



## QUIKLOOK 3.5-FS Valve Diagnostic System

Achieve greater efficiency, improve safety, and reduce operations and maintenance spending with a single platform for testing safety-significant valves.



### GENERAL APPLICATION

Capable of testing all types of valves, the QUIKLOOK 3.5-FS (QL3.5-FS) Valve Diagnostic System acquires clean and accurate data, minimizes setup time, and maximizes ALARA. The powerful, flexible QUIKLOOK-FS software provides a variety of diagnostic tools and time-saving features to simplify valve testing. Support for industry standard sensors as well as a large 15" touch screen and hot-swappable battery power provide convenient setup and easy operation. The QL3.5-FS represents a major advance in valve testing technology for the nuclear power industry. Emerson and Teledyne Test Services have partnered to offer the QUIKLOOK 3.5-FS with Fisher software.

### FEATURES

- Plug and Play sensor recognition
- New – (2) Digital input channels to accommodate precise linear and rotary encoders
- Stand-alone test platform
- No external PC required
- Wireless or wired remote operation via laptops, tablets and smartphones
- Hot swappable battery operation
- MOV/AOV/Check and solenoid valve capable
- Automated remote excitation voltage sensing
- Large 15" touch screen display
- Sealed rugged waterproof case

### TECHNICAL DATA

Input Channels:	(14) User Programmable with Excitation Voltage Sensing, (2) Digital
Input Range:	Differential and Single Ended $\pm 10, 30, 100$ and $300$ mV, $\pm 1, 3$ and $10$ V, Strain Gage $\pm 1, 3$ and $10$ mV/V
Sensor Excitation:	$10$ V on all input channels, $28$ mA max current per channel

