

## Product data sheet

### Characteristics

# ABLM1A24012

Regulated Power Supply, 100-240V AC, 24V  
1.2 A, single phase, Modular



### Main

|                             |                                                        |
|-----------------------------|--------------------------------------------------------|
| Range of product            | Modicon Power Supply                                   |
| Product or component type   | Power supply                                           |
| Power supply type           | Regulated switch mode                                  |
| Variant option              | Modular                                                |
| Enclosure material          | Plastic                                                |
| Nominal input voltage       | 100...240 V AC single phase<br>100...240 V AC 2 phases |
| Input voltage limits        | 90...264 V AC                                          |
| Rated power in W            | 30 W                                                   |
| Output voltage              | 24 V DC                                                |
| Power supply output current | 1.25 A                                                 |

### Complementary

|                                 |                                                                                                                                                                                                                                                    |
|---------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Nominal network frequency       | 50...60 Hz                                                                                                                                                                                                                                         |
| Network system compatibility    | TN<br>TT<br>IT                                                                                                                                                                                                                                     |
| Maximum leakage current         | 0.25 mA 240 V AC                                                                                                                                                                                                                                   |
| Input protection type           | Integrated fuse (not interchangeable) 3.15 A<br>External protection (recommended) 20 A Curve B<br>External protection (recommended) 20 A Curve C<br>External protection (recommended) 4 A Curve B<br>External protection (recommended) 4 A Curve C |
| Inrush current                  | 25 A at 115 V<br>50 A at 230 V                                                                                                                                                                                                                     |
| Power factor                    | 0.48 at 115 V AC<br>0.38 at 230 V AC                                                                                                                                                                                                               |
| Efficiency                      | 87 % at 115 V AC<br>87 % at 230 V AC                                                                                                                                                                                                               |
| Output voltage adjustment       | 24...28 V                                                                                                                                                                                                                                          |
| Power dissipation in W          | 5 W                                                                                                                                                                                                                                                |
| Current consumption             | < 0.8 A 115 V AC<br>< 0.6 A 230 V AC                                                                                                                                                                                                               |
| Turn-on time                    | < 2 s                                                                                                                                                                                                                                              |
| Holding time                    | > 20 ms 115 V AC<br>> 60 ms 230 V AC                                                                                                                                                                                                               |
| Startup with capacitive loads   | 3000 µF                                                                                                                                                                                                                                            |
| Residual ripple                 | < 100 mV                                                                                                                                                                                                                                           |
| Expected capacitor life time    | 10 year(s)                                                                                                                                                                                                                                         |
| Meantime between failure [MTBF] | 2500000 H at 25 °C, full load<br>1000000 h at 55 °C, 80 % load                                                                                                                                                                                     |
| Output protection type          | Against overload and short-circuits, protection technology: automatic reset<br>Against over temperature, protection technology: manual reset<br>Against overvoltage, protection technology: manual reset                                           |
| Connections - terminals         | Screw connection: 0.5...1.5 mm <sup>2</sup> , (AWG 20...AWG 16) without wire end ferrule for input/output<br>Screw connection: 0.5...1 mm <sup>2</sup> , (AWG 20...AWG 18) with wire end ferrule for input/output                                  |

|                          |                                                                                                                                                      |
|--------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|
| Line and load regulation | < 0.5 %line<br>< 1 %load                                                                                                                             |
| Status LED               | 1 LED (green)output voltage                                                                                                                          |
| Depth                    | 55.6 mm                                                                                                                                              |
| Height                   | 91 mm                                                                                                                                                |
| Width                    | 36 mm                                                                                                                                                |
| Net weight               | 0.170 kg                                                                                                                                             |
| Output coupling          | Serial<br>Parallel                                                                                                                                   |
| Mounting support         | Top hat type TH35-15 rail conforming to IEC 60715<br>Top hat type TH35-7.5 rail conforming to IEC 60715<br>Double-profile DIN rail<br>Panel mounting |
| Supply                   | SELV conforming to EN/IEC 60950-1<br>SELV conforming to EN/IEC 60204-1<br>SELV conforming to IEC 60364-4-41                                          |

