Batch Controllers

Batch Controllers & Custom Batching Systems

Tutorial Prepared For KEP Distributors

01/14/2026

Batcher Introduction

Introduction:

General Batch Control Description:
A Flow Batch Controller is a special purpose instrument which is intended to be used in conjunction with a flow sensor and a control valve to dispense a desired amount of a fluid into a container, tank, or vehicle. In some cases the temperature may also be used to estimate the fluid density from stored fluid properties.

Typical Batch Sequence:
The operator begins by entering the desired amount of fluid to be dispensed into a batch quantity setpoint on the instrument. The Start button is pushed. The valve opens and the vessel begins filling. The flow sensor sends the flow signal to the batcher. The batcher compares the total amount delivered and shuts the valve when the desired amount has been dispensed.

Batch Overrun:
Batch over run is the term given for the amount of fluid dispensed which is greater than the setpoint which was entered. Batch overrun results from the delay in the valve closing. Two techniques are used to minimize batch overrun. See Batch Overrun Compensation and Two Stage Batching.

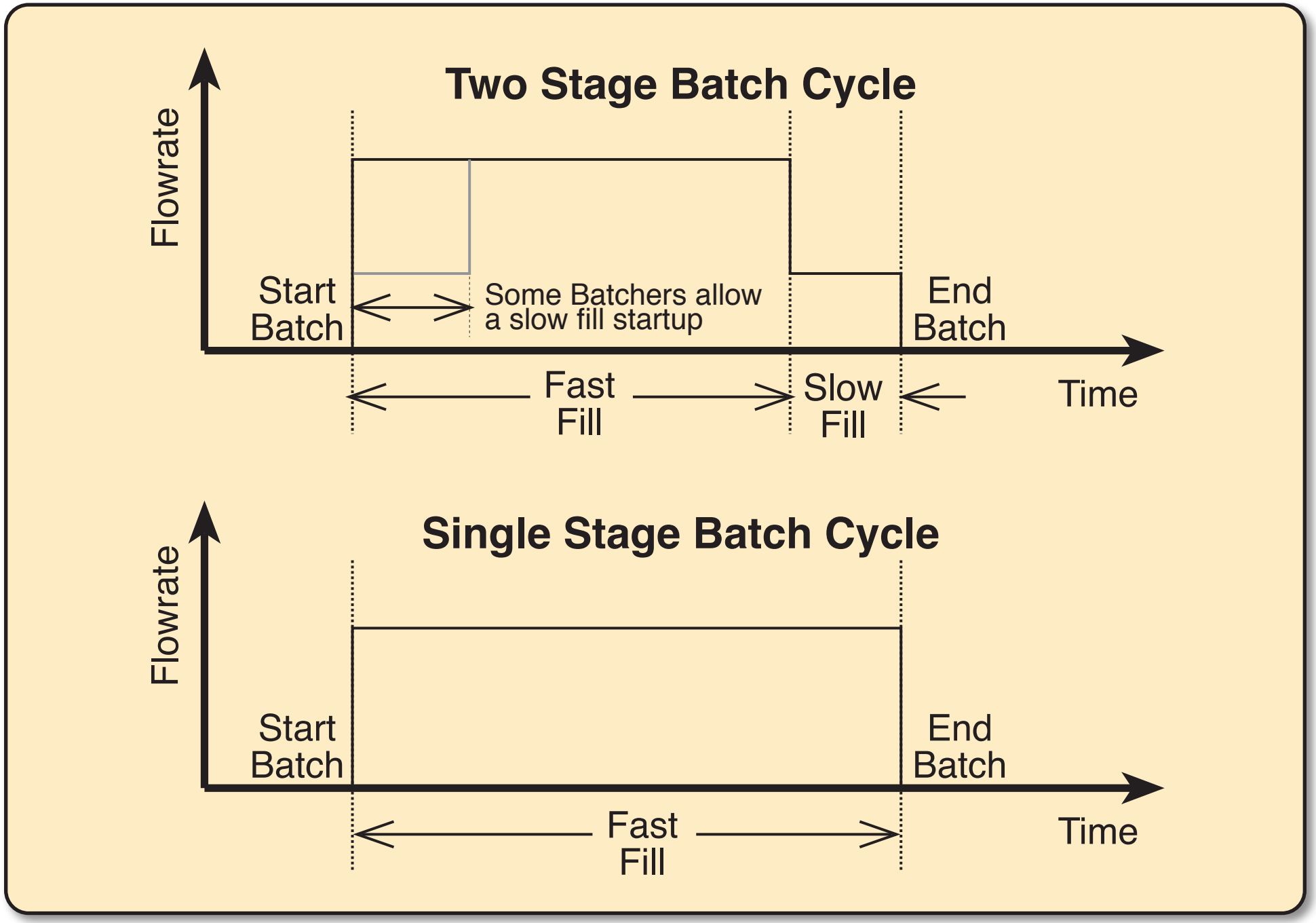
Batch Overrun Compensation:
This technique uses a feature in some batchers which “learn” the amount of batch overrun and then seek to turn the batch off “early” by the average amount of the batch overrun. This feature may be enabled or disabled in some models.

