

**60,000 COUNTS AC & AC+DC TRMS
DIGITAL MULTIMETER WITH
NON-CONTACT EF-DETECTION &
BLUETOOTH FUNCTION
Model - KM 788BT**

THINK SAFETY
THINK **KUSAM-MECO**[®]

FEATURES :

- BLE-Communication
- Auto Hold
- VFD
- BeepLit™ Continuity
- Record MAX, MIN, & AVG readings
- Crest (Instantaneous Peak hold) MAX & MIN readings
- Relative Zero mode
- Data Hold
- Backlighted LCD display
- BeepJack™ audible & visible input warning
- %4-20mA loop current readings
- T1-T2 differential temperature readings



Preliminary Data

GENERAL SPECIFICATION:

Sensing	AC and AC+DC True RMS
Display	4-5/6 digits 60,000 counts.
Polarity	Automatic
Update Rate	4-5/6 digits: Max 5 per second nominal. 31 Segment Bar-graph: 50 per second max
Operating Temperature	-20°C to 55°C continuous operating (except on A function, see Electrical Specifications below for more details)
Relative Humidity	Maximum relative humidity 80% for temperature up to 31°C decreasing linearly to 50% relative humidity at 55°C
Storage Temperature	-20°C to 60°C, < 80% R.H. (with battery removed)
Altitude	Operating below 2000m
Temperature Coefficient	nominal 0.10 x (specified accuracy)/ °C @ (-20°C ~ 18°C or 28°C ~ 55°C), or otherwise specified
Power Consumption	10mA typical for AC & AC+DC Voltage / Current functions; 8mA typical for other functions; +2mA typical while BLE-Comm activates.
Low Battery	Below approx. 3.7V
APO Timing	Idle for 15 minutes
APO Consumption	15µA typical.
Power Supply	1.5V AAA Alkaline battery x 3
Dimension	L193mm X W89mm X H51mm
Weight	Approx. 635gm
Accessories	Test lead pair, User's manual, Bkp60 banana plug K-type thermocouple x 1
Optional Accessories	BMH-02 magnetic hanger strap

All Specifications are subject to change without prior notice.

SAFETY :

Safety	Double insulation per IEC/UL/EN/BSEN 61010-1, IEC/UL/EN/BSEN 61010-2-033, IEC/UL/EN/BSEN 61010-031 and the corresponding CAN/CSA-C22.2 regulations to Measurement Categories III 1000V AC & DC and Category IV 600V AC & DC
E.M.C.	Meets EN/BSEN 61326-1:2021; ETSI EN 301 489-1 V2.2.3; ETSI EN 301 489-17 V3.2.4; EN 62479:2010; ETSI EN 300 328 V2.2.2; FCC CFR 47, Part 15, Subpart B, Class B; ISD Canada ICES-003 Issue 7 Class B
Overload Protections	μ A & mA: 0.4A/1000V DC/AC, IR 30kA or better, F fuse
	A: 11A/1000V DC/AC, IR 20kA or better, F fuse
	V: 1100V DC/AC rms
	mV, Ω & Others: 1000 V DC/AC rms
Pollution degree	2
Transient protection	8kV (1.2/50 μ s surge)

ELECTRICAL SPECIFICATIONS : KM 788BT

Accuracy is $\pm$ (% reading digits + number of digits) or otherwise specified, at 23°C $\pm$ 5°C & less than 75% relative humidity. Maximum Crest Factor <1.6:1 at full scale & < 3.2:1 at half scale, and with frequency components fall within the specified frequency bandwidth for non-sinusoidal waveforms.