# QUIKLOOK 3.5-FS Valve Diagnostic System

FIGURE 1

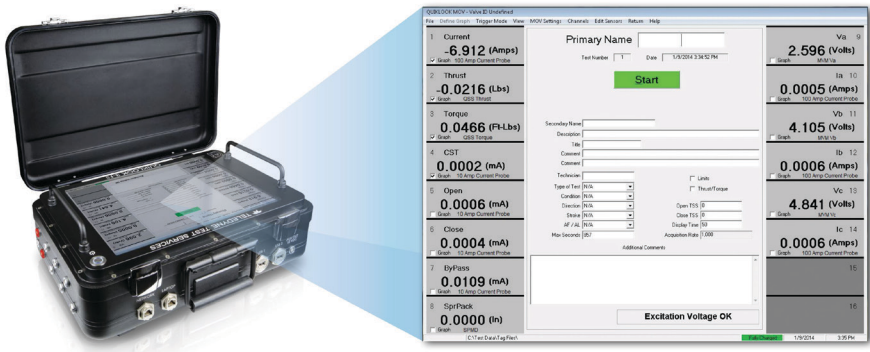


FIGURE 2  
MoV Valve Diagnostic

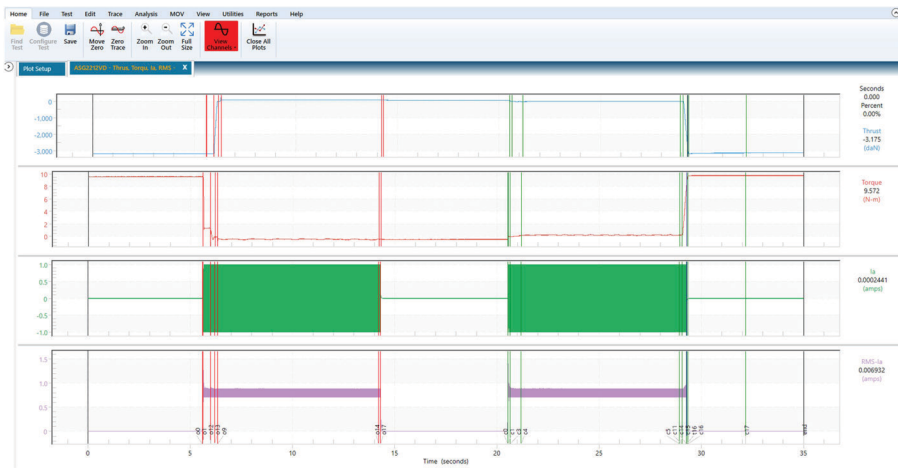


TABLE 1

Input Channels	(14) User Programmable with Excitation Voltage Sensing, (2) Digital
Input Range	Differential and Single Ended $\pm 10, 30, 100$ and $300$ mV, $\pm 1, 3$ and $10$ V, Strain Gage $\pm 1, 3$ and $10$ mV/V
Sensor Excitation	$10$ V on all input channels, $28$ mA max current per channel
System Accuracy	$1\%$ of reading
Sample Rate	$10, 100, 1k, 2k, 5k, 10k, 20k, 50k$ s/s (Hardware capable of $200k$ s/s)
Analog Output Channels	(1) Selectable $0 - 10$ V, $\pm 10$ V, $4 - 20$ mA, $10 - 55$ mA
Input Power	$110/220$ VAC ( $50/60$ Hz), $9$ watts
Battery Operation	(2) Hot Swappable Lithium-Ion, $5+$ hours continuous operation
Sensor Recognition	IEEE P1451.4/2.0 "TEDS" plug and play on all input channels
Operating System	Windows® 10 or higher
Ports	(2) USB, (2) Ethernet
Languages	English, French, and Spanish
Maximum Operating Temperature	$125^\circ$ F ( $52^\circ$ C)
Application Software	QUIKLOOK-FS Pro
Size	$16.5" \times 11.25" \times 5.67"$
Weight	$16$ lbs. without batteries, $18.5$ lbs. with 2 batteries

## PRODUCT DESCRIPTION

### Accurate Data, Clean Traces

QL3.5-FS acquires data with 24-bit resolution and user selectable sample rates from 10 Hz to 50 kHz. This high-resolution acquisition combined with advanced signal processing produces extremely clean traces even in the highest EMI/RFI environments.

### Flexible, Time-Saving Software

The intuitive QUIKLOOK-FS Pro software is easy to set up and shortens test times. Test and replay capabilities plus advanced triggering functions for unattended "Sentry Mode" data collection increases flexibility. Automated trace marking for AOVs and MOVs as well as automated report generation simplify operation.

## OPERATION

Utilizing open source industry standard IEEE P1451.4/2.0 (TEDS) plug and play sensor recognition technology, the QL3.5-FS greatly reduces test setup time and increases setup data reliability. As a stand-alone system no external PC is required, and the large, integrated 15" touch screen display provides easy access to all QUIKLOOK diagnostic tools. The system can also be accessed remotely with a wired or wireless connection. The QL3.5-FS can be operated on line power or battery power. The two Lithium-Ion battery packs can run the system for over 5 hours and can be "hot swapped" in a matter of seconds.