## Environment

|                                                          |                                                                                                                                                                                                                                                                                                              |
|----------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Standards                                                | EN 62368-1<br>EN/IEC 61010-1<br>EN 61010-2-201<br>EN/IEC 61204-3<br>EN 61000-6-1<br>EN 61000-6-2<br>EN 61000-6-3<br>EN 61000-6-4<br>EN 61000-3-2<br>EN 61000-3-3<br>UL 62368-1<br>UL 61010-1<br>UL 61010-2-201<br>CSA C22.2 No 62368-1<br>CSA C22.2 No 61010-1<br>CSA C22.2 No 61010-2-201<br>EN/IEC 62368-1 |
| Product certifications                                   | CE<br>CUL listed<br>CUL recognized<br>RCM<br>CB Scheme<br>EAC<br>KC<br>NEC: class 2                                                                                                                                                                                                                          |
| Operating altitude                                       | < 2000 m overvoltage category III<br>2000 m...5000 m overvoltage category II                                                                                                                                                                                                                                 |
| Shock resistance                                         | 100 m/s <sup>2</sup> for 11 ms                                                                                                                                                                                                                                                                               |
| IP degree of protection                                  | IP20                                                                                                                                                                                                                                                                                                         |
| Ambient air temperature for operation                    | -25...55 °C (without current derating)<br>55...70 °C (with current derating of 2.67 % per °C)                                                                                                                                                                                                                |
| Ambient air temperature for storage                      | -40...85 °C                                                                                                                                                                                                                                                                                                  |
| Relative humidity                                        | 0...95 % without condensation                                                                                                                                                                                                                                                                                |
| Overvoltage category                                     | II                                                                                                                                                                                                                                                                                                           |
| Electrical energy source class conforming to IEC 62368-1 | ES1                                                                                                                                                                                                                                                                                                          |
| Electrical shock protection class                        | Class II without PE connection                                                                                                                                                                                                                                                                               |
| Pollution degree                                         | 2                                                                                                                                                                                                                                                                                                            |
| Vibration resistance                                     | 3 mm (f= 2...9 Hz) conforming to IEC 60721-3-3<br>10 m/s <sup>2</sup> (f= 9...200 Hz) conforming to IEC 60721-3-3                                                                                                                                                                                            |

|                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|--------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Electromagnetic immunity | <p>Immunity to electrostatic discharge - test level: 6 kV (contact discharge) conforming to EN/IEC 61000-4-2</p> <p>Immunity to electrostatic discharge - test level: 9 kV (air discharge) conforming to EN/IEC 61000-4-2</p> <p>Electromagnetic field immunity test - test level: 10 V/m (80 MHz...2 GHz) conforming to EN/IEC 61000-4-3</p> <p>Electromagnetic field immunity test - test level: 5 V/m (2...2.7 GHz) conforming to EN/IEC 61000-4-3</p> <p>Electromagnetic field immunity test - test level: 3 V/m (2.7...6 GHz) conforming to EN/IEC 61000-4-3</p> <p>Immunity to fast transients - test level: 4 kV (on input-output) conforming to EN/IEC 61000-4-4</p> <p>Surge immunity test - test level: 3 kV (between power supply and earth) conforming to EN/IEC 61000-4-5</p> <p>Surge immunity test - test level: 1.5 kV (between phases) conforming to EN/IEC 61000-4-5</p> <p>Immunity to conducted disturbances - test level: 10 Vrms (0.15...80 MHz) conforming to EN/IEC 61000-4-6</p> <p>Immunity to magnetic fields - test level: 30 A/m (50...60 Hz) conforming to EN/IEC 61000-4-8</p> <p>Immunity to voltage dips - test level: 100 % (1 cycle) conforming to EN/IEC 61000-4-11</p> <p>Immunity to voltage dips - test level: 60 % (10 cycles) conforming to EN/IEC 61000-4-11</p> <p>Immunity to voltage dips - test level: 30 % (25 cycles) conforming to EN/IEC 61000-4-11</p> <p>Disturbing field emission conforming to EN 55016-2-3</p> <p>Limits for harmonic current emissions conforming to EN 61000-3-2</p> <p>Conducted disturbance emission conforming to EN 55016-1-2</p> <p>Conducted disturbance emission conforming to EN 55016-2-1</p> |
| Electromagnetic emission | <p>Conducted emissions conforming to EN 61000-6-3</p> <p>Radiated emissions conforming to EN 61000-6-4</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Dielectric strength      | 3000 V AC input/output                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |

## Packing Units

|                              |            |
|------------------------------|------------|
| Unit Type of Package 1       | PCE        |
| Number of Units in Package 1 | 1          |
| Package 1 Weight             | 172 g      |
| Package 1 Height             | 5 cm       |
| Package 1 width              | 6 cm       |
| Package 1 Length             | 11 cm      |
| Unit Type of Package 2       | P12        |
| Number of Units in Package 2 | 1392       |
| Package 2 Weight             | 267.936 kg |
| Package 2 Height             | 105 cm     |
| Package 2 width              | 80 cm      |
| Package 2 Length             | 120 cm     |
| Unit Type of Package 3       | S02        |
| Number of Units in Package 3 | 29         |
| Package 3 Weight             | 5.332 kg   |
| Package 3 Height             | 15 cm      |
| Package 3 width              | 30 cm      |
| Package 3 Length             | 40 cm      |

