

Motors
Drives
Controls
Protection

CONSTANT PRESSURE SYSTEMS



CONSTANT PRESSURE SUBDRIVE & MONODRIVE

Let Us Handle the Pressure

Franklin Electric's SubDrive and MonoDrive constant pressure controllers provide constant pressure by continually adjusting the speed of the pump to match water demand. Instead of draining and filling a large tank, a SubDrive system pumps more or less water as you need it. Finally, you'll be able to run the dishwasher, do laundry and water the lawn – all at the same time!

Benefits

- Constant water pressure with a wide range of settings (25 to 80 psi)
- Single-phase input power
- Easy installation
- Soft start feature prevents water hammer and increases motor life
- Works with small pressure tanks or existing larger tanks
- Smart Reset® technology allows well recovery before restarting the pump
- Excellent radio frequency interference shielding
- UL and cUL listed
- Built-in diagnostics and protection
 - Surge protection
 - Underload
 - Undervoltage
 - Locked pump
 - Open circuit
 - Short circuit
 - Overheated controller

Applications

- Residential homes
- Restaurants
- Farms
- Schools
- Car washes
- Landscape irrigation systems

MD / MDXT

MonoDrive and MonoDriveXT are designed to convert a conventional ½ hp to 2 hp pump system to a variable speed constant pressure system by simply replacing the 3-wire control box and pressure switch.

- Single-phase input, 3-wire motor control
- Plug & play
- ½ hp to 2 hp performance
- Easily replaceable fan kit
- Easy to install
- UL and cUL listed
- NEMA 1 and NEMA 4 enclosure options (indoor/outdoor)

SD75, SD100, SD150, SD300

SubDrive75, SubDrive100, SubDrive150 and SubDrive300 are designed for three-phase motors to provide constant pressure with three-phase performance using single-phase input power.

- Single-phase input, three-phase motor control
- Plug & play
- ¾ hp to 5 hp performance
- Smooth running
- Easy to install
- Easily replaceable fan kit
- High starting torque
- UL and cUL listed
- NEMA 1 and NEMA 4 enclosure options (indoor/outdoor)

SD2W

SubDrive2W is designed to convert a conventional ½ hp, ¾ hp and 1 hp pump system to a variable speed constant pressure system by simply replacing the pressure switch. Maximum pump output using the SD2W is similar to the performance achieved using a conventional pressure switch. Therefore, the pump selection criteria are the same as if a pressure switch were used. (Refer to the pump manufacturer's literature for details of the pump selection procedure.)

- Single-phase input, 2-wire motor control
- ½ hp, ¾ hp, or 1 hp performance
- Easy retrofit installation
- NEMA 3R rated enclosure
- Plug & play
- Easily replaceable air filter kit
- Easily replaceable fan kit
- UL and cUL listed

Enclosure Options

■ NEMA 1:

The NEMA 1 enclosure is rated for indoor use only. It is ideal for installation in garages, basements and pump houses where there is no risk of rain, blowing dust or other harsh conditions. This enclosure comes standard in all models except the SD300 and SD2W.

■ NEMA 3R:

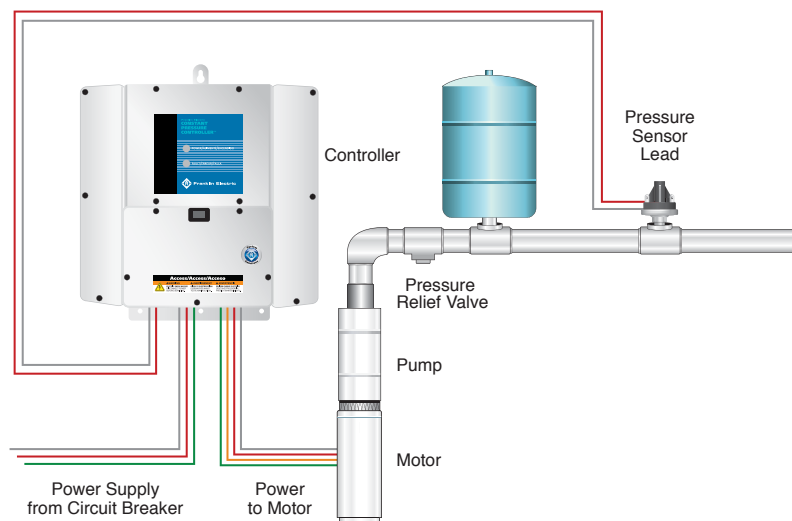
The NEMA 3R enclosure is rated for indoor and outdoor use. It provides a degree of protection against falling rain and sleet. This enclosure is used only with the SD2W.