Two Stage Batching:
This technique for reducing Batch Overrun uses two valves, one slow fill and one fast fill, to reduce the flow rate just before the batch ends to reduce the amount of overrun. The user can enter the prewarn value for the slow fill at the end of the batch.

Slow Fill:
This is a technique used in conjunction two stage batching where a vessel is initially filled at a slow rate to prevent splashing before the fast fill begins. The user can enter the amount of fluid to be filled during the slow fill.

KEP • 10 Industrial Way East, Eatontown, NJ 07724 • TF: 800-631-2165 • PH: 732-649-7100 • www.kep.com

Two Stage vs. Single Stage Batching Illustration

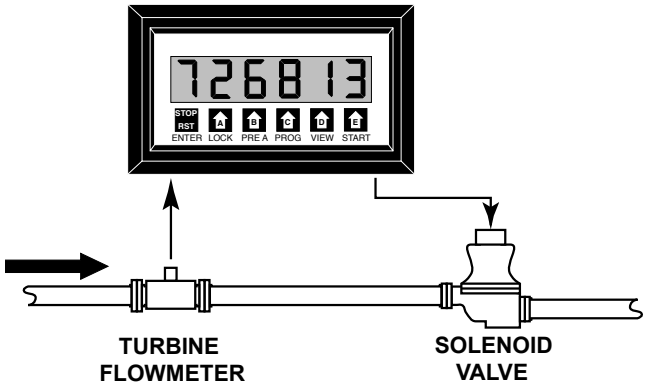


KEP • 10 Industrial Way East, Eatontown, NJ 07724 • TF: 800-631-2165 • PH: 732-649-7100 • www.kep.com

Simple & Easy To Use Batchers

MINI-Batcher (MB2) Low Cost, Simple Flow Batcher from Pulse Inputs

- 5 Digit Scaling Factor
- Display Rate, Batch Size and(Number of Batches or Grand Total)
- Second B Relay Programmable for Output at Prewarn or selected Batch/ Grand Total
- Pulse Input - 10 kHz Max.
- Security Lockout
- RS422/RS232 Serial Communication Option
- Modbus RTU RS422/RS485/ RS232
- NEMA 4X / IP65 Front Panel

