

Overview of "Scanner Series" Piezoelectric Motion Unit

Low Temperature Piezoelectric Motion - Scanner Series

Choose your suitable MultiFields® "Scanner Series" product



| Series defined by size | "16mm Series" | | "25mm Series" | | "35mm Series" | | Series defined by size |
|------------------------|--|------------|---------------|-------------|---------------|---------------|------------------------|
| 1 Work Environment | <ul style="list-style-type: none"> • Default: 1.4 K ~ 400 K; 1e-7 mbar; 35 Tesla • Option1 - .ULT, lowest use temperature 30 mK; • Option2 - .UHV, highest vacuum environment 2E-11 mbar; | | | | | | Work Environment 1 |
| 2 Scanning Axes | X, Y | Z | X, Y | Z | X, Y | Z | Scanning Axes 2 |
| 3 Dimensions | 16*16*9 mm | 16*16*6 mm | 25*25*13.5 mm | 25*25*12 mm | 35*35*14.5 mm | 35*35*14.5 mm | Dimensions 3 |
| 4 Travel Range | 30 μm*30 μm | 30 μm | 55 μm*55um | 55 μm | 100 μm*100 μm | 100 μm | Travel Range 4 |
| 5 Max. Load | 100 g | 100 g | 200 g | 200 g | 500 g | 500 g | Max. Load 5 |
| 6 Repeatability | < 10 nm | | | | | | Repeatability 6 |
| 7 Drive Voltage | Max. 75 V @300K; Max. 180 V @4K | | | | | | Drive Voltage 7 |
| 8 Resolution | 0.5 nm | 0.5 nm | 0.8 nm | 0.8 nm | 2 nm | 2 nm | Resolution 8 |
| 9 Pins | 4 pins | 2 pins | 4 pins | 2 pins | 4 pins | 2 pins | Pins 9 |
| 10 Main Body | Default: Pure Ti; ULT: BeCu | | | | | | Main Body 10 |
| 11 Weight | 8 g | 7g | 23 g | 20 g | 65 g | 65 g | Weight 11 |

Piezoelectric Motion - LT

Piezoelectric Motion - LT

"16 mm Series" – Scanner16-xy

Low Temperature · Piezoelectric Motion- Scanner Series

Smallest scanner stage

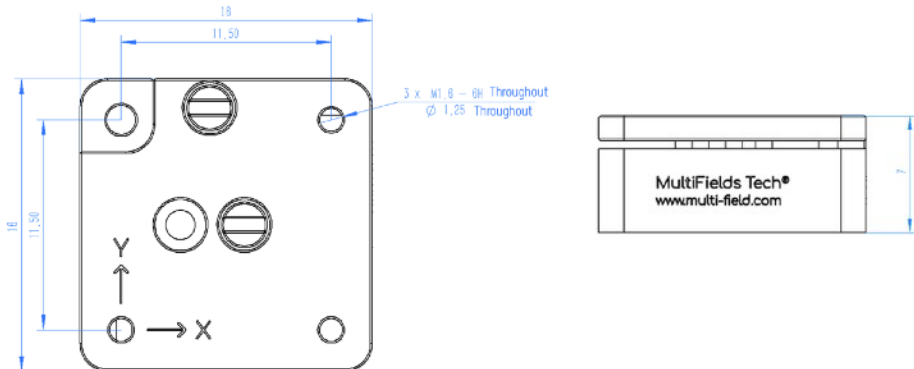


Scanner16-xy.HV

Features

- Compact design, dimensions: 16*16*7 mm
- Ultra-high vacuum & very low temperature compatible: 2 E-11 mbar & 30 mK
- Non-magnetic material Composed of pure Ti & BeCu, compatible with the 35 Tesla magnetic field
- High loads: 100 g
- Long travel range @300 K: 30*30 μm
- Position sensing up to 0.5 nm resolution

