



GS Series

SENSORPRESS BOOSTER SYSTEMS
WITH NEW CONTROLLER SM30

GS Series

The GS range of fixed speed booster sets includes models with 2 to 3 electric service pumps, and an additional jockey pump able to adapt to specific requirements within different applications. The start and stop of the pumps is based on the pressure values set on a pressure transducer, in order to deliver the water required. One pressure transducer is connected on the delivery side of the set. A second one is connected but only as a reserve device. With the cyclic changeover function, duty assignment is rotated to ensure both pumps remain active and with even running hours, so wear is uniform and the use factor is reduced for longer pump life.

This system also ensures continuity of operation, in case one of the pumps needs maintenance. The electric pumps used in the GSD range are FHE and SHE series and SV series vertical multistage pumps. Pumps are controlled by an electric control panel with a new electronic card with display on the front door. The electronic card and panel can also be used for waste water applications with up to 3 pumps installed.



Benefits.

Water supply and waste water applications

Digital inputs and outputs

Multilanguage menu with 8 languages

Analogical inputs and outputs

Start and stop of the pumps on level or pressure value (contact or analogical signal)

Autotest by timer

Pumps rotation on running time or pump start

Modbus serial interface



Specifications.

Booster sets with SV series vertical multistage pumps with the following performances:

Max flow: up to 300 m³/h
Head: up to 160 m

Booster sets with FH and SH series end suction pump with the following performance:

Max flow: up to 540 m³/h
Head: up to 160 m

Maximum operating pressure:

16 bar

Configuration of the electronic card and its functionality can happen in the following ways:

by panel with function key
by RS 485 setting modbus registers

Power

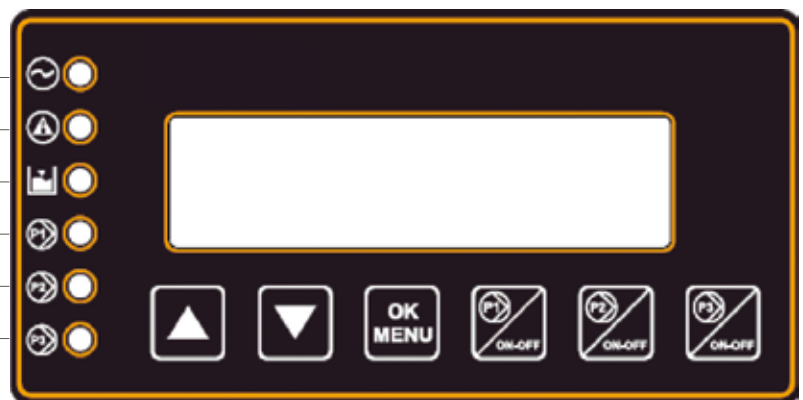
General fault

Low/high level

Pump 1 run

Pump 2 run

Pump 3 run



Input/output specification.

Dielectric strength control board is applied on three sides:

- power supply
- digital input/output
- analogical input/output, CPU, RS485

Digital input

- N° 6 digital inputs come from float switches or pressure switches
- N° 3 digital inputs come from motor protections or PTC
- Input for probes detection circuit (common, minimum, maximum) with adjustable sensibility or float switch or minimum pressure switch.

Digital output

- N°3 digital outputs relays, for pumps control
- N°1 output relay for alarm signalling activation
- N°1 output 12 V for alarm siren

Analogical input

- N°2 analogical inputs with the following characteristics:
Input type 0-20 m A, 4-20 m A, 0 -10 V selected by software

Analogical output

- Output type 0-20 m A, 4-20 m A, 0 -10 V selectable by software



The following Input/Output (I/O) are also specified:

N°3 micro switches on the electronic card to manage its by-pass and to directly control the pumps in case of a fault in the electronic card. Micro switches have three positions (on, auto, off) and they will skip the output relay signal for contactors' direct control.

N° 1 RJ45 connector for output on electronic card. Lowara RILS6 (free contacts electronic card) is configurable by electronic card SM30.

Modbus serial interface.

The electronic card has a serial interface RS485. It will be managed by microprocessor with Modbus protocol.

Applications.