## Offer Sustainability

|                            |                                                                                                                                                                                      |
|----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Sustainable offer status   | Green Premium product                                                                                                                                                                |
| REACH Regulation           |  <a href="#">REACH Declaration</a>                                                                |
| EU RoHS Directive          | Pro-active compliance (Product out of EU RoHS legal scope)  <a href="#">EU RoHS Declaration</a> |
| Mercury free               | Yes                                                                                                                                                                                  |
| RoHS exemption information |  <a href="#">Yes</a>                                                                              |
| China RoHS Regulation      |  <a href="#">China RoHS Declaration</a>                                                           |
| Environmental Disclosure   |  <a href="#">Product Environmental Profile</a>                                                    |

|                     |                                                                                                                             |
|---------------------|-----------------------------------------------------------------------------------------------------------------------------|
| Circularity Profile |  <a href="#">End Of Life Information</a>    |
| WEEE                | The product must be disposed on European Union markets following specific waste collection and never end up in rubbish bins |

---

## Electrical Safety

---

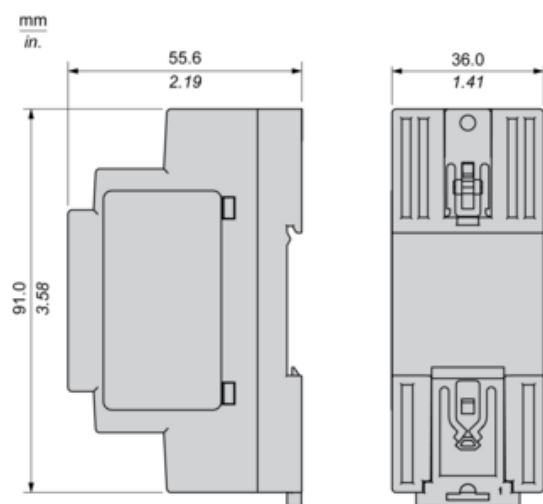
- If the unit is use in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.
- For means of disconnection a switch or circuit breaker, located near the product, must be included in the installation. A marking as disconnecting device for the product is required.
- The device has an internal fuse. The unit is tested and approved with branch circuit protective device up to 20A. This circuit breaker can be used as disconnecting device.
- The power supply is only suitable for audio, video, information, communication, industrial and control equipment.

