15.12.1. EXPERT, EXPERT+ and Partial Stroke Test (PST)

Valve Diagnostics for Positioner Series 3730 and 3731. EXPERT is an enhanced firmware designed for predictive, status-oriented maintenance on control valves with pneumatic actuators. The diagnostic functionality completely integrated into the positioner.

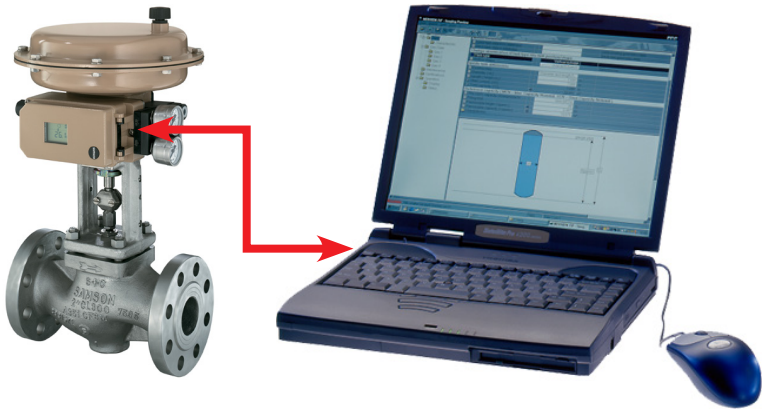

Figure 15.12.1.-1: Valve Diagnostics for Positioner Series 3730 and Series 3731

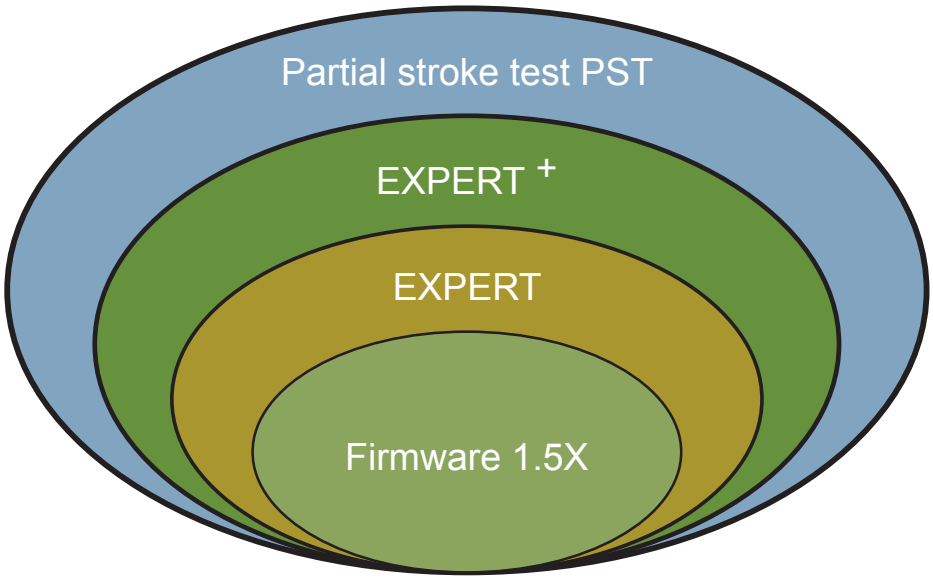

Figure 15.12.1.-2: EXPERT Software Modules

The EXPERT+ valve diagnostics can detect faults and provide predictive, status-oriented maintenance of pneumatic control valves. The full scope of diagnostic functions is completely integrated into the positioner. The numerous diagnostic functions allow faults to be pinpointed in control and safety-related on/off valves at an early stage. Functions include, for example, partial stroke testing and data logging.

The TROVIS-VIEW software, which allows the user to access, read and edit the diagnosis, is easy to learn. The integration options including eDD, eEDD, FDT/DTM allow the diagnostic functions to be also used in other engineering tools. Classified status alarms and the condensed state conforming to the NAMUR Recommendation NE 107 can also be read off at the on-site display of the positioner and can be issued over the fault alarm contact*.

- **TROVIS-VIEW:** Operator interface to configure and parameterize various SAMSON devices
- **FDT:** Field device tool for the manufacturer-independent integration of field devices
- **DTM:** Device type manager to describe the device and communication properties
- **DD/eDD:** Device description/enhanced device description
- **Special features**
  - Diagnostic tests performed without any additional sensors in the control valve
  - Data required for diagnostics are constantly compiled, saved and analyzed in the positioner. Status alarms are automatically generated. Test data and their analysis are saved in the positioner.
  - Cyclical polling of test data, multiplexer-capable
  - Statistical information (in-service monitoring) and tests (out-of-service diagnostics) pinpoint critical states before malfunctions can affect the process, allowing the user to plan predictive maintenance and service work on control and on/off valves
  - Minimum and maximum temperature readings with details on how long the limits have been exceeded
  - Automatic start of diagnostic functions
  - Display of service and maintenance recommendations
  - Display of classified status and fault alarms
  - Status classification and condensed state based on NAMUR Recommendation NE 107
  - Status alarms and condensed state can also be read off at the positioner display or can be issued over the fault alarm contact*
  - Plotting of y-x signature (valve signature) for fault detection
  - Diagnostic function to pinpoint changes in friction
  - Operating hours counter allows data and events to be sorted by time
  - Diagnosis data and test analysis saved in the positioner
  - Integrated partial stroke testing (PST) and full stroke testing (FST)
  - Binary input, e.g. to start tests, connect an external solenoid valve or a leakage sensor, etc.