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BRSDRIVE

Goulds Pumps

S-Drive™

Simplex Variable Speed Submersible Pump Controller



Engineered for life

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Do you want to Simplify your Commercial Pumping System? Goulds Pumps “S-Drive” variable speed, constant pressure pump controller is designed for the professional pump installer.

With application specific features and Goulds Pumps designed software, the S-Drive was developed specifically for commercial submersible well systems.

This variable speed controller goes beyond a “standard” drive, giving the pump professional a rugged design that is built for demanding conditions.

Key Features and Benefits

- **Energy Saving** → The S-Drive is a true variable frequency controller which adjusts motor speed to match the hydraulic needs of the system to maintain pressure. Unlike valve controlled systems, the energy draw is substantially reduced during lower flow while keeping the pump close to its best efficiency. Up to 70% energy savings over fixed speed pumps are common.
- **Easy Set-up** → Pre-set for submersible or surface motor characteristics. Pre-wired and tested transducer. Touch button pressure setting. No complicated menus or electrical programming to cope with. Total set up time including wiring is less than 30 minutes.
- **NEMA 3R** → Outdoor rated enclosure eliminates the need for separate cover panels required by competitive standard NEMA 1 enclosures. Operating temperature -22° F to 122° F!
- **Dual Phase Input** → The same drive can be used for either **three phase** or **single phase** input (de-rated). Both configurations are  listed approved for flexibility.
- **Filter Pack** → The S-Drive comes complete with output filter rated to 1000 feet of motor lead. It is ready to go without having to source and install components from other sources. Programming is also pre-set to 30 Hz minimum to protect motor bearing lubrication required by some motor manufacturers.
- **True Motor Match** → The S-Drive is already rated for the higher amps typical of higher HP submersible pump start-up. There is no need to oversize the drive as with other units. A 10 HP S-Drive will run a 10 HP submersible pump!
- **Transducer** → As with all Goulds drives, the pressure transducer is included with the drive so there is no need for separate sourcing and compatibility checks. The transducer is pre-wired and tested, with internal case grounding!
- **Full Diagnostics** → In addition to typical electrical protection and diagnostics, the S-Drive has a full range of pump protection features such as bound pump or motor shut down, low water or loss of prime shut down. These added features require no added input devices.
- **Program Security** → The flashing LED status indicator will not fade in outdoor use the way competitor LCD screens do, and the internal push buttons discourage tampering by untrained operating or maintenance personnel. The enclosure can be locked and tagged to prevent unauthorized entry.



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- **Remote on/off** → Permits external control by timers (irrigation), float or pressure switches (tank draining) or manual control. Dry contact closure required.
- **Hand/Auto Option** → Allows the drive to be run at full speed without a pressure transducer for longer periods of time as in the case of new well development or system start up. Turning the control back to auto resumes the automatic pressure tracking and control.
- **Remote Monitoring** → External monitors may be connected to the drive for monitoring pump running speed (4-20 mA output based on speed), pump on, and system fault. The fault indicator can also be connected to devices like an auto-dialer. This enables control of pumps and drives in un-manned locations. The 4-20 mA output can be utilized for functions such as an external dosing system, chlorine injection.
- **Pressure Drop** → The reaction time of the drive to pressure drops can be adjusted from the typical 5 PSI drop to as much as 20 PSI. This allows for fewer starts.
- **Dual Set Point** → The S-Drive has the capability to be programmed with two pressure set points. An external contact such as a timer can be used to change between them, so that a booster pump serving both a building and an irrigation system can do both jobs without manual resets.
- **No Water Restart** → The S-Drive has the capability to adjust the time delay in between each “dry well” fault. Adjustable from 10 minutes to 2 hours between each restart. Ideal for low yielding wells.

Typical Applications

- **Irrigation** → Irrigation applications use both submersible and surface pumps about equally. The S-Drive can control standard 4" and 6" submersible motors as well as turbine pumps and surface centrifugal pumps up to 30 HP.
- **Rural Water** → Rural water districts often pump ground water from community wells with single pumps of less than 50 HP. Many have a single water tower, which limits system pressure during peak periods or at remote ends of the distribution system. The S-Drive can automatically compensate for demand variations with either submersible or surface boosters.
- **Building Booster** → Commercial buildings of less than ten stories may require supplemental pressure to offset what is provided by the municipal system either on a permanent basis, or during periods of peak demand.
- **Agriculture** → Commercial farms for crops or livestock require a reliable source of irrigation, feeding or cooling water. Dairy, turkey, chicken, beef and various commercial crops all require a constant source of water with varying demands throughout the season.
- **Retro Fit** → Replace existing constant speed control panels. Upgrade your simplex commercial water system with the easy to use S-Drive™ Constant Pressure Controller.

