

# Controllers

Controllers regulate the motor speed and strokes per minute, providing a flow that is proportional to the motor speed.

## Selection Process

1. Ensure that the phase and enclosure match your application.
2. Using the appropriate chart below, select the controller hp based on the hp of your motor.
3. Match the output voltage to the output voltage of your motor.
4. Match the input voltage to your electrical source.



## 1 Phase

HP	Type	Input Voltage/Phase	Output Voltage/Phase	Enclosure	Part Number	Weight (lbs.)
1/2	Sensorless Vector	230 volt / 1-phase	230 volt / 3-phase	NEMA 1	C50N1-1P3P-230	2.2
1	Sensorless Vector	115 volt / 1-phase	230 volt / 3-phase	IP-20	C100IP-1P3P-115	3.5
1	Micro AC Inverter	115 volt / 1-phase	230 volt / 3-phase	NEMA 4	C100N4-1P3P-115	8.0
1	Sensorless Vector	230 volt / 1-phase	230 volt / 3-phase	NEMA 1	C100N1-1P3P-230	2.2
1	Micro AC Inverter	230 volt / 1-phase	230 volt / 3-phase	NEMA 4	C100N4-1P3P-230	8.0
2	Sensorless Vector	230 volt / 1-phase	230 volt / 3-phase	NEMA 1	C200N1-1P3P-230	4.4
3	Sensorless Vector	230 volt / 1-phase	230 volt / 3-phase	NEMA 1	C300N1-1P3P-230	4.4

## 3 Phase

HP	Type	Input Voltage/Phase	Output Voltage/Phase	Enclosure	Part Number	Weight (lbs.)
1/2	Sensorless Vector	230 volt / 3-phase	230 volt / 3-phase	NEMA 1	C50N1-3P3P-230	2.2
1	Sensorless Vector	230 volt / 3-phase	230 volt / 3-phase	NEMA 1	C100N1-3P3P-230	2.2
2	Sensorless Vector	230 volt / 3-phase	230 volt / 3-phase	NEMA 1	C200N1-3P3P-230	4.4
2	Micro AC Inverter	230 volt / 3-phase	230 volt / 3-phase	NEMA 4	C200N4-3P3P-230	14.0
3	Sensorless Vector	230 volt / 3-phase	230 volt / 3-phase	NEMA 1	C300N1-3P3P-230	4.4
5	Sensorless Vector	230 volt / 3-phase	230 volt / 3-phase	NEMA 1	C500N1-3P3P-230	5.0
7-1/2	Sensorless Vector	230 volt / 3-phase	230 volt / 3-phase	NEMA 1	C750N1-3P3P-230	13.0
10	Sensorless Vector	230 volt / 3-phase	230 volt / 3-phase	NEMA 1	C1000N1-3P3P-230	13.0
1	Sensorless Vector	460 volt / 3-phase	460 volt / 3-phase	NEMA 1	C100N1-3P3P-460	2.2
1	Micro AC Inverter	460 volt / 3-phase	460 volt / 3-phase	NEMA 4	C100N4-3P3P-460	13.0
2	Sensorless Vector	460 volt / 3-phase	460 volt / 3-phase	NEMA 1	C200N1-3P3P-460	2.2
2	Micro AC Inverter	460 volt / 3-phase	460 volt / 3-phase	NEMA 4	C200N4-3P3P-460	14.0
3	Sensorless Vector	460 volt / 3-phase	460 volt / 3-phase	NEMA 1	C300N1-3P3P-460	4.4
5	Sensorless Vector	460 volt / 3-phase	460 volt / 3-phase	NEMA 1	C500N1-3P3P-460	4.4
7-1/2	Sensorless Vector	460 volt / 3-phase	460 volt / 3-phase	NEMA 1	C750N1-3P3P-460	14.0
10	Sensorless Vector	460 volt / 3-phase	460 volt / 3-phase	NEMA 1	C1000N1-3P3P-460	14.0
15	Sensorless Vector	460 volt / 3-phase	460 volt / 3-phase	NEMA 1	C1500N1-3P3P-460	14.0
20	Sensorless Vector	460 volt / 3-phase	460 volt / 3-phase	NEMA 1	C2000N1-3P3P-460	28.0
30	Sensorless Vector	460 volt / 3-phase	460 volt / 3-phase	NEMA 1	C3000N1-3P3P-460	30.0

# Control Freak™ Touch-screen Metering Controller



Start-up menu options.

