AZZURRO ZCS

SMART SOLUTIONS
FOR A **SUSTAINABLE** WORLD



ZUCCHETTI
Centro Sistemi
GREEN INNOVATION



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ZCS, CONNECTED TO THE FUTURE

IDEAS AND SOLUTIONS FOR THE DIGITAL AGE



Zucchetti Centro Sistemi (ZCS) was founded in 1985 from the entrepreneurial spirit of Cav. Lav. Fabrizio Bernini, today shareholder and CEO of the company. The entrepreneur's excellent ability to anticipate changes in the market over the years has allowed ZCS to transform itself from a small family business specialised in software into an international multi-business management company. In 2000, the company became part of the Zucchetti Spa group. The ZCS headquarters are located in Valdarno, in the heart of Tuscany and occupy three buildings (Building of Ideas, Building of Technology and Building of Innovation). It also has branches in Emilia (Parma), Sardinia (Sassari, Nuoro and Cagliari), Umbria (Perugia), as well as subsidiaries in the Tyrrhenian area of Tuscany, in Piedmont and Lombardy. Today, ZCS consists of five Business Units (software, automation, healthcare, robotics and energy renewable) that meet the need to diversify and extend the know-how acquired in the design of management software to different and complementary areas, with the aim of providing technological excellence in the fields of IT, digitalisation and mechatronics.

INNOVATION AS CULTURE

As a technological pioneer, ZCS understands the potential of digital technologies and introduces them into its own products, solutions and internal processes. The ZCS brands speak the language of the future, they are aimed at different markets, and are linked by common digital factors such as the use of the Cloud, IoT (Internet of Things), Big Data and Artificial Intelligence. The added value lies in the ability to integrate digital innovations into machines, electronic devices and robots, transforming them into "intelligent" objects

GROUP

» **ZCS** belongs to the **Zucchetti Group**, which has over 7,000 employees and 700,000 customers * (2020 data)

ZCS FACTS AND FIGURES

» **330** people » **120** patents » **17** national and international awards and recognitions » **5** business units



capable of interacting with humans and providing useful data and information to improve and simplify the everyday life of customers. Innovation is therefore culture: the courage to design and create products that did not exist until now, but that may represent a solution for tomorrow, while respecting the health and safety of people and the environment. Ideas and projects that are functional to all company divisions are developed independently inside the "Laboratory of Ideas" (Idealab)." The real driving force behind the Research & Development Department, the lab was set up in 2005 and consists of 40 highly qualified researchers, mechanical and electronic engineers, IT experts and designers. Ideas are transformed into real innovations, combining know-how and creativity for the different market sectors, dedicated to health and safety, traceability, tracking and control, speed and mobility, environmental sustainability and energy saving.

THE FUTURE ACCORDING TO ZCS

A technological company that is aware of its origins and territory, and that looks to the future with optimism, awareness and responsibility, based on three pillars: innovation, sustainability and human capital

GREEN INNOVATION DIVISION

Business Unit created in 2015 and dedicated to renewable energy and the most innovative solutions conceived from the integration of ideas and technologies aimed at improving operational efficiency and energy savings for people and companies. The Green Innovation Division introduced itself on the market with the ZCS Azzurro inverter, and in just a few years has become a leader in the sector.

SMART SOLUTIONS
FOR A **SUSTAINABLE** WORLD





AZZURRO ZCS

SMART SOLUTIONS FOR A **SUSTAINABLE** WORLD

ZCS Azzurro is the latest generation inverter that combines and integrates ZCS "IT" and "smart" intelligence with the most advanced electronic technology to create a new concept of photovoltaic inverters. The wide range of ZCS Azzurro products are able to meet any energy requirement for residential, commercial and industrial applications. The ZCS Azzurro range consists of more than 100 models of single-phase and three-phase string inverters, storage systems, retrofit or hybrid systems and charging systems for electric vehicles.
ZCS Azzurro is equipped with the innovative **ZCS Azzurro Connext** system, which allows to optimise the energy management in smart homes consisting of photovoltaic systems, storage systems, heat pumps, home automation and EV recharging stations according to the actual needs of the customer.







RELIABLE
High-quality components and 5 or 10 year ZCS warranty

USER-FRIENDLY
Thanks to the multifunction graphic display

SIMPLE
Quick installation and configuration

ZCS AZZURRO

SINGLE-PHASE STRING INVERTER

The **ZCS Azzurro single-phase inverters** are the ideal solution for small photovoltaic systems in residential or commercial buildings. Available in sizes from 1 to 6 Kw, they are small, easy to manage and easy to install. The wide range of input makes them easy to configure and suitable for any type of need, both for new installations and for retrofitting existing ones. The graphic or alphanumeric display (depending on the model) allows you to consult the inverter data, while Wi-Fi connectivity allows remote monitoring anytime and anywhere.



Residential



Commercial

ZCS AZZURRO TECHNOLOGY

- Performance optimisation
- Wi-Fi integration on ZCS platform for stable, effective and intelligent connectivity

MAXIMUM ENERGY YIELD

- Stable efficiency in all working conditions
- Rapid and accurate MPPT algorithm

FLEXIBLE, COST-EFFECTIVE AND EASY-TO-INSTALL SOLUTION

- Protection class of IP65
- "Plug & Play" AC and DC connections
- Wireless communication with integrated Web Server
- ENEL Autotest in standard or fast versions
- Updates and diagnostics via SD Card

RELIABILITY STRENGTH AND FLEXIBILITY

- Rust-proof, corrosion-proof and UV-proof aluminium exterior casing
- Natural ventilation cooling
- Fast and flexible management of function parameters
- Simple and user-friendly monitoring

SMART GRID MANAGEMENT

- Dynamic management of grid feed-in
- "Zero Grid Feed-in" functionality *
- Remote control of the deliverable active/reactive power limit

* Possible with the use of a current sensor (ZST-ACC-TA)

IDEAL FOR RETROFITTING

- Compact size
- Simple and user-friendly installation and configuration

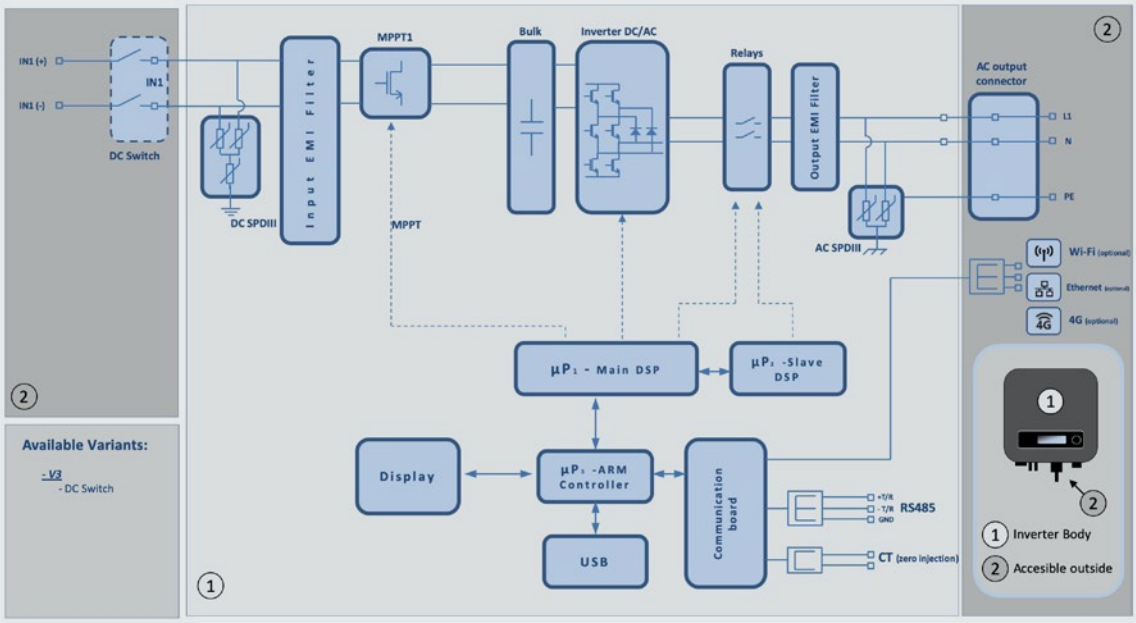
ZCS AZZURRO - SINGLE-PHASE STRING INVERTER

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)

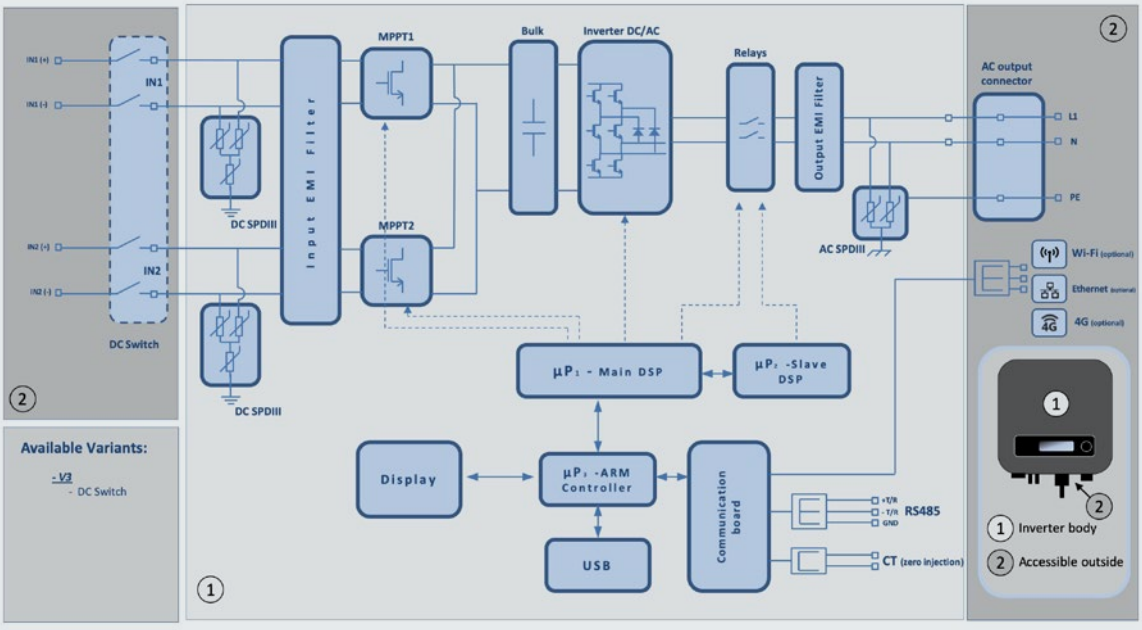
ZCS AZZURRO - SINGLE-PHASE STRING INVERTER

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



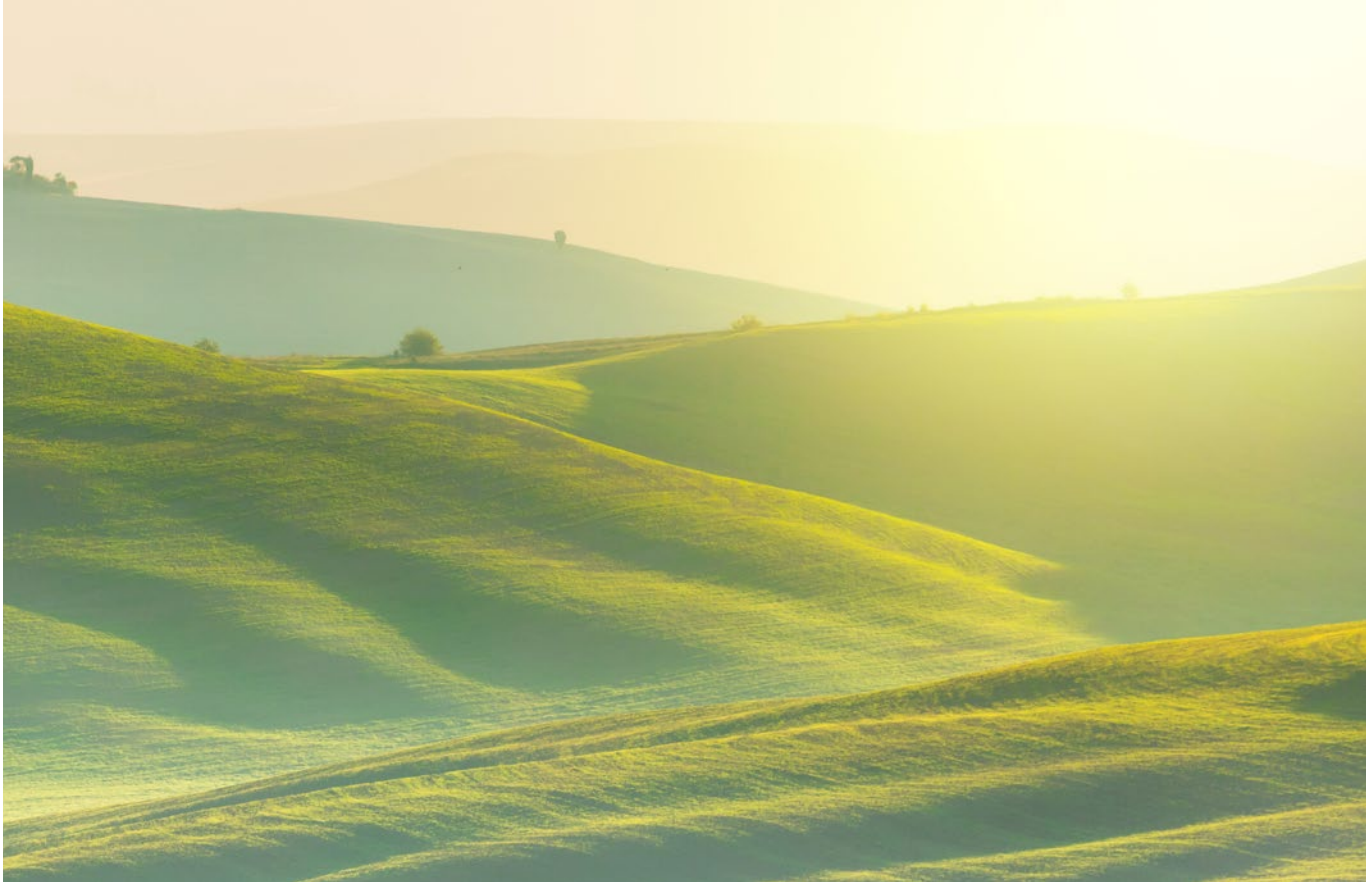
- Maximum yield 98.4%
- Dual MPPT channel
- Fast and safe installation with all required parts included
- Ultra compact
- 5 or 10 year ZCS warranty
- Wide input operating range from 50V to 570V

