

LONGMAX TECHNOLOGY CO.,LTD



**DC SMALL
COMBINER BOX
PRODUCT**

 **LONGMAX**
Enjoy The Sunny Life

Product Overview

PV DC Small Combiner Boxes



Up to 1000V

1 in 1 out



Up to 1000V

2 in 1 out



Up to 1000V

2 in 2 out



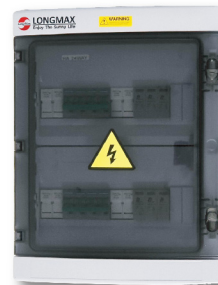
Up to 1000V

3 in 1 out



Up to 1000V

4 in 1 out



Up to 1000V

4 in 2 out



Up to 1000V

6 in 1 out

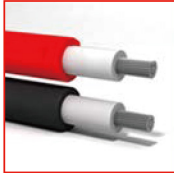


Up to 1000V

6 in 2 out

1000V DC Small Combiner Box

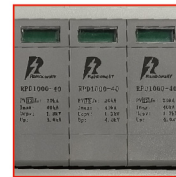
General characteristics



Wiring
Flexible PV cable with double insulation (EN50618).



Fuse protection
Positive and negative poles protected against overcurrents by gPV fuses.



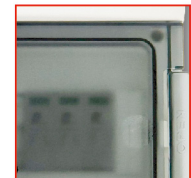
Surge protectors
Phase connection on top and earth connection on bottom. Module end of life visual indication.

Materials

Polyester housings reinforced with RAL7035 gray fiberglass. Self-extinguishing. Cover in transparent polycarbonate.

Enclosure safety

Class II double insulation, compliant with **IEC 61439-1 standard**



Protection screen
This screen prevents direct contact with permanently live parts during maintenance operations.



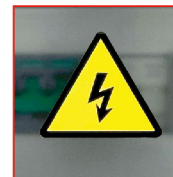
Connection

Supplied with input/output and earth cable glands.



DC Breaker

Super first-class current limiting performance, automatic devices from overload, short circuit and other fault hazards



