Instrument & Valve Services

Service Catalog

EMERSON
Process Management

Contents

Introduction

As the largest service supplier in North America, Emerson's Instrument & Valve Services can help your customers avoid unplanned costs and unscheduled maintenance through our comprehensive startup, diagnostic, repair, and maintenance services.

We are one of the offerings of Emerson Process Management's Asset Optimization Division that combines world-class services with innovative technologies to improve the availability and performance of production assets. All our technicians are factory-trained and receive a steady schedule of refresher programs and certifications, enabling them to deliver only the highest quality of expertise to every customer.

That’s just one more reason why Emerson Process Management has received Control Magazine’s Readers Choice Award for excellence in more categories than those from any other supplier for 14 years in a row.

Instrument & Valve Services maintains 55 service centers throughout North America.

Overview of Services

Asset Optimization Consulting

- Reliability-Based Maintenance
  - Assessment and benchmarking
  - Program design and improvement
  - Program implementation

Equipment Startup

- Project Management Services
- Installation
- Loop validation
- Startup/commissioning
- Onsite consigned startup inventory
- Certified calibrations
- Configuration
- Valve signature tests
- Mobile onsite service centers

Application of Technology

- Predictive maintenance applications
- Implementation of intelligent field devices
- 375 Field Communicator upgrades

Education and Certification

- Onsite and classroom courses
- Computer-based and self-paced learning
- Certification to recognize industry standards

Asset Reliability Services

- Turnaround services
  - Pre-turnaround diagnostic services
  - Predictive diagnostics using AMS® Suite and FlowScanner™
  - Turnaround management
  - Valve signature tests
  - Mobile onsite instrument & Valve Service Centers
  - Inline machining
  - Remote seal repair/replacement
  - Onsite turnaround inventory
- Periodic Services
  - Certified calibrations
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    - Checks/maintenance
    - Calibrations
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  - Inventory standardization
  - Inventory optimization
- Local service centers
  - Diagnostics
  - Repair
  - Remote seals repair/replacement
  - Valve signature testing
  - Valve remanufacture and recertification (Encore®)
  - Replacement units
    - New parts
    - Competitive repairs

Assets Served

- Valves
  - Butterfly
  - Ball
  - Instrumentation
  - Severe service
  - Safety
  - Safety relief
  - Gate
  - Globe
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  - Thermal conductivity analyzers
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  - NO/NOx analyzers
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  - Internal combustion engine emissions (ICEE)
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    - Mass flow
    - Coriolis
    - Vortex flow
  - Level
  - Remote seals
- Intelligent device networks
  - HART®
  - FOUNDATION™ fieldbus

Startup Services

Starting a new plant or process?

We can help control pressure where it's most critical - in your schedule and budget.

- Expert installation, calibration, and configuration of valves and instruments
- Qualified technicians available all day, every day
- Flexible pricing plans

If you have a startup scheduled in the near future, you know what a high-pressure operation it can be. There is a lot of money riding on your ability to get the plant or process up and running on time and within budget. Every day past the deadline means lost revenue, or worse, potential penalties. Does your staff have the technical expertise, the experience, and the time to ensure that your valves and transmitters are properly installed, calibrated, and configured? And if it's not done right, how long will it be before a poorly installed field device comes back to haunt you?

Let Emerson's Instrument & Valve Services take these worries off your mind and startup tasks off your list. Through our expert technicians - available all day, every day, onsite or at our service depots across North America - we can help you start up on time and within budget, with instrumentation and valves that are properly installed and calibrated correctly. Furthermore, we offer pricing plans to suit your needs. With mutual advanced planning, we can offer you flexible packages that allow you to control your startup costs.

After startup, we can discuss regularly scheduled visits or specific demands, and we'll service your plant on an as-needed basis.

Description of Startup Services

Startup services are offered to help you install, commission, and maximize your Emerson products.

Startup products include, but are not limited to:

- Micro Motion® Coriolis flowmeters
- Micro Motion Dedicated Density meters
- Rosemount® Radar level transmitters
- Rosemount Ultrasonic level transmitters
- Rosemount Vortex flowmeters
- Rosemount Differential Pressure flowmeters
- Rosemount Multivariable Mass flowmeters
- Rosemount Pressure transmitters
- Rosemount Temperature transmitters
- Rosemount Magnetic flowmeters

Services Included

1. One site visit
   - Monday-Friday during normal business hours (7am-5pm)
   - 5 business days lead time on request
   - Travel and travel expenses
2. Installation verification and commissioning
   - A check of all the variables for each transmitter type, including mechanical, wiring, and loop verifications.
   - A complete check of the transmitter's configuration and diagnostics.
   - If time permits, the technician will provide performance verification.
3. On-the-job training
   - Training in essential installation, operation, and troubleshooting of the transmitter installed.
   - Provide basic understanding of transmitter fundamentals in a group setting.
4. Follow up
   - 4 weeks after successful startup of the transmitter, the technician will follow up via telephone to ensure good communication still exists.
   - The customer will be asked to perform a follow-up survey through the North American Response Center (NARC).
5. Six month extended warranty
   - Standard warranty is 12 months from installation or 18 months from shipment, whichever is first. With startup services, that warranty is extended to 18 months from installation or 24 months from shipment, whichever is first.

Optional Services

1. Application assistance
   - Assistance in correctly using the transmitter in the process. The technician will help make sure the transmitter is correctly positioned and operating as it should.
2. Communication based checks
   - The technician will used advanced tools to check the communications of the transmitter to the host communication system.

Customer Requirements

The following must be completed to optimize the call:

- The transmitter should be installed according to the requirements in the installation manuals.
- All necessary wiring connected.
- A method of verifying performance – a “catch and weigh” for a Coriolis startup, a “window” for a radar level startup, or other methods available.

Startup Customer/Instrument & Valve Services Requirements

Customer	Emerson Process Management (Instrument & Valve Services)
Phone review with Instrument & Valve Services	Phone call with customer to set startup appointment and review
Field devices must be mounted and have all process connections attached	Verification of process connections, transmitter setup to ensure proper readings
Field devices must have all wiring connected	Verification of physical mounting
	On-the-job training
	Post installation follow-up

Startup Services Ordering Information

Rosemount / Micro Motion Certified Startup Services

Service	Service Description
EMRSU	Emerson Instrument Startup Assistance includes[1][2][4][7]: • Verification of correct installation of device • Verification of correct wiring • Customization and configuration to match operating parameters • Check of digital and analog output of the instrument • Communication check (HART, Modbus, FOUNDATION fieldbus, etc) • Commissioning: Zero check and performance check under process conditions • 3 month warranty on all services • Standard Field Service Report
Code	**Instrument Type**
MMIC	Micro Motion Coriolis
MMID	Micro Motion Dedicated Density
RFDV	Rosemount Vortex
RFDM	Rosemount Magmeter
RMDD	Rosemount dP Flow (e.g. 3051SFC, 3051SFA, 3051SFP)
RMDM	Rosemount dP Massflow (e.g. 3095MFC, 3095MFA, 3095MFP)
RMDG	Rosemount Guided Wave Radar
RMDN	Rosemount Non-contacting Radar (5600)
RMDR	Rosemount Non-contacting Radar (5400)
RMDP	Rosemount Pressure
RMDT	Rosemount Temperature
MOBR	Mobrey Level
RMDU	Rosemount Ultrasonic Level
Code	**Device Count and Travel Distance**
Zone 1 - Travel Distance 200 miles or less from Staff Center	
21A	Startup base fee - 1 instrument [3]
22A	Startup base fee - 2 instruments [3]
23A	Startup base fee - 3 instruments [3]
24A	Startup base fee - 4 instruments [3]
25A	Startup base fee - 5 or more instruments [3]
Zone 2 - Travel Distance 201 to 400 miles from Staff Center	
31A	Startup base fee - 1 instrument [3]
32A	Startup base fee - 2 instruments [3]
33A	Startup base fee - 3 instruments [3]
34A	Startup base fee - 4 instruments [3]
35A	Startup base fee - 5 or more instruments [3]
Zone 3 - Travel Distance 401 miles or greater from Staff Center	
41A	Startup base fee - 1 instrument [3]
42A	Startup base fee - 2 instruments [3]
43A	Startup base fee - 3 instruments [3]
44A	Startup base fee - 4 instruments [3]
45A	Startup base fee - 5 or more instruments [3]
Code	**Application Based**
0	Application/process assistance not required
1	Application/process assistance [3] [5]

Code	Options
Communication based	
20	Analog loop test assistance AO (4-20mA), DO & alarms (as applicable)
DA	Digital loop test Assistance (FOUNDATION fieldbus, Profibus, Modbus - as applicable; network test is excluded)
WA	Smart Wireless communication check (as applicable; network test is excluded) (6)

Typical Service: EMRSU MMIC 1A 0 EMRSU MMIC 22A 0

Startup services for 15+ devices will require site assistance and job scope evaluation before receipt of startup services quotation.

Notes

1. Startup prices are for our normal business days. Monday-Friday: 7:00 am - 5:00 pm. Startup assistance required after normal business day hours or on Instrument & Valve Services Holiday is at 1.5 times or 2.0 times calculated rate respectively.

2. TRANSMITTER INSTALLATION and electrical hookups need to be completed prior to initiation of the startup/commissioning package. Transmitter installation must be done according to specifications.

3. Price each based on sum of instrument type, device count, travel distance, application base, and options. Final price is multiple of number of instruments.

4. Startup assistance is priced for one continuous site visit. Startup requests for non-contiguous days onsite will incur additional charges.

5. Application assistance is limited to 4 hours maximum.

6. For Emerson Wireless Startup Services, see PRL-2425-WirelessSS Price List.

7. Prices apply to contiguous 48 states only.

Lead Time

5 business days notice required on request for startup (ARO). Expedited services available at 15% additional fee

Wireless Startups

Start smart. Get the most out of your Smart Wireless Industrial Networks.

With SmartStart™ Services, seeing the benefits of wireless technology has never been easier.

- Maximize the benefits of your Smart Wireless devices and networks
- Ensure fast, accurate installation and commissioning
- Empower your staff with on-the-job training

Gain the maximum value from your Smart Wireless devices and networks. Choose Emerson's Instrument & Valve Services SmartStart Service to ensure your Smart Wireless devices and networks are correctly installed and commissioned.

Our experienced technicians will verify the Smart Wireless Gateway and smart wireless transmitters are appropriately mounted, properly configured, and performing at their best. They will assign network addresses and verify that your devices are fully operable as a self-organizing wireless network and readable at the interface or router.

We offer two services to get your wireless self-organizing network off the ground:

- SmartStart Services: Includes verification and commissioning of your smart wireless transmitters and setup of the self-organizing network.

- SmartPack™ Services: Includes all SmartStart Services and installation of AMS Suite: Intelligent Device Manager and the AMS Wireless SNAP-ON™ application.

Description of Wireless Startups

Wireless services are offered to help you install, commission, and maximize the features of your wireless products.

