

Motors

Drives

Controls

Protection

CONSTANT PRESSURE SYSTEMS



Franklin Electric

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
- Smooth running
- ¾ hp to 5 hp performance
- Easily replaceable fan kit
- Easy to install
- UL and cUL listed
- High starting torque
- 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:

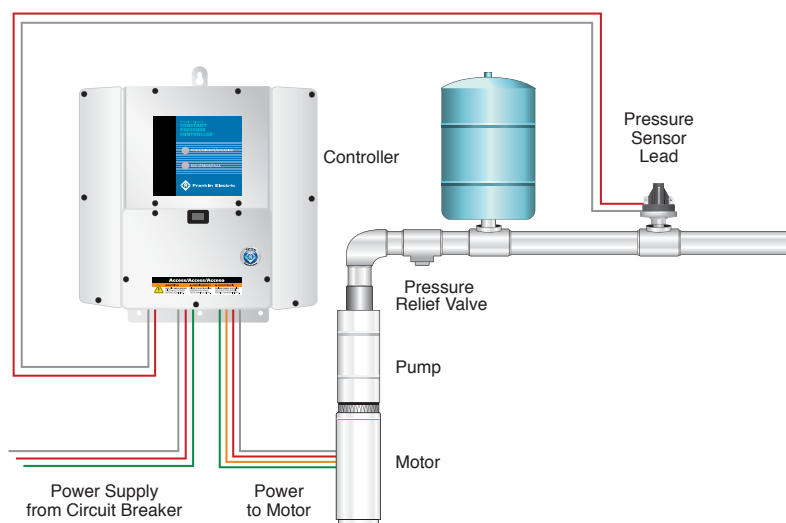
The NEMA 3R enclosure is rated for indoor and outdoor use. It provides a degree of protection against falling rain and sleet. This enclosure is used only with the SD2W.

■ 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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