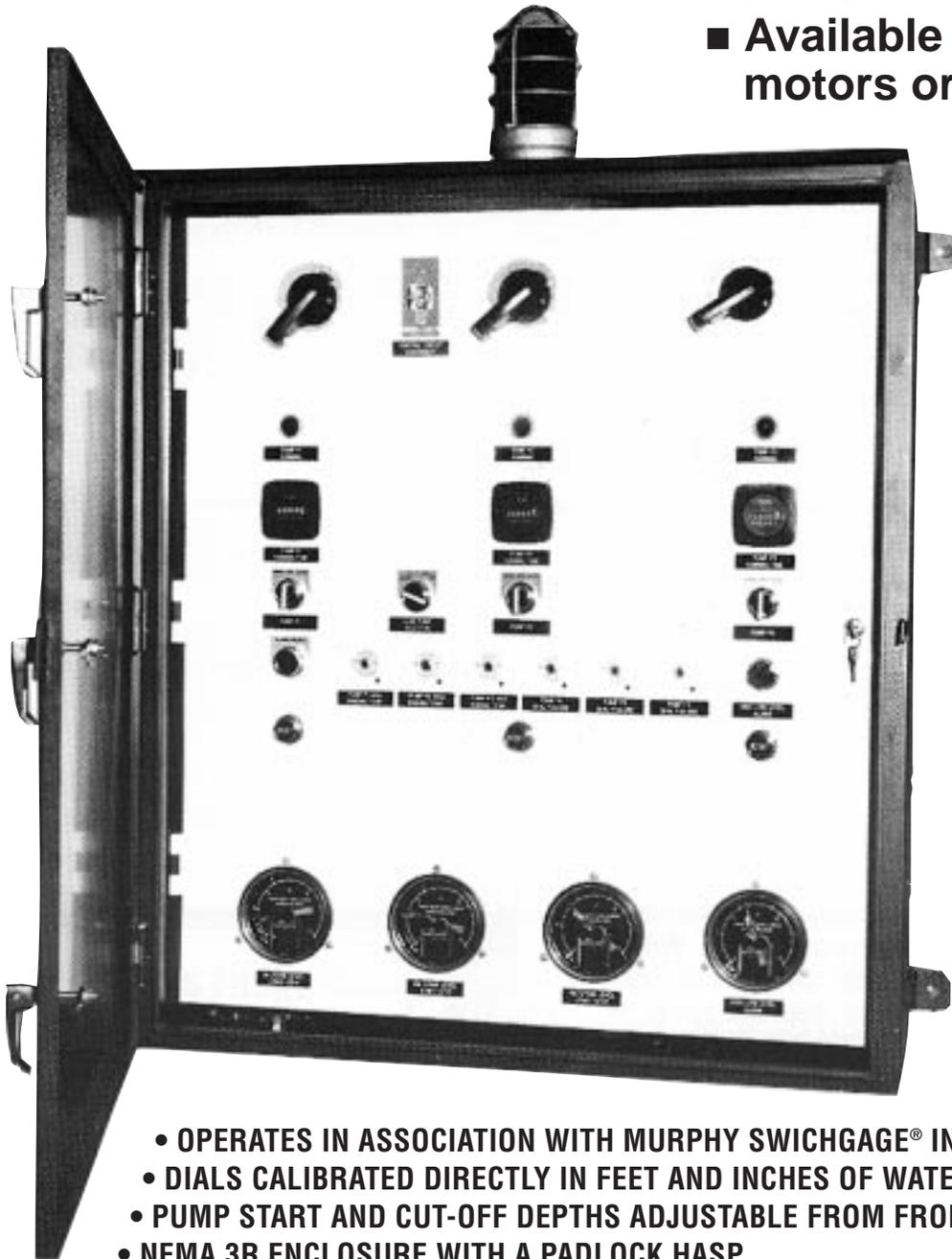


LIFT PUMP CONTROL SYSTEM

With Solid State Control Module

- Automatic lift station pump control.
- Available for electric motors or engines.