FLOW CHART



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*	3300 W	4048 W	4400 W	5060 W	5500 W	6600 W
Maximum power for channel	3000 W			3500 W		
No. of independent MPPTs / No. of strings per MPPT	2/1					
Maximum DC input voltage	600V					
Start-up voltage	60V					
Nominal DC input voltage	360V					
MPPT DC voltage range	50V-570V					
DC voltage range at full load	125V-520V	150V-520V	165V-520V	190V-520V	210V-520V	250V-520V
Maximum input current for each MPPT	12.5A/12.5A					
Maximum absolute current for each MPPT	15A/15A					
AC Output data						
Rated AC power	3000 W	3680 W	4000 W	4600 W	5000 W	6000 W
Maximum AC power	3000VA	3680VA	4000VA	4600VA	5000VA	6000VA
Maximum AC current	14.4A	16A	19.3A	22.2A	24.1A	28.9A
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 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	10 Kg					
Cooling	Natural convection					
Dimensions (H x L x D)	345mm x 341mm x 167mm					
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) or using a specific meter



AZZURRO
ZCS



ZCS AZZURRO

THREE-PHASE STRING INVERTER

The **ZCS Azzurro three-phase inverters** are the best solution for medium-size photovoltaic systems to be installed in commercial and industrial buildings.
The advanced technology developed by ZCS makes the Azzurro three-phase inverters efficient, versatile and highly functional. Available in sizes from 3.3 to 70 Kw, they are easy to configure, safe and robust and able to adapt to every type of need, for both new installations and retrofitting of existing ones.



Commercial



Industrial

ZCS AZZURRO TECHNOLOGY

- Performance optimisation
- Wi-Fi integration on ZCS platform for stable, effective and intelligent connectivity

MAXIMUM ENERGY YIELD

- Stable efficiency in all working conditions
- Rapid and accurate MPPT algorithm

FLEXIBLE, COST-EFFECTIVE AND EASY-TO-INSTALL SOLUTION

- Protection class of IP65
- Power Management Unit
- LCD 4-inch graphic display"

RELIABILITY STRENGTH AND FLEXIBILITY

- Rust-proof, corrosion-proof and UV-proof aluminium exterior casing
- Flexible and user-friendly management of functional parameters
- Topology without transformer

SMART GRID MANAGEMENT

- Dynamic management of grid feed-in
- Remote control of the deliverable active/reactive power limit

IDEAL FOR RETROFITTING

- Compact size
- Simple and user-friendly installation and configuration

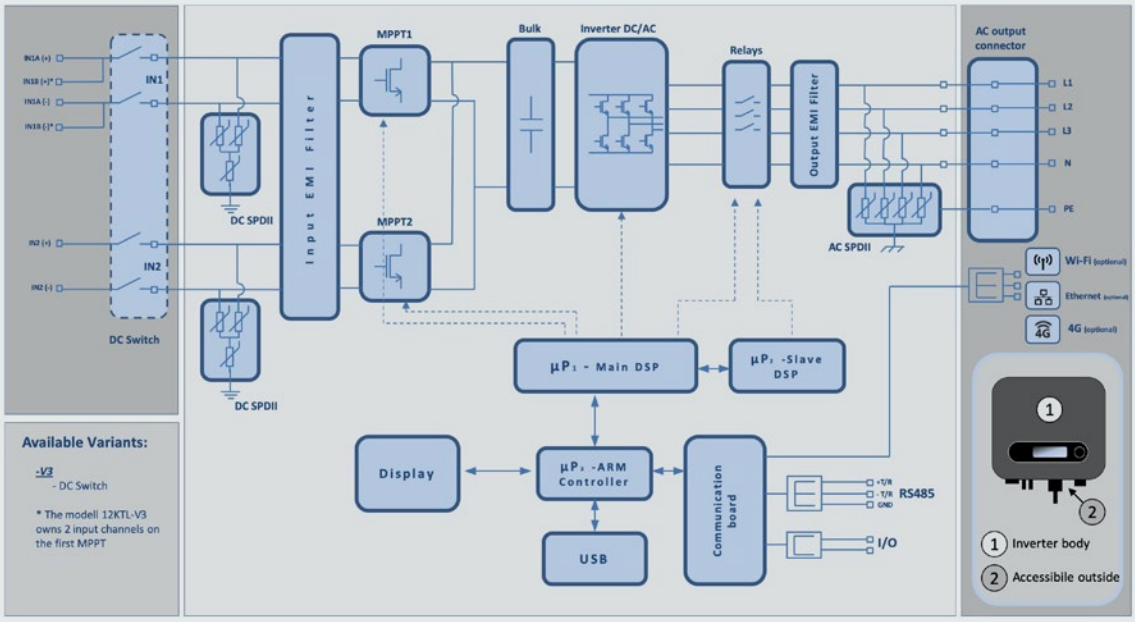
ZCS AZZURRO - THREE-PHASE STRING INVERTER

3PH 3.3KTL-V3/3PH 4.4KTL-V3/3PH 5.5KTL-V3/3PH 6.6KTL-V3/3PH 8.8KTL-V3/3PH 11KTL-V3/3PH 12KTL-V3



- Maximum yield 98.5%
- Dual input section with independent MPPTs
- Updates and diagnostics via USB
- 5 or 10 year ZCS warranty
- "Zero Grid Feed-in" functionality
- Possibility to manage reactive power
- Wide operating input range from 140V to 1000V also suitable for small-sized string systems

FLOW CHART



TECHNICAL DATA	3PH 3.3KTL-V3	3PH 4.4KTL-V3	3PH 5.5KTL-V3	3PH 6.6KTL-V3	3PH 8.8KTL-V3	3PH 11KTL-V3	3PH 12KTL-V3
DC Input data							
Typical DC power*	3960 W	5280 W	6600 W	7920 W	10560 W	13200 W	14400 W
Maximum DC power per MPPT	3550W(320V-850V)	4500W(410V-850V)	5700W(520V-850V)	6250W(570V-850V)	6200W(560V-850V)		6850W(620V-850V)
No. of independent MPPTs / No. of strings per MPPT	2/1						2/(2/1)
Maximum DC input voltage	1100V						
Start-up voltage	160V						
Nominal DC input voltage	650V						
MPPT DC voltage range	140V-1000V						
DC voltage range at full load	160V-850V	190V-850V	240V-850V	290V-850V	380V-850V	420V-850V	420V-850V
Maximum input current per MPPT	13A/13A						26A/13A
Maximum absolute current per MPPT	18A/18A						36A/18A
AC Output data							
Rated AC power	3000 W	4000 W	5000 W	6000 W	8000 W	10000 W	12000 W
Maximum AC power	3300VA	4400VA	5500VA	6600VA	8800VA	11000VA	13200VA
Maximum AC current per phase	4.8A	6.4A	8.0A	9.6A	12.8A	15.9A	17.4A
Connection type/Rated grid voltage	Three-phase 3PH/N/PE 220V/230V/240V (PH-N); 380V/400V/415V (PH-PH) or Three-phase 3PH/PE 380V/400V/415V (PH-PH)						
Grid voltage range	184V~276V (PH-N); 310V~480V (PH-PH) (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	98.4%				98.5%		
Weighted efficiency (EURO)	97.5%				98%		
MPPT efficiency	>99.9%						
Consumption at night	<1W						
Protections							
Internal interface protection	Yes						No
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 2 Standard						
Standard							
EMC	EN 61000-6-1/2/3/4,						
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						
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	< 40dB @ 1mt						
Weight	17Kg				18Kg		
Cooling	Natural convection						
Dimensions (H x L x D)	425mm x 513mm x 169mm						
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 using a specific meter

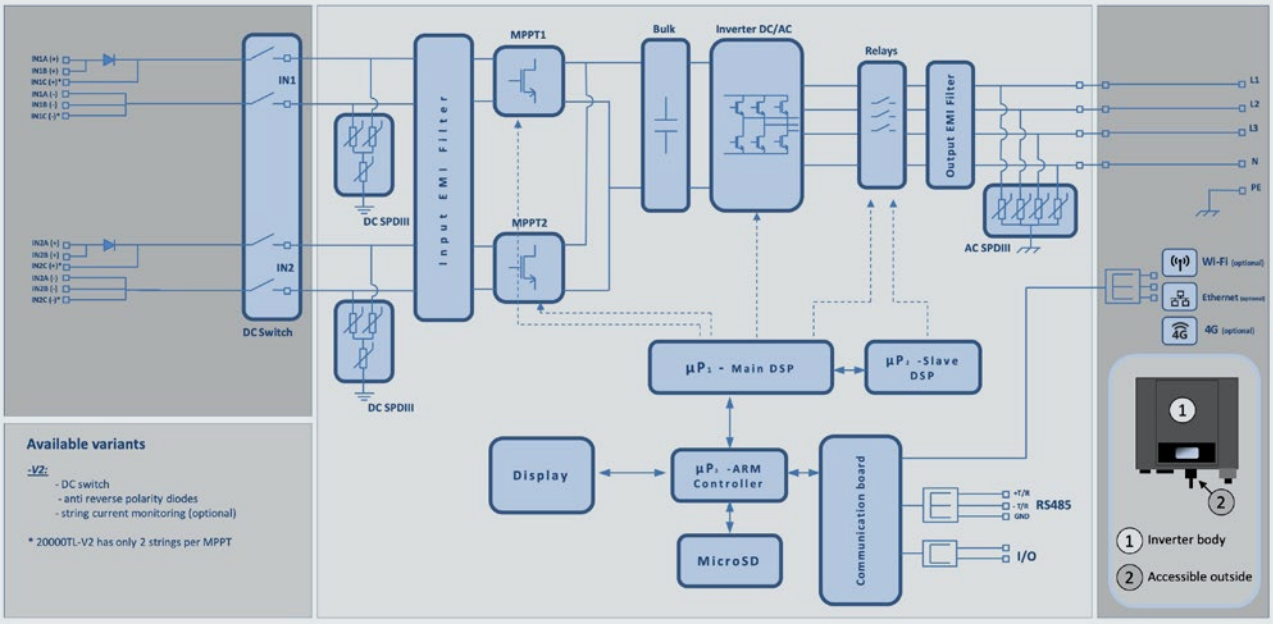
ZCS AZZURRO - THREE-PHASE STRING INVERTER

20000TL-V2/25000TL-V2/30000TL-V2/33000TL-V2



- Maximum yield 98.6%
- Dual input section with independent MPPTs
- Fast connection without the need to access internal parts
- Updates and diagnostics via SD card
- 5 or 10 year ZCS warranty
- "Zero Grid Feed-in" functionality
- Wide operating input range from 230V to 950V also suitable for small-sized string systems

