

# Emerson Gas Ultrasonic Metering System

## Total Flow Metering Solution for Energy Measurement



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## Complete, Optimized Integrated Metering System

With an installed base of over 2800 large-scale skids around the world, Emerson integrated metering systems are proven to meet the most stringent requirements. From the start of design to long-term operations, you can secure a greater return on investment by partnering with Emerson. Emerson is the only provider that can offer a complete portfolio of instrumentation and control solutions alongside industry-leading expertise and local support. With experience in engineering, project management, and operations, Emerson can build an integrated, local solution using our own products and expertise. The result is improved overall fiscal flow assurance for your custody transfer application.

## System Design

Designed and engineered for custody transfer applications, Emerson Gas Ultrasonic Metering System is the total solution. This system is designed and built on a skid, including all piping and support, and later transported to the customer's site. The complete package includes:

- Multiple four-path gas ultrasonic meters with chordal design to allow accuracy, stability, redundancy and operational cost savings with high rangeability of >100:1
- Temperature and pressure transmitters to measure operating conditions
- Gas analyzers, such as a gas chromatograph, to measure the gas composition
- Flow Computers to take all inputs and calculate the quantity and quality of gas being transferred
- Quality management backed by ISO 9000, ISO 14000, ISO 18000, ISO 29000

## Applications

Custody transfers for natural gas transmission lines

- Branches off the main pipeline
- Industry gates
- Large city gates
- Power plants

## Features and Benefits

Utilizing the world's best ultrasonic measurement devices, Emerson Flow Measurement Systems deliver unbeatable performance in a compact, simplified design. Emerson's solutions promise to improve your performance and bottom line.

- Single point responsibility for complete design, execution, start-up and after sales support
- Minimize risk in project delivery/execution
- Industry experience and expertise to provide consultation to optimizing the application operation and control
- Solution components are seamlessly integrated to maximize measurement accuracy and minimize risk

### Reduce Cost

- Compact system size reduces engineering, fabrication and installation cost while enabling shipment in standard size containers
- Excellent long-term performance reduces maintenance costs

### Increase Reliability

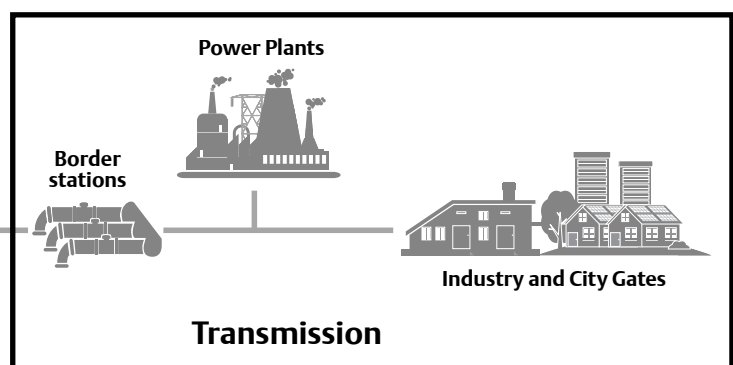
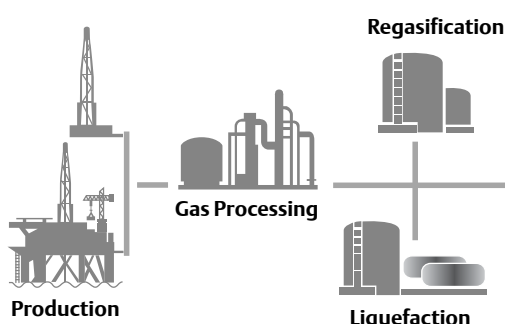
- Sustained fiscal measurement performance and repeatability over time
- System uncertainty improved from multiple measurement streams running in parallel
- Automatic advanced diagnostic to continuously monitor health & performance of the meters

### Increase uptime

- In-situ Smart Meter Verification diagnostics eliminate the need to remove meters from service
- Ability to plan maintenance according to ongoing meter health tracking

### Local Support Capabilities

- Deliver the peace of mind that comes from service capabilities that span the entire life cycle of the measurement system
- Provide maintenance, repair and personalized training for your measurement systems
- FAT and SAT capabilities for pre-commissioning and commissioning



