

SDN™ Performance DIN Rail Series

The SDN DIN Rail power supplies provide industry leading performance. Sag immunity, transient suppression and noise tolerant, the SDN series ensures compatibility in demanding applications. Power factor correction to meet European directive, hazardous location approvals and optional redundant accessories allow the SDN series to be used in a wide variety of applications. Wide operation temperature range, high tolerance to shock and vibration and reliable design make the SDN series the definition of DC power quality.



Features

- Power Factor Correction (per EN61000-3-2)
- Auto Select 115/230 VAC, 50/60 Hz Input
- Single Phase models meet SEMI F47 Sag Immunity
- Class 1, Div 2 Hazardous Locations
- Improved metal mounting clip
- DC OK Signal
- Adjustable Voltage
- SDN10-24-100P New Compact width (3.26")
- Parallel Capability standard on all units
- Industrial grade design
 - 10°C to 60°C operation without derating. Indefinite short circuit, overvoltage and overtemperature protection.
 - Powers high inrush loads without shutdown or foldback
 - Rugged metal case and DIN connector
- SDN2.5-24-100P and SDN4-24-100LP meet NEC Class 2
- Narrow width on rail for space critical applications
- User-friendly front panel
 - Large, rugged, accessible, multiple connection screw terminations
 - Easy installation
- Broad range of product to fit almost any application – 2.5 A through 40 A
- Single and three phase inputs available
- Highly efficient >90% switching technology
- High MTBF and reliability
- Five year warranty
- Patented