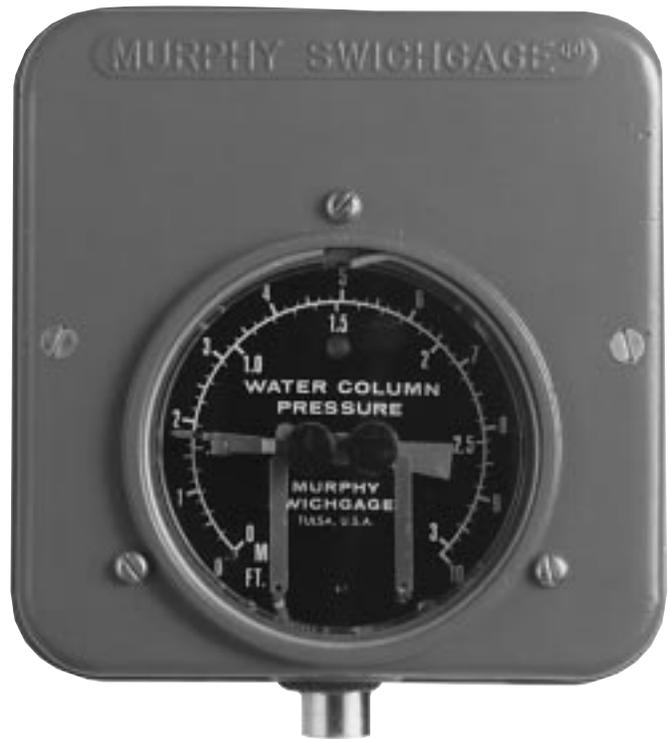
- OPERATES IN ASSOCIATION WITH MURPHY SWICHGAGE® INSTRUMENTS.
- DIALS CALIBRATED DIRECTLY IN FEET AND INCHES OF WATER.
- PUMP START AND CUT-OFF DEPTHS ADJUSTABLE FROM FRONT PANEL.
- NEMA 3R ENCLOSURE WITH A PADLOCK HASP.
- STANDARD MANUFACTURE TRIPLEX AND DUPLEX SYSTEMS.
- AUTOMATIC LEAD PUMP ALTERNATION DISTRIBUTES PUMP WEAR EVENLY.
- OTHER MULTISTAGE SYSTEMS CUSTOM DESIGNED AS SPECIFIED.

OPLHACE Series SWICHGAGE®

In automatic operation, the system is under the command of two to four OPLHACE Series SWICHGAGE® instruments according to system options. Each SWICHGAGE® functions as an accurate level gauge and as an adjustable high level and low level switch.

On each instrument, the indicating pointer completes an electrical circuit signaling the solid state controller that the liquid level in the wet well has reached the high level or the low level as set by moveable control set points. Visible through the meter face, the high and low contacts are easily adjusted by means of outside control knobs.

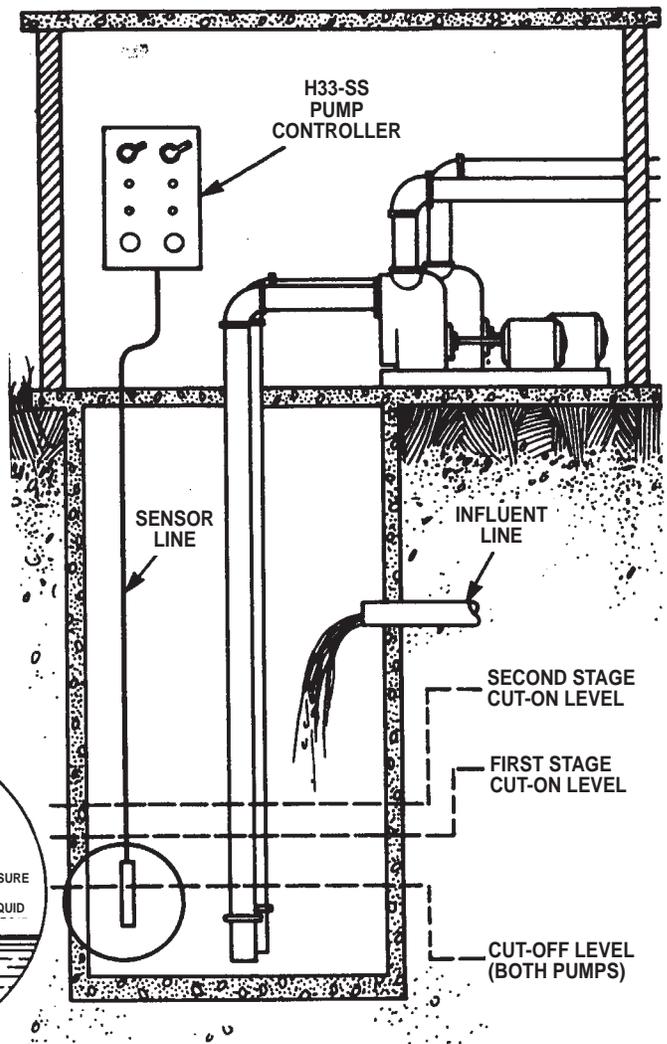
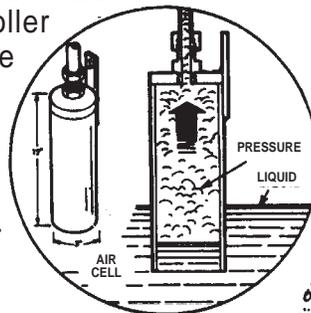
The OPLHACE Series SWICHGAGE® is one of a family of SWICHGAGE® instruments that provide simple, troublefree switch control combined with level readings for double assurance. In service throughout the world for more than 25 years, these dependable instruments carry a full two-year limited warranty on materials and workmanship.