Dimension drawing



Scanner16-xy, Specification

*All data below is measured with 50 ohm wires. Though there is no requirement on wires' conductance, we recommend resistance below 50 ohm.

| Optional Versions ⇨ | .HV (default) | .ULT | .UHV | .ULT.UHV | |
|---|----------------------|--|--|------------|------|
| .HV version, default product; .ULT version, used at He3 or dilution cryogenics systems .UHV version, compatible with 2E-11 mbar | | | | | |
| 1 | Footprint × height | | 16 mm × 16 mm × 7 mm | | |
| 2 | Weight | | 8 g | | |
| Working Environment | | | | | |
| 3 | Work environment | | Temperature range: 1.4 ~ 400 K Vacuum: 1e-7 mbar Max. Magnetic field: 35 Tesla | | |
| 4 | Option1 - 30 mK | ✓ | | ✓ | |
| 5 | Option2 - 2e-11 mbar | | ✓ | ✓ | |
| Materials | | | | | |
| 6 | Mainbody | Pure Ti | BeCu | Pure Ti | BeCu |
| 7 | Wires | Phosphor Bronze Twisted Paired Wires, 20cm | | | |
| 8 | Pin materials | Polyster (glass fiber filled), BeCu | | Peek, BeCu | |
| 9 | Pins number | 2 pins for each axis | | | |
| Motion (Closed Loop Mode) | | | | | |
| 10 | Scanning Axes | X, Y | | | |
| 11 | Travel range @300 K | 30 × 30 μm | | | |
| 12 | Drive voltage | Max. 75 V @300 K Max. 180 V @4 K | | | |
| 13 | Max. Load | 100 g | | | |
| 14 | Capacitance @300 K | 1 uF | | | |
| 15 | Resolution | 0.5 nm | | | |
| 16 | Repeatability | < 10 nm | | | |

Piezoelectric Motion - LT

Piezoelectric Motion - LT

"16 mm Series" – Scanner16-z

Low Temperature · Piezoelectric Motion- Scanner Series

Smallest scanner stage

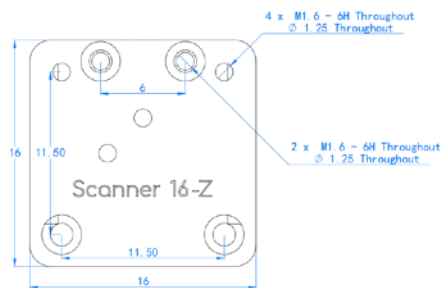


Scanner16-z.HV

Features

- Compact design, dimensions: 16*16*6 mm
- Ultra-high vacuum & very low temperature compatible: 2 E-11 mbar & 30 mK
- Non-magnetic material Composed of pure Ti & BeCu, compatible with the 35 Tesla magnetic field
- High loads: 100 g
- Long travel range @300 K: 30 μm
- Position sensing up to 0.5 nm resolution

Dimension drawing



Scanner16-z, Specification

*All data below is measured with 50 ohm wires. Though there is no requirement on wires' conductance, we recommend resistance below 50 ohm.

| Optional Versions ⇄ | .HV (default) | .ULT | .UHV | .ULT.UHV | |
|---|----------------------|--|------|------------|------|
| .HV version, default product; .ULT version, used at He3 or dilution cryogenics systems .UHV version, compatible with 2E-11 mbar | | | | | |
| 1 | Footprint × height | 16 mm × 16 mm × 6 mm | | | |
| 2 | Weight | 7g | | | |
| Working Environment | | | | | |
| 3 | Work environment | Temperature range: 1.4 ~ 400 K Vacuum: 1e-7 mbar Max. Magnetic field: 35 Tesla | | | |
| 4 | Option1 - 30 mK | ✓ | | ✓ | |
| 5 | Option2 - 2e-11 mbar | | ✓ | ✓ | |
| Materials | | | | | |
| 6 | Mainbody | Pure Ti | BeCu | Pure Ti | BeCu |
| 7 | Wires | Phosphor Bronze Twisted Paired Wires, 20cm | | | |
| 8 | Pin materials | Polyster (glass fiber filled), BeCu | | Peek, BeCu | |
| 9 | Pins number | 2 pins | | | |
| Motion (Closed Loop Mode) | | | | | |
| 10 | Scanning Axes | Z | | | |
| 11 | Travel range @300 K | 30 μm | | | |
| 12 | Drive voltage | Max. 75 V @300 K Max. 180 V @4 K | | | |
| 13 | Max. Load | 100 g | | | |
| 14 | Capacitance @300 K | 0.8 uF | | | |
| 15 | Resolution | 0.5 nm | | | |
| 16 | Repeatability | < 10 nm | | | |