FLOW CHART



TECHNICAL DATA	3PH 20000TL-V2	3PH 25000TL-V2	3PH 30000TL-V2	3PH 33000TL-V2
DC Input data				
Typical DC power*	24000 W	30000 W	36000 W	39600 W
Maximum DC power for each MPPT	13000 W	16000 W	18000 W	20000 W
No. of independent MPPTs / No. of strings per MPPT	2/2	2/3		
Maximum DC input voltage	1100V			
Start-up voltage	250V			
Nominal DC input voltage	620V			
MPPT DC voltage range	230V-950V			
DC voltage range at full load	480V-850V	460V-850V	520V-850V	580V-850V
Maximum input current for each MPPT	24A/24A	28A/28A	30A/30A	
Maximum absolute current for each MPPT	30A/30A	35A/35A	37.5A/37.5A	
Maximum current per string***	-	12A		
AC Output data				
Rated AC power	20000 W	25000 W	30000 W	33000 W
Maximum AC power	22000VA	27500VA	33000VA	36300VA
Maximum AC current per phase	32A	40A	48A	53A
Connection type/Rated grid voltage	Three-phase 3PH/N/PE 220V/230V/240V (PH-N); 380V/400V/415V (PH-PH) or Three-phase 3PH/PE 380V/400V/415V (PH-PH)			
Grid voltage range	184V~276V (PH-N); 320V~480V (PH-PH) (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%		98.6%
Weighted efficiency (EURO)	98%	98.2%		
MPPT efficiency	>99.9%			
Consumption at night	<1W			
Protections				
Internal interface protection	No			
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 61000-6-1/2/3/4,			
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 (Optional), RS485 (proprietary protocol), SD card			
Additional inputs or connections	I/O inputs for connection to anti-reverse power controller			
Data storage on SD	25 years			
General data				
Allowable ambient temperature range	-25°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	2000m			
Noise level	< 30dB @ 1mt	< 45dB @ 1mt		
Weight	37Kg			
Cooling	Natural convection	Forced fan convection	Forced fan convection	Forced fan convection
Dimensions (H x W x D)	666mm x 512mm x 254mm			
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 anti-reverse power controller (ZSM-ZEROINJ)
** models with more than two strings per MPPT have internal protection diodes, higher string currents than those reported may cause diode interruption

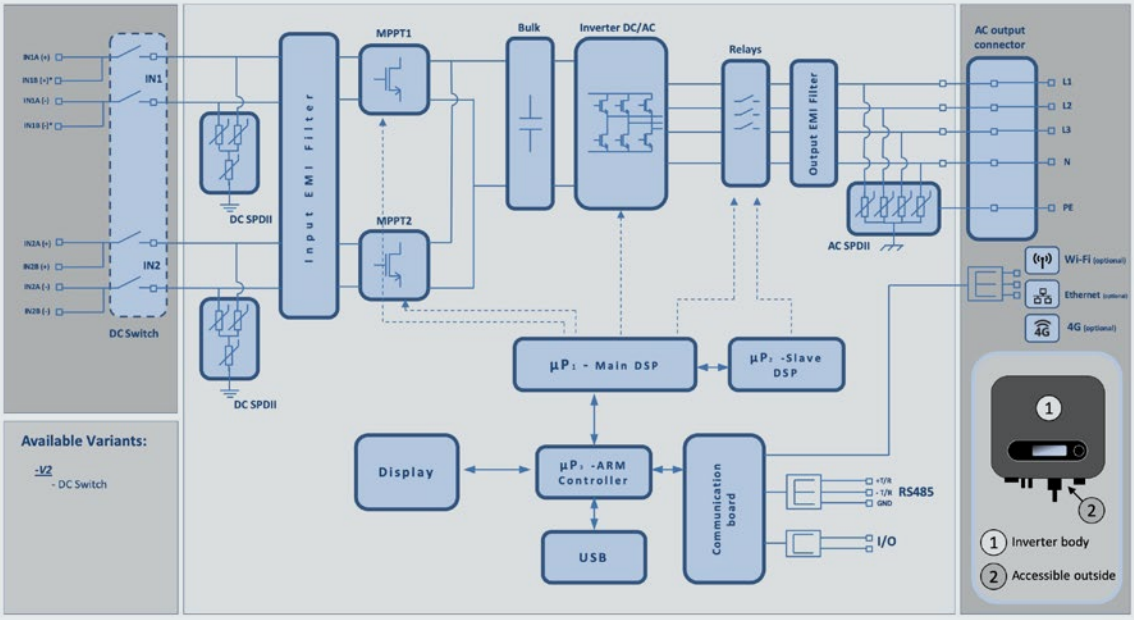
ZCS AZZURRO - THREE-PHASE STRING INVERTER

3PH 15000TL-V3/3PH 17000TL-V3/3PH 20000TL-V3/3PH 22000TL-V3/3PH 24000TL-V3



- Maximum yield 98.6%
- Dual input section with independent MPPTs
- Updates and diagnostics via USB
- 5 or 10 year ZCS warranty
- "Zero Grid Feed-in" functionality
- Possibility to manage reactive power
- Wide operating input range from 140V to 1000V also suitable for small-sized string systems

FLOW CHART



TECHNICAL DATA	3PH 15000TL-V3	3PH 17000TL-V3	3PH 20000TL-V3	3PH 22000TL-V3	3PH 24000TL-V3
DC Input data					
Typical DC power*	18000 W	20400 W	24000 W	26400 W	28800 W
Maximum DC power for each MPPT	10000 W	12000 W	12000 W	15000 W	15000 W
No. of independent MPPTs / No. of strings per MPPT	2/2				
Maximum DC input voltage	1100V				
Start-up voltage	160V				
Nominal DC input voltage	650V				
MPPT DC voltage range	140V-1000V				
DC voltage range at full load	420V-850V	450V-850V	480V-850V	510V-850V	540V-850V
Maximum input current for each MPPT	26A/26A				
Maximum absolute current for each MPPT	36A/36A				
AC Output data					
Rated AC power	15000 W	17000 W	20000 W	22000 W	24000 W
Maximum AC power	16500VA	18700VA	22000VA	24200VA	26400VA
Maximum AC current per phase	23.9A	27.1A	31.9A	35.1A	38.3
Connection type/Rated grid voltage	Three-phase 3PH/N/PE 220V/230V/240V (PH-N); 380V/400V/415V (PH-PH) or Three-phase 3PH/PE 380V/400V/415V (PH-PH)				
Grid voltage range	184V~276V (PH-N); 320V~480V (PH-PH) (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	98.6%				
Weighted efficiency (EURO)	98.2%				
MPPT efficiency	>99.9%				
Consumption at night	<1W				
Protections					
Internal interface protection	No				
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 2 Standard				
Standard					
EMC	EN 61000-6-1/2/3/4,				
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), Bluetooth				
General data					
Allowable ambient temperature range	-25°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	< 40dB @ 1mt				
Weight	20Kg	22Kg		23Kg	
Cooling	Natural convection	Forced fan convection			
Dimensions (H x L x D)	425mm x 513mm x 189mm				
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 using a specific meter

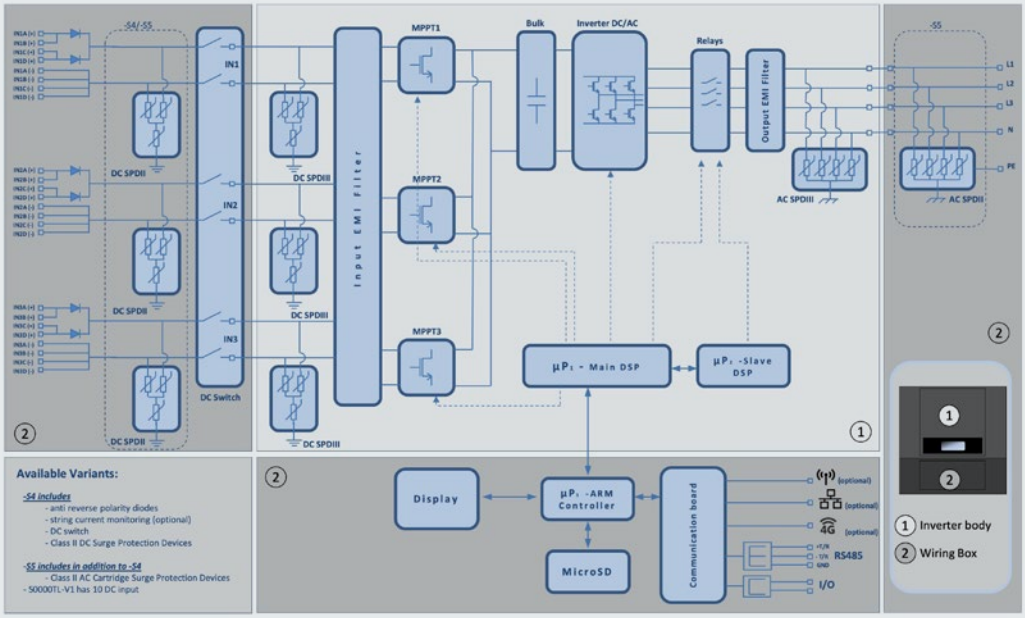
ZCS AZZURRO - THREE-PHASE STRING INVERTER

50000TL-V1/60000TL-V1



- Maximum yield 98.6%
- Triple input section with independent MPPTs
- Integrated string combiner with different configuration options
- SD card for updates and diagnostics
- Optional Class II surge protection devices
- 5 or 10 year ZCS warranty
- "Zero Grid Feed-in" functionality
- Possibility to manage reactive power
- Wide operating input range from 250V to 960V also suitable for small-sized string systems

FLOW CHART



TECHNICAL DATA	3PH 50000TL-V1	3PH 60000TL-V1
DC Input data		
Typical DC power	55000 W	66000 W
Maximum DC power for each MPPT	22000W (500V-800V)	22000W (530V-800V)
No. of independent MPPTs / No. of strings per MPPT	3/(4/3/3)	3/(4/4/4)
Maximum DC input voltage	1000V	
Start-up voltage	350V	
Nominal DC input voltage	600V	
MPPT DC voltage range	250V-960V	
DC voltage range at full load	500V-800V	530V-800V
Maximum input current for each MPPT	40A/30A/30A	40A/40A/40A
Maximum absolute current for each MPPT	48A/36A/36A	48A/48A/48A
Maximum current per string**	15A	
AC Output data		
Rated AC power	50000 W	60000 W
Maximum AC power	50000VA	60000VA
Maximum AC current per phase	80A	90A
Connection type/Rated grid voltage	Three-phase 3PH/N/PE 220V/230V/240V (PH-N); 380V/400V/415V (PH-PH) or Three-phase 3PH/PE 380V/400V/415V (PH-PH)	
Grid voltage range	184V~276V (PH-N); 320V~480V (PH-PH) (according to the local grid standards)	
Rated grid frequency	50Hz/60Hz	
Grid frequency range	45Hz~53Hz / 57Hz~63Hz (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 adjustable from zero to nominal power value*	
Efficiency		
Maximum efficiency	98.5%	98.6%
Weighted efficiency (EURO)	98.3%	98.4%
MPPT efficiency	>99.9%	
Consumption at night	<1W	
Protections		
Internal interface protection	No	
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	Type 3 AC/DC MOV Standard. Type 2 DC Dischargers Standard. Type AC Dischargers optional (only S5 models)	
Standard		
EMC	EN 61000-6-1/2/3/4,	
Safety standard	IEC 62116, IEC 61727, IEC 61683, IEC 60068-1/2/14/30, IEC 62109-1/2	
Grid connection standard	CE, CGC, ZVRT, AS 4777, AS 3100, VDE-AR-N 4105, EN50438, G83/2, G59/3, C10/11, CEI 0-21, CEI 0-16	
Communication		
Communication interfaces	Wi-Fi (Optional), RS485 (proprietary protocol), SD card	
Additional inputs or connections	I/O inputs for connection to anti-reverse power controller	
Data storage on SD	25 years	
General information		
Allowable ambient temperature range	-25°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	2000m	
Noise level	< 60dB @ 1mt	
Weight	68Kg	70Kg
Cooling	Forced fan convection	
Dimensions (H x W x D)	737mm x 713mm x 297mm	
Display	LCD	
Warranty	5 or 10 years	

* Possible by connecting anti-reverse power controller (ZSM-ZEROINJ)
** models with more than two strings per MPPT have internal protection diodes, higher string currents than those reported may cause diode interruption

ZCS AZZURRO - LV SERIES THREE-PHASE STRING INVERTER

80KTL-LV/100KTL-LV/110KTL-LV



- Maximum yield 98.7%
- Protection class of IP66
- Updates and diagnostics via USB
- Forced convection with speed-controlled cooling
- Class II surge protection devices (AC and DC)
- 5 or 10 year ZCS warranty
- Wide operating range from 180V to 1000v for enhanced configuration flexibility
- Up to 10 independent MPPT channels