TYPICAL SYSTEM FUNCTION

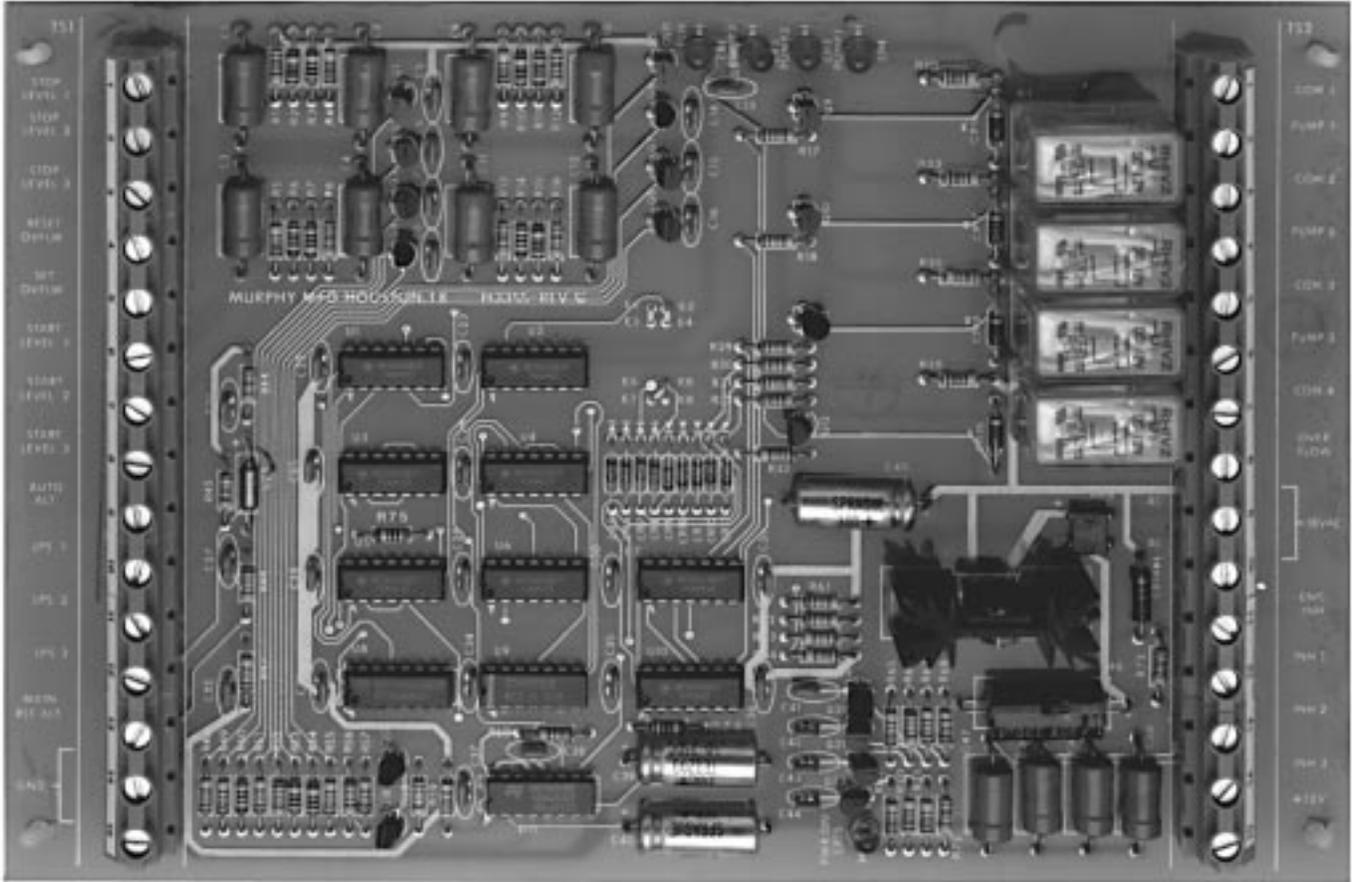
The MURPHYMATIC® pump control system senses the liquid level in a typical wet well and operates pumps as required to maintain the proper fluid level. The H33-SS Series system consists of an air volume cell, flexible sensor line and pump controller unit having a solid state control module.