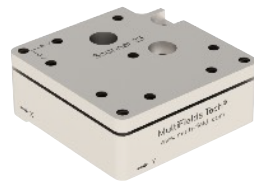
Piezoelectric Motion - LT

Piezoelectric Motion - LT

"25 mm Series" – Scanner25-xy

Low Temperature · Piezoelectric Motion- Scanner Series

High-load scanner stage

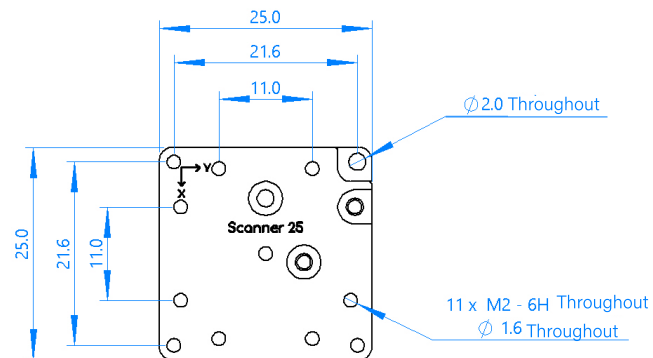


Scanner25-xy.HV

Features

- Compact design, dimensions: 25*25*10 mm
- Ultra-high vacuum & very low temperature compatible: 2 E-11 mbar & 30 mK
- Non-magnetic material Composed of pure Ti & BeCu, compatible with the 35 Tesla magnetic field
- High loads: 200 g
- Long travel range @300 K: 55*55 μm
- Position sensing up to 0.8 nm resolution

Dimension drawing



Scanner25-xy, Specification

*All data below is measured with 50 ohm wires. Though there is no requirement on wires' conductance, we recommend resistance below 50 ohm.

| Optional Versions ⇨ | .HV (default) | .ULT | .UHV | .ULT.UHV | |
|---|----------------------|--|--|------------|------|
| .HV version, default product; .ULT version, used at He3 or dilution cryogenics systems .UHV version, compatible with 2E-11 mbar | | | | | |
| 1 | Footprint × hight | | 25 mm × 25 mm × 10 mm | | |
| 2 | Weight | | 23 g | | |
| Working Environment | | | | | |
| 3 | Work environment | | Temperature range: 1.4 ~ 400 K Vacuum: 1e-7 mbar Max. Magnetic field: 35 Tesla | | |
| 4 | Option1 - 30 mK | ✓ | | ✓ | |
| 5 | Option2 - 2e-11 mbar | | ✓ | ✓ | |
| Materials | | | | | |
| 6 | Mainbody | Pure Ti | BeCu | Pure Ti | BeCu |
| 7 | Wires | Phosphor Bronze Twisted Paired Wires, 20cm | | | |
| 8 | Pin materials | Polyster (glass fiber filled), BeCu | | Peek, BeCu | |
| 9 | Pins number | 2 pins for each axis | | | |
| Motion (Closed Loop Mode) | | | | | |
| 10 | Scanning Axes | X, Y | | | |
| 11 | Travel range @300 K | 55 × 55 μm | | | |
| 12 | Drive voltage | Max. 75 V @300 K Max. 180 V @4 K | | | |
| 13 | Max. Load | 200 g | | | |
| 14 | Capacitance @300 K | 4 uF | | | |
| 15 | Resolution | 0.8 nm | | | |
| 16 | Repeatability | < 10 nm | | | |