TECHNICAL DATA	3PH 80KTL-LV	3PH 100KTL-LV	3PH 110KTL-LV
DC Input data			
Typical DC power*	96000 W	120000 W	132000 W
Maximum DC power for each MPPT	13000 W		
No. of independent MPPTs / No. of strings per MPPT	8/2	10/2	
Maximum DC input voltage	1100V		
Start-up voltage	200V		
Nominal DC input voltage	600V		
MPPT DC voltage range	180V-1000V		
DC voltage range at full load	500V-850V		
Maximum input current for each MPPT	26A		
Maximum absolute current for each MPPT	40A		
Maximum current per string***	12A		
AC Output data			
Rated AC power	80 kW	100 kW	110 kW
Maximum AC power	88kVA	110kVA	121kVA
Maximum AC current per phase	128A	160A	175A
Connection type/Rated grid voltage	Three-phase 3PH/N/PE 220V/230V/240V (PH-N); 380V/400V/415V (PH-PH) or Three-phase 3PH/PE 380V/400V/415V (PH-PH)		
Grid voltage range	184V~276V (PH-N); 320V~480V (PH-PH) (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	98.6%	98.7%	98.75%
Weighted efficiency (EURO)	98.2%	98.3%	98.4%
MPPT efficiency	>99.9%		
Consumption at night	<1W		
Protections			
Internal interface protection	No		
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: Type 2 Standard		
Standard			
EMC	EN 61000-6-2/4, EN 61000-3-11/12		
Safety standard	IEC 62109-1/2, IEC62116, IEC61727, IEC61683, IEC60068(1,2,14,30)		
Grid connection standard	Connection certificates and standards available on www.zcsazzurro.com		
Communication			
Communication interface (optional)	Wi-Fi/4G/Ethernet (optional), RS485 (proprietary protocol), USB		
General information			
Allowable ambient temperature range	-30°C...+60°C (power limit above 45°C)		
Topology	Transformerless		
Environmental protection class	IP66		
Allowable relative humidity range	0%.....100%		
Maximum operating altitude	4000m		
Noise level	< 60dB @ 1mt		
Weight	72 kg	84 kg	85 kg
Cooling	Forced fan convection		
Dimensions (H x W x D)	1051mm x 660mm x 340mm		
Display	LED indicators, Bluetooth + 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 using a specific meter

ZCS AZZURRO - LV SERIES THREE-PHASE STRING INVERTER

100KTL-HV/125KTL-HV/136KTL-HV

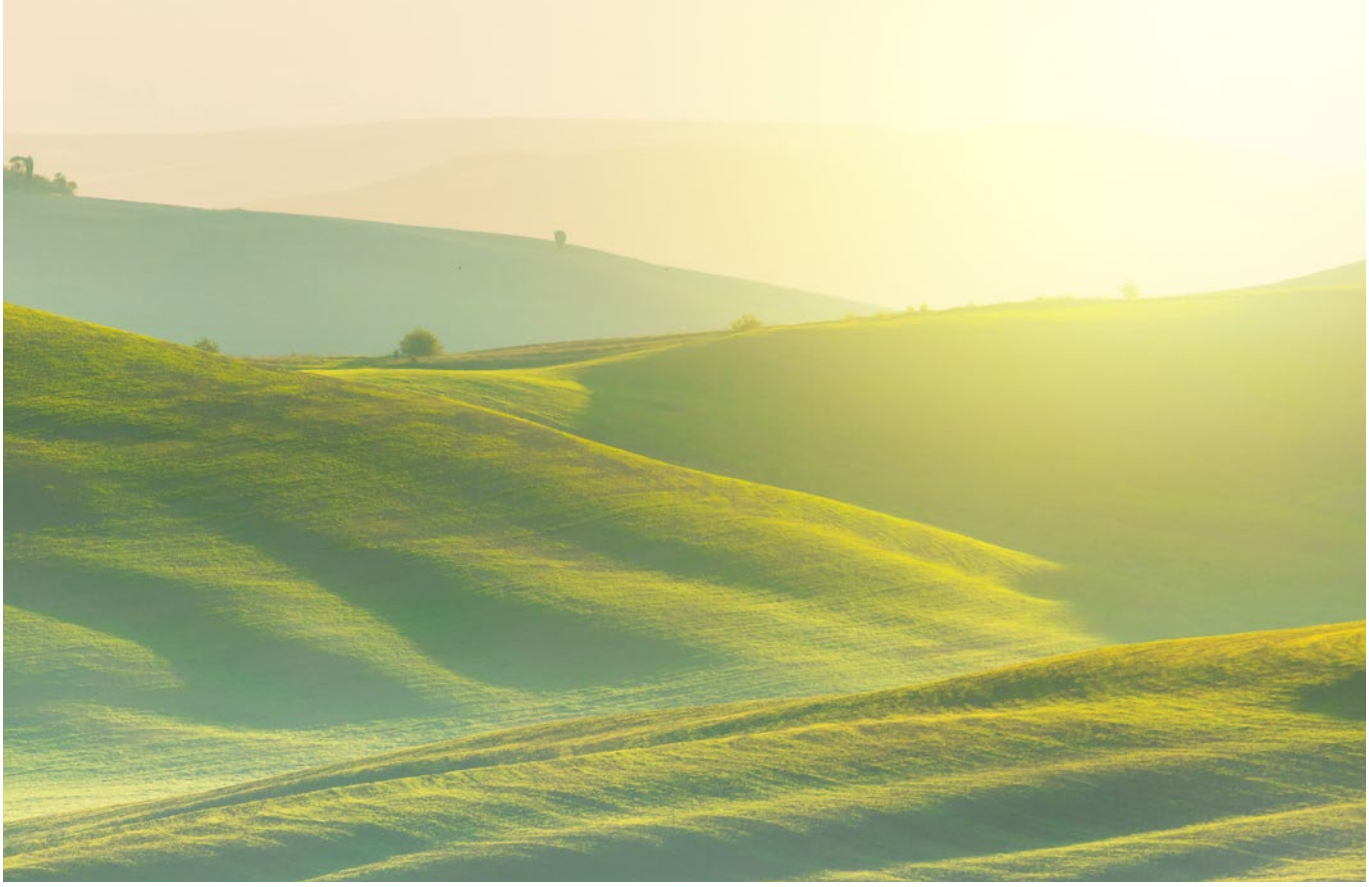


- Maximum yield 99%
- Protection class of IP66
- Updates and diagnostics via USB
- Forced convection with speed-controlled cooling
- Class II surge protection devices (AC and DC)
- 5 or 10 year ZCS warranty
- Wide operating range from 180V to 1000V for enhanced configuration flexibility
- Up to 12 independent MPPT channels



TECHNICAL DATA	3PH 100KTL-HV	3PH 125KTL-HV	3PH 136KTL-HV
DC Input data			
Typical DC power*	120000 W	150000 W	163200 W
Maximum DC power for each MPPT	20000 W		
No. of independent MPPTs / No. of strings per MPPT	10/2		12/2
Maximum DC input voltage	1100V		
Start-up voltage	200V		
Nominal DC input voltage	680V		
MPPT DC voltage range	180V-1000V		
DC voltage range at full load	550V-850V		
Maximum input current for each MPPT	26A		
Maximum absolute current for each MPPT	40A		
Maximum current per string***	12A		
AC Output data			
Rated AC power	100 kW	125 kW	136 kW
Maximum AC power	110kVA	137kVA	150kVA
Maximum AC current per phase	128A	160A	160A
Connection type/Rated grid voltage	Three-phase 3PH/PE 288 (PH-N); 500V (PH-PH)		Three-phase 3PH/PE 311 (PH-N); 540V (PH-PH)
Grid voltage range	230V~332V (PH-N); 400V~575V (PH-PH) (according to the local grid standards)		250V~358V (PH-N); 432V~621V (PH-PH) (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	98.8%	99%	99%
Weighted efficiency (EURO)	98.5%	98.5%	98.51%
MPPT efficiency	>99.9%		
Consumption at night	<1W		
Protections			
Internal interface protection	No		
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: Type 2 Standard		
Standard			
EMC	EN 61000-6-2/4, EN 61000-3-11/12		
Safety standard	IEC 62109-1/2, IEC62116, IEC61727, IEC61683, IEC60068(1,2,14,30)		
Grid connection standard	Connection certificates and standards available on www.zcsazzurro.com		
Communication			
Communication interface (optional)	Wi-Fi/4G/Ethernet (optional), RS485 (proprietary protocol), USB		
General information			
Allowable ambient temperature range	-30°C...+60°C (power limit above 45°C)		
Topology	Transformerless		
Environmental protection class	IP66		
Allowable relative humidity range	0%.....100%		
Maximum operating altitude	4000m		
Noise level	< 60dB @ 1mt		
Weight	72 kg	84 kg	85 kg
Cooling	Forced fan convection		
Dimensions (H x W x D)	1051mm x 660mm x 340mm		
Display	LED indicators, Bluetooth + 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 using a specific meter



AZZURRO
ZCS



ZCS AZZURRO

STORAGE INVERTERS

The **ZCS Azzurro Storage Inverters** are ideal for optimising energy independence in residential and commercial buildings. They are quick and easy to install and come with automatic configuration features.
There are two types of ZCS storage solutions: retrofit and hybrid. The first has a nominal power of 3 Kw and a storage capacity of up to 25 Kwh, and is designed for new installations and for retrofitting of existing ones. While the hybrid inverters have a nominal power from 3 Kw to 6 Kw single-phase and from 5 Kw to 20 Kw three-phase, ideal for new installations. The entire range can also operate in stand-alone mode, ensuring continuity of power in the event of a power blackout.







SIMPLE AND RELIABLE

- LCD graphic display for local monitoring
- Remote monitoring system via APP for viewing consumption, PV production, energy stored and exchanges with the grid

EASY INSTALLATION

- Does not require changes or upgrades to the existing electrical system thanks to the use of an open-core current sensor

FLEXIBLE DISCHARGE SOLUTION

- Flexible charging/discharging management in accordance with local standards
- Maximisation of self-consumption above 80%

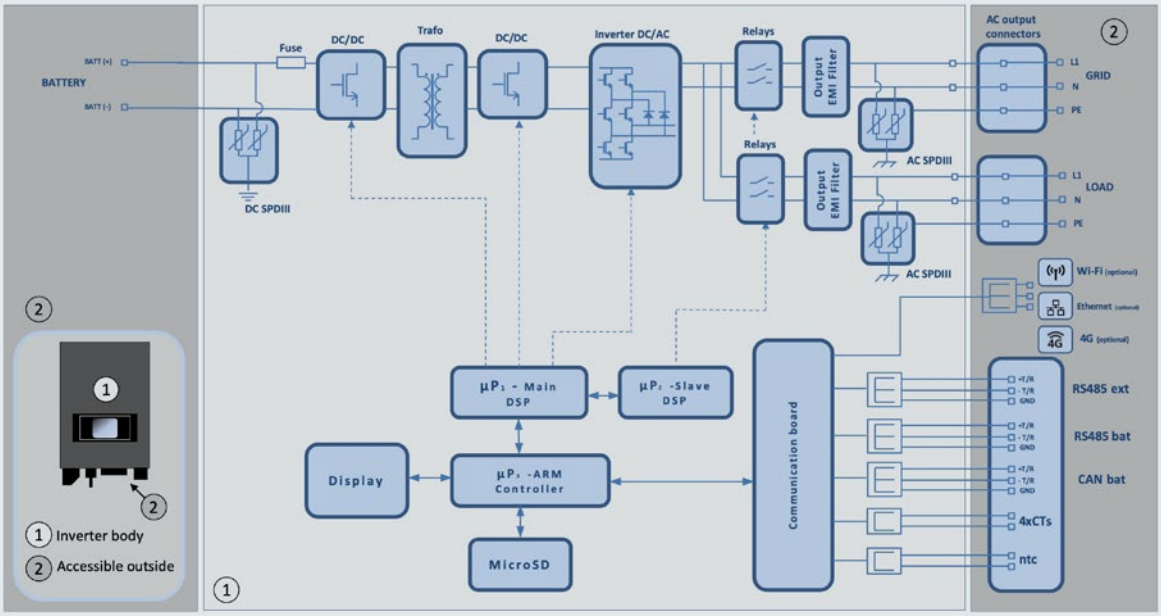
ZCS AZZURRO- RETROFIT STORAGE INVERTER

3000SP



- System for retrofit application with energy exchange directly in AC
- Compatible with all existing inverters already connected to the grid
- Suitable for installing on both single-phase and three-phase systems
- Unit compatible with 48V lithium batteries
- Stand-Alone support mode guarantees continuity of operation in the event of a power failure through the Emergency Power Supply (EPS) function

