

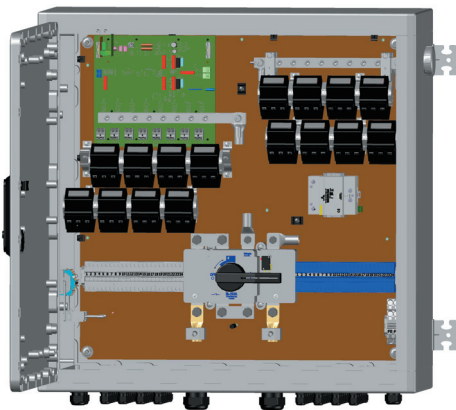
ArrayGuard® FH

Combiner Box with Single PV String Protection

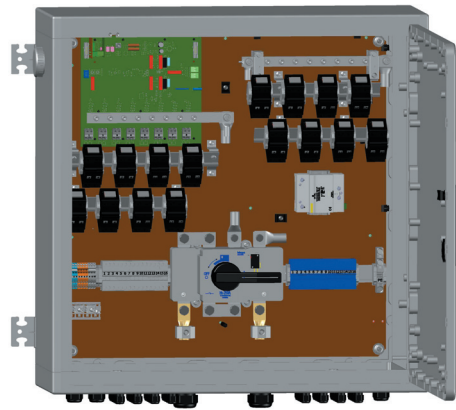


The heart of the intelligent combiner box is the CAN-Bus enabled string current monitoring system, which monitors the string currents at 100 millisecond intervals. The design of the ArrayGuard® adapts to the actual plant topology. It connects up to 24 PV strings and offers fuse protection for the PV+ and PV- pole, depending on the applicable

earthing principle. DC main switch, overvoltage protector as well as their status monitoring are integrated. A dedicated design and high-quality finish to industry standards ensure a robust control cabinet made of UV-resistant polycarbonate designed for a long service life in outdoor environments.



ArrayGuard® PV26, 24 PV strings *)



ArrayGuard® PV25, 16 PV strings *)

FUNCTIONS

- > Combines up to 24 PV generator strings
- > Detects failures and decreased yields early
- > Several strings connected to one measurement channel
- > Highly precise and widely temperature independent values acquired by Shunt measurement:
 - string currents (eight measurement channels)
 - system voltage
 - internal cabinet temperature
- > Data transfer to local data logger via CAN fieldbus
- > Fuses on each single PV string
- > Options of fuse protection:
 - Fuses on PV+ or
 - Fuses on PV+ and PV-
- > Fuse holders for easy-to-handle fuse replacement
- > Connection of PV string cables by push-in-type through terminals
- > DC main cable screw connection, no cable lug required
- > Integrated DC overvoltage protector with monitored status signalling contact
- > Integrated DC main switch with monitored status signalling contact
- > No external power supply required, power is supplied through the data bus
- > Reliable throughout a long outdoor lifetime

*) Protection plate against contact not depicted

TYPES

The ArrayGuard® types vary in the number of PV strings, kind of fuse protection, rated fuse current, conductor cross section of DC main cable, and other.



TECHNICAL DATA

	PV25	PV27	PV26	PV28			
CURRENT MEASUREMENT							
Number of measurement channels	8	8	8	8			
Measurement range of current / Precision	-32 A to +32 A at max. 1,000 V DC / ±0.5 % upper range value, within operational temperature range 100 ms single values are passed on as mean values per min						
Fuses Available							
$I_{Fuse(min)} = I_{sc} \cdot 1.4$							
Rated current 8-25 A							
Rated breaking capacity 30 kA at DC 1,100 V (1 ms)	8 A	8 A	8 A	8 A			
Melting integral I ² t 5-82 A ² s / 22-560 A ² s	10 A	10 A	10 A	10 A			
Characteristics gPV	12 A	12 A	12 A	12 A			
Rated voltage 1,100 V DC	16 A	16 A	16 A	16 A			
Test switch-off voltage 1,100 V DC	20 A	20 A					
VOLTAGE MEASUREMENT							
Number of measurement channels	1						
Measurement range of voltage / Precision	0 V to 1,000 V DC / ±0.5 % upper range value, within operational temperature range, 100 ms single values are passed on as mean values per minute						
TEMPERATURE MEASUREMENT							
Measurement range of temperature / Precision	-30 °C to 100 °C / -22 °F to 212 °F / ±2 % upper range value						
DATA TRANSFER CAN BUS							
Protocol	CANopen according to CiA standard DS-301						
Data rate	20 kBit/s						
Cable	Li2YCYv (TP) 8x2x0.5						
ELECTRICAL DATA OF THE GENERATOR CONNECTION							
Rated operational and insulation voltage	max. 1,000 V DC						
Rated current	max. 230 A DC						
Rated impulse withstand voltage	6,000 V DC						
Rated voltages of auxiliary circuits	24 V DC through CAN-Bus						
Power consumption	max. 1.5 W						
	grounded overvoltage protection, protection class II, environment A and B						
HARDWARE							
CAN Bus	1						
DC main switch	250 A at 1000 V, 280 A at 800 V, 315 A at 600 V; DC21-B, 4 poles, safety interlock, signalling contact						
Overvoltage protector	universal protector type 1 and type 2, protects from close and direct strike; lightning current (10/350 µs) 12.5 kA/pole, signalling contact						
MECHANICAL DATA							
Degree of protection // impact energy	IP 54 / Nema 1, 2, 3R, 3S // IK 10						
Standards	DIN EN 61000-6-1: 2007-10, DIN EN 61000-6-2: 2006-03, DIN EN 61000-6-3: 2007-09, DIN EN 61000-6-4: 2007-09, DIN EN 60439-1 2002-08, DIN EN 50178: 1998-04						
Dimensions 750 x w x 320 mm / 29.5 x w x 12.6 in	750 / 29.5	750 / 29.5	750 / 29.5	750 / 29.5			
Weight in kg / lb	38 / 84	39 / 86	40 / 88	40 / 88			
STRING CONNECTIONS							
Number (with double assignment)	16	16	24	24			
Conductor cross section	max. 6 mm ² / 10 AWG; max. 10 mm ² / 7 AWG without cable end sleeve						
Terminal type	push-in type through terminal						
DC MAIN CABLE							
Conductor cross section	connector type: cable glands Al/Cu 25-300 mm ² / 4-600 AWG round conductor single wire and multiwire *)						
AMBIENT CONDITIONS							
Operation temperature	-25 °C to +45 °C / -13 °F to +113 °F						
Storage temperature	-30 °C to +70 °C / -22 °F to +158 °F						
Relative air humidity	up to 95 %, non-condensing						

*) Make sure to order the extended cable entries if the conductor cross section is >240 mm² / 253 AWG