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SECULIFE | HITAM and SECULIFE | HITMD
TRMS Medical-Multimeter

3-349-453-03
8/4.17

Digital TRMS handheld multimeter with 23 functions

- Voltage measurement
- Auto-ranging current measurement from 100 µA (resolution: 10 nA) to 10 A (16 A)
- Capacitance and resistance measurement, diode and continuity testing
- Measuring categories: 600 V CAT III and 300 V CAT IV
- 1 kHz low-pass filter
- TRMS AC and AC+DC, 20 kHz bandwidth
- Data memory for more than 15,000 measured values
- Extremely rugged, dust and water-proof variant with IP65
- **SECULIFE HITAM: Housing, protective rubber holster and set of measuring cables each with antimicrobial properties**
- **SECULIFE HITMD: Multimeter with hygiene expertise**

Interface

- Bidirectional infrared interface for communication with the PC
- IR-USB adapter available as option

Power Supply

- Battery operation
- Mains operation via optional broad range variable power pack

IP65

3 YEARS WARRANTY

MADE IN GERMANY

DAkkS
German
Accreditation Body
D-K-15080-01-01
DAkkS Calibration Certificate as Standard Feature

Applications

The multimeter has been designed especially for use in the field of medical technology, amongst other purposes for servicing, repairing and testing medical devices.

Features

SECULIFE HITAM

The multimeters of the **SECULIFE HITAM** series have been endowed with antimicrobial properties. This is to curb the growth of germs, counteract microbial colonization or kill microorganisms.

SECULIFE HITMD

SECULIFE HITMD is protected against the penetration of fluids and resistant to disinfectants. A hygiene expertise has been issued by the Department for Medical Microbiology and Hygiene at the Philipps University Marburg to confirm the suitability for use in hygienically sensitive areas.

On the basis of the specifications set forth by the Deutsche Gesellschaft für Hygiene und Mikrobiologie (DGHM) *(German Association for Hygiene and Microbiology)* and the Vereinigung für Angewandte Hygiene (VAH) *(Association for Applied Hygiene)* the possibilities for safe disinfection of the **SECULIFE HITMD** have been tested. The tests were performed with regard to test microbes in analogy and in conformity with the specifications for disinfection methods set forth by the Deutsche Gesellschaft für Hygiene und Mikrobiologie (DGHM) within the framework of a stress test in a practice-related context.

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. EP 1801 598 and US 7,439,725)

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 in order 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 at electronic frequency converters or switched-mode power supplies.

High Voltage sensor

The input signal is examined for contact danger regardless of the selected input function or filtering.

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TRMS Medical-Multimeter

Measuring 5 V Square-Wave Signals

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.

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 Ω.

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. The values are acquired using an especially fast sampling rate (40 measurements per second).

Battery Charging Status – Power Saving Circuit

The battery charge level is indicated by means of a 4-segment symbol.
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.

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

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

DAkkS Calibration Certificate

The multimeters are furnished with an internationally valid DAkkS 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 DAkkS calibration laboratory.

Functions

Voltage V_{AC} TRMS (Ri ≥ 9 MΩ)	100 mV / 1 V / 10 V / 100 V / 1000 V
Frequency Hz @ V_{AC}	100 Hz / 1 kHz / 10 kHz / 100 kHz
Voltage Lo [1] V_{AC} TRMS (Ri = 1 MΩ)	100 mV / 1 V / 10 V / 100 V / 1000 V
Frequency Hz @ Lo [1] V_{AC}	100 Hz / 1 kHz / 10 kHz / 100 kHz
Low-pass filter	$\overline{1kHz\backslash}$ @ Lo V_{AC} or @ Hz
Voltage V_{DC} (Ri ≥ 9 MΩ)	100 mV / 1 V / 10 V / 100 V / 1000 V
Voltage V_{AC+DC} TRMS (Ri ≥ 9MΩ)	100 mV / 1 V / 10 V / 100 V / 1000 V
Bandwidth @ V_{AC+DC} or V_{AC}	20 kHz
Frequency MHz @ 5 V AC ⊓⊔	100 Hz...1 MHz
Duty cycle %	2,0 % ... 98 %
Resistance Ω	100 Ω / 1 kΩ / 10 kΩ / 100 kΩ / 1 MΩ / 10 MΩ / 40 MΩ
Continuity test	0 ... 100 Ω @ I_{CONST} = 1 mA
Diode measurement	0 ... 5,1 V @ I_{CONST} = 1 mA
Temperature measurement °C / °F @ T_C	Thermocouple Type K
Temperature measurement °C / °F @ R_{TD}	Pt100 / Pt1000
Capacitance measurement F	10 nF / 100 nF / 1 µF / 10 µF / 100 µF / 1000 µF
Current A_{DC}	100 µA / 1 mA / 10 mA / 100 mA / 1 A / 10 A (16 A)
Current A_{AC+DC} TRMS	100 µA / 1 mA / 10 mA / 100 mA / 1A / 10 A (16 A)
Current A_{AC} TRMS	100 µA / 1 mA / 10 mA / 100 mA / 1 A / 10 A (16 A)
Bandwidth @ A_{AC+DC} or A_{AC}	10 kHz
Frequency Hz @ A_{AC}	100 Hz / 1 kHz / 10 kHz / 30 kHz
Data logger function [2] (memory)	4 Mbit = 500 kByte = 15400 measured values
IR-Interface	38400 Bd
Power pack connector socket	✓
Protection	IP65
Measurement category	600 V CAT III and 300 V CAT IV
DAkkS calibration certificate	✓
Protective rubber cover	✓

