200VA	2700VA	3000VA	3300VA
Maximum AC current	5.3A	7.7A	10.6A	13A	14.5A	16A
Connection type/Rated grid voltage	Single-phase L/N/PE / 220V, 230V, 240V					
Grid voltage range	180V~276V (according to the local grid standards)					
Rated grid frequency	50Hz/60Hz					
Grid frequency range	45Hz~55Hz / 54Hz~66Hz (according to the local grid standards)					
Total harmonic distortion	<3%					
Power factor	1 (Programmable +/-0.8)					
Active power adjustment range (settable)	0~100%					
Grid feed-in limit	Feed-in adjustable from zero to nominal power value**					
Efficiency						
Maximum efficiency	97.5%			97.7%		
Weighted efficiency (EURO)	96.9%			97.2%		
MPPT efficiency	>99.9%					
Consumption at night	<1W					
Protections						
Internal interface protection	Yes					
Safety protections	Anti-islanding, RCMU, Ground Fault Monitoring					
Reverse polarity protection DC	Yes					
DC circuit breaker	Integrated					
Overheating protection	Yes					
Overvoltage category/Protection class	Overvoltage Category III / Protection class I					
Integrated dischargers	AC/DC MOV: Type 3 Standard					
Standard						
EMC	EN 61000-6-1/3, EN 61000-3-2/3					
Safety standard	IEC 62116, IEC 61727, IEC 61683, IEC 60068-1/2/14/30, IEC 62109-1/2					
Grid connection standard	Connection certificates and standards available on www.zcsazzurro.com					
Communication						
Communication interfaces	Wi-Fi/4G/Ethernet (optional), RS485 (proprietary protocol), USB					
Additional inputs or connections	Input for current sensor connection					
General data						
Allowable ambient temperature range	-30°C...+60°C (power limit above 45°C)					
Topology	Transformerless					
Environmental protection class	IP65					
Allowable relative humidity range	0%....95% non-condensing					
Maximum operating altitude	4000m					
Noise level	< 25dB @ 1mt					
Weight	5.5 Kg			6.3 Kg		
Cooling	Natural convection					
Dimensions (H x W x D)	303mm x 260.5mm x 118mm			321mm x 260mm x 131.5mm		
Display	LCD					
Warranty	5 or 10 years					

* The typical DC power does not represent a maximum applicable power limit. The online configurator available at www.zcsazzurro.com will provide any applicable configurations.

