Smart DC Power Supplies

Amazon *IPC-3 and IPC-5*

75 Volt Intelligent Power Center

Amazon IPC-3 and IPC-5 power supplies deliver stiff, responsive 75 VDC power to Eclipse, Meridian, and ClearPath servo systems. These DSP-based supplies feature tight power regulation and high peak output to support high performance motion control. And, with a small footprint and attractive pricing, the IPC saves on space, weight, and machine cost as well.

Amazon *IPC-5 Power Supply*

IPC-3 / IPC-5 Features

- ✔ 75 VDC output with tight regulation, even with large peak loads.
- ✔ Dual AC input voltage ranges: 95-125VAC; 190-250VAC.
- ✔ High peak output relative to continuous rating (2.5x), optimized for servo drive peak demand requirements.
- ✔ Rapid output bus discharge upon AC power removal.
- ✔ Built-in, automatic regenerated power management.
- ✔ Large output capacitance for reduced ripple and increased efficiency.
- ✔ Fan mounting holes provided for increased continuous power (IPC-5 only).
- ✔ IPC-5 is fully enclosed; IPC-3 is open frame.
- ✔ Three year warranty.

Front Panel

Regen Indicator
See LED blink code reference later in this document for details.

DC Output Connectors
Outputs 75VDC to your servo drive, step drive, or ClearPath motor.

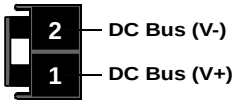
Information LED
See LED blink code reference later in this document for details.

AC Input Connector
Accepts standard 115 VAC and 230 VAC (nominal) voltage ranges.

Note: No user serviceable parts inside

Mating Components

DC Output
Mating Connector

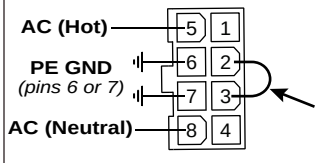


WIRE ENTRY VIEW

Mating Components List

Housing: Molex/44441-2002
Terminals: Molex/43375-0001
Crimp Tool: Molex/63811-7200
Cable: 14-16AWG, 600V, stranded

AC Input
Mating Connector



WIRE ENTRY VIEW

Install jumper (18AWG min.) when wiring to 95-125VAC

Omit jumper when wiring to 190-250 VAC

Mating Components List

Housing: Molex/39-01-2080
Terminals: Molex/39-00-0039
Crimp Tool: Molex/638190900
Cable: 18AWG, 300V, stranded

Safety and Use Instructions

IMPORTANT: Read this section before attempting to install, apply power to, or operate an IPC power supply. Failure to understand and follow the safety and use information presented in this document could result in property damage, bodily injury or death.

Precautionary Statement

Always follow appropriate safety precautions when installing and using a power supply. Equipment should be designed and utilized to prevent personnel from coming into contact with moving parts and electrical contacts that could potentially cause injury or death. Read all cautions, warnings and notes before attempting to operate or service power supplies and motion control devices. Follow all applicable codes and standards when using this equipment. Failure to apply this equipment as described may impair or neutralize protections built into the product.

General Disclaimer

The User is responsible for determining the suitability of products for their different applications. The User must ensure that Teknic's products are installed and utilized in accordance with all local, state, federal and private governing bodies and meet all applicable health and safety standards.

Teknic has made all reasonable efforts to accurately present the information in the published documentation and shall not be responsible for any incorrect information which may result from unintentional oversights. Due to continuous product improvements, the product specifications as stated in the documentation are subject to change at any time and without notice. The User is responsible for consulting a representative of Teknic for detailed information and to determine any changes of information in the published documentation.

Should Teknic's products be used in an application that is safety critical, the User must provide appropriate safety testing of the products, adequate safety devices, guarding, warning notices and machine-specific training to protect the operator from injury.