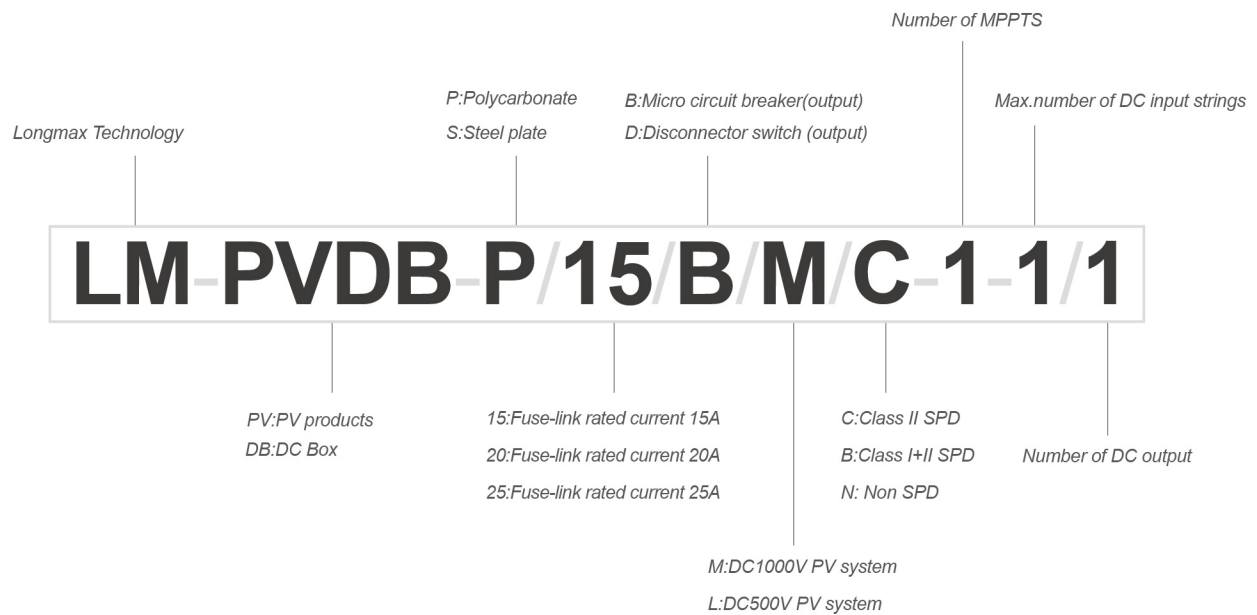
Safety signs

Adhesive signs indicating compliance with Section 514 personal safety regulation requirements.

DC Small Combiner Boxes

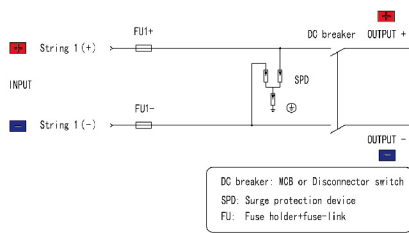
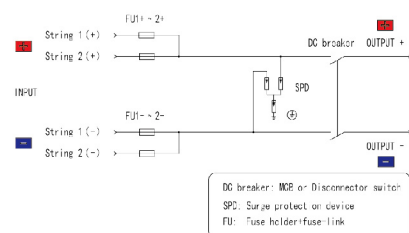
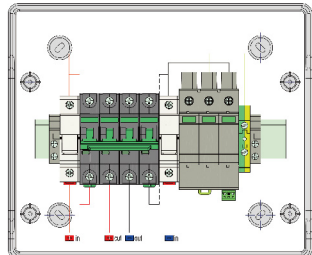
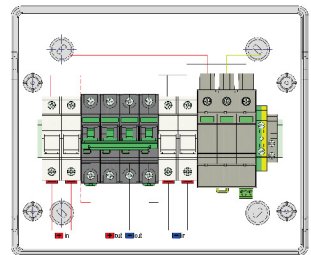


DC Small Box Model Naming Rules :



Technical Parameter

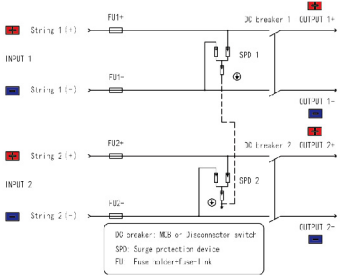
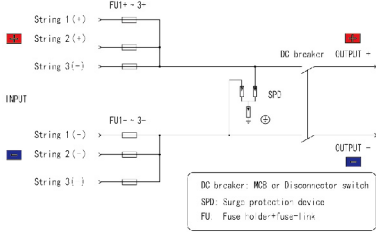
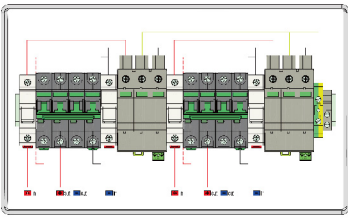
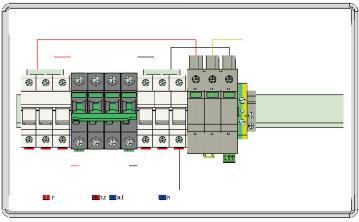


