

# TA330 LINEAR DRIVE FOR BRUSHLESS SERVO MOTORS



SMART SOLUTIONS IN MOTION CONTROL

## Features

- Very low electrical noise
- Minimizes Hall sensor torque ripple
- Zero crossover distortion
- Integral forced air cooling
- Sinusoidal or trapezoidal mode
- Digital on the fly gain control (DTS)

## Applications

- High and Very High Resolution staging
- Linear motor stages
- High inertia mismatched stages
- Low inductance motors



### Consistent Linear Voltage Output with no Voltage Deadband around Zero Point

*The Trust Automation TA330 Linear Drive* is a 4<sup>th</sup> generation and most recent product in Trust Automation Inc.'s growing Linear Drive product line. This linear three-phase servo motor drive allows OEMs to integrate the latest technology available for sinusoidal motor control. Linear sinusoidal commutation of three-phase brushless servo motors eliminates the familiar cogging and torque-ripple problems that plague most trapezoidal digital drives. Linear control is consistent and smooth at any velocity. For ultra low noise applications, (i.e. transducers, sensors, etc.), the TA330 provides an optional external 24V Input. Supplying external 24V disables the internal bias switching supply, which further reduces electrical noise of the already low noise linear outputs.

The TA330 is a highly configurable device. There are three common configuration modes. The TA330 will drive one single phase DC brushed motor in bridged mode. It will drive one three phase DC brushless motor using Hall Effect sensor feedback or one three phase AC brushless motor using external sinusoidal commutation. Digital on the fly gain control, or DTS, allows the application to modify the drive transconductance/gain on-the-fly. This permits both high acceleration control and high resolution control where normally one of these parameters is sacrificed in favor of the other.

All Trust Automation drive products are built for safety, installation ease and long life. The TA330 housing reduces the risk of operator injury and protects the drive ensuring longer useful life. All connections utilize pluggable terminal connectors making them easy to install and remove while reducing risk of connection error. The TA330 fans are thermally controlled variable speed, allowing for quieter operation during non-peak power output.



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# Technical Specifications

## - Electrical

- Supply Voltage
  - Bipolar  $\pm 24V$  to  $\pm 75V$
- Equivalent Motor Voltage Drive input V - 5V
- Auxiliary 24V Supply 24V  $\pm 5\%$  @ 1A max
- Maximum Output Current See SOA chart
- Fault TTL Level 0 or 1
- Enable TTL Level 0 or 1
- Command Input  $\pm 10V$  ( $\pm 12V$  max)
- Torque Gain 0.6 A/V to 1.8 A/V
- Bandwidth 5 kHz

- Normal operation +5° C to +40° C
- Storage -40° C to +70° C
- Heatsink +70° C Maximum
- Heat Dissipation (@ 25° C)
  - Continuous 500W
  - Peak See SOA Chart
- Airflow Internal fans, variable speed, thermally controlled
- Humidity
  - Operating 10% to 70%, non-condensing
  - Storage 10% to 95%, non-condensing
- Pollution Degree 2

## - Mechanical

- Length 14.90 in. (37.85 cm)
- Width 7.69 in. (19.53 cm)
- Height 4.70 in. (11.94 cm)
- Weight 13.5 Lbs. (6.12 kg)

## - Connections

- Command Signals (J2) 10-Pin Quick Connect
- Motor Signals (J3) 4-Pin Plug, Terminal Block
- Hall Signals (J1) 10-Pin Quick Connect
- Auxiliary Power Supply (J4) 3-Pin Plug, Terminal Block

