

Rosemount Temperature Transmitters Prove Best Practice on Project in India



RESULTS

- Termination points reduced from 1,550 to approximately 150
- Wiring costs and commissioning time reduced by nearly 60%
- High integrity temperature measurement of critical sensing points



APPLICATION

Reactor Temperature Measurement

CUSTOMER

Atul LTD, Gujarat, India

CHALLENGE

Project engineers working on the Pharma Intermediate Project at the Atul Limited chemical complex were investigating solutions for their temperature measurement. They estimated that by using traditional sensor wire direct methods, the temperature points on the project would need approximately 1,550 terminations and commissioning would take about 30 days.

Simple head mounted transmitters presented similar problems and multiplexers could not provide the integrity demanded of the 185 sensing points, especially the 45 that were critical.

The critical points where the process calls for very accurate and reliable measurement of the temperatures with a minimum of interruptions were inside the reactor. These points also needed local indication.

The project attracted bids from several suppliers of instrumentation and control equipment. Emerson Process Management offered a DeltaV™ system with field instruments but the Atul Project Engineering Team felt that the overall price was too high and that the critical nature of the measurements, especially those in the reactor, were not adequately addressed.

“We are very satisfied with the 3244 and 848T Temperature Transmitters. They have been working fine and trouble-free since commissioning and start-up.”

Ketan Shah
Sr. Operation and Maintenance Manager

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SOLUTION

Emerson Process Management engineers, however, recognized the potential savings and integrity that FOUNDATION™ fieldbus could offer to the project. Engineers from the Measurement and Control divisions worked together. Drawing on the experience gained on many FOUNDATION™ fieldbus systems operating around the world, they developed a cost savings analysis comparing FOUNDATION™ fieldbus technology with traditional technology and presented it to the Atul Project Engineering Team.

Rosemount 848T Multipoint Temperature Transmitters and Rosemount 3244 MultiVariable (MV) Temperature Transmitters, using a FOUNDATION™ fieldbus communication link to the DeltaV™ control system, provided the high integrity and low installation, commissioning, and operation costs the Atul engineers were looking for.

The Atul project team factored the savings into the overall project cost. The overall costs were then far lower than the alternatives offered. Appreciating that the system offered reliability and technical advantages as well as savings, the Atul engineers accepted the proposal. They purchased 16 Rosemount 848T and 32 Rosemount 3244 Temperature Transmitters.

Installation and Commissioning

The 848T Temperature Transmitter accepts eight sensor inputs, and outputs the values onto FOUNDATION™ fieldbus using a single cable. The multi-drop capability of FOUNDATION™ fieldbus cuts wiring costs even further.

Ambient temperature limits and R.F.I immunity compliance of the field-hardened 848T allows it to be mounted close to the process point under the most demanding operating conditions. As a result, the length of sensor cables run to each point is kept to a minimum, reducing installation costs by as much as 70% per point. In this case, 1,550 terminations were also reduced to approximately 150.

Using the two-way communication capability of FOUNDATION™ fieldbus, devices can be checked and configured from a convenient remote location. This feature reduces commissioning time dramatically. As a result, the customer completed commissioning in just seven days, less than a third of the estimated time.

Critical Sensing Points

The sensing points in the reactor, which required high integrity, were fitted with Rosemount 3244MV Temperature Transmitters, which also have a FOUNDATION™ fieldbus output.

The Rosemount 3244MV transmitter can warn operators and maintenance staff of sensor drift or failure by comparing inputs from two independent sensors. It also offers Hot Backup which automatically switches to the



A Rosemount 3244 MV and 848T installed in the field.

backup sensor if the primary sensor fails. This feature reduces the risk of losing important temperature measurements by up to 80%.

With savings on cabling and two-way communication to the field devices, project engineers estimate a reduction of nearly 60% in cabling costs and commissioning time without compromising the integrity of the measurements. The FOUNDATION™ Fieldbus system not only fulfilled its promises of lower installation and commissioning costs, but also provides the customer with a state-of-the-art instrumentation and control package that is simple to maintain, operate, and develop.

NOTE: The Rosemount 3244MV Temperature Transmitter has been phased out and replaced by the Rosemount 3144P Temperature Transmitter.

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