# DranTech Xtra
# TRMS Digital Multimeters

- Digital Hand-Held Multimeter with RMS Measurement $V_{AC\ TRMS}$, $V_{AC+DC\ TRMS}$, $V_{DC}$, Hz (V), Hz (A), $\Omega$, V▸�mu+, °C/°F (TC)
- 4½-place display (11,999 counts), with display illumination
- Current measurement via clip-on current sensors: The transformation factor is adjustable from 1 mV:1 mA to 1 mV:1 A and is accounted for by the display.
- Broad range capacitance measurement
- "low-resistance" (1 M$\Omega$) alternating voltage measurement
- 1 kHz / -3 dB low-pass filter can be activated
- Direct current measurement from 10 nA to 10 A, 16 A for short periods
- Temperature measurement with Pt100(0) resistance thermometer
- Broad range capacitance measurement
- Frequency and keying ratio measurement at 2 to 5 V signals or up to 1 MHz

## Applications

This multimeter is suitable for universal use in electrical engineering, electrical installation, laboratory applications, telecommunication, training etc.

The instrument can be used in the field and is equipped with internal, mains-independent supply power.

## Features

### Three Connector Jacks with Automatic Blocking Sockets (ABS) *

All current ranges are implemented via a single connector jack which prevents any possibility of operator error.
Beyond this, the automatic blocking sockets prevent incorrect connection of the measurement cables, as well as selection of the wrong measured quantity. Danger to the user, the instrument and the device under test resulting from operator error is thus ruled out.

* Patented (patent no. DE 40 27 801 C2 and US 5,166,599)

### Overload Protection

The instrument is safeguarded for up to 1000 V in all measuring functions by overload protection. Voltages of greater than 1000 V and current of greater than 10 or 16 A are indicated acoustically.
Dangerous contact voltages are indicated when the 1 kHz low-pass filter is activated.
The FUSE display appears to indicate that the fuse for the current measuring input has blown.

### RMS Value with Distorted Waveshape

The utilized measuring method allows for waveshape independent RMS measurement (TRMS AC and AC+DC) for voltage and current up to 20 kHz.

### Activatable Filter for V AC Measurement

A 1 kHz low-pass filter can be activated if required, for example when measuring motor voltage at electronic frequency converters. The input signal is checked by a voltage comparator for dangerous voltages as long as the low-pass filter is activated.

### Measuring 5 V Square-Wave Signals with the DranTech Xtra

This function makes it possible to test circuits and transmission cables by measuring the frequency and the keying ratio of pulses with amplitudes of 2 to 5 V and frequencies of 100 Hz to 1 MHz.

### Analog Scale for Quick Trend Display – Bar Graph or Pointer

The analog scale (with additional negative range for zero-frequency quantities) allows for faster recognition of measured value fluctuation than is possible with a digital display.
The instrument can be switched back and forth between bar graph and pointer display.

### Automatic or Manual Measuring Range Selection

Measured quantities are selected by means of a rotary switch and a function key. The measuring range is automatically matched to the measured values. The measuring range can also be selected and fixed manually with a key.

# DranTech Xtra
# TRMS Digital Multimeters

## Fast Acoustic Continuity Test

Testing for short circuiting and interruption is possible with the selector switch in the ⊄⟩) position. The threshold value for acoustic signaling can be set to 1, 10, 20, 30, 40 or 90 W.

## Automatic Storage of Measured Values *

The DATA function automatically saves the digitally displayed measured value after settling in. Acoustic signaling is also used to indicate whether the new measured value deviates from the initial reference value by less or more than 0.1% of the measuring range.
* Patented

## Storage of Min-Max Values

Comparable to the slave-pointer function of an analog instrument, the device saves the highest and lowest measured values after the MIN/MAX function has been activated or reset. These extreme values can be queried at the display.

## Battery Charging Status – Power Saving Circuit

The battery charging status is indicated by means of four symbols.

The device is switched off automatically if the measured value remains unchanged for a period of between 10 and 59 minutes (adjustable), and if none of the controls are activated during this time.