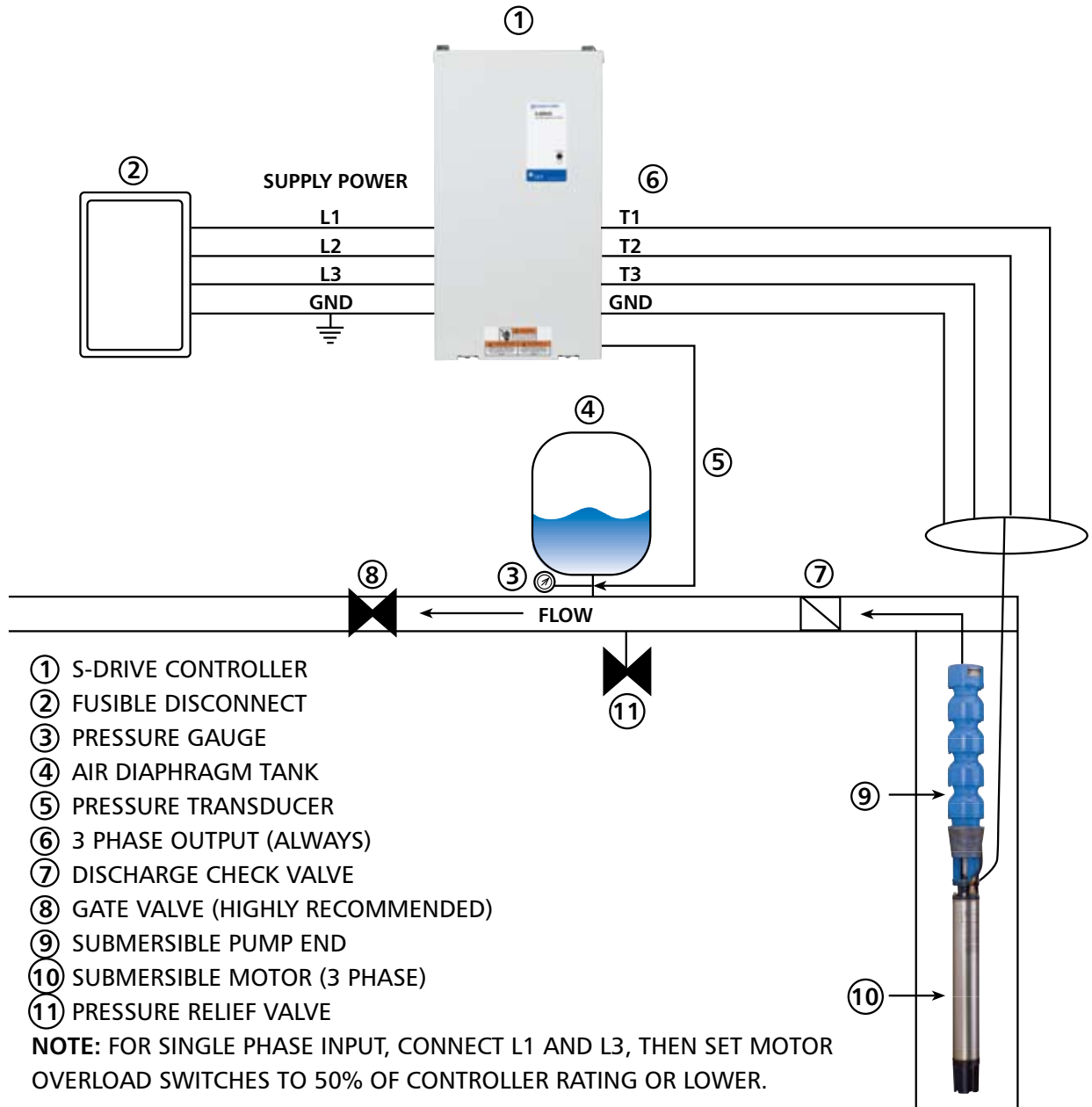


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SUBMERSIBLE WELL S-DRIVE CONSTANT PRESSURE LAYOUT



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Specifications

- Input Power** 208-230V single or three phase 50/60 Hz
380-460V three phase 50/60 Hz
- Output Power** 208-230V 60Hz three phase 5-30HP (2-15HP with 1 phase input)
380-460V 60Hz three phase 5-30HP

