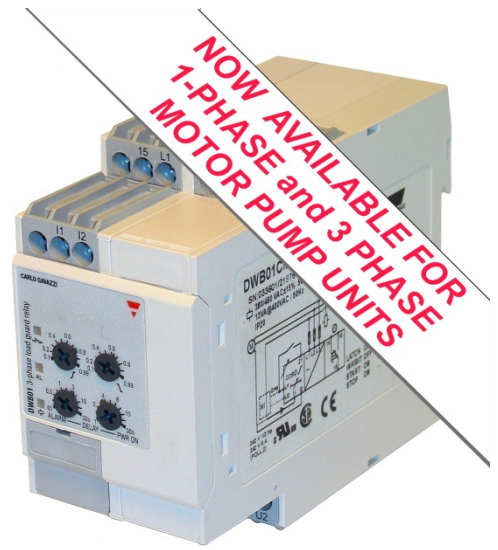


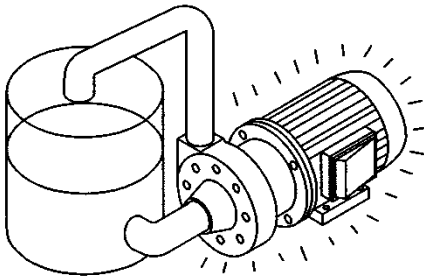
# LOAD-GUARD

## ELECTRONIC PROTECTION for PUMPS with ELECTRIC MOTORS

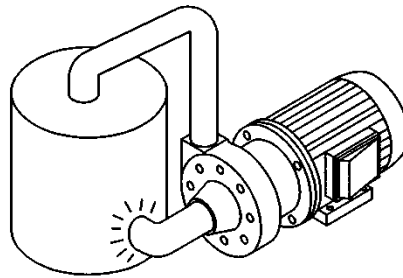
If the pump manufacturers recommended limits of flow and pressure are exceeded, pump damage may result. The pump itself will not tell you if it is in trouble, but 'Load-Guard' can, simply by connecting it into the electric supply to the motor.



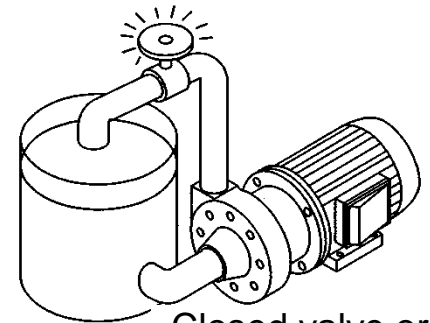
### Protection against:



Pump breakdown



Dry running



Closed valve or  
blocked filter

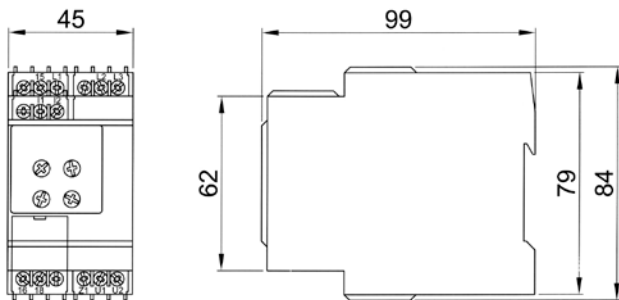
### PROTECTS MAGNETIC DRIVE AND CONVENTIONAL PUMPS

#### NO SENSORS or PROBES

'Load-Guard' requires no instrument cabling to the pump.

#### NO CONTACT WITH PUMPED LIQUID

'Load-Guard' is designed for DIN-rail mounting within a motor control cabinet, away from a hazardous environment.



### CENTRIFUGAL PUMPS

#### OVERLOAD

Too much flow • cavitation • high liquid density • high liquid viscosity • bearing or other mechanical failures.

#### UNDERLOAD

Too little flow • loss of liquid supply • blocked inlet • closed valve • loss of prime • entrained air • vapour lock

### REGENERATIVE PUMPS

#### OVERLOAD

Too little flow • closed valve • high liquid density • high liquid viscosity • bearing or other mechanical failure.

#### UNDERLOAD

Too much flow • loss of liquid supply • loss of prime • entrained air • vapour lock

### HOW 'LOAD-GUARD' WORKS

'Load-Guard' senses the phase difference between voltage and current (the phase angle) as the load changes. Phase difference is a sensitive measure of motor loading. 'Load-Guard' is adjusted to permit pump operation within chosen limits either side of the required pump duty. If for any reason the pump duty rises or falls beyond these limits for longer than the chosen time delay, 'Load-Guard' cuts the power promptly and stops the pump before damage can occur.