Related Products

- SDP™ Series
- SFL Series
- SCP Series
- SCL Series

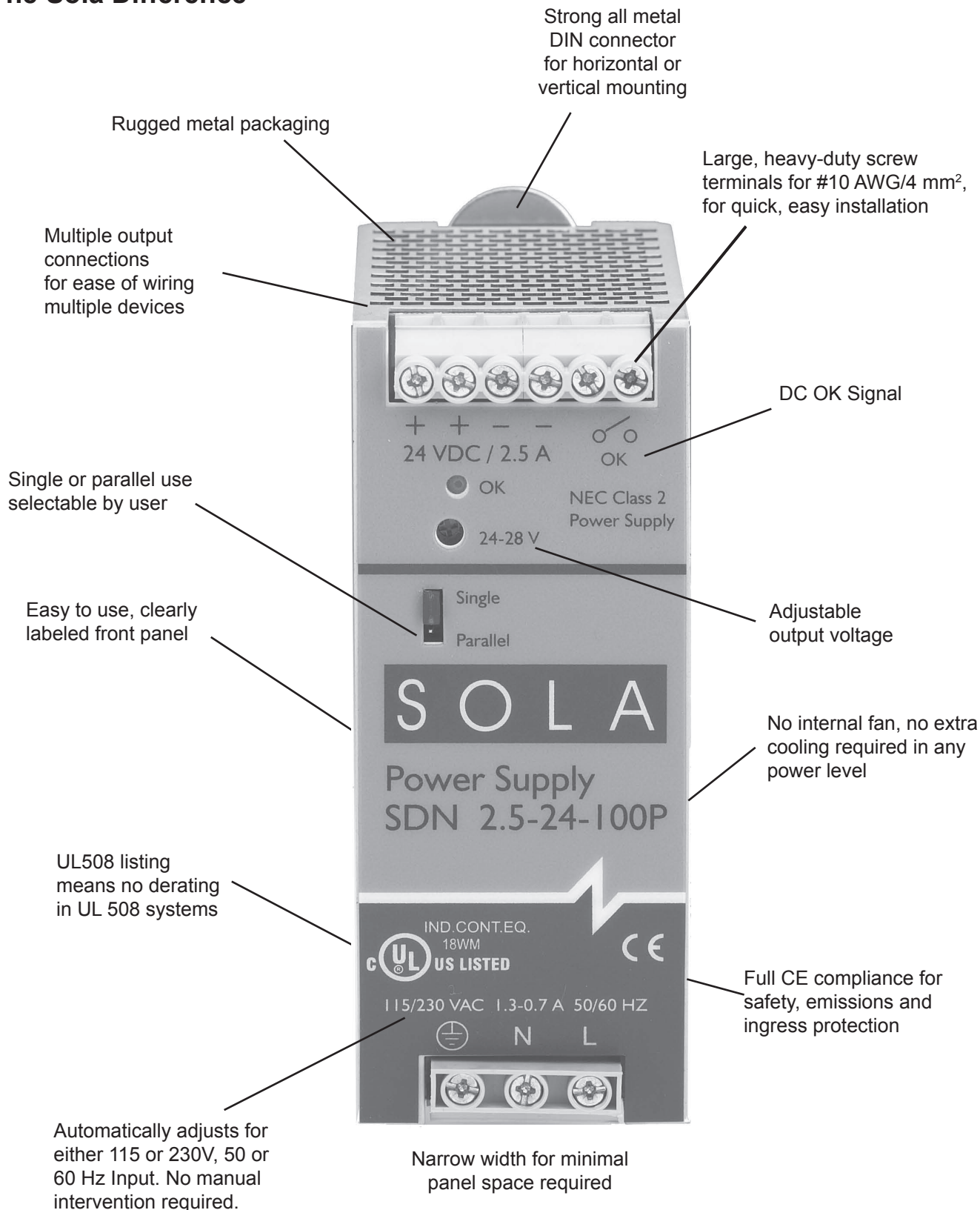
Applications

- Industrial/Machine control
- Process control
- Conveying Equipment
- Material Handling
- Vending Machines
- Packaging Equipment
- DeviceNet™
- Amusement Park Equipment
- Semiconductor Fabrication Equipment

Accessories

- Chassis Mount Bracket (SDN-PMBRK2)

The Sola Difference



SDN™ Specifications (Single Phase)

