The TM is electrostatically suspended between surrounding electrodes and its motion along x or y causes an imbalance in capacitance, i.e. in currents in primary windings of both transformer bridges (between electrodes A+/- and B+/-). The imbalance in currents reflects in the level and sign of the current flowing in the secondary winding of each transformer. The corresponding preamplifier detects the current and converts it to a voltage.

In order to reduce the stray acceleration on TM, the force signal are provided by numerically synthesized AC waveform at low audio frequencies (60 – 270 Hz). To apply strong forces on TM in the Wide Range (WR) Mode, large AC voltages are used. The force signal for each electrode is Digital to Analog converted and amplified by a corresponding Drive Voltage Amplifier. The actuation signals are further low-pass filtered to reject higher frequencies that could interfere with the sensing circuitry.

Tests of actuation performances do not require TM simulator. Actuation signals are read by test equipment (e.g. Digital Multimeter, Lock-In Amplifier) that is controlled via the UDP interface.

Tests of sensing performances require a Test Mass Simulator. Sensing data are acquired by the FEE sensing electronics and sent to the controlling PC by the EGSE via the UDP interface.

Test scripts read ASCII files with the instructions for the EGSE and the test schedule. Test scripts are standardized and require only minimal user customization. EGSE is controlled via the UDP interface provided by the Instrument Control Toolbox.

LabVIEW VIs are launched as background jobs. Data from EGSE and LabVIEW are stored in ASCII files.