| Name | 1 in 1 out | | 2 in 1 out | |
|--|---|--------------------------|---|--------------------------|
| Ordering model | LM-PVDB-P/15/B/M/C-1-1/1 | LM-PVDB-P/15/D/M/C-1-1/1 | LM-PVDB-P/15/B/M/C-1-2/1 | LM-PVDB-P/15/D/M/C-1-2/1 |
| | LM-PVDB-P/20/B/M/C-1-1/1 | LM-PVDB-P/20/D/M/C-1-1/1 | LM-PVDB-P/20/B/M/C-1-2/1 | LM-PVDB-P/20/D/M/C-1-2/1 |
| | LM-PVDB-P/25/B/M/C-1-1/1 | LM-PVDB-P/25/D/M/C-1-1/1 | LM-PVDB-P/25/B/M/C-1-2/1 | LM-PVDB-P/25/D/M/C-1-2/1 |
| Single line diagram(SLD) |  <p>DC breaker: MCB or Disconnector switch SPD: Surge protection device FU: Fuse holder+fuse-link</p> | |  <p>DC breaker: MCB or Disconnector switch SPD: Surge protection device FU: Fuse holder+fuse-link</p> | |
| Internal wiring diagram |  | |  | |
| General technical datasheet | | | | |
| Maximum voltage (DC) | 1000V | | | |
| Max. number of DC input strings | 1 | | 2 | |
| Number of MPPTs | 1 | | 1 | |
| Number of DC output | 1 | | 1 | |
| Max.current per string(module Isc) | 9A、 12A、 15A | | 9A、 12A、 15A | |
| Max.current output | 9A、 12A、 15A | | 18A、 24A、 30A | |
| Input fuse-link | 2 pcs | | 4 pcs | |
| Rated current | 15A、 20A、 25A | | 15A、 20A、 25A | |
| Fuse protection | PV specific, gPV curve | | | |
| Dimensions(mm) | Φ10x38 | | | |
| Standard compliance with/Certification | IEC60269-6/TUV or UL248-19/UL | | | |
| Finger-safe fuse holder | 2 pcs | | 4 pcs | |

| | | | | |
|---|--|-------------------------|---|-------------------------|
| Finger-safe fuse holder | 2 pcs | | 4 pcs | |
| Rated current | ≥30A | | | |
| Standard compliance with/Certification | IEC60947-3/TUV or UL4248-19/UL | | | |
| LED indicator(optional,add the suffix "- L" code to the ordering model) | Optional | | | |
| Output DC breaker | 1 pcs | | 1 pcs | |
| DC MCB rated current | 16A、 16A、 20A | | 32A、 32A、 40A | |
| Standard compliance with | IEC60947-2/TUV | | IEC60947-2/TUV | |
| or DC Disconnecter switch rated current | | 20A | | 40A |
| Category | | DC21B、 DC-PV1 or DC-PV2 | | DC21B、 DC-PV1 or DC-PV2 |
| Handle | | Direct handle | | Direct handle |
| Standard compliance with/Certification | IEC60947-3/TUV or UL98B/UL | | | |
| Surge protection device(SPD) | 1 pcs | | 1 pcs | |
| Surge protection | Class II | | | |
| Max. PV voltage(UcPV) | ≥1200V d.c | | | |
| Nominal discharge current (8/20 μs) (In) | 20kA | | | |
| Max. discharge current (8/20 μs) (Imax) | 40kA | | | |
| Voltage protection level (UP) | ≤4.0kV | | | |
| Standard compliance with/Certification | EN 50539-11/TUV or UL1449/UL | | | |
| Class I + II (optional,Select "C" from the ordering model) | Optional,UcPV:1200V DC,In:≥15KA (8/20 μs),Imax:40KA (8/20 μs),Iimp:6.25KA (10/350 μs) ,Up:≤4.6KV | | | |
| Enclosure | 1 pcs | | 1 pcs | |
| Protective class | Type II | | | |
| Ingress protection | IP65 | | | |
| Mechanical impact resistance | IK08 | | | |
| UV resistance | Yes | | | |
| Dimensions (Width x Height x Depth) | 12 DIN , 270 x 230 x 110mm(Please note dimensions and weight may vary for any custom solutions) | | | |
| Material/Color | PC/RAL7035 grey | | | |
| Environment | | | | |
| Operation ambient temp.(°C) | -25~+50 | | | |
| Ambient humidity (%) | 5~95 | | | |
| Altitude(m) | ≤2000 (>3000m, components will be derated) | | | |
| Others | | | | |
| String input cable cross section(mm²) | 4 up to 6 | | | |
| Output cable cross section(mm²) | 4 up to 6 | | | |
| Ground cable cross section(mm²) | 6 up to 10 | | | |
| String input entry | Cable connector,IP67;Tightening range 4.5~8mm(Pre-installed) | | | |
| Output entry | Cable connector,IP67;Tightening range 4.5~8mm(Pre-installed) | | | |
| Ground entry | PG13.5B,PA66 cable gland,IP68;Tightening range 6~12mm(Pre-installed) | | | |
| Installation method | Vertical mounting | | | |
| Weight (KG) | ~3(Please note dimensions and weight may vary for any custom solutions) | | ~3.5(Please note dimensions and weight may vary for any custom solutions) | |
| Standard compliance with/Certification | IEC 61439-1、 IEC 62109-1/TUV | | | |

