STR Stepper Drives

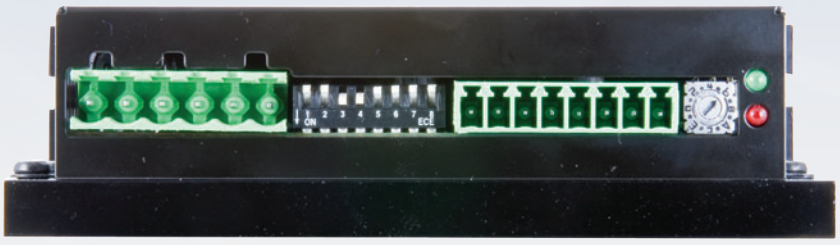
Applied Motion Products

High Performance Step Motor Control

Two versions STR4 and STR8 capable of driving motors from HT17 to HT34.

- ✓ Switch Selectable Parameters
- ✓ Anti-Resonance
- ✓ Microstepping
- ✓ Microstep Emulation
- ✓ Self Test

Simple Setup - no software required



Motor Selection - Optimized tuning parameters for up to 16 motors are stored on the drive. A rotary switch allows you to select the motor to be driven from one of the 12 settings for standard Applied Motion Products motors or the 4 custom motor factory settings.

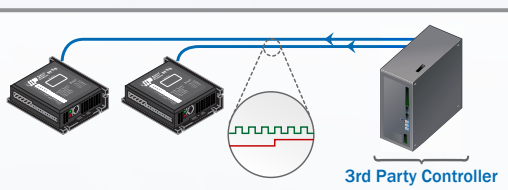
Drive Configuration - 8 switches on the front of the drive are used to configure Motor Current, Idle Current, Load Inertia and Steps/rev. There are 4 microstep resolutions to choose from, as well as Full and Half step.

For more information go to www.applied-motion.com/STR

Features

Step & Direction

- Step & Direction
- CW & CCW Pulse



Anti-Resonance/Electronic Damping

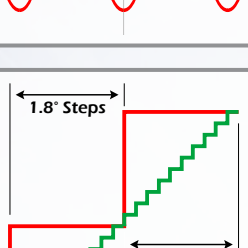
Step motor systems have a natural tendency to resonate at certain speeds. The STR drives automatically calculate the system's natural frequency and apply damping to the control algorithm. This greatly improves midrange stability, allows for higher speeds, greater torque utilization, and improves settling times.

Delivers better motor performance and higher speeds

Microstep Emulation

With Microstep Emulation, low resolution systems can still provide smooth motion. The drive can take low-resolution step pulses and create fine resolution micro-step motion.

Delivers smoother motion in any application



Motors

STR4 Motors					
Switch	Motor	Wiring	Current	Holding Torque	Rotor Inertia
			A	oz-in^2	g-cm^2
0	Custom 1*	Reserved for custom configurations			
1	Custom 2*	Reserved for custom configurations			
2	Custom 3*	Reserved for custom configurations			
3	HT17-068/268	Parallel	1.6	31.4	35
4	HT17-071/271	Parallel	2	51	54
5	HT17-075/275	Parallel	2	62.8	68
6	HT23-394/594	Parallel	3.4	76.6	120
7	HT23-398/598	Parallel	4.5	159.3	300
8	HT23-401/601	Parallel	4.5	237	480
9	HT24-100	Parallel	3.36	123	280
A	HT24-105	Parallel	4.5	166	450
B	HT24-108	Parallel	4.5	332	900
C	HT34-485	Series	4.5	585	1400
D	HT34-486	Series	4.5	1113	2680
E	HT34-504	Series	3.816	396	1100
F	HT34-505	Series	3.816	849	1850

