

1- PT2026 KEY SPECIFICATIONS

See the PT2026 Installation and Safety Manual for Dimensions, Ratings and Back Panel Connections.

1-1 DIMENSIONS

PT2026 Main Unit	210 X 125 X 324 mm
PT2126 Main Unit	483 X 125 X 324 mm



Figure 1 - PT2026 desktop main unit, front and back panel



Figure 2 - PT2126 19" Rack mounting main unit, front panel

1-2 MEASUREMENT

Measurement principle: pulsed wave Nuclear Magnetic Resonance

Frequency range	1 MHz – 1 GHz
Resolution	± 0.1 Hz (stable field, low gradient, no averaging) < 0.01 ppm (10 ppb) in uniform 3 T field
Accuracy	± 5 ppm, independent of temperature
Max gradient	> 1000 ppm/cm
Measurement rate	Up to 33 Hz
Trigger modes	Immediate, Timed, Bus, External

1-3 RATINGS

Power	55 VA, 100 – 240 VAC, 50-60 Hz
Overvoltage	Accepts temporary overvoltage occurring on the mains supply—transient overvoltage up to the levels of overvoltage category II.
Fuse	3.15 A (T), 5x20 mm, 250 V
Environment	Indoor use; no air inlet (IP 50)
Operating temperature	10 – 40 °C
Storage / transport temperature	Deuterium probes: 0 – 80 °C Other: -25 – 80 °C
Altitude	≤ 2000 m
Relative humidity	Maximum 80 % for temperatures up to 31 °C, decreasing linearly to 50 % relative humidity at 40 °C
Pollution	Pollution degree 2: only non-conductive pollution occurs, except that occasionally a temporary conductivity caused by condensation is to be expected.
Magnetic environment	< 0.2 T (PT2026 Main Unit)
Electromagnetic environment	Equipment intended to be used in an industrial electromagnetic environment, class A.

1-4 SOFTWARE

Supported platforms	Microsoft Windows
API	Access to all system features; LabVIEW® or C++ API
Licenses	Metrolab (including source code for LabVIEW & C++ API) National Instruments (LabVIEW® and NI-VISA run-times)

2- PROBE SPECIFICATIONS

2-1 PROBE MODEL 1326

Heavy-duty probe, suited for most measurements.

A single connector makes it easy to plug and unplug. An integrated 3-axis Hall probe speeds up the search for the NMR signal.



2-1-1 Ranges

Model designation	Range minimum (T)	Range Maximum (T)	Sample diameter, material
1326-0.038-0.14	0.038	0.14	7.45 mm, Hydrogen / synthetic rubber
1326-0.13-0.48	0.13	0.48	5.1 mm, Hydrogen / synthetic rubber
1326-0.46-1.5	0.46	1.5	2.9 mm, Hydrogen / synthetic rubber
1326-0.9-3.2	0.90	3.2	2.9 mm, Hydrogen / synthetic rubber
1326-1.4-4.8	1.4	4.8	2.9 mm, Hydrogen / synthetic rubber
1326-4.35-11.7	4.35	11.7	1.8 mm, Hydrogen / natural rubber
1326-10-32	10	32	3.6 mm, Deuterium / heavy water
1326-0.1-3	0.094	3.05	7.35 mm, Hydrogen / synthetic rubber

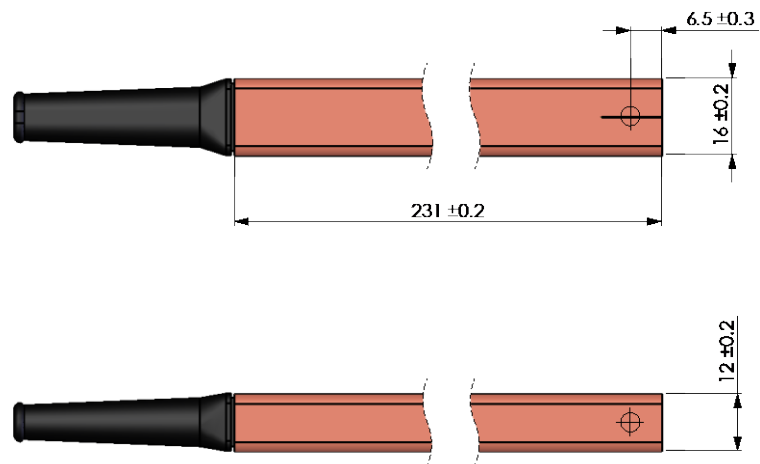
Note that model 1326-0.1-3 is a specialty probe, suitable only for applications where a highly uniform field can be guaranteed, such as calibration magnets.