Technical Parameter

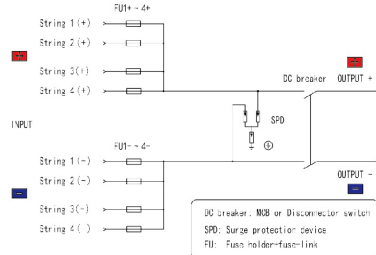
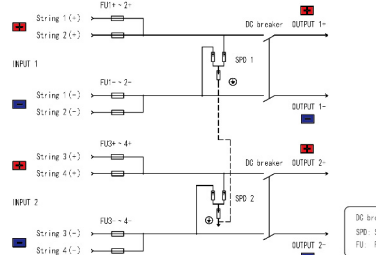
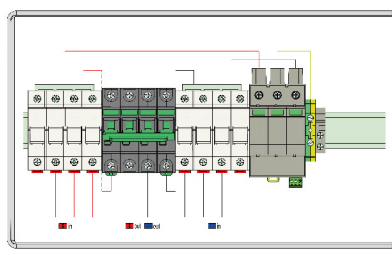
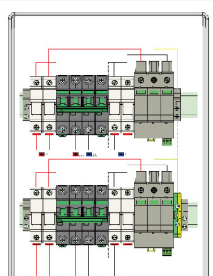


| Name | 2 in 2 out | | 3 in 1 out | |
|--|---|--------------------------|---|--------------------------|
| Ordering model | LM-PVDB-P/15/B/M/C-2-2/2 | LM-PVDB-P/15/D/M/C-2-2/2 | LM-PVDB-P/15/B/M/C-1-3/1 | LM-PVDB-P/15/D/M/C-1-3/1 |
| | LM-PVDB-P/20/B/M/C-2-2/2 | LM-PVDB-P/20/D/M/C-2-2/2 | LM-PVDB-P/20/B/M/C-1-3/1 | LM-PVDB-P/20/D/M/C-1-3/1 |
| | LM-PVDB-P/25/B/M/C-2-2/2 | LM-PVDB-P/25/D/M/C-2-2/2 | LM-PVDB-P/25/B/M/C-1-3/1 | LM-PVDB-P/25/D/M/C-1-3/1 |
| Single line diagram(SLD) |  | |  | |
| Internal wiring diagram |  | |  | |
| General technical datasheet | | | | |
| Maximum voltage (DC) | 1000V | | | |
| Max. number of DC input strings | 2 | | 3 | |
| Number of MPPTs | 2 | | 1 | |
| Number of DC output | 2 | | 1 | |
| Max.current per string(module Isc) | 9A、12A、15A | | 9A、12A、15A | |
| Max.current output | 9A、12A、15A(per circuit) | | 27A、36A、45A | |
| Input fuse-link | 4 pcs | | 6 pcs | |
| Rated current | 15A、20A、25A | | 15A、20A、25A | |
| Fuse protection | PV specific, gPV curve | | | |
| Dimensions(mm) | Φ10x38 | | | |
| Standard compliance with/Certification | IEC60269-6/TUV or UL248-19/UL | | | |
| Finger-safe fuse holder | 4 pcs | | 6 pcs | |

