

# Level Control II

MILK PUMP CONTROL BOX

INSTALLATION AND OPERATION  
MANUAL

## OPERATING & MAINTENANCE INSTRUCTIONS

The "Level Control II" milk pump and plate cooler solenoid control unit is fully automatic and requires no action by the operator during normal operation. Prior to milking, he must ensure that the "Milk" and "Water" toggle switches are in the "Auto" position.

During washing of the parlour, it will normally be advisable to run the milk pump continuously, and the "Milk" toggle switch should be set to the "Manual" position. It should be returned to the "Auto" position as soon as possible after the wash water has been pumped away, to ensure that the seals of the pump are not damaged by running them in a dry condition. Normally the "Water" toggle switch will be in the "off" position during washing.

The unit is fitted with a 6 amp. thermal overload which will isolate the milk pump in the event of it taking excessive current. The overload can be reset by pressing the button on the right hand side of the unit. This button is protected by a clear waterproof cover.

Please note that on a three phase installation, the thermal overload is disconnected, and therefore serves no purpose.

The mains supply to the unit should be isolated when not in use, or before the unit is cleaned. Please note that a high pressure hose should not be used for the purpose of cleaning the enclosure, since the pressure may be sufficient to deform the waterproof gasket protecting the unit. If the unit requires cleaning, then a damp cloth should be used.

The unit contains no user serviceable parts with the exception of an internal fuse. This fuse is a 20mm. 2 amp. quick blow, and protects the internal control circuitry. Do not replace with any other value.

The cover of the unit carries a "danger" warning message instructing the operator to isolate the mains supply before attempting to remove the cover.

## INSTALLATION INSTRUCTIONS

The unit should be fitted on a flat solid wall using a screw in all four corners. This is most important to ensure that the effects of vibration are minimised. Wherever possible, the unit should be fitted in a position so that it will not be washed with a high pressure hose during washing of the parlour.

A diagram on the inside of the lid shows the mains wiring for a single phase installation. The live and neutral supplies are connected to terminals 1 and 5 respectively, of the contactor. The neutral connection to the milk pump is made to terminal 6 and the live connection to the terminal of the thermal overload. The incoming mains earth, and the earth to the milk pump should be connected to the earth terminal in the unit using the ring terminals provided.

In the case of a three phase installation, the wire connecting terminals 5 and A2 on the contactor should be removed. The wire between terminal 2 on the contactor, and the thermal overload should also be removed. The three live phases of the mains supply should then be connected to terminals 1, 3 and 5 respectively. The three live phase connections to the milk pump should be made to terminals 2, 4 and 6 respectively. The neutral supply and neutral to the milk pump should both be connected to terminal A2.

Please note that on a three phase installation, the thermal overload is disconnected, and therefore serves no purpose.

The unit may also be connected to the water solenoid on a plate cooler. Connections are made from the three way terminal block on the lower right hand side of the printed circuit board. The solenoid used should not be rated above 120 VA since this would take excessive current from the output. The unit has a built in delay so that the solenoid will be switched on for a pre-set period after the milk pump has stopped running. This delay can be set in the range 5 - 30 seconds using the potentiometer on the printed circuit board. Switching the "Water" toggle switch to the "off" position will disable the output to the solenoid.

**All mains wiring should be carried out by a competent electrician and an isolator switch should be provided within reach of the milk pump itself according to the regulations in force at the time of installation.**

The control box is intended for use with a probe and float arrangement, or stainless steel probes.

In the case of the probe and float, the "top" level must have a normally open reed switch contact, one side of which is connected to the terminal marked "top" in the control unit. The "bottom" level must have a normally closed reed switch contact, one side of which is connected to the terminal marked "bottom" in the control unit. The remaining contact on each reed switch must be connected to the terminal marked with an earth symbol in the control unit.

In the case of stainless steel probes, each of the three probes must be connected to its respective terminal in the control box. Where an earth probe is not available, i.e. a two probe system having probes defining a top and bottom level only, the earth terminal in the control box should be connected to a metal object which is permanently in contact with the milk. For a stainless steel balance tank, this connection can be made to the body of the tank. In the case of a glass receiving vessel, the connection should be made to the pipe between the base of the jar and the milk pump. If this is a glass pipe, then it should be replaced with a length of stainless steel tube.

**Please note that the connections to the probes are low voltage and cables must not be enclosed in the same conduit as cables carrying mains voltages. Every effort must be made to ensure that the low voltage cables are segregated from those carrying mains voltage. Low voltage cables should NOT be clipped to the outside of conduit carrying cables at mains voltage.**

The control unit will detect the presence of milk or water, and the latter can therefore be used to test the system.