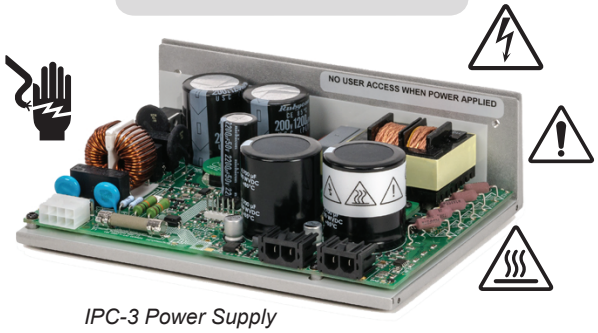
General Safety Instructions (all models)

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Do not use this apparatus near water.
5. Clean only with a dry cloth.
6. Do not block any ventilation openings. Install in accordance with manufacturer's instructions.
7. Do not install near any heat sources.
8. Protect the power cord and plug from being walked on or pinched particularly at plugs, convenience receptacles, and the point where it exits from the apparatus.
9. Only use attachments and accessories specified by Teknic.
10. Refer all servicing to qualified service personnel.
11. The plug on the power cord is the AC mains disconnect device and must remain readily operable. To completely disconnect this apparatus from the AC mains, disconnect the power supply cord plug from the AC receptacle.
12. This apparatus shall be connected to a mains socket outlet with a protective earthing connection. Equipment may be located above or below this apparatus, but some equipment may generate too much heat and degrade the performance of this apparatus.
13. To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture. Apparatus shall not be exposed to dripping or splashing and no objects filled with liquids, shall be placed on the apparatus.

IPC-3 Special Safety Note

The IPC-3 is an open frame power supply with **user-accessible, hazardous voltages** present. Improper handling of this device while powered by AC mains may result in electrical shock, burns, or death.

Users of this device, and any equipment or system that incorporates this device, must be protected from exposure to electrical shock through the installation of appropriate shields, access guards, interlocks, warning signs and user manuals that include safe handling practices for open frame power supplies.



IPC-3 Power Supply

IPC Use Instructions

To connect your IPC power supply to a load:

- Disconnect IPC from AC mains power.
- Connect DC power cable from IPC to the load.
- Apply AC power to IPC.

To disconnect your IPC Power Supply from a load

- Turn off (unplug) IPC.
- Disconnect DC power cable from the load.

Additional Use Notes

- Do not wire multiple IPCs together; they are not designed to operate in series or in parallel configurations.
- Always use recommended wire gauge (or larger) for all cables connected to an IPC power supply.
- Understand and follow all safety markings and warnings printed on the IPC and described within this document.

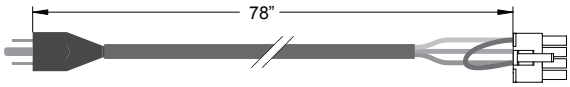
LED Codes

Regen Indicator (Green LED)	IPC State	Description	LED Blink Freq. / Duty Cycle
Rapid Blink (16 blinks/second)	On (normal)	**No action required.** The power supply is working properly. No significant regen detected.	16 Hz (DC = 50% on)
LED intermittently turns on solid but returns to rapid blink.	Regenerated energy was detected.	**No action required.** The power supply is working properly. LED turns on solid when DC bus voltage rises above nominal while staying below the Regen Control Threshold.	INTERMITTENTLY ON SOLID
Blink (3 blinks/second)	Regen control circuit was activated.	**No action required.** The power supply is working properly. This latching signal indicates that the bus voltage has gone over the Regen Control Threshold and activated the internal regen control circuit. **Note: This blink code will persist until AC power is cycled**.	3 Hz (DC = 50% on)
Strobe (One short blink every two seconds)	Regen capacity was exceeded.	**Action required.** This latching signal indicates that the power supply's ability to absorb regenerated energy was exceeded at least once since AC power was applied. When this occurs, the regen control circuit is automatically disabled as a protective measure, *but the DC output is still on.* Solution: Upgrade to higher regen capacity supply. **Note: This blink code will persist until AC power is cycled.**	0.5 Hz (DC = 2.5% on)
Information LED (Yellow LED)	**IPC State**	**Description**	**LED Blink Freq. / Duty Cycle**
Momentarily on	Mode transition	**No action required.** The power supply is working properly. The LED will pulse on momentarily when the internal regulator changes operating modes. This may be accompanied by an audible "click" of the internal relay.	N/A
LED blinks intermittently during operation	Temporary overload occurred	A transient voltage event occurred (but was below the IPC's shutdown threshold). Action may be required to prevent future shutdowns.	N/A
LED on solid	Shutdown	A critical voltage or temperature overload occurred. IPC is in protective shutdown state. Remove power until LED turns off and unit has sufficiently cooled. Reapply power.	ON SOLID