Custom ranges are available upon request.

2-1-2 Dimensions

16 x 12 x 231 mm (same as PT2025 model 1062 probes)

Probe, model 1326



Probe cable length

10 m as a standard; custom length upon request
100 m max total length (incl. multiplexers)

2-2 PROBE MODEL 1426

Model 1426 probes have a remote passive measurement head that fits into small gaps and is ideal for high-radiation environments that would damage electronic components.



2-2-1 Ranges

Model designation	Range minimum (T)	Range maximum (T)	Sample diameter, material
1426-0.19-0.52	0.19	0.52	4.0 mm, Hydrogen / synthetic rubber
1426-0.42-1.29	0.42	1.29	3.0 mm, Hydrogen / synthetic rubber
1426-1.13-3.52	1.13	3.52	3.0 mm, Hydrogen / synthetic rubber
1426-3.17-10.69	3.17	10.69	1.8 mm, Hydrogen / natural rubber
1426-8.00-22.80	8.0	22.8	3.6 mm, Deuterium / heavy water

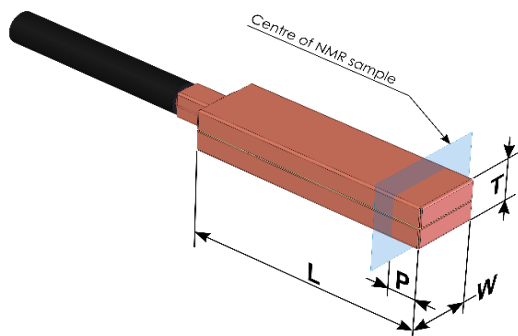
2-2-2 Dimensions

Probe, model 1426
Electronics

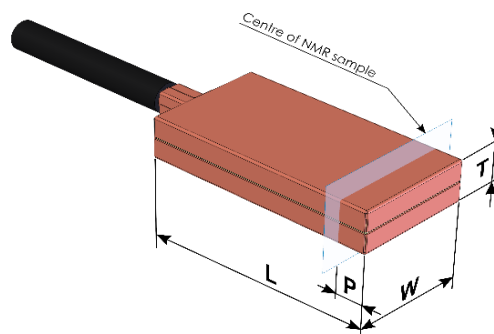
16 x 12 x 231 mm

		L [mm]	W [mm]	T [mm]	P [mm]
Measurement head	Proton sample	31.9 ±0.5	9.6 ±0.5	5.9 ±0.5	4.0 ±0.3
	Deuterium sample	31.9 ±0.5	16.9 ±0.2	6.2 ±0.5	4.0 ±0.3

PWP1426 Remote Head for Medium and High Field



PWP1426 Remote Head for D2O sample



Electronics – head:

50 cm, Ø 4.3 mm

Cable Length

Probe- Electronics

10 m; custom upon request

100 m max total length (incl. multiplexers)

2-3 PROBE MODEL 1426-THIN

Model 1426-Thin probes have a remote passive measurement head that fits into gaps as small as 1.5 mm and is ideal for high-radiation environments that would damage electronic components.



2-3-1 Ranges

Model designation	Range minimum (T)	Range maximum (T)	Sample diameter, material
1426T-0.19-0.58	0.19	0.58	3.6 mm, Hydrogen / synthetic rubber
1426-0.45-1.50	0.45	1.50	3.0 mm, Hydrogen / synthetic rubber
1426-1.4-4.2*	1.4	4.2	3.0 mm, Hydrogen / synthetic rubber
1426-3.5-10.5*	3.5	10.5	1.8 mm, Hydrogen / natural rubber

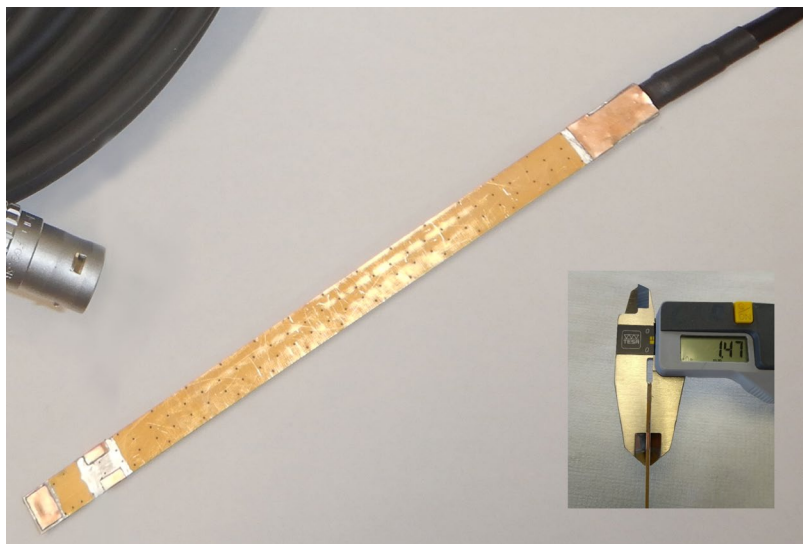
* Subject to change, ranges to be confirmed

