GE Ultrasonic Gas Flow Meter successfully measures wet gas flow in test separator

PROBLEM
The Test Separator is used to separate gas, oil and water to a level that permits accurate measurement of each produced phase. Gas is typically measured using a differential pressure device (orifice), where accuracy and reliability of the measurement can be affected by changes in pressure and flow ranges.

Typical Test Separator

An International oil and gas company operating in South East Asia has three to four production wells connecting to a test separator, and currently uses an orifice flow meter. Because of changes in process conditions from swapping wells, there is a need to replace the orifice plate for another one with a different $\beta$ ratio in order to be able to measure the flow. Since a single orifice meter cannot handle the flow conditions from the various wells, the company desired a flow meter technology capable of measuring under all their process variations.

SOLUTION
GE’s Panametrics PanaFlow Z1G Ultrasonic Gas Flow Meter was selected and installed based on its ability to measure relatively wet gas at low pressure. The PanaFlow Z1G does not create any pressure drop since the ultrasonic transducers do not restrict the fluid flow. Additionally, the meter offers a wide turndown ratio which can measure the required flow range regardless of which well is connected to the system.
PAYBACK
After eight months of operation with the PanaFlow Z1G, the customer has realized lower maintenance costs while maintaining an accurate and reliable flow measurement. The savings experienced using the GE flow meter included:

• Four man hours per operation

• Production down-time reduced by four hours

• Energy efficiency with no pressure drop

BENEFITS
GE’s Panametrics PanaFlow Z1G Ultrasonic Gas Flow Meter eliminates the need to change the orifice plate to measure the flow rate under different well conditions and minimizes any potential safety hazard during a plate change out. The ultrasonic transducers offer a highly reliable and robust signal and their design is based on the T5 flare gas transducer. The customer utilizes the on-board meter diagnostics to assess the flow meter’s health to provide high confidence the flow measurement.