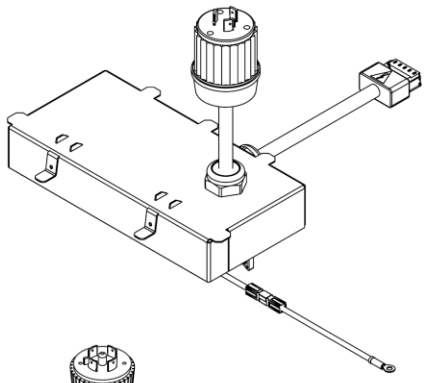
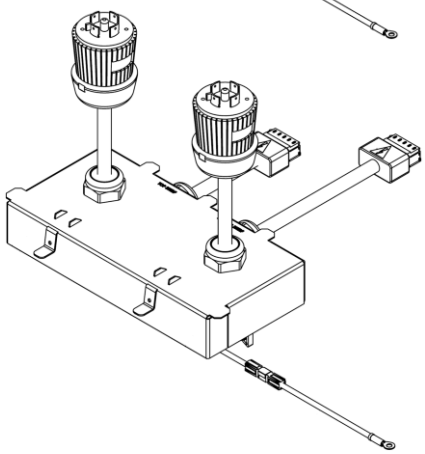
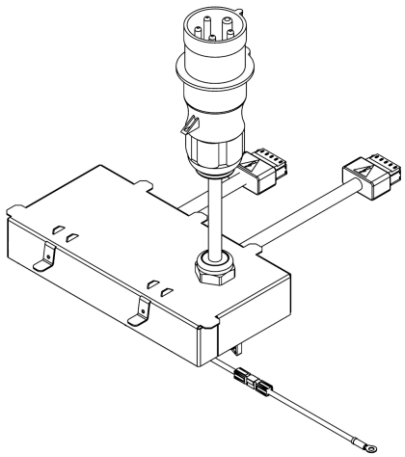
AC Power Distribution Units

YSD.00162, YSD.00152, YSD.00217, YSD.00218, YSD.00219, YSD.00222

for V2 Open Rack







Bel Power Solutions AC Power Distribution Unit (PDU) is used to distribute AC voltage in IT Racks following the Open Rack specification.

This device is installed in an IT chassis and works in conjunction with the OCP V2 Open Rack.

The AC lines are distributed to the V2 Power Shelves, which provide DC power to the Open Rack IT devices

Key Features & Benefits

- Designed for V2 Power shelf
- Different models cover different AC input voltage configurations
- Ground cable added on rev. B models
- Dual or single AC outputs
- Full compatibility to Open Compute Project Specification
- Robust mechanical design
- Surge protections included
- UL approved
- Link to OCP specification:
  http://www.opencompute.org/wiki/Open_Rack/SpecsAndDesigns

RoHS Compliant

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Please read our datasheet & drawing disclaimer here.

1. ORDERING INFORMATION

MODEL	PART NUMBER	INPUT VOLTAGE	INPUT CURRENT	# of INPUTS	# of OUTPUTS	PLUG TYPE	SURGE PROTECTION
FCBK V2 US 20A 277V 3P AC PDU	YSD.00162	277 / 480 VAC	20 A (x2)	2	2	L22-20P	Yes
FCBK V2 EU 32A 230V 3P AC PDU	YSD.00152	240 / 415 VAC	32 A (sum per phase)	1	2	IEC 60309	Yes
FCBK V2 US 30A 208V 3P AC PDU	YSD.00217	120 / 208 VAC	30 A (x2)	2	2	L21-30P	No
FCBK V2 US 30A 277V 3P AC PDU	YSD.00218	277 / 480 VAC	30 A (sum per phase)	1	2	L22-30P	Yes
FCBK V2 US 20A 277V 1P AC PDU	YSD.00219	277 VAC	20 A	1	1	L7-20P	No
FCBK V2 US 30A 208V 3P AC PDU	YSD.00222	120 / 208 VAC	30 A (x2)	2	2	L21-30P	No

2. INPUT SPECIFICATIONS

The table below shows a summary of the PDU input electrical characteristics:

PARAMETER	CONDITIONS / DESCRIPTION	MIN	NOM	MAX	UNITS
AC Input Voltage	YSD.00162 (3-phase WYE)		277 / 480		VAC
	YSD.00152 (3-phase WYE)		240 / 415		
	YSD.00217 (3-phase Delta wiring)		120 / 208		
	YSD.00218 (3-phase)		277 / 480		
	YSD.00219 (1-phase)		277		
	YSD.00222 (3-phase Delta wiring)		120 / 208		
Frequency			50 / 60		Hz
Nominal Continuous Input Current	YSD.00162 per phase (16 A, de-rated 80%) @ Tamb 45°C			20	Arms
	YSD.00152 per phase @ Tamb 45°C			32	
	YSD.00217 per phase @ Tamb 45°C			30	
	YSD.00218 per phase @ Tamb 45°C			30	
	YSD.00219 per phase @ Tamb 45°C			20	
	YSD.00222 per phase @ Tamb 45°C			30	
Surge Protection	Differential Mode Common Mode		2 4		kV

2.1 INPUT CONNECTIONS

The following pictures show the different connectors used in the different models:

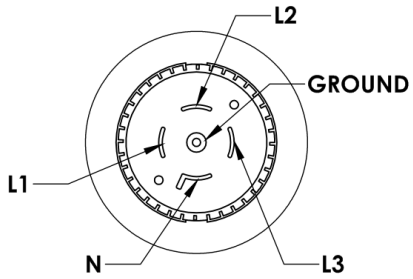

Figure 1. L22-20P

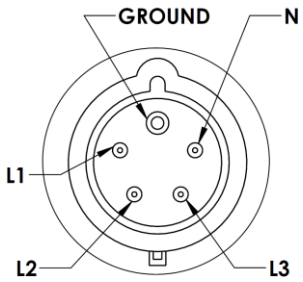

Figure 2. IEC 60309

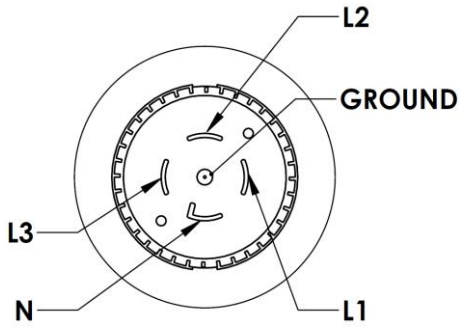

Figure 3. L21-30P / L22-30P

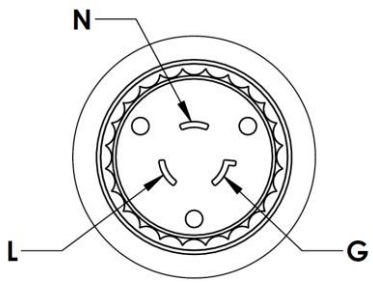

Figure 4. L7-20P

LINE	DESCRIPTION
L1	X (black)
L2	Y (red)
L3	Z (blue)
N	W (white) Not connected on YSD.00217
G	G (green)

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2.2 SURGE PROTECTION (MODELS: YSD.00162, YSD.00152, YSD.00218)

Each of the input three lines (L1, L2, L3) is connected to the neutral line (N) via a varistor (at least 20 mm diameter) with a protection device (thermal fuse).
After the varistor all three lines can be connected together and then connected to ground via a 3.0 kV gas tube.
Each of the 6 varistors has a protection fuse in series. Each of the three lines also has a 32 A inductor, with 1 µH.
A 4 W, 100 ohm resistor shall be placed in parallel with each of the inductors
The five AC input wires (L1, L2, L3, N, G) is securely connected to the surge protection PCB via terminal block input and the five output wires from the surge protection circuit (L1', L2', L3', N, G) are securely connected via a terminal block.

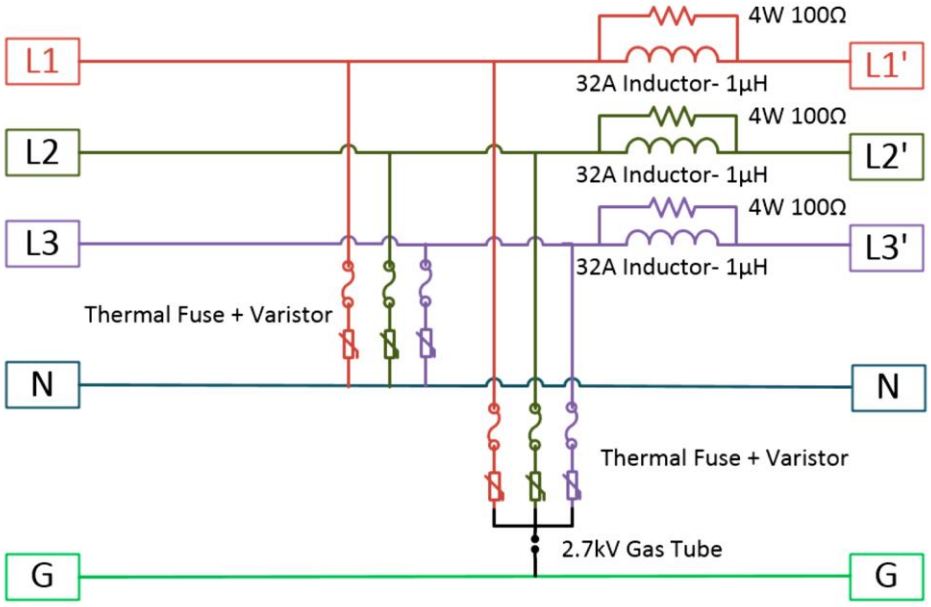

Figure 5. Surge Protection Circuit Schematic

3. OUTPUT SPECIFICATIONS

The output connectors distributes the AC voltage to the power shelves on the Open Rack.

3.1 OUTPUT CONNECTIONS

The following picture show the output connector and the pin assignment.

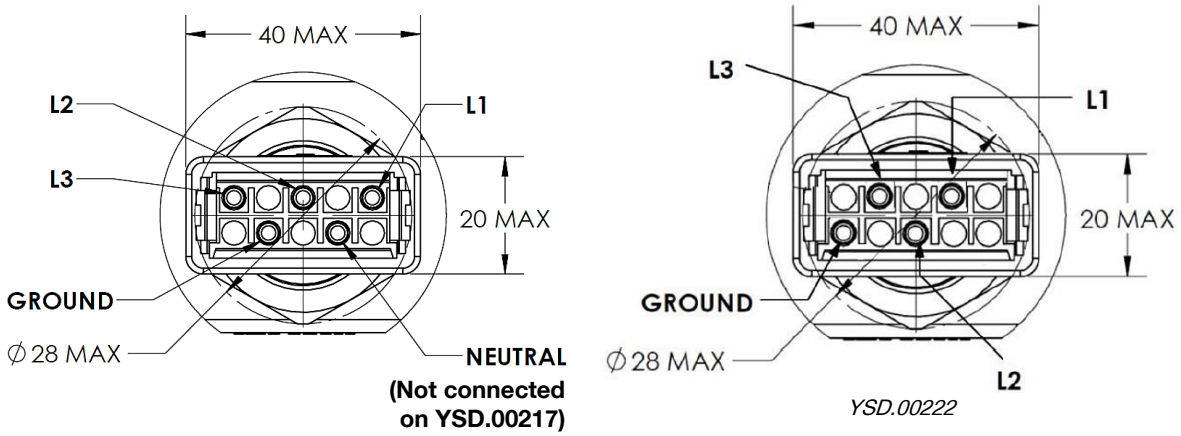

Figure 6. Female Positronic SP5YYE1F0091/AA

4. SAFETY, REGULATORY AND EMC SPECIFICATIONS

Safety certification has been performed in conjunction with specific system AC breaker types. In the field, the following circuit breakers PNs need to be alternatively used for upstream protection of the PDUs.

