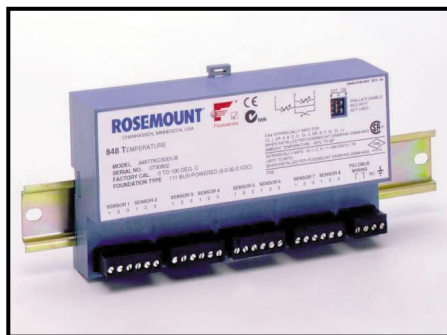


## Temperature Transmitter Rocks With Bus

As the practical benefits of fieldbus architectures become clear, the question has evolved from “Why fieldbus?” to “Which fieldbus?” with the answer increasingly driven by the availability of compatible components. Vendors are designing many new products starting with a blank CAD file to take full advantage fieldbus technology.

One of the latest is Chanhasseen, Minn.-based Rosemount Inc.'s 848T multi-input temperature transmitter. “The 848T introduces customers to the next-generation architecture for temperature multiplexing by unleashing the benefits of Foundation fieldbus for temperature measurement,” says Gerry Mimick, senior marketing engineer, Rosemount Inc. “Through the 848T and Foundation fieldbus, the financial dynamics of temperature measurement will be forever changed for the customer's benefit.”

In conventional control systems, temperature is most often measured with wire-direct architecture, where the RTD or thermocouple is wired to a junction box, then to the DCS input cards via a home-run, multi-pair cable. If the application was intrinsically safe, each temperature measurement would require a separate IS barrier. “This method for measuring temperature was tremendously expensive,” says Mimick.



applications require only one barrier for all the temperature points on a segment. “The reduction in cost for the customer is incredible,” Mimick says.

The transmitter can be used as a replacement for temperature multiplexer (MUX) systems. “MUX solutions have always been complex and difficult to maintain,” says Mimick, “and now, some of these MUX solutions are being obsoleted by manufacturers.” Even a non-fieldbus DCS can benefit, he says: “A temperature monitoring system can be created for any DCS that speaks OPC and leverage the benefits of the 848T architecture for measuring existing or new temperature points. Almost any type of temperature-monitoring application with multiple temperature measurements will be lower cost with the 848T architecture.”

As a Foundation fieldbus device, the transmitter offers easy commissioning and simplified operation and maintenance through diagnostics. And like most fieldbus devices, the cost can be quickly repaid by reductions in wiring. “The longer the wire runs for wire-direct measurement, the more the savings from using the 848T,” Mimick says. The table shows typical examples for three industries.

“Most of the cost of measuring temperature is in the cabling,” Mimick says. Foundation fieldbus and the 848T temperature transmitter move the electronics for temperature monitoring out into the field. As a result, the cabling costs have been substantially reduced. “This architecture for measuring temperature is already on its way to making wire-direct obsolete,” Mimick adds.

The many temperature-monitoring applications that can benefit from the 848T architecture include pipe stacks, heat exchangers, boilers, compressor profiles, mixers, turbine profiles, dryers, vessel profiles, furnaces, reactor profiles, refrigeration, fermenting, extruders, and distillation columns.

Along with delivering the capabilities and cost savings of fieldbus, the transmitter is designed to help users reduce the amount of parts in inventory by using the same device in all locations and all applications. “It can be mounted in all industrial environments, from hazardous locations to safe areas and from equipment rooms to the field, and to scale up from low to high-density applications in a cost-effective way,” says Mimick. “It can support virtually all temperature applications.”

### COST PER TEMPERATURE MEASUREMENT POINT

Industry	Median wire run	Installed cost per point		Savings
		T/Cs wired direct	848T	
Refining	700 ft.	\$1,084	\$383	65%
Chemical	500 ft.	\$841	\$374	55%
Power	200 ft.	\$475	\$362	24%

An 848T module can accept up to eight inputs in any combination of thermocouples and RTDs. It has 500 VAC isolation between sensor pairs so sensors at different potentials can be fed into the same transmitter with no chance of coupling. The 848T connects to an H1 segment, which can handle as many as 16 modules. The modules can be mounted in the field and connected back to the control system using a single twisted pair of wires. Intrinsically safe

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