Description	Catalog Number				
	SDN 2.5-24-100P	SDN 4-24-100LP	SDN 5-24-100P	SDN 10-24-100P	SDN 20-24-100P
Input					
Nominal Voltage	115/230 VAC auto select				
- AC Range	85-132/176-264 VAC				
- DC Range	90-375 VDC	210-375 VDC			N/A
- Frequency	47 - 63 Hz				
Nominal Current ¹	1.3 A / 0.7 A	1.8 A / 0.9 A	2.2 A / 1.0 A	5 A / 2 A typ.	9 A / 3.9 A
- Inrush current max.	typ. < 25 A	typ. < 20 A		typ. < 40 A	
Efficiency (Losses ²)	> 87.5% typ (8.6 W)	> 88% typ (13.1 W)	> 88% typ (16.4 W)	> 88% typ (32.7 W)	> 90% typ (48 W)
Power Factor Correction	Units Fulfill EN61000-3-2				
Output					
Nominal Voltage	24 VDC (22.5 - 28.5 VDC adj.)				
- Tolerance	< ±2% overall (combination Line, load, time and temperature related changes)				
- Ripple ³	< 50 mVpp				
Nominal Current	2.5 A (60 W)	3.8 A (92 W)	5 A (120 W)	10 A (240 W)	20 A (480 W)
- Peak Current ⁴	2x Nominal Current < 2 sec.	4.2 A max	6 A 2x Nominal Current < 2 sec.	12 A 2x Nominal Current < 2 sec.	25 A 2x Nominal Current < 2 sec.
-Current Limit	Fold Forward (Current rises, voltage drops to maintain constant power during overload up to max peak current)				
Holdup Time ⁵	> 50 ms	> 110 ms	> 100 ms		> 20 ms
Parallel Operation	Single or Parallel use is selectable via Front Panel.				
General					
EMC					
- Emissions	EN50081-1,-2 Class B EN55011, EN55022 Radiated and Conducted including Annex A.				
- Immunity	EN50082-1, -2; EN61000-4-2 Level 4, EN61000-4-3 Level 3; EN61000-4-6 Level 3; EN61000-4-4 Level 4 input and Level 3 output; EN61000-4-5 Isolation Class 4, EN61000-4-11; Transient resistance according to VDE 0160/W2 over entire load range.				
Approvals	EN60950; EN50178; EN60204; UL508 Listed, cULus; UL60950, cRUus, CE (LVD 73/23 & 93/68/EEC). EN61000-3-2, IEC60079-15 (Class 1, Zone 2, Hazardous Location, Groups A, B, C, D w/ T3A temp class up to 60°C Ambient.) SEMI F47 Sag Immunity, SDN2.5 & SDN4 - UL60950 testing to include approval as NEC Class 2 power supply acc. to NFPA 70 art. 725-41 (a)(2).				
Temperature	Storage: -25°C...+85°C Operation. -10°C...+60°C full power with operation to 70°C possible with a linear derating to half power from 60°C to 70°C (Convection cooling, no forced air required). Operation up to 50% load permissible with sideways or front side up mounting orientation. The relative humidity is < 90% RH, noncondensing; IEC 68-2-2, 68-2-3. For operation below -10°C, contact Technical Services.				
Warranty	5 years				
General Protection/ Safety	Protected against continuous short-circuit, overload, open-circuit. Overvoltage protection (OVP) for output set > 30.5 but < 33 VDC, Auto Recovery. Protection class 1 (IEC536), degree of protection IP20 (IEC 529) Safe low voltage: SELV (acc.EN60950)				
Status Indicators	Green LED and DC OK signal (N.O. Contact rated 300 mA @ 60 VDC)				
Installation					
Fusing					
- Input	Internally fused. External 10 A slow acting fusing for the input is recommended for SDN2.5, 4, 5 and 10P models. A 16 A slow acting fuse or time-delay circuit breaker is recommended for the SDN20 model.				
- Output	Outputs are capable of providing high currents for short periods of time for inductive load startup or switching. Fusing may be required for wire/loads if 2x Nominal O/P current rating cannot be tolerated. Continuous current overload allows for reliable fuse tripping.				
Mounting	Simple snap-on system for DIN Rail TS35/7.5 or TS35/15 or chassis-mounted (optional screw mounting set SDN-PMBRK2 required).				
Connections	Input: IP20-rated screw terminals, connector size range: 16-10 AWG (1.5-6 mm ²) for solid conductors. 16-12 AWG (0.5-4 mm ²) for stranded conductors. Output: Two connectors per output, connector size range: 16-10 AWG (1.5 - 6 mm ²) for solid conductors.				
Case	Fully enclosed metal housing with fine ventilation grid to keep out small parts.				
- Free Space	25 mm above and below 25 mm left and right 10 mm in front		25 mm above and below 25 mm left and right 15 mm in front	70 mm above and below 25 mm left and right 15 mm in front	
H x W x D	4.88 in x 1.97 in x 4.55 in (124 mm x 50 mm x 116 mm)	4.88 in x 2.56 in x 4.55 in (124 mm x 65 mm x 116 mm)		4.88 in x 3.26 in x 4.55 in (124 mm x 83 mm x 116 mm)	4.88 in x 6.88 in x 4.55 in (124 mm x 175 mm x 116 mm)
Weight (lbs/g)	1.6 lb (725g)	2.4 lbs (1055g)		3.3 lbs (1480g)	3 lbs (1520g)

¹Input current ratings are conservatively specified with low input, worst case efficiency and power factor.²Losses are heat dissipation in watts at full load, nominal input line.³Ripple/noise is stated as typical values when measured with a 20 MHz, bandwidth scope and 50 Ohm resistor.⁴All peak current is calculated at 24 Volt levels.⁵Full load, 100 VAC Input @ T_{amb} = +25°C

SDN™ Specifications (Three Phase)

