Application Note

Leveraging Data from the KVA38

Getting the Most from Your Equipment

The KVA38 valve actuator is equipped with a serial communications port that provides remote access to a wide range of data and configuration settings. This application note provides an overview of the KVA38 serial port, its features, and tips for implementation. Features and benefits of using the serial port connection include:

- Remote unit configuration
- Error-free positioning
- Real-time health monitoring
- Condition-based monitoring of connected equipment

Unlike a analog position command or feedback signal, the serial port provides access to operating data, diagnostics, configuration, and control through one communications interface. Table 1 compares the information and system-level capabilities available through analog and Modbus connections. Refer to the product manual for Modbus registers, communications settings, and detailed implementation guidance.

Connect to the KVA38

To access the full suite of data and configuration settings, connect the KVA38 to a Modbus RTU compatible device. To achieve a robust network, follow industry best practices (e.g. shielding, grounding, daisy-chaining, and termination resistance) when wiring the network. Multiple KVA38 units can be connected to the same Modbus network (Figure 1). To connect multiple KVA38's to a

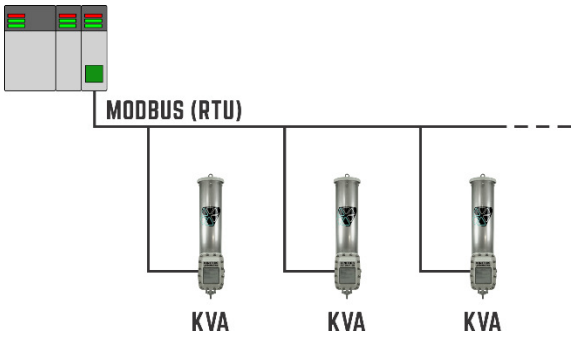


***Figure 1** – Modbus Network with multiple KVA38 Field Devices Connections*

Modbus network, set a unique Modbus slave address for each KVA38 one at a time using the main RTU or a field terminal running the Kinitics Actuator Toolkit software. Modbus communication parameters for the network, if different from the default values, should also be configured at this time. Consult a product representative to get access to the Kinitics Actuator Toolkit software suite.

Remote Configuration

Remote configuration reduces the need for physical access during commissioning, adjustment, and service, particularly where actuators are distributed across a facility or installed in difficult-to-reach locations. Once connected to the KVA38, Modbus can be used to configure the unit. Remote configurations options, when connected over Modbus RTU, include:

- **Span Calibration —** Can be performed during installation or after mechanical setup changes (e.g. after temporary removal of the actuator to service the valve).

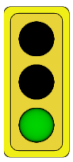
***Table 1** – Comparison of Analog and Modbus*

Feature	Analog connection	Modbus connection
Signal	One command or feedback value per signal	Commands, feedback, status, diagnostics, and configuration
Wiring and I/O	Dedicated wiring and I/O terminals for each signal	Multiple KVA38's can share one network port
Diagnostics	Limited visibility into device condition	Actuator and valve health available remotely
Expansion	Additional data requires additional signal wires	Additional data available without additional signal wires

- **Function Check —** The unit can be stroked with a technician present to confirm proper operation.
- **Maximum Lift Height —** Can be configured for valves requiring less travel than the KVA38's rated travel.

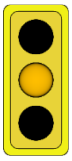
Maximum stem speed, power mode, and power limits can also be set to change the responsiveness and power consumption of the unit. Consult a product representative if interested in altering these parameters.

Positioning



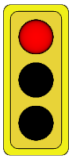
Modbus position commands avoid the noise, offset, and span-calibration limitations associated with analog control signals. The same connection provides real-time position feedback, allowing the controller to compare commanded and actual position without additional analog I/O. Fail-safe behavior on loss of signal can be adjusted by setting the *Position Command Timeout*.

Advanced Warning



The health status of the KVA38 can be remotely monitored over the Modbus network. A non-zero value on any one of the fault flags indicates a fault condition. Several faults (e.g. the *Driver Open Circuit* fault) are non-critical and permit the actuator to continue functioning in a degraded state. Annunciation of the faults to the relevant operations and/or maintenance teams can be used to set up a service event that minimizes, or even avoids, downtime.

Valve Health



KVA38 continuously monitors the attached valve, not just the actuator. Features and benefits include:

- **Identifies common failures** — Detects conditions such as **blockages and seized valves** that prevent their proper movement or closure.
- **Provides specific fault flags** — Fault conditions are reported through registers, giving E&I technicians better information on **what is actually wrong**.
- **Faster troubleshooting** — Helps technicians know what they're dealing with **before they arrive at the valve**.
- **Reduces unnecessary field work** — Better fault information can help determine whether the issue is **actuator-related, valve-related, or infrastructure-related**.

Setup annunciation of the specific faults to the relevant operations and/or maintenance teams to get the benefit of **faster repairs** and **less downtime**.

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