** Possible by connecting a current sensor (ZST-ACC-TA)

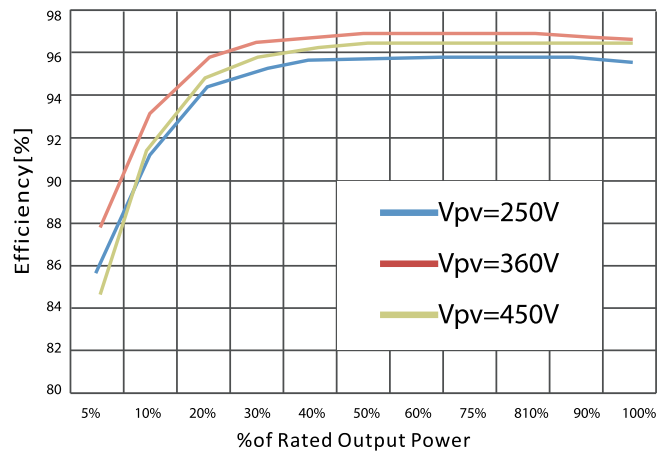
AZZURRO - SINGLE-PHASE STRING INVERTER PLUS SERIES

1PH 3000TLM-V1/1PH 3680TLM-V1
 1PH 4000TLM-V1/1PH 4600TLM-V1
 1PH 5000TLM-V1/1PH 6000TLM-V1

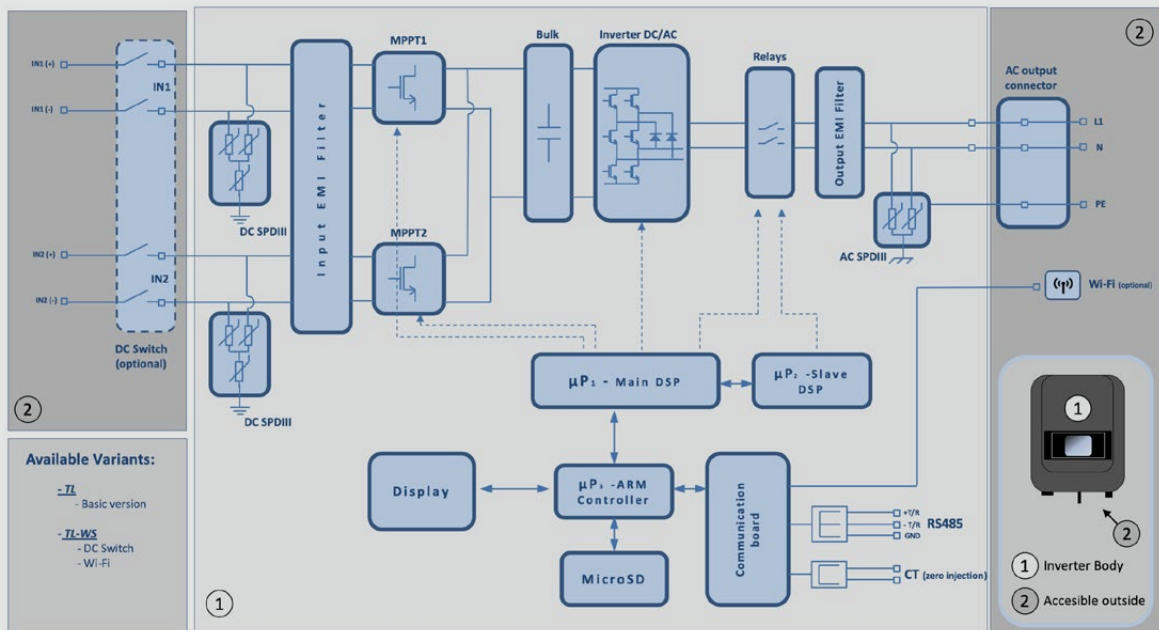


- Maximum performance 97.6%
- Dual input section with independent MPPTs
- Fast and safe installation with all required parts included
- 4-inch LCD graphic display
- 5 or 10 year ZCS warranty
- Wide input operating range from 80V to 580V