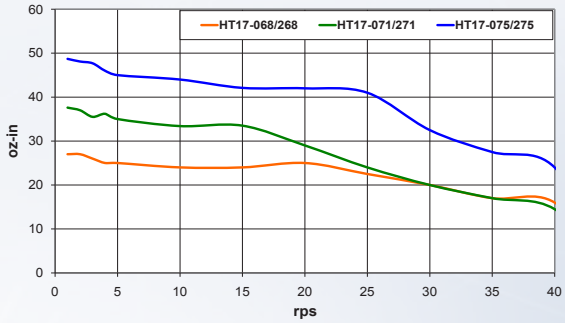
STR8 Motors					
Switch	Motor	Wiring	Current	Holding Torque	Rotor Inertia
			A	oz-in^2	g-cm^2
0	Custom 1*	Reserved for custom configurations			
1	Custom 2*	Reserved for custom configurations			
2	Custom 3*	Reserved for custom configurations			
3	Custom 4*	Reserved for custom configurations			
4	HT23-394/594	Parallel	3.4	76.6	120
5	HT23-398/598	Parallel	5	177	300
6	HT23-401/601	Parallel	5	264	480
7	HT24-100	Parallel	3.36	123	280
8	HT24-105	Parallel	4.8	177	450
9	HT24-108	Parallel	4.8	354	900
A	HT34-485	Parallel	8	507	1400
B	HT34-486	Parallel	8	965	2680
C	HT34-487	Parallel	8	1439	4000
D	HT34-504	Parallel	7.56	396	1100
E	HT34-505	Parallel	7.56	849	1850
F	HT34-506	Parallel	6.72	1260	2750

*** Custom Configurations** - OEMs wishing to use a different motor with the STR drive should contact the factory. A sample motor will be required for test and verification of drive parameters.

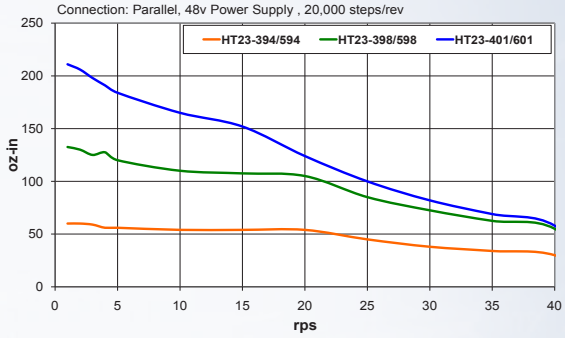
Torque Curves

STR4

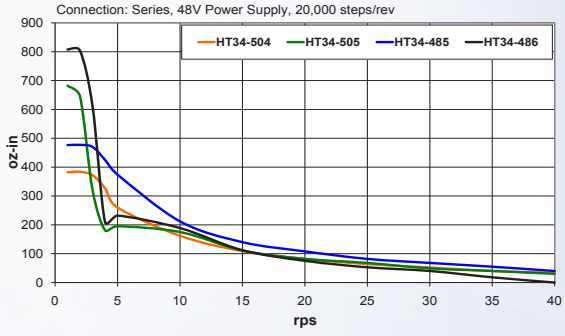
HT17 with STR4
Connection: Parallel 48v Power Supply , 20,000 steps/rev