1) Alternating voltage measurement with specially reduced input impedance
2) Sampling rate adjustable from 0.1 seconds to 9 hours

Applicable Regulations and Standards

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

Voluntary Manufacturer's Guarantee

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

Characteristic Values

Meas.-Function	Measuring Range		Resolution at Upper Range Limit 11999	Resolution at Upper Range Limit 1199	Input Impedance ⎓	Input Impedance ~ / ≂	Intrinsic Uncertainty under Reference Conditions ±(... %rdg. + ... d) ⎓	Intrinsic Uncertainty ±(... %rdg. + ... d) ~ [10]	Intrinsic Uncertainty ±(... %rdg. + ... d) ≂ [10]	Overload Capacity [2] Value	Overload Capacity [2] Time
V	100 mV		10 µV		≥ 9 MΩ	≥9 MΩ // < 50 pF	0.09 + 5 mit ZERO	1 + 30 (> 300 d) [1]	1 + 30 (> 300 d) [1]	1000 V DC AC RMS sine [6]	continous
	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	continous
	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 [11]	
	10 A		1 mA		600 mV	600 mV	0.9 + 10	1.5 + 10 (> 200 d)	1.5 + 30 (> 200 d)	16 A: ≤ 30 s [11]	
					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.	3 + 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 active ZERO function			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) **Hz (A)**	100.00 Hz		0.01 Hz			1 Hz	0.05 + 3 [8]			Hz (V) [6]: 1000 V Hz (A): [7]	Max. 10 s
	1.0000 kHz		0.1 Hz								
	10.000 kHz		1 Hz								
Hz (V)	100.00 kHz		10 Hz			10 Hz					
Hz (A)	30.00 kHz		10 Hz			10 Hz					
MHz	100 Hz ... 1 MHz		0.01 ...100 Hz			1 ... 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 4.
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. 3×10^6 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
11) Off-time > 30 min and $T_A \leq 40$ °C

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

Internal Clock

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

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Influencing Quantities and Influence Error

Influencing Quantity	Sphere of Influence	Measured Quantity / Measuring Range [1]	Influence Error (...% 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	Intrinsic Uncertainty [3] ±(... % rdg. + ... d)
Frequency	V_{AC}	100.00 mV	> 15 Hz ... 45 Hz	3 + 30
			> 65 Hz ... 1 kHz	2 + 30
			> 1 kHz ... 10 kHz	3 + 30
		1.0000 V ... 100.00 V	> 15 Hz ... 45 Hz	2 + 9
			> 65 Hz ... 1 kHz	1 + 9
			> 1 kHz ...20 kHz	3 + 9
		1000.0 V [2]	> 15 Hz ... 45 Hz	2 + 9
			> 65 Hz ... 1 kHz	2 + 9
			> 1 kHz ... 10 kHz	3 + 30
	A_{AC}	100.00 µA ... 10.0000 A	> 15 Hz ... 45 Hz	3 + 10
			> 65 Hz ... 10 kHz	

[2] Power limiting: frequency x voltage max. 3 x 10^6 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.

