Product Loading System
Total Emerson Loading Solutions
Emerson Product Loading System

Optimized and Modularized
Emerson’s Product Loading Systems are the total solution to terminal product transfer. Emerson integrated metering systems are proven to meet the most stringent requirements. Integrated and fully tested metering systems increase measurement accuracy and reliability with the premiere Emerson Precision Flow product line. Modular systems configured for your requirements allow for an optimized terminal layout and an increased truck throughput. For over 40 years, Emerson has provided expertise in engineering, project management, operation, and system services to deliver the safest and highest performance in the industry. Partnering with Emerson ensures a reliable, high quality and safe product loading operation.

System Design
Designed and engineered for product loading applications, the Emerson Product Loading System is the total solution. This system is designed and built on a skid, including all piping and supports and timely transport to the customer’s site. The complete package includes:
- Micro Motion Coriolis Elite Flow Meters measure with unapparelled measurement accuracy and reliability
- Rosemount Temperature and Pressure Transmitters allow for correction to reference conditions
- Daniel Digital Control Valve provides precise flow control
- Remote Automation Solutions DL8000 Preset Controllers monitors inputs and precisely controls the batch quantity per custody transfer requirements
- Strainer with Air Eliminator filters impurities and removes damaging entrained air
- Safety Interlocks and Emergency Shut Down Valves ensure a safe loading environment
- Daniel Prover System validates measurement accuracy
- Quality management backed by ISO 9000, ISO 14000, ISO 18000, ISO 29000

Features and Benefits
Utilizing the world’s best flow solutions, Emerson delivers unbeatable performance in a compact and modular design. With Emerson you have single point responsibility for the complete life cycle with system design, project execution, expert consultation and local service, minimizing your risk and ensuring your project success.

Reduce Cost
- Compact, modular system size reduces engineering, fabrication and installation cost with secure shipment in standard closed containers
- Performance reliability reduces maintenance costs
- Sustained fiscal measurement performance and repeatability ensure accurate batch loading

Increase Throughput
- Utilize modular design to optimize terminal bay layout, increasing the throughput of transportation units
- Configure the solutions with metering and loading equipment per your requirements to maintain a reliable, safe and efficient loading operation

Maintain Safety
- Automated loading operations with safety interlocks mitigate loading overspills and minimize risks

Applications
Product transfer for loading applications

Light Hydrocarbon Products
- Including but not limited to: gasoline, diesel, kerosene, jet A1, ship fuel
- Ethanol and biofuel blending

High Vapor Pressure Products
- Including but not limited to: liquefied petroleum gases (LPG), butane, propane, gasoline, liquid ammonia
- Vapor return
# System Specifications

## Base Solution

**Metering**
- Micro Motion ELITE Coriolis meters offer the most accurate and repeatable mass or volumetric measurement for liquids
- Remote Automation Solutions DL8000 Preset Controller
- Daniel 788 Digital Control Valve
- Rosemount Pressure Transmitter 2051 and Temperature Transmitter 644
- All piping and supports

## Add-ons

**Strainer/Air Elimination**
- Strainer with Air eliminator
- Thermal Relief valve
- Emergency Shut Down valve or Isolation valve
- All piping and supports

**Proving**
- Prover intake and isolation valves
- Daniel 12” MINI Compact Prover
- All piping and support

**Loading**
- Bottom loading arm
- Top loading

## Configurations
- **2 Product Loading Lines** - 3” or 4”, 150# or 300#, connects product header and loading arm
- **Product Loading Line with Blending Line** - 2”, 150#, connects product header and product loading line
- **Product Loading Line with Vapor Return Line** - 2”, 300#, connects return arm and recirculatory system

## Specifications
- Compliance with API Manual of Petroleum Measurement Standards Chapter 5.6 – Measurement of Liquid Hydrocarbons by Coriolis meters
- Supplied as a completed piped, cabled, and instrument package with all piping, cabling and instrumentation
- Installed on a rigid structure for transportation, lifting and operation
- External surface of carbon steel pipe work and all structural steelwork sand blasted and painted per customer’s requirements
- Equipment and solution rated for Zone 1 IIA/IIB T3
# Loading System Configuration Guide

## 1. Product Types (Select all that apply)

- Light hydrocarbons:  □ Gasoline  □ Diesel  □ Kerosene  □ Jet A1  □ Gas oil  □ Other ___________________________
- High vapor pressure:  □ Liquid petroleum  □ Butane  □ Propane  □ Liquid ammonia  □ Other ____________

## 2. Process Conditions

**What are the process conditions of the system?**

- Loading line size: ____________
- Inlet line size: ____________

<table>
<thead>
<tr>
<th></th>
<th>Max</th>
<th>Normal</th>
<th>Min</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flow rate</td>
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<tr>
<td>Operating pressure</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operating temperature</td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>

**What is the approximate pressure rating?**

- 150# □
- 300# □
- Other ____________

## 3. Valves

<table>
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<tr>
<th></th>
<th>Electric</th>
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<td>Isolation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prover tie in</td>
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<td></td>
<td></td>
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</tbody>
</table>

## 4. Control System

<table>
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<tr>
<th></th>
<th>Batch controller</th>
<th>Supervisory system</th>
<th>HMI</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>RAS DL8000</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>MMI Series 3000</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

## 5. Solution Configuration

![Diagram of loading system configuration]

**PRODUCT LOADING LINE**
- Liquid Loading
- (Select all that apply)
  - EMERGENCY SHUT DOWN VALVE
  - STRAINER WITH AIR ELIMINATOR WITH THERMAL RELIEF

**OPTIONAL LINE**
- (Select one)
  - PRODUCT LOADING LINE
  - BLENDING LINE
  - VAPOR RETURN LINE

**LOADING LINE**
- To Truck
- Card Reader Indicators
- ESD Button
- Bay Batch Controller
- Coriolis Flow Meter
- Digital Control Valve
- Earthing Device
- PROVER TIE IN
- LOADING ARM

## 6. Optional Line Process Conditions

**What is the product type in this line?**

<table>
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<tr>
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</tbody>
</table>

**What is the approximate pressure rating?**

- 150# □
- 300# □
- Other ____________

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