

A high-performance brushless drive for servo applications up to 1 HP

HR500 High – Performance Drives combine a high performance motor controller in a compact design at an affordable price. The chassis controller has a common DC bus construction, allowing multiple controllers to operate from a single DC power supply. This design minimizes the need for DC snubber resistors since regenerative power can be used to supply other machine sections. The flexible design also allows kits to be added to solve a wide variety of applications.

The HR500 motor is an industrial-based design that includes many features necessary to maximize performance. The use of rare earth magnets helps to maintain a high torque-to-inertia ratio. The motor's optical encoder allows accurate speed or position regulation over the entire operating range.

Standard Features

Controller

- Operation on either single or three-phase 208/230 VAC,
- 50/60 Hz input.
- AC to DC power converter is available with or without input disconnect and DC snubber resistor.
- Line transient protection helps prevent power line transients from harming the control.
- Remote fault contact for customer use.
- Diagnostic LED's for indication of:
 - Power On
 - Run
 - Overtemperature
 - Overcurrent
 - Overload
 - Overspeed
 - DC bus over/under voltage
 - Encoder miswired or failure
- Analog outputs proportional to speed and current.
- Automatic electronic shaft clamp when input reference is at zero volts.
- Selectable encoder power supply voltage allows operation with cable lengths to 500 feet.



Motor

- Metric mounting flange
- IP55 enclosure
- Integrally mounted 2000 PPR optical encoder
- Pig tail power leads and multi-pin encoder connector

Available Options

- Multi Function Kit provides adjustable accel/decel ramps, remotely settable current limits, fwd/rev reference inhibits and speed following error output
- Position Mode Kit provides the ability for an HR500 to follow a single dual channel frequency reference, and frequency output for use as a reference to another HR500 or to close a position loop
- Prewired encoder cables in lengths up to 100 feet
- Exercise module to aid in start-up and troubleshooting

HR500 - High Performance Drives

| Nom HP | Power (Watts) | Motor Parameters | | | | | | Chassis Amplifier Model |
|--------|---------------|-------------------------------|------------------|---------|---------------------|---|-----------------|-------------------------|
| | | Cont. Torque Rating (in lbs.) | Base Speed (RPM) | Model | IEC Flange Mounting | Inertia (lb. in s ²) x 10 ⁻⁴ | Motor Enclosure | |
| 1/8 | 100 | 4.23 | 2000 | 5RM2100 | FF90 | 6.07 | TENV | 5RA0100 |
| 1/4 | 200 | 8.46 | 2000 | 5RM2200 | FF90 | 10.07 | TENV | 5RA0200 |
| 1/2 | 400 | 16.9 | 2000 | 5RM2400 | FF115 | 20.4 | TENV | 5RA0400 |
| 1 | 750 | 31.7 | 2000 | 5RM2750 | FF145 | 91.1 | TENV | 5RA0750 |

Using the load horsepower or continuous torque required for the application and the base speed of the motor, select the motor and amplifier model numbers. Add the total power required to run all of the amplifiers.

Select the proper Converters that provide enough power to meet the amplifier requirements, taking into consideration any drives that do not run concurrently.

Specify the following information when placing your order for a complete drive:

- Motor Model Number
- Controller model number
- Converter model number
- Optional hardware model numbers
- Quantity of each item above
- Complete drive list price and multiplier

| 230 VAC 1-Phase Power (Watts) | 230 VAC 3-Phase Power (Watts) | Snubber | Chassis Model |
|-------------------------------|-------------------------------|---------|---------------|
| 200 | 400 | No | 5RD0400 |
| | | Yes | 5RD0401 |
| 800 | 1600 | No | 5RD1600 |
| | | Yes | 5RD1601 |

Pulse Position Kit

Connects to the HR500 regulator and enables the amplifier to follow a single or dual channel frequency output that can be used by a motion controller to close a position loop or used as a reference to another HR500.

The Multi-Function Kit (M/N 5RK1) cannot be used when this kit is installed.

Model 5RK2

Controller to Terminal Board Cable

Is used to terminate controller feedback and sequencing signal to a terminal board. These kits include the controller connector, cable and terminal board as a single unit.

Refer to the Motor Tach/Commutator Cable Section for connecting the controller and motor.

| HP | Length ⁽¹⁾ | Controller Connection | Model |
|-------|-----------------------|-----------------------|--------|
| 1/8-1 | 3 | Sequencing (CN1) | 5RC034 |
| | | Encoder (CN2) | 5RC033 |
| | 5 | Sequencing (CN1) | 5RC054 |
| | | Encoder (CN2) | 5RC053 |
| | 10 | Sequencing (CN1) | 5RC104 |
| | | Encoder (CN2) | 5RC103 |

(1) For longer cables contact Reliance Electric.