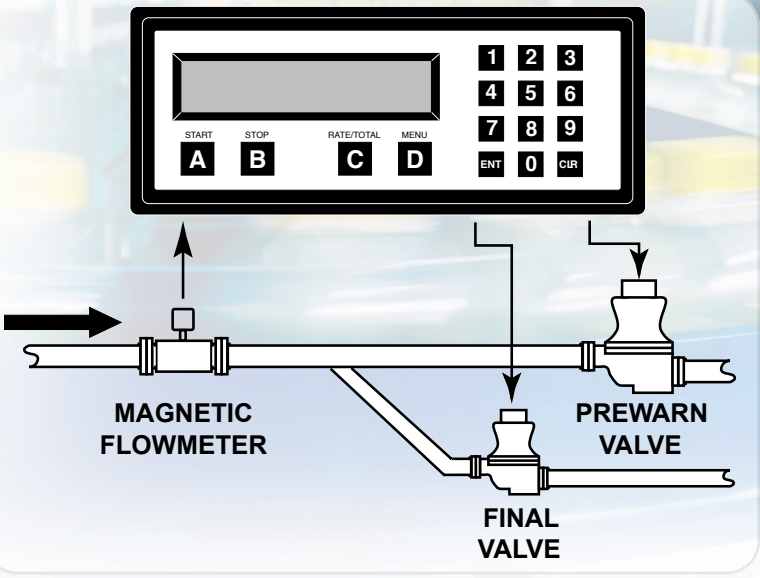


Water Batching for Cement Mixing

BATCHtrol II (BT2) Flow Batch Controller Pulse or Analog Input

- Easy To Use Batch Controller
- Start/Stop Buttons & Remote Inputs
- Separate 8 Digit K-Factors For Rate & Total
- Accepts Pulse or Analog Inputs (order option)
- Displays Rate, Total and Grand Total
- Security Lockout with Missing Pulse Detection
- Scaled Pulse Output
- Two Way RS232/422 Communications Option

Food & Beverage Batching Solutions



KEP • 10 Industrial Way East, Eatontown, NJ 07724 • TF: 800-631-2165 • PH: 732-649-7100 • www.kep.com

Batching Made Easy

The SUPERtrol family offers an easy batch sequence for quick and easy batch runs. During setup the unit must be configured in advance for:

Select Preset Type = EZ-Preset

Control Input 1 = Reset Start

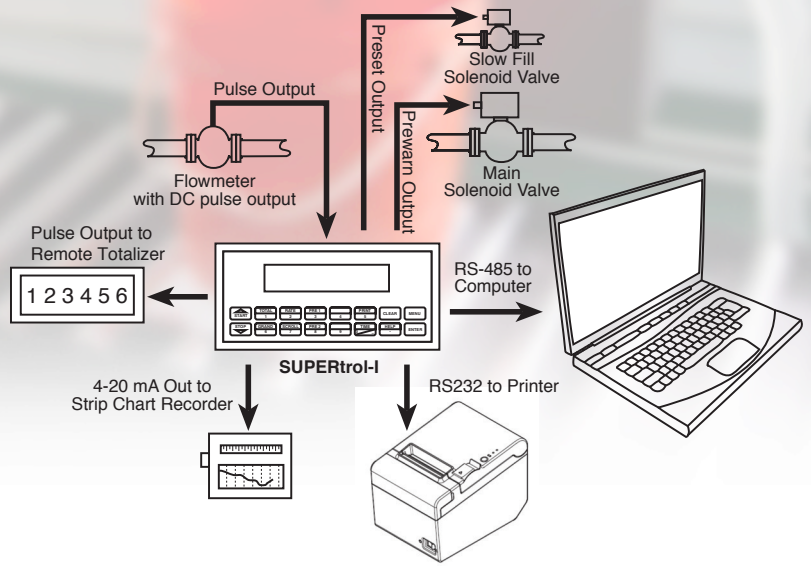
When the unit is configured in this way, the Batch Sequence operates as follows:

KEP • 10 Industrial Way East, Eatontown, NJ 07724 • TF: 800-631-2165 • PH: 732-649-7100 • www.kep.com

ST1 & ST1LE SUPERtrol 1 & SUPERtrol 1LE

Container Filling

- "EZ Setup" Guided Setup for First Time Users
- Rate/Total and Batching Functions
- Menu Selectable Hardware & Software Features
- Environmental Compliance Monitoring and Report Generation
- Universal Viscosity Curve (UVC) and API Eq.
- Batch Controller with Advanced Batching Features including: Overrun Compensation, Autobatch Start, Print End of Batch, Slow Fill, 2 Stage Batching
- Two Line LCD, OLED or VFD Display
- Isolated Outputs Standard
- RS-232 Port Standard, Modbus RTU RS-485 Optional
- Advanced Printing Capabilities
- Windows™ Setup Software
- DIN Enclosure with Two Piece Connectors
- On Board Data Logging
- DDE Server & HMI Software Available
- Enhanced Modem Features for Remote Metering