2-3-2 Dimensions

**Probe, model 1426-thin
Electronics**

16 x 12 x 231 mm

Measurement head	L [mm]	W [mm]	T [mm]
	Proton sample	179.0 ±0.5	9.4 ±0.2



Cable Length

Electronics – head:

50 cm, Ø 4.3 mm

Probe- Electronics

10 m; custom upon request

100 m max total length (incl. multiplexers)

2-4 PROBE MODEL 1526

Model 1526 probes have a remote active measurement head that fits into small gaps. The local treatment of the NMR signal improves the signal-to-noise ratio and allows for longer cables.



2-4-1 Ranges

Model designation	Range minimum (T)	Range maximum (T)	Sample diameter, material
1526-0.038-0.14	0.038	0.14	7.45 mm, Hydrogen / synthetic rubber
1526-0.13-0.48	0.13	0.48	4.0 mm, Hydrogen / synthetic rubber
1526-0.46-1.5	0.46	1.5	2.9 mm, Hydrogen / synthetic rubber
1526-0.9-3.2	0.9	3.2	2.9 mm, Hydrogen / synthetic rubber
1526-1.4-4.8	1.4	4.8	2.9 mm, Hydrogen / synthetic rubber
1526-4.35-11.7	4.35	11.7	1.8 mm, Hydrogen / natural rubber
1526-9.5-32	9.5	32.0	3.6 mm, Deuterium / heavy water
1526-0.1-3	0.094	3.05	7.35 mm, Hydrogen / synthetic rubber
1526-0.65-2.4	0.65	2.4	2.9 mm, Hydrogen / synthetic rubber

Note that model 1526-0.1-3 is a specialty probe, suitable only for applications where a highly uniform field can be guaranteed, such as calibration magnets.

Custom ranges are available upon request.

2-4-2 Dimensions

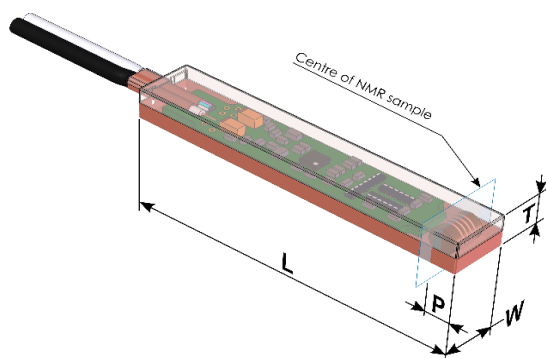
Probe, model 1526

16 x 12 x 231 mm

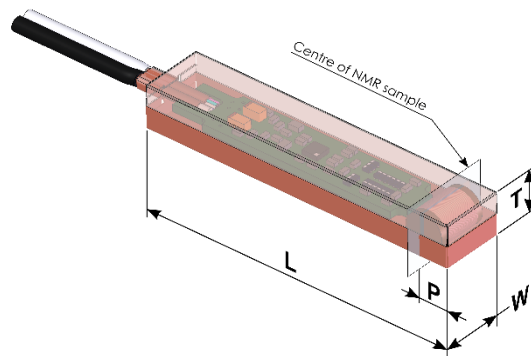
Electronics

		L [mm]	W [mm]	T [mm]	P [mm]
Measurement head	Head MF-HF	60.5 ±0.5	10.8 ±0.2	6.0 ±0.2	4.5 ±0.3
	Head LF	63 ±0.5	12.8 ±0.2	9.1 ±0.2	5.6 ±0.3
	Head D ₂ O	60.5 ±0.5	15.8 ±0.2	6.0 ±0.2	4.5 ±0.3