IPC Accessory Cables

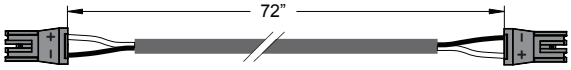
The accessories listed below are available at www.teknic.com.

Teknic Part # IPC35-CABLE110



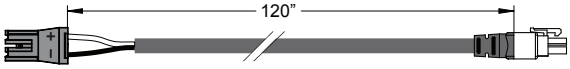
Description: *AC line cord (110V) for Amazon IPC-3 and IPC-5 power supplies. Includes NEMA 5-15P to Minifit 8 pin connector, 78” in length (nominal).*

Teknic Part # PC-SBR-72



Description: *Power cable, Sabre to Sabre. From IPC to Eclipse or Meridian 4xx/5xx series drives. 72” in length (nominal).*

Teknic Part # CPM-CABLE-PWR-MS120

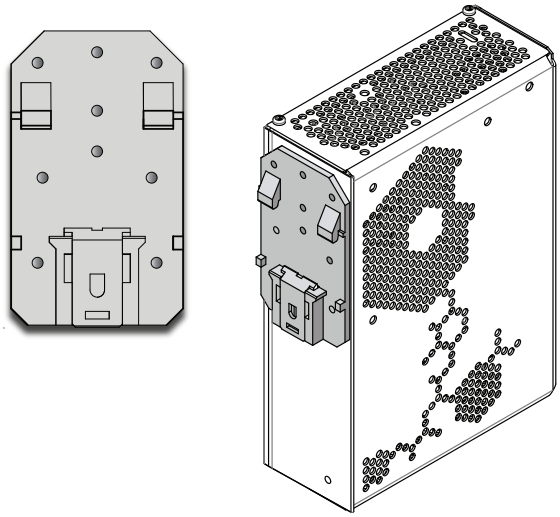


Description: *Power cable, Sabre to Molex Minifit Jr. 4-position plug. From IPC to ClearPath Motor. 120” in length (nominal).*

