AquaVar S-Drive Plus™
SIMPLEX VARIABLE SPEED SUBMERSIBLE
AND ABOVE GROUND PUMP CONTROLLER
S-DRIVE PLUS
Do you want to Simplify your Commercial Pumping System? Goulds Pumps “S-Drive Plus” variable speed, constant pressure pump controller is designed for the professional pump installer. With application specific features and Goulds Water Technology pumps designed software, the S-Drive Plus was developed specifically for commercial above ground centrifugal and 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 Plus is a true variable frequency controller which adjusts motor speed to match the hydraulic needs of the system and maintain pressure. Unlike valve controlled systems, the energy draw is substantially reduced during lower flow while operating 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 manage. Total set up time including wiring is less than 30 minutes.

• Flexible enclosure offerings - NEMA 3R – Outdoor rated enclosures up to 122°F! NEMA 3R filtered option also includes integrated Filter Pack!

NEMA 1 – Indoor rated enclosure providing flexibility for use indoors or mounting within a user supplied enclosure. Filter Packs for NEMA 1 systems provided separately.

• Dual Phase Input - The same drive can be used for either three phase or single phase input (de-rated). Drives are UL listed for either configuration.

• Optional Integrated Filter Pack (NEMA 3R Only) – The NEMA 3R S-Drive Plus 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 suppliers. 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 Plus 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 100 HP S-Drive Plus will run a 100 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 Plus 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 features require no added input devices.
**AquaVar S-Drive Plus™**
Simplex Variable Speed Pump Controller

- **Program Security** - The flashing LED status indicator will not fade in outdoor use as LCD screens can and the internal push buttons discourage tampering by untrained operating or maintenance personnel. The enclosure can be locked and tagged to prevent unauthorized entry.

- **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 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 Plus 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 Plus has the capability to adjust the time delay in between each “dry well” fault. Adjustable from 10 minutes to 1 hour between each restart. Ideal for low yielding wells.

**Typical Applications**

- **Irrigation** - Irrigation applications use both submersible and surface pumps. The S-Drive Plus can control standard 4" and 6" submersible motors as well as turbine pumps. The S-Drive Plus can also control surface centrifugal pumps up to 100 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 Plus 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 Plus™ Constant Pressure Controller.

- **Phase Converter** - When only 1Ø power is available but 3Ø operation is desired for lower amps and smaller wire.
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SUBMERSIBLE WELL S-DRIVE CONSTANT PRESSURE LAYOUT

① S-DRIVE CONTROLLER
② FUSIBLE DISCONNECT
③ PRESSURE GAUGE
④ AIR DIAPHRAGM TANK
⑤ PRESSURE TRANSDUCER
⑥ 3 PHASE OUTPUT (ALWAYS)
⑦ DISCHARGE CHECK VALVE
⑧ GATE VALVE (HIGHLY RECOMMENDED)
⑨ SUBMERSIBLE PUMP END
⑩ SUBMERSIBLE MOTOR (3 PHASE)
⑪ PRESSURE RELIEF VALVE

NOTE: FOR SINGLE PHASE INPUT, CONNECT L1 AND L3.
### Specifications

**Input Power** - 208-230V 1Ø or 3Ø phase 50/60 Hz
380-460V 3Ø 50/60 Hz
575V 3Ø 60 Hz

**Output Power** - 208-230V 60Hz 3Ø 40-60HP (20-30HP with 1Ø input)
380-460V 60Hz 3Ø 40-100HP
575V 60Hz 3Ø 40-100HP

**Motor Overload/Ramp Switches Digital Input Controls/Relays**

**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 based upon motor full load amps.

**Ramp and minimum speed:** Adjustable acceleration on and deceleration on ramp times and minimum speed setting.

**Carrier (IGBT switching) frequency:** 2 KHz to 8 KHz

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<tr>
<th>Supply Voltage</th>
<th>1 Phase Input - Reference HP</th>
<th>3 Phase Input - Reference HP</th>
<th>NEMA 1 Model Number</th>
<th>NEMA 3R Model Number</th>
<th>1 Phase Input - Output Full Load Amps</th>
<th>3 Phase Input - Output Full Load Amps</th>
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<tbody>
<tr>
<td>208/230 Volts</td>
<td>20 40 SPD20400 SPD20400N3</td>
<td>44 88 SPD20500 SPD20500N3</td>
<td>71.5 143 SPD20750 SPD20750N3</td>
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<td>25 50 SPD20500 SPD20500N3</td>
<td>57 114 SPD20600 SPD20600N3</td>
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| 460 Volts* | 40 SPD40400 SPD40400N3 | 59 SPD40500 SPD40500N3 | | 59 | | |
| 50 SPD40500 SPD40500N3 | 72 SPD40600 SPD40600N3 | 97 SPD41000 SPD41000N3 | | 72 | | |
| 60 SPD40600 SPD40600N3 | 77 SPD40750 SPD40750N3 | 97 SPD41000 SPD41000N3 | | 77 | | |
| 75 SPD40750 SPD40750N3 | 97 SPD41000 SPD41000N3 | | | 97 | | |
| 100 SPD41000 SPD41000N3 | 125 SPD41250 SPD41250N3 | | | 125 | | |

| 575 Volts* | 40 SPD50400 SPD50400N3 | 41 SPD50500 SPD50500N3 | | 41 | | |
| 50 SPD50500 SPD50500N3 | 52 SPD50600 SPD50600N3 | 62 SPD50750 SPD50750N3 | | 52 | | |
| 60 SPD50600 SPD50600N3 | 62 SPD50750 SPD50750N3 | 77 SPD51000 SPD51000N3 | | 62 | | |
| 75 SPD50750 SPD50750N3 | 77 SPD51000 SPD51000N3 | | | 77 | | |
| 100 SPD51000 SPD51000N3 | 99 SPD51250 SPD51250N3 | | | 99 | | |

Note: Low input voltage may reduce pump performance.
* Not rated for 1Ø input
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**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.

**Simple LCD Interface** View System Pressure, Set/View Setpoint Pressure, and View System Speed. Display of statuses and system alarms in simple, pump specific language.

**No water restart time** Adjustable restart time for “dry well” function from 10 min. to 1 hour.

**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** 2,000 m (6,600 ft.) (Derating required above 1,000 m)

**Ambient Temp.** -22°F to 122°F (Derating required above 1,000 m)

**Max. Humidity** 95% at 104°F non-condensing

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

**Approvals** UL, cUL, CE

**Enclosure** Available in NEMA 1, IP21 (indoor only) or 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 200", 3 core shielded cable, with internal case ground.

**Optional Output Filter** Filters protect the motor and drive from voltage spikes for up to 1,000 feet of wire between controller and motor in submersible pump applications.
AquaVar S-Drive Plus™
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For all of your pump and control needs, contact your Goulds Water Technology Pump Professional.

Xylem |'zɪlɛm|

1) The tissue in plants that brings water upward from the roots;  
2) a leading global water technology company.

We’re 12,000 people unified in a common purpose: creating innovative solutions to meet our world’s water needs. Developing new technologies that will improve the way water is used, conserved, and re-used in the future is central to our work. We move, treat, analyze, and return water to the environment, and we help people use water efficiently, in their homes, buildings, factories and farms. In more than 150 countries, we have strong, long-standing relationships with customers who know us for our powerful combination of leading product brands and applications expertise, backed by a legacy of innovation.

For more information on how Xylem can help you, go to www.xyleminc.com