Piezoelectric Motion - LT

Piezoelectric Motion - LT

"25 mm Series" – Scanner25-z

Low Temperature · Piezoelectric Motion- Scanner Series

High-load scanner stage

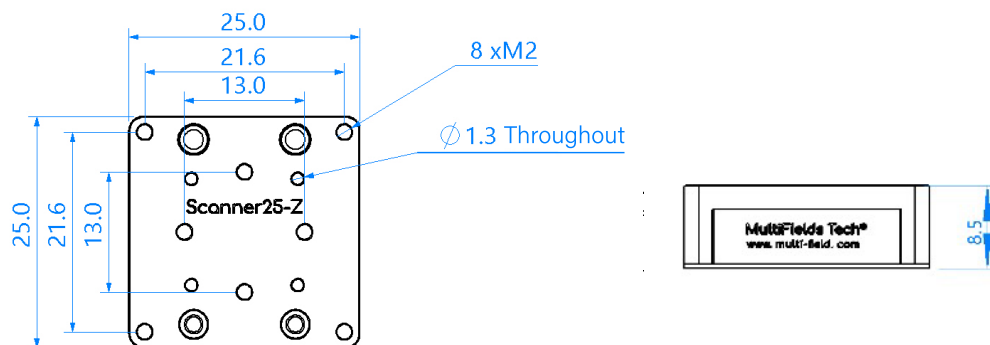


Scanner25-z.HV

Features

- Compact design, dimensions: 25*25*8.5 mm
- Ultra-high vacuum & very low temperature compatible: 2 E-11 mbar & 30 mK
- Non-magnetic material Composed of pure Ti & BeCu, compatible with the 35 Tesla magnetic field
- High loads: 200 g
- Long travel range @300 K: 55 μ m
- Position sensing up to 0.8 nm resolution

Dimension drawing



Scanner25-z, Specification

*All data below is measured with 50 ohm wires. Though there is no requirement on wires' conductance, we recommend resistance below 50 ohm.

| Optional Versions ⇄ | .HV (default) | .ULT | .UHV | .ULT.UHV | |
|---|--|--|------|------------|------|
| .HV version, default product; .ULT version, used at He3 or dilution cryogenics systems .UHV version, compatible with 2E-11 mbar | | | | | |
| 1 | Footprint × height 25 mm × 25 mm × 8.5 mm | | | | |
| 2 | Weight 20 g | | | | |
| Working Environment | | | | | |
| 3 | Work environment Temperature range: 1.4 ~ 400 K Vacuum: 1e-7 mbar Max. Magnetic field: 35 Tesla | | | | |
| 4 | Option1 - 30 mK | ✓ | | ✓ | |
| 5 | Option2 - 2e-11 mbar | | ✓ | ✓ | |
| Materials | | | | | |
| 6 | Mainbody | Pure Ti | BeCu | Pure Ti | BeCu |
| 7 | Wires | Phosphor Bronze Twisted Paired Wires, 20cm | | | |
| 8 | Pin materials | Polyster (glass fiber filled), BeCu | | Peek, BeCu | |
| 9 | Pins number | 2 pins | | | |
| Motion (Closed Loop Mode) | | | | | |
| 10 | Scanning Axes | Z | | | |
| 11 | Travel range @300 K | 55 μ m | | | |
| 12 | Drive voltage | Max. 75 V @300 K Max. 180 V @4 K | | | |
| 13 | Max. Load | 200 g | | | |
| 14 | Capacitance @300 K | 4.2 μ F | | | |
| 15 | Resolution | 0.8 nm | | | |
| 16 | Repeatability | < 10 nm | | | |