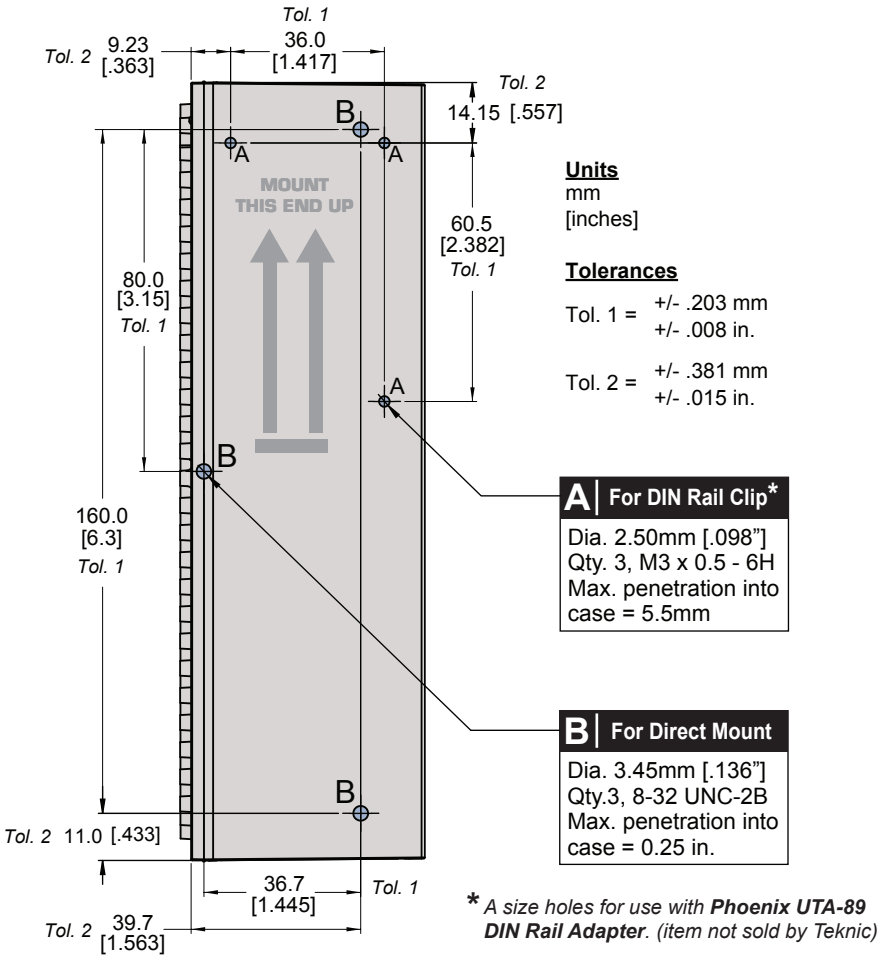
Third-party Accessories

Phoenix Contact part # UTA-89 (aka part # 2853970)

Description: *Universal DIN rail mount. Material: Die-cast zinc. Dimensions: 89mm x 52mm. Information at Phoenix Contact: www.phoenixcontact.com.*