Automatic shutdown can be deactivated by switching the instrument to continuous operation.

The infrared interface can be switched off in the standby mode.

## Protective Cover for Harsh Conditions

The instrument is protected against damage in the event of impacts or dropping by means of a soft rubber cover with tilt stand and test probe holder. The rubber material also assures that the instrument does not wander if it is set up on a vibrating surface.

## Infrared Data Interface with DranTech Xtra

The device can be remote configured, and momentary and stored measurement data can be read out via the bidirectional infrared interface. The USB interface adapter and DranWin 10 software are required to this end (see accessories). Interface protocol and device driver software for LabVIEW® (National Instruments™) are available upon request.

## DKD Calibration Certificate

The multimeters are furnished with an internationally valid DKD calibration certificate (recognized by EA and ILAC). After the specified calibration interval has elapsed (recommended interval: 1 to 3 years), the multimeters can be inexpensively recalibrated in our own DKD calibration laboratory.

## Applicable Regulations and Standards

| IEC/EN 61010, part 1:2001/VDE 0411-1:2002 | Safety requirements for electrical equipment for measurement, control and laboratory use |
|---|---|
| DIN EN 61326 VDE 0843, part 20 | Electrical equipment for control technology and laboratory use – EMC requirements |
| DIN EN 60529 DIN VDE 0470, part 1 | Test instruments and test procedures – degrees of protection provided by enclosures (IP code) |

## Selection List

| Function | DranTech Xtra |
|---|---|
| V AC / Hz TRMS (Ri ≥ 9 MΩ) | ⎯ 1kHz Filter |
| V AC TRMS (Ri = 1 MΩ) | ⎯ 1kHz Filter |
| V AC+DC TRMS (Ri ≥ 9 MΩ) | • |
| V DC (Ri ≥ 9 MΩ) | • |
| ... 1 MHz 5 V AC ⊓⌐ | • |
| Keying ratio as % | • |
| Hz (V AC) | ... 100 kHz |
| Bandwidth, V AC | 15 Hz ... 20 kHz |
| A AC / Hz TRMS | 100 µA 1/10/100 mA 1 A / 10 (16) A |
| A AC+DC TRMS | |
| A DC | |
| Fuse | 10 A/1000 V |
| Hz (A AC) | ... 30 kHz |
| Resistance Ω | • |
| Continuity ⊄⟩) | • |
| Diode ... 5,1 V ▷⊢ | • |
| Temperature TC (K) | • |
| Temperature RTD | • |
| Capacitance ⊣⊢ | • |
| MIN/MAX / data hold | • |
| 4 MBit memory [1] | • |
| IR Interface | • |
| Power pack adapter socket | • |
| Protection | IP52 [2] |
| Measuring category | 1000 V CAT III 600 V CAT IV |

[1] For 15,400 measured values, sampling rate adjustable from 0.1 second to 9 hours
[2] IP 65 in preparation

## Included

1 multimeter
1 pair of safety measurement cables (1.5 m) with 4 mm test probes, 1000 V CAT III, 600 V CAT IV (KS17-2)
2 batteries, 1.5 V, type AA
1 condensed operating instructions, English
1 CD ROM, content: operating instructions in English DranWin 10 demo software
1 DKD calibration certificate
1 protective rubber cover

## Voluntary Manufacturer's Guarantee

24 months for materials and workmanship
1 to 3 years for calibration (depending upon application)