---

## Dimensions

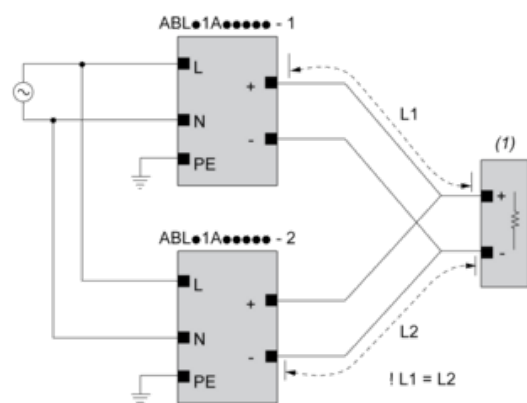
---

### Side and Rear View



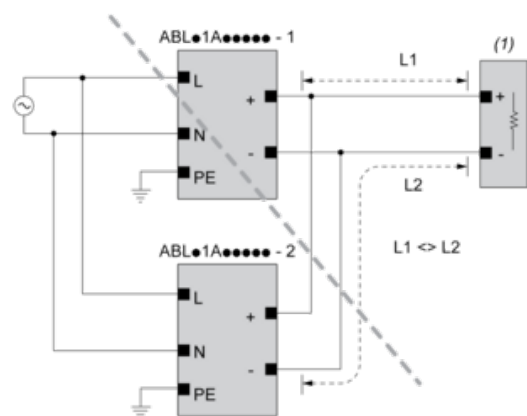
## Connections and Schema

### Correct Parallel Connection



(1) : Load

### Incorrect Parallel Connection



(1) : Load

$ABLx1Axxxxx-1 = ABLx1Axxxxx-2$

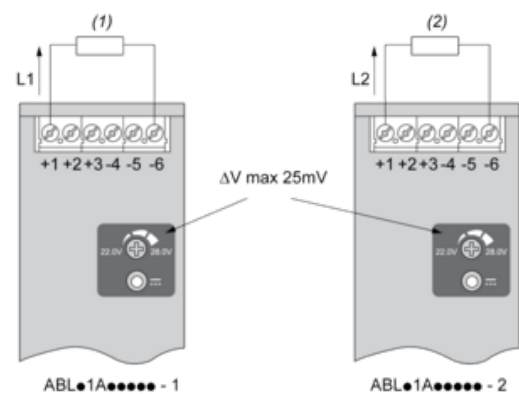
max 2 x ABLx1Axxxxx

$L1 = L2$

$\Delta V$  max 25 mV

$L_{Load} < 90\% \times L_{nom}$

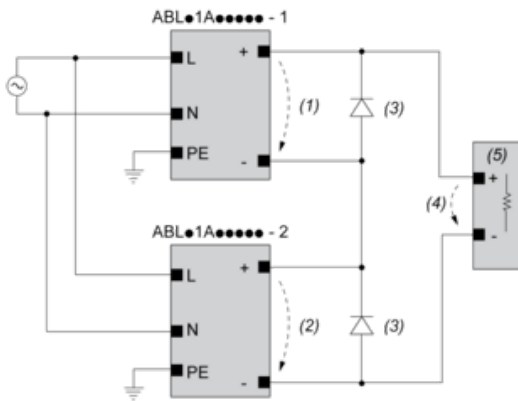
### Output Voltage Balancing



(1) :  $R_{Load1}$

(2) :  $R_{Load2}$   
 $R_{Load1} = R_{Load2}$   
 $I_1 = I_2 = \sim I_{nom}$

## Series Connection



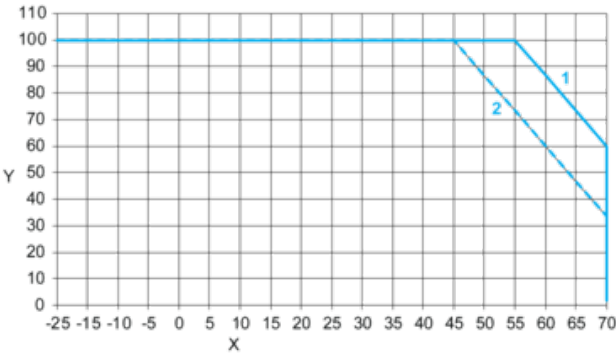
(1) :  $V_{out1}$   
(2) :  $V_{out2}$   
(3) :  $2 \times \text{Diode}$ ,  $V_{RRM} > 2 \times V_{out1/2}$ ,  $I_F > 2 \times I_{nom1/2}$   
(4) :  $V_{Load} = 2 \times V_{out}$   
(5) : Load

## Connections and Schema

|             |        | (1)   |       |       |
|-------------|--------|-------|-------|-------|
|             |        | <40°C | <50°C | <70°C |
| ABLM1A24004 |        | 60°C  | 75°C  | 75°C  |
| ABLM1A12010 |        | 60°C  | 75°C  | 90°C  |
| ABLM1A24006 |        | 60°C  | 75°C  | 90°C  |
| ABLM1A05036 | Input  | 60°C  | 75°C  | 90°C  |
|             | Output | 75°C  | 90°C  | 90°C  |
| ABLM1A12021 |        | 60°C  | 75°C  | 90°C  |
| ABLM1A24012 |        | 60°C  | 75°C  | 90°C  |
| ABLM1A12042 |        | 60°C  | 75°C  | 90°C  |
| ABLM1A24025 |        | 60°C  | 75°C  | 90°C  |

(1) : Ambient

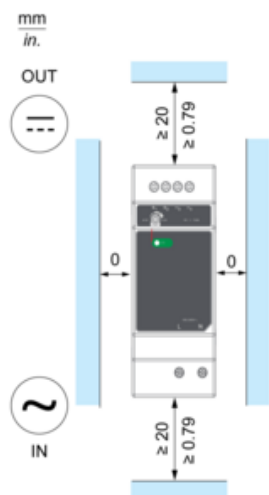
Performance Curve



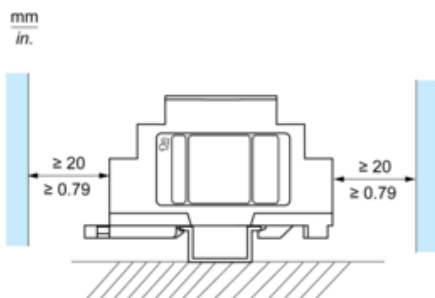
X : Ambient Temperature (°C)  
Y : Percentage of Max Load (%)  
1 : Mounting A & B, altitude 2000M  
2 : Mounting A & B, altitude 5000M