SmartStart services apply to, but are not limited to:

- Rosemount Smart Wireless Gateway
- Rosemount 3051S Wireless Pressure Transmitter
- Rosemount 648 Wireless Temperature Transmitter
- Rosemount 702 Wireless Discrete Transmitter
- Smart Wireless THUM™ Adapter
- CSI 9420 Wireless Vibration Transmitter
- AMS Suite: Intelligent Device Manager and AMS Wireless SNAP-ON application

Services Included

1. One site visit
   - Monday-Friday during normal business hours (7am-5pm)
   - Travel and travel expenses
   - 5 business days lead time on request
2. Smart Wireless Gateway installation verification and network commissioning
   - Includes installation verification of the Smart Wireless Gateway. Instrument & Valve Services technician will verify and assign, if necessary, the network addresses and verify that the wireless devices are being read at the Smart Wireless Gateway.
   - The network addresses will be assigned and reviewed with the customer if desired, and the Smart Wireless Gateway will be configured as necessary.
3. Wireless network device installation verification and commissioning
   - Includes a verification check of the process connection of the transmitter to ensure a good mechanical installation, a complete check of the configuration and health (diagnostics), a communication check of the transmitter to ensure a good wireless connection, and transmitter calibration verification. The technician will verify and assign, if necessary, the network addresses and verify that the transmitter is communicating with the Smart Wireless Gateway.
4. On-the-job training
   - Training in essential installation, operation, and troubleshooting of wireless networks.
   - Provide basic introduction to wireless industrial network fundamentals in a group setting.
5. Connectivity Guarantee
   - The Instrument and Valve Services technician will not leave the site until the wireless network is successfully communicating with your control system.
6. Follow-up
   - 4 weeks after successful startup of the wireless network, the technician will follow-up via telephone to ensure good communication still exists.
   - The customer will be asked to perform a follow-up survey through the North American Response Center (NARC).

Optional Services

1. Additional Smart Wireless Gateway startup
   - Startup of one additional Smart Wireless Gateway for wireless network installation.
2. Wireless network layout assistance
   - Technicians will assist the customer with laying out their wireless network with the use of AMS Device Manager and the AMS Wireless SNAP-ON Assistant.
3. Application Assistance
   - Assistance in correctly using the transmitter in the process. The technician will help make sure the transmitter is correctly positioned and operating as it should.

Customer Requirements

The customer needs to have the following completed to optimize the call:

- The Smart Wireless Gateway should be installed and powered.
- The transmitters should be plumbed to the process measuring point.
- The transmitters' power should be connected, or the power module easily accessible for technician installation.

SmartStart Service Description

SmartStart Services include:

- All services as described in the “Services Included” section
- Inclusion of the free AMS Wireless Configurator software
- Installation of AMS Wireless Configurator application on your computer.

The table below lays out the requirements of the customer and Instrument & Valve Services as pertaining to a SmartStart installation. For ordering information, please refer to the SmartStart Services table on page 13.

SmartStart Services Customer/Instrument & Valve Services Requirements

Customer	Emerson Process Management (Instrument & Valve Services)
Phone review with Instrument & Valve Services Mounting of Smart Wireless Gateway, the power and its antenna	Phone review with customer - after product ship, before site startup
Mounting of Smart Wireless Gateway on pipe or wall according to product manual	Inspect installation for optimal network
All Ethernet/Modbus and power wiring must be run (landed) at the Smart Wireless Gateway	Connect landed wires on the Smart Wireless Gateway or supervise the connection of these wires and the network cable
If extended antenna, it must be installed	Setup of network parameters and verification of network communications
Field devices must be mounted and have all process connections attached	Verification of process connections, transmitter setup to ensure proper readings
Field devices must be ready for power module installation	Verification of physical mounting, including antenna position
Information for SmartStart Technician • IP Addresses, VPN settings etc • Units and calibration parameters desired for field devices • List of values that you want displayed from your field devices	On-the-job training
	Post installation follow up

SmartPack Service Description

SmartPack Services include:

- All services as described in the “Services Included” section
- Purchase of AMS Suite: Intelligent Device Manager 5, 15, or 25 tag software system complete with AMS Wireless SNAP-ON Application
- Delivery of AMS Device Manager by onsite technician
- Installation of AMS Device Manager
- Configuration of AMS Device Manager to your self-organizing network

The table below lays out the requirements of the customer and Instrument & Valve Services as pertaining to a SmartPack installation. For ordering information, please refer to the SmartPack Services table on page 14.

SmartPack Services Customer/Instrument & Valve Services Requirements

Customer	Emerson Process Management (Instrument & Valve Services)
Phone review with Instrument & Valve Services Mounting of Smart Wireless Gateway, the power and its antenna	Phone review with customer - after product ship, before site startup
Mounting of Smart Wireless Gateway on pipe or wall according to product manual	Inspect installation for optimal network
All Ethernet/Modbus and power wiring must be run (landed) at the Smart Wireless Gateway	Connect landed wires on the Smart Wireless Gateway or supervise the connection of these wires and the network cable
If extended antenna, it must be installed	Setup of network parameters and verification of network communications
Field devices must be mounted and have all process connections attached	Verification of process connections, transmitter setup to ensure proper readings
Field devices must be ready for power module installation	Verification of physical mounting, including antenna position
Information for SmartStart Technician: • IP Addresses, VPN settings etc • Units and calibration parameters desired for field devices • List of values that you want displayed from your field devices	AMS Device Manager delivery and installation Mapping of Smart Wireless Gateway registers to allow transfer of data to Host using Modbus/OPC
	On-the-job training Post installation follow-up

Wireless Startup Ordering Information

SmartStart Services

Service	Service Description
SMART	Smart Wireless Device Startup Assistance include[1] [2]: • Verification of correct installation of Smart Wireless field devices • Customization and configuration to match operating parameters • Check digital and analog output of the instrument • Commissioning: Zero check and performance check under process conditions • Onsite services, travel and travel expenses • Standard Field Service Report
Code	**Service Description**
START	SmartStart network services include: • Smart Wireless Gateway installation and commissioning [1] • AMS Wireless installation and configuration on your computer • Network communication, assignment of network addresses and verification • Training of onsite personnel • Connectivity guarantee
Code	**Device Count**
1	1-5 field devices and 1 Smart Wireless Gateway
2	6-14 field devices and 1 Smart Wireless Gateway
3	15-24 field devices and 1 Smart Wireless Gateway
Code	**Options**
Additional Gateway	
1G	One additional gateway
Service Assistance	
WS	Wireless Network Layout
AP	Application/process assistance (limited to 4 hours)
Software Upgrades	
WA	AMS Wireless SNAP-ON Application
Typical Service: SMART START 1 WA	
SmartStart Services of 26+ devices will require site assistance and job scope evaluation before receipt of startup services quotation.	
Notes	
1. Startup prices are for our normal business days. Monday-Friday: 7:00 am - 5:00 pm.	
2. TRANSMITTER INSTALLATION and electrical hookups need to be completed prior to initiation of the startup/commissioning package (not including Smart Wireless Gateway installation). Transmitter installation must be done according to specifications.	
Lead Time	
5 business days notice required on request for startup(ARO) - Expedited services available at 15% additional fee	

SmartPack (Includes SmartStart services)

Service	Service Description
SMART	Smart Wireless Device Startup Assistance include[1] [2]: • Verification of correct installation of Smart Wireless field devices • Customization and configuration to match operating parameters • Check digital and analog output of the instrument • Commissioning: Zero check and performance check under process conditions • Onsite services, travel and travel expenses • Standard Field Service Report
Code	**Service Description**
PACK	Includes SmartStart Services + SmartPack • Smart wireless network services include: • 1420 Gateway installation and commissioning • AMS Device Manager installation and configuration on your computer • Network communication, assignment of network addresses, and verification • Training of onsite personnel • Connectivity guarantee SmartPack software services include: • AMS Device Manager: Licensing, installation and configuration • Training of onsite personnel
Code	**Device Count**
1	AMS Device Manager 6-tag license,1-5 field devices and 1 Smart Wireless Gateway
2	AMS Device Manager 15-tag license, 6-14 field devices and 1 Smart Wireless Gateway
3	AMS Device Manager 25-tag license, 15-24 field devices and 1 Smart Wireless Gateway
Code	**Options**
Additional Gateway	
1G	One additional gateway
Service Assistance	
WS	Wireless Network Layout
AP	Application/process assistance (limited to 4 hours)
Software Upgrades	
A10	AMS Device Manager – 10-tag upgrade[3]
A100	AMS Device Manager – 100-tag upgrade
A200	AMS Device Manager – 200-tag upgrade
A500	AMS Device Manager – 500-tag upgrade
Typical Service SMART PACK 1	
Notes	
1. Startup prices are for our normal business days. Monday-Friday: 7:00 am - 5:00 pm.	
2. TRANSMITTER INSTALLATION and electrical hookups need to be completed prior to initiation of the startup/commissioning package (not including Smart Wireless Gateway installation). Transmitter installation must be done according to specifications.	
3. AMS Device Manager: 10-tag upgrade available on ONLY 5 or 15 tag systems.	
Lead Time	
5 business days notice required on request for startup (ARO) - Expedited services available at 15% additional fee.	

Turnaround/Outage Services

A proven process with professional people.

Clear communication and our proven five-step process make plant turnarounds go smoother.

- Conduct turnarounds on time and within budget
- Avoid costly surprises
- Help your people succeed

What's the secret to executing a flawless turnaround? Meticulous planning and precise communication. Both are built into the five-step turnaround process used by Emerson's Instrument & Valve Services. With it, we're able to provide many tangible and repeatable benefits to you.

Step 1: Kick-Off Meeting

Associates from Emerson's Instrument & Valve Services and your local account representative will meet with your team to discuss your goals and the broad scope of the turnaround, including timing, duration, budget, and walk-down schedule.

Together, we'll complete a kick-off checklist covering various real-world issues that we may encounter from the moment the process goes down until the moment it starts up again. This checklist is the basis of a document that outlines your needs and describes the general repair procedure, which is delivered to the technicians.

After the initial meeting, we'll walk through your plant and, if necessary, conduct diagnostics on marginal equipment to determine which units need repair.
During the walk-down, we will:

- Gather general product information
- Take "as-found" photographs
- Record serial numbers
- Document maintenance notes
- Raise questions regarding specific valve/instrumentation units

Step 1 Deliverables

- Completed walk-down list

Step 2: Refining the Details

We will meet again with you to define the final scope of the turnaround. This gives everyone the opportunity to look at technical options and maintenance practices, review records and applications issues, and confirm quality assurance and environment, safety and health (QA/ESH) requirements.

We will also prioritize the product list, reconcile product data, and craft a plan for conducting diagnostic tests. The entire repair procedure is drawn out in detail in the Genera Customer Specification (GCS) document. Customized by you, this is the reference document used by the turnaround team. It's included in every job folder, reviewed by everyone involved in the turnaround, and includes critical details regarding production condition at time of:

- Arrival
- Disassembly
- Diagnostics using AMS Suite and FlowScanner
- Repair
- Welding
- Instrument calibration

Step 2 Deliverables

- Completed Turnaround Planner/Turnaround Management Checklist
- General Customer Specification (GCS)
- Application Review Form
- Master Tag Control Log

Step 3: Emerson Internal Planning

Together with your local account representative, we will plan our resources to ensure that we have everything we need on hand during the turnaround. We also define roles and responsibilities', making sure everyone on our team understands what is expected.

Additionally, we will develop our communication plan and pre-order parts and consumables, such as:

- Packing
- Gaskets
- Seat Rings
- Trim Parts
- Instruments, such as transmitters, analyzers, mass flowmeters
- Accessories

Step 3 Deliverables

- Completed Internal Planning Checklist
- Parts Pre-Order Form

Step 4: Execution

Once your turnaround starts, we will proceed to execute the outlined work. The work is conducted to your satisfaction, with daily status reports delivered so you are always aware of our progress.

