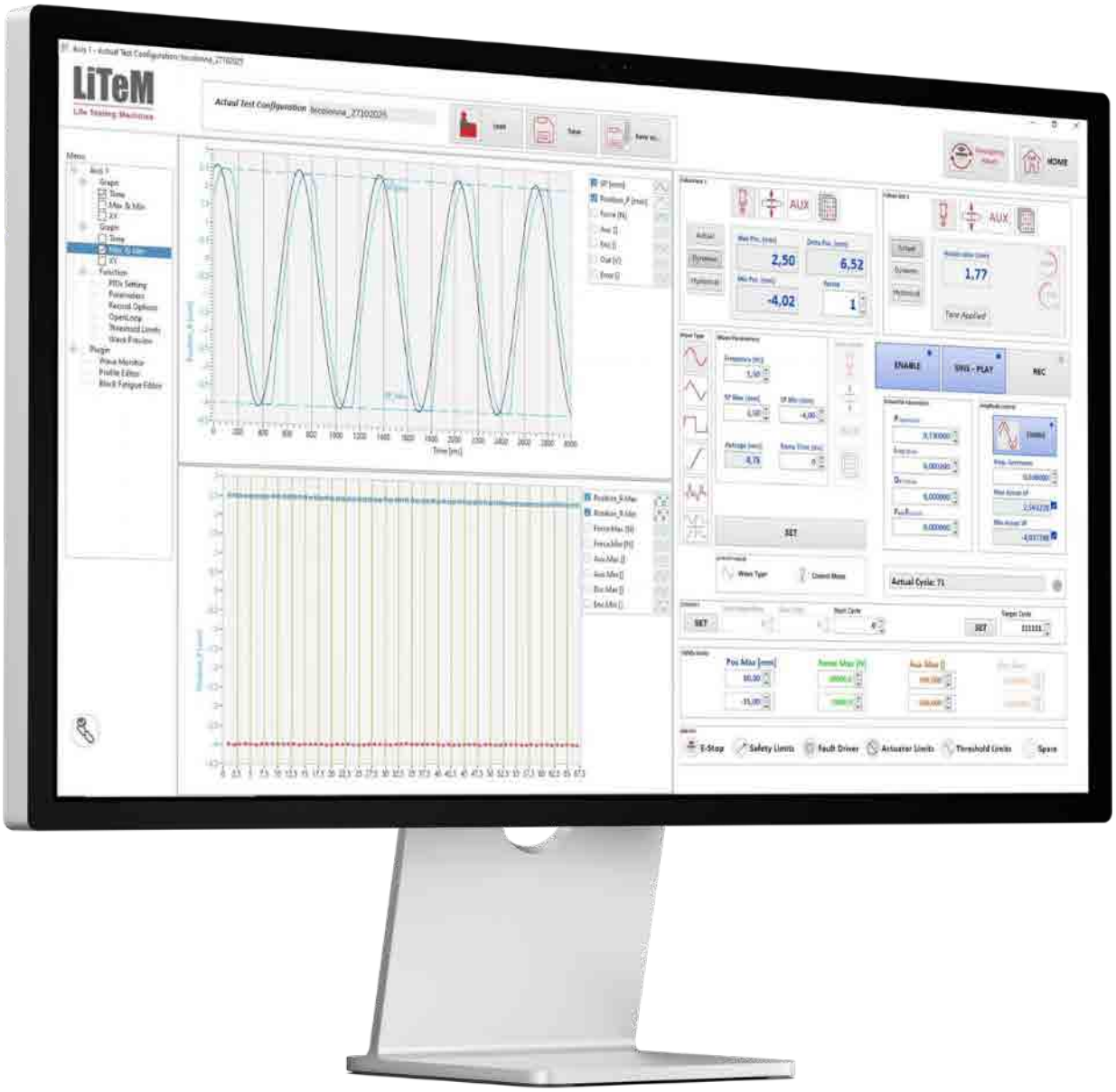
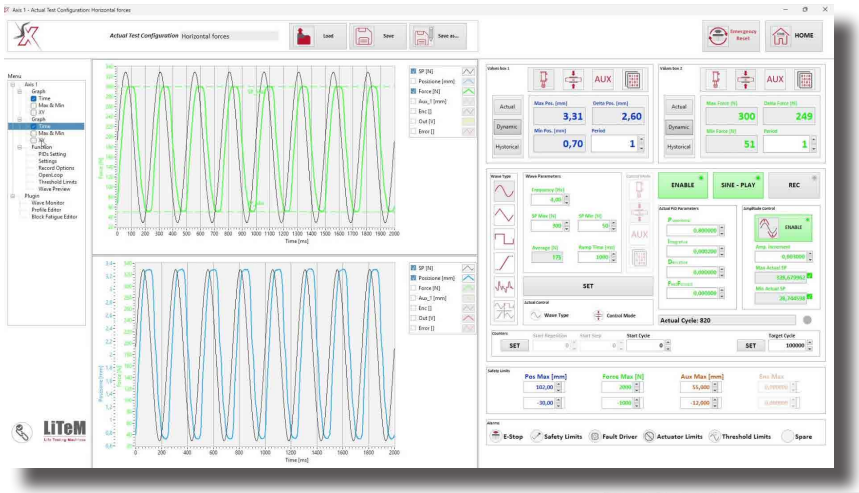