Motor Tach/Commutator Cable

Provides the interconnecting cable between the HR500 Controller and motor. The cable includes a mating connection for connection to the motor. The opposite end is terminated with either lugs or a female connector. The connector will connect directly to the controller while the lugs are intended for connection to a terminal board not supplied with this kit.

| HP | Length ⁽¹⁾ | Controller Connector Wired | Model |
|-------|-----------------------|----------------------------|--------|
| 1/8-1 | 15 Feet | No | 5RC151 |
| | | Yes | 5RC152 |
| | 25 Feet | No | 5RC251 |
| | | Yes | 5RC252 |
| | 50 Feet | No | 5RC501 |
| | | Yes | 5RC502 |
| | 100 Feet | No | 5RC001 |
| | | Yes | 5RC002 |

(1) For longer cables contact Reliance Electric.

Exercise Module

Aids in the set up and troubleshooting of the controller. This option plugs into the faceplate of the controller and is compatible for all ratings.

Model 5RE6

Multi Function Kit

Connects to the HR500 regulator and enables the amplifier to provide adjustable accel/decel ramps, remotely settable current limits, fwd / rev reference inhibits, and a speed following error indicator.

The Pulse Position Kit (M/N 5RK2) cannot be used when this kit is installed.

Model 5RK1

Product Publications

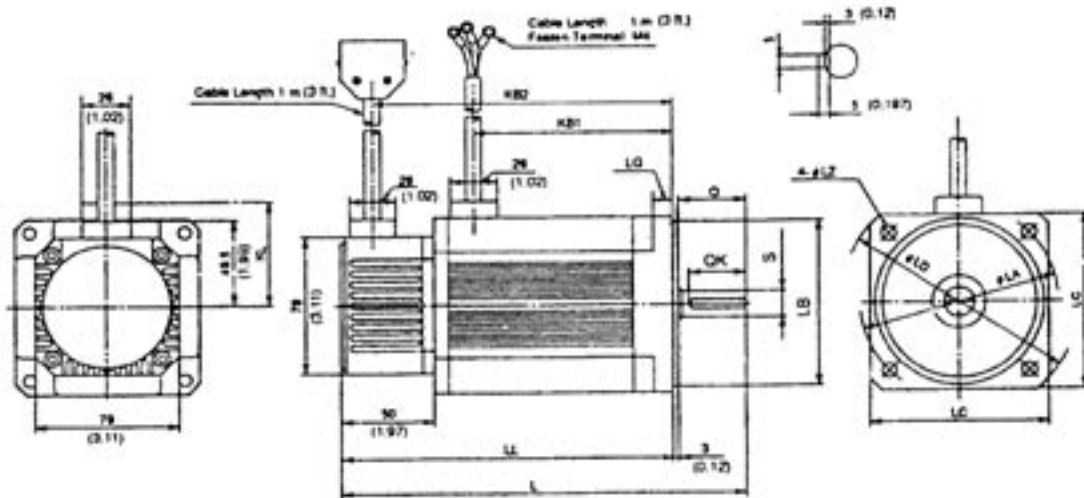
| Publication | Pub. # |
|--|---------|
| Data Sheet | D-2856 |
| Controller Instruction Manual (Contains Dimensions and wiring Diagrams) | D5-3040 |
| Pulse Position Kit | D5-3041 |
| Multi Function Kit | D5-3042 |
| Motor Encoder Cable Kit | D5-3043 |
| Exercise Module Kit | D5-3044 |
| Controller to Terminal Board Cable Kit | D5-3045 |
| Renewal Parts Price List | H-418-X |

