

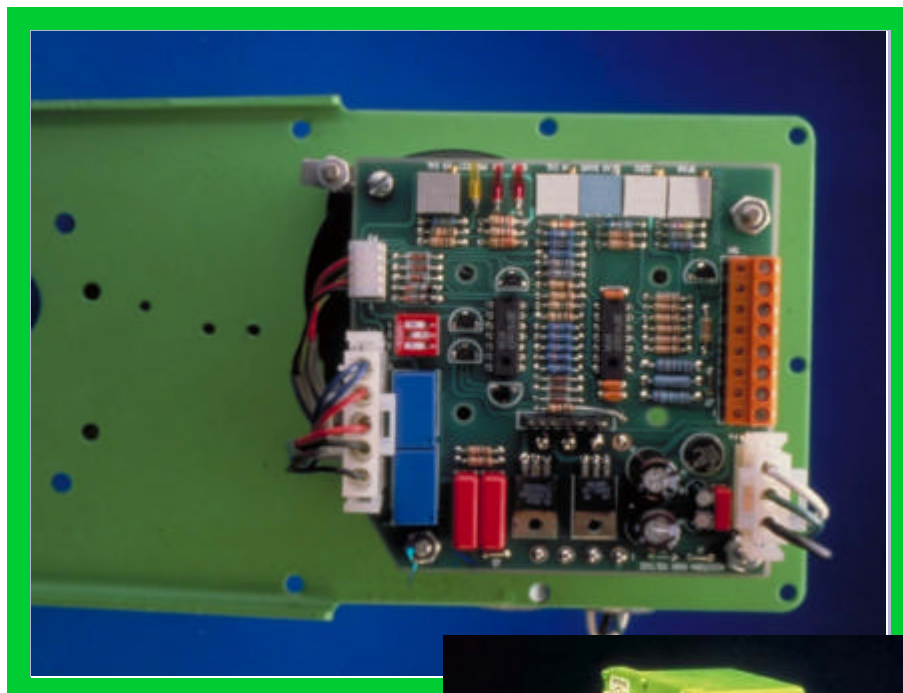
ELMA ELECTRONIC CONTROL SYSTEM

Automatic Control for PULSA Series® 200, 680, and 880 Pumps.

Pulsafeeder puts advanced electronic flow adjustment in your control.

The name ELMA stands for "Electronic Lost Motion Actuator." ELMA units are designed to provide speed, versatility and reliability in the adjustment of PULSA Series 200, 680, and 880 Pumps.

ELMA's electronics allow the use of any one of four analog input signals or a 3 to 15 PSI pneumatic signal.

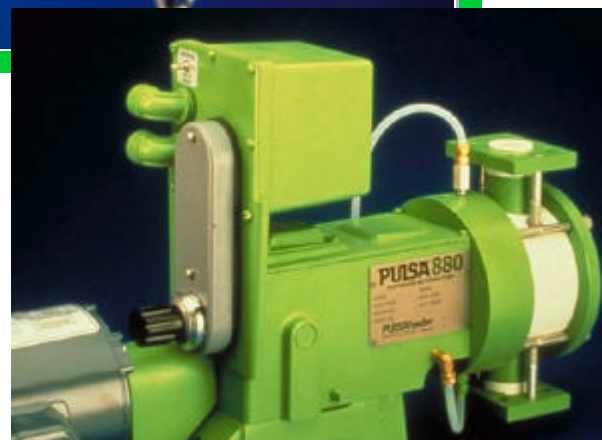


Added features mean enhanced performance.

ELMA offers over-signal protection and programmable signal loss protection. By using an internal dip switch, you can program the ELMA to either freeze at the last setting or drive to zero in the event of a signal loss. This means an added level of protection for your pumps as well as your process.

The low torque requirements of the PULSA Series 200, 680, and 880 stroke length adjustment permits use of highly reliable AC synchronous motors. This driver has stall capability without damage, uses no redundant limit switches and affords a compact design containing driver and electronics in a common pump-mounted enclosure. The synchronous motor, state-of-the-art comparator circuit and a gear driven, ten turn, high resolution clutch protected pot is all there is to it.

This compact actuator utilizes a fully enclosed cog belt coupled to a high-quality, vernier-type adjustment with lock. This permits manual mechanical override and readout option in the event of signal



ELMA Advantages:

- ❑ Provides fast response time in adjusting stroke length 0-100% in 15 seconds.
- ❑ Low power consumption, only 60 watts.
- ❑ High Resolution Comparator built-in to actuator - no separate cabinet required.
- ❑ Compact design saves space.
- ❑ Easy installation and startup, simplified service.
- ❑ Retrofittable to any 200, 680, and 880 pump.
- ❑ Modular design for plug-in control options.

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Standard Features:

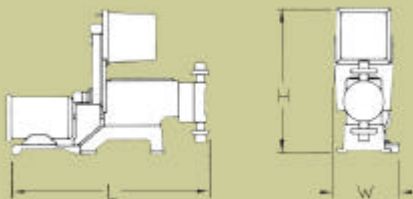
- ❑ NEMA 4 watertight and UL listed NEMA 7 explosion-proof enclosures.
- ❑ Manual micrometer adjustment with override switch.
- ❑ 0-100% stroke length indicator.
- ❑ Circuit board provides a 4-20 mADC (at 250 ohm impedance) feedback signal for control interface.
- ❑ Will accept analog electronic or pneumatic (optional) signal.
- ❑ Signals are transformer isolated from AC supply.
- ❑ Closed loop control system uses AC synchronous motor technology.
- ❑ Design prevents damage from operation with no input signal.
- ❑ Design allows easy field conversion.

ELMA Options:

- ❑ Modular design allows plug-in additions for split range signals, 3-15 PSI pneumatic signal and 0-100% ratio control.
- ❑ Separate operator controls – electric manual, auto-manual, meter readout, 0-100% ratio in NEMA 4X enclosures or panel mount components.
- ❑ Microprocessor interface.

Approximate Overall Dimensions

PULSA Model	L inches (centimeters)	W inches (centimeters)	H inches (centimeters)	Approx. Shipping Wt. - lb (kg)
200	23 (58)	7 (18)	16 (41)	67 (30)
680	23 (58)	7 (18)	16 (41)	67 (30)
880	25 (62)	8 (20)	16 (41)	90 (41)



"W" dimensions for NEMA 4 enclosure only. Consult factory for NEMA 7.
 "L" dimensions vary depending on head style, dimension listed is a maximum.

Optional Remote Operator Stations



Specifications

Electric Power Required	115V, 60 Hz OR 220V, 50 Hz, 1 phase AC supply
Maximum Power Consumption	60 watts
Control Range	0-100%
Standard Signal Ranges	1-5 mADC @ 1000 ohm impedance 4-20 mADC @ 250 ohm impedance 10-50 mADC @ 100 ohm impedance 1-5 vDC @ greater than 100,000 ohm 3-15 PSI instrument air
Output Signal	4-20 mADC @ 250 ohm impedance
Operating Temperature Range	-40 °C to +50°C (-40 °F to +122 °F)
Dead Band Adjustment	1% to 10%
Response Time for 0-100% change	15 seconds
Enclosures	NEMA 4 (watertight) NEMA 7 (Class I, Group C and D)