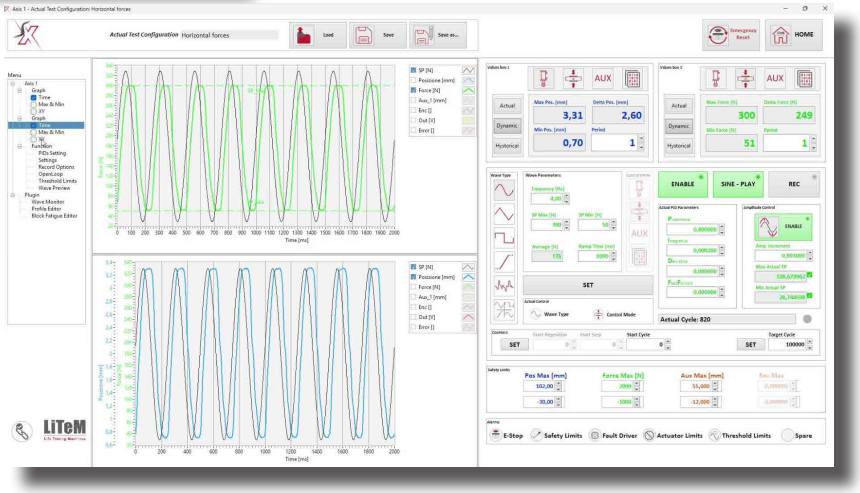
SX Software Suite

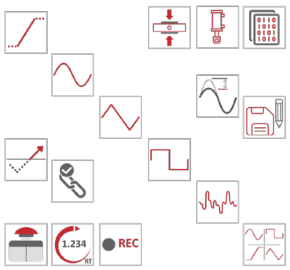
SX Software Suite



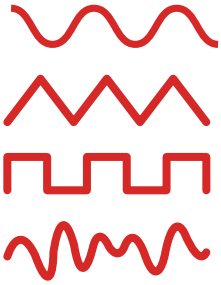
SX Software Suite is designed to perform static, quasi static and fatigue tests, both with mono axial systems and multi axial systems. The two interfaces SX-1 and SX-2 are provided to manage these two configurations respectively.
Tests can be performed indifferently in Position, Force or Encoder control.

SX SOFTWARE SUITE
LiTeM - life testing machines





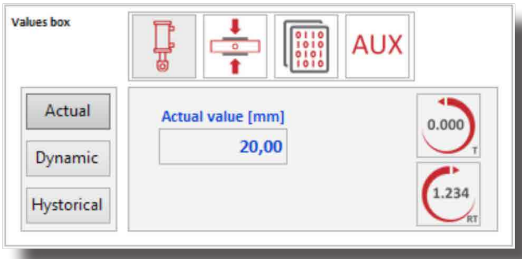
For each individual axis and for each control mode, it is possible to set the test in ramp mode (for static and semi static tests) or with sinusoidal, triangular or square wave.
With the Profile Editor Tool it is possible to program and execute any custom profile.
The SX software interface, based on icons and color codes, allows intuitive and effective use of the entire function package.