Description	Catalog Number				
	SDN 5-24-480	SDN 10-24-480	SDN 20-24-480C	SDN 30-24-480	SDN 40-24-480
Input					
Nominal Voltage	1Ø or 3Ø, 380 - 480 VAC ¹			3Ø 380 - 480 VAC	
-AC Range	340 - 576 VAC				
-DC Range	450 - 820 VDC				
-Frequency	47 - 63 Hz				
Nominal Current ²	0.4 A	0.8 A	1.5 A	2.0 A	3.0 A
-Inrush current max.	typ. < 17 A	typ. < 15 A	typ. < 7 A	typ. < 30 A	
Efficiency (Losses ³)	> 90% typ (12 W)	> 90% typ (26.7 W)	> 90% typ (48 W)	> 90% typ (72 W)	> 90% typ (96 W)
Power Factor Correction	Units Fulfill EN61000-3-2				
Output					
Nominal Voltage	24 VDC (22.5 - 28.5 VDC adj.)				
-Tolerance	< ±2% overall (combination Line, load, time and temperature related changes)				
-Ripple ⁴	< 50 mVpp				
Nominal Current	5 A (120 W)	10 A (240 W)	20 A (480 W)	30 A (720 W)	40 A (960 W)
-Peak Current	6 A 2x Nominal Current < 2 sec.	12 A 2x Nominal Current < 2 sec.	25 A 2x Nominal Current < 2 sec.	35 A 2x Nominal Current < 2 sec.	45 A 2x Nominal Current < 2 sec.
-Current Limit	Fold Forward (Current rises, voltage drops to maintain constant power during overload up to max peak current)				
Holdup Time	> 20 ms				
Parallel Operation	10A, 20A, 30A parallel/single user selectable. 40A contains active current balancing via single wire connection.				
General					
EMC					
-Emissions	EN50081-1,-2 Class B EN55011, EN55022 Radiated and Conducted including Annex A.				
-Immunity	EN50082-1, -2; EN61000-4-2 Level 4, EN61000-4-3 Level 3; EN61000-4-6 Level 3; EN61000-4-4 Level 4 input and Level 3 output; EN61000-4-5 Isolation Class 4, EN61000-4-11; Transient resistance according to VDE 0160/W2 over entire load range.				
Approvals	CB Scheme, EN60950; EN50178; EN60204; UL508 Listed, cULus; UL60950, cRUus, CE (LVD 73/23 & 93/68/EEC). EN61000-3-2, IEC 60079-15 Class 1, Zone 2 hazardous location, Groups IIA, IIB, IIC w/T3 temp class up to 60°C Ambient.				
Temperature	Storage: -25°C...+85°C Operation. -10°C...60°C full power with operation to 70°C possible with a linear derating to half power from 60°C to 70°C (Convection cooling, no forced air required). Operation up to 50% load permissible with sideways or front side up mounting orientation. The relative humidity is < 90% RH, noncondensing; IEC 68-2-2, 68-2-3.				
Warranty	5 years				
General Protection/ Safety	Protected against continuous short-circuit, overload, open-circuit. Overvoltage protection (OVP) for output set > 30.5 but < 33 VDC, Auto Recovery. Protection class 1 (IEC536), degree of protection IP20 (IEC 529) Safe low voltage: SELV (acc.EN60950)				
Status Indicators	Green LED on when V _{out} = 18V or greater.				
Installation					
Fusing					
-Input	Internally fused.				
-Output	Outputs are capable of providing high currents for short periods of time for inductive load startup or switching. Fusing may be required for wire/loads if 2x Nominal O/P current rating cannot be tolerated. Continuous current overload allows for reliable fuse tripping.				
Mounting	Simple snap-on system for DIN Rail TS35/7.5 or TS35/15 or chassis-mounted (optional screw mounting set SDN-PMBRK2 required).				
Connections	Input: IP20-rated screw terminals, connector size range: 16-10 AWG (1.5-6 mm ²) for solid conductors. 16-12 AWG (0.5-4 mm ²) for stranded conductors. Output: Two connectors per output, connector size range: 16-10 AWG (1.5 - 6 mm ²) for solid conductors.				
Case	Fully enclosed metal housing with fine ventilation grid to keep out small parts.				
-Free Space	25 mm above and below 25 mm left and right 15 mm in front		70 mm above and below 25 mm left and right 15 mm in front		
H x W x D in (mm)	4.88 in x 2.91 in x 4.55 in (124 mm x 73 mm x 116 mm)	4.88 in x 3.5 in x 4.55 in (124 mm x 89 mm x 116 mm)	4.88 in x 5.9 in x 4.55 in (124 mm x 150 mm x 116 mm)	4.88 in x 9.72 in x 4.55 in (124 mm x 247 mm x 116 mm)	4.88 in x 11.1 in x 4.55 in (124 mm x 282 mm x 116 mm)
Weight (lbs/g)	1.7 lbs (730g)	2.16 lbs (980g)	3.97 lbs (1800g)	4 lbs (2000g)	6.6 lbs (3300g)