Piezoelectric Motion - LT

Piezoelectric Motion - LT

"35 mm Series" – Scanner35-xy

Low Temperature · Piezoelectric Motion- Scanner Series

High-load scanner stage

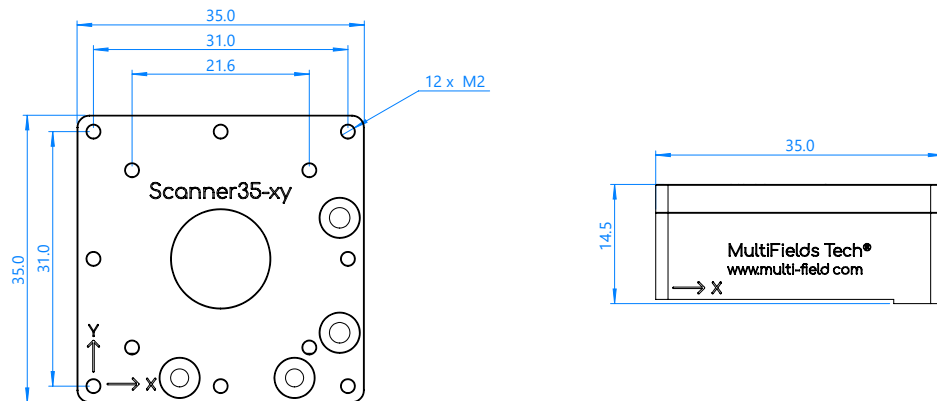


Scanner35-xy.HV

Features

- Compact design, dimensions: 35*35*14.5 mm
- Ultra-high vacuum & very low temperature compatible: 2 E-11 mbar & 30 mK
- Non-magnetic material Composed of pure Ti & BeCu, compatible with the 35 Tesla magnetic field
- High loads: 500 g
- Long travel range @300 K: 100*100 μm
- Position sensing up to 2 nm resolution

Dimension drawing



Scanner35-xy, Specification

*All data below is measured with 50 ohm wires. Though there is no requirement on wires' conductance, we recommend resistance below 50 ohm.

| Optional Versions ⇄ | .HV (default) | .ULT | .UHV | .ULT.UHV | |
|---|----------------------|--|------|------------|------|
| .HV version, default product; .ULT version, used at He3 or dilution cryogenics systems .UHV version, compatible with 2E-11 mbar | | | | | |
| 1 | Footprint × height | | | | |
| | | 35 mm × 35 mm × 14.5 mm | | | |
| 2 | Weight | | | | |
| | | 65 g | | | |
| Working Environment | | | | | |
| 3 | Work environment | | | | |
| | | Temperature range: 1.4 ~ 400 K Vacuum: 1e-7 mbar Max. Magnetic field: 35 Tesla | | | |
| 4 | Option1 - 30 mK | | | | |
| | | ✓ | | ✓ | |
| 5 | Option2 - 2e-11 mbar | | | | |
| | | | ✓ | ✓ | |
| Materials | | | | | |
| 6 | Mainbody | | | | |
| | | Pure Ti | BeCu | Pure Ti | BeCu |
| 7 | Wires | | | | |
| | | Phosphor Bronze Twisted Paired Wires, 20cm | | | |
| 8 | Pin materials | | | | |
| | | Polyster (glass fiber filled), BeCu | | Peek, BeCu | |
| 9 | Pins number | | | | |
| | | 2 pins for each axis | | | |
| Motion (Closed Loop Mode) | | | | | |
| 10 | Scanning Axes | | | | |
| | | X, Y | | | |
| 11 | Travel range @300 K | | | | |
| | | 100 × 100 μm | | | |
| 12 | Drive voltage | | | | |
| | | Max. 75 V @300 K Max. 180 V @4 K | | | |
| 13 | Max. Load | | | | |
| | | 500 g | | | |
| 14 | Capacitance @300 K | | | | |
| | | 8 uF | | | |
| 15 | Resolution | | | | |
| | | 2 nm | | | |
| 16 | Repeatability | | | | |
| | | < 10 nm | | | |