1. Merlin Gerin MGN61365 20A
2. Eaton C23 EMCH 332 32A
3. Square D QOU330 30A
4. Schneider C60 20A Multi 9 (UL489 File E215117/CSA No5 MC 179014

The table below summarizes the safety approval certificates.

PARAMETER	CONDITIONS / DESCRIPTION	MIN	NOM	MAX	UNITS
Agency Approvals	UL 62368-1 and CAN/CSA C22.2 No. 62368-1:19 CE Mark RoHS Compliant				
High-Pot Test	AC Input to Earth GND	2121			VDC

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5. ENVIRONMENTAL SPECIFICATIONS

PARAMETER	CONDITIONS / DESCRIPTION	MIN	NOM	MAX	UNITS
Altitude	Operating Non-Operating (without derating)			3000 10000 15000 49000	m ft m ft
Operating Ambient Temperature		-5		+45	°C
Storage Temperature		-40		+70	°C
Transportation Temperature	Short term storage, 72 hours	-55		+85	°C
Relative Humidity	Operating: Non-condescending Non-operating: 38.7°C maximum wet bulb temperature with no cosmetic damage	10 5		90 95	%
Shock	Operating: 11 ms, 3 half-sine wave shocks, 3 axes Non-Operating: 2 ms, 6 half-sine wave shocks, 3 axes			5 140	g
Sinusoidal Vibration	Operating: zero to peak, 10 to 500 Hz, 0.25 oct/min Non-Operating : zero-to-peak, 10 to 500 Hz, 0.5 oct/min			0.25 0.75	g

6. MECHANICAL SPECIFICATIONS

PARAMETER	CONDITIONS / DESCRIPTION	MIN	NOM	MAX	UNITS
Dimensions (W x H x D)			248 x 45 x 121		mm

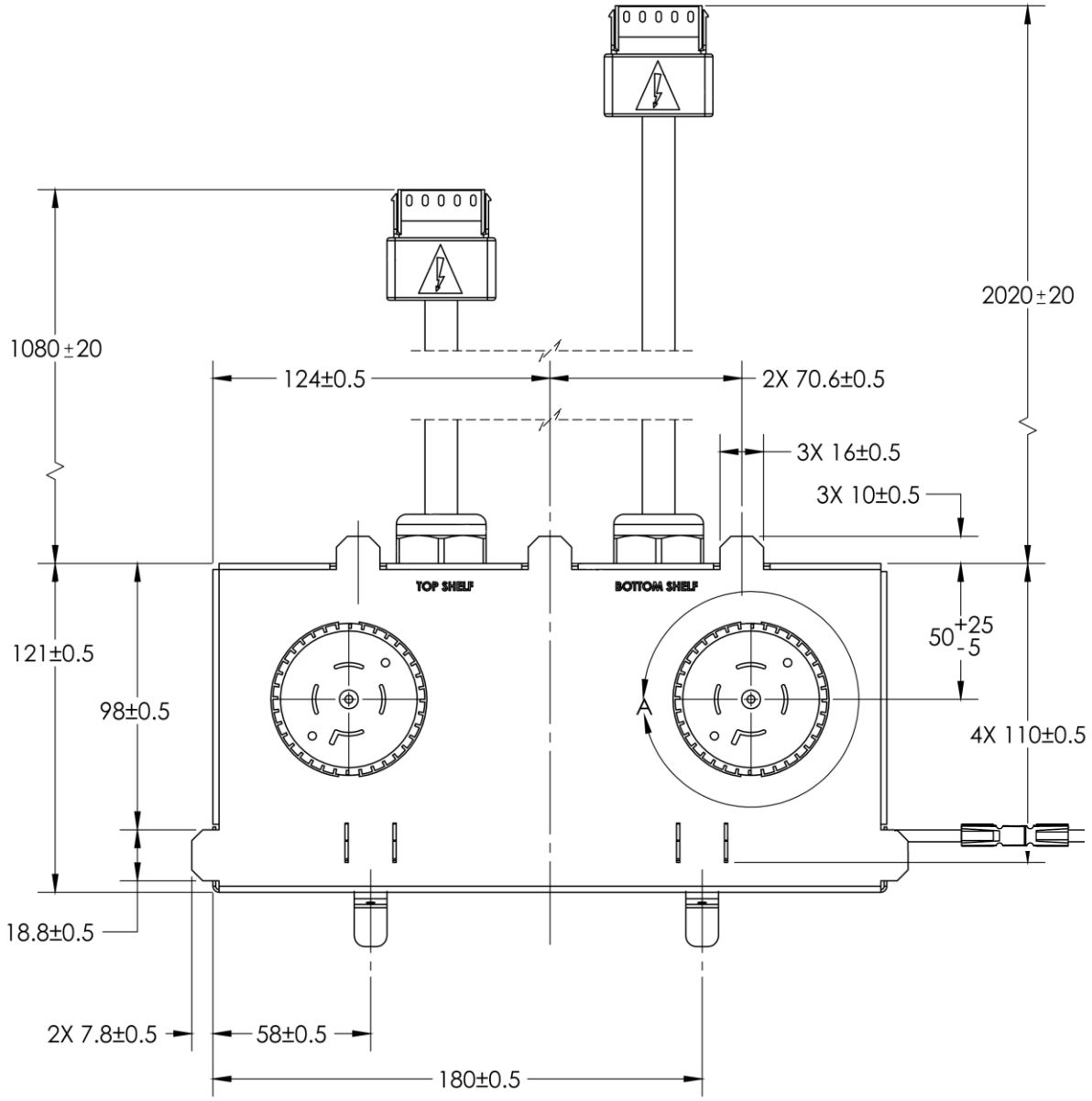

Figure 7. Dimension Drawing AC PDU (Top View) with 2 Input / 2 Output Connectors (Models YSD.00162, YSD.00217, Connectors may vary)