## Mounting

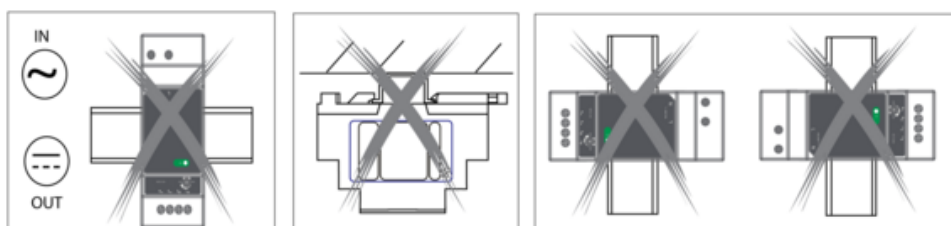
### Mounting Position A



### Mounting Position B



### Incorrect Mounting



## Product data sheet

### Characteristics

# ABLM1A24025

Regulated Power Supply, 100-240V AC, 24V  
2.5 A, single phase, Modular



### Main

|                             |                                                        |
|-----------------------------|--------------------------------------------------------|
| Range of product            | Modicon Power Supply                                   |
| Product or component type   | Power supply                                           |
| Power supply type           | Regulated switch mode                                  |
| Variant option              | Modular                                                |
| Enclosure material          | Plastic                                                |
| Nominal input voltage       | 100...240 V AC single phase<br>100...240 V AC 2 phases |
| Input voltage limits        | 90...264 V AC                                          |
| Rated power in W            | 60 W                                                   |
| Output voltage              | 24 V DC                                                |
| Power supply output current | 2.5 A                                                  |

### Complementary

|                                 |                                                                                                                                                                                                                                                     |
|---------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Nominal network frequency       | 50...60 Hz                                                                                                                                                                                                                                          |
| Network system compatibility    | TN<br>TT<br>IT                                                                                                                                                                                                                                      |
| Maximum leakage current         | 0.25 mA 240 V AC                                                                                                                                                                                                                                    |
| Input protection type           | Integrated fuse (not interchangeable) 3.15 A<br>External protection (recommended) 20 A Curve B<br>External protection (recommended) 20 A Curve C<br>External protection (recommended) 10 A Curve B<br>External protection (recommended) 6 A Curve C |
| Inrush current                  | 30 A at 115 V<br>60 A at 230 V                                                                                                                                                                                                                      |
| Power factor                    | 0.50 at 115 V AC<br>0.39 at 230 V AC                                                                                                                                                                                                                |
| Efficiency                      | 90 % at 115 V AC<br>90 % at 230 V AC                                                                                                                                                                                                                |
| Output voltage adjustment       | 24...28 V                                                                                                                                                                                                                                           |
| Power dissipation in W          | 6.5 W                                                                                                                                                                                                                                               |
| Current consumption             | < 1.5 A 115 V AC<br>< 1 A 230 V AC                                                                                                                                                                                                                  |
| Turn-on time                    | < 2 s                                                                                                                                                                                                                                               |
| Holding time                    | > 20 ms 115 V AC<br>> 60 ms 230 V AC                                                                                                                                                                                                                |
| Startup with capacitive loads   | 3000 µF                                                                                                                                                                                                                                             |
| Residual ripple                 | < 100 mV                                                                                                                                                                                                                                            |
| Expected capacitor life time    | 10 year(s)                                                                                                                                                                                                                                          |
| Meantime between failure [MTBF] | 1300000 H at 25 °C, full load<br>700000 h at 55 °C, 80 % load                                                                                                                                                                                       |
| Output protection type          | Against overload and short-circuits, protection technology: automatic reset<br>Against over temperature, protection technology: manual reset<br>Against overvoltage, protection technology: manual reset                                            |

|                          |                                                                                                                                                                                                                                                                                      |
|--------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Connections - terminals  | Screw connection: 0.5...2.5 mm <sup>2</sup> , (AWG 20...AWG 14) without wire end ferrule for output<br>Screw connection: 0.5...1.5 mm <sup>2</sup> , (AWG 20...AWG 16) with wire end ferrule for output<br>Screw connection: 0.5...1.5 mm <sup>2</sup> , (AWG 20...AWG 16) for input |
| Line and load regulation | < 0.5 %line<br>< 1 %load                                                                                                                                                                                                                                                             |
| Status LED               | 1 LED (green)output voltage                                                                                                                                                                                                                                                          |
| Depth                    | 55.6 mm                                                                                                                                                                                                                                                                              |
| Height                   | 91 mm                                                                                                                                                                                                                                                                                |
| Width                    | 53 mm                                                                                                                                                                                                                                                                                |
| Net weight               | 0.221 kg                                                                                                                                                                                                                                                                             |
| Output coupling          | Serial<br>Parallel                                                                                                                                                                                                                                                                   |
| Mounting support         | Top hat type TH35-15 rail conforming to IEC 60715<br>Top hat type TH35-7.5 rail conforming to IEC 60715<br>Double-profile DIN rail<br>Panel mounting                                                                                                                                 |
| Supply                   | SELV conforming to EN/IEC 60950-1<br>SELV conforming to EN/IEC 60204-1<br>SELV conforming to IEC 60364-4-41                                                                                                                                                                          |