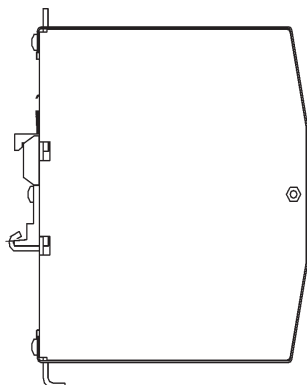
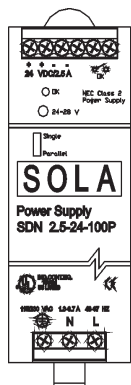
¹ For the SDN20-24-480C, single phase input is permissible but output is derated to 75% (15 Amps @ 24 VDC).

² Input current ratings are conservatively specified with low input, worst case efficiency and power factor.

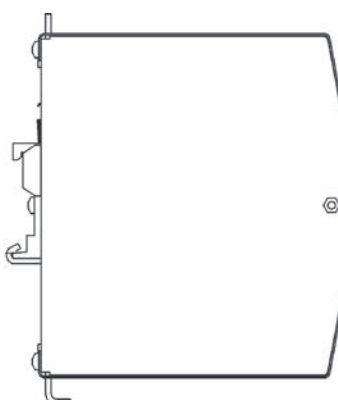
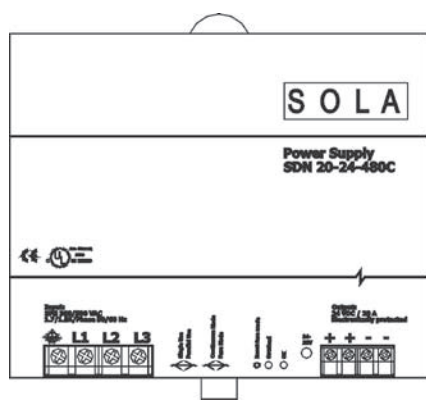
³ Losses are heat dissipation in watts at full load, nominal input line.

⁴ Ripple/noise is stated as typical values when measured with a 20 MHz, bandwidth scope and 50 Ohm resistor.

SDN™ Series Dimensions



Catalog Number	Dimensions - inches (mm)		
	H	W	D
SDN 2.5-24-100P	4.88 (124)	1.97 (50)	4.55 (116)
SDN 4-24-100LP	4.88 (124)	2.56 (65)	4.55 (116)
SDN 5-24-100P	4.88 (124)	2.56 (65)	4.55 (116)
SDN 5-24-480	4.88 (124)	2.91 (73)	4.55 (116)
SDN 10-24-100P	4.88 (124)	3.26 (83)	4.55 (116)



Catalog Number	Dimensions - inches (mm)		
	H	W	D
SDN 20-24-100P	4.88 (124)	6.88 (175)	4.55 (116)
SDN 10-24-480	4.88 (124)	3.50 (89)	4.55 (116)
SDN 20-24-480C	4.88 (124)	5.90 (150)	4.55 (116)
SDN 30-24-480	4.88 (124)	9.72 (247)	4.55 (116)
SDN 40-24-480	4.88 (124)	11.10 (282)	4.55 (116)