# DranTech Xtra
# TRMS Digital Multimeters

## Characteristic Values

| Meas. Function | Measuring Range | Resolution at Upper Range Limit 11,999 | 1199 | Input Impedance ⎓ | Input Impedance ~ / ⎓ | Accuracy At Reference Conditions ±(... % rdg. + ... d) ⎓ | ±(... % rdg. + ... d) ~ 10) | ±(... % rdg. + ... d) ⎓ 10) | Overload Capacity 2) Value | Time |
|---|---|---|---|---|---|---|---|---|---|---|
| **V** | 100 mV | 10 μV | | ≥ 9 MΩ | ≥ 9 MΩ // < 50 pF | 0.09 + 5 with ZERO | 1 + 30 (> 300 d) 1) | 1 + 30 (> 300 d) 1) | 1000 V DC AC RMS sine 6) | Continuous |
| | 1 V | 100 μV | | ≥ 9 MΩ | ≥ 9 MΩ // < 50 pF | 0.05 + 3 | 0.5 + 9 (> 200 d) | 1 + 30 (> 300 d) | | |
| | 10 V | 1 mV | | ≥ 9 MΩ | ≥ 9 MΩ // < 50 pF | 0.05 + 3 | 0.5 + 9 (> 200 d) | 1 + 30 (> 300 d) | | |
| | 100 V | 10 mV | | ≥ 9 MΩ | ≥ 9 MΩ // < 50 pF | 0.05 + 3 | 0.5 + 9 (> 200 d) | 1 + 30 (> 300 d) | | |
| | 1000 V | 100 mV | | ≥ 9 MΩ | ≥ 9 MΩ // < 50 pF | 0.09 + 3 | 0.5 + 9 (> 200 d) | 1 + 30 (> 300 d) | | |
| | | | | Voltage drop, approx. at upper range limit ⎓ | ~ 10) | ⎓ 10) | | | | |
| **A** | 100 μA | 10 nA | | 12 mV | 12 mV | 0.5 + 5 | 1.5 + 10 (> 200 d) | 1.5 + 30 (> 200 d) | 0,2 A | Continuous |
| | 1 mA | 100 nA | | 120 mV | 120 mV | 0.5 + 3 | 1.5 + 10 (> 200 d) | 1.5 + 30 (> 200 d) | | |
| | 10 mA | 1 μA | | 16 mV | 16 mV | 0.5 + 3 | 1.5 + 10 (> 200 d) | 1.5 + 30 (> 200 d) | | |
| | 100 mA | 10 μA | | 160 mV | 160 mV | 0.5 + 3 | 1.5 + 10 (> 200 d) | 1.5 + 30 (> 200 d) | | |
| | 1 A | 100 μA | | 40 mV | 40 mV | 0.9 + 10 | 1.5 + 10 (> 200 d) | 1.5 + 30 (> 200 d) | 10 A: 5 min 16 A: 30 s | |
| | 10 A | 1 mA | | 600 mV | 600 mV | 0.9 + 10 | 1.5 + 10 (> 200 d) | 1.5 + 30 (> 200 d) | | |
| | | | | Open-circuit voltage | Meas. curr. @ range limit | ±(... % rdg. + ... d) | | | | |
| **Ω** | 100 Ω | 10 mΩ | | < 1.4 V | Approx. 300 μA | 0.2 + 5 with active ZERO function | | | 1000 V DC AC RMS sine | Max. 10 s |
| | 1 kΩ | 100 mΩ | | < 1.4 V | Approx. 250 μA | 0.2 + 5 | | | | |
| | 10 kΩ | 1 Ω | | < 1.4 V | Approx. 100 μA | 0.2 + 5 | | | | |