## Environment

|                                                          |                                                                                                                                                                                                                                                                                                              |
|----------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Standards                                                | EN 62368-1<br>EN/IEC 61010-1<br>EN 61010-2-201<br>EN/IEC 61204-3<br>EN 61000-6-1<br>EN 61000-6-2<br>EN 61000-6-3<br>EN 61000-6-4<br>EN 61000-3-2<br>EN 61000-3-3<br>UL 62368-1<br>UL 61010-1<br>UL 61010-2-201<br>CSA C22.2 No 62368-1<br>CSA C22.2 No 61010-1<br>CSA C22.2 No 61010-2-201<br>EN/IEC 62368-1 |
| Product certifications                                   | CE<br>CUL listed<br>CUL recognized<br>RCM<br>CB Scheme<br>EAC<br>KC<br>NEC: class 2                                                                                                                                                                                                                          |
| Operating altitude                                       | < 2000 m overvoltage category III<br>2000 m...5000 m overvoltage category II                                                                                                                                                                                                                                 |
| Shock resistance                                         | 100 m/s <sup>2</sup> for 11 ms                                                                                                                                                                                                                                                                               |
| IP degree of protection                                  | IP20                                                                                                                                                                                                                                                                                                         |
| Ambient air temperature for operation                    | -10...55 °C (without current derating)<br>55...70 °C (with current derating of 2.67 % per °C)<br>-25...-10 °C (with current derating of 1 % per °C)                                                                                                                                                          |
| Ambient air temperature for storage                      | -40...85 °C                                                                                                                                                                                                                                                                                                  |
| Relative humidity                                        | 0...95 % without condensation                                                                                                                                                                                                                                                                                |
| Overvoltage category                                     | II                                                                                                                                                                                                                                                                                                           |
| Electrical energy source class conforming to IEC 62368-1 | ES1                                                                                                                                                                                                                                                                                                          |
| Electrical shock protection class                        | Class II without PE connection                                                                                                                                                                                                                                                                               |
| Pollution degree                                         | 2                                                                                                                                                                                                                                                                                                            |
| Vibration resistance                                     | 3 mm (f= 2...9 Hz) conforming to IEC 60721-3-3<br>10 m/s <sup>2</sup> (f= 9...200 Hz) conforming to IEC 60721-3-3                                                                                                                                                                                            |

|                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|--------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Electromagnetic immunity | <p>Immunity to electrostatic discharge - test level: 6 kV (contact discharge) conforming to EN/IEC 61000-4-2</p> <p>Immunity to electrostatic discharge - test level: 9 kV (air discharge) conforming to EN/IEC 61000-4-2</p> <p>Electromagnetic field immunity test - test level: 10 V/m (80 MHz...2 GHz) conforming to EN/IEC 61000-4-3</p> <p>Electromagnetic field immunity test - test level: 5 V/m (2...2.7 GHz) conforming to EN/IEC 61000-4-3</p> <p>Electromagnetic field immunity test - test level: 3 V/m (2.7...6 GHz) conforming to EN/IEC 61000-4-3</p> <p>Immunity to fast transients - test level: 4 kV (on input-output) conforming to EN/IEC 61000-4-4</p> <p>Surge immunity test - test level: 3 kV (between power supply and earth) conforming to EN/IEC 61000-4-5</p> <p>Surge immunity test - test level: 1.5 kV (between phases) conforming to EN/IEC 61000-4-5</p> <p>Immunity to conducted disturbances - test level: 10 Vrms (0.15...80 MHz) conforming to EN/IEC 61000-4-6</p> <p>Immunity to magnetic fields - test level: 30 A/m (50...60 Hz) conforming to EN/IEC 61000-4-8</p> <p>Immunity to voltage dips - test level: 100 % (1 cycle) conforming to EN/IEC 61000-4-11</p> <p>Immunity to voltage dips - test level: 60 % (10 cycles) conforming to EN/IEC 61000-4-11</p> <p>Immunity to voltage dips - test level: 30 % (25 cycles) conforming to EN/IEC 61000-4-11</p> <p>Disturbing field emission conforming to EN 55016-2-3</p> <p>Limits for harmonic current emissions conforming to EN 61000-3-2</p> <p>Conducted disturbance emission conforming to EN 55016-1-2</p> <p>Conducted disturbance emission conforming to EN 55016-2-1</p> |
| Electromagnetic emission | <p>Conducted emissions conforming to EN 61000-6-3</p> <p>Radiated emissions conforming to EN 61000-6-4</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Dielectric strength      | 3000 V AC input/output                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |

## Packing Units

|                              |         |
|------------------------------|---------|
| Unit Type of Package 1       | PCE     |
| Number of Units in Package 1 | 1       |
| Package 1 Weight             | 230 g   |
| Package 1 Height             | 6.2 cm  |
| Package 1 width              | 6.3 cm  |
| Package 1 Length             | 11 cm   |
| Unit Type of Package 2       | BB1     |
| Number of Units in Package 2 | 1       |
| Package 2 Weight             | 229 g   |
| Package 2 Height             | 6.1 cm  |
| Package 2 width              | 6.1 cm  |
| Package 2 Length             | 10.7 cm |
| Unit Type of Package 3       | S02     |
| Number of Units in Package 3 | 24      |
| Package 3 Weight             | 5.78 kg |
| Package 3 Height             | 15 cm   |
| Package 3 width              | 30 cm   |
| Package 3 Length             | 40 cm   |