FLOW CHART



TECHNICAL DATA	3000SP
Battery connection data	
Type of compatible battery	Lithium-ion (supplied by Zucchetti)
Rated voltage	48V
Allowable voltage range	42V-58V
Maximum charge/discharge power	3000 W
Allowable temperature range*	-10°C/+50°C
Maximum charge current	65A (programmable)
Maximum discharge current	65A (programmable)
Charge curve	Managed by the battery's BMS
Depth of Discharge (DoD)	0%-90% (programmable)
AC input (grid side)	
Rated power	3000 W
Maximum Power	3000VA
Maximum current	13A
Connection type/Rated voltage	Single-phase L/N/PE 220, 230, 240V
AC voltage range	180V-276V (according to the local standards)
Rated frequency	50Hz/60Hz
AC frequency range	44Hz -55Hz / 54Hz -66Hz (according to the local standards)
Total harmonic distortion	< 3%
Power factor	1 default (Programmable +/- 0.8)
EPS Output (Emergency Power Supply)	
Maximum power supplied in EPS mode**	3000VA
EPS output voltage and frequency	Single-phase 230V 50Hz/60Hz
Current supplied in EPS mode	13A
Apparent peak power in EPS mode	4000VA for 10s
Total harmonic distortion	< 3%
Switch time	< 3s (programmable from display)
Efficiency	
Maximum battery charge efficiency	95%
Maximum battery discharge efficiency	95%
Consumption in stand-by	< 5W
Protections	
Internal interface protection	Yes
Safety protections	Anti-islanding, RCMU, Ground Fault Monitoring
Overheating protection	Yes
Overvoltage category/Protection class	Overvoltage Category III / Protection class I
Integrated dischargers	AC MOV: Type 3 Standard
Battery soft start	Yes
Standard	
EMC	EN 61000-6-1/2/3/4, EN 61000-6-2/3
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), SD card, CAN 2.0 (for battery connection)
Additional inputs or connections	Input for DC current sensor connection + 3 inputs for AC current sensor connection
Data storage on SD	25 years
General data	
Allowable ambient temperature range	-30°C...+60°C (power limit above 45°C)
Topology	High-frequency isolation battery output
Environmental protection class	IP65
Allowable relative humidity range	0%.....95% non-condensing
Maximum operating altitude	2000m
Noise level	< 25dB @ 1mt
Weight	16Kg
Cooling	Natural convection
Dimensions (H x W x D)	530mm x 360mm x 173mm
Display	LCD
Warranty	5 or 10 years

* Standard value for lithium batteries; maximum operating range between +10°C/+40°C
** Power output in EPS mode depends on the type of batteries and the status of the system (e.g. residual capacity, temperature)

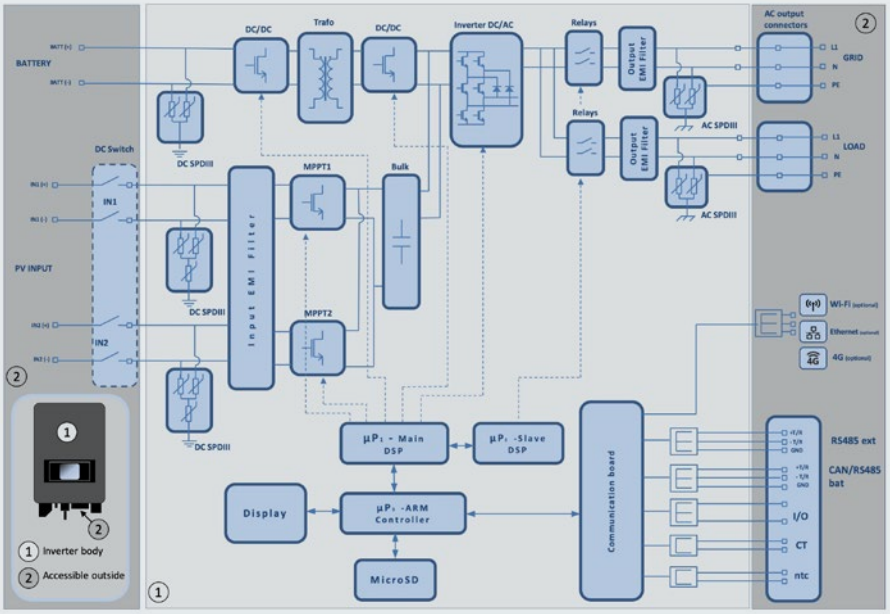
ZCS AZZURRO - SINGLE-PHASE HYBRID INVERTER

HYD 3000-ZSS/HYD 3600-ZSS/HYD 4000-ZSS/HYD 5000-ZSS/HYD 6000-ZSS



- Automatic management of the energy flows from the photovoltaic system, battery and grid
- On-board Energy Meter
- Possibility of operation in zero grid feed-in mode
- Unit compatible with 48V lithium batteries
- Stand-Alone support mode guarantees continuity of operation and "island" operation, both from the photovoltaic source and battery in the event of power failure.

FLOW CHART



TECHNICAL DATA	1PH HYD3000 ZSS	1PH HYD3600 ZSS	1PH HYD4000 ZSS	1PH HYD5000 ZSS	1PH HYD6000 ZSS
DC input data (photovoltaic)					
Typical DC power*	3600 W	4320 W	4800 W	6000 W	7200 W
Maximum DC power for each MPPT	2000W (160V-520V)	2400W (180V-520V)	2600W (200V-520V)	3000W (250V-520V)	3500W (300V-520V)
No. of independent MPPTs / No. of strings per MPPT	2/1				
Maximum input voltage	600V				
Start-up voltage	120V				
Rated Input voltage	360V				
MPPT DC voltage range	90V-580V				
DC voltage range at full load	160V-520V	180V-520V	200V-520V	250V-520V	300V-520V
Maximum input current for each MPPT	12A/12A				
Maximum absolute current for each MPPT	15A/15A				
Battery connection data					
Type of compatible battery	Lithium-ion (supplied by Zucchetti)				
Rated voltage	48V				
Allowable voltage range	42V-58V				
Maximum charge/discharge power	3000 W				
Allowable temperature range**	-10°C/+50°C				
Maximum charge current	65A (programmable)				
Maximum discharge current	65A (programmable)				
Charge curve	Managed by the battery's BMS				
Depth of Discharge (DoD)	0%-90% (programmable)				
AC output (grid side)					
Rated power	3000 W	3680 W	4000 W	5000 W	6000 W
Maximum Power	3000VA	3680VA	4000VA	5000VA	6000VA
Maximum current	13.7A	16A	18.2A	22.8A	27.3A
Connection type/Rated voltage	Single-phase L/N/PE 220, 230, 240V				
AC voltage range	180V-276V (according to the local standards)				
Rated frequency	50Hz/60Hz				
AC frequency range	44Hz -55Hz / 54Hz -66Hz (according to the local standards)				
Total harmonic distortion	< 3%				
Power factor	1 default (Programmable +/- 0.8)				
Grid feed-in limit	Programmable from display				
EPS Output (Emergency Power Supply)					
Maximum power supplied in EPS mode***	3000VA				
EPS output voltage and frequency	Single-phase 230V 50Hz/60Hz				
Current supplied in EPS mode	13A				
Apparent peak power in EPS mode	4000VA for 10s				
Total harmonic distortion	< 3%				
Switch time	< 10ms				
Efficiency					
Maximum efficiency	97.6%			97.8%	98.0%
Weighted efficiency (EURO)	97.2%			97.3%	97.5%
MPPT efficiency	>99.9%				
Maximum battery charge/discharge efficiency	94.6%				
Consumption in stand-by	< 5W				
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				
Battery soft start	Yes				
Standard					
EMC	EN 61000-3-2/3/11/12, EN 61000-6-2/3				
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), SD card, CAN 2.0 (for battery connection)				
Additional inputs or connections	Input for current sensor connection or meter				
Data storage on SD	25 years				
General data					
Allowable ambient temperature range	-30°C...+60°C (power limit above 45°C)				
Topology	Transformerless / High-frequency isolation battery output				
Environmental protection class	IP65				
Allowable relative humidity range	0%.....95% non-condensing				
Maximum operating altitude	2000m				
Noise level	< 25dB @ 1mt				
Weight	20.5Kg				
Cooling	Natural convection				
Dimensions (H x L x D)	566mm x 394mm x 173mm				
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.
** Standard value for lithium batteries; maximum operating range between +10°C and +40°C
*** Power output in EPS mode depends on the number and type of batteries, and the status of the system (e.g. residual capacity, temperature)

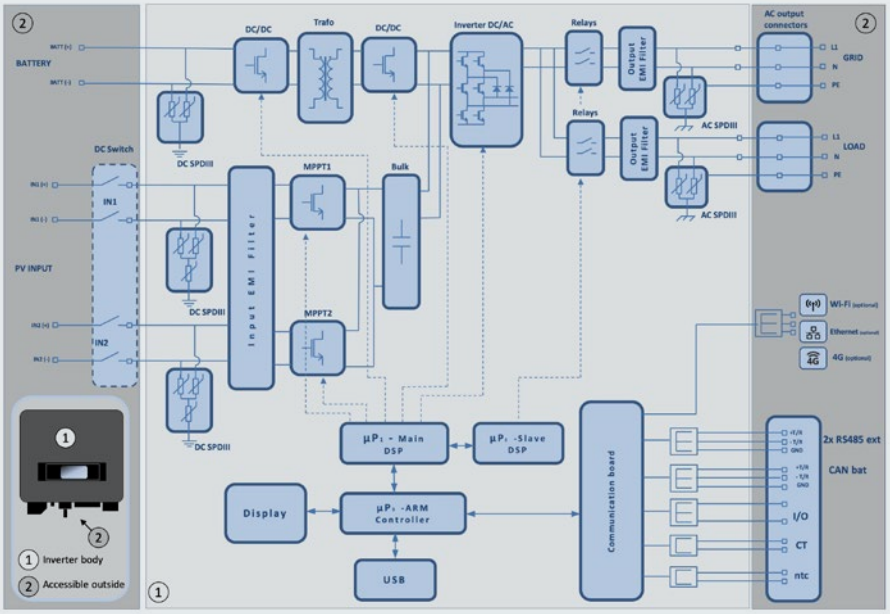
ZCS AZZURRO - HP SERIES SINGLE-PHASE HYBRID INVERTER

HYD 3000-ZSS HP/HYD 3600-ZSS HP/HYD 4000-ZSS HP/HYD 4600 ZSS HP/HYD 5000-ZSS HP/HYD 6000-ZSS HP



- Automatic management of the energy flows from the photovoltaic system, battery and grid
- On-board Energy Meter
- Parallel-ready
- Possibility of operation in zero grid feed-in mode
- Unit compatible with 48V lithium batteries
- Stand-Alone support mode guarantees continuity of operation and "island" operation, both from the photovoltaic source and battery in the event of power failure.
- Maximum charge/discharge power 5000W

FLOW CHART



TECHNICAL DATA	1PH HYD 3000 ZSS HP	1PH HYD 3600 ZSS HP	1PH HYD 4000 ZSS HP	1PH HYD 4600 ZSS HP	1PH HYD 5000 ZSS HP	1PH HYD 6000 ZSS HP
DC input data (photovoltaic)						
Typical DC power*	4500 W	5400 W	6000 W	6900	7500 W	9000 W
Maximum DC power for each MPPT	3500W (270V-520V)					
No. of independent MPPTs / No. of strings per MPPT	2/1					
Maximum input voltage	600V					
Start-up voltage	100V					
Rated Input voltage	360V					
MPPT DC voltage range	90V-580V					
DC voltage range at full load	160V-520V	180V-520V	200V-520V	230V-520V	250V-520V	300V-520V
Maximum input current for each MPPT	13A/13A					
Maximum absolute current for each MPPT	18A/18A					
Battery connection data						
Type of compatible battery	Lithium-ion (supplied by Zucchetti)					
Rated voltage	48V					
Allowable voltage range	42V-58V					
Maximum charge/discharge power	5000W/3000W	5000W/3600W	5000W/4000W	5000W/4600W	5000W/5000W	
Allowable temperature range**	-10°C/+50°C					
Maximum charge current	100A (programmable)					
Maximum discharge current	100A (programmable)					
Charge curve	Managed by the battery's BMS					
Depth of Discharge (DoD)	0%-90% (programmable)					
AC output (grid side)						
Rated power	3000 W	3680 W	4000 W	4600 W	5000 W	6000 W
Maximum Power	3300VA	3680VA	4400VA	4600VA	5500VA	6000VA
Maximum current	15A	16A	20A	20.9A	25A	27.3A
Connection type/Rated voltage	Single-phase L/N/PE 220, 230, 240V					
AC voltage range	180V-276V (according to the local standards)					
Rated frequency	50Hz/60Hz					
AC frequency range	44Hz -55Hz / 54Hz -66Hz (according to the local standards)					
Total harmonic distortion	< 3%					
Power factor	1 default (Programmable +/- 0.8)					
Grid feed-in limit	Programmable from display					
EPS Output (Emergency Power Supply)						
Maximum power supplied in EPS mode***	3000VA (3600VA for 60s)	3680VA (4400VA for 60s)	4000VA (4800VA for 60s)	4600VA (5520VA for 60s)	5000VA (6000VA for 60s)	
EPS output voltage and frequency	Single-phase 230V 50Hz/60Hz					
Current supplied in EPS mode	13.6A	16A	18.2A	20.9A	22.7A	
Total harmonic distortion	< 3%					
Switch time	< 10ms					
Efficiency						
Maximum efficiency	97.6%			97.8%		98.0%
Weighted efficiency (EURO)	97.2%			97.3%		97.5%
MPPT efficiency	>99.9%					
Maximum battery charge/discharge efficiency	94.6%					
Consumption in stand-by	< 10W					
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					
Battery soft start	Yes					
Standard						
EMC	EN 61000-3-2/3/11/12, EN 61000-6-2/3					
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, CAN 2.0 (for battery connection)					
Additional inputs or connections	Input for current sensor connection or meter					
General information						
Allowable ambient temperature range	-30°C...+60°C (power limit above 45°C)					
Topology	Transformerless / High-frequency isolation battery output					
Environmental protection class	IP65					
Allowable relative humidity range	0%.....95% non-condensing					
Maximum operating altitude	4000m					
Noise level	< 25dB @ 1mt					
Weight	22.5Kg					
Cooling	Natural convection					
Dimensions (H x L x D)	482mm x 503mm x 183mm					
Display	LED display and 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.
** Standard value for lithium batteries; maximum operating range between +10°C and +40°C
*** Power output in EPS mode depends on the number and type of batteries, and the status of the system (e.g. residual capacity, temperature)

