Size: 3.15in x 4.88in x 5in
(80mm x 124mm x 127mm)

FEATURES

- Universal 3x320-600VAC or 450-800VDC Input Voltage
- Active PFC, PF>0.95
- Standard DIN Rail Mounting
- High Efficiency, High Reliability
- LED Indicator for Output Status
- 150% Peak Power Lasts for 4.5s
- 485 Communication, Remote Shutdown (PS ON)
- Double-Sided Conformal Coating, Salt-Spray Proof
- Output Short Circuit, Over Current, Over Voltage, and Over Temperature Protection
- Supporting Parallel (2+1 Current Sharing) and Series Application
- Fault Alarm Function, DC OK, Against Backflow Voltage
- OVC III (Safety According to EN61010)
- Safety According to ANSI/ISA 71012013 G3
- Safety According to IEC/UL62368, EN61010, and UL508

DESCRIPTION

The PSDFT480 series of DIN rail power supplies offers 480 watts of power in a 3.15” x 4.88” x 5” package. This series consists of single output models with a universal input voltage range of 3x320-600VAC or 450-850VDC. Features of this series include high efficiency, high reliability, and protection against output short circuit, over current, over voltage, and over temperature conditions. It also has safety according to ANSI/ISA 71012013 G3 and IEC/UL62368, EN61010, UL508.

MODEL SELECTION TABLE

Model Number	Input Voltage Range	Output Voltage	Output Current	Output Voltage Adjustable Range	Output Power	Maximum Capacitive Load	Efficiency
PSDFT480-24S	320-600VAC (450-800VDC)	24V	20A	24-28V	480W	20000μF	95%
PSDFT480-36S		36V	13.3A	36-42V	480W	13000μF	95.3%
PSDFT480-48S		48V	10A	48-56V	480W	10000μF	95.6%

SPECIFICATIONS

All specifications are based on Ta=25°C, Humidity <75%, Nominal Input Voltage, and Rated Output Load unless otherwise noted.
We reserve the right to change specifications based on technological advances.

SPECIFICATION	TEST CONDITIONS		Min	Typ	Max	Unit
INPUT SPECIFICATIONS						
Input Voltage Range	Rated Input (Certified Voltage)		380		480	VAC
	AC Input		320		600	VAC
	DC Input		450		800	VDC
Input Voltage Frequency	AC Input Rated Frequency		50		60	Hz
	AC Input		45		63	
Input Current	Input Rated Current				1.0	A
	400VAC				1.0	
	480VAC				0.8	
Inrush Current	400VAC	Normal Temperature, Rated Load		1.34	10	A
	480VAC			1.34	10	
Power Factor	400VAC			≥0.95		
	480VAC			≥0.95		
Leakage Current	480VAC			<2mA/rms		
Hot Plug				Unavailable		
OUTPUT SPECIFICATIONS						
Output Voltage				See Table		
Voltage Accuracy	Full Load Range			±1.0		%
Line Regulation	Rated Load			±0.5		%
Load Regulation	0%-100% Load			±0.5		%
Output Power				See Table		
Output Current				See Table		
Minimum Load			0			
Dynamic Minimum Load			10			%
Maximum Capacitive Load				See Table		
Ripple & Noise[1]	20MHz bandwidth (Peak-Peak Value)			100		mV
Hold-Up Time	400VAC		18	22		ms
	480VAC		18	22		
Stand-By Power	400VAC			8.2	12	W
	480VAC			10	15	
Temperature Coefficient				±0.03		%/°C

SPECIFICATIONS

All specifications are based on Ta=25°C, Humidity <75% RH, Nominal Input Voltage, and Rated Output Load unless otherwise noted.
We reserve the right to change specifications based on technological advances.

