



1 Operation

The **Mpac** may be configured into four different versions:

Analog – 4-20 mA control signal

Manual – two contact input; open/close

Two Position – single contact input; power open, power closed

Emergency Shutdown (ESD) – main electrical power; power open, spring closed

A Spring Failure is available to provide a known position upon loss of power.

1.1 ANALOG

A two-wire 4-20 mA position signal is supplied to the actuator. The actual position is indicated by the feedback potentiometer mounted on the hydraulic cylinder. If the difference between the actual position and the control signal is greater than the rated deadband, then a position change will be initiated.

Electric power and a control signal must be provided. Wiring details for the power are given in Section 5 and for the control signal are given in Section 6.1.

1.2 MANUAL

Push-buttons are used to move the actuator to any position within the calibrated stroke. As long as the contact is closed, the actuator will move. The push-buttons may be located on a remote manual station or on the control compartment. A remote station (TM17) can be either user supplied or purchased from REXA.



Electric power and positioning contacts must be provided. Wiring details for the power are given in Section 5 and for the contacts in Section 6.2.

1.3 TWO POSITION

The control signal is applied and the actuator powers to the open position; the control signal is withdrawn and the actuator powers to the closed position. This type of consistent, repeatable and immediate response is the key to in-flight material content and thus, successful batching. In addition, reduced maintenance for both the actuator and driven device (valve) is achieved through controlled motion and a defined seating position.

Electric power and a control signal must be provided. Wiring details for the power are given in Section 5 and for the control signal, Section 6.3.

1.4 EMERGENCY SHUTDOWN (ESD)

Many safety related applications require an actuator to remain open for long periods of time and then be called upon to close quickly and reliably. Although no device is 100% foolproof, a spring closure has been recognized as the most desirable method. The ability of the **Mpac** to remain open with minimum power consumption, to provide a high speed spring closure and to automatically reset to the open position makes it ideal for ESD installations.

The power supply and control signal (Section 6.4) are connected together; therefore, most installations only require a single power connection. When power is applied, the spring failure solenoid will close and the motor will open the actuator. Wiring details for the power connection are given in Section 5.

The single power connection is also wired through to the integral oil heater. If the **Mpac** remains in the power off condition (spring failure) for a period of time and the ambient temperature is below 50° Fahrenheit (TM19), a warm-up interval of up to 10 minutes is required before the actuator will move. The integral oil heater may be connected to an independent constant power source as described in Section 5.3. In this case, no warm-up interval will be required before actuator operation.

The Mpac-24 with low power option does not require a heater at ambient temperatures above 25°F.



1.5 SPRING FAILURE

While still maintaining the normal control capabilities, the spring failure provides a high degree of safety. The spring is continuously engaged and is compressed or expanded during operation. A bypass valve which connects both sides of the hydraulic cylinder is kept closed by a normally open solenoid. The solenoid can be wired to disengage upon loss of power or via an independent relay. To wire the **Mpac** to spring fail upon loss of power, refer to Section 5.1. To operate the spring failure via an independent relay, refer to Section 5.2.