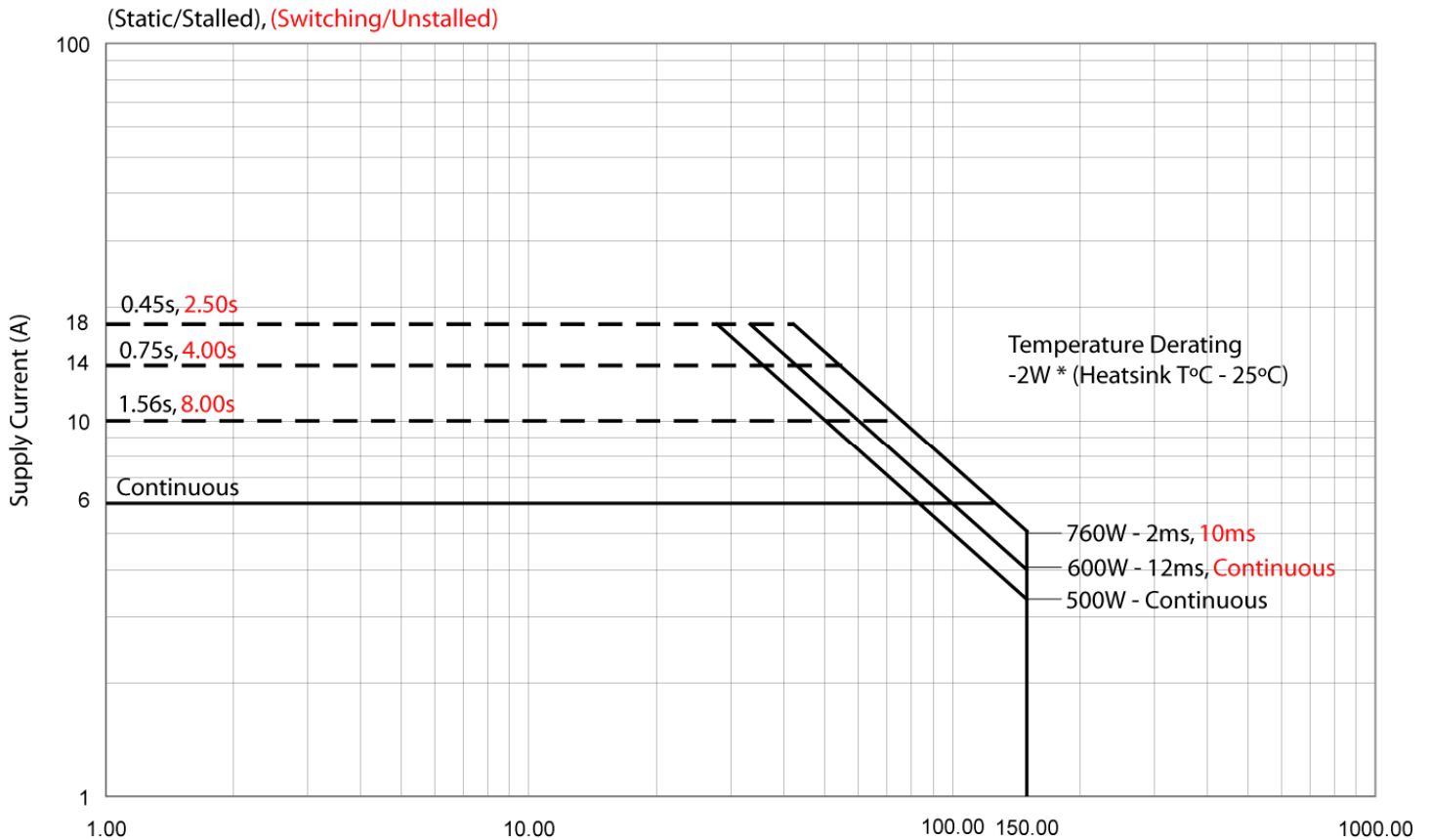
## - Environmental

- Maximum Altitude 6,560ft (2000M)
- Temperature (ambient)

(Mating connectors supplied with drive)

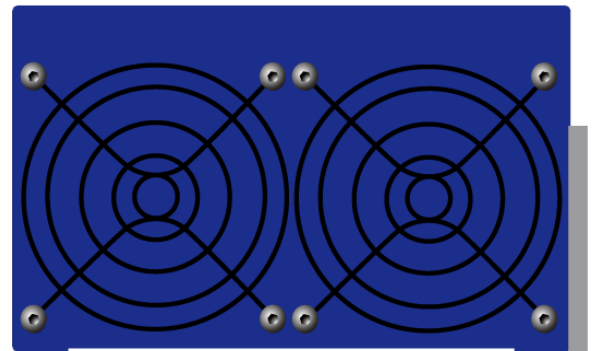
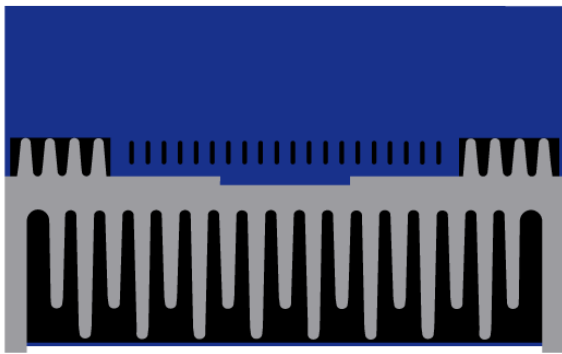
## Drive Electrical Characteristics

### TA330 Safe Operating Area



$$\text{Drive Voltage (V)} = \text{Supply (V)} - \text{Winding (V)}$$

# Mechanical Dimensions



7.688

0.188  
0.000

Note: All measurements are in inches.

## Ordering Information

- Part Number      TA330-D01
- Description      Medium Power 3-Phase Linear Amplifier for Brushless Servo Motors