| | | | | |
|---|--|-------------------------|---|-------------------------|
| Finger-safe fuse holder | 4 pcs | | 6 pcs | |
| Rated current | ≥30A | | | |
| Standard compliance with/Certification | IEC60947-3/TUV or UL4248-19/UL | | | |
| LED indicator(optional,add the suffix "- L" code to the ordering model) | Optional | | | |
| Output DC breaker | 2 pcs | | 1 pcs | |
| DC MCB rated current | 16A、 16A、 20A | | 40A、 50A、 63A | |
| Standard compliance with | IEC60947-2/TUV | | IEC60947-2/TUV | |
| or DC Disconnecter switch rated current | | 20A | | 50A、 63A |
| Category | | DC21B、 DC-PV1 or DC-PV2 | | DC21B、 DC-PV1 or DC-PV2 |
| Handle | | Direct handle | | Direct handle |
| Standard compliance with/Certification | IEC60947-3/TUV or UL98B/UL | | | |
| Surge protection device(SPD) | 2 pcs | | 1 pcs | |
| Surge protection | Class II | | | |
| Max. PV voltage(UcPV) | ≥1200V d.c | | | |
| Nominal discharge current (8/20 μs) (In) | 20kA | | | |
| Max. discharge current (8/20 μs) (Imax) | 40kA | | | |
| Voltage protection level (UP) | ≤4.0kV | | | |
| Standard compliance with/Certification | EN 50539-11/TUV or UL1449/UL | | | |
| Class I + II (optional,Select "C" from the ordering model) | Optional,UcPV:1200V DC,In:≥15KA (8/20 μs),Imax:40KA (8/20 μs),Iimp:6.25KA (10/350 μs) ,Up:≤4.6KV | | | |
| Enclosure | 1 pcs | | 1 pcs | |
| Protective class | Type II | | | |
| Ingress protection | IP65 | | | |
| Mechanical impact resistance | IK08 | | | |
| UV resistance | Yes | | | |
| Dimensions (Width x Height x Depth) | 12 DIN , 270 x 230 x 110mm(Please note dimensions and weight may vary for any custom solutions) | | | |
| Material/Color | PC/RAL7035 grey | | | |
| Environment | | | | |
| Operation ambient temp.(°C) | -25~+50 | | | |
| Ambient humidity (%) | 5~95 | | | |
| Altitude(m) | ≤2000 (>3000m, components will be derated) | | | |
| Others | | | | |
| String input cable cross section(mm²) | 4 up to 6 | | | |
| Output cable cross section(mm²) | 4 up to 6 | | | |
| Ground cable cross section(mm²) | 6 up to 10 | | | |
| String input entry | Cable connector,IP67;Tightening range 4.5~8mm(Pre-installed) | | | |
| Output entry | Cable connector,IP67;Tightening range 4.5~8mm(Pre-installed) | | | |
| Ground entry | PG13.5B,PA66 cable gland,IP68;Tightening range 6~12mm(Pre-installed) | | | |
| Installation method | Vertical mounting | | | |
| Weight (KG) | ~4(Please note dimensions and weight may vary for any custom solutions) | | ~4.5(Please note dimensions and weight may vary for any custom solutions) | |
| Standard compliance with/Certification | IEC 61439-1、 IEC 62109-1/TUV | | | |