During the turnaround, if any additional issues are identified that could affect the scope of work, a change-order is generated for you to authorize.

The work is completed safely, within your budget, and according to the schedule.

Step 4 Deliverables

- Daily Status Reports
- Change-Order Forms (if necessary)
- Repair Documentation

Step 5: Post-Turnaround Review

After the turnaround, our entire team, including your local Emerson account representative, will meet with you to verify the value of the work completed and to receive your feedback. Learning is important to us, and we encourage an open and straightforward discussion.

We will also look ahead to your future needs and opportunities for more effective asset management.

The final deliverable is a package of documents covering the results of the turnaround.

Step 5 Deliverables

- Final Turnaround Report including documentation
- Post-Turnaround Meeting Minutes

Got a turnaround coming up? Now that you've seen our process on paper, let us show you how well it works in person.

Rosemount Certified Repair

Got a problem? We've got an answer.

From instruments to valves, we're here to diagnose, repair, replace, upgrade, and make things right.

- Reduce downtime
- Reduce your maintenance costs with custom maintenance contracts
- Stock exactly the parts you need

Our Service Center Network puts assistance where you need it - near you. With more than 40 inventory locations throughout North America, we can have a part or technician to your site quickly. Call us anytime - 24 hours a day, 365 days a year.

Diagnosis/Repair

Every instrument and valve sent to us for diagnosis and repair receives the same high level of attention. Every Instrument & Valve Services technician performs these steps:

- Repair quotes for 3051, 1151, and 3095 transmitters before the transmitter is sent to the service center
  - o See pages 22-27 for quoting information
- Instant repair by replacement quote for all transmitters
- Physical inspection
- Notation of condition upon receipt
- Device diagnosis using our factory tools, including AMS Device Manager
- Disassembly, if necessary, and inspection of unit
- Part replacement
- Calibration
- Testing (depending on device)

Our procedures parallel the high standards from Emerson Process Management.

Trade In

Somewhere in your spares inventory, there are transmitters that have quietly become obsolete. Maybe you could use them in a pinch, but if you had the most current model, your processes would be more efficient and your plant would be more profitable.

With our trade-in program, you can use your unwanted transmitters in trade - even if they're broken, defective, outdated, or inefficient. It doesn't matter what manufacturer made them. If you don't want them, we'll take them off your hands. And we'll give you a trade-in credit toward a new Rosemount transmitter. Save money on new parts, keep up with technology, and improve your processes while optimizing your inventory.

New Parts

Contact us for the part you need.

Calibration

All our service center test equipment is traceable to NIST standards, ensuring that our calibrations are accurate and verifiable. If requested, a calibration certificate or report can be provided with each repair. For quoting information, please see page 21.

Standards

Our service centers perform all work under the quality programs and procedures of Emerson.
Standards include:

- ISO
- ASME
- ISA
- API

Quick Ship

When you really need them, replacement units or parts can't come quickly enough. No one understands that better than Emerson's Instrument & Valve Services. That's why we offer Quick Ship, the fastest way to get a disabled or impaired transmitter or valve back online.

We've got a wide range of parts stored at our service centers around the country. In most cases, we can ship a part to you the same day you call. If a part isn't in our central stock, we'll find it at one of our inventory depots and drop-ship it within 48 hours of your call.

- *Transmitters* – Just tell us how you want the instrument calibrated, and we'll configure it to your specifications. Then we'll send it via first available courier flight, counter-to-counter, same-day, or next-day delivery through UPS or FedEx.
- *Valves* – In addition to new units, Encore Remanufactured Valves are also available through Quick Ship.

Remote Seals

Our service technicians are factory-certified and use the same ISO procedures and equipment as our manufacturing centers. We can restore and calibrate remote seals back to factory standards more efficiently than your in-house maintenance or an outside repair service can.

On average, we can save you 25% compared to a third-party repair shop - even more compared to what it costs you to do the job internally.

Not only do we save you money, we also stand behind our work. We guarantee that the new or restored remote seal taken from the storeroom will meet all manufacturer standards.

No one has more experience with Rosemount seals than we do. We've installed and repaired seals to handle every kind of fill fluid - slurries, suspended solids, and corrosive media. You can be assured that every remote seal repaired, refilled, or replaced by Instrument & Valve Services will match Rosemount's exacting factory standards down to the last specification.

Rosemount Certified Repair Ordering Information

Calibration and Housing Replacement Repair

Code	Repair Type
TRANSCAL	Calibration of Rosemount Pressure or Temperature Transmitter (1) (2)
3095CAL	Calibration of Rosemount 3095 Multivariable Transmitter (1)
SSTHOUS	SST Housing for Rosemount Pressure or Temperature Transmitter (3) (4)
ALUMHOUS	Aluminum Housing for Rosemount Pressure or Temperature Transmitter (3) (4)
3051SSST	SST Housing for 3051S Rosemount Pressure Transmitter (4)
3051SALUM	Aluminum Housing for 3051S Rosemount Pressure Transmitter (4)

	Notes
1	*Calibration certificate included*
2	*Does not include 3095 Multivariable transmitters*
3	*Does not include 3051S Pressure transmitters*
3	*Includes calibration of instrument and calibration certificate*

3051 Pressure Transmitter Repair

Service	Service Description
3051RPR	Rosemount 3051 Transmitter Repair includes (1) (2) (3) : • New Rosemount Parts based on repair requirements and current revisions • Wetted materials: 316L SS or Hastelloy or Tantalum • Measurement type: Differential or Gage or Absolute • Transmitter Repair to OEM Standards • Transmitter Calibration in accordance with Rosemount Standards • 1 Year Warranty on all replaced parts

Code	Transmitter Type
D	3051CD
G	3051CG
A	3051CA
T	3051T

Code	Diaphragm Material
A	316L SST
B	Hastelloy
C	Tantalum

Code	Housing Replacement
0	No Housing Replacement
AH	Aluminum Housing Replacement
SH	SST Housing Replacement

Code	Options
	Calibration Certificate
Q4	Calibration Certificate

Typical Service: 3051RPR D A SR 0

Also available: Instant Repair by replacement with like unit at 25% discount

All transmitter types not included in this price list must be sent to local IVS Service Center for evaluation before receipt of repair quotation.

	Notes
1	*Repairs include NEW bolts, o-rings, covers, tags, batteries, leads; cleaning of flanges, modules, and housings (as required). Repair includes calibration to OEM specs. Missing parts will be replaced at list price.*
2	*Competitor and remanufactured units are exchanged at "Instant Repair" discounted list price.*
3	*3051S, 2088, 3144, 644, and 248 transmitters will be quoted at "Instant Repair" discounted list price*

1151 Pressure Transmitter Repair

Service	Service Description
1151RPR	Rosemount 1151 Transmitter Repair includes [1] [2] [3] : • New Rosemount Parts based on repair requirements and current revisions • Wetted materials: 316L SS or Hastelloy or Tantalum • Measurement type: Differential or Gage or Absolute • Transmitter Repair to OEM Standards • Transmitter Calibration in accordance with Rosemount Standards • 1 Year Warranty on all replaced parts
Code	**Transmitter Type**
D	1151DP
G	1151GP
A	1151AP
Code	**Diaphragm Material**
A	316L SST
B	Hastelloy
C	Tantalum
Code	**Housing Replacement**
0	No Housing Replacement
AH	Aluminum Housing Replacement
SH	SST Housing Replacement
Code	**Options**
	Calibration Certificate
Q4	Calibration Certificate
Typical Service: 3051RPR D A SR 0	

Also available: Instant Repair by replacement with like unit at 25% discount

All transmitter types not included in this price list must be sent to local IVS Service Center for evaluation before receipt of repair quotation.

1	*Repairs include NEW bolts, o-rings, covers, tags, batteries, leads; cleaning of flanges, modules, and housings (as required). Repair includes calibration to OEM specs. Missing parts will be replaced at list price.*
2	*Competitor and remanufactured units are exchanged at "Instant Repair" discounted list price.*
3	*3051S, 2088, 3144, 644, and 248 transmitters will be quoted at "Instant Repair" discounted list price*

3095 Transmitter Repair

Service	Service Description
3095RPR	Rosemount 3095 Transmitter Repair includes [(1) (2) (3)] : • New Rosemount Parts based on repair requirements and current revisions • Wetted materials: 316L SS or Hastelloy • Measurement type: Differential or Gage or Absolute • Transmitter Repair to OEM Standards • Transmitter Calibration in accordance with Rosemount Standards • 1 Year Warranty on all replaced parts
Code	**Diaphragm Material**
A	316L SST
B	Hastelloy
Code	**Housing Replacement**
0	No Housing Replacement
AH	Aluminum Housing Replacement
SH	SST Housing Replacement
Code	**Options**
	Calibration Certificate
Q4	Calibration Certificate
Typical Service: 3051RPR D A SR 0	

Also available: Instant Repair by replacement with like unit at 25% discount

All transmitter types not included in this price list must be sent to local IVS Service Center for evaluation before receipt of repair quotation.

1	*Repairs include NEW bolts, o-rings, covers, tags, batteries, leads; cleaning of flanges, modules, and housings (as required). Repair includes calibration to OEM specs. Missing parts will be replaced at list price.*
2	*Competitor and remanufactured units are exchanged at "Instant Repair" discounted list price.*
3	*3051S, 2088, 3144, 644, and 248 transmitters will be quoted at "Instant Repair" discounted list price*

Rosemount Certified Welded Seal Repair

Service	Service Description
WSRPR	Rosemount Welded Seal Repair includes[1] [2] [3] [4] [5]: • New Rosemount Parts based on repair requirements and current revisions • Capillary length: Up to 20 ft included • Measurement type: Differential or Gauge or Absolute • Seal repair to OEM standards • Attached transmitter calibration in accordance with Rosemount standards • 1 year warranty on all replaced parts
Code	**Capillary Length**
S	Standard Length (20 ft or less)
E	Extended Capillary (25 ft or greater)
Code	**Seal Type**
PFW	Pancake
RFW	Remote Flanged
RTW	Remote Threaded
EFW	Extended Flanged (SST wetted material only)
FFW	Flush Flanged
SSW	Sanitary Tank Spud (SST wetted material only)
SCW	Sanitary Tri-Clover Style Tri-Clamp
Code	**Process Connection**
0	Not Applicable (SSW only)
1	Threaded Connection [6]
2	1" [7]
4	1 1/2" [7]
G	2"
6	2 1/2"
7	3"
9	4"
Code	**Flange Rating**
0	None
1	ANSI Class 150 Rating
2	ANSI Class 300 Rating
4	ANSI Class 600 Rating
Code	**Wetted Materials**
A	316L Stainless Steel
B	Hastelloy (not available on SSW or EFW seal type)
C	Tantalum (not available on EFW or SCW seal type)
Code	**SSW / EFW Extension Length (SST wetted material only)**
0	Not Applicable
2	2 in. Extension
4	4 in. Extension
6	6 in. Extension

Options

New Flushing Rings
SST - No Flushing Connection
SST - One 1/4-in. Flushing Connection
SST - Two 1/4-in. Flushing Connections
SST - One 1/2-in. Flushing Connection
SST - Two 1/2-in. Flushing Connections
Hastelloy - No Flushing Connection
Hastelloy - One 1/4-in. Flushing Connection
Hastelloy - Two 1/4-in. Flushing Connections
Hastelloy - One 1/2-in. Flushing Connection
Hastelloy - Two 1/2-in. Flushing Connections
Calibration Certificate
Calibration Certificate (Attached transmitter)

Typical Service: WSRPR S FFW G 1 A 0

All seal types not included in this price list must be sent to local Instrument & Valve Services Service Center for evaluation before receipt of repair quotation.