# System Specifications

## Control System Specification

- FloBoss S600+ flow computer
- Panel mounted
- Metering Suite

## Analyzer Specifications

- Rosemount gas chromatograph
  - 370XA
  - 770XA
- Moisture analyzer
- Hydrocarbon dew point analyzer
- Sulfur analyzer
- Analyzer shelter
  - Canopy
  - 3-sided
  - HVAC housing



## System Mechanical Ratings

### Piping material

- Based on project requirements

### Skid structure

- Supplied as a completed piped, cabled, and instrument package
- Installed on a ridged structure for transportation, lifting and operation

### Paint specifications

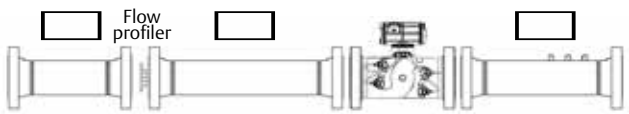
- External surface of carbon steel pipe work and all structural steelwork will be sand blasted and painted as per customer's requirements

## Metering Skid Specifications

- Compliance with AGA9 and ISO 17089 standards
- N x 100% flow configuration
- Rosemount gas ultrasonic meters
  - Model 3414
  - Model 3417, with dual electronics
- Rosemount pressure transmitter
- Rosemount temperature transmitter
- Temperature and pressure gauges
- Virgo trunnion mounted ball, inlet and outlet isolation valves
  - Electric or manual
  - Single or double isolation
- Sampling tap

# Metering System Configuration Guide

Customer Name: \_\_\_\_\_ Location: \_\_\_\_\_

1. Process Condition			
What are the process conditions of the system? If unknown, provide line size		Line size	
	Max	Normal	Min
Flow rate			
Operating pressure			
Operating temperature			
		Do you have a header and/or meter velocity requirements?	
		Max allowable header velocity <input type="checkbox"/> 10 m/s <input type="checkbox"/> 15 m/s <input type="checkbox"/> 20 m/s Other: _____	
		Max allowable meter velocity <input type="checkbox"/> 20 m/s <input type="checkbox"/> 25 m/s Other: _____	
		What is the approximate pressure rating? <input type="checkbox"/> 300# <input type="checkbox"/> 600# <input type="checkbox"/> 900# Other: _____	
2. Skid Design		4. Analyzers	
Complete the upstream and downstream requirements below for the meter runs. Refer to GUSM datasheet for recommendations.		Do you require analysis of gas composition for heating value? <input type="checkbox"/> Yes <input type="checkbox"/> No	
		If yes, do you require measurement with a gas chromatograph up to C6+ or C9+? <input type="checkbox"/> C6+ <input type="checkbox"/> C9+	
Do you require meter verification? <input type="checkbox"/> None <input type="checkbox"/> With crossover line <input type="checkbox"/> With dual electronics		Do you require redundancy for your gas chromatograph? <input type="checkbox"/> Yes (2) <input type="checkbox"/> No (1)	
		Do you require any additional analysis of gas composition? If yes, please select the type of analyzer needed and quantity	
		<b>Analyzer type</b> <b>Qty (0-2)</b> <input type="checkbox"/> Moisture _____ <input type="checkbox"/> Dew point _____ <input type="checkbox"/> Sulfur _____	
		Please select the type of analyzer shelter required: <input type="checkbox"/> 3-sided <input type="checkbox"/> Canopy <input type="checkbox"/> HAVC housing	
3. Valves		5. Control Systems	
Do you require the isolation valves to be electric or manual? <b>Electric</b> <b>Manual</b> <input type="checkbox"/> <input type="checkbox"/> Inlet valve <input type="checkbox"/> <input type="checkbox"/> Outlet valve <input type="checkbox"/> <input type="checkbox"/> Crossover valve (if applicable)		Flow computer <input type="checkbox"/> Redundant <input type="checkbox"/> Non-redundant Supervisory system <input type="checkbox"/> Yes <input type="checkbox"/> No Software <input type="checkbox"/> DANPAC <input type="checkbox"/> Other	
Select any valves below that require double isolation. <input type="checkbox"/> Inlet valve <input type="checkbox"/> Outlet valve <input type="checkbox"/> Crossover valve (if applicable)			

\* This is a standard offering based on limited information provided. If your conditions are out of the scope provided in this datasheet, contact our commercial department in order to determine the best technical solution.