FIGURE 3

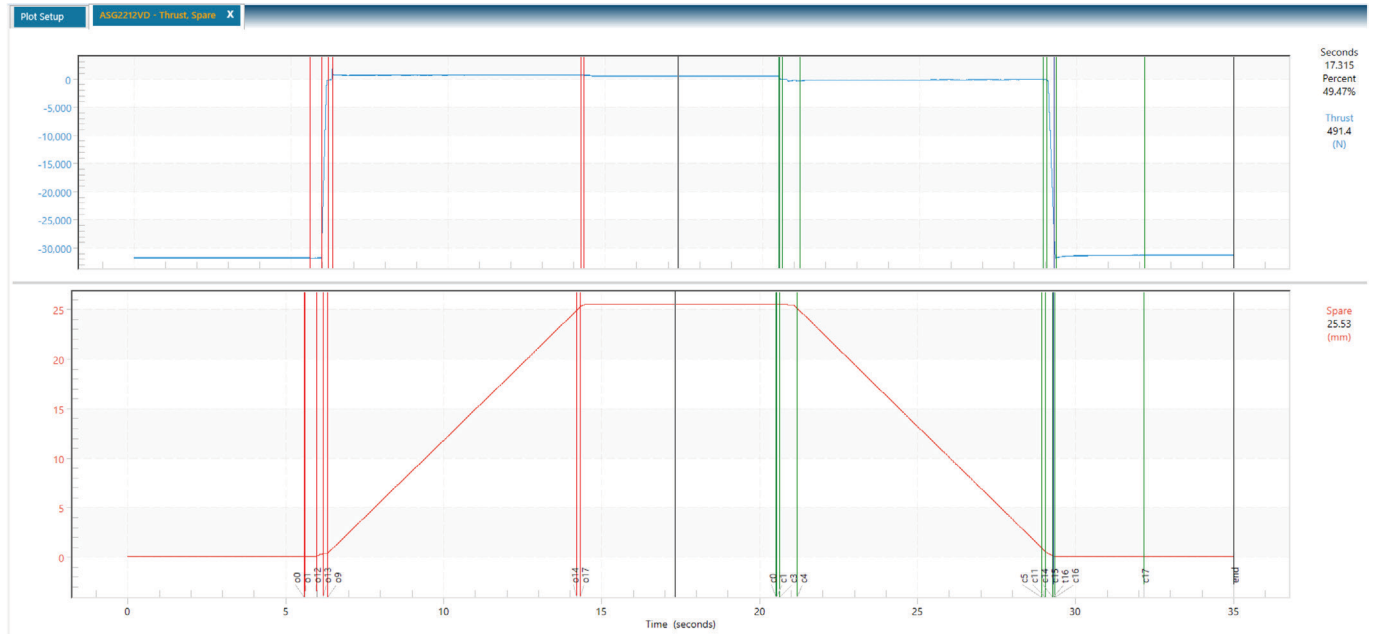


TABLE 2

Key MoV Features		
Analysis	Configuration	Plots
<ul style="list-style-type: none"> <li>• Automarking of traces</li> <li>• Average running loads, lights and stroke times</li> <li>• Stem Factor and COF calculations</li> <li>• Analysis of motor power phasing with sensor self-correction feature</li> <li>• Calculated channels are recalculated when the dependent channel is revised</li> <li>• FFT may be performed on trending plot</li> <li>• Unlimited number of math channels</li> <li>• Delta Y Function</li> <li>• Spike Removal</li> </ul>	<ul style="list-style-type: none"> <li>• Channel configuration is automatically loaded through sensor recognition technology</li> <li>• Up to 16 channels may be configured for acquisition as strain gage, single ended or differential</li> <li>• Up to 2 channels may be configured for digital inputs</li> <li>• Channel configuration includes sensor details such as calibration information</li> <li>• RMS, filter, and motor power channels may be predefined</li> <li>• C-Clamp sensitivity calculator, Pretension Screen, warning if pretension is lost</li> <li>• Warning for out-of-cal sensors</li> </ul>	<ul style="list-style-type: none"> <li>• No limit to the number of traces that can be plotted in a pane</li> <li>• Up to 6 panes may be displayed on the screen at once</li> <li>• Panes are independently resizable</li> <li>• Plot annotations available: datapoint values, text and footnotes</li> <li>• Markers shown on trending plots: none, all, or currently-selected test only</li> <li>• X and Y plotting</li> <li>• Can display markers on X and Y plots</li> <li>• Plot preference controls: color/background, maximum number of points, default title, legend style and channel unit groups</li> <li>• Customized plots can be saved or exported in .pdf format</li> <li>• FFT Y-axis scaling may be logarithmic or linear; additional resolution choices available</li> <li>• Marker Filtering</li> </ul>

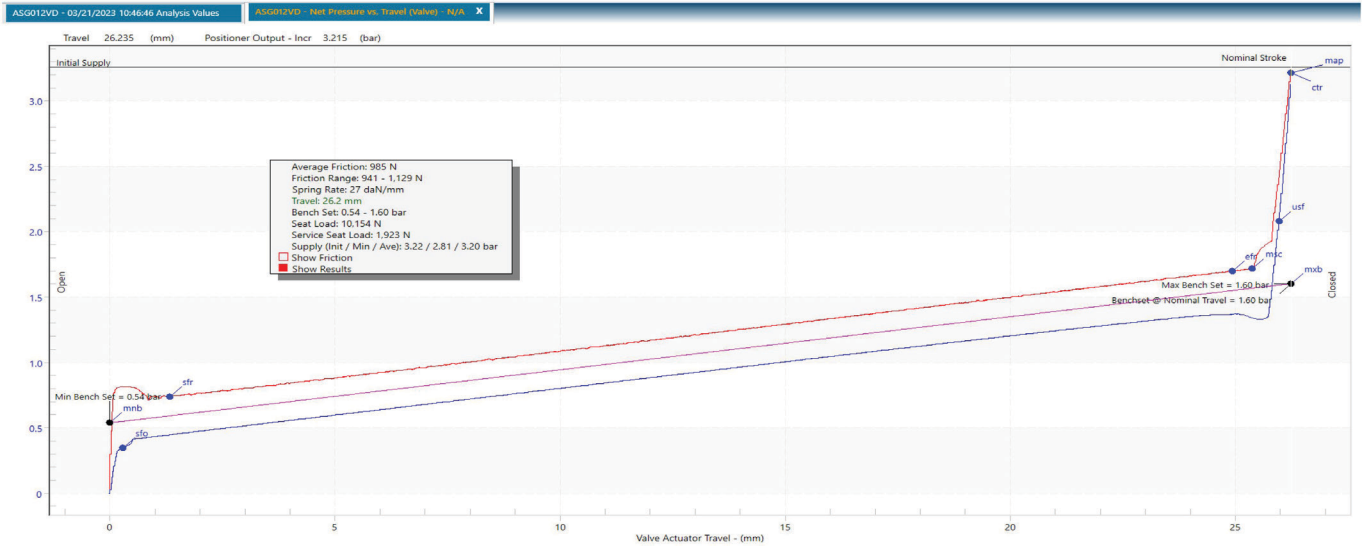
# QUIKLOOK 3.5-FS Valve Diagnostic System