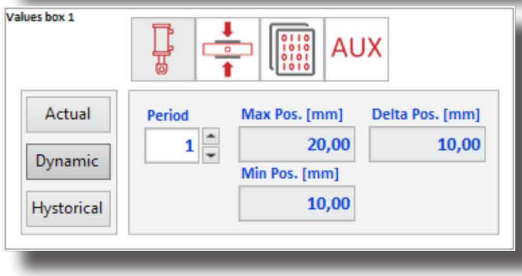


Display of test progress

During test execution it is possible to display the progress of the test both in graphical and numerical format through the following values:

- Actual value of each sensor;
- Dynamic max and min values;
- Hystorical max and min values;
- Dynamic delta values.



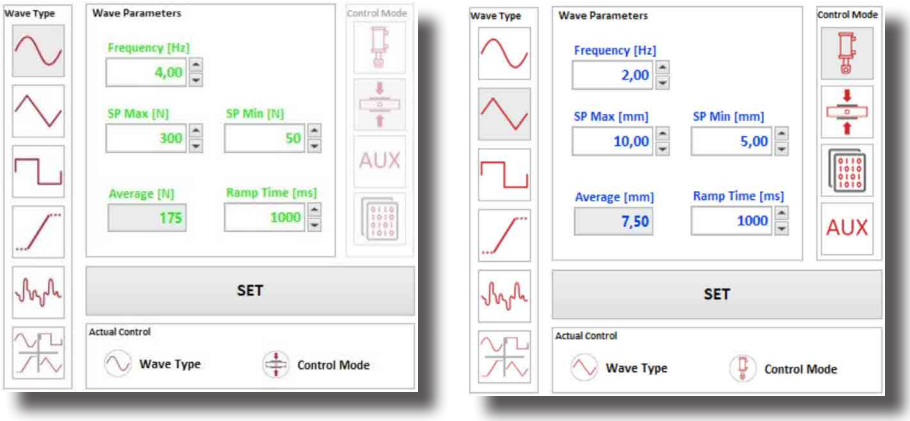


Test Parameters Set-up

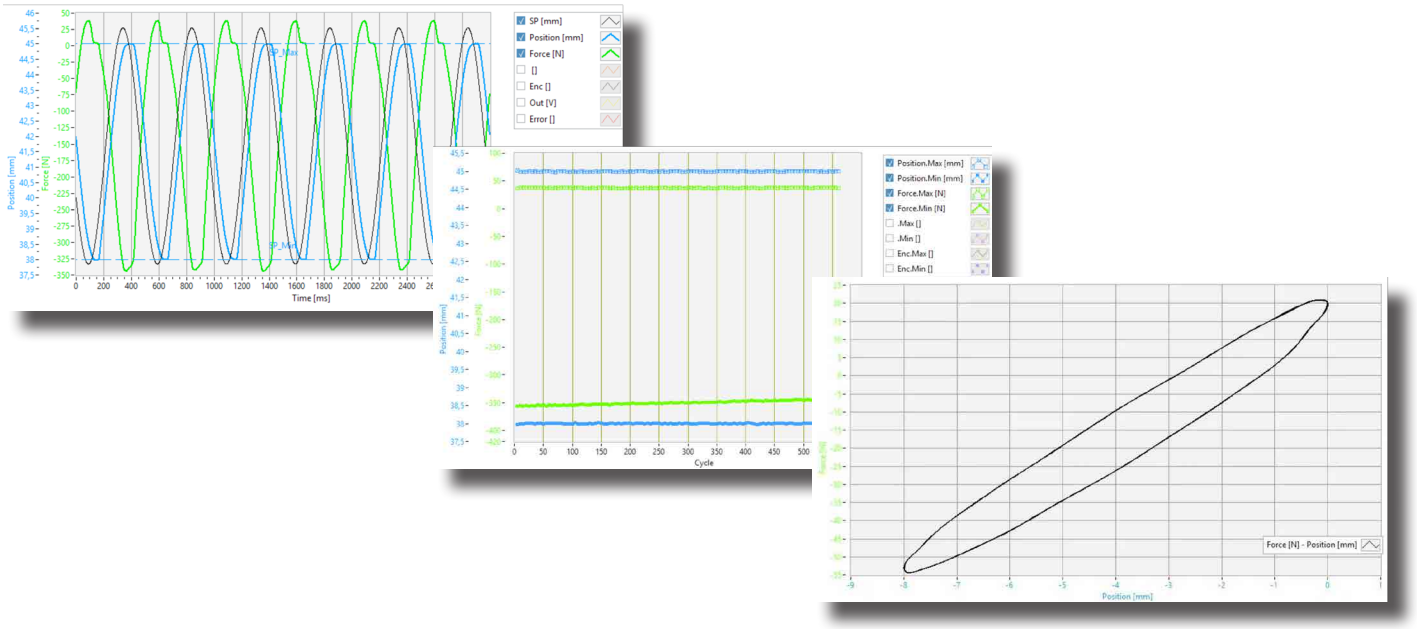
Test values, PID parameters and safety limits can be saved in a settings file and reloaded later.

