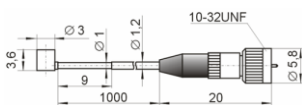
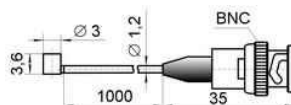


The AP Tech range of miniature accelerometers is designed to offer good stability, large dynamic range and very small dimensions. In all situations where mass-loading of the test-object has to be considered, Type AP19 or AP33 is the best choice. AP31 and AP2031 have an integral M5 mounting-stud, all other miniature versions are designed for glue- or wax-mounting.

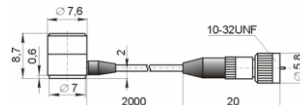
| <b>High frequency/miniature accelerometers</b> |                    | AP19 (-HT)                   | AP2019                             | AP30          | AP2030        |
|--|--------------------|------------------------------|------------------------------------|---------------|---------------|
| <b>Parameter</b>                               | <b>Unit</b>        |                              |                                    |               |               |
| Charge sensitivity (+/- 10%)                   | pC/g               | 0.25*                        | -                                  | 1.1           | -             |
|  | pC/ms <sup>2</sup> | 0.03                         | -                                  | 0.1           | -             |
| Voltage sensitivity (+/- 10%)                  | mV/g               | -                            | 0.5                                | -             | 3             |
|  | mV/ms <sup>2</sup> | -                            | 0.05                               | -             | 0.3           |
| Amplitude range                                | g rms              | 20,000                       | 7,000                              | 10,000        | 1,500         |
| Resolution (1 Hz to 10 kHz)                    | g rms              | -                            | 0.005                              | -             | 0.002         |
| Mechanical shock limit                         | g peak             | 40,000                       | 40,000*                            | 20,000        | 3,000         |
| Frequency range (+/- 1 dB)                     | Hz                 | 0.5 to 30,000                | 5 to 30,000                        | 0.5 to 20,000 | 0.5 to 20,000 |
| Resonant frequency                             | kHz                | >100                         | >100                               | >60           | >60           |
| Transverse sensitivity                         | %                  | <5                           | <5                                 | <3            | <3            |
| Base strain sensitivity                        | g/μm               | <0.005                       | <0.005                             | <0.005        | <0.005        |
| Temperature range                              | °C                 | -60 to +150                  | -60 to +250                        | -40 to +125   | -40 to +125   |
| Insulation resistance                          | MΩ                 | >10,000                      | -                                  | >10,000       | -             |
| Capacitance                                    | pF                 | 500 to 700                   | -                                  | 500 to 700    | -             |
| Isolated base                                  |                    | No                           | No                                 | Yes           | Yes           |
| Excitation voltage                             | Volt DC            | -                            | +15 to +30                         | -             | +15 to +30    |
| Constant current                               | mA                 | -                            | 2 to 20                            | -             | 2 to 20       |
| Output impedance                               | Ω                  | -                            | <500                               | -             | <500          |
| Output bias voltage                            | Volt DC            | -                            | +8 to +11                          | -             | +8 to +11     |
| Settling time                                  | second             | -                            | 4                                  | -             | 4             |
| Construction                                   |                    | Shear                        | Shear                              | Shear         | Shear         |
| Piezo material                                 |                    | ZTP19                        | ZTP19                              | ZTP19         | ZTP19         |
| Sensor connector                               |                    | -                            | -                                  | -             | -             |
| Integral cable length                          | meter              | 1                            | 1                                  | 2             | 2             |
| Connecting cable                               |                    | -                            | -                                  | -             | -             |
| Cable connector                                |                    | 10-32 UNF                    | BNC                                | 10-32 UNF     | BNC           |
| Side/Top connection                            |                    | Side                         | Side                               | Side          | Side          |
| Mounting method                                |                    | Adhesive                     | Adhesive                           | Adhesive      | Adhesive      |
| Housing material                               |                    | Titanium Alloy               | Titanium                           | Titanium      | Titanium      |
| Weight without cable                           | gram               | 0.14                         | 0.18                               | 1.3           | 1.6           |
| Notes  |                    | * Charge sensitivity +/- 20% | * max shock for connector 10,000 g |               |               |



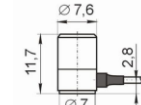
AP19



AP2019



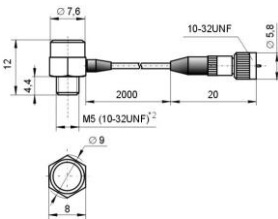
AP30



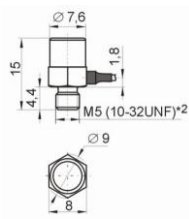
AP2030

The AP Tech range of miniature accelerometers is designed to offer good stability, large dynamic range and very small dimensions. In all situations where mass-loading of the test-object has to be considered, Type AP19 or AP33 is the best choice. AP31 and AP2031 have an integral M5 mounting-stud, all other miniature versions are designed for glue- or wax-mounting.