These kinds of booster sets are used for water supply applications, in the following facilities.

Commercial building

Schools

Offices

Hotels

Public and private healthcare systems

Industrial premises

Public buildings

Theatres

Camping



Booster sets components and material.

Booster sets are manufactured in a compact solution with all components assembled in the factory.

Booster sets have the following components:

Base in iron painted "Ω" shape

Vertical multistage pumps or horizontal pumps SV and FH, SH series

Control panel with electronic card SM30

Isolating valve nickel-brass or cast iron material

Check valve in suction side or delivery side according to customer requirements

Pressure transducers in AISI 304 one in run and one in stand-by

Pressure gauge

Delivery manifold in AISI 304

Suction manifold in AISI 304

All the sets are tested in the factory and they are manufactured according to:

Machinery Directive: 2006/42/CE

Low Voltage Directive: 2006/95/CE

Electromagnetic Compatibility Directive: 2004/108/CE

Autotest



It is possible to set the following parameters before the start up of the systems:

Total number of pumps in the set (max 3 pumps, jockey pump included)

Jockey pump (yes or no)

Control by pressure switches or pressure transducer

Activation of pump rotation, according to On/Off of the pumps, or by running time with a clock counter

Enable pump stop delay for each pump or all pumps

Enable reduced times for fast variations (dynamic delay)

Autotest yes or no, and control by internal timer or external device (AUX1)

Friction losses compensation and threshold increase

Alarms.

The following alarms can be set in the main menu:

Thermal overload

Dry running protection

Pressure transducer in fault

Autotest in fault

High pressure

Low pressure

Outside of operating range

Latest alarms are recorded in the electronic card memory, and they are visible in the alarms historic menu. In case of alarm due to the diaphragm pressure switch (not during autotest, but during the normal function) the electronic card is set with a time delay to enable all the pumps for re-establish the pressure value. When the alarm stops, all the pumps will be turned off and the alarm will be recorded.

Two different situations:

Diaphragm pressure switch in action outside of operating range alarm in run; in this case there could be an error in the electric connection with the pressure transducer, or in the value set.

Outside of operating range alarm in run (with pumps in run according to pressure transducer); in this case one or more pumps may not be working efficiently.

Periodic Autotest.

