

# The Rosemount 3420, Application Examples. Distillation/Fractionation Columns & Reactors

### Products

Rosemount 3420 FIM

Any Emerson Foundation Fieldbus Transmitters including:- Pressure, Temperature, DP Level, Radar Level, DP Flow, Magnetic Flow, Vortex, Micromotion etc.

### Application

Utilizing the embedded functionality of Various Skid Mounted Applications or any remote area of plant with a need to monitor a high density of signals in a localized plant area.

### Details

The 3420 allows up to 16 Emerson Foundation Fieldbus Transmitters to be connected to each of its 4 segments. For single PV transmitters this gives up to 64 PV's per 3420 unit.

Using the 3420 in conjunction with the 8 channel 848T Temperature Transmitter this would allow over 400 Process Variables and their associated Status Alarms to be communicated to any Process Automation System using Modbus RTU

### Distillation & Fractionation Column Temperature Profiling

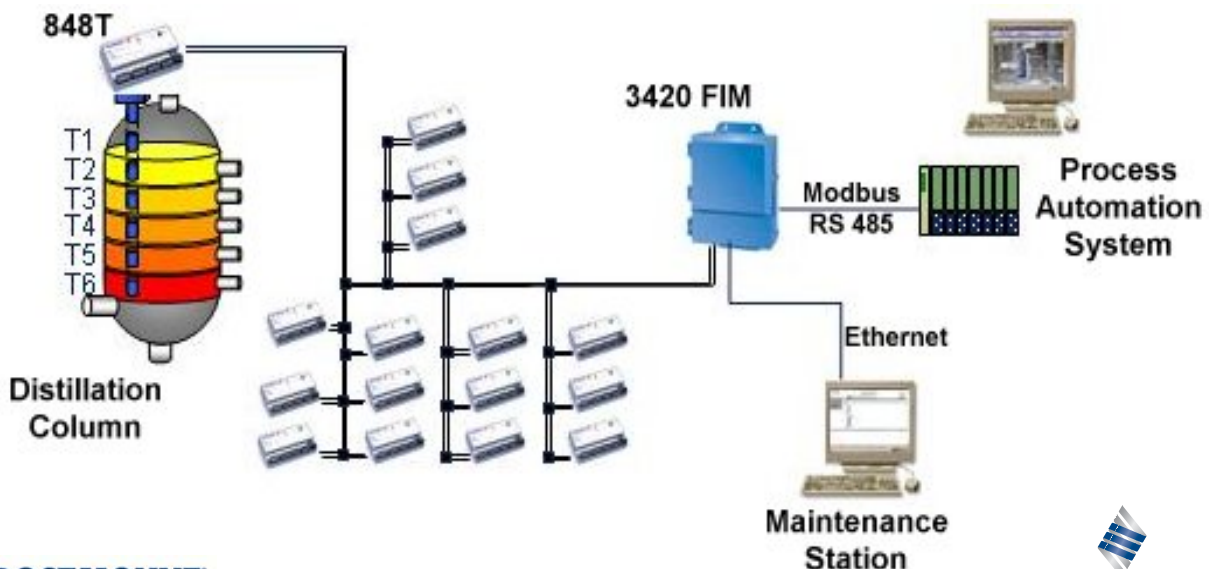
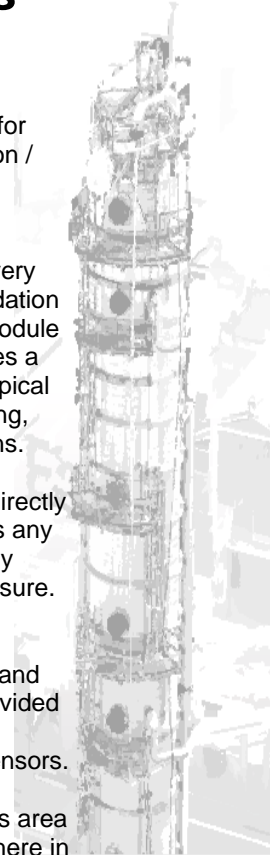
The 3420 and the 848T is the ideal solution for monitoring Temperature profiling in Distillation / Fractionation Columns or other multi-point Temperature profiling applications.

The 3420 can be located in a Zone 2 area, very near to the process area and up to 64 Foundation Fieldbus devices can be connected to the Module via its 4 H1 segments. The 3420 FIM includes a built in Web Server which can be used for typical maintenance activities such as commissioning, process scaling or device diagnostic functions.

The 848T can be mounted in an enclosure directly attached to the multi-point sensor and allows any number of profiling points to be catered for by simply installing more 848T in a single enclosure.