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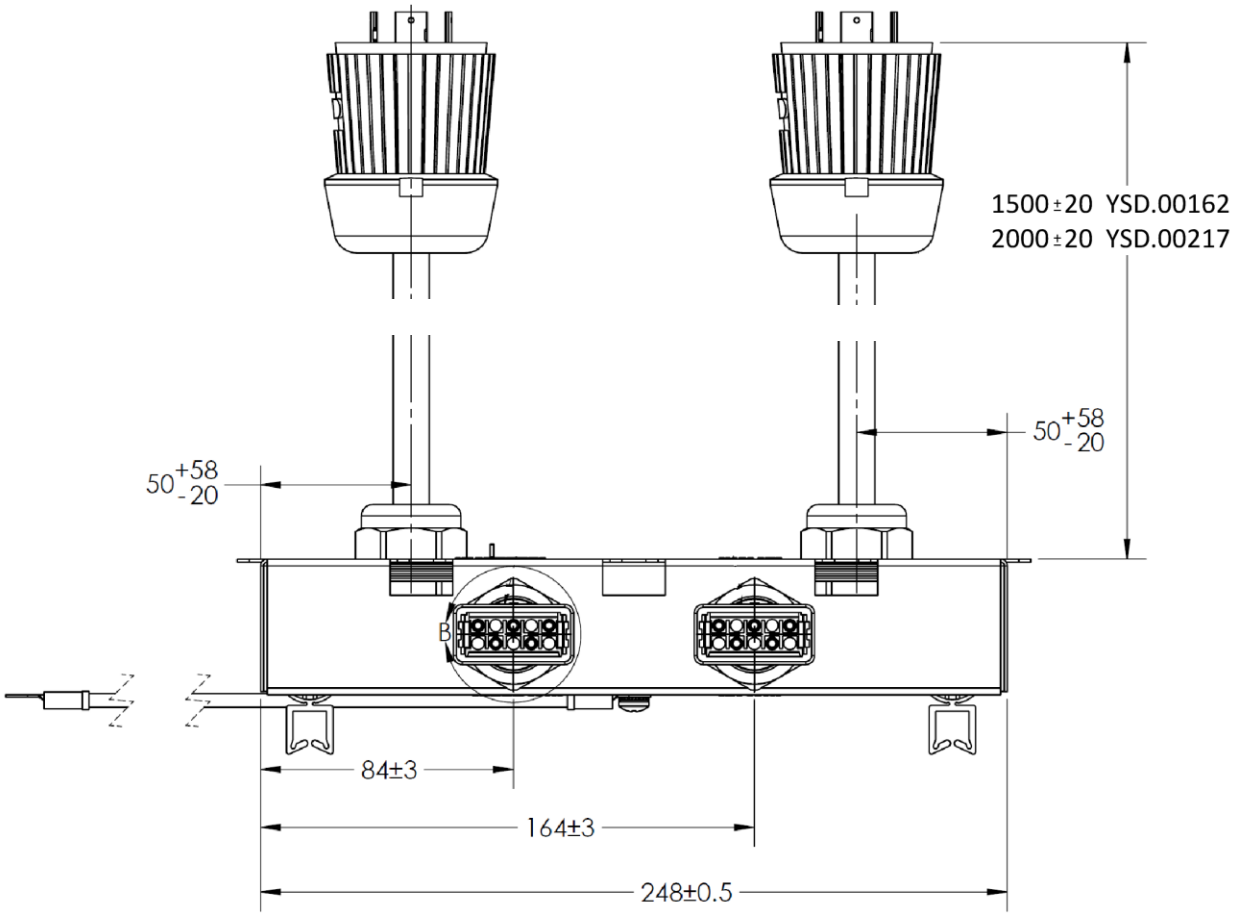

Figure 8. Dimension Drawing AC PDU (Side View) with 2 Input / 2 Output Connectors (Models YSD.00162, YSD.00217)