HT23 with STR4
Connection: Parallel, 48v Power Supply , 20,000 steps/rev

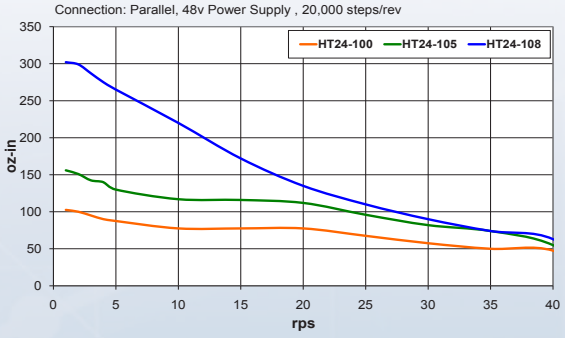


HT34 with STR4
Connection: Series, 48V Power Supply, 20,000 steps/rev

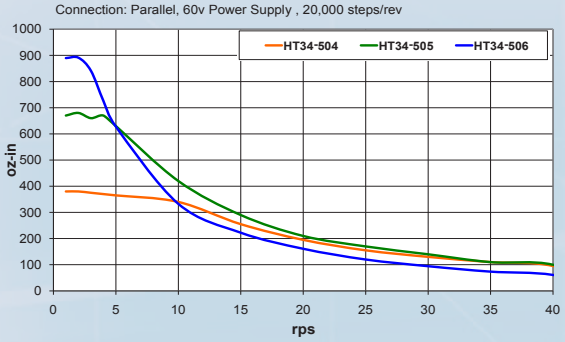


STR8

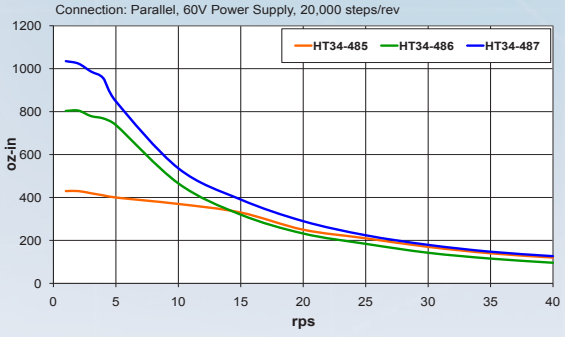
HT24 with STR8
Connection: Parallel, 48v Power Supply , 20,000 steps/rev



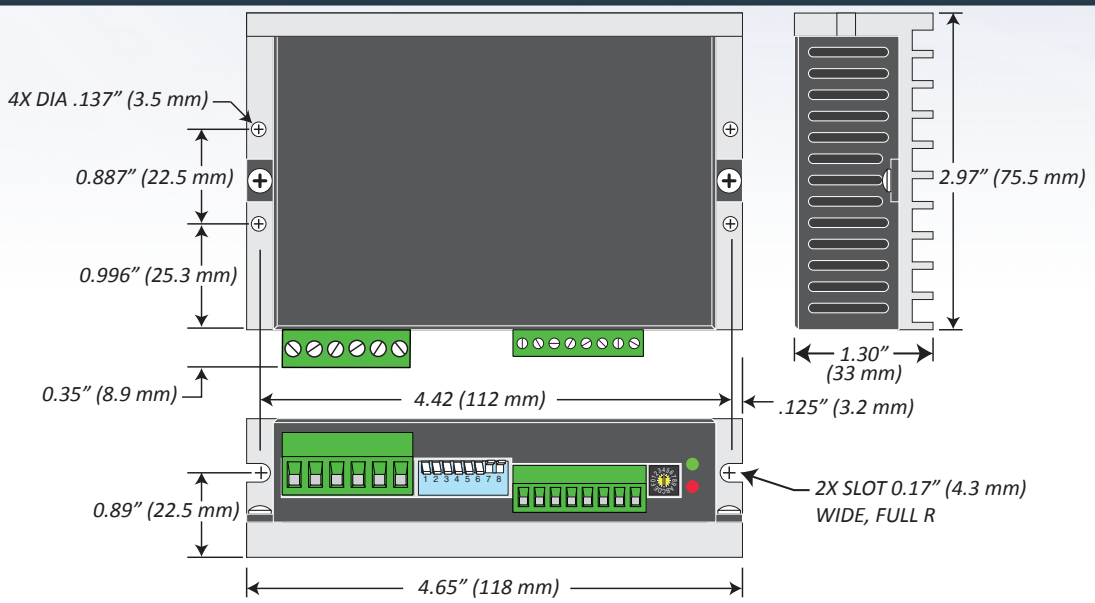
HT34 with STR8
Connection: Parallel, 60v Power Supply , 20,000 steps/rev