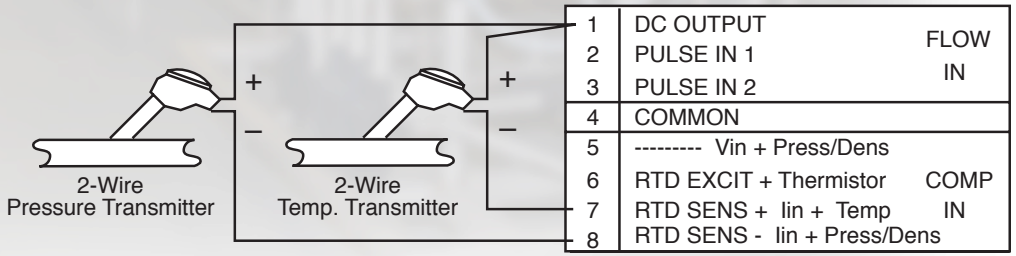
ES-747 Special Version of ST1 for Batching Multiple Liquids

ES-747 Flow Batcher for Liquid & Gas Applications

Multiple Liquid Batching & Blending

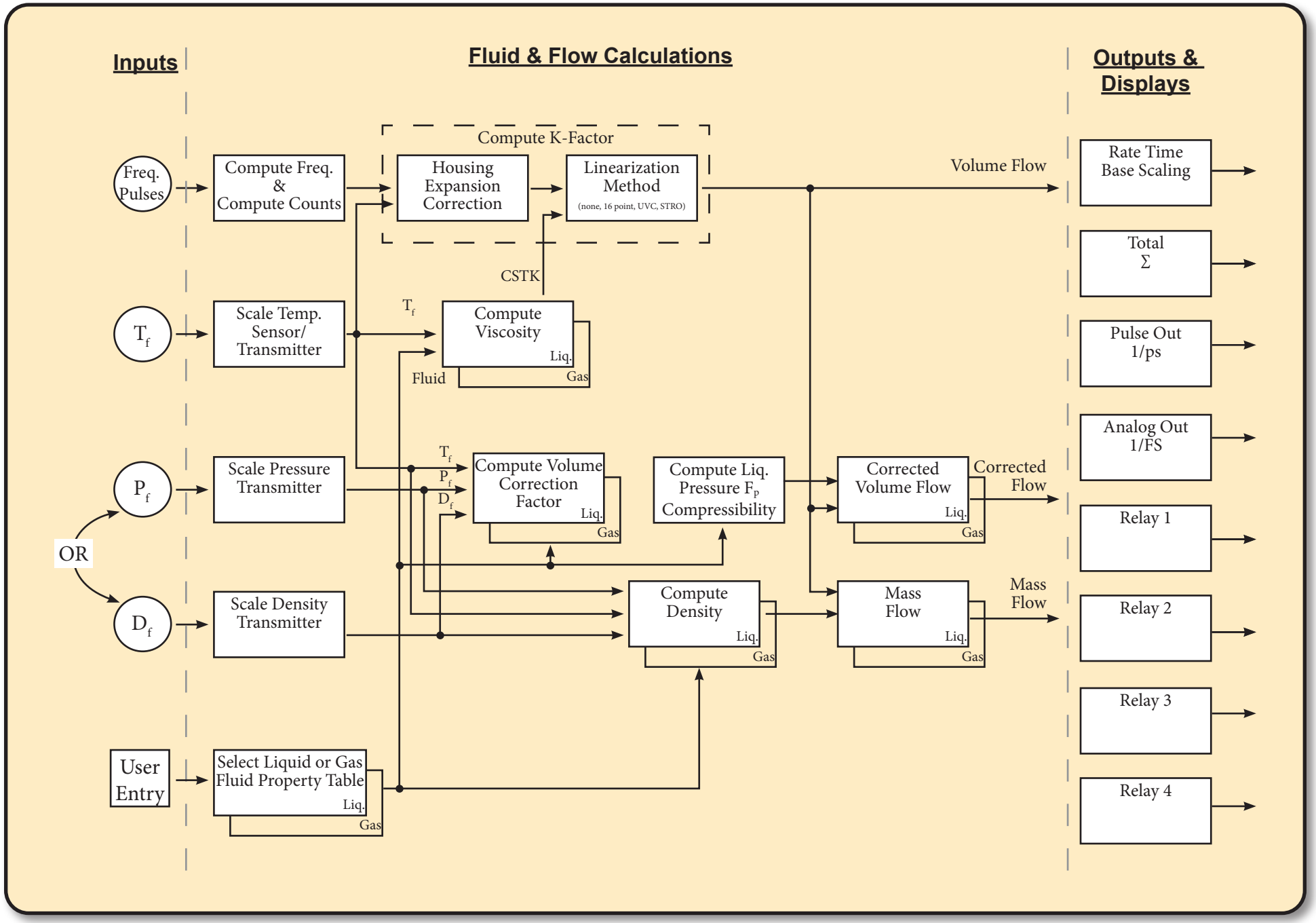
- Supports Pulse Producing Flowmeters
- Rate/Total and Batching Functions
- Universal Viscosity Curve (UVC) and Strouhal/ Roshko Advanced Linearization Methods
- Gas & Liquid Flow Equations (Volume, Mass, Corrected Volume) API 2540, AGA-7 Equations
- 10 Selectable Fluid Tables
- Advanced Batching Features: Overrun Compensation, Print End of Batch
- Menu Selectable Hardware & Software Features
- Data Logging
- Two Line LCD, OLED or VFD Display
- Isolated Pulse and Analog Outputs
- Standard RS-232 Port Standard, RS-485 Optional
- Windows™ Setup Software DDE Server & HMI Software Available