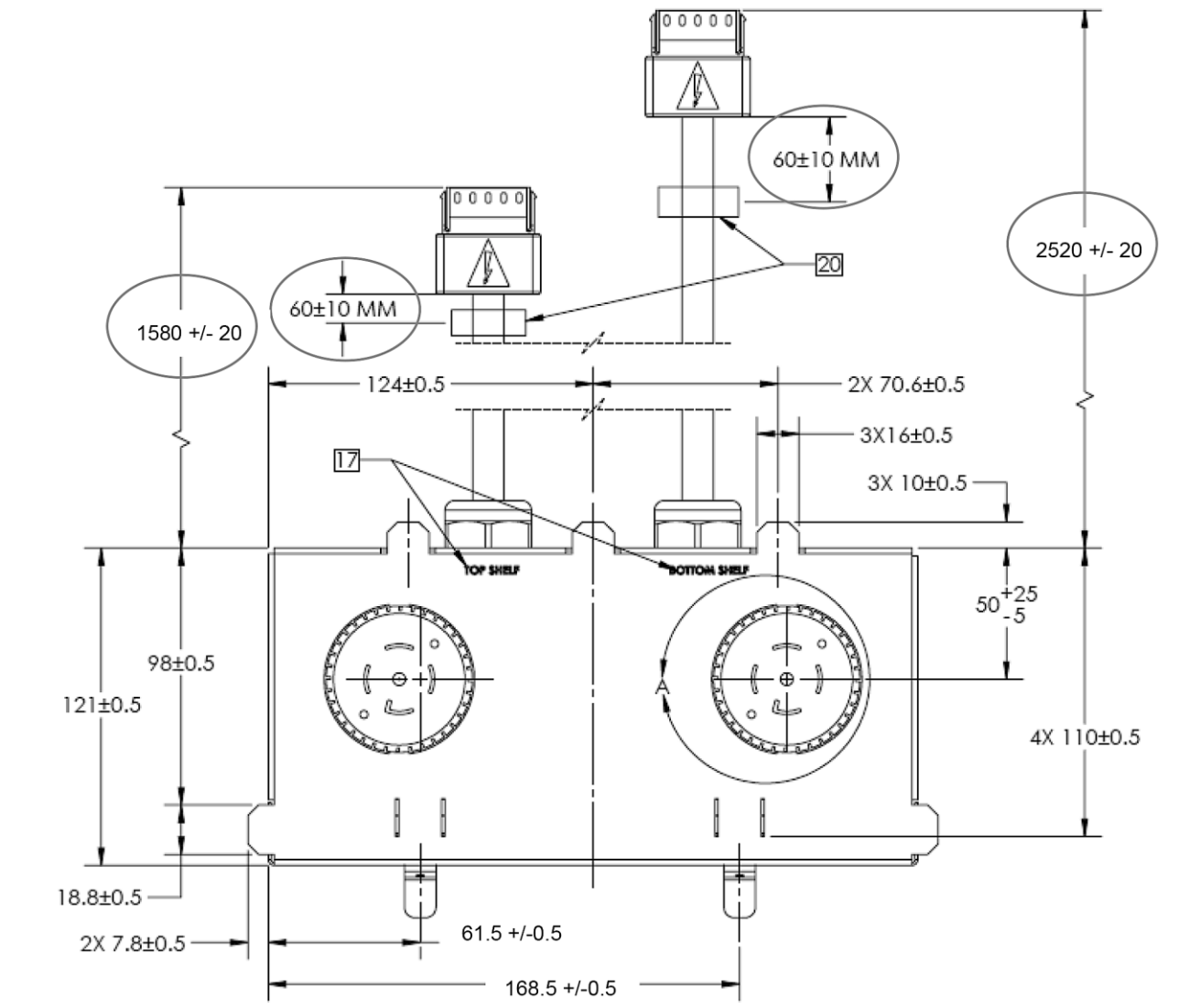

Figure 9. Dimension Drawing AC PDU (Top View) with 2 Input / 2 Output Connectors (Model YSD.00222)

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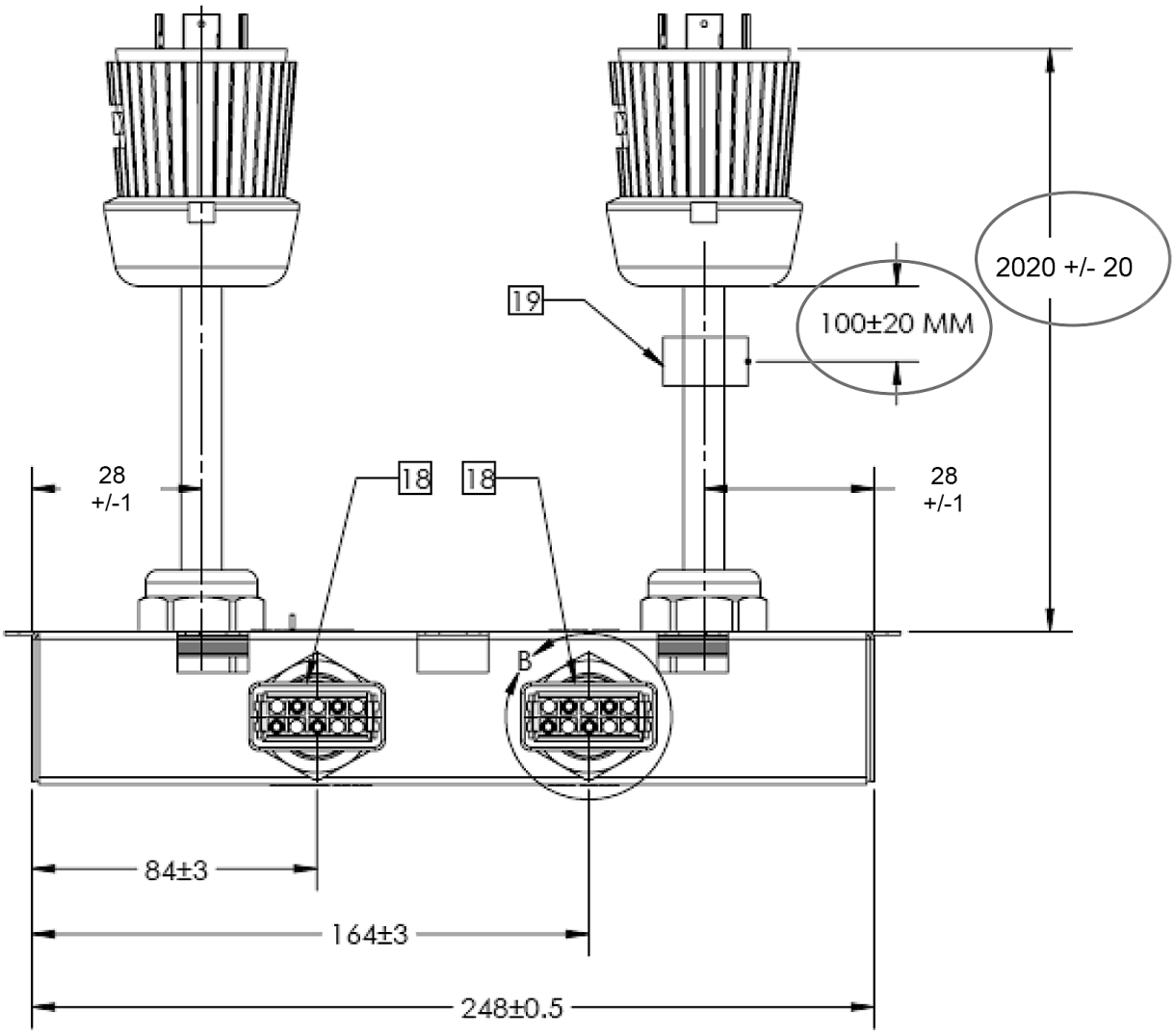