■ NEMA 4:

The NEMA 4 weatherproof enclosure is designed for both indoor and outdoor use and offers robust protection against harsh environmental conditions. This enclosure comes standard with the SD300 and is optional for the other models excluding the SD2W.



Constant Pressure System



Specifications

| | | MonoDrive | MonoDriveXT |
|--|--------------------------------|---|--|
| Model No. | NEMA 1 (indoor) | 587 020 3110 | 587 020 4110 |
| | NEMA 3R (indoor/outdoor) | Not Available | Not Available |
| | NEMA 4 (outdoor) | 587 020 3114 | 587 020 4114 |
| Input from Power Source | Voltage | 190-260 VAC | 190-260 VAC |
| | Phase In | Single-Phase | Single-Phase |
| | Frequency | 60/50 Hz | 60/50 Hz |
| | Current (max) | 5.7 Amps (RMS) 1/2 hp, 0.37 kW system 8.7 Amps (RMS) 3/4 hp, 0.55 kW system 11 Amps (RMS) 1 hp, 0.75 kW system | 13 Amps (RMS) 1.5 hp, 1.1 kW system 16 Amps (RMS) 2 hp, 1.5 kW system |
| | Power Factor | 1.0 (constant) | 1.0 (constant) |
| | Power (idle) | 35 Watts | 65 Watts |
| | Power (max) | 1150 Watts (1/2 hp, 0.37 kW) system 1750 Watts (3/4 hp, 0.55 kW) system 2150 Watts (1 hp, 0.75 kW) system | 2500 Watts (1.5 hp, 1.1 kW) system 3100 Watts (2 hp, 1.5 kW) system |
| | Wire Gauge Size(s) | Consult Federal, State, and Local codes for branch circuits installations | Consult Federal, State, and Local codes for branch circuits installations |
| | | | |
| Output to Motor | Voltage | Adjusts with Frequency | Adjusts with Frequency |
| | Phase Out | Single-Phase (3-wire) | Single-Phase (3-wire) |
| | Frequency Range | 30-60 Hz | 30-60 Hz |
| | Current (max) | Main Phase: 6 Amps (RMS) 1/2 hp, 0.37 kW system Main Phase: 8 Amps (RMS) 3/4 hp, 0.55 kW system Main Phase: 10.4 Amps (RMS) 1 hp, 0.75 kW system | Main Phase: 11.5 Amps (RMS) 1.5 hp, 1.1 kW system Main Phase: 13.2 Amps (RMS) 2 hp, 1.5 kW system |
| | Wire Gauge Size(s) | NEMA 1 #10 - #16 * ga. NEMA 4 #6 - #18 * ga. | NEMA 1 #6 - #18 * ga. NEMA 4 #6 - #18 * ga. |
| Pressure Setting | Factory Preset | 50 psi (3.4 bar) | 50 psi (3.4 bar) |
| | Adjustment Range | 25-80 psi (1.7 - 5.5 bar) | 25-80 psi (1.7 - 5.5 bar) |
| Operating Conditions ^(A) | Temperature (at 230 VAC input) | -13 °F to 125 °F (-25 °C to 50 °C) | -13 °F to 125 °F (-25 °C to 50 °C) |
| | Relative Humidity (NEMA 1) | 10-95%, non-condensing | 10-95%, non-condensing |
| | Relative Humidity (NEMA 3R) | Not Available | Not Available |
| | Relative Humidity (NEMA 4) | 0-100%, condensing | 0-100%, condensing |
| Controller Size ^(B) (approximate) | NEMA 1 (indoor) | 16 1/2" x 12 3/8" x 9" (41.91 x 31.43 x 22.86 cm) 15.00 lbs (6.80 kg) | 16 1/2" x 12 3/8" x 9" (41.91 x 31.43 x 22.86 cm) 17.50 lbs (7.94 kg) |
| | NEMA 3R | Not Available | Not Available |
| | NEMA 4 (outdoor) | 17 1/2" x 16 3/8" x 11 3/8" (44.45 x 41.59 x 28.89 cm) 24.14 lbs (10.95 kg) | 17 1/2" x 16 3/8" x 11 3/8" (44.45 x 41.59 x 28.89 cm) 28.32 lbs (12.84 kg) |
| For Use With ^(C) | Pump (60 Hz) | 1/2 hp pump/motor with 214505 - series 3/4 hp pump/motor with 214507 - series [default] | 1.5 hp pump/motor with 224300 - series [default] 2 hp pump/motor with 224301 - series |
| | FE Motor Rating | 1 hp pump/motor with 214508 - series | |

Notes: Refer to Franklin Electric's SubDrive/MonoDrive Installation Manual (M1560).