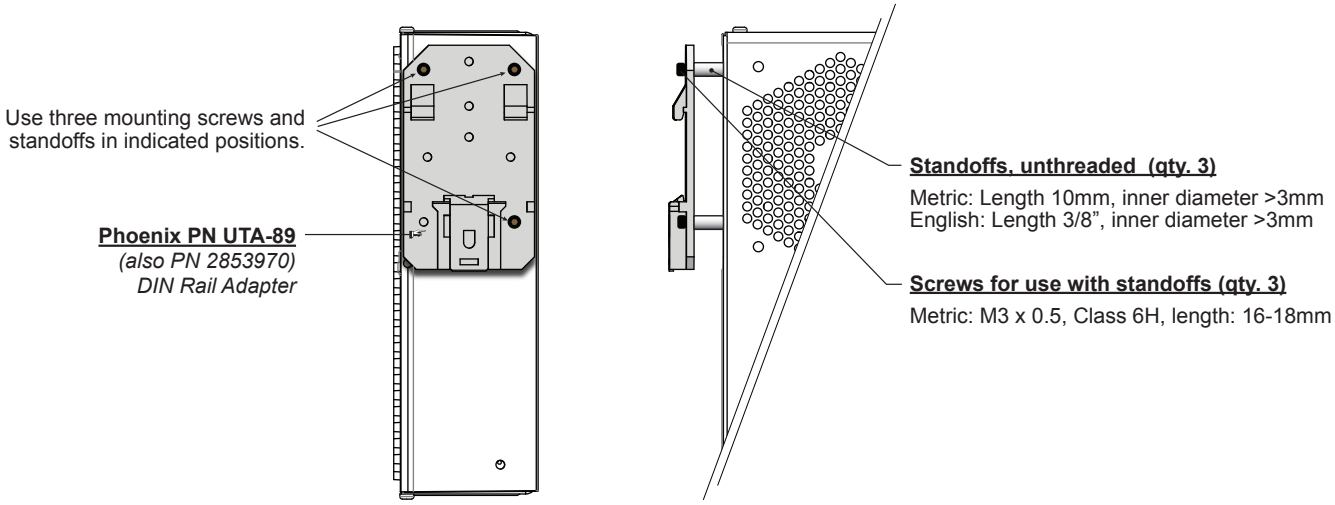


Mounting Hole Dimensions



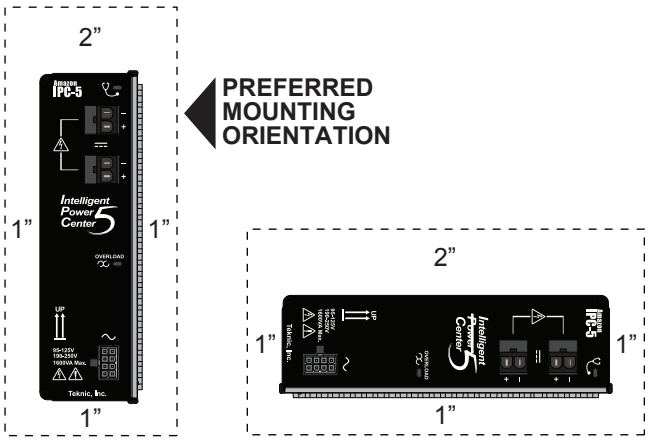
DIN Rail Adapter *(optional, available from third-party)*

NOTE: The IPC casting includes holes for mounting the Phoenix Contact UTA-89 DIN rail adapter. If you use this DIN rail adapter, and the DIN rail itself is screwed to a solid wall or cabinet, you will have to install standoffs as shown below to provide sufficient clearance for mounting.



Mounting Orientation

- Mount IPC in one of the orientations shown below. Vertical mounting improves air flow and is preferable.
- Allow minimum 2” clearance above IPC, and at least 1” at sides and bottom.
- Do not mount IPC where ambient temperature exceeds 40ºC.



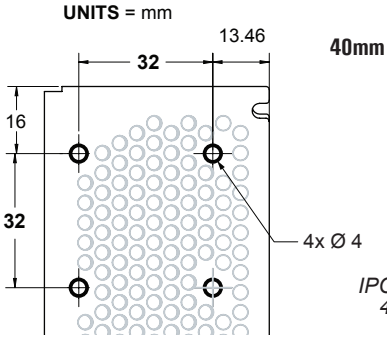
Vertical Orientation *Horizontal Orientation*

Fan Mounting *(IPC-5 only)*

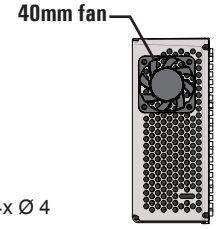
The IPC-5 can be optionally equipped with a standard 80 mm or 40 mm case fan, to get up to 40% more continuous power output. If you intend to use a fan follow, these guidelines:

- **Use non-conductive hardware** to secure fan to case, such as rubber screws, rubber fan “push pins” or similar by manufacturers such as Nexus and Lamptron.
- Use “open corner” (open frame) style fans for easier mounting.
- Select a fan with medium to high CFM (cubic feet per minute) rating.
- Install fans to exhaust air (draw air out) from case.