Figure 10. Dimension Drawing AC PDU (Side View) with 2 Input / 2 Output Connectors (Model YSD.00222)

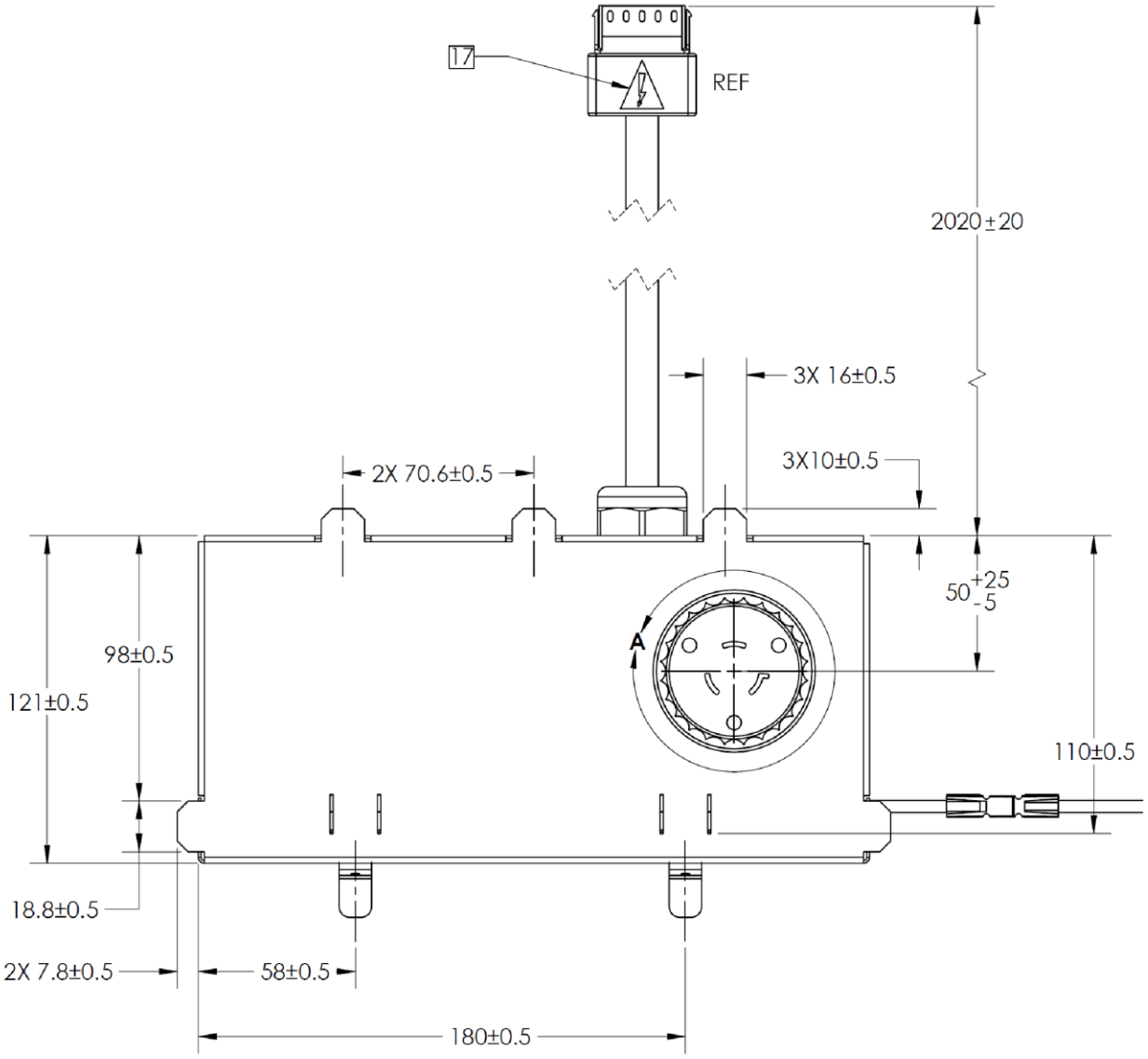

Figure 11. Dimension Drawing AC PDU (Top View) Model YSD.00219

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