EFFICIENCY CURVE



FLOW CHART



TECHNICAL DATA	1PH 3000TLM-V1	1PH 3680TLM-V1	1PH 4000TLM-V1	1PH 4600TLM-V1	1PH 5000TLM-V1	1PH 6000TLM-V1
DC input						
Typical DC power *	3300W	4048W	4400W	5060W	5500W	6600W
Maximum DC power on each MPPT	2000W (200V-500V)	2400W (200V-500V)	2600W (200V-500V)	3000W (200V-500V)		3150W (250V-520V)
Independent MPPTs/Strings each MPPT	2/1					
Maximum DC voltage	600V					
Start-up voltage	100V	120V				
Nominal DC voltage	360V					
MPPT range in DC	80V-580V	100V-580V				
Full power range in DC	160V-520V	165V-520V			175V-520V	250V-520V
Maximum DC input current each MPPT	10A/10A	12A/12A	13A/13A	15A/15A		
Maximum absolute DC input current each MPPT	12A/12A	14A/14A	16A/16A	18A/18A		
AC output						
Nominal AC Power	3000W	3680W	4000W	4600W	5000W	6000W
Maximum AC Power	3000VA	3680VA	4000VA	4600VA	5000VA	6000VA
Maximum AC current each phase	13A	16A	17.5A	20A	22A	26A
Type of connection/Nominal AC grid voltage	Single phase L/N/PE / 220V,230V,240V					
AC voltage range	180V~276V (according to local standards)					
Nominal AC frequency	50Hz/60Hz					
AC frequency reange	45Hz~55Hz / 54Hz~64Hz (according to local standards)					
Total Harmonic Distortion (THD)	<3%					
Power factor	1 (set +/-0.8)					
Active power adjustability range	0~100%					
Active power grid injection	Possible to adjust from 0 to nominal AC power **					
Efficiency						
Maximum Efficiency	97.6%					
Euro efficiency	97.1%/97.3%					
Efficiency MPPT	>99.9%					
Night time consumption	<1W					
Protections						
Internal interface protection	Yes					
Safety protections	Anti islanding, RCMU, Ground Fault Monitoring					
DC reverse polarity protection	Yes					
DC switch	Optional (only for models -WS)					
Overheating protection	Yes					
Overvoltage category/Protection class	Overvoltage Category III / Protective class I					
Integrated dischargers	AC/DC MOV: Type 3 standard					
Standards						
EMC	EN 61000-6-1/2/3/4,					
Safety standards	IEC 62116, IEC 61727, IEC 61683, IEC 60068-1/2/14/30, IEC 62109-1/2					
Grid standards	Grid standards and certificates available on www.zcsazzurro.com					
Communication						
Interfaces	Wi-Fi (only for models -WS), RS485 (proprietary protocol), SD card					
Additional I/O	Current sensor connection input					
SD card data storage	25 years					
Environmental data						
Temperature working range	-25°C...+60°C (power derating over 45°C)					
Topology	Transformerless					
Environmental protection degree	IP65					
Humidity range	0%....95% no condensing					
Maximum operative altitude	2000m					
Acoustic noise	< 25dB @ 1mt					
Weight	18Kg			19Kg		
Cooling system	Natural cooled					
Dimensions (H*L*P)	478mm*344mm*170mm					
Display	LCD					
Warranty	10 years					

* Typical Dc power is not an absolute maximum rating. Online configurator available on www.zcsazzurro.com will guide the user on valid and possible configurations