| | 100 kΩ | 10 Ω | | < 1.4 V | Approx. 12 μA | 0.2 + 5 | | | | |
| | 1 MΩ | 100 Ω | | < 1.4 V | Approx. 1.2 μA | 0.2 + 5 | | | | |
| | 10 MΩ | 1 kΩ | | < 1.4 V | Approx. 125 nA | 0.5 + 10 | | | | |
| | 40 MΩ | 10 kΩ | | < 1.4 V | Approx. 20 nA | 2.0 + 10 | | | | |
| 🕪) | 100 Ω | — | 0.1 Ω | Approx. 8 V | Approx. 1 mA const. | 1 + 5 | | | | |
| ➤⊢ | 5,1 V 3) | — | 1 mV | Approx. 8 V | Approx. 1 mA const. | 0.5 + 3 | | | | |
| | | | | Discharge resist. | U$_{0 max}$ | ±(... % rdg. + ... d) | | | | |
| **F** | 10 nF | | 10 pF | 10 MΩ | 0.7 V | 1 + 6 4) with ZERO function active | | | 1000 V DC AC RMS sine | Max. 10 s |
| | 100 nF | | 100 pF | 1 MΩ | 0.7 V | 1 + 6 4) | | | | |
| | 1 μF | | 1 nF | 100 kΩ | 0.7 V | 1 + 6 4) | | | | |
| | 10 μF | | 10 nF | 12 kΩ | 0.7 V | 1 + 6 4) | | | | |
| | 100 μF | | 100 nF | 3 kΩ | 0.7 V | 5 + 6 4) | | | | |
| | 1000 μF | | 1 μF | 3 kΩ | 0.7 V | 5 + 6 4) | | | | |
| | | | | | f$_{min}$ 5) | ±(... % rdg. + ... d) | | | | |
| **Hz (V)** | 100.00 Hz | 0.01 Hz | | | | 0.05 + 3 8) | | | Hz (V) 6): Hz (A➤c) 6): 1000 V | Max. 10 s |
| **Hz (A)** | 1.0000 kHz | 0.1 Hz | | | | | | | | |
| **Hz (A➤c)** | 10.000 kHz | 1 Hz | | | 1 Hz | | | | | |
| **Hz (V)** | 100.00 kHz | 10 Hz | | | 10 Hz | | | | Hz (A): 7) | |
| **Hz (A)** | 30.00 kHz | 10 Hz | | | 10 Hz | | | | | |
| **MHz** | 100 Hz ... 1 MHz | 100 Hz | | 100 Hz | | 0.05 + 3 | > 2 V ... 5 V | | 1000 V | Max. 10 s |
| **%** | 2.0 ... 98 % | — | 0.01% | 100 Hz ... 1 kHz | 1 Hz | 0.1 R | > 2 V ... 5 V | | | |
| | 5.0 ... 95 % | — | 0.01% | ... 10 kHz | 1 Hz | 0.1 R per kHz | > 2 V ... 5 V | | | |
| | 10 .... 90 % | — | 0.01% | ...100 kHz | 1 Hz | 0.1 R per kHz | > 2 V ... 5 V | | | |
| | | | | | | ±(... % rdg. + ... d) | | | | |
| **°C/°F** | Pt100 − 200.0 ... +850.0° C | 0.1 °C | | | | 0.3 + 15 9) | | | 1000 V DC/AC RMS Sine | Max. 10 s |
| | Pt1000 − 150.0 ... +850.0° C | | | | | 0.3 + 15 9) | | | | |
| | K (NiCr-Ni) − 250.0 ... +1372.0° C | | | | | 1% + 5 K 9) | | | | |