Supply Voltage	Frame (Enclosure) Size	Part Numbers	Output Full Load Amps		Normal Duty Horsepower (For Reference Only)	
			1 Phase Input	3 Phase Input	1 Phase Input	3 Phase Input
208-230	1	SPD20050F	8.1	17.8	2.0	5
	2	SPD20075F	10.9	26.4	3.0	7.5
		SPD20100F	17.8	37.0	5.0	10.0
	3	SPD20150F	26.4	47.4	7.5	15.0
		SPD20200F	33.0	60.6	10.0	20.0
	4 ①	SPD20250F	40.2	76.0	12.0	25.0
SPD20300F		47.4	94.0	15.0	30.0	
380-460	1	SPD40050F		8.9		5.0
		SPD40075F		13.2		7.5
	2	SPD40100F		18.5		10.0
		SPD40150F		23.7		15.0
	3	SPD40200F		30.3		20.0
		SPD40250F		37.5		25.0
		SPD40300F		47.0		30.0

NOTE: Low input voltage may cause reduced pump performance.

① Scheduled for July, 2009 release – call for availability.

Motor Overload/Ramp Switches

SWITCH SETTINGS			
MOTOR OVERLOAD SETTINGS		ACCEL/DECCEL RAMP SETTINGS	
BANK1	% OF RATING	BANK1&2	RAMP SETTING
1 2 3		4 1 2	
U U U	100%	U U U	0.5 SEC
U U D	95%	U U D	1 SEC
U D U	90%	U D U	2 SEC
U D D	85%	U D D	3 SEC
D U U	80%	D U U	4 SEC
D U D	70%	D U D	5 SEC
D D U	50%	D D U	6 SEC
D D D	40%	D D D	7 SEC
NO WATER RESTART TIME		BANK3 MIN FREQ	
BANK2	RESTART TIME	1	U 30Hz
3 4			D 15Hz
U U	10 MIN	BANK3 CARRIER FREQ	
U D	30 MIN	2	U 2KHz
D U	1 HOUR		D 8KHz
D D	2 HOURS		

- Run enable:** Start and stop switch contact.
- Hand mode:** Enables the controller to run with or without pressure sensor feedback.
- Two point pressure setting:** Digital input to select between two programmed pressure settings.
- Adjustable pressure drop:** Digital input to set the pressure drop allowed before the pump/motor is turned on.
- Pressure setting:** Up and down buttons to set required pressure.
- Motor overload setting:** Adjustable to allow use with a wide range of motors.
- Ramp and minimum speed:** Adjustable accelerate and decelerate ramp times and min. speed.
- Carrier (IGBT switching) frequency:** 2 KHz to 8 KHz

Digital Input Controls/Relays

CONTROL TERMINALS		
POSITION	FUNCTION	DESCRIPTION
1	COM	SIGNAL COMMON
2	RUN/STOP	CLOSED = RUN OPEN = STOP
3	COM	SIGNAL COMMON
4	HAND/AUTO	CLOSED = HAND OPEN = AUTO
5	COM	SIGNAL COMMON
6	INPUT	TRANSDUCER INPUT
7	+24V	24VDC SUPPLY
8	+5V	5VDC SUPPLY
9	COM	SIGNAL COMMON
10	ANALOG OUTPUT	4-20mA OUTPUT
11	SP2/SP1	CLOSED = SETPOINT2 OPEN = SETPOINT1
12	PRESSURE DROP	CLOSED = 20PSI OPEN = 5PSI
13	RELAY1 - NO	MOTOR RUN
14	RELAY1 - NC	STOP: NC = COM
15	RELAY1 - COM	RUN: NO = COM
16	RELAY2 - NO	SYSTEM FAULT
17	RELAY2 - NC	OK: NC = COM
18	RELAY2 - COM	FAULT: NO = COM

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Outputs

Analog output: 4-20mA output based on drive frequency. 0-60 Hz.