Technical Parameter

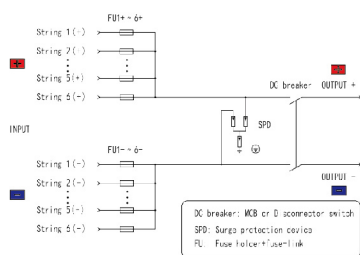
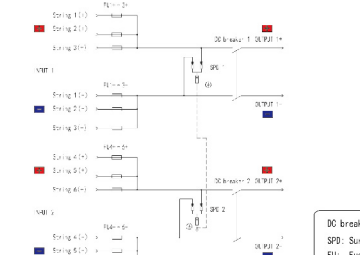
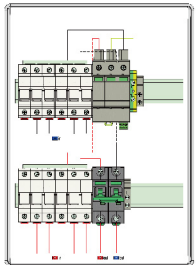
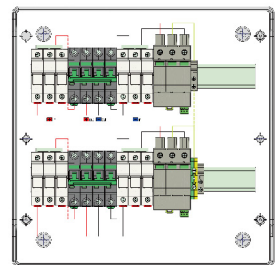


| | 4 in 1 out | | 4 in 2 out | |
|--|---|--------------------------|---|--------------------------|
| Ordering model | LM-PVDB-P/15/B/M/C-1-4/1 | LM-PVDB-P/15/D/M/C-1-4/1 | LM-PVDB-P/15/B/M/C-2-4/2 | LM-PVDB-P/15/D/M/C-2-4/2 |
| | LM-PVDB-P/20/B/M/C-1-4/1 | LM-PVDB-P/20/D/M/C-1-4/1 | LM-PVDB-P/20/B/M/C-2-4/2 | LM-PVDB-P/20/D/M/C-2-4/2 |
| | LM-PVDB-P/25/B/M/C-1-4/1 | LM-PVDB-P/25/D/M/C-1-4/1 | LM-PVDB-P/25/B/M/C-2-4/2 | LM-PVDB-P/25/D/M/C-2-4/2 |
| Name | | | | |
| Single line diagram(SLD) |  <p>DC breaker: MCB or Disconnector switch SPD: Surge protection device FU: Fuse holder+fuse-link</p> | |  <p>DC breaker: MCB or Disconnector switch SPD: Surge protection device FU: Fuse holder+fuse-link</p> | |
| Internal wiring diagram |  | |  | |
| General technical datasheet | | | | |
| Maximum voltage (DC) | 1000V | | | |
| Max. number of DC input strings | 4 | | 4 | |
| Number of MPPTs | 1 | | 2 | |
| Number of DC output | 1 | | 2 | |
| Max.current per string(module Isc) | 9A、12A、15A | | 9A、12A、15A | |
| Max.current output | 36A、48A、60A | | 18A、24A、30A | |
| Input fuse-link | 8 pcs | | 8 pcs | |
| Rated current | 15A、20A、25A(8 pcs) | | 15A、20A、25A(8 pcs) | |
| Fuse protection | PV specific, gPV curve | | | |
| Dimensions(mm) | Φ10x38 | | | |
| Standard compliance with/Certification | IEC60269-6/TUV or UL248-19/UL | | | |
| Finger-safe fuse holder | 8 pcs | | 8 pcs | |