Notes

1	*Price is per Remote Seal leg.*
2	*If transmitter requires repair, refer to Transmitter Price Sheet.*
3	*Repairs include (as required) new bolts, o-rings, covers, tags, batteries, leads, housings and cleaning of flanges, modules, and housings. Repair includes calibration to OEM specs. Missing parts will be replaced at list price.*
4	*Competitor and remanufactured units are exchanged at "Instant Repair" discounted list price.*
5	*3051L Liquid Level Transmitters require evaluation before quote.*
6	*RTW only*
7	*RFW only*

Magmeter Transmitter Repair

Service	Service Description
MAGRPR	Rosemount Magmeter Transmitter Repair includes [1] [2] [5] : • New Rosemount Parts based on repair requirements and current revisions • Transmitter Repair to OEM Standards • Transmitter Calibration in accordance with Rosemount Standards • 1 Year Warranty on all replaced parts
Code	**Transmitter Type**
D	8712D
E	8732E
Code	**Repair Type**
ER1	Electronics Repair
LO1	Local Operator Interface Repair
CR1	Calibration Only [3]
Code	**Options**
	Calibration Certificate
Q4	Calibration Certificate [4]
Typical Service: 3051RPR D A SR 0	

Also available: Instant Repair by replacement with like unit at 25% discount

All transmitter types not included in this price list must be sent to local IVS Service Center for evaluation before receipt of repair quotation.

1	*Repairs include NEW bolts, o-rings, covers, tags, batteries, leads; cleaning of flanges, modules, and housings (as required). Repair includes calibration to OEM specs. Missing parts will be replaced at list price.*
2	*Competitor and remanufactured units are exchanged at "Instant Repair" discounted list price.*
3	*Certificate of calibration included*
4	*Included with calibration only repair type*
5	*3051S, 2088, 3144, 644, and 248 transmitters will be quoted at "Instant Repair" discounted list price*

Handheld Communicator Services

Upgrades. Trade-Ins. Repairs. When it comes to handheld communicators, we've got it all in hand.

375 Field Communicator — The only handheld communicator that supports HART and FOUNDATION fieldbus devices.

- Your exclusive factory-authorized service provider for the 375 Field Communicator
- The only supplier for trade-ins on your 275 HART Communicator
- Service when and where you need it

Working with a 375 Field Communicator? You'll be glad to know that Emerson's Instrument & Valve Services offers outstanding support for it.

In fact, we're the only factory-authorized service provider for the 375 Field Communicator and the 275 HART Communicator.

When you need service on handheld communicators, we're just a phone call away. You'll get prompt, award-winning service from the industry's best technicians at one of our more than 55 service centers in North America.

You can schedule the service or get emergency service on demand. It's your choice. We're here to get your handheld communicator operating optimally again—just tell us when you need it.

Think of Emerson's Instrument & Valve Services when you need the following:

- Replacement parts and cables
- Repair services
- Memory module upgrades or parts
- Device description (DD) update services – 275 HART Communicator and 375 Field Communicator without *Easy Upgrade*
- 375 Field Communicator upgrades to FOUNDATION fieldbus
- 275 HART Communicator upgrades and trade-ins to 375 Field Communicator
- *Easy Upgrade* services

Handheld communicators reduce trips to the field and gather the kind of data you need to decrease process downtime.

So increase your profits and productivity by upgrading to the 375 Field Communicator - and by letting Instrument & Valve Services keep your handheld communicators functioning at their best.

Handheld Communicator Service Ordering Information

Handheld Communicator Demand Services	
Type of Service	**Description**
275 Repair	Diagnosis, Repair of 275 HART Communicator
275 DD	Demand software (Device Drivers) upgrade - single time
375 Repair	Diagnosis, Repair of 375 Field Communicator
375 DD	Demand software (Device Drivers) upgrade - single time

Part Number	Operating System Upgrades
	Units with *Easy Upgrade*
375 Upgrade-2	375 V2.0 Unit Upgrade
375 Upgrade-3	375 V2.0 Unit Upgrade w/ *Easy Upgrade* Renewal
	Units without *Easy Upgrade*
375 Upgrade-5	375 V2.0 Unit Upgrade + Demand Software update (DDs)
375 Upgrade-6	375 V2.0 Unit Upgrade + Demand Software update (DDs)+New License

	Additional 375 Field Communicator Upgrade Services
00375-0142-2003	*Easy Upgrade* renewal (3 years)
00375-0142-0003	*Easy Upgrade* (for non-*Easy Upgrade* units - 3 Yrs)
00375-0142-0002	FOUNDATION fieldbus Upgrade
00375-0142-0010	Graphics Upgrade

	Combination Options
	Units with *Easy Upgrade*
375 SMTPK-1	375 V2.0 Unit Upgrade + FOUNDATION fieldbus + Graphics
375 SMTPK-2	375 V2.0 Unit Upgrade w/ *Easy Upgrade* Renewal + FOUNDATION fieldbus + Graphics
	Units without *Easy Upgrade*
375 SMTPK-3	375 V2.0 Unit Upgrade (w/o *Easy Upgrade*) + FOUNDATION fieldbus + Graphics List
375 SMTPK-4	375 V2.0 System Card Upgrade (+ New *Easy Upgrade* License) + FOUNDATION fieldbus + Graphics

Inventory Optimization

Build a more efficient inventory.

Have the right parts on hand when you need them.

- Reduce inventory costs
- Streamline your maintenance procedures
- Remove clutter from your database

How is your inventory managed? Are you spending too much and carrying unnecessary model numbers? Or are you stocking the optimum number of spare parts? Emerson's Instrument & Valve Services offers several programs specifically designed to help you optimize your assets, with an eye toward increased efficiency and cost savings.

Inventory Analysis

Every plant needs to keep spare parts on hand, but it comes at a price. Some estimates put the cost of maintaining an inventory of spares at 250% of the original cost of the parts. And that's above and beyond the standard 30% in annual carrying costs.

If your plant is like many others, you're being asked to do more with less, making it even harder to get a handle on your inventory. You're also being asked to reduce costs and keep inventory at a minimum.

That's where our Inventory Analysis Service can help. Our experts can analyze your instrumentation inventory of spare parts and recommend the optimum inventory, enabling you to realize significant savings.

First, we find out what you presently have on hand by comparing your database of model numbers against current factory model numbers, ensuring that you'll receive the most up-to-date list of parts for optimal performance.

We then identify duplications and mismatched parts to help you reduce your spares inventory to what you need. Sometimes product innovations allow us to replace multiple older parts with a single new one.

When we're finished, we provide a recommended inventory structure with associated model numbers, an estimate of your cost savings, and an action plan with a list of options for how to optimize your spares inventory.

For the most thorough examination of your inventory situation, we also offer an onsite inventory audit where an Instrument & Valve Services expert physically verifies every spare part you have in stock.

Additionally, we can conduct a site survey of installed instrumentation. By tangibly confirming your inventory, we can identify and eliminate any mistakes in your database that are affecting your inventory choices and costing you money.

Trade In

We'll take your transmitters in trade - whether they're broken, defective, outdated, inefficient, or just surplus. It doesn't matter what manufacturer made them. If you don't want them, we'll take them off your hands. And we'll give you a trade-in credit towards a new Rosemount transmitter.

Consignment

We can place a short-term dedicated inventory of spares on your site or other location that supports your startup, turnaround, or expansion. We'll keep it there for up to 90 days, managing the inventory for you. We also have options for long-term and self-managed consignment inventories.

Maintenance Inventory Program

Managing your instrumentation inventory can be a frustrating job. You know you've got parts on hand that are outdated and mismatched. Maybe you've got more than you need of certain models and not enough of others.

Complicating the situation are your routine maintenance requirements. When you need a part replaced or repaired, you want it done right and right now. But you don't want to pay to store more spares than you actually need.

Our Maintenance Inventory Program can relieve a lot of headaches. We've combined our capabilities as inventory management specialists with our historical expertise as master instrumentation technicians.

First, we review your current maintenance procedures and conduct a comprehensive inventory analysis to determine what parts you have and what you need. This can be done remotely, using your inventory database, or onsite with a physical verification process.

Then we'll work with you to reduce the inefficiencies and duplications often found in plant inventories and uncover ways to improve your inventory levels, reduce costs, and increase efficiency.

We can standardize your inventory so that very few model numbers will support a large portion of your installed base. Your maintenance people work on the same basic instruments, thus increasing efficiency and proficiency. You don't clutter the storeroom with unnecessary inventory or the database with unnecessary stock numbers. These standardized items may even be candidates for a consignment program, reducing costs even further.

As part of our Maintenance Inventory Program, we'll also assume responsibility for repairing the instruments used in your processes, eliminating the need for you to dedicate staff to repairs. The replacement instruments are certified, calibrated, and configured to match your specifications, and quality is guaranteed.

It's a total program designed to eliminate costly inefficiencies. With our Maintenance Inventory Program, you won't have to micromanage inventory and repairs. Instead, you're freed up to put your energies and attentions where it counts - on improving your plant's processes.

So if you've ever wondered whether you're making the most of your assets, give us a call. We'll analyze your inventory and find solutions that can save you thousands.

Onsite Staffing - General I&E/Systems Work/Commission Check Out

Services for faster startup and commissioning

No one knows instruments and valves like Emerson. Our instrument and valve services experts can install your devices to manufacturer's standards and help get your plant up and running on time and within budget. With our Quality Control Inspections for Construction and Commissioning (QC^3) services, we can meet your requirements for improved commissioning processes and documentation.

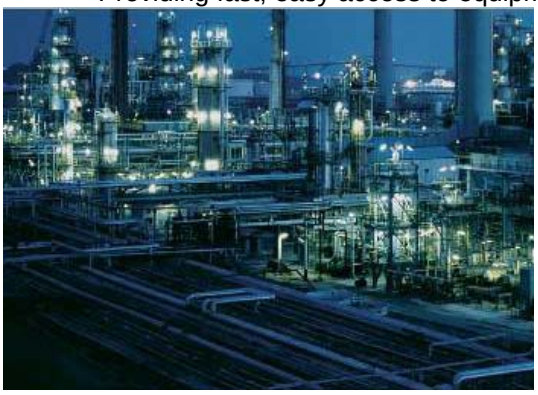
The challenge

Plant commissioning is often incomplete due to poorly documented processes, inconsistent practices, and inefficient project scheduling. Without clearly-defined procedures and consistent hard-copy verification of the completed work, commissioning projects are often delayed during startup.

Benefits

Using our QC^3 tool, Emerson's Instrument & Valve Services experts support construction and commissioning projects of any size by:

- Reducing startup costs and delays
- Reducing project reporting time
- Improving project audit trail
- Ensuring project quality assurance
- Enforcing data integrity
- Providing fast, easy access to equipment information



Stay on schedule and within budget

Not only will Emerson experts help you startup faster, they will also leave you with a comprehensive project audit trail. The audit trail contains piping and instrumentation drawings, location drawings, loop drawings, data sheets, and quality control checklists. When you use the audit trail, you have historical information and comments for future maintenance activities readily available.