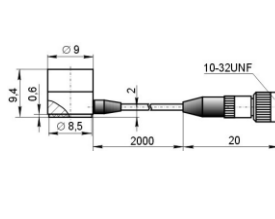
| <b>High frequency/miniature accelerometers</b> |                    | <b>AP31</b>   | <b>AP2031</b> | <b>AP32</b>   | <b>AP33</b>   |
|--|--------------------|---------------|---------------|---------------|---------------|
| <b>Parameter</b>                               | <b>Unit</b>        |               |               |               |               |
| Charge sensitivity (+/- 10%)                   | pC/g               | 1.1           | -             | 2             | 0.2           |
|  | pC/ms <sup>2</sup> | 0.1           | -             | 0.2           | 0.003         |
| Voltage sensitivity (+/- 10%)                  | mV/g               | -             | 3             | -             | -             |
|  | mV/ms <sup>2</sup> | -             | 0.3           | -             | -             |
| Amplitude range                                | g rms              | 20,000        | 1,500         | 10,000        | 20,000        |
| Resolution (1 Hz to 10 kHz)                    | g rms              | -             | 0.002         | -             | -             |
| Mechanical shock limit                         | g peak             | 40,000        | 3,000         | 20,000        | 40,000        |
| Frequency range (+/- 1 dB)                     | Hz                 | 0.5 to 20,000 | 0.5 to 20,000 | 0.5 to 18,000 | 0.5 to 30,000 |
| Resonant frequency                             | kHz                | >60           | >60           | >50           | >90           |
| Transverse sensitivity                         | %                  | <3            | <3            | <3            | <3            |
| Base strain sensitivity                        | g/μm               | <0.0001       | <0.0001       | <0.0005       | <0.0001       |
| Temperature range                              | °C                 | -60 to +150   | -40 to +125   | -60 to +150   | -60 to +150   |
| Insulation resistance                          | MΩ                 | >10,000       | >10,000       | >10,000       | >10,000       |
| Capacitance                                    | pF                 | 600 to 900    | -             | 600 to 900    | 500 to 700    |
| Isolated base                                  |                    | No            | No            | Yes           | No            |
| Excitation voltage                             | Volt DC            | -             | +15 to +30    | -             | -             |
| Constant current                               | mA                 | -             | 2 to 20       | -             | -             |
| Output impedance                               | Ω                  | -             | <500          | -             | -             |
| Output bias voltage                            | Volt DC            | -             | +8 to +11     | -             | -             |
| Settling time                                  | second             | -             | 4             | -             | -             |
| Construction                                   |                    | Shear         | Shear         | Shear         | Shear         |
| Piezo material                                 |                    | ZTP19         | ZTP19         | ZTP19         | ZTP19         |
| Sensor connector                               |                    | -             | -             | -             | -             |
| Integral cable length                          | meter              | 2             | 2             | 2             | 2             |
| Connecting cable                               |                    | -             | -             | -             | -             |
| Cable connector                                |                    | 10-32 UNF     | BNC           | 10-32 UNF     | 10-32 UNF     |
| Side/Top connection                            |                    | Side          | Side          | Side          | Side          |
| Mounting method                                |                    | M5 stud       | M5 stud       | Adhesive      | Adhesive      |
| Housing material                               |                    | Titanium      | Titanium      | Titanium      | Titanium      |
| Weight without cable                           | gram               | 1.3           | 1.6           | 2             | 0.7           |
| <b>Notes</b>                                   |                    |               |               |               |               |



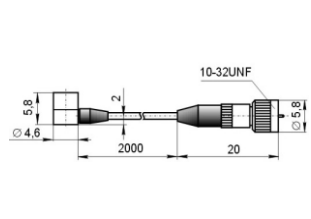
AP31



AP2031



AP32



AP33

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