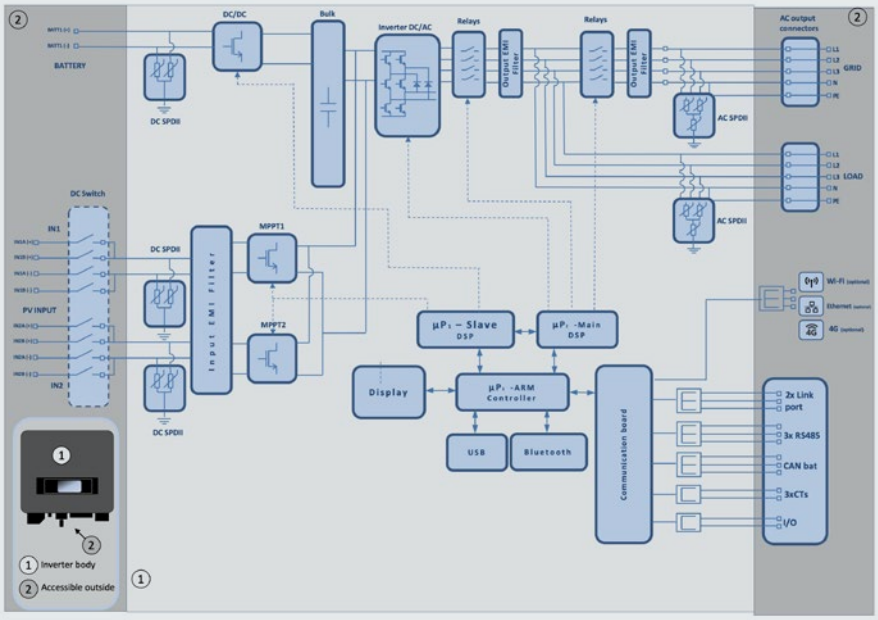
ZCS AZZURRO - THREE-PHASE HYBRID INVERTER

HYD 5000 ZSS / HYD 6000 ZSS/HYD 8000 ZSS



- Automatic management of the energy flows from the photovoltaic system, battery and grid
- On-board Energy Meter
- Parallel-ready
- Possibility of operation in zero grid feed-in mode
- Unit compatible with high voltage lithium battery (200-750V)
- Stand-Alone support mode guarantees continuity of operation and "island" operation, both from the photovoltaic source and battery in the event of power failure.

FLOW CHART



TECHNICAL DATA	3PH HYD5000 ZSS	3PH HYD6000 ZSS	3PH HYD8000 ZSS
DC input data (photovoltaic)			
Typical DC power*	7500 W	9000 W	12000 W
Maximum DC power for each MPPT	6000W (480V-850V)	6600W (530V-850V)	6600W (530V-850V)
No. of independent MPPTs / No. of strings per MPPT	2/1		
Maximum input voltage	1000V		
Start-up voltage	250V		
Rated Input voltage	600V		
MPPT DC voltage range	180V-960V		
DC voltage range at full load	250V-850V	320V-850V	360V-850V
Maximum input current for each MPPT	12.5A/12.5A		
Maximum absolute current for each MPPT	15A/15A		
Battery connection data			
Type of compatible battery	Lithium-ion (supplied by Zucchetti)		
Allowable voltage range	180V-750V		
Number of independent battery channels	1		
Maximum charge/discharge power	5000 W	6000 W	8000 W
Allowable temperature range**	-10°C/+50°C		
Maximum charge current per battery channel	25A (40A of peak for 60s)		
Maximum discharge current per battery channel	25A (40A of peak for 60s)		
Charge curve	Managed by the battery's BMS		
Depth of Discharge (DoD)	0%-90% (programmable)		
AC output (grid side)			
Rated power	5000 W	6000 W	8000 W
Maximum Power	5500VA	6600VA	8800VA
Maximum current	8A	10A	13A
Connection type/Rated voltage	Three-phase 3/N/PE, 220/380, 230/400		
AC voltage range	184V~ 276V (according to the local standards)		
Rated frequency	50Hz/60Hz		
AC frequency range	45Hz~55Hz / 55Hz~65Hz (according to the local standards)		
Total harmonic distortion	<3%		
Power factor	1 default (Programmable +/- 0.8)		
Grid feed-in limit	Programmable from display		
EPS Output (Emergency Power Supply)			
Power supplied in EPS mode***	5000 W	6000 W	8000 W
Apparent peak power in EPS mode***	10000VA for 60s	12000VA for 60s	16000VA for 60s
EPS output voltage and frequency	Three-phase 230V/400V 50Hz		
Current supplied in EPS mode (peak)	8A (15A for 60s)	10A (18A for 60s)	13A (24A for 60s)
Total harmonic distortion	3%		
Switch time	<20ms		
Efficiency			
Maximum efficiency	98.0%		
Weighted efficiency (EURO)	97.5%		
MPPT efficiency	99.9%		
Maximum battery charge/discharge efficiency	97.6%		
Consumption in stand-by	<15W		
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 2 Standard		
Output overcurrent protection	Yes		
Battery soft start	Yes		
Standard			
EMC	EN61000-1, EN61000-3		
Safety standard	IEC62109-1, IEC62109-2, NB-T32004/IEC62040-1		
Grid connection standard	Connection certificates and standards available on www.zcsazzurro.com		
Communication			
Communication interfaces	Wi-Fi/4G/Ethernet (optional), RS485 (proprietary protocol), USB, CAN 2.0 (for battery connection), Bluetooth		
Other inputs	RS485 line for external meters (up to 4 meters can be connected), 6 digital inputs (5V TTL), connection for direct sensors (CT)		
General data			
Allowable ambient temperature range	-30~60 °C		
Topology	Transformerless		
Environmental protection class	IP65		
Allowable relative humidity range	0~100%		
Maximum operating altitude	4000m		
Noise level	<45 dB @ 1m		
Weight	33Kg		
Cooling	Natural convection		
Dimensions (H x W x D)	515mm x 571mm x 264mm		
Display	LED display and 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.
** Standard value for lithium batteries; maximum operating range between +10°C and +40°C
*** Power output in EPS mode depends on the number and type of batteries, and the status of the system (e.g. residual capacity, temperature)

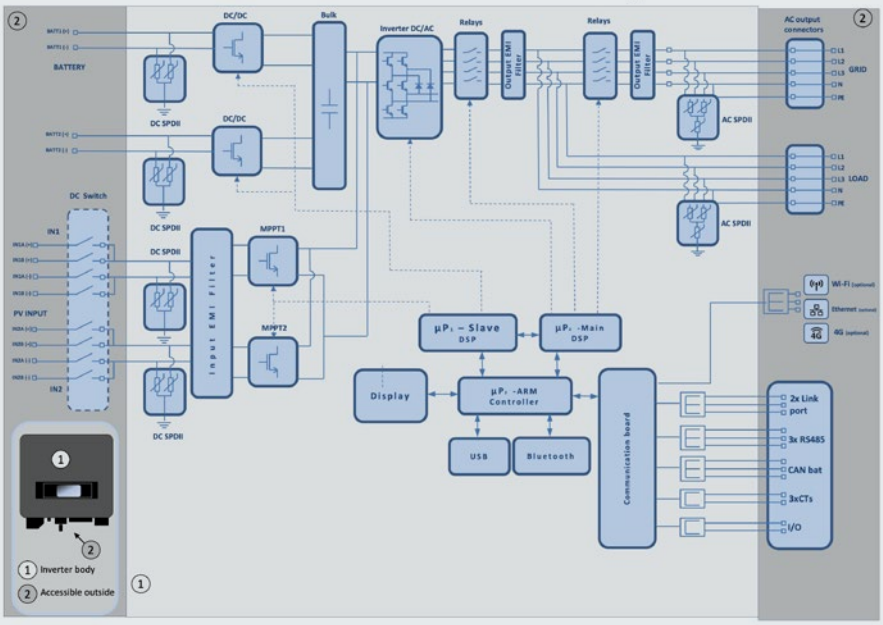
ZCS AZZURRO - THREE-PHASE HYBRID INVERTER

HYD 10000 ZSS / HYD 15000 ZSS/HYD 20000 ZSS



- Automatic management of the energy flows from the photovoltaic system, battery and grid
- On-board Energy Meter
- Parallel-ready
- Possibility of operation in zero grid feed-in mode
- Unit compatible with high voltage lithium battery (200-750V)
- Stand-Alone support mode guarantees continuity of operation and "island" operation, both from the photovoltaic source and battery in the event of power failure.

FLOW CHART



TECHNICAL DATA	3PH HYD10000 ZSS	3PH HYD15000 ZSS	3PH HYD20000 ZSS
DC input data (photovoltaic)			
Typical DC power*	15000 W	22500 W	30000 W
Maximum DC power for each MPPT	7500W (300V-850V)	11250W (450V-850V)	15000W (600V-850V)
No. of independent MPPTs / No. of strings per MPPT	2/2		
Maximum input voltage	1000V		
Start-up voltage	250V		
Rated Input voltage	600V		
MPPT DC voltage range	180V-960V		
DC voltage range at full load	220V-850V	350V-850V	450V-850V
Maximum input current for each MPPT	25A/25A		
Maximum absolute current for each MPPT	30A/30A		
Battery connection data			
Type of compatible battery	Lithium-ion (supplied by Zucchetti)		
Allowable voltage range	180V-750V		
Number of independent battery channels	2 HV battery channels (configurable as independent or in parallel)		
Maximum charge/discharge power	10000 W	15000 W	20000 W
Allowable temperature range**	-10°C/+50°C		
Maximum charge current per battery channel	25A (35A of peak for 60s)		
Maximum discharge current per battery channel	25A (35A of peak for 60s)		
Charge curve	Managed by the battery's BMS		
Depth of Discharge (DoD)	0%-90% (programmable)		
AC output (grid side)			
Rated power	10000 W	15000 W	20000 W
Maximum Power	11000VA	16500VA	22000VA
Maximum current	16A	24A	32A
Connection type/Rated voltage	Three-phase 3/N/PE, 220/380, 230/400		
AC voltage range	184V~ 276V (according to the local standards)		
Rated frequency	50Hz/60Hz		
AC frequency range	45Hz~55Hz / 55Hz~65Hz (according to the local standards)		
Total harmonic distortion	<3%		
Power factor	1 default (Programmable +/- 0.8)		
Grid feed-in limit	Programmable from display		
EPS Output (Emergency Power Supply)			
Power supplied in EPS mode***	10000 W	15000 W	20000 W
Apparent peak power in EPS mode***	20000VA for 60s	22000VA for 60s	22000VA for 60s
EPS output voltage and frequency	Three-phase 230V/400V 50Hz		
Current supplied in EPS mode (peak)	16A (30A for 60s)	24A (32A for 60s)	32A (33A for 60s)
Total harmonic distortion	3%		
Switch time	<20ms		
Efficiency			
Maximum efficiency	98.2%		
Weighted efficiency (EURO)	97.7%		
MPPT efficiency	99.9%		
Maximum battery charge/discharge efficiency	97.8%		
Consumption in stand-by	<15W		
Protections			
Internal interface protection	yes	no	
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 2 Standard		
Output overcurrent protection	Yes		
Battery soft start	Yes		
Standard			
EMC	EN61000-1, EN61000-3		
Safety standard	IEC62109-1, IEC62109-2, NB-T32004/IEC62040-1		
Grid connection standard	Connection certificates and standards available on www.zcsazzurro.com		
Communication			
Communication interfaces	Wi-Fi/4G/Ethernet (optional), RS485 (proprietary protocol), USB, CAN 2.0 (for battery connection), Bluetooth		
Other inputs	RS485 line for external meters (up to 4 meters can be connected), 6 digital inputs (5V TTL), connection for direct sensors (CT)		
General data			
Allowable ambient temperature range	-30~60 °C		
Topology	Transformerless		
Environmental protection class	IP65		
Allowable relative humidity range	0~100%		
Maximum operating altitude	4000m		
Noise level	<45 dB @ 1m		
Weight	37Kg		
Cooling	Forced convection		
Dimensions (H x W x D)	515mm x 571mm x 264mm		
Display	LED display and 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.
** Standard value for lithium batteries; maximum operating range between +10°C and +40°C
*** Power output in EPS mode depends on the number and type of batteries, and the status of the system (e.g. residual capacity, temperature)

ZCS AZZURRO

LV BATTERIES FOR STORAGE OR HYBRID SYSTEMS

The **low voltage batteries** for **ZCS Azzurro hybrid inverters and storage systems** are the best solution for optimising energy independence in residential applications.
Modular and parallelable, they are the ideal devices for storage installations with **ZCS Azzurro inverters**. They can be configured automatically without the need for manual settings.
The Lithium Ion or Lithium-Iron-Phosphate technology allows efficient use even at high depths of discharge, thus optimising energy storage and reuse. Easy installation and long service life make these batteries highly efficient and practical.



