

A simple single-phase DC drive in a NEMA 4 enclosure for 1/4-5 HP regenerative or non-regenerative applications



With MinPak Plus Drives you get the standard features you need and the options and modification kits to meet your specific application requirements now or in the future. What's more, you get them from stock.



MinPak Plus Drives feature proven electronic components which significantly improve drive functions, reliability and overall performance. These include custom Large Scale Integrated (LSI) circuits and a modular power cube that is doubly protected by a circuit breaker and MOV surge suppressor. A relay prevents uncontrolled restarts after power outages.

A variety of modification kits allow you to tailor these drives to your specific application requirements. They can be installed quickly by your Reliance authorized distributor, your own personnel or at the factory.

STANDARD FEATURES

- Compact, protected enclosure is standard
- UL certified NEMA 4/12 drive design keeps out dust, oil and liquids for maximum drive reliability.
- FDA approved enclosure
- Application versatility with optional, plug-in kits.
- Easy installation and service
- 50/60 Hz for worldwide application
- Enclosures can be wall mounted vertically or horizontally for installation flexibility.

- Fully regenerative, four-quadrant models provide contactorless reversing as well as hold-back torque capability.
- Drive is easily convertible to chassis mount for fast, space-saving installation in other equipment or cabinets.
- PowerMatched with Reliance DC motors for optimum performance.
- Field supply for motor shunt field (2-5 HP)
- Adjustable minimum and maximum speed, acceleration rate, deceleration rate, current limit and IR compensation.
- Full-wave, full-control conversion for smooth, efficient operation and high performance.
- Power semi-conductors are contained in easily replaceable power cubes to speed service and maintenance.
- Built-in surge suppressor protects semi-conductors from line transients for higher reliability.
- Circuit breaker eliminates fuse replacement for reduced service and maintenance requirements.
- Relay in control circuit prevents automatic restarting after power outage.
- Isolated voltage and current feedbacks for improved drive reliability and versatility.

- Current limit control protects the drive and driven machine from damaging current or torque levels for improved reliability.
- Motor armature contactor disconnects power to the drive motor.
- Armature loop DC circuit breaker protects equipment against inverting faults (regenerative drives only).

AVAILABLE OPTIONS

- Remote Operator Adapter Kit for buffering and filtering of external signals when drive is operated by remote control.
- Dynamic Braking Kit
- Reversing Contactor Kit (Non-regenerative drives)
- Automatic Reversing Kit (Non-regenerative drives only)
- Double Pole Circuit Breaker Kit allows removal of all voltages from control circuits. (Standard on regenerative drives)

MORE OPTIONS

- Tachometer Feedback Kit allows speed regulation to 0.5% with 95% load change with specified tachometer. (Standard on regenerative drives)
- Voltage Follower Kit allows the drive to follow an external DC voltage signal.
- Instrument Interface/Preset Speed Kit for applications where drive speed is controlled by a process controller over a speed range, or when an adjustable preset speed is desired.
- Field Supply Kit for applications requiring the use of a wound field DC motor. (Standard on 2 through 5 HP drives)
- Test Meter Adapter Kit for measuring drive and regulator signal voltages with a voltmeter.
- Auxiliary Contact Kit
- Torque Taper Kit for winder applications (Non-regenerative drives only)
- Variety of local or remote operation stations available.

Drive Ratings

Motor HP	115 VAC Input					
	230 VAC Input					
	Rated AC Line (Amps) ⁽¹⁾	Input KVA	DC Armature Voltage	Rated Armature Current (Amps)	Available Field Voltage ⁽²⁾	Available Field Current (Amps) ⁽²⁾
1/4	3.5	.40	90	2.5	100	3.0
	-	-	-	-	-	-
1/3	5.2	.60	90	3.7	100	3.0
	-	-	-	-	-	-
1/2	7.0	.81	90	5.0	100	3.0
	3.5	.81	180	2.5	200	3.0
3/4	10.5	1.20	90	7.5	100	3.0
	5.2	1.20	180	3.7	200	3.0
1	-	-	-	-	-	-
	7.0	1.61	180	5.0	200	3.0
1-1/2	-	-	-	-	-	-
	10.5	2.42	180	7.5	200	3.0
2	-	-	-	-	-	-
	14.0	3.22	180	10.0	200	3.0
3	-	-	-	-	-	-
	21.0	4.83	180	15.0	200	3.0
5	-	-	-	-	-	-
	35.0	8.05	180	25.0	200	3.0

(1) Includes Motor Field Current

(2) Stated with optional Field Supply Kit. Standard on 2, 3 and 5 HP models.