Temperature and/or Pressure Transmitters May Be Used for Corrected Volume Flow

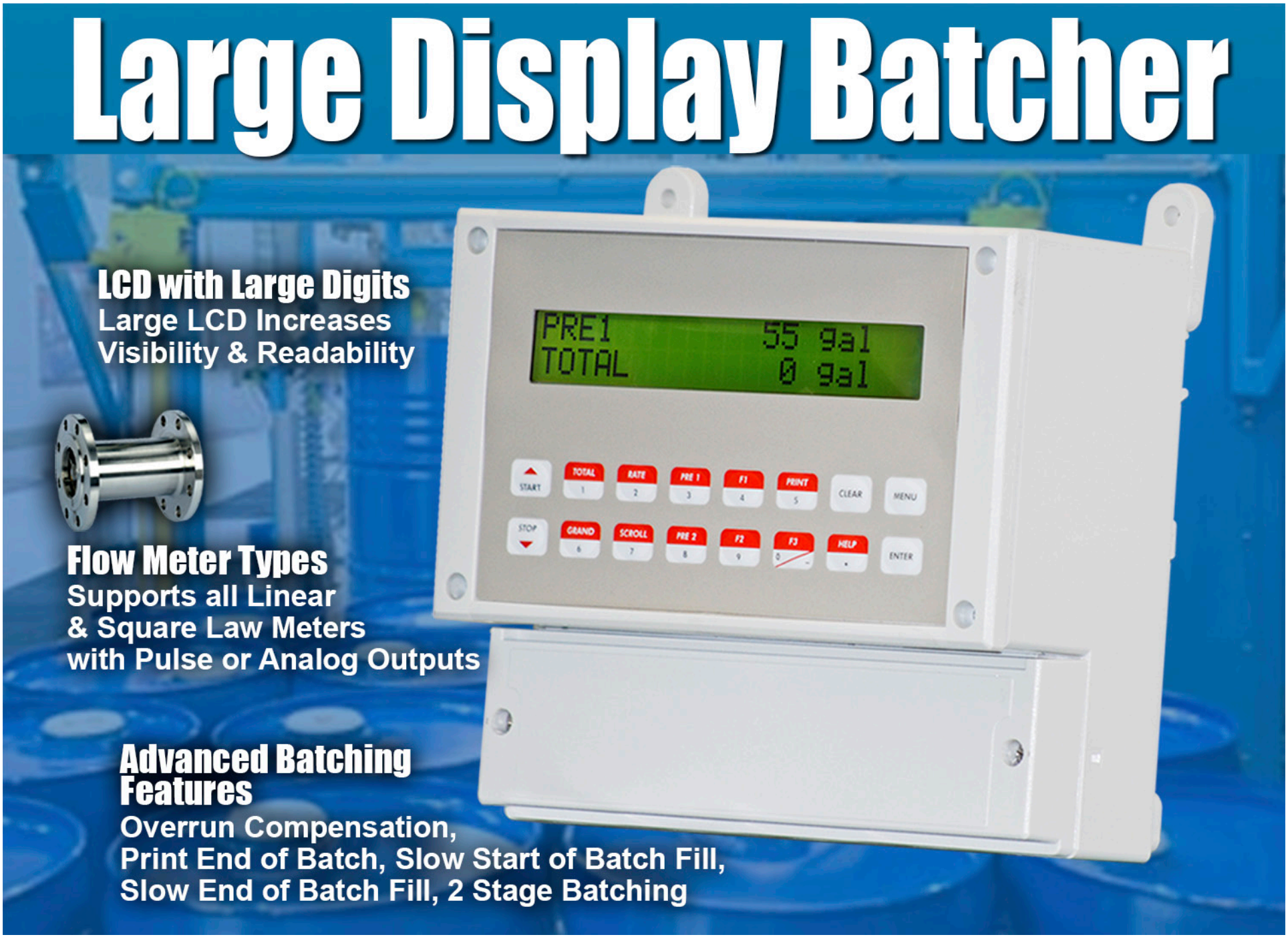


KEP • 10 Industrial Way East, Eatontown, NJ 07724 • TF: 800-631-2165 • PH: 732-649-7100 • www.kep.com

ES747 Data Flow Diagram



Large Display Batcher



LCD with Large Digits

Large LCD Increases
Visibility & Readability

Flow Meter Types

Supports all Linear
& Square Law Meters
with Pulse or Analog Outputs

Advanced Batching Features

Overrun Compensation,
Print End of Batch, Slow Start of Batch Fill,
Slow End of Batch Fill, 2 Stage Batching

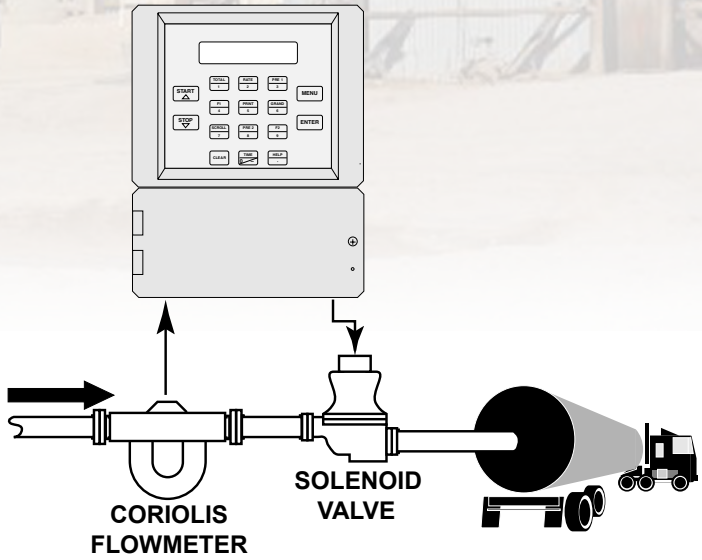
KEP • 10 Industrial Way East, Eatontown, NJ 07724 • TF: 800-631-2165 • PH: 732-649-7100 • www.kep.com

Vehicle & Skid Mount Batcher

MS-716 Vehicle Batching for Class 1 Div 2

Batch loading of Produced Water from Oil Production & Fracking

- Vehicle Mount Enclosure; Rugged Aluminum Construction
- Provisions for Sealing
- "EZ Setup" Guided Setup for First Time Users
- Rate/Total and Batching Functions
- Menu Selectable Hardware & Software Features
- Universal Viscosity Curve (UVC) and API Eq.
- Advanced Batching Features: Overrun Compensation, Autobatch Start, Print End of Batch, Slow Fill, 2 Stage Batching
- Isolated Outputs Standard
- RS-232 Port Standard, RS-485 Optional Advanced Printing Capabilities Windows™ Setup Software
- On Board Data Logging
- DDE Server & HMI Software Available
- Enhanced Modem Features for Remote Metering



KEP • 10 Industrial Way East, Eatontown, NJ 07724 • TF: 800-631-2165 • PH: 732-649-7100 • www.kep.com

