

NOMEX[®] Multimeter

True Precision. PTW.



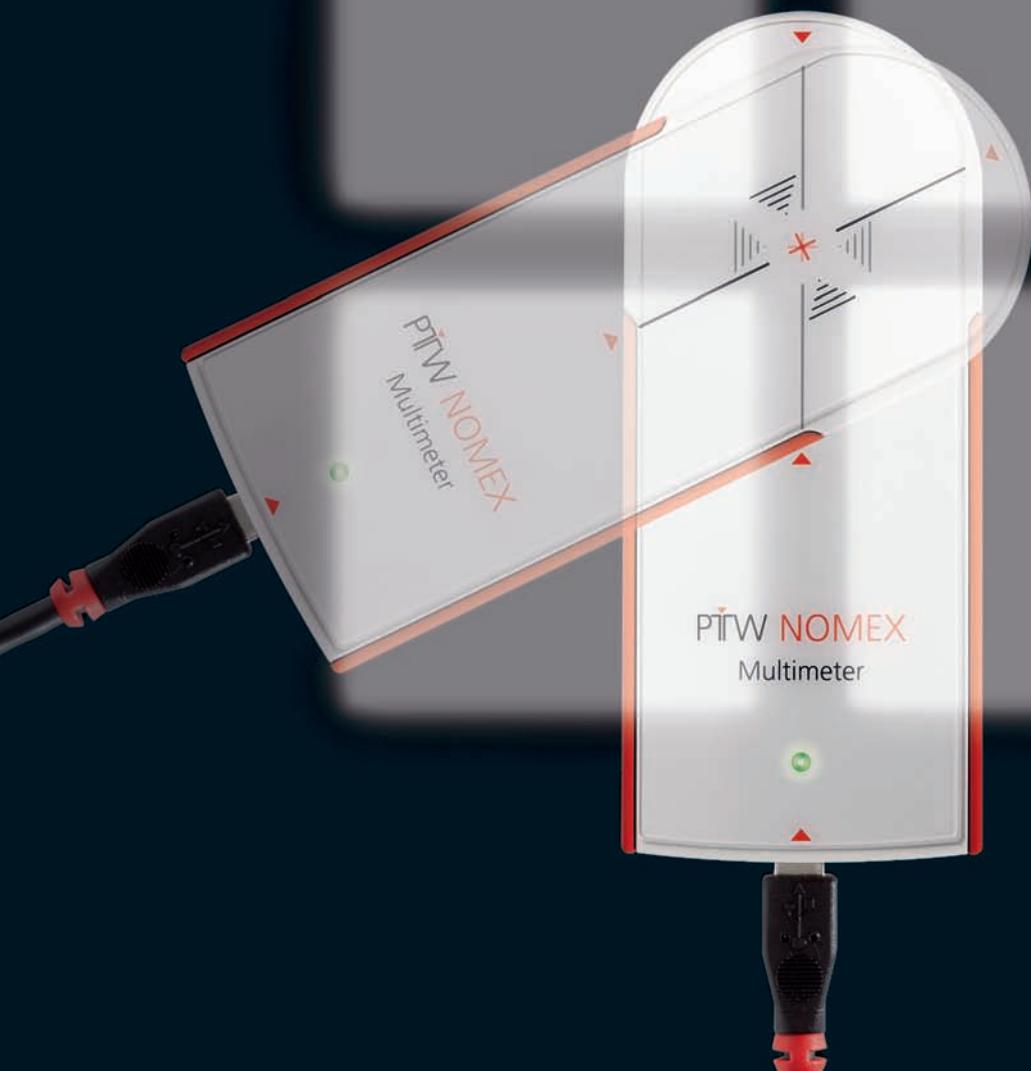
Connect ...