1) Values of less than 200 digits are suppressed in the mV range.
15 (20) ... 45 ... 65 Hz ... 20 (1) kHz sinusoidal. See influence error on page 7.
2) At 0° ... + 40° C
3) Displays up to max. 5.1 V, "OL" in excess of 5.1 V.
4) Applies to measurements at film capacitors
5) Lowest measurable frequency for sinusoidal measuring signals symmetrical to the zero point

6) Overload capacity of the voltage measurement input:
power limiting: frequency x voltage max. 3 x 10$^6$ V x Hz for U > 100 V
7) Overload capacity of the current measurement input:
See current measuring ranges for maximum current values.
8) Input sensitivity, sinusoidal signal, 10% to 100% of the measuring range
9) Plus sensor deviation
10) Residual value deviates within 1 ... 30 d from the zero point due to TRMS converter when probe tips are short-circuited

**Key:** R = measuring range, d = digit(s), rdg. = measured value (reading)

# DranTech Xtra
# TRMS Digital Multimeters

## Internal Clock

| | |
|---|---|
| Time format | DD.MM.YYYY hh:mm:ss |
| Resolution | 0.1 s |
| Accuracy | ±1 min. per month |
| Temperature Influence | 50 ppm/K |

## Influencing Quantities and Influence Error

| Influencing Quantity | Sphere of Influence | Measured Quantity / Measuring Range [1] | Accuracy (...% rdg. + ... d) / 10 K |
|---|---|---|---|
| Temperature | −10° C ... +21° C and +25° C ... +50° C | V ⎓ | 0.2 + 10 |
| | | V ∼ | 0.4 + 10 |
| | | 100 Ω ... 1 MΩ | 0.5 + 10 |
| | | > 1 MΩ | 1 + 10 |
| | | mA/A ⎓ | 0.5 + 10 |
| | | mA/A ≂ | 0.8 + 10 |
| | | 10 nF ... 100 µF | 1 + 5 |
| | | Hz | 0.2 + 10 |
| | | °C/°F (Pt100/Pt1000) | 0.5 + 10 |
| | | °C/°F thermocouple K | 0.2 + 10 |

[1] With zero balancing

| Influencing Qty. | Meas. Qty. / Meas. Range | Sphere of Influence | Accuracy [3] ±( ... % rdg. + ... d) |
|---|---|---|---|
| Frequency | 100.00 mV | > 15 Hz ... 45 Hz | 3 + 30 |
| | | > 65 Hz ... 1 kHz | 2 + 30 |
| | | > 1kHz ... 10 kHz | 3 + 30 |
| | 1.0000 V ... 100.00 V | > 15 Hz ... 45 Hz | 2 + 9 |
| | | > 65 Hz ... 1 kHz | 1 + 9 |
| | | > 1kHz ...10/20kHz [4] | 3 + 9 |
| | 1000.0 V [2] | > 15 Hz ... 45 Hz | 2 + 9 |
| | | > 65 Hz ... 1 kHz | 2 + 9 |
| | | > 1kHz ... 10 kHz | 3 + 30 |
| | A_AC 100.00 µA ... 10.0000 A | > 15 Hz ... 45 Hz | 3 + 10 |
| | | > 65 Hz ... 10 kHz | |
| | A_AC ✂ 100 mV / 1 V / 10 V | > 65 Hz ... 1 kHz | — |

[2] Power limiting: frequency x voltage max. 3 x 10⁶ V x Hz for U > 100 V
[3] The accuracy specification for frequency response is valid within a display value range of 10% to 100% of the measuring range for both measuring modes with the TRMS converter in the AC and (AC+DC) ranges.
[4] frequency response up to 20 kHz,

| Influencing Quantity | Sphere of Influence | Measured Quantity/ Measuring Range | Influence Error [5] |
|---|---|---|---|
| Crest factor CF | 1 ... 3 | V ∼, A ∼ | ± 1 % rdg. |
| | > 3 ... 5 | | ± 3 % rdg. |

[5] Except for sinusoidal waveshape

| Influencing Quantity | Sphere of Influence | Measured Quantity | Influence Error |
|---|---|---|---|
| Relative humidity | 75% 3 days instrument off | V, A, Ω, F, Hz, °C | 1 x accuracy error |
| Battery voltage | 1.8 to 3.6 V | ditto | Included in accuracy error |

| Influencing Quantity | Sphere of Influence | Measured Quantity / Measuring Range | Damping |
|---|---|---|---|
| Common Mode Interference Voltage | Interference quantity max. 1000 V ∼ | V ⎓ | > 120 dB |
| | Interference quantity max. 1000 V ∼ 50 Hz ... 60 Hz, sine | 1 V ∼, 10 V ∼ | > 80 dB |
| | | 100 V ∼ | > 70 dB |
| | | 1000 V ∼ | > 60 dB |
| Series Mode Interference Voltage | Interference quantity: V ∼, respective nominal value of the measuring range, max. 1000 V ∼, 50 Hz ... 60 Hz, sine | V ⎓ | > 50 dB |
| | Interference quantity max. 1000 V — | V ∼ | > 110 dB |

## Reference Conditions

| | |
|---|---|
| Ambient temperature | +23 °C ±2 ° (73 °F) |
| Relative humidity | 40 ... 75% |
| Measured qty. frequency | 45 ... 65 Hz |
| Measured qty. waveshape | Sine |
| Battery voltage | 3 V ±0.1 V |