Control modes

Possible control modes:
Force, Displacement, Encoder.
Each mode can be set interchangeably for each actuator even when operating simultaneously.
Icons and color coding make programming the test type and desired parameters easy and intuitive.

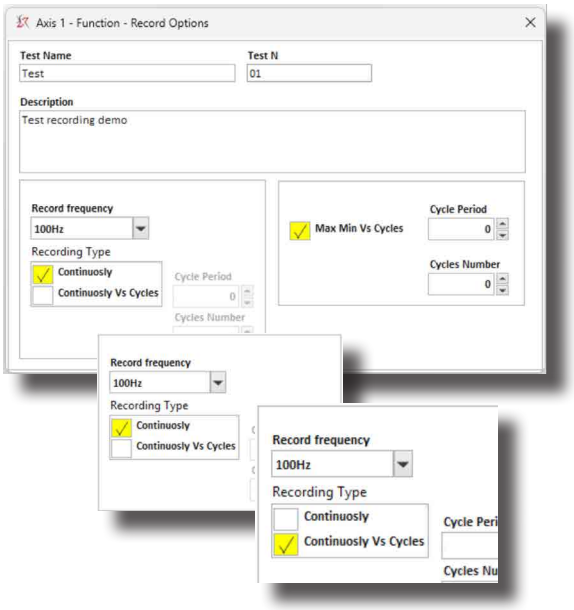


Data display



The software interface includes numerical and graphical visualization of all sensors. All information related to the running test is always available and displayed clearly and intuitively.
The operator configurable graphs allow the following display modes:

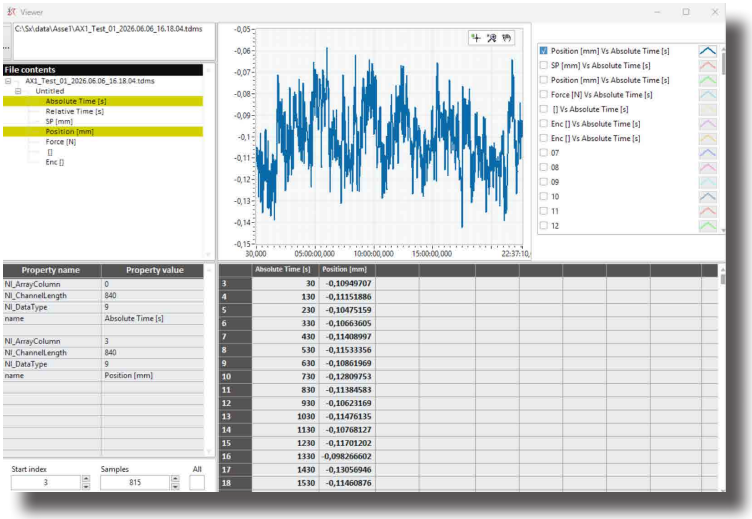
- graph VS time;
- XY graph XY, with user configurable channels;
- max-min graph VS cycles.



Data Recording

Recording of all sensors, also in multi-axial versions. Files are saved in .tdms format (DIAdem format) to facilitate post analysis activities. With a dedicated plugin supplied with the SX software it is possible to open the files directly in Excel.
Continuous recording, max-min vs. cycles recording, continuous vs. cycles recording are available (also using the Tool Profile Editor).