**TABLE 3**

Key AoV Features		
Data Acquisition	AoV Control Signal Option	<ul style="list-style-type: none"> <li>• 0 to 10 Volts</li> <li>• -10 to +10 Volts</li> <li>• 4 to 20 Milliamps</li> <li>• 10 to 55 Milliamps</li> </ul>
	Tests Performed	<ul style="list-style-type: none"> <li>• Dynamic Scan</li> <li>• Step Change</li> <li>• Static Point</li> <li>• Step Study</li> <li>• Stepped Ramp</li> <li>• Sensitivity Test</li> <li>• HDRL Test</li> <li>• Sinewave</li> <li>• Drop Tests</li> <li>• Custom Tests</li> </ul>
QUIKLOOK-FS Pro Software	Can manage up to 16 channels of input data including	<ul style="list-style-type: none"> <li>• Pressures</li> <li>• Currents</li> <li>• Voltages</li> <li>• Strain Gauges (Torque and Thrust)</li> <li>• Displacements (Analog and Digital)</li> </ul>
	Channel configuration	<ul style="list-style-type: none"> <li>• Automatically loaded through sensor recognition</li> </ul>
	Others features	<ul style="list-style-type: none"> <li>• Acquisition screen supports manual control of the valve with readouts from all channels for valve setup</li> </ul>
	Test Data	<ul style="list-style-type: none"> <li>• Configuration Database with actuator design parameters</li> <li>• Unlimited comments may be stored with the test</li> <li>• Channel names and numbers are customizable</li> </ul>
Plots Analysis	Predefined plots used for analysis	<ul style="list-style-type: none"> <li>• Overall Calibration</li> <li>• Mechanical Properties</li> <li>• Transducer Calibration</li> <li>• Positioner Calibration</li> <li>• Static Point</li> <li>• Drop Test</li> <li>• Stroke Time</li> <li>• Step Study</li> <li>• Sensitivity</li> </ul>
	Others features	<ul style="list-style-type: none"> <li>• Time-based plots</li> <li>• X and Y plots</li> <li>• Customized plots can be saved or exported in pdf format</li> </ul>
	Calculated Results Include	<ul style="list-style-type: none"> <li>• Seat Load</li> <li>• Service Seat Load</li> <li>• Unseating force</li> <li>• Valve Friction</li> <li>• Stroke Length</li> <li>• Spring Rate</li> <li>• Benchset</li> <li>• Supply pressure: Initial, Average, Minimum, Maximum, % Decrease</li> <li>• Pilot Stroke Length</li> <li>• Pilot Spring Rate</li> <li>• Pilot Seat Load</li> <li>• Transducer HD Error</li> <li>• Positioner HD Error</li> <li>• Overall HD Error</li> <li>• Stroke Times</li> <li>• Pressure Drop</li> </ul>
	Others features	<ul style="list-style-type: none"> <li>• Automarking of traces</li> <li>• Predefinded Plots show applicable results on-screen</li> <li>• Unlimited number of math channels</li> </ul>

# QUIKLOOK 3.5-FS Valve Diagnostic System

FIGURE 4



FCDS-20046-EN © 2023. Emerson Electric Co. All rights reserved 06/23. Fisher is a mark owned by one of the companies in the Emerson Automation Solutions business unit of Emerson Electric Co. The Emerson logo is a trademark and service mark of Emerson Electric Co. All other marks are the property of their prospective owners.

The contents of this publication are presented for informational purposes only, and while every effort has been made to ensure their accuracy, they are not to be construed as warranties or guarantees, express or implied, regarding the products or services described herein or their use or applicability. All sales are governed by our terms and conditions, which are available upon request. We reserve the right to modify or improve the designs or specifications of such products at any time without notice.

Emerson Electric Co. does not assume responsibility for the selection, use or maintenance of any product. Responsibility for proper selection, use and maintenance of any Emerson Electric Co. product remains solely with the purchaser.