## Response Time (after manual range selection)

| Measured Quantity / Measuring Range | Response Time Digital Display | Measured Quantity waveshape |
|---|---|---|
| V ⎓, V ∼ AV ⎓, A ∼ | 1.5 s | From 0 to 80% of upper range limit value |
| 100 Ω ... 1 MΩ | 2 s | From ∞ to 50% of upper range limit value |
| 10/40 MΩ | 5 s | |
| Continuity | < 50 ms | |
| °C (Pt 100) | Max. 3 s | |
| ⊶ | 1.5 s | |
| 10 nF ... 100 µF | Max. 2 s | From 0 to 50% of upper range limit value |
| 1 000 µF | Max. 7 s | |
| >10 Hz | 1.5 s | |

## Data Interface

| | |
|---|---|
| Type | Optical via infrared light through the housing |
| Data transmission | Serial, bidirectional (not IrDa compatible) |
| Protocol | Device specific |
| Baud rate | 38,400 baud |
| Functions | – Select/query measuring functions and parameters |
| | – Query momentary measurement data |
| | – Read out stored measurement data |

The USB plug-in interface adapter (see accessories) is used for adaptation to the PC's USB port.

## Internal Measured Value Storage

| | |
|---|---|
| Memory capacity | 4 MBit / 540 kB for approx. 15,400 measured values with date and time stamp |

# DranTech Xtra
# TRMS Digital Multimeters

## Power Supply

| | |
|---|---|
| Battery | 2 ea. 1.5 V mignon cell (2 ea. size AA), alkaline manganese per IEC LR6 (2 ea. 1.2 V NiMH rechargeable battery also possible) |
| Service life | with alkaline manganese: approx. 200 hours |
| Battery test | Battery capacity display with battery symbol in 4 segments: ▨. Querying of momentary battery voltage via menu function. |
| Power OFF function | Multimeter is switched off automatically:<br>– If battery voltage drops to below prox. 1.8 V<br>– If none of the keys or the rotary switch are activated for an adjustable duration of 10 to 59 minutes, and the multimeter is not in the continuous operation mode |
| Power pack socket | If the power pack has been plugged into the instrument, the batteries are disconnected automatically. Rechargeable batteries can only be recharged externally. |

## Display

LCD panel (65 mm x 36 mm) with analog and digital display including unit of measure, type of current and various special functions

### Background illumination

Background illumination is switched off approximately 1 minute after it has been activated.

### Analog

| | |
|---|---|
| Display | LCD scale with bar graph or pointer, depending on the selected parameter setting |
| Scaling | With 4 division lines each, 1 bar/pointer corresponds to 500 counts at the digital display |
| Polarity display | With automatic switching |
| Overflow display | With the ▶ symbol |
| Measuring rate | 40 measurements per second and display refresh |

### Digital

| | |
|---|---|
| Display / char. height | 7-segment characters / 15 mm |
| Number of places | 4½ place ≙ 11,999 steps |
| Overflow display | "OL" is displayed for ≥12,000 counts |
| Polarity display | "–" (minus sign) is displayed if plus pole is connected to "⊥" |
| Measuring rate | 10 and 40 measurements per second with the Min-Max function except for the capacitance, frequency and keying ratio measuring functions |
| Refresh rate | 2 times per sec., every 500 ms |

## Acoustic Signals

| | |
|---|---|
| For voltage | Intermittent signal at above 1000 V |
| For current | Intermittent signal at above 10 A continuous signal at above 16 A |

## Fuse

FF (UR) 10 A/1000 V AC/DC; 10 mm x 38 mm, Switching capacity: 30 kA at 1000 V AC/DC, protects the current measurement input in the 100 μA through 10 A ranges

## Electrical Safety

| | | |
|---|---|---|
| Safety class | II per EN 61010-1:2001/VDE 0411-1:2002 | |
| Measuring category | III | IV |
| Operating voltage | 600 V | 300 V |
| Fouling factor | 2 | 2 |
| Test voltage | 5.2 kV~ per IEC/EN 61010-1:2001/ VDE 0411-1:2002 | |