SPECIFICATION	TEST CONDITIONS			Min	Typ	Max	Unit
PROTECTION							
Short Circuit Protection	Constant Current Mode			Continuous, Self-Recovery			
Over Current Protection	Enters constant current mode after 4.5s of normal output, automatic recovery after fault condition is removed			120		150	%Io
	Enters constant current mode, automatic recovery after fault condition is removed				≥150		
Over Voltage Protection	Hiccup, Self-Recovery	24V			≤35		VDC
		36V			≤53		
		48V			≤60		
Over Temperature Protection	Over Temperature Protection Start					85	°C
	Over Temperature Protection Release			65			
ENVIRONMENTAL SPECIFICATIONS							
Operating Temperature				-30		+70	°C
Storage Temperature				-40		+85	°C
Storage Humidity	Non-Condensing			20		90	%RH
Operating Humidity	Non-Condensing			10		95	%RH
Altitude						5000	m
Power Derating	Operating Temperature Derating	+60°C to 70°C		2.5			%/°C
	Input Voltage Derating	320VAC - 350VAC		0.667			%/VAC
MTBF	MIL-HDBK-217F @25°C				≥250,000		H
Pollution Degree					2		
GENERAL SPECIFICATIONS							
Typ. Efficiency	400VAC			See Table			
Switching Frequency[2]	PFC			40		300	kHz
	DC-DC			60		150	
Isolation	Electric strength test for 1min. Leakage Current <5mA		Input-⏚	2500			VAC
			Input-Output	4000			
	Electric strength test for 1min. Leakage Current <10mA		Output-⏚	500			
	Electric strength test for 1min. Leakage Current <1mA		Output-DC OK	500			
Insulation Resistance	Environment Temperature: 25±5°C Relative Humidity: <95%, Non-Condensing Test Voltage: 500VDC		Input-⏚	50			MΩ
			Input-Output	50			
			Output-⏚	50			
FUNCTIONAL SPECIFICATIONS							
Remote Control Switch	0-0.8VDC Power Turn-On			0		0.8	VDC
	4-20VDC Power Turn-Off			4		20	VDC
DC OK Signal	Full Input Voltage Range, Full Load Range	DC OK Power On		0.95Vo-Vo			
		DC OK Power Off		<0.90Vo			
Oring[3]				Support direct parallel use, achieve 2+1 parallel redundancy			
Current Sharing Accuracy	When multiple units are connected in parallel, the sub-modules shunt more than 50% of the rated load				±5		%
LED Signal	Main Output Status Indication	Normal Work		Green On			
		Peak to power operation or about to enter over temperature protection		Red On			
		Power Off (No AC Input) or PS ON Off		Turn-Off			
RS485-B, RS485-A				RS485 Communication			
PHYSICAL SPECIFICATIONS							
Dimensions (L x W x H)				3.15in x 4.88in x 5in (80mm x 124mm x 127mm)			
Weight				2.76lbs (1.25kg)			
Cooling				Free Air Convection			
Case Material				Metal (AL5052, SPCC)			

SPECIFICATIONS

All specifications are based on Ta=25°C, Humidity <75% RH, Nominal Input Voltage, and Rated Output Load unless otherwise noted.
We reserve the right to change specifications based on technological advances.