Explosion Proof Batcher

STX-ST1 Batcher for Hazardous Areas, For use in Class 1, Division 1, Groups C & D; Class 2 & 3, Division 1, Groups E, F & G

- Explosion Proof Enclosure with LCD Display
- Rate/Total and Batching Functions
- Advanced Batching Features: Overrun Compensation, Print End of Batch, Slow Start of Batch Fill, Slow End of Batch Fill, 2 Stage Batching or Digital Control Valve
- Advanced Printing Capabilities
- "EZ Setup" Guided Setup for First Time Users
- Menu Selectable Hardware & Software Features
- Isolated Pulse, Analog and Relay Outputs Standard on AC Powered Models
- RS-232 Port Standard, Modbus RTU RS-485 Optional
- Windows™ Setup Software
- On Board Data Logging
- DDE Server & HMI Software Available
- User Definable Units of Measure
- Enhanced Modem Features for Remote Metering

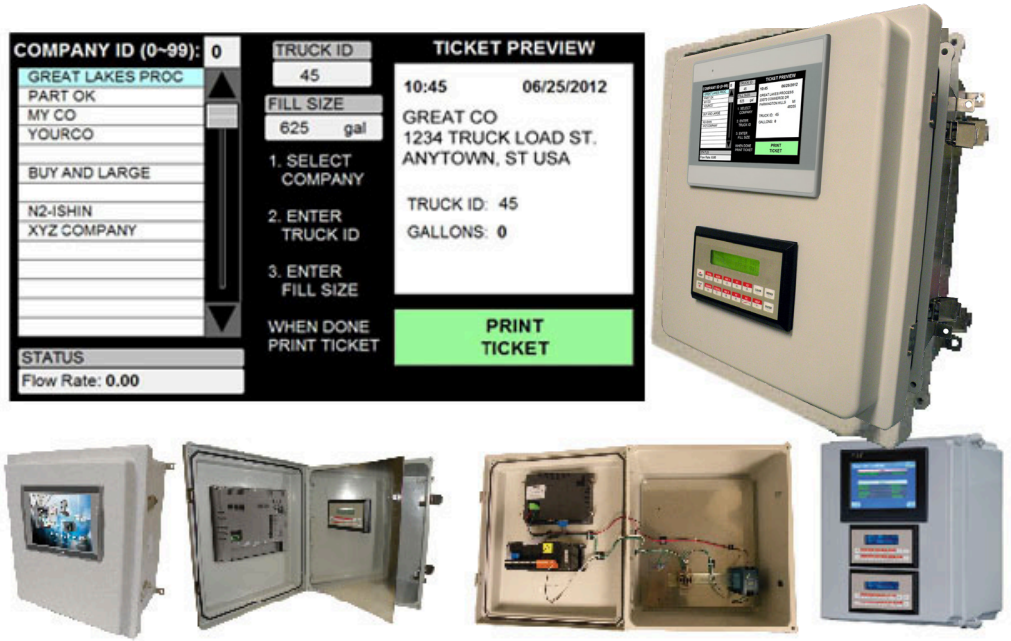
KEP • 10 Industrial Way East, Eatontown, NJ 07724 • TF: 800-631-2165 • PH: 732-649-7100 • www.kep.com

Custom Batch Control Systems

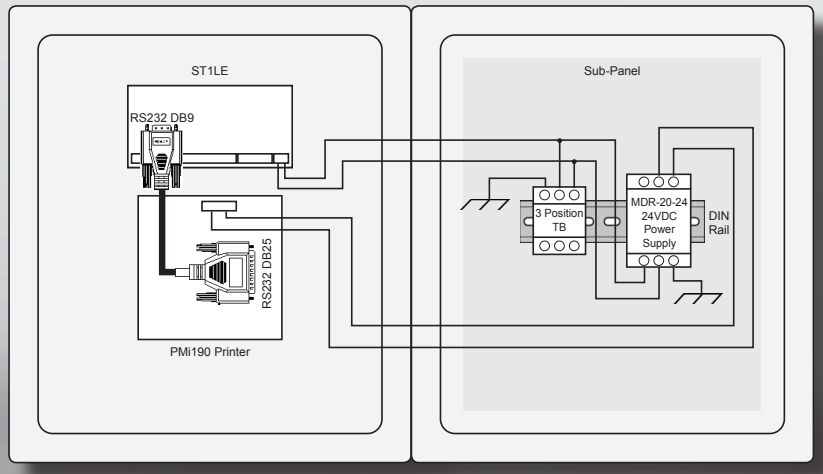
KEP offers custom batch control solutions for applications requiring multiple preset batch quantities. An easy to use and custom interface is provided using one of our HMI Touchscreen O/I displays which are connected to a KEP flow batch controller and are all mounted in a single NEMA4X wall mount enclosure.