NOMEX[®] Multimeter

- ▶ Compact multi-parameter measuring device compliant with IEC 61674 for acceptance testing and routine quality control measurements on diagnostic X-ray units (different models available e.g. for RAD/FLU, DENT, CT, MAM, IGRT)
- ▶ Connection of the CE marked class IIb certified device to a PC via USB
- ▶ Single exposure simultaneously captures: dose, dose rate, dose per pulse, pulses, frequency, irradiation time, tube voltage, total filtration, half value layer, together with waveforms for both kV and dose rate and mAs (optionally)
- ▶ Dose and dose rate measurements at a total filtration up to 2.5 mm Cu possible
- ▶ kVpmax, kVpmean and practical peak voltage (PPV) calculation according to the algorithm of IEC 61676
- ▶ True Precision: Dose accuracy within the RAD/FLU range typically $\pm 1.5\%$, within the MAM range $\pm 2.5\%$, long term stability $\pm 1\%$ per year, dose stability for exposures up to 40 Gy $\pm 1\%$

... position ...



NOMEX[®] Multimeter

- ▶ Angular independent for positioning within the beam
- ▶ Ergonomic housing avoids shifting after positioning
- ▶ Automatic start/stop and auto reset functions
- ▶ Automatic dose and kV ranging avoids double exposures
- ▶ Automatic total filtration compensation up to 55 mm Al
- ▶ Automatic HVL detection for all applications incl. MAM
- ▶ Optional mAs measurement (invasive or non-invasive)

... evaluate.

The image displays the PTW Track-it software interface, which is used for monitoring and evaluating radiation measurements. The interface is divided into several sections:

- Top Left:** A sidebar menu with options for "RAD/FLU/DENT", "CT", "DENT-PAN", and "MAM".
- Top Center:** A large display showing "Dose Rate" and "Exposure Time" both at "0.00".
- Top Right:** A detailed measurement window for "mAs | RAD/FLU/DENT" (40 kV - 150 kV) showing various parameters: Current (0.000 A), mAs (0.000 As), Dose (0.000 Gy), Dose Rate (0.000 Gy/s), Exposure Time (0.000 s), Mean kVp (0.0 kV), Half Value Layer (0.00 mm Al), Total Filtration (0.0 mm Al), Pulses (0), Dose per Pulse (0.000 Gy), Frequency (0.0 Hz), and mAs per Pulse (0.000 As).
- Middle Right:** A language selection dropdown menu with options: English, Deutsch, Français, Español, Italiano, Português, русский, 中文, and 日本語.
- Bottom Right:** A data table with columns for "Dose Rate [Gy/s]", "Dose [Gy]", and "Exposure [ms]". The table contains 18 rows of data, with the 4th row highlighted in orange.
- Bottom Center:** A "Trends" graph showing "Practical peak voltage in kVp" (left y-axis, 0.000 to 0.004) and "3-ray dose rate" (right y-axis, 0.0000 to 0.0004) over time (x-axis, 2/5/18 to 2/8/18). The graph shows two data series: a blue line for practical peak voltage and a black line for 3-ray dose rate.

Dose Rate [Gy/s]	Dose [Gy]	Exposure [ms]
0.066E-03	0.033E-03	44.1
0.092E-03	0.046E-03	43.4
0.046E-03	0.023E-03	52.1
0.056E-03	0.028E-03	60.1
0.080E-03	0.040E-03	41.3
0.070E-03	0.035E-03	90.5
0.044E-03	0.022E-03	90.8
0.062E-03	0.031E-03	61.7
0.074E-03	0.037E-03	4.5
0.046E-03	0.023E-03	18.3
0.042E-03	0.021E-03	95.5
0.016E-03	0.008E-03	28.7
0.050E-03	0.025E-03	86.4
0.056E-03	0.028E-03	93.3
0.046E-03	0.023E-03	24.4
0.028E-03	0.014E-03	79.8
0.020E-03	0.010E-03	94.4
0.050E-03	0.025E-03	7.9
0.078E-03	0.039E-03	59.2

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- ▶ Modifiable parameter displaying (view all parameters at a glance or just selected ones)
- ▶ Statistic calculations (mean value, standard deviation, coefficient of variation) by simply marking the results of interest
- ▶ Automatic data export to Track-it[®]
- ▶ Data and waveform export as XLS, XML or CSV file for subsequent data processing
- ▶ Export of measurement data directly to a connected Excel workbook possible
- ▶ Software menu available in different languages (German, English, French, Spanish, Portuguese, Italian, Russian, Chinese, Japanese)