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 intrinsic uncertainty
Battery voltage	1.8 to 3.6 V	ditto	Included in intrinsic uncertainty

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 K
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 X-TRA 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

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: – If battery voltage drops to below prox. 1.8 V – 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 NA X-TRA 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 digits 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 digits
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

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

Per IEC 61010-1:2010/DIN EN 61010-1:2011/VDE 0411-1:2011

Safety class	II	
Measuring category	III	IV
Operating voltage	600 V	300 V
Fouling factor	2	
Test voltage	6.7 kV~	

Electromagnetic Compatibility (EMC)

Interference emission	EN 610326-1: 2006, class B
Interference immunity	EN 610326-1: 2006 EN 610326-2-1: 2006

Ambient Conditions

Accuracy range	0 °C ... +40 °C
Operating temp. range	–10° C ... +50 °C
Storage temp. range	–25° C ... +70 °C (without batteries)
Relative humidity	Max.75%, no condensation allowed
Elevation	To 2000 m
Deployment	Indoors, except within specified ambient conditions

Mechanical Design

Housing	Impact resistant plastic (ABS)
Dimensions	200 x 87 x 45 mm (without protective rubber cover)
Weight	Approx. 0.35 kg with batteries
Protection	Housing: IP 65

Table excerpt regarding significance of the IP code

IP XY (1st digit X)	Protection against penetration of solid particles	IP XY (2nd digit Y)	Protection against penetration by water
6	Dust-proof	5	Jet-water

Included

1 multimeter
SECULIFE HITAM: 1 pair of safety measurement cables antimicrobial (1.5 m) with 4 mm test probes, 600 V CAT III, 300 V CAT IV (KS17-2AMB)
SECULIFE HITMD: 1 pair of safety measurement cables (1.5 m) with 4 mm test probes, 600 V CAT III, 300 V CAT IV (KS17-2)
2 batteries, 1.5 V, type AA
1 condensed operating instructions, English/German
– Detailed operating instructions for download from our website at www.seculife.eu
1 DAkkS calibration certificate
1 protective rubber cover
1 HC20 hard case

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Accessories for Operation at a PC

Interface Adapter for USB Connection

The USB X-TRA bidirectional interface adapter includes the following functions:

- Configure the **SECULIFE HITAM** from a PC.
- Transmit live measurement data to the PC.
- Read out data from memory at the **SECULIFE HITAM**.

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.

METRAwin®10/METRA*Hit*® Software

METRAwin®10/METRAHit® PC software is a multilingual, measurement data logging program for recording, visualizing and documenting measured values from **SECULIFE HITAM** multimeters.

Communication between the PC and the measuring instrument(s) is established via available interfaces and memory adapters. Telephone modems can be interconnected as well.

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

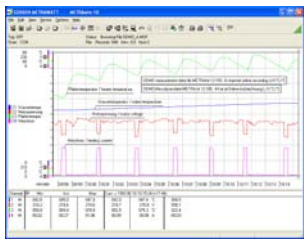
- **Device Configuration**
  Remote configuration and querying of device-specific functions and parameters, for example measuring function, measuring range and memory parameters. Frequently used device settings can be saved to configuration files for easy recall.
- **Online Recording of Measurement Data**
  Read-in, display and recording of momentarily measured data from the interconnected device.
  – Number of measuring channels: up to10
  – Start recording: manual, triggered by measured value, time triggered
  – Recording mode: > time controlled with sampling interval of 0.05 s* ... 1 s ... 60 min
  > manually controlled
  > measured value controlled in event of exceeded limit/delta value
  – Recording duration max. 10 million intervals

* Depending upon device type, measuring function, number of measuring channels and communication (e.g. via modem), sample intervals of less than 1 s cannot be used.

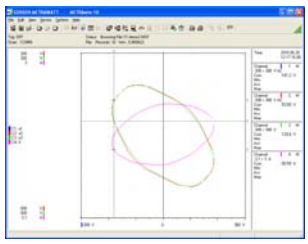
- **Reading Out and Visualizing Stored Data**
  If supported by the device: read-in and display of offline data recorded to device memory.