SPECIFICATION	TEST CONDITIONS			Min	Typ	Max	Unit
SAFETY CHARACTERISTICS & EMC							
Safety Standards[5][6]					UL61010-1, UL61010-2-201 Safety Approval & EN62368-1 (Report) Design refers to IEC/UL62368-1, EN61010-1, EN61010-2-201, UL508		
Safety Class					Class I, ANSI/ISA71.04-2013		
Sinusoidal Vibration	10-200Hz, 2g, three directions of X, Y, Z axis				GB2423.10, IEC60068-2-6		
Emissions	CE		CISPR32 EN55032		Class B		
	RE		CISPR32 EN55032		Class B		
	Harmonic Current		IEC/EN61000-3-2		Class A		
	Voltage Flicker		IEC/EN61000-3-3		Fulfilled		
Immunity	ESD	IEC/EN61000-4-2	Contact ±8KV/Air ±15KV		Perf. Criteria A		
	RS	IEC/EN61000-4-3	20V/m		Perf. Criteria A		
	EFT (Input)	IEC/EN61000-4-4	±4KV		Perf. Criteria A		
	EFT (Output)	IEC/EN61000-4-4	±2KV		Perf. Criteria A		
	EFT (DC OK)	IEC/EN61000-4-4	±2KV		Perf. Criteria A		
	Surge (Input)	IEC/EN61000-4-5	Line to Line ±2KV/Line to PE ±4KV		Perf. Criteria A		
	Surge (Output)	IEC/EN61000-4-5	Vo+ to Vo- ±500V: Vo+/Vo- to PE ±1KV		Perf. Criteria A		
	Surge (DC OK)	IEC/EN61000-4-5	DC OK to PE ±1KV		Perf. Criteria A		
	CS	IEC/EN61000-4-6	20Vr.m.s		Perf. Criteria A		
	Voltage Dips, Short Interruptions and Voltage Variations Immunity	IEC/EN61000-4-11	0% 70%		Perf. Criteria A		
	Intercom Interference Test		MS-SOP-DQC-007		Perf. Criteria A		

NOTES

1. The “tip and barrel method” is used for ripple and noise test. Output parallel 47uF parallel capacitor and 0.1uF ceramic capacitor. Contact factory for specific information.
2. The power supply has two converters with two different switching frequencies.
3. For all applications. Contact factory for more information.
4. When multiple units work with current sharing, the output voltage deviation of each power supply working alone shall not exceed 100mV.
5. Indoor use meets UL 61010 certification standards.
6. This product is Listed to applicable standards and requirements by UL.
7. Room temperature derating of 3.5°C/1000m is needed for operating altitude greater than 2000m.
8. In order to improve the efficiency at high input voltage, there will be audible noise generated, but it does not affect product performance and reliability.
9. Customization is available, please contact factory.
10. Product customization is available. Please contact factory.
11. The out case needs to be connected to PE (⏚) of system when the terminal equipment is operating.
12. Output can be adjusted by the ADJ. clockwise to increase.
13. Products classified to ISO14001 and related environmental laws and regulations and should be handled by qualified units.
14. The power supply is considered a component which will be installed into terminal equipment. All EMC tests should be confirmed with the final equipment. Contact factory for EMC test operation instructions.

**Due to advances in technology, specifications subject to change without notice.*

WARNINGS

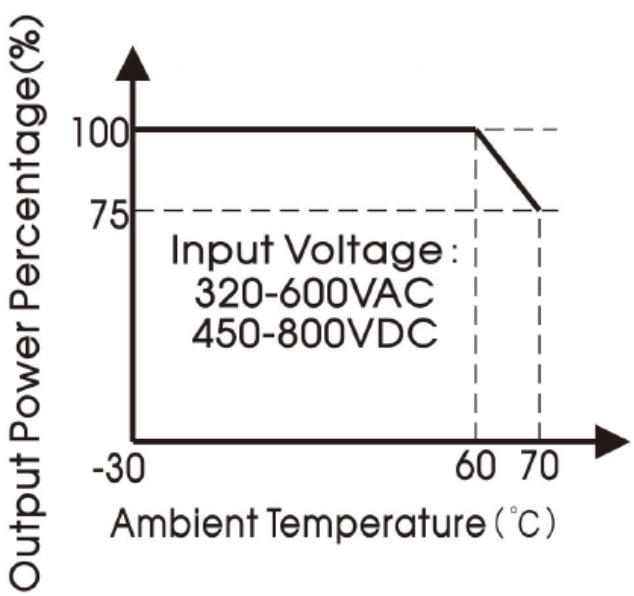
WARNING: Risk of electrical shock, fire, personal injury or death:

1. Do not use the power supply without proper grounding (Protective Earth). Use the terminal on the input block for earth connection and not one of the screws on the housing.
2. Turn power off before working on the device, protect against inadvertent re-powering.
3. Make sure that the wiring is correct by following all local and national codes
4. Do not modify or repair the unit.
5. Do not open the unit as high voltages are present inside.
6. Use caution to prevent any foreign objects from entering the housing.
7. Do not use in wet locations or in areas where moisture or condensation can be expected
8. Do not touch during power-on or immediately after power-off, hot surfaces may cause burns 
9. For ambient temperature ≤60°C, use ≥90°C – copper wire only; for ambient temperature >60°C to 85°C, use ≥105°C – copper wire only; use only wires with a minimum dielectric strength of 300V (input) and 60V (output)

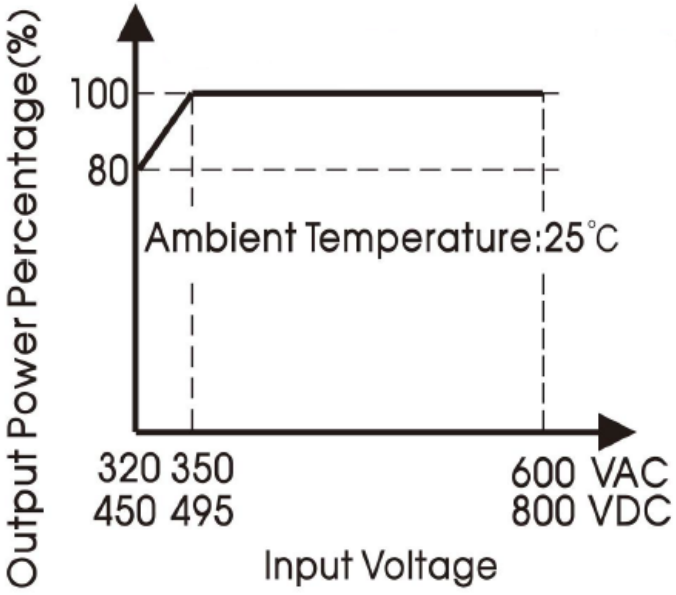
**Due to advances in technology, specifications subject to change without notice.*