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Technical Data

Measuring ranges

Air kerma rate R/F/D/CT	5 µGy/s ... 500 mGy/s, ± 3.5 % (typically ± 1.5 %)
Sensitivity mode	0.1 µGy/s ... 500 mGy/s (typically ± 5 %)
Trigger level	min. 10 nGy/s (typically)
Air kerma R/F/D/CT	50 nGy ... 500 Gy, ± 3.5 % (typically ± 1.5 %)
kV R/F/D/CT	(40 ... 150) kV, ± 1.5 % or ± 1 kV (typically ± 0.75 % or ± 0.5 kV)
Total filtration	(1.5 ... 40) mm Al, ± 10 % or ± 0.5 mm Al
HVL R/F/D/CT	(0.95 ... 13.5) mm Al, ± 10 % or ± 0.25 mm Al (typically ± 0.1 mm Al)
Air kerma rate MAM*	50 µGy/s ... 500 mGy/s, ± 2.5 %
Air kerma MAM*	0.5 µGy ... 500 Gy, ± 2.5 %
kV MAM*	(20 ... 49) kV **, ± 0.5 kV
HVL MAM*	(0.25 ... 0.75) mm Al, ± 0.01 mm Al
Dose per pulse	50 nGy ... 500 Gy, ± 3.5 % (typically ± 1.5 %)
Pulses	0 ... 99999
Frequency	0.2 Hz ... 500 Hz
Irradiation time	1 ms ... 298 h, ± 0.01 % or ± 0.5 ms

PC interface USB V2.0 full speed

Outer dimensions 115 mm x 50 mm x 9 mm

Weight 250 g

* valid for: Mo/30µmMo, Mo/25µmRh, Mo/250µmCu, W/50µmRh, W/50µmAg, W/0.7mmAl, W/1.1mmTi, W/300µmCu, Rh/25µmRh, Rh/30µmAg, Rh/250µmCu

** depending on the radiation quality

Ordering information

[L981815] NOMEX Multimeter all-in

for measurements in R/F/D/ENT, CT, MAM. Includes NOMEX[®] Multimeter, software on CD, 2 m USB and 5 m long active extension cable, calibration certificate, user manual and transport cases. Requires connection to a PC.

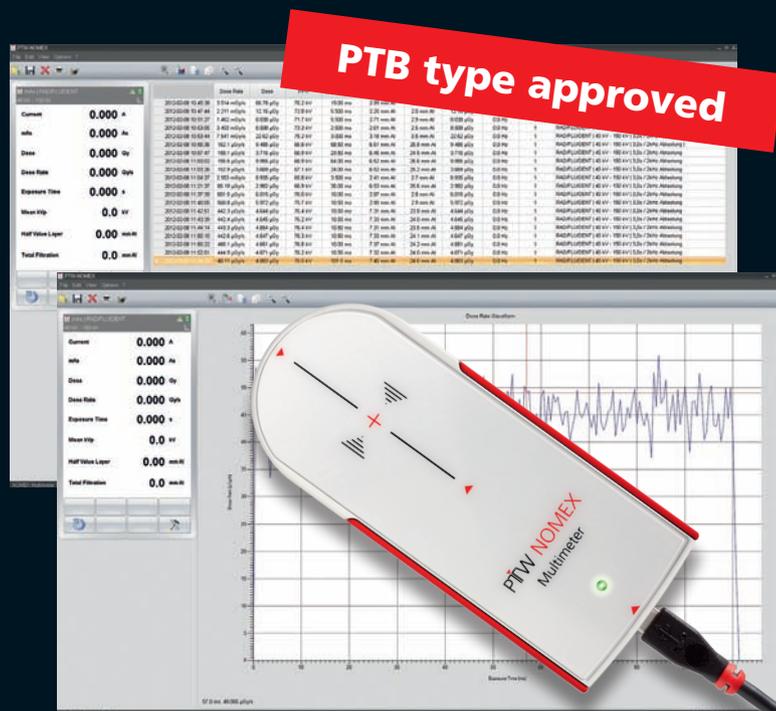
Different models each with/without mAs option are available.

Accessories

[L981530]	NOMEX [®] mAs
[T20016]	NOMEX [®] Multimeter holder
[T20017]	NOMEX [®] cassette adapter
[E41700B,S,G]	NOMEX [®] service contract Bronze, Silver, Gold

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PTW

Knowing what
responsibility means