Pump run status: Relay to indicate pump run status.

Drive fault status: Relay to indicate pump, motor or controller fault. May be connected to outside warning device or auto-dialer.

LED Lights: **Green** – standby or pump running

Orange – Under voltage

Red – Number of blinks determine: replace controller, no water/loss of prime, sensor fault, pump or motor bound, short circuit/ground fault, input phase loss, temperature, over-voltage, or motor overload.

Electrical Efficiency Over 95% at Full Load

No water restart time Adjustable restart time for “dry well” function from 10 min. to 2 hours.

Protection Against Short circuit, under voltage, motor overload, temperature, dead heading, run out, suction loss, sensor fault, bound pump, overvoltage, static discharge, dry well.

Max. Elevation 2000 m (6600 ft.)

Ambient Temp. -22° F to 122° F

Max. Humidity 95% at 104F non-condensing

Air Pollution Avoid mounting in areas with excessive dust, acids, corrosives and salts.

Approvals cUL, CE

Enclosure Painted Steel enclosure, NEMA 3R, IP43, (rain tight)

Mounting Wall mount

Cooling Attached heat sink and fan.

Transducer 4-20 mA rated to 300 PSI with 180-inch, 3 core shielded cable, with internal case ground.

Output Filter Integrated filters protect the motor from voltage spikes even with up to 1,000 feet of wire between controller and motor.

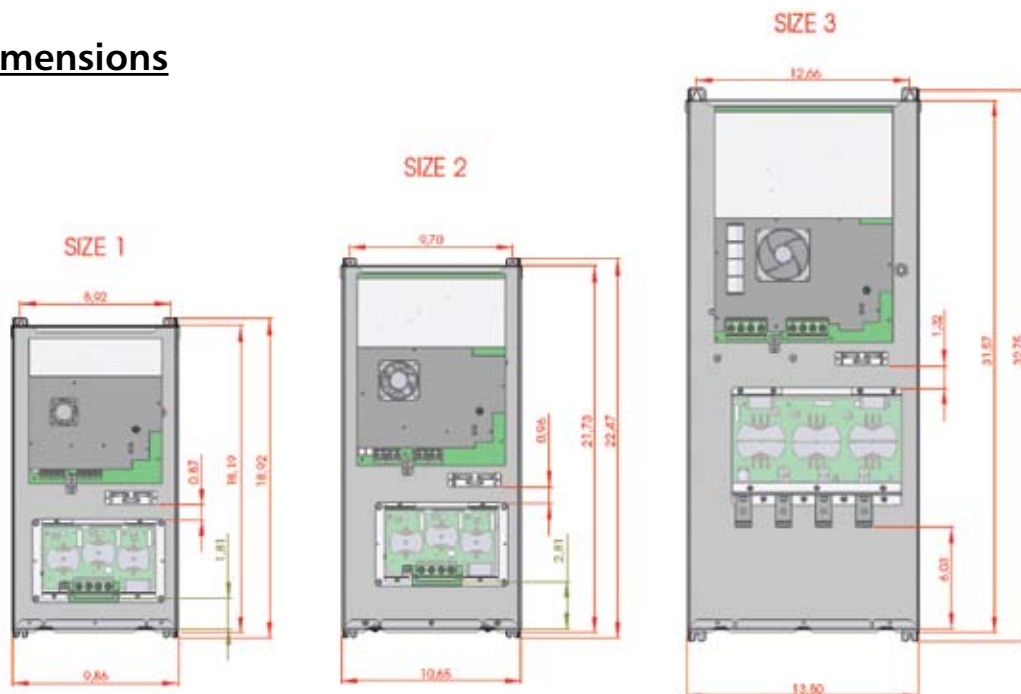
Weights and Dimensions

Size 1 = 21 lbs.

Size 2 = 27 lbs.

Size 3 = 52 lbs.

Size 4 = 110 lbs.



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**FOR ALL OF YOUR PUMP AND CONTROL NEEDS,
CONTACT YOUR GOULDS PUMPS PROFESSIONAL.**

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