“Control Freak” is an exclusive new electronic controller that provides motor speed control for Hydra-Cell Metering Solutions pumps (or Hydra-Cell bare shaft pumps) with an easy-to use touch-screen display and built-in programming. The user can enter the desired flow rate or volume in gallons or liters and system pressure in psi or bar, and the controller automatically runs the pump manually at the desired flow rate or volume total/time, or in pre-set batches. Versatile electronic controller allows programming for the flow rate or for totalization of the recent process application as well as the life of the pump.



Opening screen - touch to activate.



Sample menu for batch operation.

## Performance Features

- Features 1/2-hp (0.37kW) Variable Frequency Drive (VFD)
- Pre-set (with password protection) for Hydra-Cell pump performance algorithms - can also be field-calibrated for greater accuracy
- 7” color graphic touch-screen user interface in a NEMA-4X enclosure - easy to operate and visible in low-light areas
- Safety features for emergency stop, loss of power and fault monitoring
- Pump-drive information screen
- Four configurable on-off relays
- Ten separate batch set-up screens
- Two user-configurable analog input displays
- Analog and digital I/O for interfacing with external devices
- One analog input dedicated to a pre-programmed closed loop feedback
- Includes real-time clock
- Versatile - enables programming for flow rate or totalization
- Can control up to six (6) pumps with one Hydra-Cell Control Freak screen - requires additional VFDs and I/O modules

## Options

- Ball-mount assembly for touch screen
- VFD enclosure
- Additional cables
- Oil temperature probe kit

## Control Freak Selection Process

Control Freak enables control of up to six pumps from one touch-screen. A complete Control Freak unit is comprised of Touch-screen Kit (Number 150-150) plus one or more VFD kits.

### Touch-screen Kit (required)

Kit Number	Contents
150-150	7" Touch-screen Assembly Cable, CAT5e, 7-ft.

#### Each VFD kit includes:

- Appropriate VFD model in chart to left
- I/O Module, Single Pump
- Wiring, I/O Module
- Wiring, Motor, 22 ga., 1-ft., Red
- Wiring, Motor, 22 ga., 1-ft., White
- Cable, CAT5e, 1-ft.



### VFD Kits (order one VFD kit for each pump operated by the Control Freak)

Power	Type	Input Voltage/Phase	Output Voltage/Phase	Kit Number
1/2 hp (0.37 kW)	VFD	115 volt/1-phase	230/460 volt/3-phase	150-250
1/2 hp (0.37 kW)	VFD	230 volt/1-phase	230/460 volt/3-phase	150-251
1 hp (0.75 kW)	VFD	115 volt/1-phase	230/460 volt/3-phase	150-252
1 hp (0.75 kW)	VFD	230 volt/1-phase	230/460 volt/3-phase	150-253
2 hp (1.5 kW)	VFD	230 volt/1-phase	230/460 volt/3-phase	150-254
3 hp (2.2 kW)	VFD	230 volt/1-phase	230/460 volt/3-phase	150-255
1/2 hp (0.37 kW)	VFD	230 volt/3-phase	230/460 volt/3-phase	150-256
1 hp (0.75 kW)	VFD	230 volt/3-phase	230/460 volt/3-phase	150-257
2 hp (1.5 kW)	VFD	230 volt/3-phase	230/460 volt/3-phase	150-258
3 hp (2.2 kW)	VFD	230 volt/3-phase	230/460 volt/3-phase	150-259
1 hp (0.75 kW)	VFD	460 volt/3-phase	230/460 volt/3-phase	150-264
2 hp (1.5 kW)	VFD	460 volt/3-phase	230/460 volt/3-phase	150-265
3 hp (2.2 kW)	VFD	460 volt/3-phase	230/460 volt/3-phase	150-266

*For higher hp or kW, please consult factory.*

### Control Freak Accessories

Accessory	Description	Part Number
Enclosure (1)	VFD Enclosure for up to 1 hp (0.75 kW)	150-005
Probe Kit	Oil Temperature Sensor Probe with Oil Cap	150-006
Ball Mount Assembly	Bracket Ball, Ball Mount Hinge, Screw, Nut	150-030
Cabling	1-ft. CAT5e Cable	150-401
Cabling	3-ft. CAT5e Cable	150-403
Cabling	7-ft. CAT5e Cable	150-407
Cabling	10-ft. CAT5e Cable	150-410
Cabling	30-ft. CAT5e Cable	150-430

*(1) Consult Factory for larger VFDs and for pricing on equipment mounting in enclosure.*