## Offer Sustainability

|                            |                                                                                                                                                                                      |
|----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Sustainable offer status   | Green Premium product                                                                                                                                                                |
| REACH Regulation           |  <a href="#">REACH Declaration</a>                                                                |
| EU RoHS Directive          | Pro-active compliance (Product out of EU RoHS legal scope)  <a href="#">EU RoHS Declaration</a> |
| Mercury free               | Yes                                                                                                                                                                                  |
| RoHS exemption information |  <a href="#">Yes</a>                                                                              |
| China RoHS Regulation      |  <a href="#">China RoHS Declaration</a>                                                           |
| Environmental Disclosure   |  <a href="#">Product Environmental Profile</a>                                                    |

|                     |                                                                                                                             |
|---------------------|-----------------------------------------------------------------------------------------------------------------------------|
| Circularity Profile |  <a href="#">End Of Life Information</a>    |
| WEEE                | The product must be disposed on European Union markets following specific waste collection and never end up in rubbish bins |

---

## Electrical Safety

---

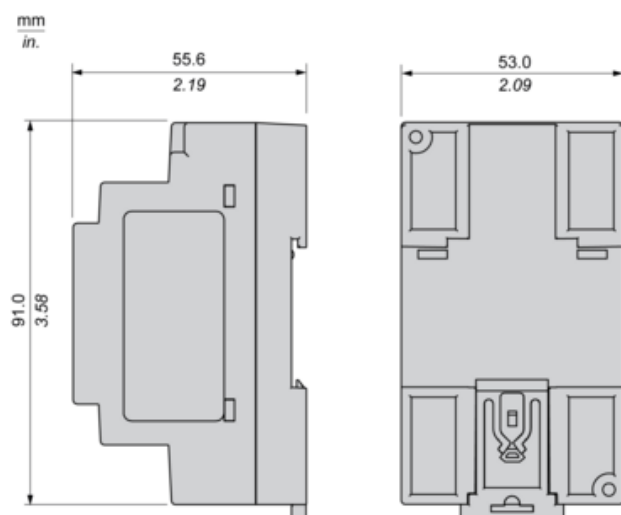
- If the unit is use in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.
- For means of disconnection a switch or circuit breaker, located near the product, must be included in the installation. A marking as disconnecting device for the product is required.
- The device has an internal fuse. The unit is tested and approved with branch circuit protective device up to 20A. This circuit breaker can be used as disconnecting device.
- The power supply is only suitable for audio, video, information, communication, industrial and control equipment.