| | | | | |
|---|--|------------------------|---|------------------------|
| Finger-safe fuse holder | 8 pcs | | 8 pcs | |
| Rated current | ≥30A | | | |
| Standard compliance with/Certification | IEC60947-3/TUV or UL4248-19/UL | | | |
| LED indicator(optional,add the suffix "- L" code to the ordering model) | Optional | | | |
| Output DC breaker | 1 pcs | | 2 pcs | |
| DC MCB rated current | 50A、63A、80A | | 32A、32A、40A | |
| Standard compliance with | IEC60947-2/TUV | | IEC60947-2/TUV | |
| or DC Disconnecter switch rated current | | 50A、63A、80A | | 40A |
| Category | | DC21B、DC-PV1 or DC-PV2 | | DC21B、DC-PV1 or DC-PV2 |
| Handle | | Direct handle | | Direct handle |
| Standard compliance with/Certification | IEC60947-3/TUV or UL98B/UL | | | |
| Surge protection device(SPD) | 1 pcs | | 2 pcs | |
| Surge protection | Class II | | | |
| Max. PV voltage(UcPV) | ≥1200V d.c | | | |
| Nominal discharge current (8/20 μs) (In) | 20kA | | | |
| Max. discharge current (8/20 μs) (Imax) | 40kA | | | |
| Voltage protection level (UP) | ≤4.0kV | | | |
| Standard compliance with/Certification | EN 50539-11/TUV or UL1449/UL | | | |
| Class I + II (optional,Select "C" from the ordering model) | Optional,UcPV:1200V DC,In:≥15KA (8/20 μs),Imax:40KA (8/20 μs),Iimp:6.25KA (10/350 μs) ,Up:≤4.6KV | | | |
| Enclosure | 1 pcs | | 1 pcs | |
| Protective class | Type II | | | |
| Ingress protection | IP65 | | | |
| Mechanical impact resistance | IK08 | | | |
| UV resistance | Yes | | | |
| Dimensions (Width x Height x Depth) | 18 DIN , 381 x 230 x 110mm(Please note dimensions and weight may vary for any custom solutions) | | 24 DIN , 273 x 380 x 110mm(Please note dimensions and weight may vary for any custom solutions) | |
| Material/Color | PC/RAL7035 grey | | | |
| Environment | | | | |
| Operation ambient temp.(°C) | -25~+50 | | | |
| Ambient humidity (%) | 5~95 | | | |
| Altitude(m) | ≤2000 (>3000m, components will be derated) | | | |
| Others | | | | |
| String input cable cross section(mm²) | 4 up to 6 | | | |
| Output cable cross section(mm²) | 6 up to 10 | | | |
| Ground cable cross section(mm²) | ≥6 | | | |
| String input entry | Cable connector,IP67;Tightening range 4.5~8mm(Pre-installed) | | | |
| Output entry | PG29W,PA66 cable gland,IP68; Tightening range 18~25mm(Pre-installed) | | Cable connector,IP67; Tightening range 4.5~8mm(Pre-installed) | |
| Ground entry | PG13.5B,PA66 cable glands,IP68;Tightening range 6~12mm(Pre-installed) | | | |
| Installation method | Vertical mounting | | | |
| Weight (KG) | ~5(Please note dimensions and weight may vary for any custom solutions) | | ~5.5(Please note dimensions and weight may vary for any custom solutions) | |
| Standard compliance with/Certification | IEC 61439-1、IEC 62109-1/TUV | | | |

Technical Parameter



| | 6 in 1 out | | 6 in 2 out | |
|--|--|--------------------------|--|--------------------------|
| Ordering model | LM-PVDB-P/15/B/M/C-1-6/1 | LM-PVDB-P/15/D/M/C-1-6/1 | LM-PVDB-P/15/B/M/C-2-6/2 | LM-PVDB-P/15/D/M/C-2-6/2 |
| Name | LM-PVDB-P/20/B/M/C-1-6/1 | LM-PVDB-P/20/D/M/C-1-6/1 | LM-PVDB-P/20/B/M/C-2-6/2 | LM-PVDB-P/20/D/M/C-2-6/2 |
| | LM-PVDB-P/25/B/M/C-1-6/1 | LM-PVDB-P/25/D/M/C-1-6/1 | LM-PVDB-P/25/B/M/C-2-6/2 | LM-PVDB-P/25/D/M/C-2-6/2 |
| Single line diagram(SLD) |  <p>Legend: DC breaker: MCB or D disconnect switch SPD: Surge protection device FL: Fuse holder+fuse-link</p> | |  <p>Legend: DC breaker: MCB or D disconnect switch SPD: Surge protection device FU: Fuse holder+fuse-link</p> | |
| Internal wiring diagram |  | |  | |
| General technical datasheet | | | | |
| Maximum voltage (DC) | 1000V | | | |
| Max. number of DC input strings | 6 | | 6 | |
| Number of MPPTs | 1 | | 2 | |
| Number of DC output | 1 | | 2 | |
| Max.current per string(module Isc) | 9A、 12A、 15A | | 9A、 12A、 15A | |
| Max.current output | 54A、 72A、 90A | | 27A、 36A、 45A(per circuit) | |
| Input fuse-link | 12 pcs | | 12 pcs | |
| Rated current | 15A、 20A、 25A | | 15A、 20A、 25A | |
| Fuse protection | PV specific, gPV curve | | | |
| Dimensions(mm) | Φ10x38 | | | |
| Standard compliance with/Certification | IEC60269-6/TUV or UL248-19/UL | | | |
| Finger-safe fuse holder | 12 pcs | | 12 pcs | |