For purposes of analysis, data recorded online or read in from the device's memory can be displayed in various formats:

Y(t)-recorder display for up to 6 channels

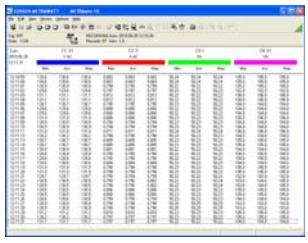


XY-recorder display for up to 4 channels



Multimeter-display for up to 4 channels

Tabular display for up to 10 channels



System Requirements

METRAwin 10 (as from version 6.0) can be run on IBM compatible PCs with Microsoft Windows® VISTA, 7, 8 and 10.

Order Information

Designation	Type	Article Number
4½-place (12,000 digits) TRMS multimeter with direct, alternating and pulsating voltage measurement (TRMS values), frequency measurement, resistance measurement, continuity test, diode measurement and temperature measurement with type K thermocouples, precision temperature measurement with Pt100 or Pt1000 platinum resistance thermometers, frequency and keying ratio measurement, broad range capacitance measurement, LCD with 15 mm characters, analog bar graph and background illumination Measuring categories: 300 V/CAT IV, 600 V/CAT III, with power pack socket and IR interface, 4 MB data memory		
Housing, protective rubber holster and set of measuring cables with antimicrobial properties	**SECULIFE HITAM**	M687A
„Hospital" TRMS multimeter for use in hygienic sensitive areas,resistance against desificationliquids	**SECULIFE HITMD**	M687B
Accessories for operation at a PC		
IR-USB bidirectional interface adapter	USB X-TRA	Z216C
METRAwin10 software	**METRAwin10**	GTZ3240000R0001
Accessories for temp. measurement with resistance thermometer		
Pt100 temperature sensor for surface and immersion measurement, -40 to +600° C	Z3409	GTZ3409000R0001
Pt1000 temperature sensor for measurement in gases and liquids, -50 to +220° C	TF220	Z102A
Pt100 oven sensor, -50 to +550° C	TF550	GTZ3408000R0001
Replacement fuse		
Fuses (pack of 10)	FF (UR) 10 A / 1000 V AC/DC	Z109L
Power pack	NA X-TRA	Z218G

Transport Accessories

HitBag Cordura Belt Pouch
For multimeters (with/without protective rubber cover)

HC20 Hard Case
For multimeter (with/without protective rubber cover) and accessories

F836 Ever-Ready Case
For multimeter and accessories

F829 Carrying Pouch
For multimeters (with/without protective rubber cover) and accessories

Designation	Type	Article Number
Imitation leather carrying pouch	F829	GTZ3301000R0003
Cordura belt pouch	HitBag	Z115A
Soft belt pouch large for one Multimeter. Made of rugged and water repellent Cordura, three separate cases for leads, clips, manual, CD, etc.	HitBag L	Z115B
Imitation leather ever-ready case with cable compartment	F836	GTZ3302000R0001
Hard case for one Multimeter and accessories	HC20	Z113A
Hard case for two Multimeter and accessories	HC30	Z113A

For additional information regarding accessories please refer to:

- our Measuring Instruments and Testers catalog.
- our website www.gossenmetrawatt.com