---

## Dimensions

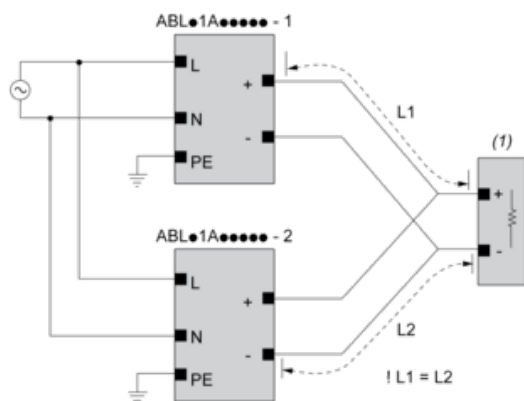
---

### Side and Rear View



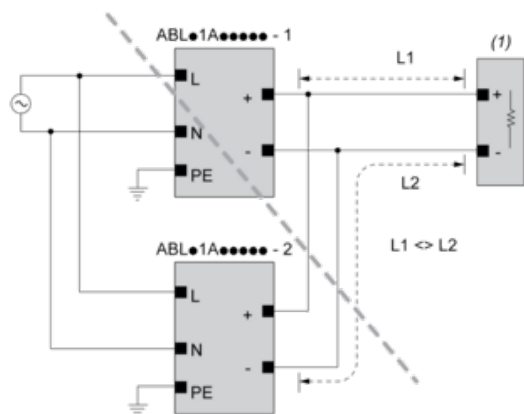
## Connections and Schema

### Correct Parallel Connection



(1) : Load

### Incorrect Parallel Connection



(1) : Load

ABLx1Axxxxx-1 = ABLx1Axxxxx-2

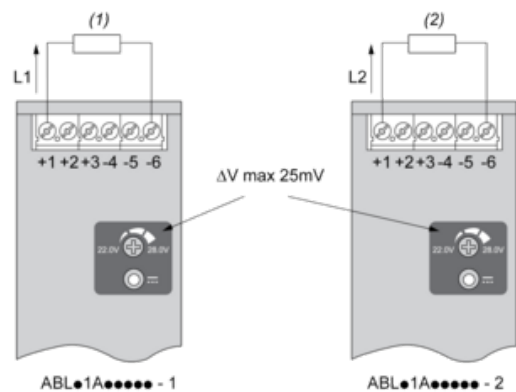
max 2 x ABLx1Axxxxx

L1 = L2

$\Delta V$  max 25 mV

$L_{Load} < 90\% \times L_{nom}$

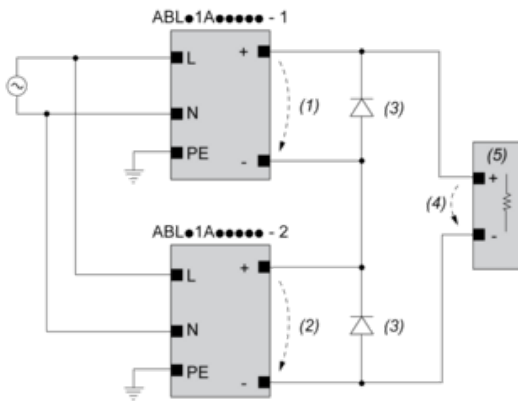
### Output Voltage Balancing



(1) :  $R_{Load1}$

(2) :  $R_{Load2}$   
 $R_{Load1} = R_{Load2}$   
 $I_1 = I_2 = \sim I_{nom}$

## Series Connection



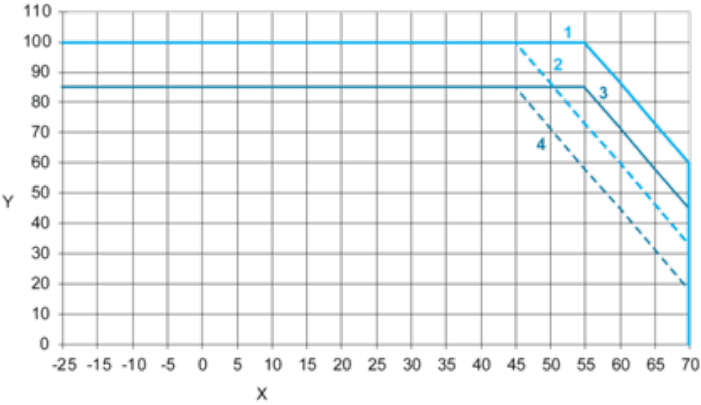
(1) :  $V_{out1}$   
(2) :  $V_{out2}$   
(3) :  $2 \times \text{Diode}$ ,  $V_{RRM} > 2 \times V_{out1/2}$ ,  $I_F > 2 \times I_{nom1/2}$   
(4) :  $V_{Load} = 2 \times V_{out}$   
(5) : Load

## Connections and Schema

|             |        | (1)   |       |       |
|-------------|--------|-------|-------|-------|
|             |        | <40°C | <50°C | <70°C |
| ABLM1A24004 |        | 60°C  | 75°C  | 75°C  |
| ABLM1A12010 |        | 60°C  | 75°C  | 90°C  |
| ABLM1A24006 |        | 60°C  | 75°C  | 90°C  |
| ABLM1A05036 | Input  | 60°C  | 75°C  | 90°C  |
|             | Output | 75°C  | 90°C  | 90°C  |
| ABLM1A12021 |        | 60°C  | 75°C  | 90°C  |
| ABLM1A24012 |        | 60°C  | 75°C  | 90°C  |
| ABLM1A12042 |        | 60°C  | 75°C  | 90°C  |
| ABLM1A24025 |        | 60°C  | 75°C  | 90°C  |

(1) : Ambient

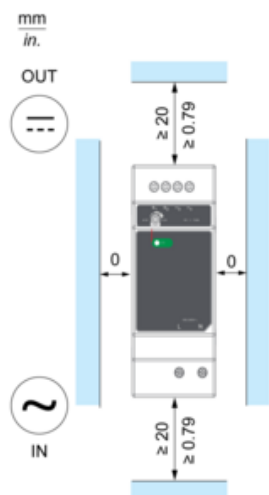
Performance Curve



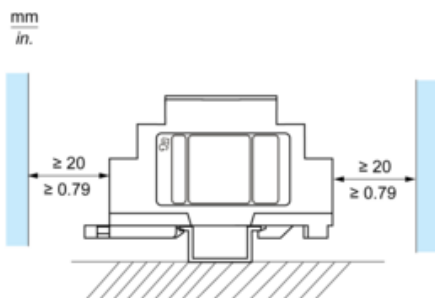
- X : Ambient Temperature (°C)  
Y : Percentage of Max Load (%)  
1 : Altitude @2000M with Mounting A  
2 : Altitude @5000M with Mounting A  
3 : Altitude @2000M with Mounting B  
4 : Altitude @5000M with Mounting B

## Mounting

### Mounting Position A



### Mounting Position B



### Incorrect Mounting