WECO BOX



PYLONTECH BOX



ZCS AZZURRO BOX

EASY INSTALLATION

- Communication cables, power and battery parallel connection cables always included
- Installation on the ground or wall by means of the appropriate brackets
- Possibility of installing additional batteries at any time during the life of the system
- A total capacity of up to 30kWh can be installed

TECHNICAL DATA	WECO		PYLONTECH	ZCS AZZURRO
General data				
Type	ZCS-Weco HeSu4k4	ZCS-Weco HeSu5k3 LV	ZCS-Pylontech	ZSX5000 LV
ZCS Azzurro	Lithium Iron Phosphate			
Dimensions (H x L x D)	560mm (+20mm for support feet) x 480mm x 165mm	580mm (+10mm rubber feet) x 450 x 165	440mm x 410mm x 89mm (battery only); 530mm x 677mm x 280mm (storage box with 2 batteries)	600mm x 480mm x 211.5mm
Weight	53Kg		24Kg	54Kg
Protection Class	IP20			
Mounting	On ground or wall		On ground or wall, in storage box	On ground or wall
Operating temperature when charging	-20°C - +45°C	-10°C - +55°C	0°C - +50°C	-10°C - +50°C
Operating temperature when discharging	-20°C - +60°C	-25°C - +65°C	-10°C - +50°C	-20°C - +50°C
Allowable relative humidity range	0....95% non-condensing			
Maximum operating altitude	2000m			
Operating cycles under standard conditions *	7000		>6000	
Maximum number of batteries that can be installed in parallel on inverters	5		8	4
Certifications	IEC 61600-6-3: 2017, 61600-3-2:2014, 61000-3-3:2013, 61600-6-2007, CE, UN 38.3		TUV, CEI-021, CE, UN 38.3	IEC62619, IEC62040-1, CE, UN 38.3
Warranty	10 years			
Communication	RS232, RS485, CAN bus			
Capacity Data				
Nominal capacity of single module	4.95kWh	5.8 kWh	2.4kWh / 50Ah	5.12 kWh / 100Ah
Useful capacity of single module	4.45kWh / 86Ah (90% DoD)	5.22 kWh /100Ah (90% DoD)	1.9kWh (80% DoD)	4.61kWh (90% DoD)
Rated voltage	51.2V	52V	48V	51.2V
Maximum charge current of single module*	100A		25A	50A
Maximum discharge current of single module*	100A	200A	25A	50A
Max depth of discharge (DoD that can be set in the inverter)	90% of nominal capacity		80% of nominal capacity	90% of nominal capacity

* The actual charging and discharging currents of the system may be limited by the inverters to which the batteries are connected, please refer to the inverter datasheets for the actual charging and discharging current

ZCS AZZURRO

HV BATTERIES FOR STORAGE OR HYBRID SYSTEMS

The **high voltage batteries** for **ZCS Azzurro three-phase hybrid inverters and storage systems** are the best solution for optimising energy independence in residential applications.
Capable of being installed in series up to a capacity of 60kWh, they are ideal for storage installations with **ZCS Azzurro** inverters. They configure themselves automatically, so there is no need for manual settings.
The Lithium Ion or Lithium-Iron-Phosphate technology allows efficient use even at high depths of discharge by optimising energy storage and reuse.
Easy installation and long service life make these batteries highly efficient and practical.



PYLONTECH



WECO

EASY INSTALLATION

- Communication cables, power and battery connection cables always included
- Floor or rack installation
- Possibility of installing additional batteries at any time during the life of the system
- A total capacity of up to 60kWh can be installed

TECHNICAL DATA	WECO	PYLONTECH
General data		
Type	ZCS-Weco HeSu5k3 HV	ZCS - Pylontech H48050
ZCS Azzurro	Lithium Iron Phosphate	
Dimensions for single module (H x W x D)	460mm x 520mm x 155mm	440mm x 410mm x 89mm
Weight of one module	53Kg	24Kg
Protection Class	IP20	
Mounting	On ground, stackable	On ground, on support structure
Operating temperature when charging	-10°C - +55°C	0°C - +50°C
Operating temperature when discharging	-25°C - +65°C	-10°C - +50°C
Allowable relative humidity range	0....95% non-condensing	
Maximum operating altitude	2000m	
Operating cycles under standard conditions *	7000	>5000
Connection of battery modules	In series: minimum no. of modules: 4 maximum no. of modules: 11	In series: minimum no. of modules: 4 maximum no. of modules: 12
BMS	Integrated (outer HV-box necessary to protect against high voltage)	SC1000-100S (compulsory)
Certifications	IEC 61600-6-3: 2017, 61600-3-2:2014, 61000-3-3:2013, 61600-6-2007, CE, UN 38.3	TUV, CEI-021, CE, UN 38.3
Warranty	10 years	
Communication	RS232, RS485, CAN bus	
Cell rebalancing	Automatic, real time	Automatic (with SOC above 95%)
Capacity Data		
Useful capacity of single module	5.22 kWh/ 100Ah	2.2kWh / 50Ah
Nominal capacity of single module	5.8kWh	2.4kWh
Total effective capacity (90% depth of discharge)	From 21.2kWh (with 4 modules in series) From 58.3kWh (with 11 modules in series)	From 8.64kWh (with 4 modules in series) From 25.92kWh (with 12 modules in series)
Total nominal voltage	From 208V (with 4 modules in series) Up to 572 (with 11 modules in series)	From 192V (with 4 modules in series) Up to 576 (with 12 modules in series)
Maximum charge current	100A	25A
Maximum discharge current	200A	25A
Depth of Discharge (DoD)	90%	90%

* Standard operating conditions for batteries: 25°C, 40% humidity, Depth of Discharge (DoD) 80%

ZCS AZZURRO

MONITORING SYSTEMS

The ZCS Azzurro **monitoring** systems are the ideal solution for the complete control and display of all the important parameters of any PV system.

The wide range of options makes it possible to meet any requirement: from basic solutions to more complete and complex monitoring solutions.

The most complete monitoring solutions allow connecting external devices and a separate power supply unit for monitoring not only the inverters, but also the consumption of the entire system at all hours of the day and night.

SIMPLE AND RELIABLE

› Communication protocols with automatic inverters

› Possibility to monitor up to 31 inverters

EASY INSTALLATION

› Plug-and-play installation

› Easy to access and easy to configure

TECHNICAL DATA	ZSM-WIFI-EXT / ZSM-WIFI-USB	ZSM-ETH-EXT / ZSM-ETH-USB	ZSM-4G-EXT / ZSM-4G-USB	ZSM-DATALOG-04	ZSM-DATALOG-10	ZSM-RMS-001/ M200	ZSM-RMS-001/ M1000
General data							
Installation	On the mechanics of the inverter (dedicated slot)			Free			
Communication with inverter	RS232/USB			RS485			
Number of inverters that can be connected	1			Up to 4	Up to 10	Up to 31 (for installations with total power <200kW)	Up to 31 (for installations with total power >200kW)
Power Supply	Internal by inverter			External by means of dedicated power supply unit (included)			
Optional buffer battery	No					Yes	
Configuration	Access to dedicated WebServer page	No configuration required		Access to dedicated WebServer page		To request from ZCS	
Connection with APP/Portal	Wi-Fi	Ethernet	4G***	Wi-Fi; Ethernet		Access to dedicated WebServer page	
Other communication ports	No					2 x USB 2.0, HDMI, I/O	
Additional features	No					Option to connect to external meters and sensors for monitoring consumption and reporting to recognised customs agencies	
List of compatible inverters	List 1* for models ZSM-xxx-EXT; List 2** for models ZSM-xxx-USB			All Azzurro storage and hybrid inverters			

*List 1: 1100TL-V3/1600TL-V3/2000TL-V3/2700TL-V3/3000TL-V3/3000TLM-V3/3680TLM-V3/4000TLM-V3/4600TLM-V3/5000TLM-V3/6000TLM-V3, 50000TL-V1/60000TL-V1/70000TL, 20000TL-V2/25000TL-V2/30000TL-V2/33000TL-V2, 1PH HYD 3000 ZSS/1PH HYD 4000 ZSS/1PH HYD 5000 ZSS/1PH HYD 6000 ZSS, ME3000SP-V2

**List 2: 3.3KTL-V3/4.4KTL-V3/5.5KTL-V3/6.6KTL-V3/8.8KTL-V3/11KTL-V3/12KTL-V3, 15000TL-V3/17000TL-V3/20000TL-V3/22000TL-V3/24000TL-V3, 80KTL-LV/100KTL-LV/110KTL-LV, 100KTL-HV/125KTL-HV/136KTL-HV, 3PH HYD 5000 ZSS/3PH HYD 6000 ZSS/3PH HYD 8000 ZSS/3PH HYD 10000 ZSS/3PH HYD 15000 ZSS/3PH HYD 20000 ZSS,1PH HYD 3000 ZSS HP/1PH HYD 4000 ZSS HP/1PH HYD 5000 ZSS HP/1PH HYD 6000 ZSS HP

*** The boards include an integrated virtual SIM card with data traffic fee included for 10 years



Wi-Fi module



Ethernet Module



Easy Datalogger



Professional Datalogger

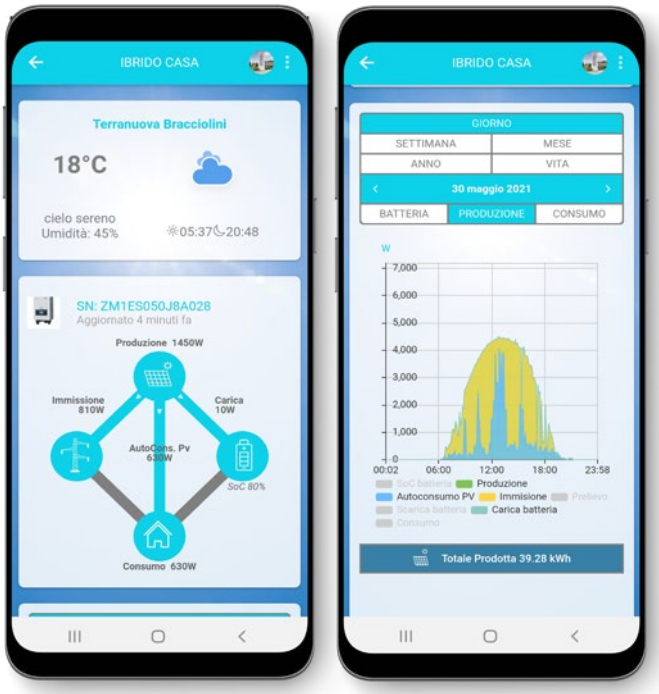
ZCS AZZURRO

MONITORING APP AND PORTAL



The entire range of ZCS Azzurro inverters can be easily monitored using the ZCS APP and portal. The ZCS Azzurro APP can be downloaded free of charge from Google Play and the App Store and is easy to configure.

Both systems allow creating graphs indicating production, consumption and other essential information. The data is automatically updated every 5 minutes.



EASY AND USER-FRIENDLY

- APP can be downloaded from Google Play and Apple Store*
- Customisable graphs
- Monitoring of the entire inverter range*
- User-friendly interface

Disponibile su Google play

Disponibile su App Store

ZCS AZZURRO

CHARGING STATIONS FOR ELECTRIC VEHICLES



The **Zucchetti Centro Sistemi (ZCS) charging stations** are available with 2 power levels of 7 and 22 KW, single-phase and three-phase, smart and connectable to any existing photovoltaic system, and to the ZCS Azzurro production and storage inverters.

The **entire range** is equipped with the innovative **ZCS Predictive Energy Intelligence** system, capable of managing energy flows and predicting energy needs for the most efficient use of electric vehicles, photovoltaic systems and storage systems.
The **ZCS Predictive Energy Intelligence** system makes it possible to:

1- Predict the amount of power produced based on weather forecasts.

