

# Master station presents multiple benefits for metering skids

KROHNE Oil & Gas B.V., Dordrecht, the Netherlands



AUMA's high-performance SIMA<sup>2</sup> Master Station provides added value for KROHNE's metering skids – in particular thanks to quick and easy commissioning, centralised control of all actuators, and efficient, high-speed Modbus communication. Integral redundancy at all levels ensures reliable plant operation and optimised processes.

KROHNE Oil & Gas B.V. in the Netherlands is one of the world's leading manufacturers of metering skids for highly precise volume measurement of crude oil, natural gas and refined products.

KROHNE, in cooperation with AUMA, has implemented an automated metering solution for a major oil and gas group in the Middle East. AUMA's high-performance SIMA<sup>2</sup> Master Station plays a key role in meeting the challenging requirements set by the customer.

## CENTRALISED ACTUATOR CONTROL AND MONITORING

For this project, KROHNE designed and manufactured three metering skids incorporating 36 proven AUMA SAEx actuators with fire-proof shields and one redundant SIMA<sup>2</sup> Master Station. Within each skid, 12 AUMA actuators are used to control the flow rates and to switch between different metering runs. The SIMA<sup>2</sup> Master Station provides central control and monitoring of all 36 actuators, reducing host communication to a minimum.

## HIGH AVAILABILITY

As any failure of the measurement system very quickly results in high economic losses for the operator, high availability was the customer's prime requirement for the metering skids, and this extended to control and communication as well as the reliability of the actuators themselves. The SIMA<sup>2</sup> Master Station is particularly beneficial here, thanks to its multiple redundancy options and its robust and proven communication via standardised Modbus protocols. For this project AUMA supplied a SIMA<sup>2</sup> Master Station with hot standby system redundancy. Two SIMA<sup>2</sup> subsystems – cost-efficiently located within a single housing – ensure that operation continues without interruption even if one subsystem fails.

Project responsibility:  
AUMA Benelux, the Netherlands

[www.auma.com](http://www.auma.com)



OIL & GAS

## APPLICATION

Metering skids

## AUMA SOLUTION

- > SAEx actuators with intelligent ACEXC 01.2 actuator controls
- > SIMA<sup>2</sup> Master Station
- > Modbus RTU with integral redundancy
- > Fireproof shields

## CUSTOMER BENEFITS

- > Quick and easy commissioning
- > Centralised control of all actuators
- > High availability

"For KROHNE as the system integrator, low cost, easy installation and high reliability are the most important factors for selecting actuators. Our experience with AUMA actuators has been excellent."

**Hilko den Hollander**  
Technical Manager,  
KROHNE Oil & Gas

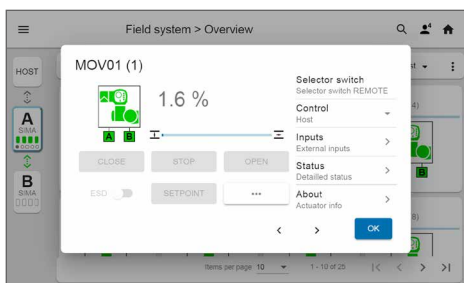


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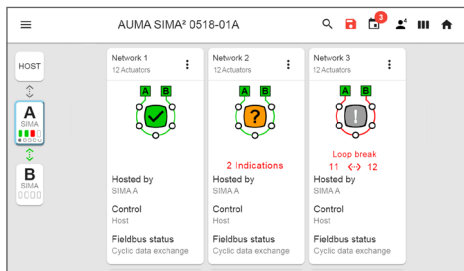
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AUMA supplied a SIMA² Master Station with hot standby system redundancy.



SIMA² Master Station operation is intuitive and convenient.



Acting as a central diagnostic hub, SIMA² facilitates fault detection at all levels – from the overall system down to the individual actuator.



Fireproof shields for the SAEx actuators and ACExC 01.2 actuator controls ensure that the valves can operate reliably even in the event of a fire.

## REDUNDANCY AT ALL LEVELS

Communication to the DCS is also redundant, via Modbus TCP/IP. The actuators are connected to the SIMA² Master Station via Modbus RTU in three separate loops. Redundancy is also included at this level: if communication fails at a specific position within the loop, the SIMA² Master Station considers both the resulting segments as individual lines, and all actuators remain accessible. Communication via Modbus is extremely fast and efficient, resulting in very short cycle and reaction times.

## PLUG & PLAY

The metering skids, including the valves and AUMA actuators, were fully assembled and tested at the KROHNE plant in Dordrecht in the Netherlands. The objective was to minimise the steps needed to install and commission the pre-assembled modules at the end customer's site. Using a Master Station as a central control hub for all the actuators considerably reduces the external connections needed at actuator level. Only two fieldbus cables are needed per skid to connect the actuators' Modbus loop to the SIMA². At the customer's site, only the SIMA² then needs to be connected to the DCS.

## BENEFITS DURING COMMISSIONING

Commissioning of the AUMA actuators took place in the KROHNE factory simply using the SIMA², without needing connection to a DCS. The SIMA²'s large integral multitouch screen allowed all the actuators to be conveniently and intuitively controlled and tested, and communication parameters set. The actuator networks for each of the three metering skids could also easily be pre-configured using SIMA².

Commissioning was very fast, thanks to the SIMA²'s automatic loop configuration feature, which facilitates actuator address assignment within the network.

## CUSTOMER-SPECIFIC SOLUTIONS

AUMA reacted quickly to additional customer requirements that evolved during the course of the project. For example, a new software feature to enable additional configurable feedback signals was implemented. KROHNE uses this feature to monitor the external 24 V power supply to the actuators.

"With SIMA², setting the parameters at the actuators and adding the devices to the Modbus loop is very easy and intuitive. I managed to complete the entire configuration for all 36 actuators in less than 30 minutes. I'm very happy with the performance. The Modbus loop is running fast and reliably – just the way we like it."

**Eric Mulder**  
Senior System Engineer,  
KROHNE Oil & Gas