** Possible using current sensor (ZST-ACC-TA)

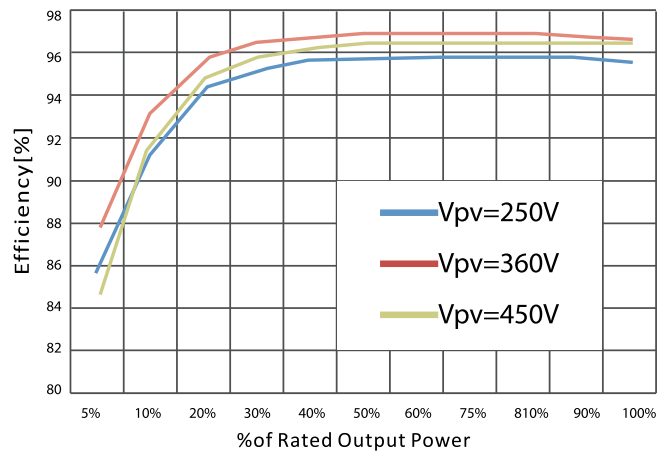
AZZURRO - SINGLE-PHASE STRING INVERTER LITE SERIES

1PH 3000TLM-V2/PH 3680TLM-V2
 1PH 4000TLM-V2/1PH 4600TLM-V2/1PH
 5000TLM-V2/1PH 6000TLM-V2

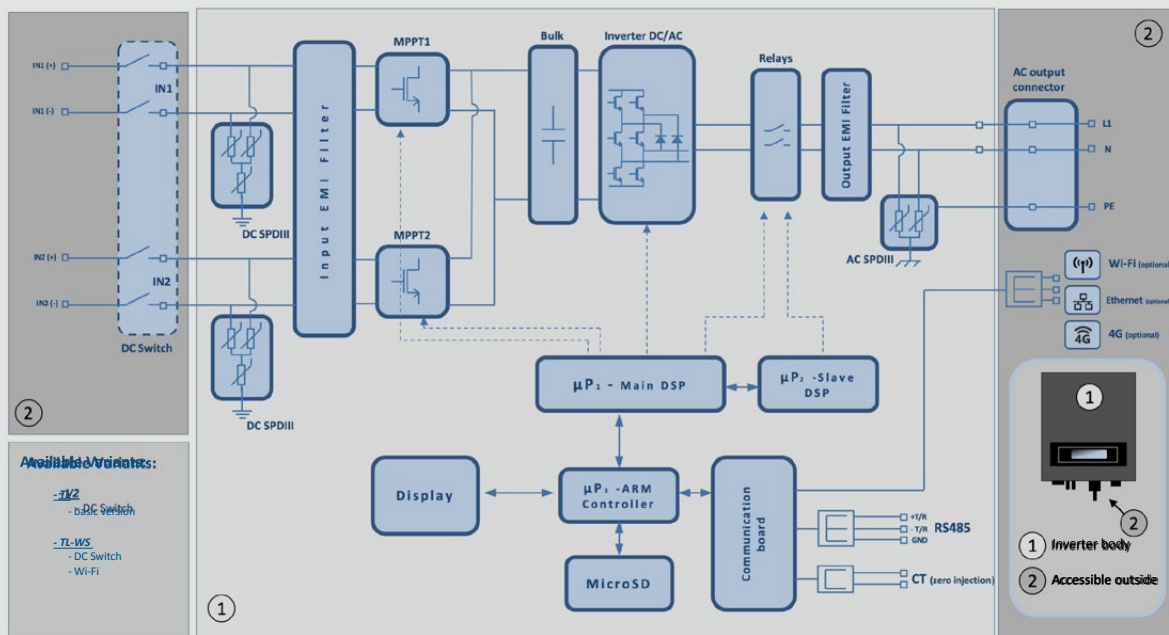


- Maximum performance 98%
- Dual input section with independent MPPTs
- Alphanumeric display
- 5 or 10 year ZCS warranty
- Wide input operating range from 90V to 580V

EFFICIENCY CURVE



FLOW CHART



TECHNICAL DATA	1PH 3000TLM-V2	1PH 3680TLM-V2	1PH 4000TLM-V2	1PH 4600TLM-V2	1PH 5000TLM-V2	1PH 6000TLM-V2
DC input						
Typical DC power *	3300W	4048W	4400W	5060W	5500W	6600W
Maximum DC power on each MPPT	3300W (300V-520V)					
Independent MPPTs/Strings each MPPT	2/1					
Maximum DC voltage	600V					
Start-up voltage	120V					
Nominal DC voltage	360V					
MPPT range in DC	90V-580V					
Full power range in DC	160V-520V	180V-520V	200V-520V	230V-520V	250V-520V	300V-520V
Maximum DC input current each MPPT	11A/11A					
Maximum absolute DC input current each MPPT	13.2A/13.2A					
AC output						
Nominal AC Power	3000W	3680W	4000W	4600W	5000W	6000W
Maximum AC Power	3000VA	3680VA	4000VA	4600VA	5000VA	6000VA
Maximum AC current each phase	13.7A	16.8A	18.2A	21A	22.8A	27.3A
Type of connection/Nominal AC grid voltage	Single phase L/N/PE / 220V,230V,240V					
AC voltage range	180V~276V (according to local standards)					
Nominal AC frequency	50Hz/60Hz					
AC frequency reange	45Hz~55Hz / 54Hz~64Hz (according to local standards)					
Total Harmonic Distortion (THD)	<3%					
Power factor	1 (set +/-0.8)					
Active power adjustability range	0~100%					
Active power grid injection	Possible to adjust from 0 to nominal AC power **					
Efficiency						
Maximum Efficiency	98%					
Euro efficiency	97.5%					
Efficiency MPPT	>99.9%					
Night time consumption	<1W					
Protections						
Internal interface protection	Yes					
Safety protections	Anti islanding, RCMU, Ground Fault Monitoring					
DC reverse polarity protection	Yes					
DC switch	Integrated					
Overheating protection	Yes					
Overvoltage category/Protection class	Overvoltage Category III / Protective class I					
Integrated dischargers	AC/DC MOV: Type 3 standard					
Standards						
EMC	EN 61000-6-2/3, EN 61000-3-2/3/11/12					
Safety standards	IEC 62116, IEC 61727, IEC 61683, IEC 60068-1/2/14/30, IEC 62109-1/2					
Grid standards	Grid standards and certificates available on www.zcsazzurro.com					
Communication						
Interfaces	Wi-Fi/4G/Ethernet (optionals), RS485 (proprietary protocol), SD card					
Additional I/O	Current sensor connection input					
SD card data storage	25 years					
Environmental data						
Temperature working range	-25°C...+60°C (power derating over 45°C)					
Topology	Transformerless					
Environmental protection degree	IP65					
Humidity range	0%....95% no condensing					
Maximum operative altitude	2000m					
Acoustic noise	< 25dB @ 1mt					
Weight	11.5Kg					
Cooling system	Natural cooled					
Dimensions (H*L*P)	405mm*315mm*135mm					
Display	LCD					
Warranty	5 years					