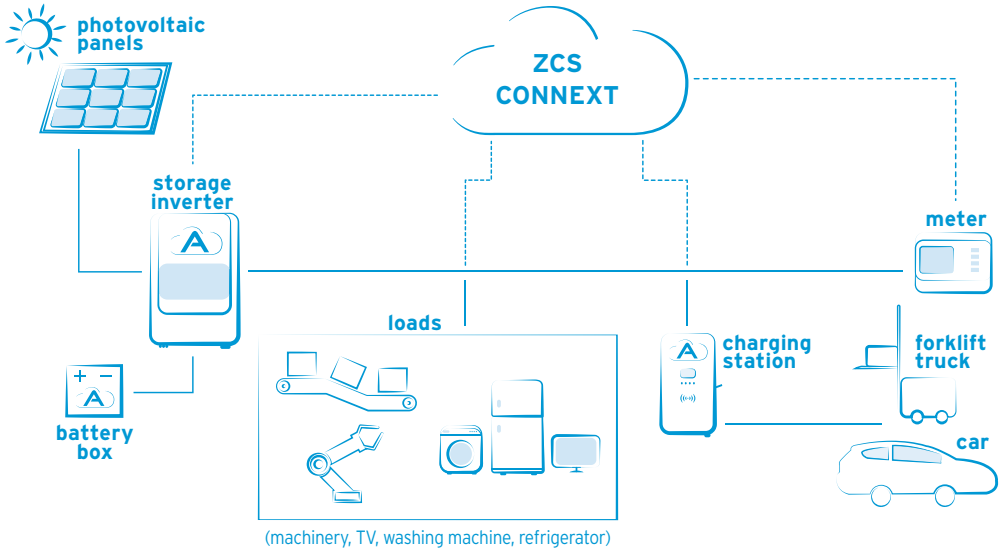
2- Distribute the energy produced between the car and home according to the user's needs and to the number of kilometres to be travelled.

3- Optimise energy withdrawal from the grid.

- **COMPATIBLE WITH ALL ELECTRIC VEHICLES**
- **POSSIBILITY TO MONITOR AND CONTROL MULTIPLE DEVICES**
- **EASY INSTALLATION ON WALL OR SUPPORT**
- **TOUCH DISPLAY AND KEYPAD**

FIELDS OF APPLICATION:

› Domestic-residential
› Shops and small businesses
› Industries
› Car parks in shopping centres and supermarkets
› Hotels
› Places of public interest
› Gyms and sports facilities
› Wherever an electric car can be parked...



TECHNICAL DATA	1PH 7KW	3PH 22KW
AC Input data		
Type of connection	Single-phase (1PH + Neutral + PE)	Three-phase (3PH + Neutral + PE)
AC input voltage	230V +/- 10%	400V +/- 10%
AC input frequency	50Hz	50Hz
AC Output data		
AC output voltage	230V +/- 10%	400V +/- 10%
Maximum AC output current	32A	32A
Maximum Power	7.4 kW (limitable from display)	22 kW (limitable from display)
General data		
Outer casing material	Plastic PC940	Galvanised steel
Front panel	Tempered glass	Tempered glass
Installation	To wall / On support metal	To wall / On support metal
Connector	Type2 Connector with shutter - cables not included (optional)	Type2 Connector with shutter - cables not included (optional)
LCD screen	Graphic screen	Graphic screen
Controls	4 touch keys - contact for RFID	4 touch keys - contact for RFID
RFID card	2 included	2 included
Energy Meter	MID Certificate	MID Certificate
RCD protection	TypeA + 6mA DC	TypeA + 6mA DC
Protection class	IP54	IP54
Cooling	Natural convection	Natural convection
Environmental Data		
Operating temperature	-30°C / +50°C	-30°C / +50°C
Humidity	5% / 95% non-condensing	5% / 95% non-condensing
Maximum operating altitude	2000m	2000mt
Installation	Indoor / Outdoor	Indoor / Outdoor
Safety protections		
Integrated protections	Over and under voltage, power overload, short circuit, dispersion currents, missing ground connection, surge, over and under temperature	Over and under voltage, power overload, short circuit, dispersion currents, missing ground connection, surge, over and under temperature
Applicable safety standards	IEC 61851-1: 2017, IEC 62916-2: 2016	IEC 61851-1: 2017, IEC 62916-2: 2016
Warranty	2 years	2 years
Dimensions and parts accessories		
Dimensions (H ✣ L ✣ D)	356mm ✣ 221mm ✣ 136mm	452mm ✣ 295mm ✣ 148mm
Weight	3 kg	10 kg
Accessories	Communication gateway (Ethernet/ WIFI/4G), Ground mounting support, Type2-Type2 cable (4m)	Communication gateway (Ethernet/ WIFI/4G), Ground mounting support, Type2-Type2 cable (4m)

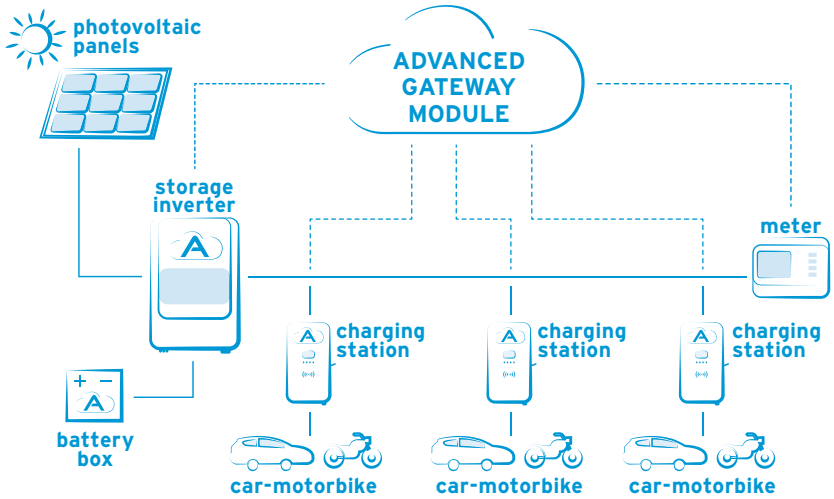
ZCS AZZURRO

ADVANCED GATEWAY MODULE

ZCS GATEWAY is the innovative Gateway that allows connecting up to 10 wallboxes via Wi-Fi or Ethernet to a portal for monitoring consumption, or directly to third-party portals that allow billing the energy used for charging. ZCS GATEWAY is useful in applications where the energy used to charge vehicles needs to be measured and monitored, and also for systems that require authorisation to recharge.



PARKING USE



TECHNICAL DATA	ZVM-GATEWAY
Dimensions	125.3 x 91.5 x 28.3(HxWxD)
Installation method	Mounted on wall near the wallbox
Power supply	CAN / external power connection
Working voltage	12-25V
Working current	500mA
Protection class	IP21
Working temperature	between -20°C and +50°C
Platform/system	Linux ARM9 system
LED indicators (left to right)	Operating status, connection to backend, connection to charger
MTBF (Mean Time Between Failures)	100,000 Hours
Protections	Anti-inversion connection
Maintenance inputs	Micro USB, UART
Data input	USB
EN-GATE v.s. Charger communication	CAN
EN-GATE v.s. backend communication	Ethernet
Internet communication protocol	OCPP1.6
Extension port	IO, TTL USART
Maximum number of chargers connected to EN-GATE	10 pieces

ZCS AZZURRO

CONNEXT

The **ZCS CONNEXT** system is able to effectively supervise and control all ZCS devices. It can be connected to photovoltaic systems, storage systems and charging stations for ZCS Azzurro electric vehicles, and allows monitoring and controlling all the systems in an intelligent and predictive way. ZCS CONNEXT interfaces with external current sensors which makes it suitable for installations where third-party inverters are present. The programmable functions allow intelligent use of renewable energies and accurate programming of the charging of storage batteries or electric vehicles. The four programmable outputs can be used to switch on the utilities according to settable criteria. ZCS CONNEXT represents the last frontier in consumption optimisation!





TECHNICAL DATA	CONNEXT
General data	
Dimensions (H x L x D)	89mm x 105mm x 65mm (+20mm for external antenna)
Weight	300 g
Protection Class	IP20
Mounting	On DIN Bar
Power Supply	Integrated 110V-230V power supply unit
Operating temperature range	0°C...+40°C
Allowable relative humidity range	0....95% non-condensing
User interface	Graphic display
Communication ports with Azzurro devices	RS485, CAN bus
Ports for current sensor input	2
Additional input/output ports	2 DO Open Collectors, 2 clean contacts, 2 DI, 2 PT100, internal USB, Bluetooth optional
Communication with portal	2G / Wi-Fi / Ethernet (alternative)
Warranty	2 years
Consumption	< 7W

- **COMPATIBLE WITH ALL ZCS AZZURRO DEVICES**
- **CAN ALSO BE USED IN INSTALLATIONS WITH DIFFERENT BRANDS**
- **POSSIBILITY OF SETTING INTELLIGENT MANAGEMENT ALGORITHMS**
- **EQUIPPED WITH INPUTS FOR SYSTEM MONITORING SENSORS**

ZCS AZZURRO

END OF LIFE

The **ZCS AZZURRO** products are constantly evolving and always being updated. ZCS ensures ongoing technical support and warranties on its entire product range. To receive information on end-of-life models, please contact your distributor or visit **zcsazzurro.com**



ZCS 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



ZCS AZZURRO
SINGLE-PHASE STRING INVERTER
PLUS SERIES

1100TL-V1/1600TL-V1/2200TL-V1/2700TL-V1/3000TL-V1







ZCS AZZURRO
SINGLE-PHASE STRING INVERTER
PLUS SERIES

END OF LIFE

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



ZCS AZZURRO
THREE-PHASE STRING INVERTER
COMPACT SERIES

END OF LIFE

3.3KTL-V1/4.4KTL-V1/5.5KTL-V1/6.6KTL-V1/8.8KTL-V1/11KTL-V1/12KTL-V1



ZCS AZZURRO
THREE-PHASE STRING INVERTER

END OF LIFE

10KTL-V2/12KTL-V2/15KTL-V2





ZCS AZZURRO

TECHNICAL SUPPORT



ZCS Azzurro technical support is available in all countries where ZCS operates, through a network of local service centres.
ZCS Azzurro provides its customers with a support service that can be contacted:

› through the **SUPPORT** section of the website zcsazzurro.com

The ZCS Azzurro Customer Service will handle your request for assistance within 24 hours of receiving the request.

INSTALLATION AND COMMISSIONING

Would you like assistance in sizing your new photovoltaic system or in retrofitting existing systems? Are you having trouble configuring your ZCS Azzurro Inverter?
Do you have doubts on how to correctly use and install your inverter?
Contact our Technical Service Centre.

Our technical support service is able to provide assistance and support by ticket for pre-sales and after-sales requests, so our customers can receive all the information they need.

TRAINING AND EDUCATION

ZCS offers various training and education programs on various aspects relating to solar energy. The training and education sessions are organised both at the ZCS offices and externally at the premises of our distributors or in conference centres.

ZCS encourages all its customers to participate in one or more training courses, so that they are able to efficiently install the system and make it fully compliant with the applicable regulations.
The ZCS training courses normally include general and theoretical presentations aimed at developing technical knowledge on the inverters, as well as practical exercises aimed at explaining all the product features, the various applications, installation and commissioning procedures, programming, maintenance and fault identification.
The courses are open to all operators in the sector and are not limited to technical professionals.

SPARE PARTS AND ACCESSORIES

In the event of a known failure of an Azzurro inverter, ZCS will replace it with a new or reconditioned inverter. In some cases it may be quicker to simply replace some accessory parts.
Typical examples are the replacement of the fan tray in three-phase inverters, or the battery connection cables in storage systems.
On request, the ZCS Support Service will provide prices for spare parts and accessories that can be purchased separately.
For this purpose, ZCS always ensures that adequate stocks are available.

MAINTENANCE – EXTENDED WARRANTY – UPDATES - RETROFIT

The ZCS Azzurro string inverters do not require any special maintenance. Due to their long service life, however, regular inspections are recommended. ZCS offers this service at very convenient conditions, both during and after the warranty period. You can contact our offices at any time for a quotation.
Each inspection visit will include at least: a general check of the machine's operation, measurement of the parameters considered necessary to assess the overall status of the system and updating of the software to the latest version available.
At the end of the visit, a report is issued certifying the result of the visit.

REPAIR AND REPLACEMENT

At the sole discretion of ZCS, faulty inverters can be replaced with new or so-called reconditioned machines.
The reconditioning of the inverters, which is carried out under the full responsibility of ZCS, restores their original condition of efficiency and performance.
After a total inspection of the machine, its complete cleaning, and an analysis of any components to be replaced, the inverter is subjected to a complete cycle of tests.
In all cases, the replacement inverter, whether new or reconditioned, will be covered by a warranty at least equal to the warranty period remaining on the replaced inverter.

SERVICE PARTNERS

ZCS can intervene within 24 hours in any region of Italy and in any country in Europe. ZCS adopts a relationship of trust with the installers it engages to carry out repairs at the customers' premises. In the absence of an installer responsible for the system, ZCS guarantees the assistance service through its own direct personnel or through local service partners.

ZCS AZZURRO

SMART SOLUTIONS FOR A **SUSTAINABLE** WORLD





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