CE  CSA  DVE GS

CAT IV  Deutscher Kalibrierdienst DKD-K-19701  DKD Calibration Certificate

## Electromagnetic Compatibility (EMC)

| | |
|---|---|
| Interference emission | EN 61326: May 2004, class B |
| Interference immunity | EN 61326: May 2004, appendix E |
| | IEC 61000-4-2: Dec. 2001 Feature B |
| | 8 kV atmos. discharge 4 kV contact discharge |
| | IEC 61000-4-3: Dec. 2001 Feature A |
| | 3 V/m |

## Ambient Conditions

| | |
|---|---|
| Accuracy range | 0 °C - +40 °C (32 °F - +104 °F) |
| Operating temp. range | −10° C - +50° C (14 °F - +122 °F) |
| Storage temp. range | −25° C ... +70° C (without batteries) (-13 °F - +158 °F |
| Relative humidity | Max.75%, no condensation allowed |
| Elevation | To 6500ft (2000 m) |
| Deployment | Indoors, except within specified ambient conditions |

# DranTech Xtra
# TRMS Digital Multimeters

## Mechanical Design

| Housing | Impact resistant plastic (ABS) |
|---|---|
| Dimensions | 3.4 x 7.8 x 1.7 in (87 x 200 x 45 mm) |
| Weight | approx.  0.77 lbs with batteries |
| Protection | Housing: IP 52 (pressure equalization by means of the housing) |

Table excerpt regarding significance of the IP code

| IP XY (1$^{st}$ digit X) | Protection against penetration of solid particles | IP XY (2$^{nd}$ digit Y) | Protection against penetration by water |
|---|---|---|---|
| 5 | Dust protected | 2 | Dripping (15° inclination) |
| 6 | Dust-proof | 5 | Jet-water |

## Accessories for Operation at a PC

Interface Adapter for USB Connection

The USB  bidirectional interface adapter includes the following functions:
- Configure the DranTech Xtra from a PC.
- Transmit live measurement data to the PC.
- Read out data from memory

The adapter does not require a separate power supply. Its baud rate is 38,400 baud.
A CD ROM is included which contains current drivers for Windows operating systems.
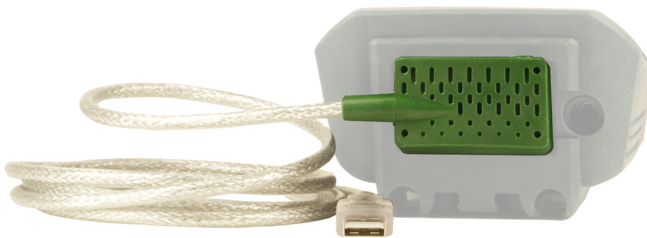


## Software DranWin 10

DranWin 10  PC software is a multilingual, measurement data logging program for recording, visualizing, evaluating and documenting measured values from the DranTech Xtra.

Communications between the PC and the measuring instrument(s) is established via the bidirectional IR-USB interface adapter.

Depending upon device type, one or several of the following operating modes are possible:

*Demo software with limited functions is included with the instrument, or can be downloaded via the Internet.*

## Configuring Measuring Instrument Parameters

Remote configuration and querying of device-specific functions and parameters, for example measuring function, measuring range and memory parameters:

Start/stop recording
Clear memory
Display memory occupancy
Adjust recording speed in 3 groups
    0.1 ...  50  seconds
    1    ...  50  minutes
    1    ...  9    hours
as time per measured value.

## Online Recording of Measurement Data

Read in, display and record currently measured live measurement data from the interconnected measuring instruments.
- No. of meas. channels     Up to 4 (additional channels in preparation)
- Start recording               Manual or triggered by measured value, 0.1 sec. to 5 min. per measurement, max. 2000 measurements per channel
Recording: consecutive number, measuring time, measured value and measured quantity, recording as text file, or alternatively as Excel file.

## Reading Out Data from Memory

Read-out and display of recorded measured values from device memory and storage as a text file.

