CLAIMS

1. A handling device having a robot arm, the arm having a portion configured to engage a workpiece, a vibration sensor and a coupling device, the vibration sensor being disposed at the portion of the arm that engages the workpiece, and the coupling device configured to conductively connect the vibration sensor to processing circuitry, the processing circuitry being configured to communicate control signals via the coupling device to the vibration sensor using a local-type protocol comprising one of I^2C and SPI and to receive sensor signals from the vibration sensor via the coupling device using the local-type protocol, to protocol –convert the local-type protocol signals to a transmission protocol comprising one of PWM, RS-232 RS-485, RS-422, CAN bus, SPI bus, USB bus, RS-232 by wire for output to a handling device controller, the processing circuitry being located remotely from the sensor.

2. A handling device according to claim 1 in wherein the local-type protocol comprises I^2C and the processing circuitry is configured to convert I^2C signals from the vibration sensor into PWM signals.

3. A handling device according to claim 1 or claim 2 wherein the vibration sensor has power connection nodes, the coupling device configured to connect the power connection nodes to power supply circuitry local to the processing circuitry.

4. A handling device according to claim 1, further having a repeater configured to receive signals from the vibration sensor and to convey information derived from those signals to the processing circuitry.

5. A handling device according to claim 4, wherein the repeater comprises power supply circuitry for the vibration sensor, the vibration sensor having a ground node and the repeater providing a connection to ensure the ground potential at the vibration sensor is that at the location of the processing circuitry.

6. A handling device according to any of claims 1-3 in which the vibration sensor has a ground node and the coupling device provides a connection to ensure the ground potential at the vibration sensor is that at the location of the processing circuitry.

7. A handling device according to claim 1 wherein the local-type protocol comprises I^2C and the processing circuitry comprises a DAC to convert I^2C signals from the vibration sensor into analog signals.

8. A handling device according to any preceding claim wherein the coupling device comprises a screened cable.

9. A handling device according to claim 7 or 8 in which the vibration sensor has a ground node and the coupling device provides a connection to ensure the ground potential at the vibration sensor is that at the location of the processing circuitry.

10. A handling device according to any preceding claim where the location remote from the vibration sensor is a location on a fixed part of the handling device.

11. A handling device according to any preceding claim wherein the robot arm is adapted to engage a semiconductor wafer.

12. A robot arm vibration sensor having a coupling device for connecting the sensor to power and control circuitry, the coupling device being configured to allow the power and control circuitry to be disposed remotely from the sensor, the power and control circuitry being configured to communicate control signals via the coupling device to the vibration sensor using a local-type protocol comprising one of I^2C and SPI and to receive sensor signals from the vibration sensor via the coupling device using the local-type protocol, to protocol –convert the local-type protocol signals to a transmission protocol comprising one of PWM, RS232 RS-485, RS-422, CAN bus, SPI bus, USB bus, RS-232 by wire for output to a handling device controller.

13. A robot arm vibration sensor according to claim 12, wherein the coupling device is configured to allow the power and control circuitry to be disposed on a non-moving part of the robot.