Emerson's QC^3 experts will generate daily progress reports, discrepancy reports, and resolution reports, as well as meet with your project management team daily, if necessary, to help you maintain your project schedule.

Technology solution

When you use Emerson's QC^3 experts along with our QC^3 tool during your construction and commissioning, you will receive:

- Verification of all instrument and electrical tags
- Real-time status reports and commissioning checklists
- Standardized documentation
- Audit trail log of all activities
- Support for data migration into maintenance management systems

Emerson's experts will help you start up on time, within budget, and with the assurance that your instruments and valves are installed properly and calibrated correctly.

Training Courses

Rosemount's leadership in the design, manufacture, and application of smart field instrumentation is unchallenged for pressure, level, temperature, and flow measurement instruments to monitor and control processes. The vast amounts of information generated by these devices make possible lower automation costs, improved plant performance, faster troubleshooting, fewer unscheduled shutdowns, and lower maintenance costs. For this reason, Rosemount sponsors more than two-dozen courses covering product installation, configuration, calibration and maintenance.

Typical *Technician's* Training Path

1. Process Measurement Products I (Pressure & Temperature): 2326
2. Process Measurement Products II (Flow): 2327
3. Process Measurement Products III (Level): 2333
4. AMS Device Manager: 7020 **OR** AMS Device Manager with Rosemount HART: 7021
5. Fieldbus Measurement Instruments: 2370

Typical *Engineer's* Training Path

1. Process Measurement Products I (Pressure & Temperature): 2326
2. Process Measurement Products II (Flow): 2327
3. Process Measurement Products III (Level): 2333
4. Introduction to Process Control: 9000
5. AMS Device Manager: 7020 **OR** AMS Device Manager with Rosemount HART: 7021
6. Fieldbus Measurement Instruments: 2370

Complete Course List

To enroll in Measurement courses or for more information, please call: 800-338-8158 or 641-754-3771

Course:	**Process Measurement Products I (Pressure and Temperature)**	**Process Measurement Products II (Flow)**	**Process Measurement Products III (Level)**
Course Number:	2326	2327	2333
CEU's:	3.2	2.1	2.1
Intro:	This course is intended for technicians, engineers and other plant personnel who need to know installation, calibration, maintenance and troubleshooting of measurement instrumentation.	This course is intended for technicians, engineers and other plant personnel who need to know installation, calibration, maintenance and troubleshooting of measurement instrumentation.	This course is intended for technicians, engineers and other plant personnel who need to know installation, calibration, maintenance and troubleshooting of measurement instrumentation.
Overview:	This 4-1/2 day course explains how pressure and temperature transmitters function and how they are installed and calibrated. It emphasizes installation, proper set-up and calibration of Analog and Smart Pressure and Temperature Transmitters. The course uses lectures and labs to teach the students. Those who complete this class will be able to: • correctly perform installation and setup procedures • properly configure Smart Transmitters • properly calibrate transmitters • perform basic troubleshooting	This 3-day course explains how flow instruments function and how they are installed and calibrated. It emphasizes installation, proper setup and calibration of flow instruments. The course uses lectures and labs to teach the students. Those who complete this class will be able to: • correctly install Magnetic Flowtubes, Vortex Flow Meters and Multivariable Flow Transmitters • properly calibrate Flow Instruments • perform basic troubleshooting	This 3-day course explains how level instruments function and how they are installed and calibrated. It emphasizes installation, proper setup and calibration/verification of level instruments. The course uses lectures and labs to teach the students. Those who complete this class will be able to: • correctly install Guided Wave Radar Transmitters • correctly install Non-contacting Radar Transmitters • properly calibrate Level Instruments • perform basic troubleshooting
Prerequisites:	Some experience in instrument calibration, maintenance, installation and operation would be helpful.	Some experience in instrument calibration/verification, maintenance, installation and operation would be helpful.	Some experience in instrument calibration, maintenance, installation and operation would be helpful.
Topics:	• Basic 4-20 mA Loop Setup • Pressure Sensors • Temperature Sensors (TC, RTD) • Analog Transmitters (1151, 2024, 144, 444) • HART Communication • 375 Field Communicator • Smart Transmitters (1151S, 2088, 3051C & S, 644, 3144P, Tri-Loops) • Using AMS Device Manager to Configure and Calibrate Smart Transmitters • Test Equipment Selection • Installation • Configuration • Calibration • Troubleshooting	• Basic Flow Fundamentals • Magnetic Flow Systems • Vortex Flow Meters • Multivariable Flow Transmitters • AMS Device Manager with Engineering Assistant SNAP-ON application • 375 Field Communicator • Test Equipment Selection • Installation • Configuration • Calibration / Verification • Troubleshooting	• DP Level Fundamentals • Radar Applications • Radar Instruments • Radar PC Software • 375 Field Communicator • Test Equipment Selection • Installation • Configuration • Calibration / Verification • Troubleshooting

Updated dates & locations are available on our website at http://www.emersonprocess.com/education.

Course:	**Fieldbus Measurement Instruments**	**Pressure, Temperature & Magnetic Flow Smart Transmitters**	**1151 Smart Pressure Transmitter**
Course Number:	2370	2329	2302
CEU's:	3.2	1.4	.7
Intro And Overview:	This course is for individuals responsible for installing, configuring, calibrating, and troubleshooting FOUNDATION fieldbus measurement devices. This 4-1/2 day class covers the integration of FOUNDATION fieldbus compliant measurement devices using the 375 Field Communicator. Upon completion of this course students will be able to: install, configure, calibrate, and troubleshoot Rosemount Fieldbus devices which include the 3051C and 3051S Pressure transmitters, 644, 3144P and 848 Temperature transmitters, 8742 Magnetic Flow transmitter, 8800C Vortex Flow transmitter, 5600 and 5400 Radar Level Transmitter, 752 Indicator, and the 3420 Fieldbus Interface Module (FIM).	This 2-day course is designed for those individuals responsible for the installation, configuration, calibration, troubleshooting, and maintenance of the Rosemount Model 3051C Smart Pressure Transmitter, 3144P Smart Temperature Transmitter, and the 8700 Series Smart Magnetic Flow Transmitter. This course is a combination of courses: 2305, 2321, and 2340. This course uses lectures and labs to maximize the hands on experiences and teach the student how to install, configure, calibrate, troubleshoot, and maintain the Rosemount Model 3051C, 3144P, and 8700 Series Smart Transmitter.	This 1-day course uses lectures and labs to each the student how to retrofit, install and maintain the world's most popular transmitter, the Rosemount Model 1151. The students will also learn the operation and interface capabilities of the Rosemount Model 275 HART Communicator or 375 Field Communicator Smart Family Interface. Students who complete this course will be able to: • explain the differences between Smart and Analog transmitters • identify 1151S parts and explain their functionality • explain the principles of operation of the 1151S • upgrade an 1151 Analog to an 1151 Smart • characterize the 1151 Smart transmitter • configure and test Smart transmitters using the Rosemount Model 275 HART Communicator or 375 Field Communicator • properly install and troubleshoot the 1151 Smart transmitter
Prerequisites:	Experience in instrument calibration, maintenance/installation/operation would be helpful.		Knowledge of basic pressure fundamentals and analog pressure instrumentation.
Topics:	• FOUNDATION fieldbus Overview • Fieldbus: Wiring/Segment Design/Function Blocks • 375 Field Communicator Operation • Theory of Operation, Installation, Configuration, Maintenance, Calibration and Troubleshooting on the following: - 3051C Pressure Transmitter - 3051S Pressure Transmitter - 3144P, and 644 Temperature Transmitter - 848 Temperature Transmitter - 8742 Mag Flow Transmitter - 8800C Vortex Transmitter - 5600 and 5400 Radar Level Transmitter - 752 Fieldbus Indicator - 3420 Fieldbus Interface Module Note: Course may be conducted using other Fieldbus Hosts, such as DeltaV™ and National instruments, call with any questions.	Day 1 • 3051C Smart Pressure Transmitter, • 275 HART Communicator/375 Field Communicator Operation, Digital Trims/Calibration Day 2 • Topics Specific to the 3144P Smart • Temperature Transmitter • 8700 Series Smart Magnetic Flow Transmitter Note: Students must attend both days. Reference course, 2305, 2321 and 2340 for further details.	• Smart and Analog Transmitters • 1151S Overview and Principles of Operation • Retrofitting Analog 1151 Transmitters • Characterizing 1151 Smart Transmitter • Test Equipment Selection • Bench Testing the 1151 Smart Transmitter • Rosemount Model 275 HART Communicator or 375 Field Communicator Operation • Digital Trims/Calibration • Installation and Start-up • Troubleshooting and Maintenance

Updated dates & locations are available on our website at http://www.emersonprocess.com/education.

Course:	**3051 Smart Pressure Transmitter**	**3051 Smart Pressure Transmitter Using AMS Device Manager**	**3051 Fieldbus Pressure Transmitter**
Course Number:	2305	2306	2307
CEU's:	.7	.7	.7
Intro:	This course is designed for those individuals responsible for the installation and maintenance of the Rosemount Model 3051 Smart Pressure Transmitter.	This course is designed for those individuals responsible for the installation and maintenance of the Rosemount Model 3051 Smart Pressure Transmitter.	This course is designed for those individuals responsible for the installation and maintenance of the Rosemount Model 3051 Fieldbus Pressure Transmitter.
Overview:	This 1-day course uses lectures and labs to teach the student how to install and maintain the Rosemount Model 3051 Smart Pressure Transmitter. The student will also learn the operation and interface capabilities of the Rosemount Model 275 HART Communicator or 375 Field Communicator Communication Interface. Students will: • explain the differences between Smart & Analog transmitters • identify 3051 parts and functionality • explain the principles of operation of the 3051 • configure and test 3051 Smart Pressure Transmitters using the Rosemount Model 275 HART Communicator or 375 Field Communicator • properly install/ troubleshoot the 3051 Smart transmitter	This 1-day course uses lectures and labs to maximize to hands on experience and teach the student how to install and maintain the Rosemount Model 3051 Smart Pressure Transmitter. The student will also learn the operation of the AMS Device Manager. Students will: • explain the differences between Smart and Analog transmitters • identify 3051 parts and functionality • explain the principles of operation of the 3051 • configure and test 3051 Smart Pressure Transmitters using the AMS Device Manager • properly install and troubleshoot the 3051 Smart transmitter • calibrate the 3051 using AMS Device Manager	This 1-day course uses lectures and labs to maximize the hands on experiences and teach the student how to install and maintain the Rosemount Model 3051 Fieldbus Pressure Transmitter. The student will also learn the operation of the 375 Field Communicator. Students who complete this course will be able to: • identify 3051 parts and functionality • explain the principles of operation of the 3051 • design and build a Fieldbus segment • configure, test, and calibrate the 3051 Fieldbus Pressure Transmitters using the 375 Field Communicator • properly install and troubleshoot the 3051 Fieldbus Transmitter
Prerequisites:	Knowledge of basic pressure fundamentals and pressure instrumentation.	Knowledge of basic pressure fundamentals and pressure instrumentation.	Knowledge of basic pressure fundamentals and pressure instrumentation.
Topics:	• Smart and Analog Transmitters • 3051 Overview and Principles of Operation • Test Equipment Selection • Bench Testing the 3051 Smart Transmitter • Rosemount Model 275 HART Communicator or 375 Field Communicator Operation • Digital Trims/Calibration • Installation and Start-up • Troubleshooting and Maintenance	• Smart and Analog Transmitters • 3051 Overview and Principles of Operation • Test Equipment Selection • Bench Testing the 3051 Smart Transmitter • AMS Device Manager • Digital Trims/Calibration • AMS Device Manager Calibration Management • Intelligent Calibrators • Installation and Start-Up • Troubleshooting and Maintenance	• 3051 Overview and Principles of Operation • FOUNDATION fieldbus Overview • Fieldbus Wiring/Segment Design/Function Blocks • Test Equipment Selection • Bench Testing 3051 Fieldbus Transmitter • 375 Field Communicator Operation • Digital Trims/Calibration • Installation and Start-Up • Troubleshooting and Maintenance Note: Course may be conducted using other Fieldbus Hosts, call with any questions.