SDN™ Series Mounting

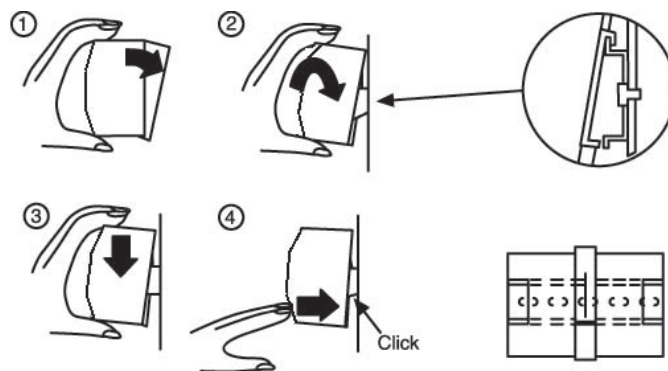
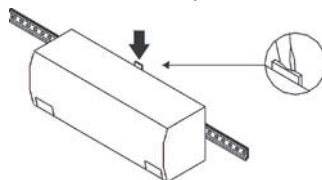
DIN Rail Mounting

Snap on the DIN Rail:

1. Tilt unit slightly backwards
2. Put it onto the DIN Rail
3. Push downwards until stopped
4. Push at the lower front edge to lock
5. Shake the unit slightly to ensure that the retainer has locked

Alternative Screwing-on: Using the optional SDN-PMBRK2 accessory, the unit can also be screwed onto plane surfaces (without DIN Rail).

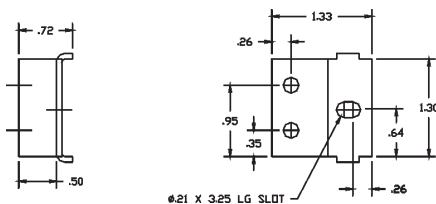
Detachment from DIN Rail:



Press button downwards (to unlock) and remove the unit from the DIN Rail.

Chassis Mounting

Instead of snapping a Sola SDN™ unit on the DIN Rail, you can also screw it on by means of the screw mounting set SDN-PMBRK2.



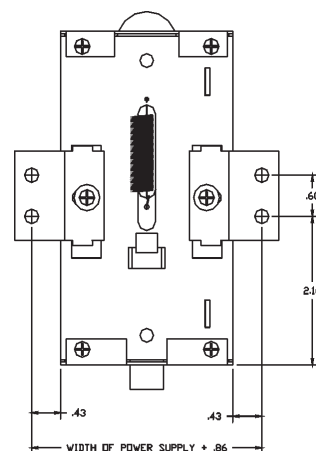
This set consists of two aluminum profiles, which replace the existing two profiles at the back of the unit.

Note:

You need one SDN-PMBRK2 per unit.

- In addition, two screws are required per SDN-PMBRK2 (e.g. M3 x 12), which are not included with the set.

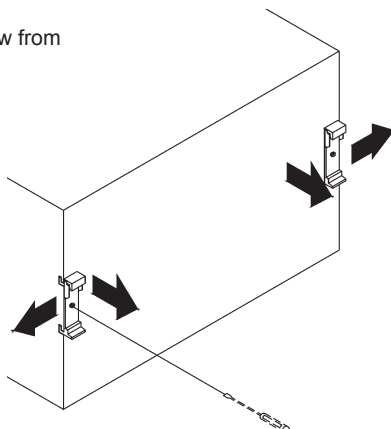
Dimensions



Exchanging the Profiles

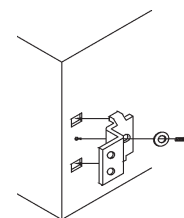
a. At the unit:

1. Remove the screw from the profile.
2. Pull the profile outwards to remove.



- b. Push the SDN-PMBRK2 profile into the groove as far as possible. Secure with screw.

For SDN5-24-100P and above models



Note the orientation:
The profile fits into the groove only as shown here.

For SDN2.5-24-100P Model

