

Smart!wind SW-5.5, SW-7.5 and SW-10

3-phase feed-in converter for small wind turbines (SWT)
with 5.5, 7.5 and 10 kW, with additional system control functions as standard.



The multi-talent among the feed-in converters
for small wind turbines – up to 20 kW!

MODERN – FLEXIBLE – EFFICIENT

- Max. load of wind turbine with 20 kW (SW-10)
- 3-phase grid-coupling with 10 kW (SW-10)
- flexible, intelligent own energy consumption management of feed-in, water heating, battery and dump-load via 4 separated DC-energy-outlets
- Energy meter for feed-in and heat energy
- Idle power control system
- Battery backup - optional

COMPACT

- Direct connection of the PM generator without additional devices
- Wide input voltage range for PM generators
- Compact housing with terminal compartment to open separately
- Passive convection cooling due to a wide output range
- Integrated grid and plant protection according to VDE AR-N 4105 (ENS)

FERTILE – SAFE

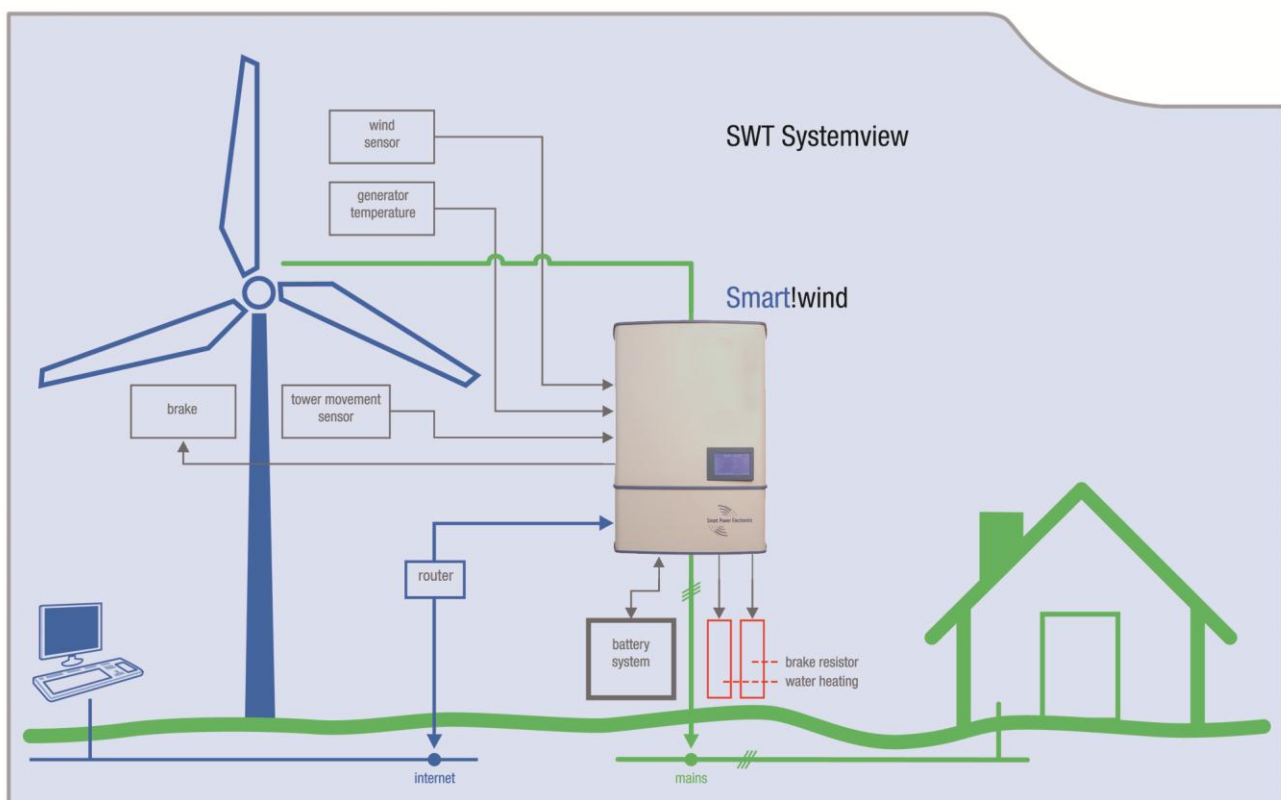
- Integrated control system for a wind turbine
- Intelligent, accurately dispersed characteristic curve control for optimal use of prevailing wind
- 20 point profile, voltage control or rotor speed control selectable
- Various control mechanisms, e.g. rotor speed, wind speed
- Switch to shut down the SWT with additional safety functions

COMMUNICATIVE

- Integrated graphic display
- Integrated web-server
- Easy to use PC Software „Smart!wind Explorer“ for parameterising etc.

