

Polyblend® Polymer Feed System Control Selection

“A” Control Selection

Unit shall be powered through an on-off-remote circuit controlled by a three-position switch. In the remote switch position, the unit shall accept a remote run signal. Unit is powered in the ON position.

Unit shall accept a 4-20 mA analog signal to pace the polymer metering pump. This signal shall be processed by a pump controller that may be mounted remotely. The controller shall have LCD readout of pumping strokes per minute (or hour), a stroke frequency push pad for local pump control and an internal off external circuit for pacing signal selection.

Unit shall have a dilution water loss of flow sensor which, sensing that water flow has been interrupted for any reason, will place the polymer pump on standby and will restart it automatically when flow is restored. An integral timer shall monitor loss of flow and energize contacts indicating alarm after 15 seconds of continuous loss.

Inputs:

- 4-20 mA signal
- Remote start contact

Outputs:

- Run Contact
- Loss of water
- Contact Switch in Remote Position

Applications:

A. Standard control package which will accommodate most of your control requirement



Polyblend® Polymer Feed System “A” Controls

“B” Controls Specifications:

Unit shall be operated with a programmable micro controller. Controller shall have polycarbonate touchpad membrane with four-digit LED readout. Enclosure shall be non-metallic and of waterproof design.

Micro controller shall pace polymer metering pump based on operator programmed data or based on a 420 mA analog input signal. Operator shall be able to determine mode of operation at touchpad, internal or external.

Internal mode shall allow for automatic polymer pump pacing based on programmed set point. Operator shall be able to enter a make up concentration set point. Controller will compute a ratio of polymer to water from primary dilution water flow rate signal generated by flow element. Controller will generate signal to pace pump accordingly. As primary dilution water flow changes the set point concentration will be automatically maintained by controller.

External mode shall allow for automatic polymer pump pacing based on a 4-20 mA analog input signal.

Unit shall be powered through an on off remote circuit. In the remote mode, the unit shall accept a remote run signal. Unit is manually powered in the ON mode. Controller shall indicate mode of operation with LED.

Unit shall have a dilution water loss of flow sensor which, sensing that water flow has been interrupted for any reason, will place the polymer pump on standby and will start it automatically when flow is restored. An integral timer shall monitor loss of flow and energize contacts indicating alarm after 15 seconds of continuous loss. Controller shall indicate loss of water alarm with LED.

Controller LED display shall indicate:

- Low flow set point
- Primary water flow
- Secondary water flow
- Polymer flow
- Loss of water
- Make up solution concentration in mixing chamber
- Discharge solution concentration including post dilution

Controller shall have preprogrammed auto flush cycle, which will disable polymer pump yet allow dilution water to flow

through system for a preset time at each shutdown.

Inputs:

- 420 mA signal
- Remote start control
- One configurable alarm contact

Outputs:

- Run contact
- Loss of water flow



Polyblend® Polymer Feed System “B” Controls

Applications:

- Where more indications of flow percent dilution and other functions need to be displayed.
- Especially effective when system is being used as a make-down unit, to assure consistent solution concentrations are required in the holding tank. Local control only.

Polymer Dosage Controller Specifications:

With the introduction of the Polymer Dosage Controller, the “C” Control system has been upgraded and is now capable of local and remote flow pacing modes to maintain a constant polymer solution concentration. Components shall include a modulating flow control valve with orifice size based on flow setpoint determined by the controller. Feedback control shall be supplied by monitoring dilution water flow with electronic flowmeter for automatic valve adjustment. This control function shall ensure consistent dosage flow rates and concentration by automatically compensating for changes in incoming water flow rate or pressure changing the valves variable orifice.

Controller shall be capable of three modes of

Operation including:

Polymer flow rate setpoint

The system shall maintain a desired polymer flow rate either by manual entry setpoint or via a 4-20 mA input signal. The dilution water valve will adjust automatically to maintain the polymer solution concentration setpoint.

Water flow setpoint

The system shall maintain a desired water flow rate either by manual entry setpoint or via a 4-20 mA input signal. The polymer pump will adjust automatically to maintain the polymer solution concentration setpoint.

Polymer solution concentration setpoint

The system shall maintain a desired polymer solution concentration either by manual entry setpoint or via a 4-20 mA input signal. The controller shall sense changes in incoming make-up water flow. The system shall automatically maintain a constant concentration via a modulating water flow control valve. This control function shall ensure consistent dosage flow rates and concentration by automatically compensating for changes in incoming water flow rate or pressure by changing the valves variable orifice.

Remote control mode includes:

- Remote polymer flow rate control via 4-20 mA analog input.
- Remote polymer solution concentration control via 4-20 mA analog input.
- Remote water flow rate control via 4-20 mA analog input.
- Electronic static water pressure switches, differential pressure switches, or similar electric devices shall not be acceptable for monitoring water flow.
- Controller shall shut off polymer pump if water flow falls below an adjustable pre-set flow rate. Unit will automatically restart when the proper flow rate is resumed. This will prevent feeding neat polymer in the absence of make-up water flow. Unit shall shut down and alarm after pre-set time.
- Controller shall have pre-set adjustable auto-flush cycle which will disable polymer pump yet allow dilution water to flow through system for a pre-set time at each shutdown.

- In the event the system water supply fluctuates due to pressure or flow changes, the system will automatically change the automated valve orifice to compensate for these unexpected variations.
- Controller shall include run time totalizer for run time concentration setpoint hours. Run time totalizer shall be resettable.
- Controller shall display current date and time.
- System not offering the features above will not be considered equal.

Panel Construction:

- Enclosure shall be FRP, rated Nema 4 with door mounted fused power disconnect.
- Controller shall include four-line backlit LCD display and membrane keypad for logic settings.
- Enclosure shall include starters, overload relays, instrument power supply, interposing relays and short circuit fuse protection for all components.
- Wiring shall be enclosed in wireway separating low voltage and power wiring as required. All wiring and terminals shall be numbered, and color coded as appropriate Polymer Dosage Controls.

The system displays shall include:

- Make-up water flow rate indication
- Make-up water flow rate setpoint
- Make-up polymer flow rate indication
- Make-up polymer flow rate setpoint
- Make-up concentration indication
- Make-up concentration setpoint
- Totalizer for run time hours
- Solenoid valve status
- Mixer motor status
- Polymer pump status
- Loss of water flow alarm
- Mixer motor overload

System output signals shall include:

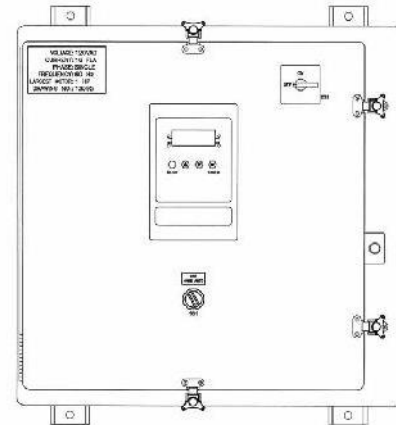
- Water flow rate signal – 4-20mA
- Polymer flow rate signal – 4-20mA
- System in remote mode, discrete output, 10 amp rating
- System running, discrete output, 5 amp rating
- System alarm, discrete output, 5 amp rating

Inputs:

- 4-20 mA signal for concentration set point for flow pacing.

Applications:

- Where precise control of consistent solution concentrations are required, either from 4-20 mA signal or local control.
- Effective when system is being used as make-down unit to ensure consistent solution concentrations.
- Polymer Dosage Controller along with variable speed mixer offer a system with unmatched activation flexibility.



Polyblend® Polymer Feed System Dosage Controls



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