



Key features:

- **Unifies DC measurement, fuses, overvoltage protection & communication leading to improved ROI**
- **Cost reduction by 30% vs. standard concepts**
- **Format Factor reduced by 35% with up to 312kWp DC power per Unit**
- **Significant reduction of interfaces leads to reduced risk and faster plant installation time**
- **24 Input Channel per board,**
± 13 A String current, ± 312 A summary @ 60°C
- **12 Analog inputs for current measurement**
± 26 A string current (calibrated)
- **1 On board temperature sensor**
Cabinet temperature
- **On board 1000 VDC SPD**
- **2 Digital inputs**
Monitoring of overvoltage protection and main switch
- **Signal conditioning**
calculated DC power, linearization, mean value, scaling, alarm
- **RS485 fieldbus interface**
up to 115.2 kbps: Modbus-RTU, ASCII (optional OEM protocols)
- **Connectivity**
Data logger (e. g. Q.reader) and gantner.webportal for worldwide access or other 3rd party applications
- **DC main switch 315 A**
- **Wall-/rack mounted configuration (CB) available as well**

Effective PV Monitoring requires constant, solid and traceable PV Plant monitoring data in order to determine actual performance and fulfil owner/investor expectations.

Operators are interested to identify errors and losses in a reliable way to trigger appropriate actions for maximizing energy harvest during the total system lifetime.

With the monitoring of PV Module strings, design and production errors will be recognized on the DC side with high resolution down to PV Module level.

Using DC shunts (vs. Hall Effect sensors) the string.bloxx provides current measurements typically 10 times more accurate and not susceptible to temperature variance. This equates to higher accuracy measurements and better understanding of true system performance. In addition, string voltage (up to 1000V) and DC power on every string can be continuously monitored ensuring maximum system productivity.

Continuous measurement of both cabinet and panel temperatures, along with overvoltage monitoring and main switch control greatly and improves system diagnostics.

This accurate measurement is inverter independent and gives feedback about losses due to inverter malfunction, soiling, shading, PV Module degradation etc. .

Configuration	string.CC AIO24/12	
DC Input		
Max. number	24	
Max. current	±13 A	
Connection	0.25 – 6.0 mm ² push-in spring-cage connection	
Max. DC Input voltage	1000 VDC	
Nominal current of string fuses	15 A (typical) or based on customer requirements; positive and negative side	
Fuse dimensions	10 x 38 mm	
Grounding terminal	35 mm ²	
Current measurement		
Max. Number	12	
Range	± 26 A	
Accuracy	0.25 %	
Voltage measurement		
Number	1	
Range	0-1000 VDC	
Accuracy	0.2 %	
Connection	0.25 – 6.0 mm ² push-in spring-cage connection	
DC Output		
Max. total current	312 A	
Max. voltage	1000 VDC	
Output terminal	Cage clamp 50-240 mm ² or based on customer requirements	
Max. cable dimensions	SM 70-240 mm ² , RM 50–185 mm ² , RE 70-240 mm ²	
Input cabinet temperature		
Number	1	
Type	Digital, onboard	
Range	-40 °C till +160 °C	
Accuracy	± 0.5 K	
Digital Inputs		
Number	2	
Utilization	Supervision of main switch, DC over-voltage-protection	

Configuration	string.CC 24/12
Power Supply	
Power supply	10 up to 55 VDC, overvoltage and overload protection
Power consumption	approx. 1.5 W (0.4W at a sampling rate of 30 seconds)
Connection	0.2 mm ² - 2.5 mm ² push-in spring-cage connection
Communication Interface	
Standard	RS-485, 2-wire
Data format	8e1
Protocols	Modbus-RTU: 19.200 bps (default), range: 9.600 bps up to 115.200 bps
Number of devices per bus	32 (recommended), max. 99
Connection	0.2 mm ² - 2.5 mm ² push-in spring-cage connection
Max. cable length	500 (recommended), max. 1200 m; expandable with active repeaters
Protection	
Overvoltage protection PV section	Overvoltage arrester 2 / II acc. to EN 61643-11 / IEC 61643-1/-11 Nominal surge current: (8/20) 20 kA with 3-stage DC- switch for PV Power Plants, up to 1000VDC
Overvoltage protection Communication (RS485)	Gas Discharge Tube - GDTs / Gas-Plasma-arrester mini trigard symmetrical SMT; Peak-impulse-current: 10 kA, 600 Watt Transient Voltage Suppressors
Protection class acc. to EN 60529	IP 44
Environmental	
Protection class acc. to EN 61140	Class II, double insulated protection
Operating temperature	-20 °C up to +60 °C @ max 312 A current
Storage temperature	-40 °C up to +85 °C
Relative humidity	5 % up to 95 % at 50°C, non-condensing
Mechanical	
Height w/o mounting socket	870 mm
Width	590 mm
Depth	320 mm
Socket height / Excavate depth	950 mm / 600 mm
General Information regarding socket and excavate depth	Condensation should be avoided inside the cabinet at any time. Therefore it is recommended after installation to fill up the cabinet 10cm above ground with material for humidity regulation (to be purchased separately) As packing material we recommend to use special pedestal filler (approx. 75 l, 25l per bag, article # 95075); 200-300 mm of filling height is recommended. When you observe or expect soil wetness we recommend to install a heating unit for the cabinet as well (power class 33W).
Weight	42 kg
Housing	UV- and weatherproof, fiber glass reinforced polyester; RAL 7035 (light gray)

Warm Up Time

All declarations are valid after a warm up time of 45 minutes.

Valid from January 2015. Specification subject to change without prior notice.

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