Updated dates & locations are available on our website at http://www.emersonprocess.com/education.

Course:	**3051S SMART Pressure Transmitter**	**3144P Temperature Transmitters**	**3144P Smart Temperature Transmitter Using AMS Device Manager**

Course Number:	2308	2321	2323
CEU's:	.7	.7	.7
Intro:	This course is designed for those individuals responsible for the installation, configuration, calibration, troubleshooting, and maintenance of the Rosemount Model 3051S Smart Pressure Transmitter.	This course is designed for those individuals responsible for the installation and maintenance of the Rosemount Model 3144P Smart Temperature Transmitters.	This course is designed for those individuals responsible for the installation, configuration, calibration and maintenance of the Rosemount Model 3144P Smart Temperature Transmitters.
Overview:	This 1-day course uses lectures and labs to maximize the hands on experiences and teach the student how to install, configure, calibrate, troubleshoot, and maintain the Rosemount Model 3051S Smart Pressure Transmitter. The student will also learn the operation and interface capabilities of the Rosemount Model 275 HART Communicator or 375 Field Communicator Communication Interface. Students who complete this course will be able to: • identify 3051S parts and functionality explain the principles of operation of the 3051S • configure and test the 3051S Smart Pressure Transmitters using the Rosemount Model 275 HART Communicator or 375 Field Communicator • properly install, configure, calibrate, and troubleshoot the 3051S Smart transmitter	This 1-day course uses lecture and labs to teach the student how to install and maintain the Rosemount Model 3144P Smart Temperature Transmitters. The student will also earn the operation and interface capabilities of the Communication. Students who complete this course will: • identify 3144P parts/explain functionality • explain the principles of operation of the 3144P • configure and test 3144P Smart Temperature Transmitters using the 375 Field Communicator • properly install and troubleshoot the 3144P Smart Transmitters	This 1-day course uses lecture and labs to maximize the hands on experience and teach the student how to install, configure, calibrate and maintain the Rosemount Model 3144P Smart Temperature Transmitters. The student will also learn the operation of AMS Device Manager. Students who complete this course will be able to: • identify 3144P parts and explain their functionality • explain the principles of operation of the 3144P • configure and test 144P/3144/3244 Smart Temperature Transmitters using AMS Device Manager • properly install and troubleshoot the 3144P Smart Transmitters
Prerequisites:	Knowledge of basic pressure fundamentals and pressure instrumentation.	Knowledge of basic temperature fundamentals and temperature instrumentation.	Knowledge of basic temperature fundamentals and temperature instrumentation.
Topics:	• 3051S Overview/Principles of Operation • 3051S Installation & Options • Test Equipment Selection • Configure & Bench Testing the 3051S Smart Transmitter • Configure and Test the 3051S Advanced Features: - Alarm & Saturation Levels, Alarm • Direction, Write Protection, - Process Alerts, Scaled Variable • Digital Trims/Calibration • Troubleshooting and Maintenance	• 3144P Overview and Principles of Operation • Test Equipment Selection • Sensor Selection and Wiring • Bench Testing the 3144P Smart Transmitters • 375 Field Communicator Operation • Digital Trims/Calibration • 3144P Dual Sensor Setup and Configuration • Installation and Start-Up • Troubleshooting and Maintenance	• 3144P Overview and Principles of Operation • Test Equipment Selection • Sensor Selection and Wiring • Bench Testing the 3144P Smart Transmitters • AMS Device Manager • Digital Trims/Calibration • Calibration Assistant SNAP-ON Application • Smart Calibrators • 3144P Dual Sensor Setup and Configuration • Installation and Start-Up • Troubleshooting and Maintenance

Updated dates & locations are available on our website at http://www.emersonprocess.com/education.

Course:	**3144P Fieldbus Temperature Transmitters**	**848 Fieldbus Temperature Transmitter**	**8700 Series Smart Magnetic Flowmeter**
Course Number:	2324	2328	2340
CEU's:	.7	.7	.7

Intro:	This course is designed for those individuals responsible for the installation and maintenance of the Rosemount Model 3144P Fieldbus Temperature Transmitters.	This 1-day course uses lectures and labs to maximize the hands on experiences and teach the student how to install, configure, troubleshoot, and maintain the Rosemount Model 848T Fieldbus Temperature Transmitters.	This course is designed for those individuals responsible for the installation, configuration, calibration, and maintenance of the Rosemount Smart Flowmeter System.
Overview:	This 1-day course uses lecture and labs to maximize the hands on experiences and teach the student how to install, configure, calibrate, troubleshoot, and maintain the Rosemount Model 3144P Fieldbus Temperature Transmitters. The student will also learn the operation of the 375 Field Communicator. Students who complete this course will be able to: • identify 3144P parts and explain their functionality • explain principles of operation of the 3144P • design and build a Fieldbus segment • configure, calibrate, and test 3144P Fieldbus Temperature transmitters using the 375 Field Communicator • properly install and troubleshoot the 3144P Fieldbus Transmitters	The student will also learn the operation of the 375 Field Communicator. Students who complete this course will be able to: • explain the principles of operation of the 848T • configure, calibrate, and test the 848T Fieldbus temperature transmitter using the 375 Field Communicator • design and build a Fieldbus segment • properly install and troubleshoot the 848T Fieldbus Transmitter	This 1-day course uses lectures and labs to teach the student how to install, configure, calibrate, and maintain the Rosemount Smart Flowmeter System composed of the Model 8712 Smart Flowmeter Transmitter and the 8705 Flanged or 8711 Wafer Flow tube. The students will also learn the operation and interface capabilities of the Local Operator Interface and the Rosemount Model 275 HART Communicator or 375 Field Communicator Communication Interface. Upon completion of course students will: • explain the differences and capabilities of the Rosemount Magnetic Flowmeters • identify transmitter parts/explain functionality • explain Faraday's Law and the principles of operation of Magnetic Flowmeter system • configure and test transmitters using the LOI and Rosemount Model 275 HART Communicator or 375 Field Communicator • properly install/troubleshoot the Rosemount Smart Magnetic Flowmeter system
Prerequisites:	Knowledge of basic temperature fundamentals and temperature instrumentation.	Knowledge of basic temperature fundamentals and temperature instrumentation.	Knowledge of basic flow fundamentals and instrumentation.
Topics:	• 3144P Overview and Principles of Operation • FOUNDATION fieldbus Overview • Fieldbus Wiring • Fieldbus Segment Design • Fieldbus Function Blocks • Test Equipment Selection • Sensor Selection and Wiring • Bench Testing 3144P Fieldbus Transmitters • 375 Field Communicator Operation • Digital Trims/Calibration • Installation and Start-Up • Troubleshooting and Maintenance Note: Course may be conducted using other Fieldbus Hosts, call with any questions.	• 848T Overview and Principles of Operation • FOUNDATION fieldbus Overview • Fieldbus Wiring • Fieldbus Segment Design • Fieldbus Function Blocks (including the MAI, and ISEL Blocks) • Test Equipment Selection • Sensor Selection and Wiring • Bench Testing the 848T Fieldbus Transmitters • 375 Field Communicator Operation • Digital Trims/Calibration • Installation and Start-Up • Troubleshooting and Maintenance Note: Course may be conducted using other Fieldbus Hosts, call with any questions.	• Magnetic Flowmeter System • Smart vs. Analog Transmitters • Flow Tube Selection • Configuring Using LOI and 275 HART Communicator or 375 Field Communicator • Local Operator Interface Functions • Positive Zero Return • Auxiliary Functions and Special Units • Signal Conditioning • System Troubleshooting and Maintenance • Bench Testing/Digital Trims

Updated dates & locations are available on our website at http://www.emersonprocess.com/education.

Course:	**8732 Series Smart Magnetic Flowmeter**	**8700 Series Smart Magnetic Flowmeter Using AMS Device Manager**	**8742 Fieldbus Magnetic Flowmeter System**
Course Number:	2344	2346	2347

CEU's:	.7	.7	.7
Intro:	This course is designed for those individuals responsible for the installation and maintenance of the Rosemount Smart Flowmeter System.	This course is designed for those individuals responsible for the installation and maintenance of the Rosemount Smart Flowmeter System.	This course is designed for those individuals responsible for the installation and maintenance of the Rosemount Fieldbus Flowmeter System.
Overview:	This 1-day course uses lecture and labs to teach the student how to install and maintain the Rosemount Smart Flowmeter System composed of the Model 8732 Smart Flowmeter Transmitter and the 8705 Flanged or 8711 Wafer Flow tube. The student will also learn the operation and interface capabilities of the Local Operator Interface and the Rosemount Model 275 HART Communicator or 375 Field Communicator Communication Interface. Students who complete this course will be able to: • explain the differences and capabilities of the Rosemount Magnetic Flowmeter • identify transmitter parts and explain their functionality • explain Faraday's Law and the principles of operation of Magnetic Flowmeter system • configure and test transmitters using the LOI and Rosemount Model 275 HART Communicator or 375 Field Communicator • properly install/troubleshoot the Rosemount Smart Magnetic Flowmeter system	This 1-day course uses lectures and labs to teach the student how to install and maintain the Rosemount Smart Flowmeter System composed of the Model 8712 Smart Flowmeter Transmitter and the 8705 Flanged or 8711 Wafer Flow tube. The students will also learn the operation and interface capabilities of the Local Operator Interface and the AMS Device Manager. Students who complete this course will be able to: • explain the differences and capabilities of the Rosemount Magnetic Flowmeters • identify transmitter parts and explain their functionality • explain Faraday's Law and the principles of operation of the Magnetic Flowmeter system • configure and test transmitters using the LOI and AMS Device Manager • properly install/troubleshoot the Rosemount Smart Magnetic Flowmeter system	This 1-day course uses lectures and labs to maximize the hands on experiences and teach the student how to install and maintain the Rosemount Fieldbus Flowmeter System composed of the Model 8742 Fieldbus Flowmeter Transmitter and the 8705 Flanged or 8711 Wafer Flow tube. The students will also learn the operation and interface capabilities of the 375 Field Communicator. Students who complete this course will be able to: • design and build a Fieldbus segment • identify transmitter parts and explain their functionality • explain Faraday's Law and principles of operation of Magnetic Flowmeter system • configure and test the 8742 transmitters using the 375 Field Communicator • properly install/troubleshoot the Rosemount Fieldbus Magnetic Flowmeter system
Prerequisites:	Knowledge of basic flow fundamentals and instrumentation.	Knowledge of basic flow fundamentals and instrumentation.	Knowledge of basic flow fundamentals and instrumentation.
Topics:	• Magnetic Flowmeter Systems • Smart vs. Analog Transmitters • Flow Tube Selection • LOI vs. 275 HART Communicator or 375 Field Communicator Functionality • LOI and the Quick Start • Signal Conditioning • Auxiliary Functions and Special Units • Troubleshooting/Maintenance/Bench Testing	• Magnetic Flowmeter System • Smart vs. Analog Transmitters • Flow Tube Selection • Configuring Using LOI and AMS Device Manager Software • Local Operator Interface Functions • Positive Zero Return • Auxiliary Functions and Special Units • Signal Conditioning • System Troubleshooting and Maintenance • Bench Testing/Digital Trims	• Magnetic Flowmeter System • Flow Tube Selection • FOUNDATION fieldbus overview • Fieldbus Wiring • Fieldbus Segment Design • Fieldbus Function Blocks • Configuring Using the 375 Field Communicator • Auxiliary Functions and Special Units • Bench Testing/Digital Trims • Signal Conditioning • System Troubleshooting and Maintenance Note: Course may be conducted using other Fieldbus Hosts, call with any questions.