During operation, liquid coming in from the influent line rises in the sump and traps air in the air cell. The trapped air pressure is indicated on the SWICHGAGE® as feet and inches of liquid. When the liquid rises to the *first state, cut-on level*, the pump controller starts the lead disposal pump. If the first pump is able to pump the liquid out faster than it is coming in, the level will diminish to the *cut-off level* at which point the lead pump will be cut off. If, however, the liquid enters the sump faster than the lead pump can dispose of it, the level continues to rise until it reaches the *second stage cut-on level*, and the controller starts the lag pump also. Then as the liquid level falls, both pumps are stopped at the *cut-off level*, to remain in standby condition until the level begins to rise again. An operational configuration provides for individual cutoff of the pumps if desired.



H33-SS CONTROLLER

The heart of the pump control system is the H33-SS SELECTRONIC® Logic Controller™. This dependable module eliminates relays and their attendant contact problems from the motor starter control circuits. Especially rugged in construction, the PC board is designed to be troublefree. However, should a problem develop, it is easily diagnosed via a series of LED indicators. Screw-lug terminals at the input and output connectors permit easy replacement of the board if required.



POWERFUL SYSTEMS FROM FRANK W. MURPHY

For decades, Frank W. Murphy Mfr., has set standards in pressure and level measurement and control instrumentation. Over these decades, Murphy SWICHGAGE® instruments and TATTLETALE® annunciators have been synonymous with convenience and accuracy in automatic operations.

Proven applications include fresh water and wastewater system control and other systems where automatic monitoring and control of electric motors and internal combustion engines is required.

Murphy's new generation of solid state control systems offers proven dependability with even greater convenience and versatility. Take the H33-SS Pump Control System for example. You will find in this system all the advantages of a relay-based system but with even greater convenience and troublefree operation.

Advanced, solid state control is just one more reason for coming to Murphy for your next application. Of course, if you are not yet a Murphy customer, we invite you to check us out. You will find we answer some powerful needs.

SPECIFICATIONS

LEVEL SENSING SYSTEM

Level SWICHGAGE® Model OPLHACE for each pump stage. Three instruments in one: high switch, low switch and an accurate indicating gauge. Metal bellows movement. Standard dial ranges (dual scale): 0-5, 0-10, 0-20, 0-30 and 0-60 ft. (0-1.5, 0-3, 0-6, 0-9, and 0-18 meters) of water column.

Small volume air cell with flexible sensor line assures simple installation.

Hand air pump to manually purge captive air sub-system. (Automatic pump is available as an option.)

Positive alarm system warns of too-high or too-low level (optional).

MOTOR CONTROLS AND CIRCUIT ELEMENTS

Magnetic motor starters, each with bimetal, ambient-compensated overload relay and heater element.

Thermal magnetic circuit breakers provide complete 3-line overload protection.

Three Hand-Off-Auto switches.

Separately fused control circuit disconnect switch on dead-front panel.

Dead-front operators for circuit breakers and starter resets.

AC power transformer provides 120 VAC to operate control circuit. (Not required for optional 4-wire service.)

AC power transformer provides 18.5 VAC for solid state module.

SOLID STATE CONTROL MODULE

Rugged PC board has screw-lug type terminals to facilitate simple field replacement. Start/Stop control of each pump, with automatic alternation of lead pump. Also, manual control of lead pump alternation may be selected. Built-in circuits for optional High-Low alarm. Inhibit circuit locks out each pump motor individually or collectively. Time delay allows sequence restart after power failure.

ENCLOSURE

NEMA 3R weatherproof with dead-front construction.

Provision for padlock on outside door, with no controls or switches accessible from outside.

Locked dead-front inner door. (No electrical points accessible without a key.)

Enclosure body is 14 ga. steel with continuous weld seams, ground smooth. Inside door and sub-panel are 12 ga. steel.

Outside finish, light red enamel; inside door panel, white enamel.

OPTIONS

Optional 4-wire service.

Air compressor to purge air line and air cell. Also optional flow meter for air system.