HR500 - High Performance Drives

AC Drives

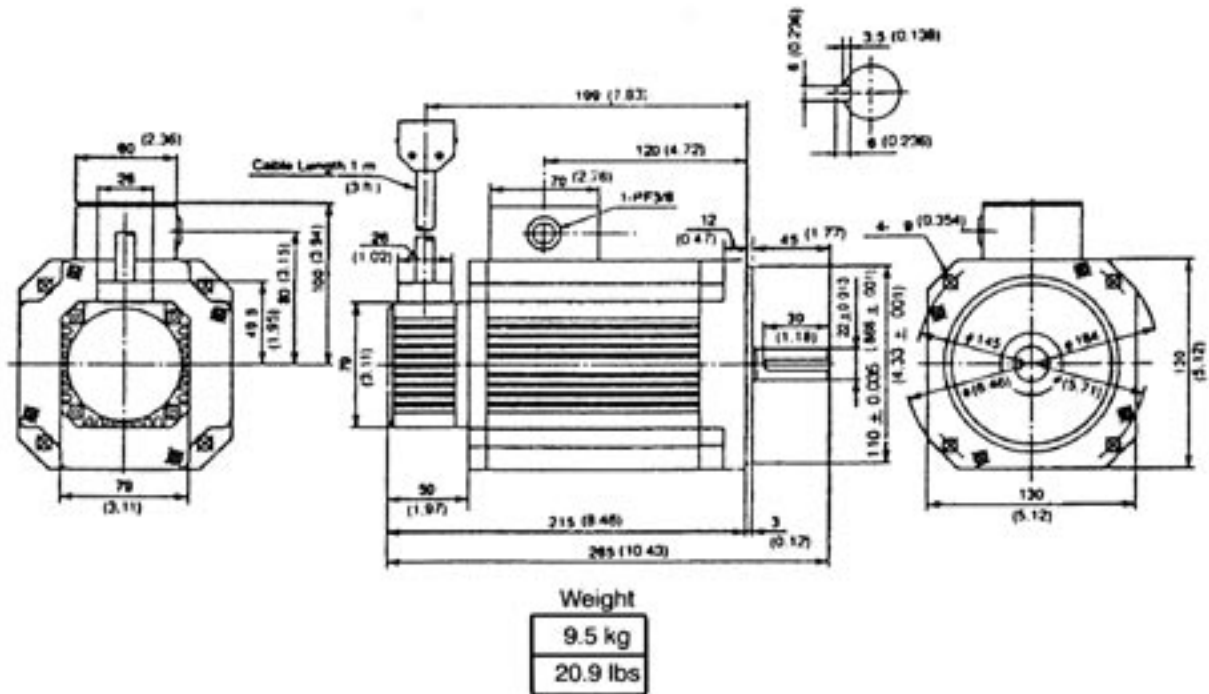
Custom Classic

100-400 Watt HR500 Motors

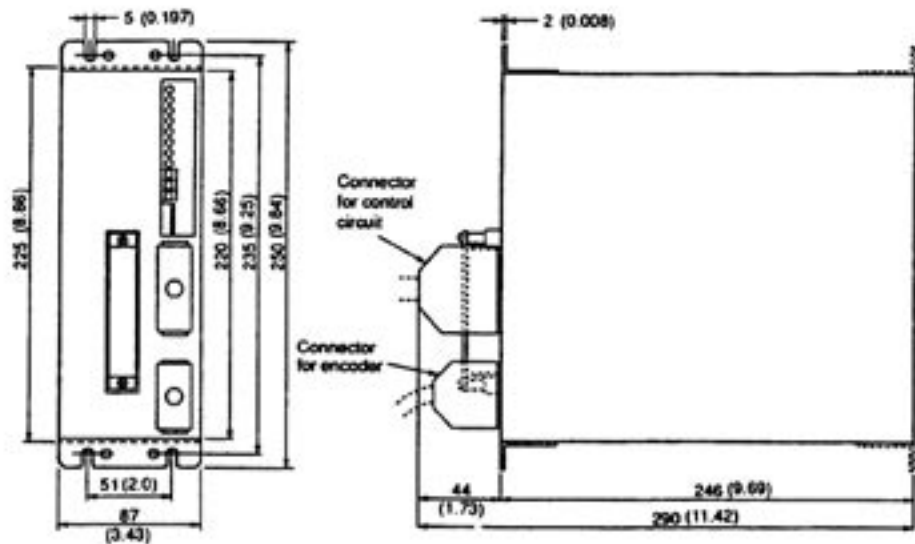


| | | L | LL | LC | KB1 | KB2 | Q | OK | KL | LG | LA | LD | LB | S | LZ | WEIGHT |
|-----------|----|------|------|------|------|------|------|------|------|------|------|------|-----------|-----------|------|----------|
| 100 WATTS | mm | 174 | 144 | 76 | 72 | 128 | 25 | 20 | 49.5 | 8 | 90 | 104 | 70±0.03 | 14±0.018 | 5.5 | 2.3 kg |
| | in | 6.85 | 5.67 | 2.99 | 2.84 | 5.04 | 0.98 | 0.79 | 1.95 | 0.32 | 3.54 | 4.09 | 2.76±.001 | 0.55±.001 | 0.22 | 5.1 lb |
| 200 WATTS | mm | 199 | 169 | 76 | 97 | 153 | 25 | 20 | 49.5 | 8 | 90 | 104 | 70±0.03 | 14±0.018 | 5.5 | 3.1 kg |
| | in | 7.84 | 6.65 | 2.99 | 3.82 | 6.02 | 0.98 | 0.79 | 1.95 | 0.32 | 3.54 | 4.09 | 2.76±.001 | 0.55±.001 | 0.22 | 6.8 lb |
| 400 WATTS | mm | 227 | 187 | 100 | 115 | 171 | 35 | 30 | 60 | 10 | 115 | 132 | 95±0.03 | 16±0.018 | 7 | 4.7 kg |
| | in | 8.94 | 7.36 | 3.94 | 4.53 | 6.73 | 1.38 | 1.18 | 2.36 | 0.39 | 4.53 | 5.20 | 3.74±.001 | 0.63±.001 | 0.28 | 10.4 lbs |

750 Watt HR500 Motor



Converter



Weights

| | 5RD0400 | 5RD0401 | 5RD1600 | 5RD1601 | 5RA0100 | 5RA0200 | 5RA0400 | 5RA0750 |
|-----|---------|---------|---------|---------|---------|---------|---------|---------|
| lbs | 6.2 | 7.5 | 6.4 | 7.9 | 5.7 | 5.7 | 5.7 | 6.0 |
| kg | 2.8 | 3.4 | 2.9 | 3.6 | 2.6 | 2.6 | 2.6 | 2.7 |

HR500 Amplifiers

