Enhanced performance for PV installations

1000V Array Box

A string combiner for 1000 Vdc that protects and enhances the performance of PV installations.

Solution at a glance

The 1000V Array Box is a PV string combiner box installed between the PV modules and the inverter, providing protection and performance monitoring for PV power plants.

Higher return on investment
- Reduced CAPEX: highly cost competitive range, offers capability to connect weather sensors
- Reduced OPEX: precise power production tracking, failure and aging detection of PV modules

Designed for reliability
- Isolating polyester enclosure reinforced with fiberglass for corrosion and pollution resistance
- Optimal cooling of switch-disconnector and PV fuses to increase usage life
- Extensive safety, quality and reliability testing
- Robust design through rigorous Custom Reliability Testing

Flexible
- Fits every PV plant design and module technology with a range of 8/16/24 input channels and 160/300 A STC output currents
- Range available with or without monitoring of string currents
- On-field weather sensors easily connected inside the Array Box to avoid any additional equipment

Easy-to-service
- Conext™ Advisor 2 identifies the service needs of the Array Box
- Motorized switch controlled remotely by Conext Advisor 2 accelerates lockout-tagout procedure and allows an easy return to operation

Easy-to-install
- Flexible mounting options; mounting on a support bracket or on a plinth for independence from the racking system; or attached to the racking system for less civil work
- Capabilities to directly connect up to 2 PV string cables and 2 DC output cables per polarity
# Technical specifications

## Device short name
- AB08-160
- AB16-160
- AB16-300
- AB24-300

### Electrical specifications

#### DC input
- **Number of inputs**
  - 8
  - 16
  - 16
  - 24
- **Max. voltage in open circuit**
  - 1000 Vdc
  - 1000 Vdc
  - 1000 Vdc
  - 1000 Vdc
- **Max. input current in short circuit**
  - 25 A
  - 25 A
  - 25 A
  - 25 A
- **Max. input current in short circuit at STC**
  - 20 A
  - 20 A
  - 20 A
  - 20 A

#### DC output
- **Max. output current in short circuit**
  - Ambient temperature < 40°C: 200 A
  - Ambient temperature < 45°C: 180 A
  - Ambient temperature < 50°C: 160 A
  - Ambient temperature < 40°C: 375 A
  - Ambient temperature < 45°C: 350 A
  - Ambient temperature < 50°C: 315 A

#### AC supply
- **Voltage at 50/60 Hz**
  - 230 V ± 10 / -15%

### Environmental specifications (in operation)

#### Ambient temperature
- -25°C to +40°C at full power, +50°C with derating

#### Relative humidity
- 0 to 100% condensing

#### Altitude
- 0 to 2000 m without derating

### Mechanical specifications

#### Enclosure
- Type: Outdoor use, full insulating cabinet (polyester reinforced with fiberglass)
- Fire withstand: Self-extinguishing (does not propagate fire during the glow-wire test at 960 ºC), halogen-free
- **Color**
  - RAL 7035, Light Grey

#### Dimensions (H x W x D)
- 84.7 x 63.6 x 30.0 cm
- 105.6 x 85.2 x 35.0 cm
- 105.6 x 85.2 x 35.0 cm
- 105.6 x 85.2 x 35.0 cm

#### Weight (protect / monitored / controlled)
- 33.0 / 37.0 / 40.0 kg
- 58.0 / 62.0 / 65.0 kg
- 63.0 / 67.0 / 70.0 kg
- 67.0 / 71.0 / 75.0 kg

#### Mounting
- Floor-standing on wall-fixing or attached with lugs (must be installed with protection from direct sunlight)
- **Degrees of protection**
  - IP54, IK10

### Protection

#### DC inputs overcurrent protection
- Protection on both polarities, gPV fuses, size 10 x 38 mm, max. rating 30 A (fuses not provided with product)

#### DC overvoltage protection
- Surge arrester, 1000 Vdc, type 2, Imax 40 KA

#### AC supply overvoltage protection
- Surge arrester, 230 Vac, type 2, Imax 40 KA

#### Electric shock protection
- Class II equipment

### Monitoring and control

#### DC input currents
- 0 to 30 A, accuracy +/- 0.5% full scale (one measurement per input)

#### DC voltage
- 0 to 1000 V, accuracy +/- 0.5%

#### Internal temperature
- -30 to +120°C, accuracy +/- 1°C

#### Temperature sensor input
- -30 to +120°C, accuracy +/- 1°C, for external PT1000 2 wires temperature sensor

#### 2 x irradiance sensor inputs
- 0 to 1600 W/m², accuracy +/- 0.5% full scale, for external 4-20 mA irradiance sensor

### Communication
- Profibus DP / RS485 and Modbus RTU / RS485 link

### Switch disconnector remote control
- Motor pack and MX shunt release or MN undervoltage release

### Compliance

#### LV switchgear
- IEC / EN61439-1 and 61439-2

#### CE marking
- According LV directive 2006 / 95 / CE and EMC directive 2004 / 108 / CE

### Available models

#### Protect: protection only
- PVSAB31101
- PVSAB31201
- PVSAB31301
- PVSAB31401

#### Monitored: protection and monitoring
- PVSAB31111
- PVSAB31211
- PVSAB31311
- PVSAB31411

#### Controlled MX: Protection, monitoring and switch control (Shunt release)
- PVSAB31121
- PVSAB31221
- PVSAB31321
- PVSAB31421

#### Controlled MN: Protection, monitoring and switch control (Undervoltage release)
- PVSAB31131
- PVSAB31231
- PVSAB31331
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#### Optional weather expansion board
- PVSAB31021
- PVSAB31021
- PVSAB31021
- PVSAB31021

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Specifications are subject to change without notice.

1. Array Box - Application Note AP02 - Current derating with temperature.
2. For monitored and controlled models.
3. With optional weather expansion board.
4. For controlled models.