CHARACTERISTIC CURVES

Temperature Derating Curve

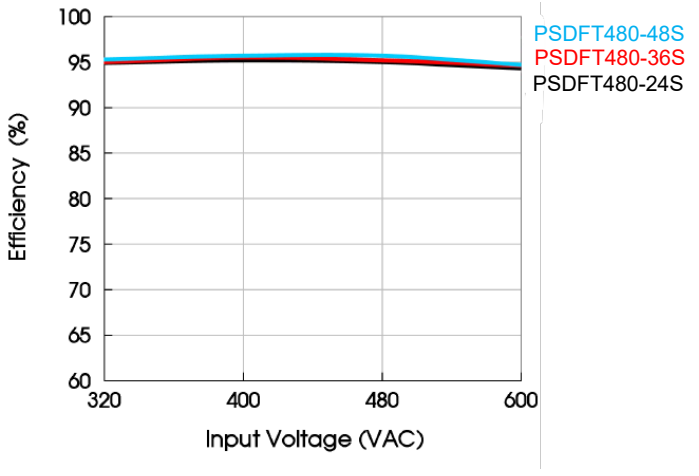


Input Voltage Derating Curve

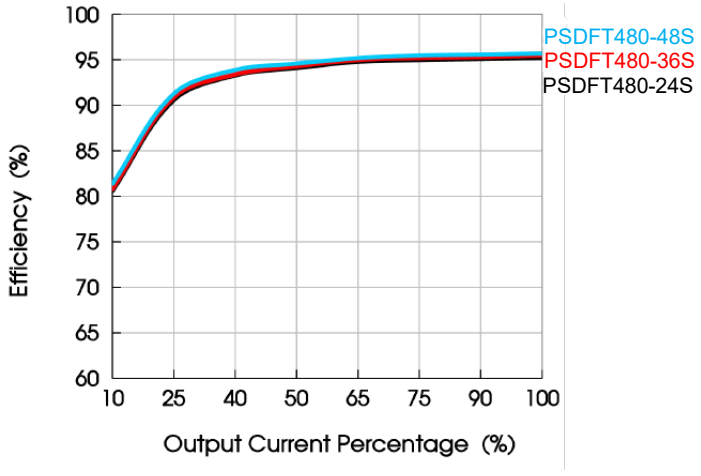


Note:
1. With an AC input voltage between 320-350VAC/450-495VDC the output power must be derated as per the temperature derating curves.
2. This product is suitable for applications using natural air cooling, for applications in closed environment, please contact factory.
3. The operating temperature and the ambient temperature are determined according to the air temperature at 2cm below the power supply.

Efficiency vs. Input Voltage (Full Load)

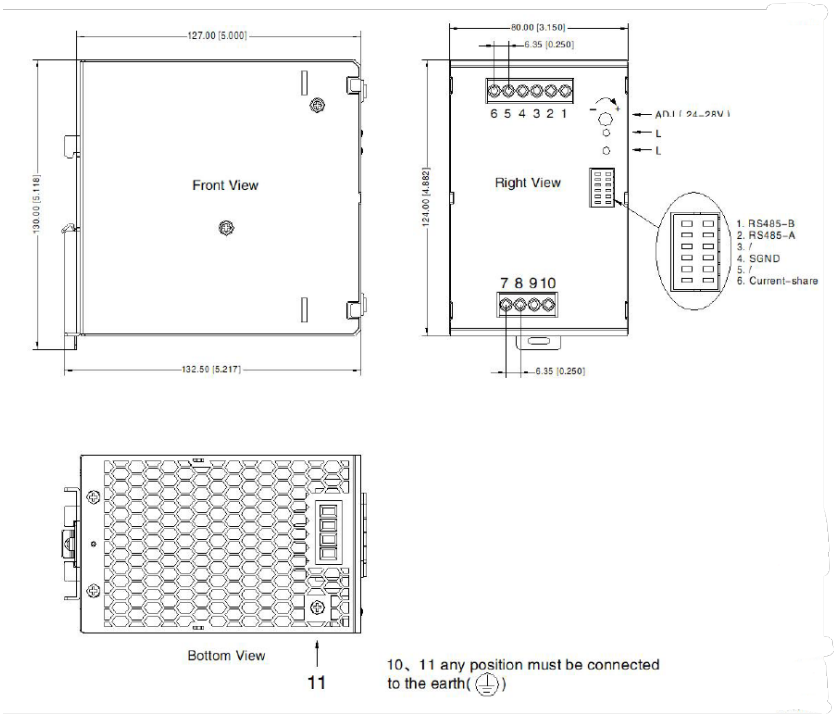


Efficiency vs Output Load (Vin=400VAC)