Updated dates & locations are available on our website at http://www.emersonprocess.com/education.

Course:	**8800 Smart Vortex Flowmeter**	**8800 Smart Vortex Flowmeter Using AMS Device Manager**	**8800 FOUNDATION Fieldbus Vortex Flowmeter**
Course Number:	2341	2348	2349
CEU's:	.7	.7	.7

Intro:	This course is designed for those individuals responsible for the installation and maintenance of the Rosemount Model 8800 Smart Pressure Transmitter.	This course is designed for those individuals responsible for the installation and maintenance of the Rosemount Model 8800 Smart Pressure Transmitter.	This course is designed for those individuals responsible for the installation and maintenance of the Rosemount Model 8800 Smart Pressure Transmitter.
Overview:	This 1-day course uses lectures and labs to teach the student how to install and maintain the Rosemount Model 8800 Smart Vortex Flowmeter. The students will also learn the operation and interface capabilities of the 375 Field Communicator. Students who complete this course will: • explain the advantages and limitations of vortex flow metering • identify 8800 parts and functionality • explain the Von Karmon effect and the principles of vortex shedding • properly install and configure the Model 8800 Vortex • commission and troubleshoot the Rosemount Model 8800 • troubleshoot the Rosemount 8800	This 1-day course uses lectures and labs to teach the student how to install and maintain the Rosemount Model 8800 Smart Vortex Flowmeter. The students will also learn the operation and interface capabilities of the AMS Device Manager. Students who complete this course will: • explain the advantages and limitations of vortex flow metering • identify 8800 parts and functionality • explain the Von Karmon effect and the principles of vortex shedding • properly install, configure, commission, and troubleshoot the Model 8800 using AMS Device Manager	This 1-day course uses lectures and labs to maximize the hands on experiences and teach the student how to install, configure, troubleshoot, and maintain the Rosemount Model 8800C Fieldbus Vortex Flowmeter. The students will also learn the operation and interface capabilities of the 375 Field Communicator. Students who complete this course will be able to: • explain the advantages and limitations of vortex flow metering • identify 8800C parts and functionality • explain the Von Karmon effect and the principles of vortex shedding • properly install the Model 8800C • design and build a Fieldbus segment • configure and commission the Model 8800C using 375 Field Communicator • troubleshoot the Rosemount 8800C
Prerequisites:	Knowledge of basic flow fundamentals.	Knowledge of basic flow fundamentals.	Knowledge of basic flow fundamentals.
Topics:	• Vortex Flowmeter Applications • 8800 Vortex Flowmeter Overview • Von Karmon Effect and Principles of Vortex Shedding • Proper Installation • Test Equipment Selection • 375 Field Communicator Operation • Start-Up and Commissioning • Configuring the 8800 using the 375 Field Communicator • Troubleshooting and Maintenance • Digital Trims/Calibration/Verification • Digital Signal Processing	• Vortex Flowmeter Applications • 8800 Vortex Flowmeter Overview • Von Karmon Effect and Principles of Vortex Shedding • Proper Installation • Test Equipment Selection • AMS Device Manager Start-Up and Commissioning • Configuring the 8800 Using AMS Software • Troubleshooting and Maintenance • Digital Trims/ Calibration/Verification • Digital Signal Processing	• Vortex Flowmeter Applications • 8800C Vortex Flowmeter Overview • Von Karmon Effect and Principles of Vortex Shedding • Proper Installation • FOUNDATION fieldbus Overview • Fieldbus Wiring • Fieldbus Segment Design • Fieldbus Function Blocks • Start-Up and Commissioning • Configuring 8800C Using: 375 Field Communicator • Troubleshooting and Maintenance • Calibration, Verification, Simulation • Digital Signal Processing Note: Course may be conducted using other Fieldbus Hosts, call with any questions

Updated dates & locations are available on our website at http://www.emersonprocess.com/education.

Course:	**3095FT Flow Transmitter**	**3095MV Multi-Variable Transmitters**	**Model 3095FB Modbus Multi-Variable Transmitter**
Course Number:	2342	2343	2345
CEU's:	.7	.7	.7

Intro:	This course is designed for those individuals responsible for the installation and maintenance of the Rosemount Smart Flowmeter System.	This course is designed for those individuals responsible for the installation and maintenance of the Rosemount 3095 MV Transmitter.	This course is designed for those individuals responsible for the installation, configuration, calibration, and maintenance of the Rosemount Model 3095 Modbus Transmitters.
Overview:	This 1-day course uses lectures and labs to teach the student how to install and maintain the Rosemount Model 3095FT Flow Transmitter. The student will also learn the operation and interface capabilities of the Rosemount Model 3095FT User Interface Software. Students who complete this will: • explain EFM devices • identify 3095FT parts/explain functionality • explain the principles of operation of the multivariable sensor module • properly install the Model 3095FT Smart Flow Transmitter • configure and calibrate the Model 3095FT with the 3095FT User Interface Software • identify transmitter flow calculation methods and identify audit trail data logs • troubleshoot and maintain the Rosemount 3095FT Flow Transmitter	This 1-day course uses lecture and labs to teach the student how to install and maintain the Rosemount Model 3095MV Smart Transmitters. The student will also learn the operation and interface capabilities of the 375 Field Communicator. Students who complete this course will: • identify transmitter parts and explain their functionality • explain the principles of operation of the transmitter • configure and test using the 375 Field Communicator SNAP-ON application • configure the compensated flow parameters using AMS Device Manager with the 3095MV Engineering Assistant SNAP-ON application • properly install/troubleshoot transmitters	This 1-day course uses lecture and labs to teach the student how to install, configure, calibrate, and maintain the Rosemount Model 3095 Modbus Transmitters. The student will also learn the operation and interface capabilities of the Rosemount Configurator User Interface Software. Students who complete this course will be able to: • explain the principles of operation of the transmitter • configure and test using the Rosemount Configurator User Interface software • properly install, calibrate and troubleshoot the transmitters • properly configure the transmitters Modbus parameters
Prerequisites:	Basic computer skills and knowledge of flow fundamentals.	Knowledge of basic pressure and temperature fundamentals /instrumentation.	Knowledge of basic pressure, temperature, and flow instrumentation. Basic Modbus knowledge helpful.
Topics:	• Electronic Flow Measurement Applications • 3095FT Flow Transmitter Overview • Multivariable Sensor Module and Electronics Module • Flow Calculation and Data Logging • Test Equipment Selection • Configuring and Calibrating with the 3095FT User Interface Software • Remote Power Supply • Installation of 3095FT Flow Transmitters • Troubleshooting and Maintenance	• DP Flow Fundamentals • Overview and Principles of Operation • Test Equipment Selection • Sensor Selection and Wiring • Bench Testing the Smart Transmitters • AMS Device Manager with the 3095MV Engineering Assistant SNAP-ON application • Operation of the 375 Field Communicator and AMS Device Manager • Digital Trims/Calibration • Installation and Start-Up • Troubleshooting and Maintenance • Configure/Wire/Setup the HART Tri-Loop	• Overview and Principles of Operation • Flow Fundamentals • Bench Testing the Modbus Transmitter • Rosemount Configurator User Interface • Operation • Sensor Trims • Installation and Start-Up • Troubleshooting and Maintenance • Modbus Communication, Configuration, and Integration

Updated dates & locations are available on our website at http://www.emersonprocess.com/education.

Course:	**Rosemount Hydrostatic Tank Gauging System**	**3300 Guided Wave Radar Level Transmitter**	**5600 Series Fieldbus Radar Level Transmitter**
Course Number:	2330	2332	2334F
CEU's:	.7	.7	.7

Intro:	This course is designed for instrument technicians and others responsible for maintenance of the Rosemount Hydrostatic Tank Gauging (HTG) system.	This course is for those individuals responsible for the installation/ maintenance of the Rosemount Model 3301/3302 Guided Wave Radar (GWR) Level & Interface Transmitters.	This course is designed for those individuals responsible for the installation, configuration, calibration and maintenance of the Rosemount Model 5600 Series Fieldbus Radar Level Transmitter.
Overview:	This 1-day course uses lectures and labs to teach the student how to install, maintain, and troubleshoot the Rosemount HTG system hardware composed of the 3201 Hydrostatic Interface Unit, 3001C Smart Pressure Transmitter, 3402 Application Interface Module, and RTD. The student will also learn the operation and interface capabilities of the Rosemount Model 275 HART Communicator Smart Family Interface and PCWIN software. Students who complete this course will be able to: • explain the advantages/limitations of HTG • explain what HTG is and how the measurements are made • identify HTG components and explain their functionality • configure Rosemount HTG systems • perform routine system maintenance • properly install and troubleshoot Rosemount HTG systems	This 1-day course uses lecture and labs to maximize the hands on experience and teach the student how to install, configure, calibrate, troubleshoot and maintain the Rosemount Model 3301/3302 GWR Level & Interface Transmitters. Students who complete this course will be able to: • explain the principles of operation of the 3301/3302 GWR • identify 3301/3302 parts and explain their functionality • understand the available probe options and when each should be used • properly install the 3301/3302 GWR • configure and test the 3301/3302 GWR • properly troubleshoot the 3301/3302 GWR transmitter using RCT software	This 1-day course uses lecture and labs to maximize the hands on experience and teach the student how to install, configure, troubleshoot and maintain the Rosemount Model 5600 Series Fieldbus Radar Level Transmitters. Students who complete this course will be able to: • explain the principles of operation of the 5600 Radar • identify 5600 Radar parts and explain their functionality • design and build a Fieldbus segment • properly install and wire the 5600 Radar • configure and test the 5600 Radar • understand how to setup the 5600 Radar to work in different applications • properly troubleshoot the 5600 Radar Transmitter using Radar Master software
Prerequisites:	Basic computer skills and knowledge of tank measurement fundamentals.	Knowledge of basic level and interface fundamentals and instrumentation.	Knowledge of basic level fundamentals and instrumentation.
Topics:	• Fundamentals of HTG • HTG Hardware Configurations • HTG Software Configurations • Proper Installation of HTG Components • Power Distribution • System Start-Up • Rosemount Model 275 HART Communicator Operation • Communications Configurations • Using the PCCWIN Software • Troubleshooting and Maintenance	• 3301/3302 Overview/Principles of Operation • Installation of the 3300 GWR • Configuration of the 3300 GWR • Bench Testing the 3300 GWR • 375 Field Communicator Operation • AMS Device Manager Operation • RCT Software Operation • Calibration, Verification and Adjustments • Troubleshooting and Maintenance • Troubleshooting and Reading Tank Graphs Using RCT Software Note: Student/customer needs to notify instructor if the class should be performed using the 275 HART Communicator/375 Field Communicator or using laptops with AMS Device Manager and/or RCT software.	• 5600 Overview and Principles of Operation • Installation of the 5600 Radar • Fieldbus Overview • Fieldbus Wiring & Segment Design • Fieldbus Function Blocks • Wire, Configure, and Test the 5600 Radar • 2210 LOI / Display Operation • 375 Field Communicator Operation • Radar Master Software Operation • Troubleshooting and Maintenance • Tank & Application Troubleshooting and Echo Handling using Radar Master Software Note: 5600 Fieldbus Radar Level transmitter is also included in the 4.5-day Fieldbus course #2370

Updated dates & locations are available on our website at http://www.emersonprocess.com/education.

