



# SM99 PUMP CONTROLLER INFORMATION BRIEF

Release 2.1, DECEMBER 2007

**Manufactured in Australia by Alian Electronics Pty. Ltd.**  
**408 Old Sale Rd. Drouin West 3818 Ph. (613) 5625 2545**  
*more information is available at [www.alianelectronics.com.au](http://www.alianelectronics.com.au)*



N12656



AS3100 ACREDITED  
**CS03057V**

## GENERAL DESCRIPTION:

The SM99 Pump Controller has been designed for a variety of small pump applications, including distributed sewage pumping systems. Such systems are used where a building or dwelling has its own sewage & waste water storage tank that must be periodically emptied into a pipe network at a high positive pressure. These techniques are used where terrain is unsuitable for simple gravity fed outlets. Where dwellings are close to the water table or on rocky, undulating land, these domestic pumping systems can greatly reduce the costs of connecting a building to a public sewage network.

The controller is also ideal for pumping rainwater from a sump or small collection tank to a larger holding tank intended to gravity feed a dwelling or garden.

The SM99 pump controller is a compact wall mounted unit which will manage the operation of small submersible pump motors of up to 1.5kW, located in a water collection tank or sump. Three probes within the tank will inform the controller when the tank has been pumped dry, when a tank is in danger of overflowing, or when a normal pump cycle needs to be initiated. The probes may be either submersible float switches or conductive probes set to different levels within the tank. A number of alarm conditions will be declared and recorded where normal operating parameters have been exceeded.

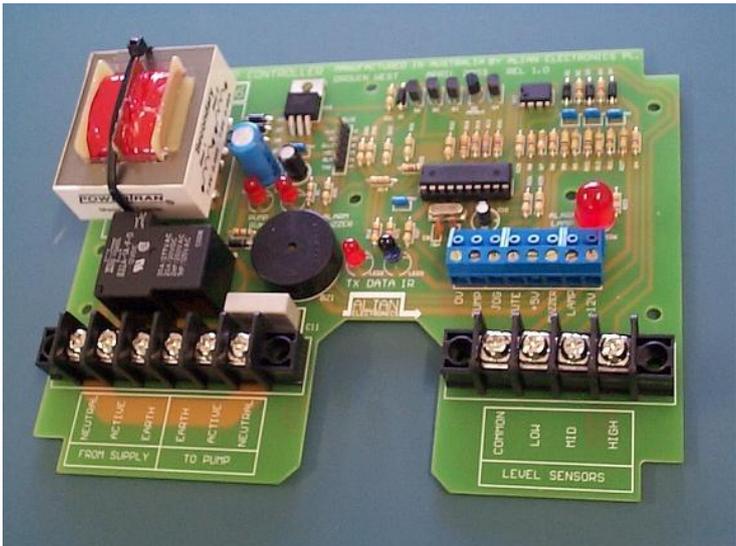
It is functionally identical to the larger SM96 controller, but without provision for separate start/run motor windings and motor overload detection necessary for high output motors. The Alarm lamp and buzzer are compact devices mounted *inside* the enclosure. While the electromechanical hourmeter has also been omitted, pump hour counts are still monitored by the electronic meter using a special non-volatile memory chip.

The controller is fully compliant with Australian AS3100 electrical safety standards (CS03057V) and with the new Electromagnetic Compatibility, EMC standards. (C-tick no. N12656)

The SM99 unit features an advanced microprocessor controller bonded to the backplane within the enclosure. A two horsepower relay supports single phase 240VAC pumps with an average load current of up to 10 Amps.

Electrical connections are extremely simple. A three conductor 'Active, Neutral & Earth' cable from the 240V supply and a similar cable to the pump. The level sensors are simple stainless steel probes set to different levels within the tank. Probe signals are fixed at an extra safe 4Volts DC.

The enclosure is an robust polycarbonate unit rated to IP65 with a transparent lid and a rubber sealing gasket. The transparent top is present to accommodate the viewing of the various LED indicators and allows the infrared data transmitter to link with a PC for information downloads.



The cabinet is intended to be wall mounted. Cable access may be achieved from top, bottom, side or rear of the enclosure using conventional cable and conduit glands .

**OTHER FEATURES**

Should tank levels become too high or too low, audible and visual alarms will be triggered for the duration of the fault. A single or double flash will indicate the fault type. The audible alarm may be suppressed for 6 hours by briefly pressing an 'Alarm Mute' button on the underside of the cabinet. Motor operation is inhibited with 'Tank Low' alarms.

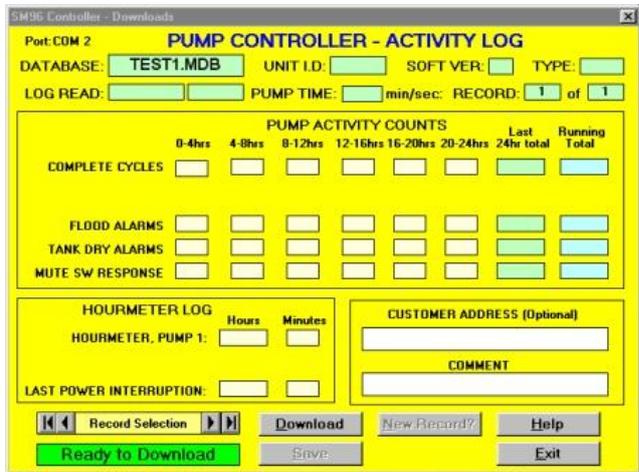
A third alarm condition will indicate the accidental reversal of the 'High' and 'Low' probes by installation staff.

A 'Motor Jog' button inside the cabinet will force the pump to operate for a brief period. (This feature is inhibited if tank levels are low)

The enclosure size is 75mm high, 186mm wide and 146mm deep. Unit weight is 0.8 Kg

A full electronic 'Data Logging' system is standard with each controller. It records pump cycles, hours of operation, alarm conditions both as running totals and within 4 hour blocks over the last 24 hours. A counter also indicates the number of hours since the last power interruption.

Data is extracted from the unit by bringing a standard PC with a special terminal program near the controller. When the 'Send Data' button is pressed, the entire data log contents are sent to the PC by an infrared signal broadcast through the protective perspex barrier. The log data is stored indefinitely in a special memory which requires no battery.



The retrieved information may be saved within the PC in a simple 'Microsoft Access' format for later analysis. ( The infrared receiver probe and software package are available as separate product, 'SM96 TERM'.)