* Typical Dc power is not an absolute maximum rating. Online configurator available on www.zcsazzurro.com will guide the user on valid and possible configurations

** Possible using current sensor (ZST-ACC-TA)

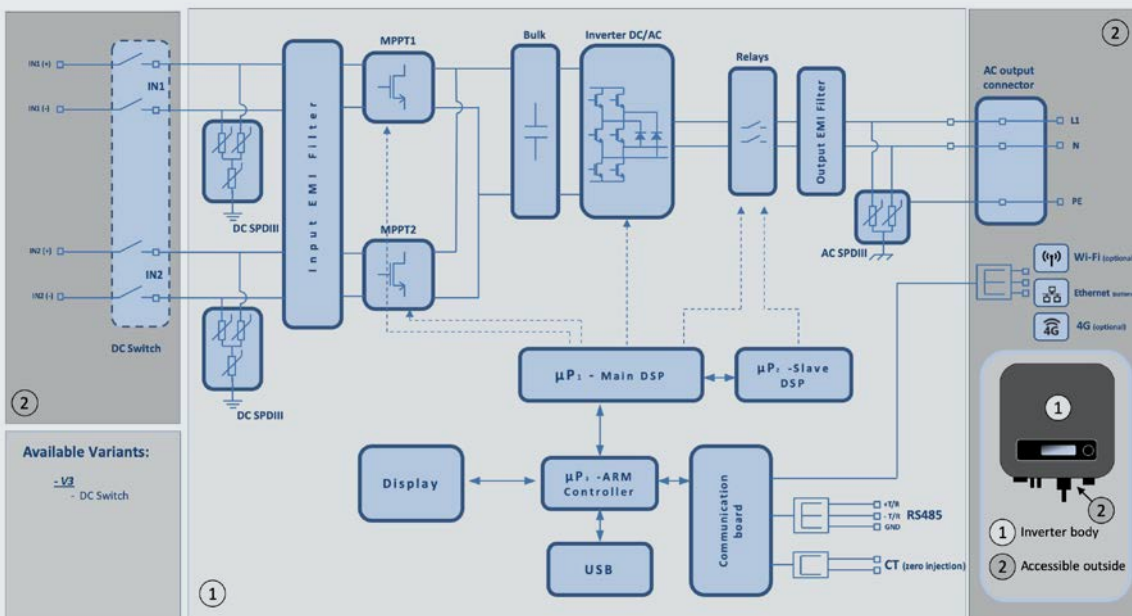
ZCS AZZURRO - SINGLE-PHASE STRING INVERTER