The 848T is a Foundation Fieldbus device providing a number of internal configuration and diagnostic features. 3 standard features provided by the Input selector block are Averaging, Maximum and Minimum of the connected sensors.

The 848T is available with various hazardous area certifications to allow it to be mounted anywhere in your plant.



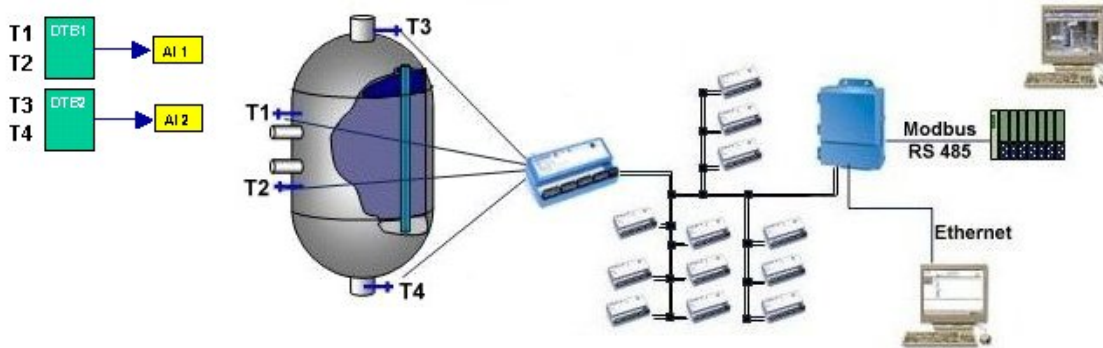
## Application Note

3420\_4\_02\_AA  
May 2004

# Rosemount 3420 FIM

### Reactor Temperature Monitoring

The 3420 and the 848T is also ideally partnered together for spot temperature and differential Temperature monitoring in Reactors. The diagram below shows a typical Reactor with 2 pairs of inputs configured. The first pair to monitor the differential temperature across the inlet and outlet, the second pair has been configured to monitor the differential temperature at 2 mid points within the tank. The calculation is carried out using the embedded Differential Function Block within the 848T, allowing the 848T to output directly a differential Temperature measurement.

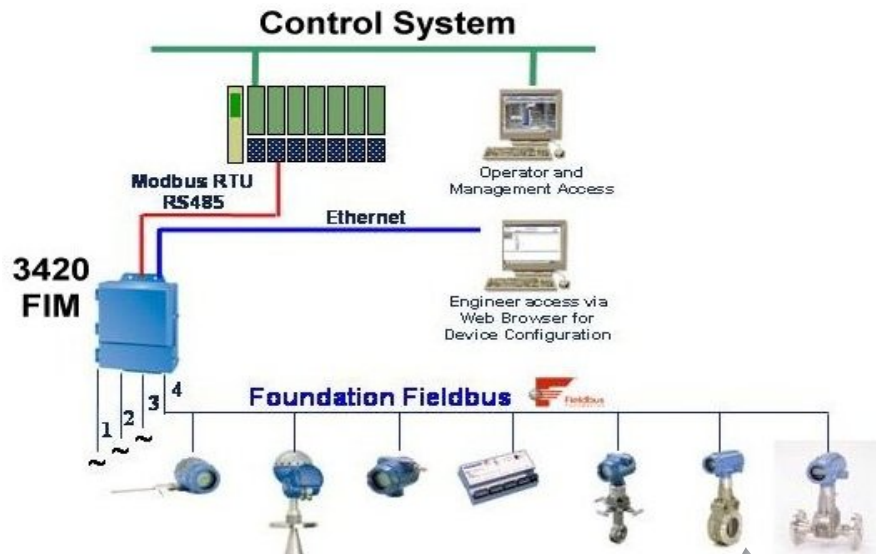


### 3420 FIM Architecture Overview

The 3420 allows up to 64 devices to be connected via 4 Foundation Fieldbus segments (Shielded twisted pairs) these 4 segment cables are then brought back to the single junction box built into the 3420 FIM housing. The 3420 FIM provides DC power to the 4 Foundation Fieldbus segments, this provide instrument power to all connected devices and allow the device PV's and Status information to be communicated back to the 3420 FIM.

The 3420 internal WebServer is accessed using any PC either connected directly to the 3420 or Via a site LAN allowing global access to the information as required. All the connected devices can have their Process Variable and Status condition mapped to Modbus RTU registers within the 3420 itself. The registers can then be read by any Process Automation System that has a Modbus RTU serial Interface. Up to 31 x 3420 FIM's can be connected together on a single Modbus RTU, Multi-drop RS485 serial Network, allowing up to 1984 devices to be connected

together on the Modbus Network.



**ROSEMOUNT**

www.rosemount.com

**EMERSON**  
Process Management