SECULIFE | HITAM and SECULIFE | HITMD
TRMS Medical-Multimeter

Current Measuring Accessories								
All current sensors and transformers are equipped with a connector cable (1.2 to 1.5 m long) with 4 mm safety banana plugs								
Type	**Designation**	**Measuring Range**	**Meas. Category**	**Max. Wire Dia.**	**Transformation Factor**	**Frequency Range**	**Intrinsic Uncertainty ±(% rdg. + ...)**	**Article Number**
DC/AC Current Sensors with Voltage Output								
CP30	DC/AC clip-on current sensor, with battery mode (30 h)	5 mA to 30 A (DC / AC pk)	300 V / CAT III	25 mm	100 mV/A	DC...20 kHz (-3 dB)	1 % +2 mA	Z201B
CP330	DC/AC clip-on current sensor, with 2 measuring ranges, battery mode (50 h)	Range: 0.5 ... 30 A Range: 5 ... 300 A (DC / AC rms)	300 V / CAT III	25 mm	10 mV/A; 1 mV/A	DC...20 kHz (-3 dB)	1 % + 50 mA 1 % + 100 mA	Z202B
CP1100	DC/AC clip-on current sensor, with 2 measuring ranges, battery mode (50 h)	Range: 0.5 ... 100 A Range: 5 ... 1000 A (DC / AC rms)	300 V / CAT III	32 mm	10 mV/A; 1 mV/A	DC...20 kHz (-1 dB)	1 % + 100 mA 1 % + 500 mA	Z203B
CP1800	DC/AC current clamp sensor, with 2 measuring ranges, battery mode (50 h)	Range: 0.5 ... 125 A Range: 5 ... 1250 A (DC / AC rms)	300 V / CAT III	32 mm	10 mV/A, 1 mV/A	DC ... 20 kHz (-1 dB)	1% + 100 mA 1% + 500 mA	Z204A
AC Current Sensors with Voltage Output								
WZ12B	AC clip-on current sensor	10 mA~ ... 100 A~	300 V / CAT III	15 mm	100 mV/A	45 ... 65 ... 500 Hz	1.5% +0.1 mA	Z219B
WZ12C	AC clip-on current sensor, with 2 measuring ranges	1 mA~ ... 15 A~, 1 ... 150 A~	300 V / CAT III	15 mm	1 mV/mA, 1 mV/A	45 ... 65 ... 400 Hz	3% + 0.15 mA, 2% + 0.1 A	Z219C
WZ11B	AC clip-on current sensor, with 2 measuring ranges	0.5 ... 20 A~, 5 ... 200 A~	600 V / CAT III	20 mm	100 mV/A, 10 mV/A	30...48 ... 65 ... 500 Hz	1 ... 3%	Z208B
Z3512A	AC clip-on current sensor, with 4 measuring ranges	1 mA ... 1/10/100/ 1000 A~	600 V / CAT III	52 mm	1 V/A, 100 mV/A, 10 mV/A, 1 mV/A	10...48 ... 65 ... 3 kHz	0.5 ... 3%, 0.2 ... 1%	Z225A
METRAFLEX3000	Flexible AC current sensor with 3 measuring ranges, battery mode (2000 h)	0,5 ... 30 A, 0,5 ... 300 A, 5 ... 3000 A	1000 V CAT III 600 V CAT IV	176 mm	100 mV/A, 10 mV/A, 1 mV/A	10 Hz ... 20 kHz	1% + 0.1 A 1% + 0.1 A 1% + 1 A	Z207E
METRAFLEX300M	Flexible AC miniature current sensor with 3 measuring ranges, battery mode (150 h)	1 ... 3 A, 1 ... 30 A, 5 ... 300 A	1000 V CAT III 600 V CAT IV	50 mm	1 V/A, 100 mV/A, 10 mV/A	20 Hz ... 100 kHz	1% + 0.2 A 1% + 0.2 A 1% + 1 A	Z207M
AC Current Transformer with Current Output								
WZ12A	AC clip-on current transformer	15 ... 180 A~	300 V / CAT III	15 mm	1 mA/A	45 ... 65 ... 400 Hz	3%	Z219A
WZ12D	AC clip-on current transformer	30 mA ... 150 A~	300 V / CAT III	15 mm	1 mA/A	45 ... 65 ... 500 Hz	2.5% +0.1 mA	Z219D
WZ11A	AC clip-on current transformer	1 ... 200 A~	600 V / CAT III	20 mm	1 mA/A	48 ... 65 ... 400 Hz	1 ... 3%	Z208A
Z3511	AC clip-on current transformer	4 ... 500 A~	600 V / CAT III	30 x 63 mm	1 mA/A	48 ... 65 ... 1 kHz	3% +0.4 A	GTZ3511 000R0001
Z3512	AC clip-on current transformer	0.5 ... 1000 A~	600 V / CAT III	52 mm	1 mA/A	30...48 ... 65 ... 5 kHz	0.5% ... 0.7%	GTZ3512 000R0001
Z3514	AC clip-on current transformer	1 ... 2000 A ~	600 V / CAT III	64 x 150 mm	1 mA/A	30...48 ... 65 ... 5 kHz	0.5% +0.1 A	GTZ3514 000R0001
Shunt Resistors for Multimeters without Current Measuring Function								
NW300mA	Plug-in shunt resistor, encapsulated 1 Ω	0 ... 300 mA	300 V / CAT III	—	1 mV/mA	DC ...10 kHz	0.5%	Z205C
NW3A	Plug-in shunt resistor, encapsulated 0,1 Ω	0 ... 3 A	300 V / CAT III	—	100 mV/A	DC ...10 kHz	0.5%	Z205B

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