1PH 3000-TLM-V3/1PH 3680-TLM-V3/1PH 4000-TLM-V3/1PH 4600-TLM-V3/1PH 5000-TLM-V3/1PH 6000-TLM-V3



- » Maximum yield 98.4%
- » Dual MPPT channel
- » Fast and safe installation with all required parts included
- » Ultra compact
- » 5 or 10 year ZCS warranty
- » Wide input operating range from 80V to 550V

BLOCK DIAGRAM



TECHNICAL DATA	1PH 3000-TLM-V3	1PH 3680-TLM-V3	1PH 4000-TLM-V3	1PH 4600-TLM-V3	1PH 5000-TLM-V3	1PH 6000-TLM-V3
DC Input data						
Typical DC power*	3300W	4048W	4400W	5060W	5500W	6600W
Maximum power for channel	3000W (200V-500V)		3500W (230V-500V)		3750W (250V-500V)	4500W (300V-500V)
No. of independent MPPTs / No. of strings per MPPT	2/1					
Maximum DC input voltage	600V					
Start-up voltage	90V					
Nominal DC input voltage	380V					
MPPT DC voltage range	80V-550V					
DC voltage range at full load	200V-500V				210V-500V	260V-500V
Maximum input current for each MPPT	15A/15A					
Maximum absolute current for each MPPT	22.5A/22.5A					
AC Output data						
Rated AC power	3000W	3680W	4000W	4600W	5000W	6000W
Maximum AC power	3300VA	3680VA	4400VA	4600VA	5500VA	6600VA
Maximum AC current	15A	16A	20A	23A	25A	29A
Connection type/Rated grid voltage	Single-phase L/N/PE / 220V,230V,240V					
Grid voltage range	180V~276V (according to the local grid standards)					
Rated grid frequency	50Hz/60Hz					
Grid frequency range	45Hz~55Hz / 54Hz~66Hz (according to the local grid standards)					
Total harmonic distortion	<3%					
Power factor	1 (programmable +/-0.8)					
Active power adjustment range (settable)	0~100%					
Grid feed-in limit	Feed-in adjustable from zero to nominal power value**					
Efficiency						
Maximum efficiency	98.2%			98.4%		
Weighted efficiency (EURO)	97.3%			97.5%		
MPPT efficiency	>99.9%					
Consumption at night	<1W					
Protections						
Internal interface protection	Yes					
Safety protections	Anti-islanding, RCMU, Ground Fault Monitoring					
Reverse polarity protection DC	Yes					
DC circuit breaker	Integrated					
Overheating protection	Yes					
Overvoltage category/Protection class	Overvoltage Category III / Protection class I					
Integrated dischargers	AC/DC MOV: Type 3 standard					
Standard						
EMC	EN 61000-6-2/3, EN 61000-3-2/3/11/12					
Safety standard	IEC 62116, IEC 61727, IEC 61683, IEC 60068-1/2/14/30, IEC 62109-1/2					
Grid connection standard	Connection certificates and standards available at www.zcsazzurro.com					
Communication						
Communication interfaces	Wi-Fi/4G/Ethernet (optional), RS485 (proprietary protocol), USB, Bluetooth					
Additional inputs or connections	Input for current sensor connection					
General data						
Allowable ambient temperature range	-30°C...+60°C (power limit above 45°C)					
Topology	Transformerless					
Environmental protection class	IP65					
Allowable relative humidity range	0%....95% non-condensing					
Maximum operating altitude	4000m					
Noise level	< 25dB @ 1mt					
Weight	9.2 kg			10 kg		
Cooling	Natural convection					
Dimensions (H x L x D)	349mmx344mmx164mm					
Data monitoring	LCD Display + APP					
Warranty	5 or 10 years					

* The typical DC power does not represent a maximum applicable power limit. The online configurator available at www.zcsazzurro.com will provide any applicable configurations.

** Possible by connecting a current sensor (ZST-ACC-TA) or using a specific meter