MECHANICAL DRAWINGS

THIRD ANGLE PROJECTION

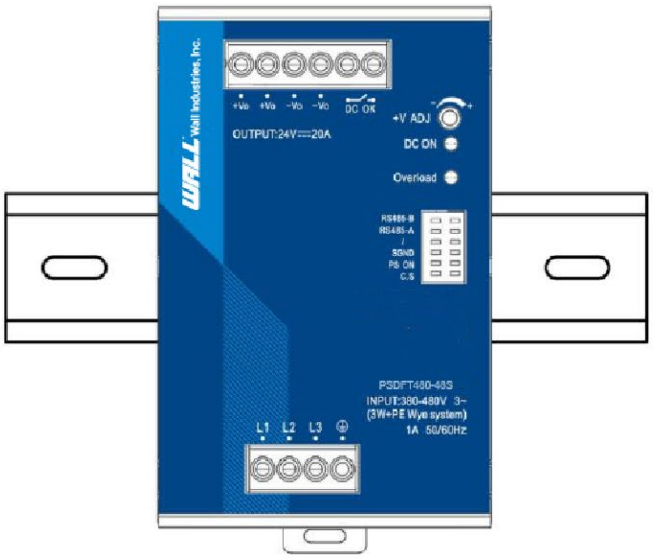


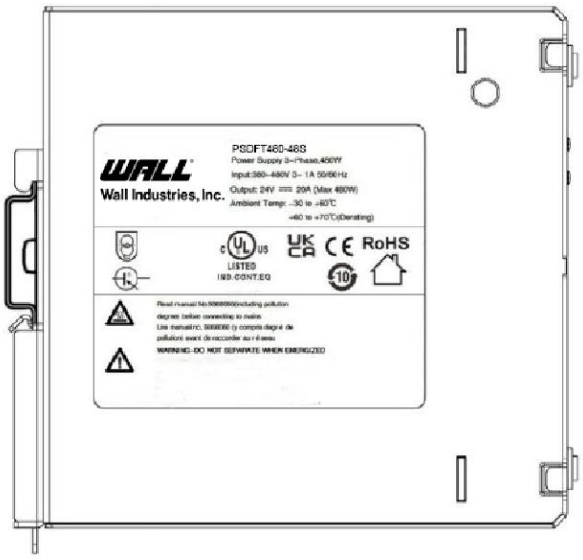
Pin-Out

Pin	Mark
1	DC OK
2	
3	-Vo
4	-Vo
5	+Vo
6	+Vo
7	L1
8	L2
9	L3
10	⏚

Notes:
Unit: mm [inch]
ADJ: Output Adjustable Resistor
Wire Range: Input: 22-10AWG
Output: 24V: 14-10AWG
36V: 16-10AWG
48V: 18-10AWG
Signa: 24-16AWG
Input Tightening Torque: Max 0.5N·m
Output Tightening Torque: Max 0.5N·m
Mounting Rail: TS35, rail needs to connect safety ground
General Tolerances: ±1.00 [±0.039]

INSTALLATION DIAGRAM



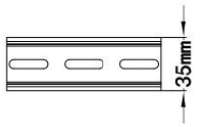


Note: Keep the following installation clearances 20mm on top, 20mm on the bottom, 5mm on the left and right sides are recommended when the device is loaded permanently with more than 50% of the rated power. Increase this clearance to 15mm in case the adjacent device is a heat source (e.g. another power supply).

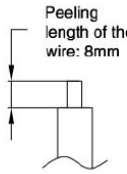
Materials required in the installation		
1	Product	1 PC
2	Phillips screwdriver Slotted screwdriver	1 PC
3	TS35/7.5 or TS35/15	1 PC
	24–10AWG Wire	/ PCS
4	The content is for reference only. Regarding the actual wire diameter and tightening torque, refer to the dimensional drawing.	