| | | | | |
|---|--|------------------------|---|------------------------|
| Finger-safe fuse holder | 12 pcs | | 12 pcs | |
| Rated current | ≥30A | | | |
| Standard compliance with/Certification | IEC60947-3/TUV or UL4248-19/UL | | | |
| LED indicator(optional,add the suffix "- L" code to the ordering model) | Optional | | | |
| Output DC breaker | 1 pcs | | 2 pcs | |
| DC MCB rated current | 50A、63A、80A | | 32A、32A、40A | |
| Standard compliance with | IEC60947-2/TUV | | IEC60947-2/TUV | |
| or DC Disconnecter switch rated current | | 50A、63A、80A | | 40A |
| Category | | DC21B、DC-PV1 or DC-PV2 | | DC21B、DC-PV1 or DC-PV2 |
| Handle | | Direct handle | | Direct handle |
| Standard compliance with/Certification | IEC60947-3/TUV or UL98B/UL | | | |
| Surge protection device(SPD) | 1 pcs | | 2 pcs | |
| Surge protection | Class II | | | |
| Max. PV voltage(UcPV) | ≥1200V d.c | | | |
| Nominal discharge current (8/20 μs) (In) | 20kA | | | |
| Max. discharge current (8/20 μs) (Imax) | 40kA | | | |
| Voltage protection level (UP) | ≤4.0kV | | | |
| Standard compliance with/Certification | EN 50539-11/TUV or UL1449/UL | | | |
| Class I + II (optional,Select "C" from the ordering model) | Optional,UcPV:1200V DC,In:≥15KA (8/20 μs),Imax:40KA (8/20 μs),Iimp:6.25KA (10/350 μs) ,Up:≤4.6KV | | | |
| Enclosure | 1 pcs | | 1 pcs | |
| Protective class | Type II | | | |
| Ingress protection | IP65 | | | |
| Mechanical impact resistance | IK08 | | | |
| UV resistance | Yes | | | |
| Dimensions (Width x Height x Depth) | 24 DIN , 273 x 380 x 110mm(Please note dimensions and weight may vary for any custom solutions) | | 36 DIN , 380 x 380 x 110mm(Please note dimensions and weight may vary for any custom solutions) | |
| Material/Color | PC/RAL7035 grey | | | |
| Environment | | | | |
| Operation ambient temp.(°C) | -25~+50 | | | |
| Ambient humidity (%) | 5~95 | | | |
| Altitude(m) | ≤2000 (>3000m, components will be derated) | | | |
| Others | | | | |
| String input cable cross section(mm²) | 4 up to 6 | | | |
| Output cable cross section(mm²) | 6 up to 10 | | | |
| Ground cable cross section(mm²) | 6 up to 10 | | | |
| String input entry | Cable connector,IP67;Tightening range 4.5~8mm(Pre-installed) | | | |
| Output entry | PG29W,PA66 cable gland,IP68; Tightening range 18~25mm(Pre-installed) | | PG21W,PA66 cable gland,IP68; Tightening range 13~18mm(Pre-installed) | |
| Ground entry | PG13.5B,PA66 cable glands,IP68;Tightening range 6~12mm(Pre-installed) | | | |
| Installation method | Vertical mounting | | | |
| Weight (KG) | ~6(Please note dimensions and weight may vary for any custom solutions) | | ~6.5(Please note dimensions and weight may vary for any custom solutions) | |
| Standard compliance with/Certification | IEC 61439-1、IEC 62109-1/TUV | | | |

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