Weatherproof 120 VAC electrical outlet for operating handtools, lights, etc.

Lightning arrester; three-phase, three pole, 0-900V.

Surge capacitor; three-phase, three pole, 0-900, one microfarad per pole.

Phase monitor; protects against single phasing, undervoltage and phase reversal.

Elapsed time meter; indicates accumulated operation time for each pump motor.

Pilot lights, provide running light for each pump and indicate operation of high-low alarm.

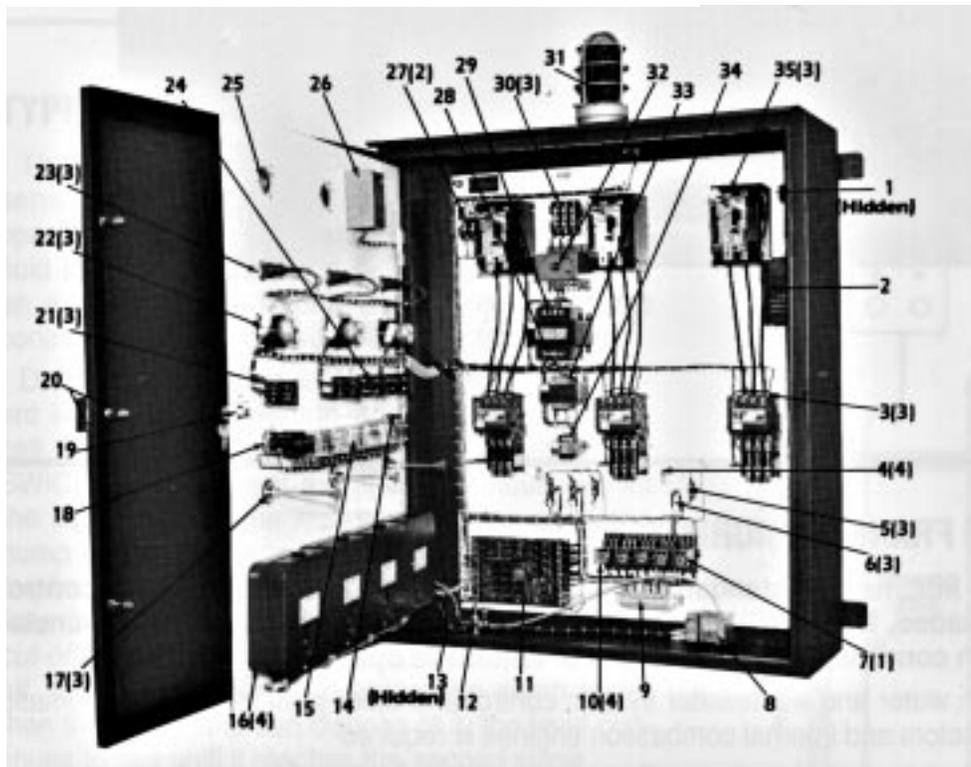
Alarm annunciator system with external flashing station alarm light.

High-Low alarm circuit using an additional Model OPLHACE SWICHGAGE®.

Seal failure alarm circuit operates with alarm annunciator and external sensor to indicate any pump seal failure.

High pump temperature inhibit circuit operates with external motor temperature sensor to inhibit pump motor operation when winding temperature is too high.

TRIPLEX SYSTEM WITH TYPICAL OPTIONS



1. Lighting Arrester
2. Surge Capacitor
3. Motor Starter (3)
4. Ground Lug (4)
5. Diode (3)
6. Resistor (3)
7. Relay, 120 VAC (1)
8. Purge Pump
9. Terminal Block
10. Relay, 24 VAC (4)
11. Alternator Module
12. Pressure Piping
13. Duplex Receptacle (Unwired)
14. Reset Switch
15. TATTLETALE® (6)
16. OPLHACE SWICHGAGE® (4)
17. Starter Reset Operator (3)
18. Indicator Light (High-Low Level)
19. Locking Cover Latch
20. Latch (With provision for padlocking)
21. Hand-Off-Automatic Switch (3)
22. Elapsed Time Meter (3)
23. Run indicator Lights (3)
24. Lead Pump Selector Switch
25. Circuit Breaker Operator Handles
26. Disconnect Switch
27. Fuse (2)
28. Fuse
29. Transformer, 120 VAC
30. Fuse (3)
31. Station Alarm Light
32. Phase Monitor
33. Transformer, 24 VAC
34. Transformer, 18.5 VAC
35. Circuit Breaker (3)

Write or call for a complete list of prices and specifications. Let us quote on your next application.