(A) Operating temperature is specified at full output power when installed as described in Controller Location Selection on pg. 23.

(B) Refer to pgs. 45-47 for detailed Mounting Dimensions.

(C) If a pump other than the default rating is used, refer to pgs. 9-15 for Drive Configuration.

* Refer to pg. 25 for detailed Circuit Breaker and Wire Sizing.

Specifications

| | SubDrive75 | SubDrive100 | |
|---|--------------------------------|--|---|
| Model No. | NEMA 1 (indoor) | Model 5870203380 | Model 5870204100 |
| | NEMA 3R (indoor/outdoor) | Not Available | Not Available |
| | NEMA 4 (outdoor) | Model 5870203384 | Model 5870204104 |
| Input from Power Source | Voltage | 190-260 VAC | 190-260 VAC |
| | Phase In | Single-Phase | Single-Phase |
| | Frequency | 60/50 Hz | 60/50 Hz |
| | Current (max) | 11 Amps (RMS) | 19 Amps (RMS) |
| | Power Factor | 1.0 (constant) | 1.0 (constant) |
| | Power (idle) | 35 Watts | 65 Watts |
| | Power (max) | 2400 Watts | 3800 Watts |
| | Wire Gauge Size(s) | Consult Federal, State, and Local codes for branch circuits installations | Consult Federal, State, and Local codes for branch circuits installations |
| Output to Motor | Voltage | Adjusts with Frequency | Adjusts with Frequency |
| | Phase Out | Three-Phase (3-wire) | Three-Phase (3-wire) |
| | Frequency Range | 30-80 Hz (3/4 hp, 0.55 kW) pump 30-70 Hz (1 hp, 0.75 kW) pump 30-60 Hz (1.5 hp, 1.1 kW) pump | 30-80 Hz (1 hp, 0.75 kW) pump 30-70 Hz (1.5 hp, 1.1 kW) pump 30-60 Hz (2 hp, 1.5 kW) pump |
| | Current (max) | 5.9 Amps (RMS, each phase) | 8.1 Amps (RMS, each phase) |
| | Wire Gauge Size(s) | NEMA 1 #10 - #16 * ga. NEMA 4 #6 - #18 * ga. | NEMA 1 #6 - #18 * ga. NEMA 4 #6 - #18 * ga. |
| Pressure Setting | Factory Preset | 50 psi (3.4 bar) | 50 psi (3.4 bar) |
| | Adjustment Range | 25-80 psi (1.7 and 5.5 bar) | 25-80 psi (1.7 - 5.5 bar) |
| Operating Conditions ^(A) | Temperature (at 230 VAC input) | -13 °F to 125 °F (-25 °C to 50 °C) | -13 °F to 125 °F (-25 °C to 50 °C) |
| | Relative Humidity (NEMA 1) | 10-95%, non-condensing | 10-95%, non-condensing |
| | Relative Humidity (NEMA 3R) | Not Available | Not Available |
| | Relative Humidity (NEMA 4) | 0-100%, condensing | 0-100%, condensing |
| Controller Size ^(B) (approximate) | NEMA 1 (indoor) | 16 1/2" x 12 3/8" x 9" (41.91 x 31.43 x 22.86 cm) 15.00 lbs (6.80 kg) | 16 1/2" x 12 3/8" x 9" (41.91 x 31.43 x 22.86 cm) 17.50 lbs (7.94 kg) |
| | NEMA 3R | Not Available | Not Available |
| | NEMA 4 (outdoor) | 17 1/2" x 16 3/8" x 11 3/8" (44.45 x 41.59 x 28.89 cm) 24.14 lbs (10.95 kg) | 17 1/2" x 16 3/8" x 11 3/8" (44.45 x 41.59 x 28.89 cm) 28.32 lbs (12.84 kg) |
| For Use With ^(C) | Pump (60 Hz) | 3/4 hp (0.55 kW) [default] 1 hp (0.75 kW) 1.5 hp (1.1 kW) | 1 hp (0.75 kW) [default] 1.5 hp (1.1 kW) 2 hp (1.5 kW) |
| | FE Motor Rating | 234514 - series (1.5 hp, 1.1 kW) | 234315 - series (2 hp, 1.5 kW) |

Notes: Refer to Franklin Electric's SubDrive/MonoDrive Installation Manual (M1560).

(A) Operating temperature is specified at full output power when installed as described in Controller Location Selection on pg. 23.

(B) Refer to pgs. 45-47 for detailed Mounting Dimensions.