HT34 with STR8
Connection: Parallel, 60V Power Supply, 20,000 steps/rev



Dimensions



Specifications

AMPLIFIER TYPE	Dual H-Bridge, 4 Quadrant
CURRENT CONTROL	4 state PWM at 20 Khz
OUTPUT CURRENT	**STR4:** 0.25-4.5 A/phase (peak-of-sine) **STR8:** 0.5-8.0 A/phase (peak-of-sine) Motor current is selected using both the motor select rotary switch and the percentage current dip switches.
POWER SUPPLY	**STR4:** External 24 - 48 VDC Power Supply Required **STR8:** External 24 - 75 VDC Power Supply Required
PROTECTION	Over-Voltage, Under-voltage, Motor/Wiring shorts (Phase-to-Phase, Phase-to-Ground).
IDLE CURRENT REDUCTION	Reduction range of 50% OR 90%" of "Running Current" after 0.4 sec
MODES OF OPERATION	Step & Direction or CW/CCW Pulse; selected via jumper underneath drive cover.
STEP RESOLUTION	Dip switch selectable resolution: 200, 200 SMOOTH, 400, 400 SMOOTH, 2000, 5000, 12800, or 20000 s/r.
ANTI-RESONANCE (Electronic Damping)	Raises the system damping ratio to eliminate midrange instability and allow stable operation throughout the speed range and improves settling time. Dip switch setting for range of load-to-motor inertia ratio.
SELF TEST	Dip switch for automatically rotating step motor 2 revolutions back and forth.
MICROSTEP EMULATION	Performs high resolution stepping by synthesizing fine microsteps from coarse steps. Available with full (200 SMOOTH) and half (400 SMOOTH) step resolutions.
STEP INPUT	5-24V, optically isolated, differential. Minimum pulse width = 250 ns. Maximum pulse frequency = 2 MHz. Function: Step, CW Pulse. Filter: Jumper underneath drive cover for selecting 150 kHz or 2 MHz filter frequency.
DIRECTION INPUT	5-24V, optically isolated, differential. Minimum pulse width = 250 ns. Maximum pulse frequency = 2 MHz. Function: Direction, CCW Pulse. Filter: Jumper underneath drive cover for selecting 150 kHz or 2 MHz filter frequency.
ENABLE INPUT	5-24V, optically isolated, differential. Function: Disable motor when closed.
FAULT OUTPUT	30V/15mA max, optically isolated, sinking or sourcing. Function: Closes on drive fault.
ROTARY SWITCH	Selects from pre-defined table of compatible motors.
DIP SWITCHES	**SW1, SW2**: Select running current as percentage of motor's rated current: 100%, 90%, 80%, or 70%. **SW3**: Select range of load-to-motor inertia ratio: 0-4X or 5-10X. **SW4**: Select idle current setting of 50% or 90% of running current. **SW5, SW6, SW7:** Select step resolution: 200, 200 SMOOTH, 400, 400 SMOOTH, 2000, 5000, 12800, or 20000 s/r. **SW8**: Select Self Test feature to automatically rotate motor 2 revolutions back and forth.
JUMPERS	Jumper underneath drive cover for selecting pulse type: Step & Direction or CW/CCW Pulse. Jumper underneath drive cover for selecting input noise filter frequency: 150 kHz or 2 MHz.
DIMENSIONS	4.65 x 3.0 x 1.3 inches (not including mating connectors).
WEIGHT	10.8 oz including mating connectors.
AMBIENT TEMPERATURE	0 to 40°C (32 - 158°F) (STR drive must be mounted to suitable heatsink)
HUMIDITY	90% non-condensing
AGENCY APPROVALS	RoHS CE (EMC): EN 61800-3:2004 CE (LVD): EN 61800-5-1:2003

Accessories

Power Supplies

Applied Motion also offers two matched power supplies for use with the STR Drives. A 24VDC, 150W (Part Number PS150A24) and a 48VDC 320W version (Part Number PS320A48). These power supplies have current overload capability making them ideal for use with stepper drives.

RC-050 Regeneration Clamp

The RC-050 regeneration clamp is for use where regeneration from the motor may cause damage to the drive. In these cases the RC-050 is connected between the drive and power supply and absorbs regenerated energy.

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