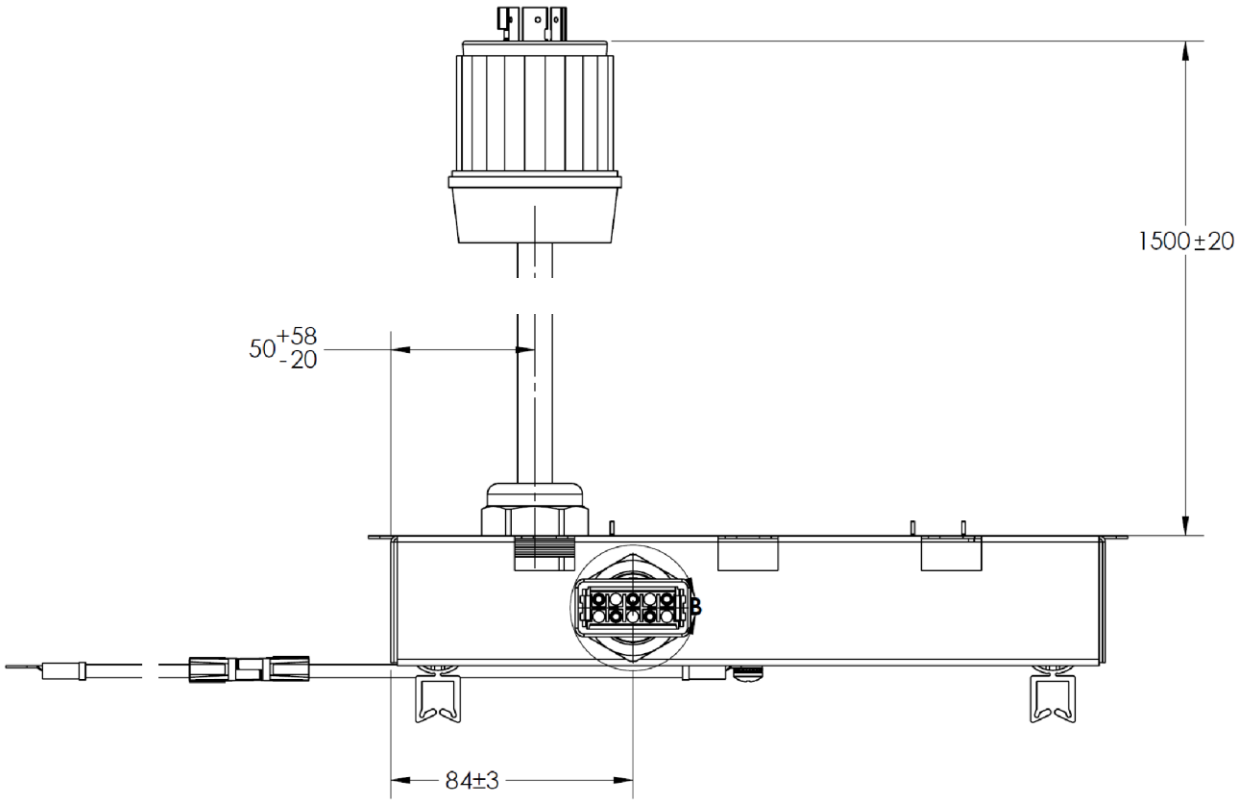

Figure 12. Dimension Drawing AC PDU (Side View) Model YSD.00219

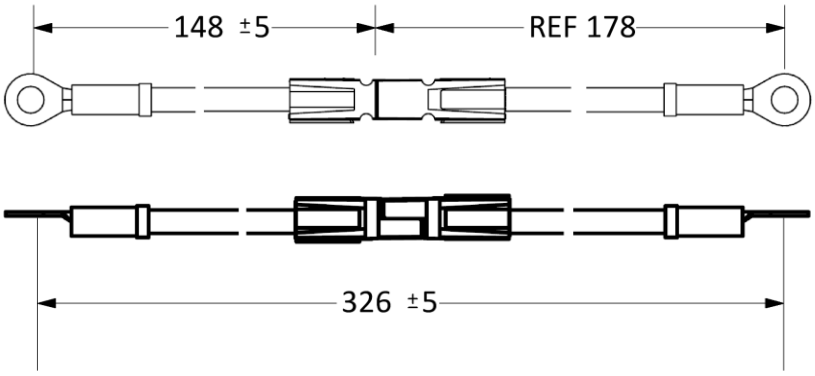

Figure 13. Ground Cable (10 AWG) on every PDU. Featuring 2 Ring Crimp for M5 screw