Top Mount Fan Mechanical Dimensions

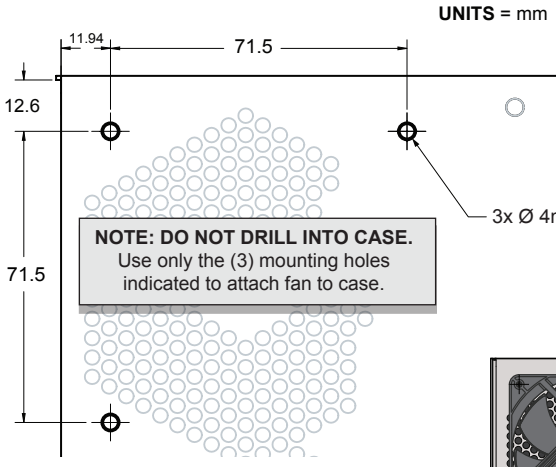


Mounting hole pattern for 40 mm top-mount fan

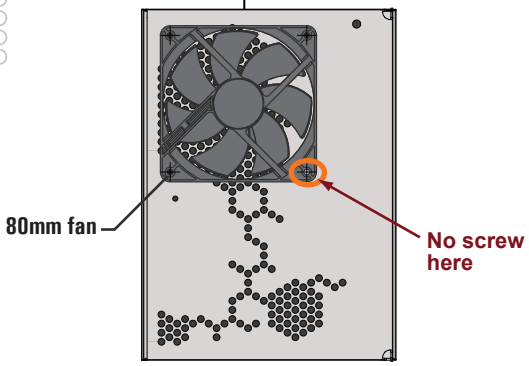


IPC-5 shown with optional 40mm (top-mount) fan

Side Mount Fan Mechanical Dimensions



Mounting hole pattern for 80mm side-mount fan



IPC-5 shown with optional 80 mm (side-mount) fan

Specifications

Power	IPC-3	IPC-5
Input Voltage (230 VAC nominal range)	190-250VAC, single phase	
Input Voltage (115 VAC nominal range)	108 -125VAC (start under load at ambient temps 0-15°C)	
	95-125VAC (load independent at ambient temps 15-40°C)	
Input Frequency Range	50-60Hz	
Nominal Output Voltage	75VDC ± 0.5V	
Continuous RMS Power Output at 115VAC or 230VAC in; convection cooled.	225W RMS 0-40°C ambient	350W RMS 0-40°C ambient
Continuous RMS Power Output at 115VAC or 230VAC in; fan cooled.	N/A	500W RMS 0-40°C ambient
Peak Power Capability at 115VAC or 230VAC in	900W for 3 sec. (single pulse load at 40°C)	
Peak In-rush Current	< 65A	
Regenerated Energy / Power Absorption	12.7 joules / 13.3 watts RMS at 40°C	19.1 joules / 20 watts RMS at 40°C
Capacitive Energy Storage	53 joules at 75VDC	
Allowable (user added) output capacitance	10,000 uF maximum	
Input Leakage Current	< 500uA @ 250VAC/60Hz	
Ripple	< 500mV P-P, zero to full load	
Min. equivalent startup load	16 ohms @ AC input 105/210V min.	
Output Resistance	~300 milliohms	
Physical		
Weight	2.11 lbs.	2.25 lbs.
Dimensions	181mm x 132mm x 57.3mm	183mm x 132mm x 57.3mm
Finger Safe	No. User must be protected from shock hazard.	Yes
Enclosure	None	Perforated, epoxy coated aluminum
Operating Environment		
Temperature Range	0-40°C	
Humidity	10% - 90% (non-condensing)	
Pollution Level	2	
Acoustic Noise @ 1 distance = meter	<50 dBA (variable, dependent on load and AC line)	
Certifications/Compliance		
Safety	UL-508C, EN61010 (pending)	
RF Emissions	Meets EN55011/22 Class A requirements	
RoHS	Compliant	
Protective Features		
Over-Voltage Protection	Halts power delivery until voltage returns to specified output voltage	
Over-Current Protection	Hiccup mode with auto-recovery	
Output Short-Circuit Protection	Hiccup mode with auto-recovery	
Thermal Overload	Halts power delivery until power removal/reapplication	
Output bus dump load control	During Regeneration: Initiated at 92VDC, off at 88VDC; At power-off: Initiated within 200mS of AC power removal, off when output is below ~12VDC.	