APPLICATIONS

- Small wind turbines
- Small hydroelectric power generators
- Mini thermal power generators



TECHNICAL DATA I

General details	SW-5.5
Size	656 x 472 x 234 mm
Wight	42 kg
Protection type	IP54
Cooling	Air passiv / fan controlled need-based
Temperature range operation	-25°C ... +40°C – automatic derating
Total efficiency	max. 94 %
Own consumption	< 18 W – stand-by < 83 W – active feed-in

Input generator side	SW-5.5
Generator type	PM generator / 3-phase
Rectifier generator side	B6
Input voltage range (conductor-conductor)	60...500 V _{LL} 180 ... 500 V _{LL} – for full power 5.5 kW 600 V _{LL} – maximum value
Input current (nominal value)	20 A – nominal value t 40 A – max. 5 s
Input capacity	12 kW – nominal value
Maximum value limited by dump load	24 kW – max. 5 s
Input frequency	0 Hz ... 150 Hz
Generator monitoring	Isolations monitoring Temperature monitoring RPM monitoring

Output mains	SW-5.5
Inverter mains side	IGBT B6
Phases	3
Output power (nominal value)	5,5 kW
Output voltage	400 V _{LL} – nominal value 318 ... 460 V _{LL} – permitted range
Output current (nominal value)	0 ... 8 A
Output frequency	0 Hz ... 150 Hz
Isolation concept	no transformer, no galvanic isolation
Distortion factor current	< 3 %
Power factor – cos φ	regulated on 1 – regulation after VDE AR-N 4105
Overcurrent protection	Current control
Grid / plant protection – ENS	integrated according to VDE AR-N 4105

TECHNICAL DATA II

Output - DC	SW-5.5
Number of outputs	3
Output power	max. 10 kW – per output
Output voltage	0 ... 800 V _{DC} – permitted range 200 ... 600 V _{DC} – typ. value
Output current	max. 17 A
Load resistance	min. 25 Ω – 5,5 kW depending on generator voltage

Communication - Operating	SW-5.5
Operation – parameterisation	Graphic display PC-software – Smart!wind Explorer (via CAN) Web-server integrated (via ethernet – TCP/IP)
Communication	Systembus CAN-open, ethernet
Additional interfaces	Temperature sensor generator & load resistance
Analog input (4x)	e.g. wind direction, windspeed
Digital input (3x)	freely configurable – e.g. rotor RPM
Relay output (3x)	e.g. brake (fail-safe), signal „ready“
Digital output (3x)	
Battery backup interface (optional)	Battery voltage 48 ... 200 V _{DC} Charging- /discharging current max. 75 A
Functions	Charge of battery Discharge of battery and feed into mains

Standards	SW-5.5
Mains conformity	EN 61000-3-2, EN 61000-3-3, VDE AR-N 4105
EMC standards	EN 61000-6-1, EN 61000-6-2, EN 61000-6-4

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TECHNICAL DATA III

General details	SW-7.5	SW-10
Size	656 x 472 x 234 mm	
Wight	42 kg	
Protection type	IP54	
Cooling	Air passiv / fan controlled need-based	
Temperature range operation	-25°C ... +40°C – automatic derating	
Total efficiency	max. 94 %	
Own consumption	< 18 W – stand-by < 83 W – active feed-in	

Input generator side	SW-7.5	SW-10
Generator type	PM generator / 3-phase	
Rectifier generator side	B6	
Input voltage range (conductor-conductor)	60...500 V _{LL} 322 ... 500 V _{LL} – for full power 10 kW 600 V _{LL} – maximum value	
Input current (nominal value)	20 A – nominal value t 40 A – max. 5 s	30 A – nominal value 60 A – max. 5 s
Input capacity	15 kW – nominal value 30 kW – max. 5 s	20 kW – nominal value 40 kW – max. 5 s
Maximum value limited by dump load		
Input frequency	0 Hz ... 150 Hz	
Generator monitoring	Isolations monitoring Temperature monitoring RPM monitoring	

Output mains	SW-7.5	SW-10
Inverter mains side	IGBT B6	
Phases	3	
Output power (nominal value)	7,5 kW	10kW
Output voltage	400 V _{LL} – nominal value 318 ... 460 V _{LL} – permitted range	
Output current (nominal value)	0 ... 11 A	0 ... 16 A
Output frequency	0 Hz ... 150 Hz	
Isolation concept	no transformer, no galvanic isolation	
Distorsion factor current	< 3 %	
Power factor – cos φ	regulated on 1 – regulation after VDE AR-N 4105	
Overcurrent protection	Current control	
Grid / plant protection – ENS	integrated according to VDE AR-N 4105	

TECHNICAL DATA IV

Output - DC	SW-7.5	SW-10
Number of outputs	3	
Output power	max. 10 kW – per output	
Output voltage	0 ... 800 V _{DC} – permitted range 200 ... 600 V _{DC} – typ. value	
Output current	max. 17 A	max. 25 A
Load resistance	min. 35 Ω – 7,5 kW typ. 40 Ω – 7,5 kW	min. 25 Ω – 10 kW typ. 30 Ω – 10 kW

Communication - Operating	SW-7.5	SW-10
Operation – parameterisation	Graphic display PC-software – Smart!wind Explorer (via CAN) Web-server integrated (via ethernet – TCP/IP)	
Communication	Systembus CAN-open, ethernet	
Additional interfaces	Temperature sensor generator, load resistance	
Analog input (4x)	e.g. wind direction, windspeed	
Digital input (3x)	freely configurable – e.g. rotor RPM	
Relay output (3x)	e.g. brake (fail-safe), signal „ready“	
Digital output (3x)		
Battery backup interface (optional)	Battery voltage 48 ... 200 V _{DC} Charging- /discharging current max. 75 A	
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SMART POWER ELECTRONICS – YOUR SPECIALIST FOR POWER ELECTRONICS.

In addition to our energy inverter, we manufacture and deliver – as home brand as well– the SWT safety control [Smart!safe](#) and the tower movement sensor [Smart!sensor](#). Our products are recognized by innovation, flexibility and intelligence.

Additionally Smart Power Electronics is your OEM-partner for industrial electronics. We develop and manufacture electronic devices and components as well as complete control systems and devices. Our customers are leading companies of the priority area industry, energy and automotive.

How can we help you? We are looking forward to your special tasks.

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