ENGINEERING DATA

Service Conditions

Elevation: Up to 3300 feet (1000 meters)

Ambient Temperatures:

- Enclosed Models: 32°F to 104°F (0°C to 40°C)
- Chassis Models: 32°F to 131°F (0°C to 55°C)

Atmosphere: Non-condensing relative humidity 5% to 95%

AC Line Voltage Variation: ±10% of rated voltage

AC Frequency: 48 to 62 Hz

Application Data

Service Factor: 1.0

Maximum Load: 150% for 1 minute

Speed Regulation (95% load change):

- Voltage Feedback: 1-2%
- Tachometer Feedback: 1% or 0.5%*

Speed Range

- Voltage Feedback: 20:1
- Tachometer Feedback: 30:1

Adjustments

Maximum Speed (Percent of rated): 50 to 100%

Minimum Speed (Percent of rated): 10 to 50%

Current Limit (Percent of rated): 10 to 150%

IR Drop Compensation: 0 to 12%

Acceleration Rate: 0.5 to 30 seconds linear

Deceleration Rate: 0.5 to 30 seconds linear

*Depending on tachometer used.

SINGLE-PHASE MINPAK PLUS DRIVES

Ordering instructions for NEMA 4/12 enclosed drives

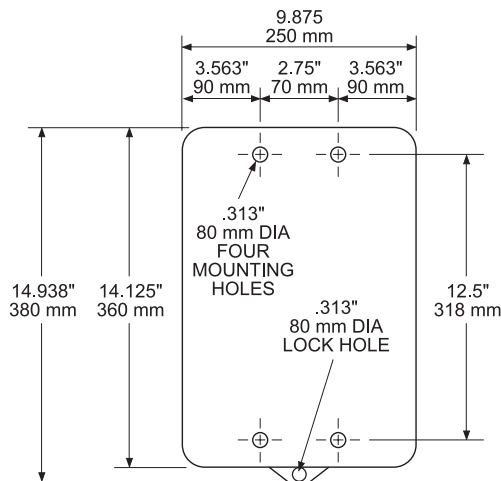
- Select model number and price drives from selection chart below.
- Select operator controls as follows:
 - For local controls select M/N 14C201-14C208 from D-109 and add **\$145 x VS-3DC** discount if supplied loose or **\$220 x VS-3DC** installed.
 - For remote controls specify M/N 14C220 (remote adapter kit) and M/N 14C200 (blank panel) and add **\$95 x VS-3DC** discount if supplied loose, or **\$235 x VS-3DC** mounted.
- Select and price additional kit options from pages D-109 through D-113.



Drive Selection Chart

HP	Drive Rating			Non-regenerative Drive				Regenerative Drive			
	AC Input (Volts) 50/60 Hz	DC Output (Volts)		Cabinet		Chassis ⁽²⁾		Cabinet		Chassis ⁽²⁾	
		Armature	Field	Model Number	List	Model Number	List	Model Number	List	Model Number	List
1/4-3/4	115	90	⁽¹⁾	14C10 ◊	\$700	14C20 ◊	⁽²⁾	14C30 ◊	\$1,410	14C40	⁽²⁾
1/2 - 1-1/2	230	180	⁽¹⁾	14C11 ◊	765	14C21 ◊	⁽²⁾	14C31 ◊	1,410	14C41	⁽²⁾
2-3	230	180	100/200	14C12 ◊	865	14C22 ◊	⁽²⁾	14C32 ◊	1,575	14C42	⁽²⁾
5	230	180	100/200	14C13 ◊	1,350	14C23 ◊	⁽²⁾	14C33 ◊	1,790	14C43	⁽²⁾

- If a wound field motor is used with the drive also order field supply kit 14C228 for Non-regenerative or 14C238 for Regenerative MinPak Plus, Add **\$53** (unmounted) or **\$128** (mounted) x **VS-3DC** discount. Provides 50 or 100 VDC for 115 VAC input drives and 100 or 200 VDC for 230 VAC input drives.
- Chassis models are discontinued. Specify cabinet model and a remote adapter kit (Model 14C220) and remove enclosure cover to convert to chassis drive.



Depth: 7.325 in/190 mm
Weight: 17 lb/77 kg

◊ Normally carried in stock

DISCOUNT VS-3DC

NOTES

AC Drives

Analog DC Drives

Digital DC Drives

Options & Accessories

Product Demonstrators
and Training

Modified Standard VFS