(C) If a pump other than the default rating is used, refer to pgs. 9-15 for Drive Configuration.

* Refer to pg. 25 for detailed Circuit Breaker and Wire Sizing.

Specifications

| | SubDrive150 | | SubDrive300 |
|---|--------------------------------|--|---|
| Model No. | NEMA 1 (indoor) | Model 5870204150 | Not Available |
| | NEMA 3R (indoor/outdoor) | Not Available | Not Available |
| | NEMA 4 (outdoor) | Model 5870204154 | Model 5870206300 |
| Input from Power Source | Voltage | 190-260 VAC | 220-260 VAC |
| | Phase In | Single-Phase | Single-Phase |
| | Frequency | 60/50 Hz | 60/50 Hz |
| | Current (max) | 23 Amps (RMS) | 36 Amps (RMS) |
| | Power Factor | 1.0 (constant) | 1.0 (constant) |
| | Power (idle) | 65 Watts | 65 Watts |
| | Power (max) | 4600 Watts | 7200 Watts |
| | Wire Gauge Size(s) | Consult Federal, State, and Local codes for branch circuits installations | Consult Federal, State, and Local codes for branch circuits installations |
| Output to Motor | Voltage | Adjusts with Frequency | Adjusts with Frequency |
| | Phase Out | Three-Phase (3-wire) | Three-Phase (3-wire) |
| | Frequency Range | 30-80 Hz (1.5 hp, 1.1 kW) pump 30-70 Hz (2 hp, 1.5 kW) pump 30-60 Hz (3 hp, 2.2 kW) pump | 30-80 Hz (3 hp, 2.2 kW) pump 30-70 Hz (5 hp, 3.7 kW) pump |
| | Current (max) | 10.9 Amps (RMS, each phase) | 17.8 Amps (RMS, each phase) |
| | Wire Gauge Size(s) | NEMA 1 #6 - #18 * ga NEMA 4 #6 - #18 * ga. | NEMA 4 #2 - #18 * ga. |
| Pressure Setting | Factory Preset | 50 psi (3.4 bar) | 50 psi (3.4 bar) |
| | Adjustment Range | 25-80 psi (1.7 - 5.5 bar) | 25-80 psi (1.7 - 5.5 bar) |
| Operating Conditions ^(A) | Temperature (at 230 VAC input) | -13 °F to 125 °F (-25 °C to 50 °C) | -13 °F to 125 °F (-25 °C to 50 °C) |
| | Relative Humidity (NEMA 1) | 10-95%, non-condensing | N/A |
| | Relative Humidity (NEMA 3R) | Not Available | Not Available |
| | Relative Humidity (NEMA 4) | 0-100%, condensing | 0-100%, condensing |
| Controller Size ^(B) (approximate) | NEMA 1 (indoor) | 16 1/2" x 12 3/8" x 9" (41.91 x 31.43 x 22.86 cm) 17.50 lbs (7.94 kg) | Not Available |
| | NEMA 3R | Not Available | Not Available |
| | NEMA 4 (outdoor) | 17 1/2" x 16 3/8" x 11 3/8" (44.45 x 41.59 x 28.89 cm) 28.32 lbs (12.84 kg) | 19 7/8" x 17 1/2" x 14 1/4" (50.48 x 44.45 x 36.20 cm) 35.15 lbs (15.94 kg) |
| For Use With ^(C) | Pump (60 Hz) | 1.5 hp (1.1 kW) [default] 2 hp (1.5 kW) 3 hp (2.2 kW) | 3 hp (2.2 kW) [default] 5 hp (3.7 kW) |
| | FE Motor Rating | 234316 - series (3 hp, 2.2 kW) | 234317 - series (5 hp, 3.7 kW) |

Notes: Refer to Franklin Electric's SubDrive/MonoDrive Installation Manual (M1560).

(A) Operating temperature is specified at full output power when installed as described in Controller Location Selection on pg. 23.

(B) Refer to pgs. 45-47 for detailed Mounting Dimensions.

(C) If a pump other than the default rating is used, refer to pgs. 9-15 for Drive Configuration.

* Refer to pg. 25 for detailed Circuit Breaker and Wire Sizing.