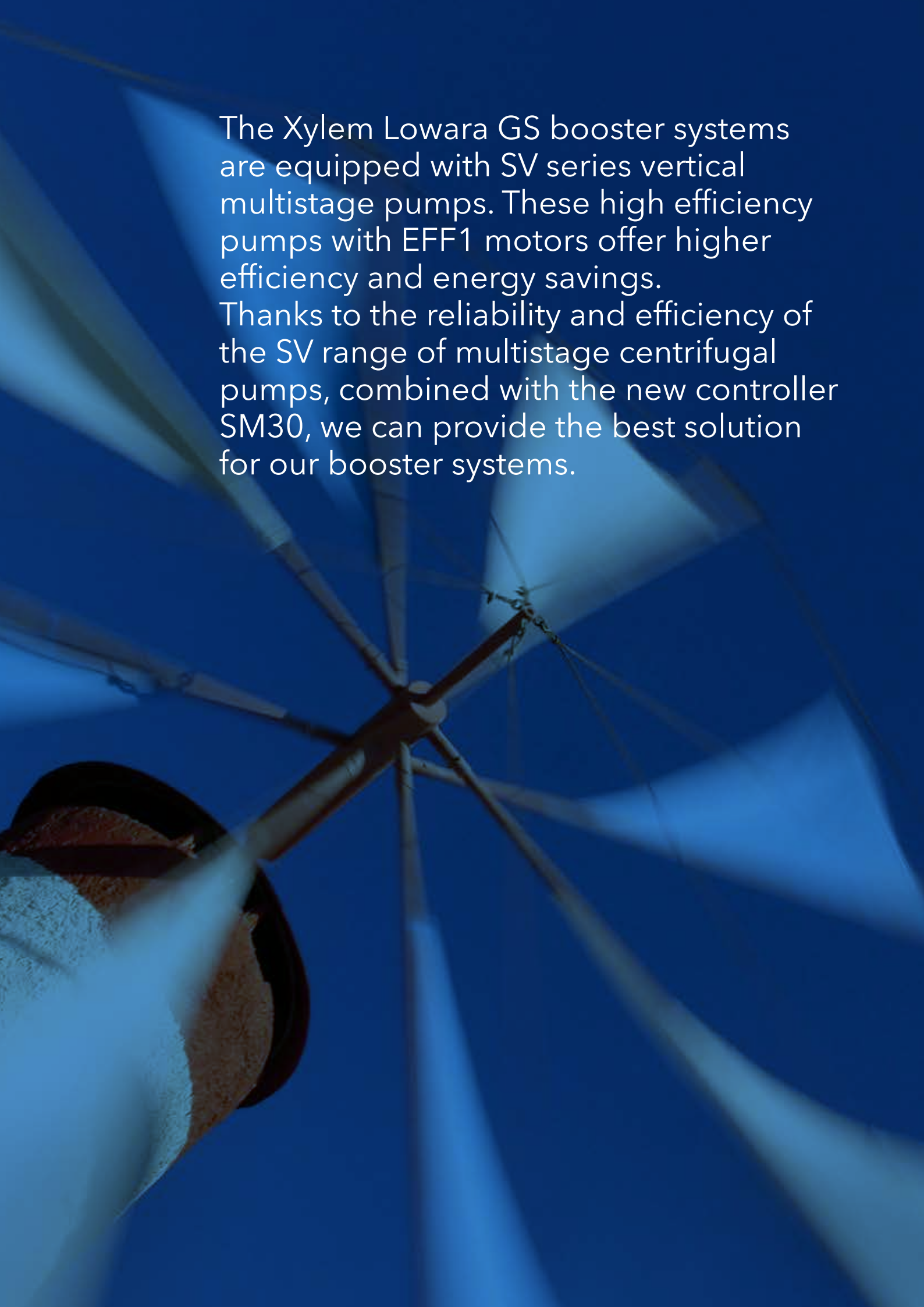
In systems subjected to long periods of inactivity, it is possible to use an electronic internal clock or an external device to enable aperiodic autotest (the time period recommended is bi-weekly). The test phase lasts one minute. If during this phase the diaphragm pressure switch is in run, an alarm will be on. The other pumps are started in order to re-establish the pressure.



Night and Day function.

The booster set provides night and day pressure sets, giving it two different methods of use for different applications in the same system. The value set can be set directly by electronic card or by an external input (EXT3).





The Xylem Lowara GS booster systems are equipped with SV series vertical multistage pumps. These high efficiency pumps with EFF1 motors offer higher efficiency and energy savings. Thanks to the reliability and efficiency of the SV range of multistage centrifugal pumps, combined with the new controller SM30, we can provide the best solution for our booster systems.

Reliability and efficiency



SM30 controller.

If the brain of Sensorpress booster systems is the SM30 controller, then SV vertical multistage pumps are the heart of the booster sets. High-tech pumps and high efficiency motors give Sensorpress booster systems the highest level of quality.

The SV pumps used in the Sensorpress booster systems are easy to install and to replace. Thanks to their simple maintenance, the mechanical seal can be replaced quickly without removing the electric motor.

High level of performance, high efficiency, stainless steel technology and a wide range of models enable many booster system combinations for any application.

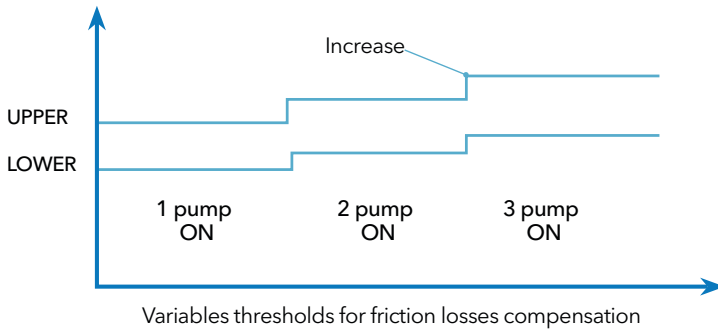
Multi-pump control ensures a balanced system, with drive rotation for each pump. With the high quality level of Xylem Lowara motors fitted on SV pumps, the Sensorpress booster system ensures low noise and the best comfort for all users



Smart system and guaranteed performances

The new SM30 controller was born from the experience of Lowara in pump technology and knowledge of automatic pump control. Development of the SM30 controller involved all our know how to be sure that it satisfies all users' requirements. Through the SM30 we will improve the performances of our booster systems and its user-friendliness. The menu navigation is very simple and step-by-step operation ensures users can set the main parameters and obtain best performance from the booster system.