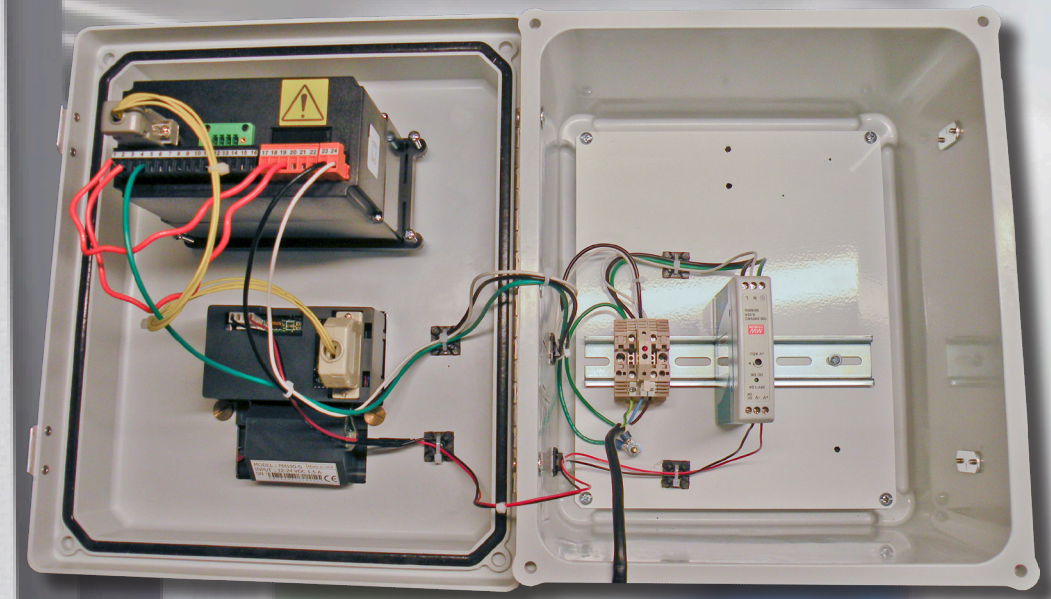
The Batch Control System Consists of:

- A choice of flow computer/batch controllers to suite your specific application
- HMI touchscreen display; Choose from different models and screen sizes
- NEMA4x Enclosure; Many sizes and configurations available.
- Custom programmed HMI touchscreen project created specifically for your application
- Many accessories available



Batching with Printer Systems





The ST1LE-PRN-SYS is a complete flow rate/totalizing or flow batching system including transaction printout. The system consists of one ST1LE Rate/Totalizer or Batch Controller with Rate and Total Display, one PMi190 Impact Printer, one MD-20-24 power supply and one 3-Position Terminal Block. (Other accessories are available as needed) The system is enclosed in a fiberglass enclosure and is prewired by the factory prior to shipping (PW option).

Similar systems can be constructed using other KEP instruments and accessories. Please contact us to discuss your custom system

KEP • 10 Industrial Way East, Eatontown, NJ 07724 • TF: 800-631-2165 • PH: 732-649-7100 • www.kep.com

Compatible Flowmeters

BRODIE INTERNATIONAL

DANIEL™

DRESSER

Roots

Endress+Hauser

FAURE HERMAN

FMC Technologies INVALCO

LIQUID CONTROLS

McCROMETER

Micro Motion

RED SEAL MEASUREMENT

ROSEMOUNT™

SPONSLER

WATER SPECIALTIES PROPELLER METER

Coriolis

Insertion Mag

V-Cone

Turbine Meters

Positive Displacement (PD)

Ultrasonic