Specifications

| SubDrive2W | | |
|---|--------------------------------|--|
| Model No. | NEMA 1 (indoor) | Not Available |
| | NEMA 3R (indoor/outdoor) | Model 5870203223 |
| | NEMA 4 (outdoor) | Not Available |
| Input from Power Source | Voltage | 207-260 VAC |
| | Phase In | Single-Phase |
| | Frequency | 60/50 Hz |
| | Current (max) | 14 Amps (RMS) (For circuit breaker sizing) |
| | Power Factor | 0.7 (approximate) |
| | Power (idle) | 20 Watts |
| | Power (max) | 1900 Watts |
| | Wire Gauge Size(s) | Consult Federal, State, and Local codes for branch circuits installations |
| Output to Motor | Voltage | Adjusts with Frequency |
| | Phase Out | Single-Phase (2-wire) |
| | Frequency Range | 30-60 Hz |
| | Current (max) | 6 Amps (RMS) 1/2 hp, 0.37 kW system 8 Amps (RMS) 3/4 hp, 0.55 kW system 10.4 Amps (RMS) 1 hp, 0.75 kW system |
| | Wire Gauge Size(s) | NEMA 3R #6 - #18 * ga. |
| Pressure Setting | Factory preset | 50 psi (3.4 bar) |
| | Adjustment Range | 25-80 psi (1.7 - 5.5 bar) |
| Operating Conditions ^(A) | Temperature (at 230 VAC input) | -13 °F to 125 °F (-25 °C to 50 °C) |
| | Relative Humidity (NEMA 1) | Not Available |
| | Relative Humidity (NEMA 3R) | 10-95%, non-condensing |
| | Relative Humidity (NEMA 4) | Not Available |
| Controller Size ^(B) (approximate) | NEMA 1 (indoor) | Not Available |
| | NEMA 3R | 12 1/4" x 16 1/2" x 9" (31.1 x 41.9 x 22.9 cm) 15.0 lbs (6.80 kg) |
| | NEMA 4 (outdoor) | Not Available |
| For Use With ^(C) | Pump (60 Hz) | 1/2 hp pump/motor with 244505 - series 3/4 hp pump/motor with 244507 - series [default] |
| | FE Motor Rating | 1 hp pump/motor with 244508 - series |

Notes: Refer to Franklin Electric's SubDrive/MonoDrive Installation Manual (M1560).

(A) Operating temperature is specified at full output power when installed as described in Controller Location Selection on pg. 23.

(B) Refer to pgs. 45-47 for detailed Mounting Dimensions.

(C) If a pump other than the default rating is used, refer to pgs. 9-15 for Drive Configuration.

* Refer to pg. 25 for detailed Circuit Breaker and Wire Sizing.

System Accessories

| Accessories | Controller | Part Number |
|---|--|---|
| SubDrive Duplex Alternator | All models | 585 001 2000 |
| NEMA 1 Fan Replacement Kit | SubDrive75 / MonoDrive SubDrive100 / SubDrive150 / MonoDriveXT | 225 635 908 225 635 909 |
| NEMA 3R Fan Replacement Kit | SubDrive2W | 225 635 910 |
| NEMA 4 Fan Replacement Kit (External cooling fan) | MonoDrive / SubDrive75 MonoDriveXT / SubDrive100 / SubDrive150 SubDrive300 | 225 635 901 225 635 902 225 635 903 |
| NEMA 4 Fan Replacement Kit (Internal stirring fan) | MonoDrive / SubDrive75 / MonoDriveXT / SubDrive100 / SubDrive150 / SubDrive300 | 225 635 904 |
| Auxiliary Relay Communications Board | All NEMA 4 models (excluding SubDrive300) | 225 755 901 |
| Tank Drawdown Kit | All NEMA 4 models / SubDrive2W | 225 770 901 |
| Heatsink Cover Kit | All NEMA 4 models (excluding SubDrive300) | 225 805 901 |
| Air Filter Kit | SubDrive2W | 225 835 901 |
| Lightning Arrestor | Single-phase (Input Power) | 150 814 902 |
| Low Voltage Kit | SubDrive300 | 225 950 901 |
| High Pressure Sensor (75-150 psi) | All models | 225 970 901 |
| Standard Replacement Pressure Sensor Kit (25-80 psi) | All models | 223 995 901 |
| Direct Burial Cable | 10 ft (3 m) 30 ft (9 m) 100 ft (30.5 m) | 225 800 901 225 800 902 225 800 903 |
| Input Filter | All models | 225 198 901 |
| Output Filter | All models (excluding SubDrive300) | 225 300 901 |
| Surge Capacitors | All models | 225 199 901 |

*N1 = NEMA 1 (Indoors), N3R = NEMA 3R (Indoor/Outdoors), N4 = NEMA 4 (Outdoors)



SubDrive Duplex Alternator



High Pressure Sensor



Internal Stirring Fan Kit



Lightning Arrestor



Air Filter Kit



External Cooling Fan Kit



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