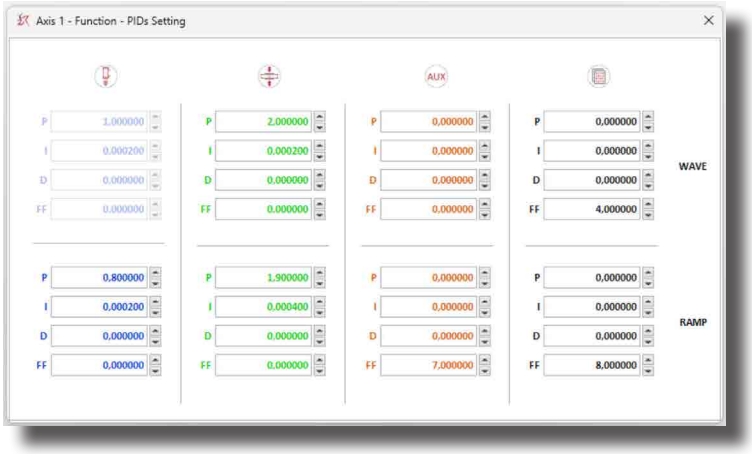
The SX software also includes a Viewer tool that allows saved recordings to be quickly viewed and plotted without having to use external software. It is possible to display any type of recorded data and generate time-based graphs (absolute or relative) or XY plots (with the ability to assign axes as desired).



Control signal and PID setting

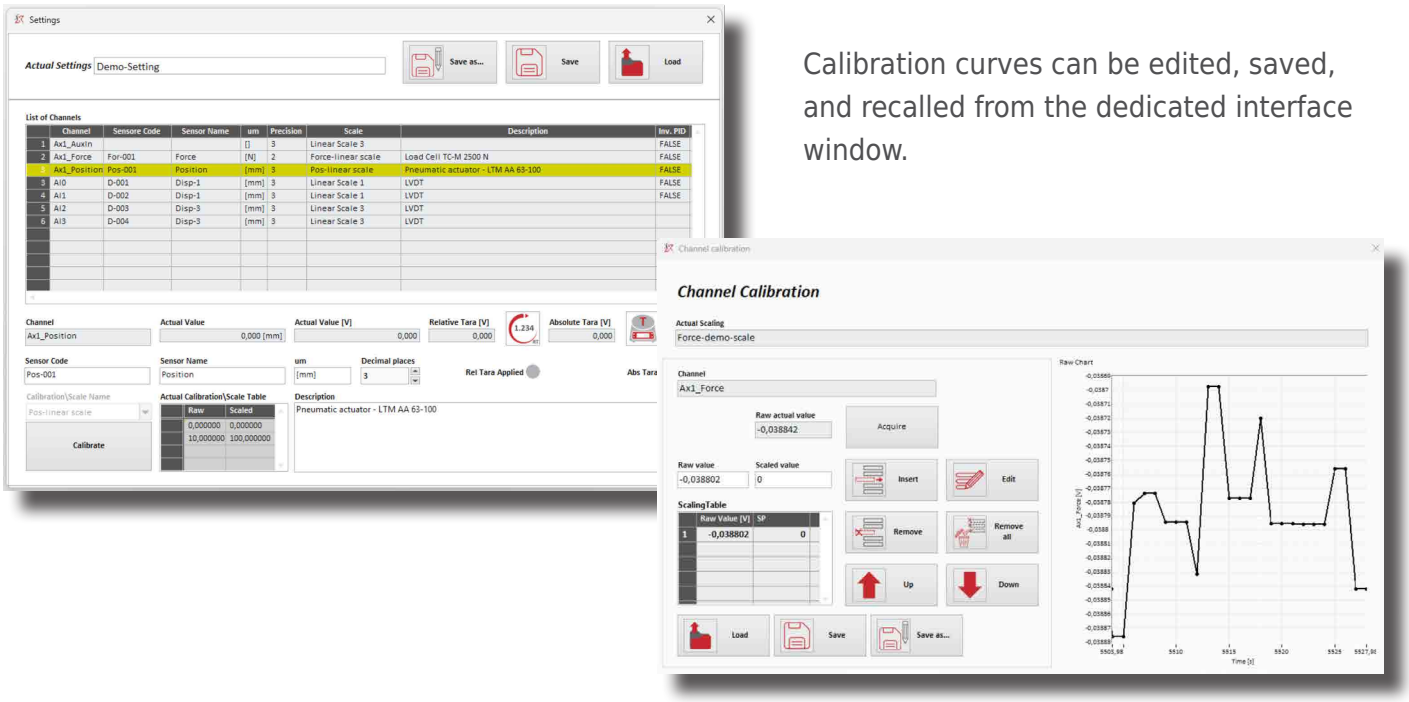
Setting of FPID parameters for each active channel and for every control mode.
The FPID parameters differ depending on the test mode used (ramp or cyclic tests: sine, triangle, square).