## Measured Value Display

- Display of measured value, measured quantity and range as a numeric decimal value (simulation of a device display, see left half of figure 1)
- Scalable pointer display with 1, 2 or 4 indicators (see bottom right portion of figure 1). Each pointer can also be displayed as a full screen image. Graphic read-out of the pointer to a printer.
- Measured value display as a digital indicator
- Parallel representation and recording of 4 measuring channels as a storable data table (see upper right portion of figure 1) (date, time of measurement, measured value and quantity, measuring range)
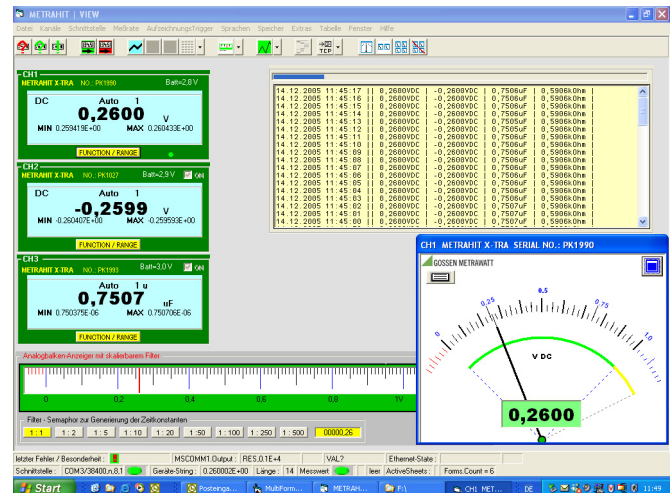


*Figure 1: 3-Channel Representation with Table and Pointer Display*

# DranTech Xtra
# TRMS Digital Multimeters

**Graphic Representation**

A data table which has been saved to memory can be converted into a curve diagram with the following characteristics by simply pressing a key:

- Scalable scope display with up to 4 channels
- Selectable sampling rate and scaling
- Selectable background and characteristic curve colors, selection of normal of heavy line thickness

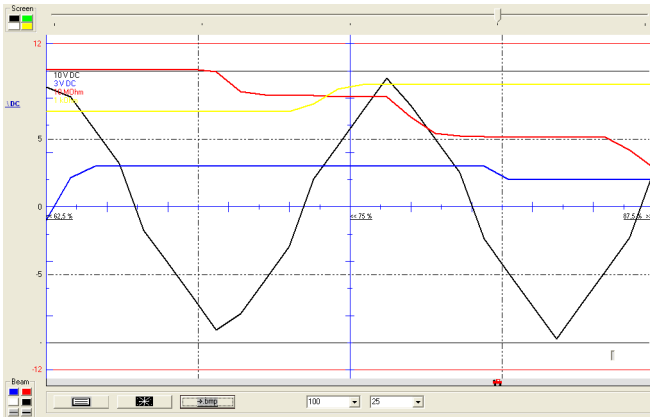The display can be subsequently saved as a BMP file, or read out to a printer.



*Figure 2: 4-Channel Graphic Representation*

**System Requirements**

DranWin 10 (version 5.x) can be run on IBM compatible PCs with Microsoft Windows® 95, 98, ME, NT 4.0, 2000 or XP.

## Accessories

HC30 Hard Case
For multimeters
(with/without GH18 protective rubber cover) and accessories



## Order Information

| DranTech Xtra |
|---|
| 4½-place (12,000 counts) TRMS multimeter with direct, alternating and pulsating voltage measurement (TRMS values), frequency measurement, resistance measurement, continuity test, diode measurement andtemperature measurement with type K thermocouples LCD with 15 mm characters, analog bar graph and background illumination Measuring categories: 600 V/CAT IV, 1000 V/CAT III |
| All multimeters include the KS17-2 measurement cable set, two mignon batteries, condensed operating instructions, CD ROM, DKD calibration certificate |



Dranetz-BMI

1000 New Durham Road

Edison, NJ 08818 USA

Phone - 1 - 800 - 372 - 6832

Fax    - 1 - 732 - 248 - 1834

sales@dranetz-bmi.com

www.dranetz-bmi.com