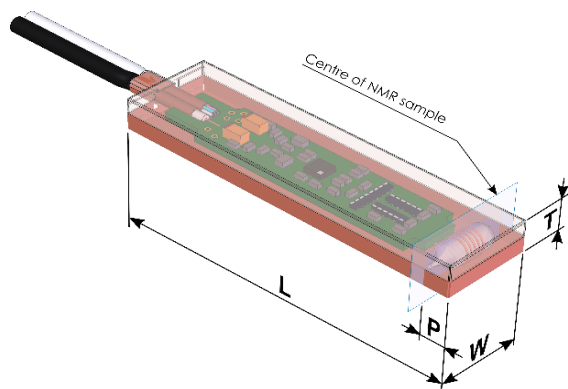
PWP1526 Remote Head for Medium and High Field



PWP1526 Remote Head for Low Field



PWP1526 Remote Head for D2O sample



Electronics – head:

150 cm, up to 10 m, Ø 4.3 mm

Probe cable length

Probe- Electronics

10 m; custom upon request

100 m max total length (incl. multiplexers)

2-5 INTEGRATED HALL PROBE

The integrated hall probe is meant to accelerate the process of finding the NMR signal, as such it isn't calibrated but uses a standard compensation curve, based on statistics over several sensors. As such, it can lead to measurements being off by several percents.

Be aware that the Hall probe that comes along the 1526 probe is not attached to the NMR sensor allowing the user to put it in the position of his choosing. As such, it can lead to dramatic differences when located in an area that isn't related to the magnetic field that is meant to be measured by the NMR sensor. Right now, there is no way to inform the main unit of a relation between the Hall value measured by the probe and the one that should be seen by the NMR sensor. Allowing the use of the Hall probe

2-5-1 Availability

	Hall probe
Model 1326 probe	Included
Model 1426 probe	Not available
Model 1526 probe	Optional

2-5-2 Measurement

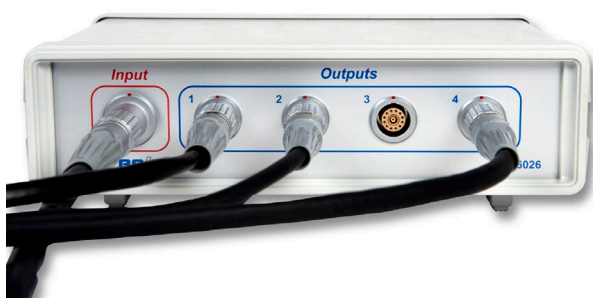
	Hall and NMR signals acquired <u>non simultaneously</u> to avoid signal disruption
Acquisition	Hall signal measured until NMR search range is reached
	Hall probe can be deactivated
Color of the display of the measured field strength	Orange during Hall measurement
	Green during NMR measurement
Precision (Hall)	5%

3- OPTIONS AND ACCESSORIES

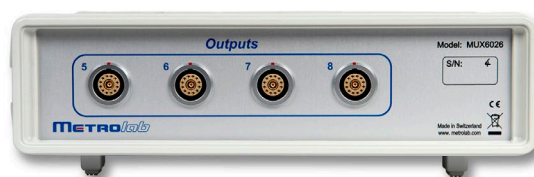
3-1 MULTIPLEXER

MUX6026-4 Multiplexer	250 X 80 X 180 mm
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MUX6026-8 Multiplexer	250 X 80 X 180 mm
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MUX6026-4 NMR probe multiplexer & MUX6026-8 NMR probe multiplexer front panel



MUX6026-8 NMR probe multiplexer back panel

3-1-1 MUX6026-4 4-CHANNEL MULTIPLEXER

For up to 4 channels. For direct connection of any combination of 1326 -1426 -1526 NMR Probes or 6026 Multiplexers, up to 3 levels of multiplexers.

3-1-2 MUX6026-8 8-CHANNEL MULTIPLEXER

For up to 8 channels. For direct connection of any combination of 1326 -1426 -1526 NMR Probes or 6026 Multiplexers, up to 3 levels of multiplexers.

3-2 FIELD REGULATION UNIT FOR PT2026 AND PT2126



RG8026 Magnetic Field Regulation Unit (board, back panel and cable).

Stabilizes the field of resistive, superconducting or permanent magnets by continuously measuring the field. The RG8026 can generate a correction voltage or current for an MPS with analog fine control, directly drive a small correction coil, or drive an auxiliary coil power supply.

3-3 PROBE-EXTENSION/MULTIPLEXER CABLES

3026-10M	1 - 10 m long	Cable diameter 13 mm*
3026-11M	11 - 50 m long	Cable diameter 15 mm*
3026-51M	51 - 100 m long	Cable diameter 20 mm*

Cables between NMR Teslameter Main Unit / 6026 Multiplexer, or cable extension for any 1326 -1426 - 1526 NMR Probes.

- We recommend using the highest rating of the total cable length, not of the individual segments.