

# Gas monitoring with HART Protocol



## Oil and Gas Case Study 202-4

### Application

Petrochemical plants install mass flow meters with HART protocol to monitor their many processes. Air, hydrogen, nitrogen, vent gas, off-gas and natural gas are just a few of the process gases that require flow measurement.



HART protocol is widely accepted as the global standard for smart process instrumentation and is a powerful communication technology that preserves the flow meter's 4-20mA signal while exploiting the full potential of the instrument's diagnostic capabilities.

### Challenge

Regulations require that the flow values of gases vented to atmosphere must be continuously measured, monitored and verified to ensure proper readings. A rigorous maintenance schedule is also required to validate the flow

values generated by the instrument. Since the flow meters are often located in remote or inaccessible areas, maintenance personnel must erect scaffolding, obtain safety and work permits, and travel to un-manned platforms. These problems represent only a few of the logistic and manpower costs associated with regulatory compliances.

### Project parameters

User	Chemical plant
Location	Louisiana, USA
Media	Off gas
Line Size	2 inch Sch. 40
Flow Range	40 to 400 SCFH [1.13 to 11.3 NCMH]
Pressure Range	50 psig [3.5 bar(g)]
Temperature Range	100°F [38°C]

### Solution

FCI's ST98 FlexMASter® thermal mass flow meters provide direct mass flow measurement and the HART communications option preserves the 4-20 mA signal enabling two-way

digital communication without affecting signal reliability. HART protocol provides real time monitoring and control, and access to diagnostics and maintenance capabilities 24 hours a day 7 days a week. Process variables and units, current outputs, percent range, device status and diagnostic alerts are just a few of the easy-to-access and easy-to-use ST98 FlexMASter parameters. HART protocol can significantly improve plant information management and yield annual maintenance/operations savings.

### FCI flow meter specifications

Model	ST98 FlexMASter®
Media	Off gases
Flow Range	1 to 100 SFPS [0.03 to 30 NMPS]
Pressure Range	0 to 250 psig [0 to 17 bar(g)]
Temperature Range	-40° to +500°F [-40° to +260°C]

### Your local FCI representative:



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FCI is ISO 9001 certified/conformance to AS9000