Course:	**5600 Series HART Radar Level Transmitter**	**5400 Series HART Radar Level Transmitter**	**Wireless Self Organizing Network**
Course Number:	2334H	2336H	2375 **NEW**
CEU's:	.7	.7	1.4

Intro:	This course is designed for those individuals responsible for the installation, configuration, calibration and maintenance of the Rosemount Model 5600 Series HART Radar Level Transmitter.	This course is designed for those individuals responsible for the installation, configuration, calibration and maintenance of the Rosemount Model 5400 Series HART Radar Level Transmitter.	This course is intended for technicians, engineers and other plant personnel who need to know how to design, install, setup, configure, maintain and troubleshoot Wireless Self Organizing Networks and their components.
Overview:	This 1-day course uses lecture and labs to maximize the hands on experience and teach the student how to install, configure, troubleshoot and maintain the Rosemount Model 5600 Series HART Radar Level Transmitters. Students who complete this course will be able to: • explain the principles of operation of the 5600 Radar • identify 5600 Radar parts and explain their functionality • properly install and wire the 5600 Radar • configure and test the 5600 Radar • understand how to setup the 5600 Radar to work in different applications • properly troubleshoot the 5600 Radar Transmitter using Radar Master software	This 1-day course uses lecture and labs to maximize the hands on experience and teach the student how to install, configure, troubleshoot and maintain the Rosemount Model 5400 Series HART Radar Level Transmitters. Students who complete this course will be able to: • explain the principles of operation of the 5400 Radar • identify 5400 Radar parts and explain their functionality • properly install and wire the 5400 Radar • configure and test the 5400 Radar • understand how to setup the 5400 Radar to work in different applications • properly troubleshoot the 5400 Radar Transmitter and the Installation using Radar Master software	This 2 day course explains how Self Organizing Wireless Networks function and how they are installed, setup, configured and integrated. It emphasizes planning, proper installation and startup, configuration, maintenance, and integration. The course uses lectures and labs to maximize the hands on experience and teach the students. • correctly install and setup the Smart Wireless Gateway • properly install and configure Wireless Transmitters • properly integrate Host interfaces to the Wireless Gateway
Prerequisites:	Knowledge of basic level fundamentals and instrumentation.	Knowledge of basic level fundamentals and instrumentation.	Some experience in Networks and Host integration would be helpful.
Topics:	• 5600 Overview and Principles of Operation • Installation of the 5600 Radar • Wiring the 5600 Radar • Configuration of the 5600 Radar • Bench Testing the 5600 Radar • 2210 LOI / Display Operation • 275 HART Communicator/375 Field Communicator Communicator Operation • AMS Device Manager • Radar Master Software Operation • Troubleshooting and Maintenance • Tank & Application Troubleshooting and Echo Handling using Radar Master software Note: 5600 Hart Radar Level transmitter is also included in the 3-day Level course #2333.	• 5400 Overview and Principles of Operation • Installation of the 5400 Radar • Wiring the 5400 Radar • Configuration of the 5400 Radar • Bench Testing the 5400 Radar • 375 Field Communicator Operation • AMS Device Manager Operation • Radar Master Software Operation • Troubleshooting and Maintenance • Tank & Application Troubleshooting and Echo Handling using Radar Master Software Note: 5400 HART Radar Level transmitter is also included in the 3-day Level course # 2333	• How Self Organizing Networks Function • Self Organizing Networks Best Practices • Network Components • Smart Wireless Gateway Installation and Setup • Network Parameters • 648 and 3051S Wireless Transmitters • Installation, Configuration, Maintenance and Calibration • Using AMS Device Manager with the Smart Wireless Gateway • Configuring Wireless Devices with AMS Device Manager • Modbus Serial Integration • Modbus TCP Integration • OPC Integration • Smart Wireless Gateway Advanced Features

Updated dates & locations are available on our website at http://www.emersonprocess.com/education.

Course:	**AMS Device Manager**	**AMS Device Manager with Rosemount HART Instruments**
Course Number:	7020	7021
CEU's:		3.2

Intro:	This instructor assisted course is operated in a hands-on, self-paced environment, which allows the student to work at their individual pace. AMS Device Manager modules may be purchased for self-study. Training can also be delivered at your plant with the help of our certified instructors.	Learn the installation, calibration, maintenance, and troubleshooting of measurement instrumentation using AMS Device Manager. The hands-on focus is on skills required by engineers, technicians, or others that are new to the plant or instrument environment.
Overview:	Completing 3-days of AMS Device Manager hands-on instructor assisted training modules and exercises, provides the quickest route to your productive use of this predictive maintenance application. The training exercises focus on skills required by engineers and technicians, and are based on real-world tasks that most users will encounter on the job.	This 4-1/2 day course teaches maintenance and calibration of measurement devices using AMS Device Manager software to communicate and track information. The student will learn how pressure and temperature transmitters function, are installed, and calibrated using AMS Device Manager. The course uses hands on training, labs, and lecture to teach the student how to: • configure and use AMS Device Manager • correctly perform transmitter installation and setup procedures • properly configure SMART transmitters • properly calibrate transmitters • perform basic troubleshooting-transmitters
Topics:	**7020-1 Configuring and Using AMS Device Manager** • Viewing and Modifying Devices • Creating a Plant Database Hierarchy and Adding Devices • Using the 375 Field Communicator with AMS Device Manager • Using the AMS Device Manager Browser Functions • Audit Trail • Calibrating Device - Calibration Assistant • Configuring and Monitoring System Alerts **7020-2 System Administration** • AMS Device Manager System Overview • Installing an AMS Device Manager Server Plus Standalone • Starting AMS Device Manager for the First Time • Network Communication Interface Setup • AMS Device Manager Database Management • Installing a Distributed System • Installing Device Types from Media **7020-3 SNAP-ON Applications** • AMS ValveLink® SNAP-ON Application - Basics • MV Engineering Assistant SNAP-ON Application - Basics • Root Cause Diagnostic SNAP-ON Application • QuickCheck SNAP-ON Application • Using AMS Device Manager OPC Server and the Matrikon OPC Explorer • AMS Device Manager Web Client • AMS Device Manager Web Services • AMS Suite: Asset Portal™	• Configuring and Using AMS Device Manager • Basic 4-20 mA Loop Setup • Pressure Sensors • Temperature Sensors (TC, RTD) • HART Communication • SMART Transmitters (3051, 3144/3244, 3095MV Basics During 7020-1) • Test Equipment Selection • Transmitter Installation • Transmitter Configuration • Transmitter Calibration • Transmitter Troubleshooting

Updated dates & locations are available on our website at http://www.emersonprocess.com/education.

Course:	**Micro Motion Comprehensive Product Training**	**Micro Motion Comprehensive Digital Protocol**	**Micro Motion Sensors and RFT9739 Transmitter**
Course Number:	2352	2381	2351
CEU's:	2.1	.7	.7

Intro:	This course is intended for technicians, engineers and other plant personnel who need to know installation, calibration, maintenance and troubleshooting of measurement instrumentation.	This course is intended for technicians, engineers and other plant personnel who need to know installation, calibration, maintenance and troubleshooting of measurement instrumentation and digital protocols.	This course is intended for technicians, engineers and other plant personnel who need to know installation, calibration, maintenance and troubleshooting of Micro Motion sensors with the RFT9739 transmitter.
Overview:	This 3-day class covers the installation, configuration, and calibration of the Micro Motion metering system. Students will learn the Series 1000/2000 transmitters using ProLink II, FC375, and the Series 3000 interface devices. Students will perform a master reset, use ProLink II to configure the Series 1000/2000, perform a flow calibration, and solve troubleshooting problems. On the third day, based on student need, we will cover one or all of the following topics: RFT9739 transmitter, T-Series, H-Series, Series 3000 platform.	• This 1-day course builds on the information of the Comprehensive Product Training Course. It covers the installation, configuration and calibration of the Micro Motion metering system using digital protocols. The student will learn to use and troubleshoot the Series 2000 and Series 3000 digital transmitters using Modbus.	This 1-day course covers the installation, configuration and calibration of the Micro Motion ELITE, F-Series, and D sensors, RFT9739 transmitter and peripherals. Students who complete this course will be able to: • correctly install, configure and calibrate the flowmetering system • perform troubleshooting and diagnostic procedures
Prerequisites:	None	Course 2352, Micro Motion Comprehensive Product Training.	Knowledge of basic flow fundamentals.
Topics:	• Principles of Operation • Installation Recommendations • Transmitter Configuration • Sensor Calibration • Extensive Troubleshooting • Flowloop Demonstrations • Plant Tour Expert II Performance support software is available for Micro Motion products. Ask your instructor for details.	• Series 2000 and 3000 Digital Transmitters • Installation Recommendations • MODBUS Only Flowloop Simulations Using DeltaV™ and other PLCs • Extensive Troubleshooting	• Principles of Operation • Installation Recommendations • Transmitter Configuration • Sensor Calibration • Troubleshooting

Updated dates & locations are available on our website at http://www.emersonprocess.com/education.

Course:	**Micro Motion Sensors and Series 1000/2000**	**Advanced Micro Motion Sensors and the RFT9739 Transmitter**
Course Number:	2358	2357

CEU's:	.7	.7
Intro:	This course is intended for technicians, engineers and other plant personnel who need to know installation, calibration, maintenance and troubleshooting of Micro Motion Sensors and Series 1000/2000.	This course is intended for technicians, engineers and other plant personnel who need to build on knowledge of Micro Motion sensors and the RFT9739 transmitter.
Overview:	This 1-day course covers the installation, configuration, and calibration of Micro Motion sensors with the Series 1000/2000 transmitters and peripherals. This course includes hands-on exercises..	• This 1-day course builds on the basic RFT9739 knowledge. It provides additional hands-on training and experience in a classroom environment.
Prerequisites:	None	Course 2352 or 2351 (1-day RFT9739 course) or equivalent.
Topics:	• Principles of Operation • Installation Recommendations • Transmitter Configuration • Sensor Calibration • Troubleshooting	• Application Issues and Tools • Transmitter interfaces (HC275 or ProLink II) with optional Hart/Modbus Multidropping • Flow Damping, Flow Cutoff and Density Limits • Zeroing Issues

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