Product


Phillips screwdriver
Slotted screwdriver
Diameter of the cutting
Diameter: 3mm

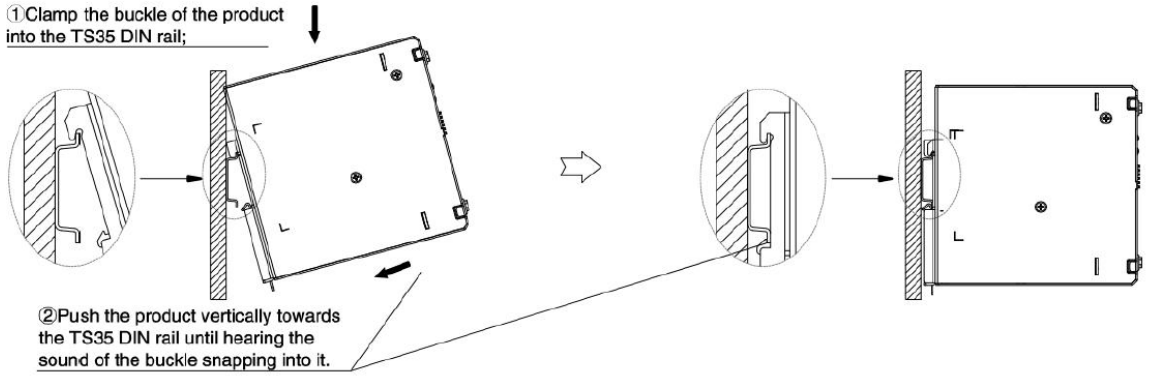


TS35/7.5 or TS35/15

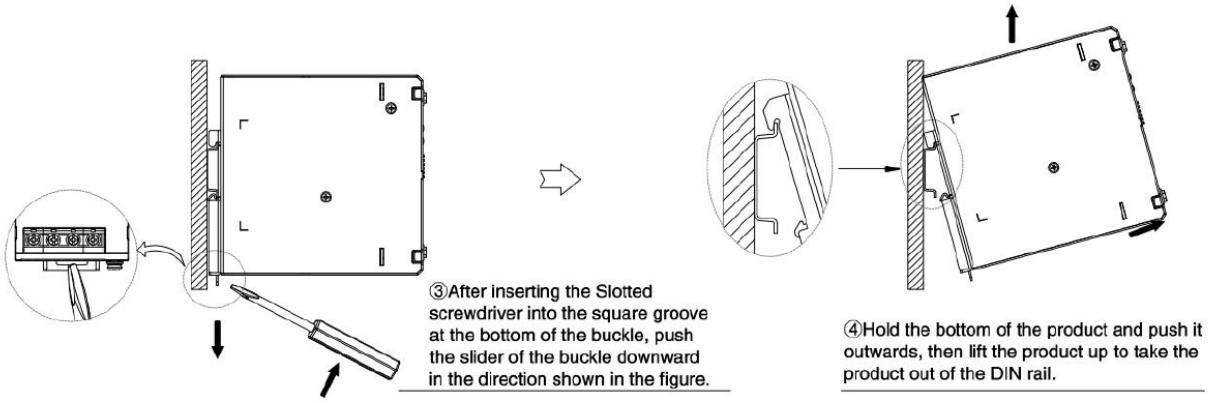


24–10AWG Wire

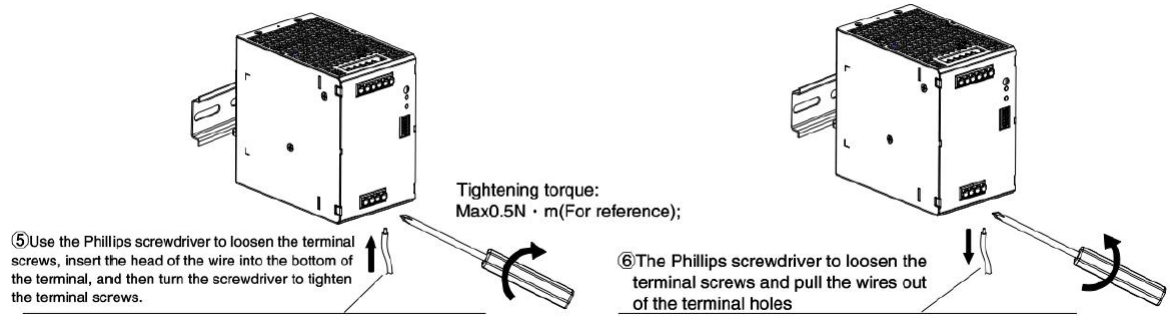
Installation Steps ①–②



Disassembly Steps ③–④



Wiring / Unwiring Steps ⑤–⑥



COMPANY INFORMATION

Wall Industries, Inc. has created custom and modified units for over 50 years. Our in-house research and development engineers will provide a solution that exceeds your performance requirements on-time and on budget. Our ISO9001: 2015 certification is just one example of our commitment to producing a high quality, well-documented product for our customers.

Our past projects demonstrate our commitment to you, our customer. Wall Industries, Inc. has a reputation for working closely with its customers to ensure each solution meets or exceeds form, fit and function requirements. We will continue to provide ongoing support for your project above and beyond the design and production phases. Give us a call today to discuss your future projects.

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