



3PS12-75

Bulk, Linear 75 Volt Power Supply

The 3PS12-75 is a medium capacity, bulk, linear power supply. This straightforward, reliable device enables OEMs to easily and economically realize the benefits of DC powered servo drives.

The 3PS12-75 may be sized for applications up to five axes. This supply reduces parts count (because each servo drive no longer needs an on-board supply) and simplifies wiring.

Because servo drives regulate power internally, a regulated power supply is not needed. In fact, this bulk, linear supply delivers a number of performance advantages over most regulated supplies. For example, the capacitive bank provides a “well” of instantly available power, so this supply will not clip servo dynamic range.

Additionally, the 3PS12-75 captures regenerative motor energy, which lowers machine power consumption. This supply also has solder leg inputs, so OEMs realize repeatable drive voltage regardless of incoming line voltage conditions. The result is consistent servo capability without the need for costly line-conditioning devices.



The 3PS12-75 works effectively with 110 or 220 VAC input power at 50 to 60 Hz.

ENABLES USE OF OEM-FRIENDLY DRIVES

DC powered servo drives provide OEMs producing equipment with multiple motion axes an implementation and reliability advantage over AC powered servos. These advantages include:

- One power supply per machine instead of one per axis (i.e., onboard each A/C drive). This reduces component count and removes a significant heat source from the drive, which reduces component stress.
- DC drives allow engineers to bus DC instead of AC, which eases compliance effort.
- DC drives can be made smaller per unit of output power. Because smaller drives are more easily distributed, this reduces cabling and may eliminate control drawers.

3PS12-75 IMPROVES POWER EFFICIENCY

Providing a “well” of power via a capacitive bank, the 3PS12-75 lowers peak AC input power demands without compromising servo performance like a regulated supply. In fact, Teknic recommends against the use of regulated supplies with any SST or ISC servo due to inadequate instantly-available power. Moreover, the 3PS12-75 captures the back EMF energy generated by decelerating motors in its capacitor bank. This power is then instantly available for other axes that are consuming power or it is stored for future use. This conservation of energy typically reduces machine power consumption.

Technical notes:

Input power method is *not* related to commutation method. Every Teknic digital drive, integrated controller/drive, or $\pm 10V$ amplifier incorporates AC commutation (also known as sinewave) with vector feed-forward and DQ decoupling.

Teknic manufactures both DC and AC powered servos ranging from 100 watts to over 6000 watts.

RELIABLE, INEXPENSIVE PERFORMANCE

The 3PS12-75 is a simple, field-proven device that provides many years of trouble-free performance. With its tap design, motion performance is repeatable and reliable regardless of machine geographic location. By simply changing a tap location (via solder lugs), installation technicians can adjust the 3PS12-75 to incoming line AC levels so the drives receive optimal DC bus voltage. This eliminates performance losses due to low line conditions or the risk of over voltage in high line conditions, without the expense of line conditioning devices. Adjusting for nominal incoming AC voltage is as simple as adjusting lugs according to the following chart:

AC Voltage Input Connections:

Input Voltage ($\pm 4\%$)	Jumper Terminals:	Input Terminals
103.5 VAC	1 to 5 & 2 to 6	1 and 2
115.0 VAC	1 to 5 & 3 to 7	1 and 3
126.5 VAC (ship-out setting)	1 to 5 & 4 to 8	1 and 4
207.0 VAC	2 to 5	1 and 6
230.0 VAC	3 to 5	1 and 7
253.0 VAC	4 to 5	1 and 8

3PS12-75 BENEFITS

Clean Power

The 3PS12-75 delivers clean, filtered DC power to the drives.

Lower Electrical Noise

The DC architecture eliminates the need for switching power supplies in every drive. This reduces drive-generated noise and eliminates the CE shielding requirements placed on OEMs using AC power drives.

Minimal Voltage Sag

With 24,000 µF of capacitance, it provides stout power so voltage won't droop during peak usage.

Lower Machine Cost

The 3PS12-75 is inexpensive and enables the use of lower cost drives. In addition, there are several components that are eliminated:

- Drive heat sinks
- Ferrite beads
- Regeneration circuits (in most applications)
- AC shielding & filters
- Custom connectors
- Transformers and/or line conditioners intended for optimizing drive power.

SPECIFICATIONS

GENERAL	Dimensions, in (mm):	8.10 (205.7) x 5.00 (127) x 3.88 (98.6).
	Weight, lbs (kg):	12.4 (5.6).
	Qualifications/testing:	Hi-pot, calibration, full functional test.
ENVIRONMENTAL	Temperature:	0-40 Degrees C.
	Humidity:	10-90%, non-condensing.
	Type:	Pollution degree 1.
	Power connection:	Installation category II (per IEC 664).
RATED LOAD CURRENT	RMS:	3.5A.
	Peak (3 sec.):	12.0A.
OUTPUT VOLTAGE	No load:	82.0 (max).
	At rated current:	72.0 (min).
INPUT VOLTAGE	VAC:	96-131 VAC or.192-262 VAC. (50-60 Hz).
	Settings:	4 taps (See Input Connections table).
FUSE RATINGS	96-131 VAC:	4.0A, time delay, Bussman MDQ-4.
	192-262 VAC:	2.0A, time delay, Bussman MDQ-2.
ISOLATION	Hi-pot test voltage:	1350 VAC.
MISC POWER VALUES	Consumption:	450VA.
	Energy storage:	81 joules.
AC INPUT CONNECTOR	Type:	Courtesy 110 VAC US/Canada set-up. For 220, attach new cord to terminal leads (see chart below).
75 VDC OUTPUT CONNECTORS	Type:	AMP Universal Mate-N-Lok (AMP part # 1-480-698-0).
COUNTRY OF ORIGIN	Manufactured in:	USA.

3PS12-75 Input Connections

Input voltage:	103.5 VAC	115.0 VAC	126.5 VAC	207.0 VAC	230.0 VAC	253.0 VAC
Jumper terminals:	1 to 5 & 2 to 6	1 to 5 & 3 to 7	1 to 5 & 4 to 8	2 to 5	3 to 5	4 to 5
Input terminals:	1 and 2	1 and 3	1 and 4	1 and 6	1 and 7	1 and 8

3PS12-75 Output Wiring

Proper output wire gauge is based upon the number of SSt drives daisy chained. The wire gauge must also be appropriate for the estimated peak and continuous current draw and the wire must be rated for 90°C. Your Teknic application engineer can help provide selection assistance.

# SSt-1500s in a power chain	Smallest diameter wire gauge required	Output fuse or Breaker required	Fuse Vendor: LittleFuse, Part #:
1-3	18 AWG	10A time delay (I)	326-010
4-5	16 AWG	15A time delay (I)	326-015