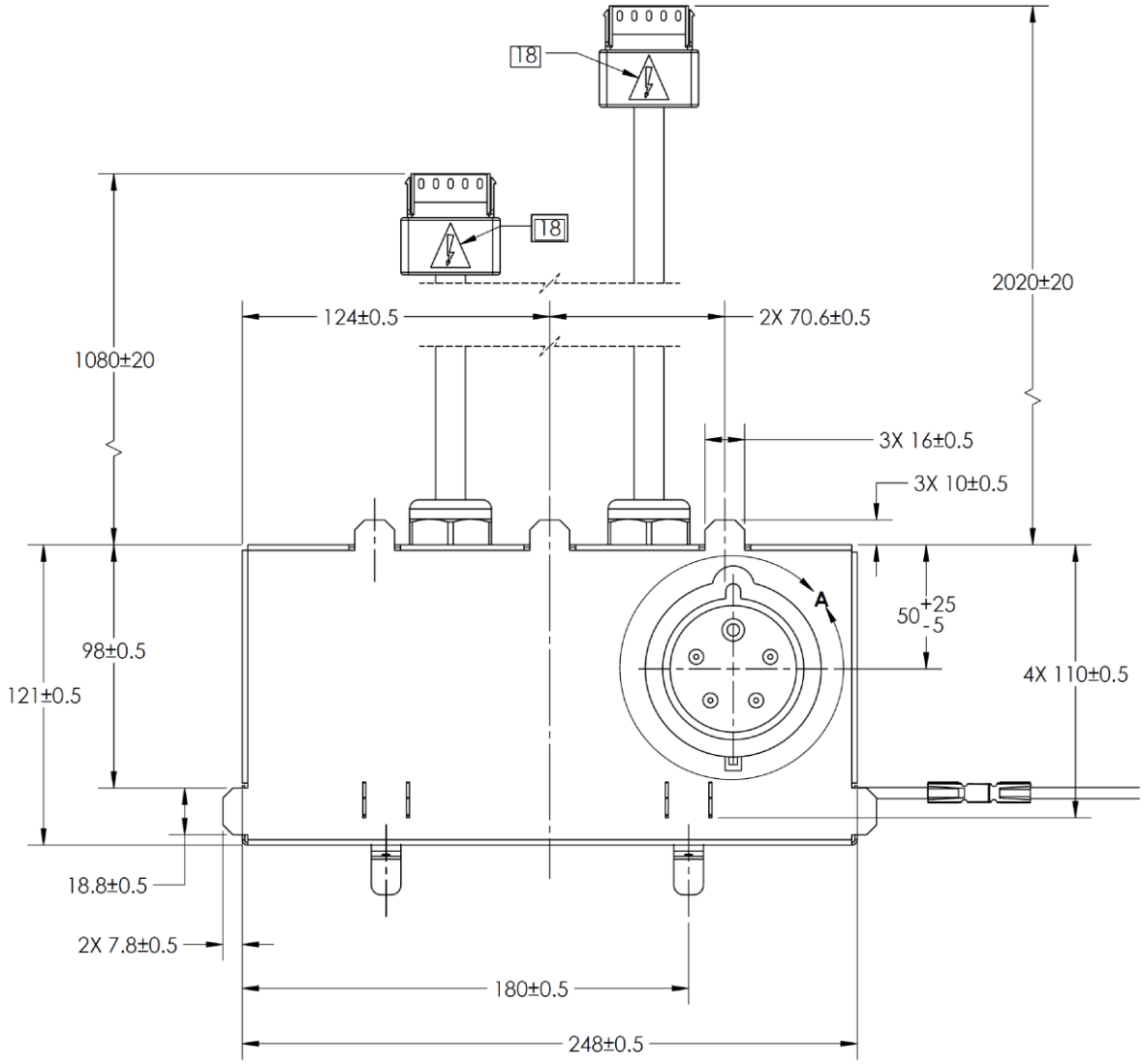

Figure 14. Dimension Drawing AC PDU (Top View) Model YSD.00152

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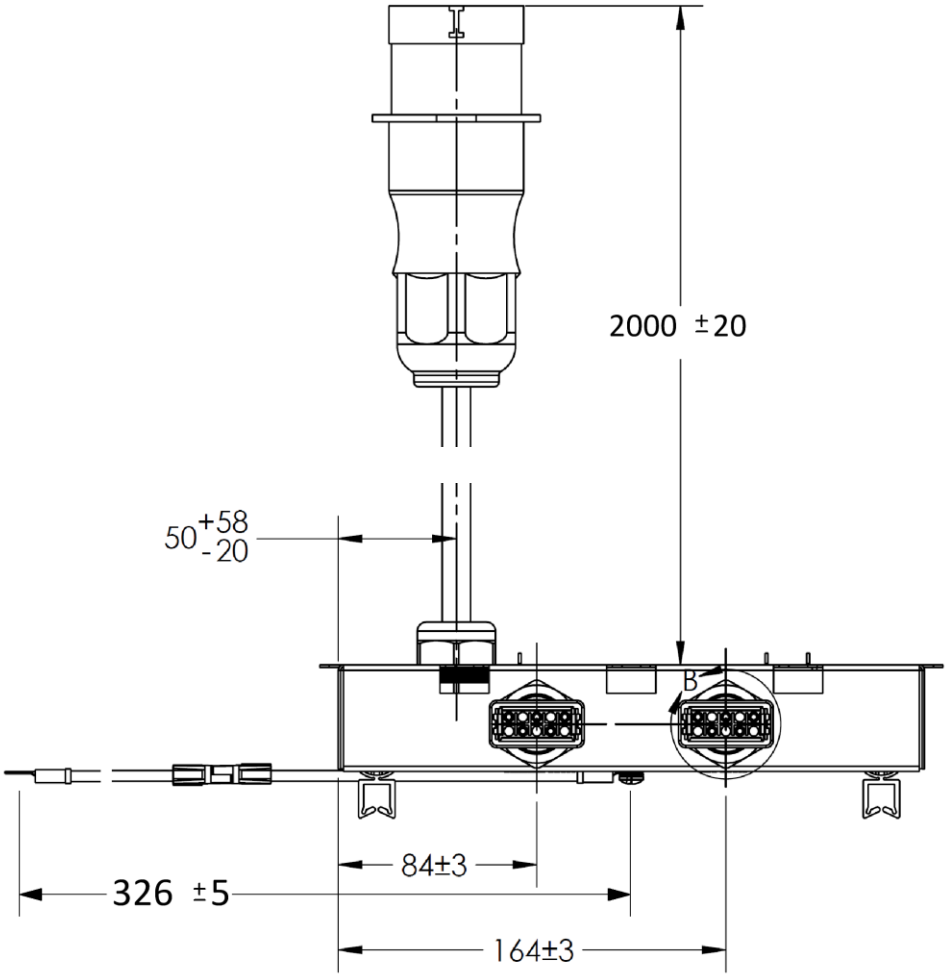

Figure 15. Dimension Drawing AC PDU (Side View) Model YSD.00152

For more information on these products consult: tech.support@psbel.com

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