Piezoelectric Motion - LT

Piezoelectric Motion - LT

"35 mm Series" – Scanner35-z

Low Temperature · Piezoelectric Motion- Scanner Series

High-load scanner stage

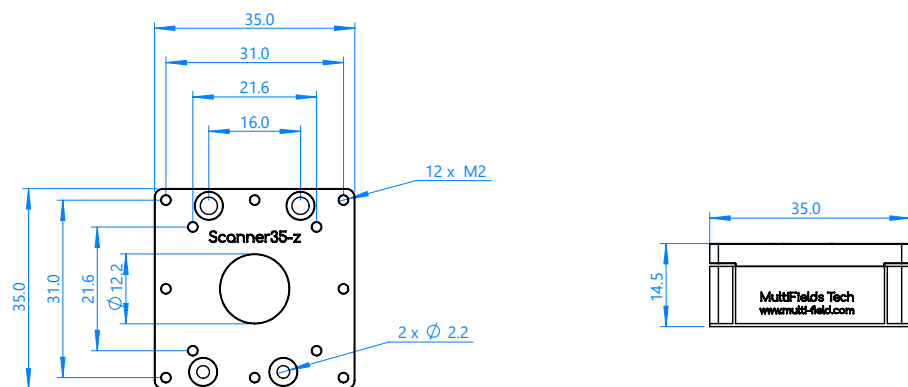


Scanner35-z.HV

Features

- Compact design, dimensions: 35*35*14.5 mm
- Ultra-high vacuum & very low temperature compatible: 2 E-11 mbar & 30 mK
- Non-magnetic material Composed of pure Ti & BeCu, compatible with the 35 Tesla magnetic field
- High loads: 500 g
- Long travel range @300 K: 100 μm
- Position sensing up to 2 nm resolution

Dimension drawing



Scanner35-z, Specification

*All data below is measured with 50 ohm wires. Though there is no requirement on wires' conductance, we recommend resistance below 50 ohm.

| Optional Versions ⇄ | .HV (default) | .ULT | .UHV | .ULT.UHV | |
|---|----------------------|--|------|------------|------|
| .HV version, default product; .ULT version, used at He3 or dilution cryogenics systems .UHV version, compatible with 2E-11 mbar | | | | | |
| 1 | Footprint × hight | 35 mm × 35 mm × 14.5 mm | | | |
| 2 | Weight | 65 g | | | |
| Working Environment | | | | | |
| 3 | Work environment | Temperature range: 1.4 ~ 400 K Vacuum: 1e-7 mbar Max. Magnetic field: 35 Tesla | | | |
| 4 | Option1 - 30 mK | ✓ | | ✓ | |
| 5 | Option2 - 2e-11 mbar | | ✓ | ✓ | |
| Materials | | | | | |
| 6 | Mainbody | Pure Ti | BeCu | Pure Ti | BeCu |
| 7 | Wires | Phosphor Bronze Twisted Paired Wires, 20cm | | | |
| 8 | Pin materials | Polyster (glass fiber filled), BeCu | | Peek, BeCu | |
| 9 | Pins number | 2 pins | | | |
| Motion (Closed Loop Mode) | | | | | |
| 10 | Scanning Axes | Z | | | |
| 11 | Travel range @300 K | 100 μm | | | |
| 12 | Drive voltage | Max. 75 V @300 K Max. 180 V @4 K | | | |
| 13 | Max. Load | 500 g | | | |
| 14 | Capacitance @300 K | 8 uF | | | |
| 15 | Resolution | 2 nm | | | |
| 16 | Repeatability | < 10 nm | | | |

Piezoelectric Motion - LT

Piezoelectric Motion - LT