

Honeywell Smart Multivariable Transmitter/ Multivariable Analog Interface for Fuel Flow Measurement

Flow Measurement in the Oil and Gas Industry

Problem: A major gas plant was using a Moore 4-20 ma indicator/integrator to obtain totals for fuel flows. Total flow tabulation was labor intensive.

A customer was using a Moore indicator/integrator to obtain total flows from a Smart Multivariable Transmitter (SMV3000) measuring a fuel flow. The Moore indicator could integrate the SMV flow signal in the analog mode and totalize the flow over time. Unfortunately, the flow had to be totalized manually at the end of each day, week, and month. A method was needed to eliminate remove manual calculations.

Recently, the plant underwent a detailed study to identify areas where automation could result in significant cost savings to the plant .

Solution: The Honeywell Smart Multivariable Transmitter used with the Multivariable Analog Interface and the VPR 100 Video Recorder used for automatic totalization.

The plant needed an inexpensive, simple method for measuring and recording fuel flows over several time periods. The Smart Multivariable Transmitter (SMV3000) provides measurement of differential pressure across a primary flow element such as an orifice or pitot tube, a process (static) pressure measurement and a process temperature using either an RTD or thermocouple. As the fourth process variable, the SMV3000 provides a compensated flow measurement based on the first three process variables.

The Multivariable Analog Interface (MVA141) manufactured by Vektron Corp. allows all process variables to be transmitted to

the control room via the reliable Honeywell DE Protocol where the signal is converted to four analog (1-5VDV) signals for use by the Video Recorder (VPR100).

The key benefit of using the SMV3000 with the MVA141 and the VPR100 Video Recorder is that *all process variables* are made available in analog mode at the control room. As shown in the accompanying diagram, total fuel flow calculated automatically in whatever time frame is needed.

According to actual process records, over 30 man hours per week are saved by avoiding manual calculation of the total flow.

The SMV3000 can be used to measure the flow of virtually any liquid, or gas for which a primary flow element exists to provide differential pressure measurement. Examples include natural gas, gasoline, and fuel oil flows



SMV3000 with MVA141 and VPR100

Benefits

Installation of the SMV3000 with a Vektron MVA and the VPR 100 provides:

- Secure digital communications (DE) between the SMV3000 and the MVA141.
- The use of the VPR100 Video Recorder provides daily, weekly and monthly totals to be viewed on a display or archived to a floppy or other software storage device.
- Reliable diagnostic capability from a analog output system (MVA141)
- Accurate measurement of the process flow through compensation for pressure and temperature variations.
- Productivity gains through automatic totalization of fuel flows.

Process Monitoring and Safety System Solution Detail

Description	Model
Smart Multivariable Transmitter SMV3000 (gauge pressure) with stainless steel hardware and diaphragms, lightning protection, custom calibration, MC option (factory configuration) and stainless steel tag	SMG170-E2A-0000-LP,CC,MC,TG,F1C3+XXXX
Multivariable Analog Interface (MVA) configured to deliver information on all four process variables.	MVA-141 part number 51204932-002
VPR 100 Video Recorder	VPR100



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