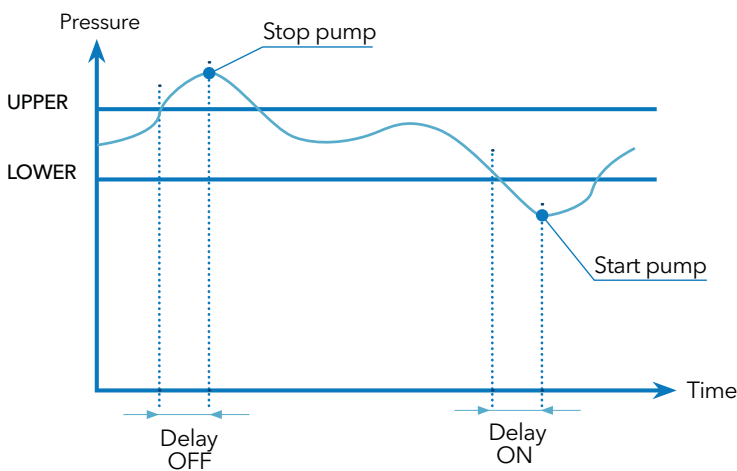


Friction losses compensation.

In water systems it is normal to have a decrease of pressure due to the pressure drop with increasing flow rate value. In order to compensate friction losses, it is possible to enable a control that gives a pressure proportional value to the load of the system.

Direct measurement of the flow is not detected. We believe that it is proportional to the number of pumps running. Pressure value set (upper and lower threshold) is incremented by a value set in the parameters.

The jockey pump is not considered.

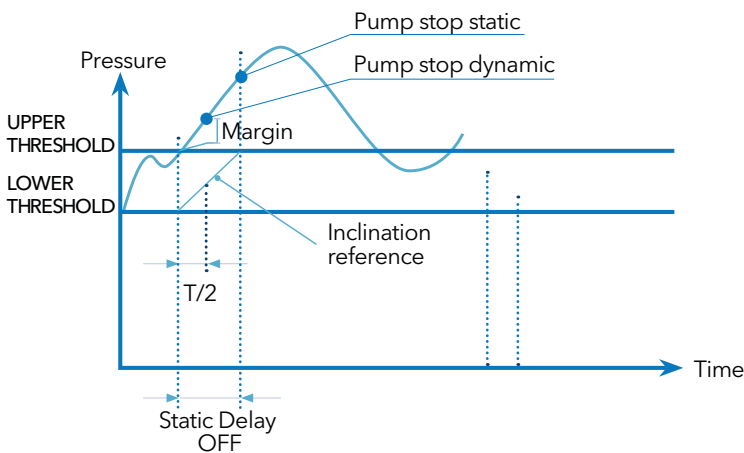


System with pressure transducer.

The value of pressure detected, below the minimum threshold, enables the first pump available.

The value of pressure detected, above the minimum threshold, disables the last pump running. Delay times at startup, and stop, allow sufficient hysteresis.

The delay time of the starting up of the first pump (with all other pumps stopped) may be different from other pumps, so as to limit the pressure drop (very short delay time).



Dynamic times.

Water consumption causes a pressure change in the system. To maintain the value of pressure, the pumps start and stop within the limits set.

Delay times are needed to allow the pumps to get maximum speed, and avoid oscillations (continuous starts and stops). The best adjustment of delay time must be made according to the type of pump and starter type (D.O.L, star delta, soft start...). To obtain the best performance from the system, with both slow and fast changes, you must change the delay time in a dynamic way.

Xylem |'zīləm|

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

We're a global team 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



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