F = FeedForward
P = Proportional
I = Integrative
D = Derivative



Sensors parameters setting

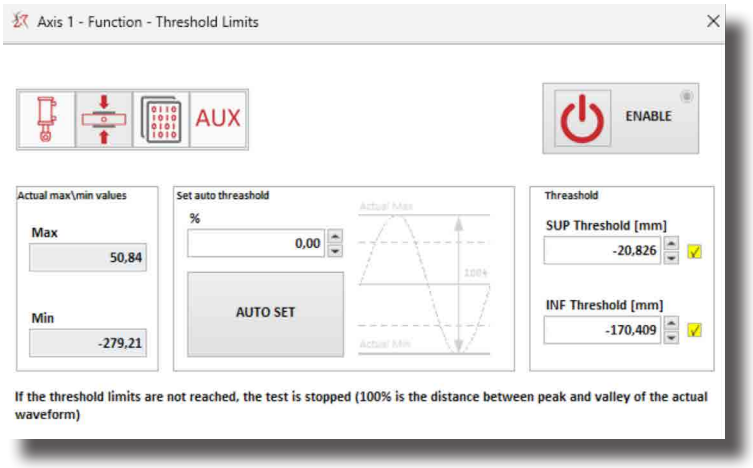
The Setting window allows configuring all analog sensors and encoder channels connected to the controller. For each sensor you can assign the sensor name and unit of measurement, perform absolute and relative tare, and enter the calibration curve. The configured values can be saved to a file and reloaded later.



Calibration curves can be edited, saved, and recalled from the dedicated interface window.

Safety limits setting

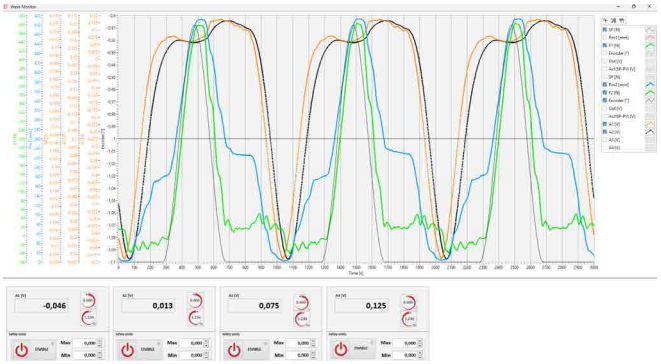
The user can enter maximum and minimum values for each analog input under control; if these are exceeded, the system cuts power and shuts down to a safe state.
Indicator lights and icons show the user which limit was exceeded and caused the emergency.



It is also possible to set Threshold Limits values. Failure to reach these causes the system to stop in a controlled state.
This type of limit is essential to interrupt a fatigue test at the onset of initial cracking and to prevent the specimen from physically breaking.

Software Tool WAVE MONITOR

The tool allows the activation, visualization, and recording of the controller's four read-only channels, simultaneously with all command channels.



Software Tool PROFILE EDITOR

The tool allows the creation or import of load or displacement profiles of any shape.
It is particularly useful for variable-amplitude cyclic tests or for tests involving loading or displacement ramps, dwell phases, unloading, and cycle execution.
The defined profile can be executed cyclically, and the number of repetitions is automatically counted.

Software Tool BLOCK FATIGUE

The tool allows multiple fatigue blocks to be programmed and linked together.
Each block can be configured with its own test parameters (waveform type, amplitude, test frequency, and number of cycles to be executed).
The programmed blocks are then executed in sequence for a total number of repetitions defined by the user.

Software Tool CREEP

The tool allows creep tests to be performed.
With a constant load applied (maintained by the machine), the tool displays the values of all command channels at user-defined and adjustable intervals.

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