DC VOLTAGE

Range	Resolution	Accuracy
600.00 mV	0.01 mV	$\pm(0.03\%rdg + 2dgst)$
6.0000 V	0.0001 V	
60.000 V	0.001 V	
600.00 V	0.01 V	$\pm(0.05\%rdg + 5dgst)$
1000.0 V	0.1 V	$\pm(0.15\%rdg + 5dgst)$

Input Impedance : 10M Ω , 75pF nominal
(280pF nominal for 600mV range)

VFD AC VOLTAGE

Range	Resolution	Accuracy ¹⁾
10Hz ~ 200Hz		
600.00 V	0.01 mV	±(4%rdg + 50dgts)
1000.0 V	0.1 V	
200Hz ~ 440Hz		
600.00 V	0.01 mV	±(10%rdg + 50dgts) ²⁾
1000.0 V	0.1 V	

¹⁾ Signal fundamental frequency > 440Hz is unspecified

²⁾ Accuracy linearly decreases from 2% + 50d @ 200Hz to 10% + 50d @ 440Hz

TEMPERATURE

Range	Resolution	Accuracy ¹⁾²⁾
-200.0~1090°C	0.1°C ~ 1°C	1.0% + 1.0°C
-328.0~1994°F	0.1°F ~ 1°F	1.0% + 1.8°F

¹⁾ Accuracies assume meter interior has the same temperature (isothermal stage) of the ambient for a correct junction voltage compensation. Allow the meter and the type-K probe set to reach isothermal stage for a significant change of ambient temperature. It can take up to an hour for changes > 5°C.

²⁾ Type-K thermocouple range & accuracy not included

AC+DC VOLTAGE

Range	Resolution	Accuracy ¹⁾
50Hz ~ 60Hz		
600.00mV ²⁾	0.01 mV	$\pm(0.7\%rdg + 40dgts)$
6.0000 V	0.0001 V	
60.000 V	0.001 V	
600.00 V	0.01 V	
1000.0 V	0.1 V	
0Hz, 40Hz ~ 1kHz		
600.00 mV ²⁾	0.01 mV	$\pm(1.2\%rdg + 40dgts)$
6.0000 V	0.0001 V	
60.000 V	0.001 V	
600.00 V	0.01 V	
1000.0 V	0.1 V	
1kHz ~ 7kHz		
600.00 mV ²⁾	0.01 mV	$\pm(2.0\%rdg + 50dgts)$
6.0000 V	0.0001 V	
60.000 V	0.001 V	
600.00 V	0.01 V	
1000.0 V	0.1 V	Unspec'd
7kHz ~ 20kHz		
600.00mV ²⁾	0.01 mV	$\pm(2.5\%rdg + 70dgts)$
6.0000 V	0.0001 V	
60.000 V	0.001 V	
600.00 V ³⁾	0.01 V	
1000.0 V	0.1 V	Unspec'd

¹⁾ Accuracy specified from 10% to 100% of range

²⁾ Signal peak absolute values, including DC bias, less than 1000mV peak.

³⁾ **Bandwidth** specified to 10kHz only for 600V range

Input Impedance: 10M Ω , 75pF nominal
(140pF nominal for 600mV range). Residual reading less than 50 digits with test leads shorted.

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ELECTRICAL SPECIFICATIONS : KM 788BT

AC VOLTAGE

Range	Resolution	Accuracy ¹⁾
50Hz ~ 60Hz		
600.00 mV ²⁾	0.01 mV	±(0.5%rdg + 30dgts)
6.0000 V	0.0001 V	
60.000 V	0.001 V	
600.00 V	0.01 V	
1000.0 V	0.1 V	
40Hz ~ 1kHz		
600.00 mV ²⁾	0.01 mV	±(0.9%rdg + 30dgts)
6.0000 V	0.0001 V	
60.000 V	0.001 V	
600.00 V	0.01 V	
1000.0 V	0.1 V	
1kHz ~ 7kHz		
600.00 mV ²⁾	0.01 mV	±(1.8%rdg + 40dgts)
6.0000 V	0.0001 V	
60.000 V	0.001 V	
600.00 V	0.01 V	
1000.0 V	0.1 V	Unspec'd
7kHz ~ 20kHz		
600.00 mV ²⁾	0.01 mV	±(2.0%rdg + 60dgts)
6.0000 V	0.0001 V	
60.000 V	0.001 V	
600.00 V ⁴⁾	0.01 V	
1000.0 V	0.1 V	Unspec'd
20kHz ~ 100kHz		
600.00 mV ^{2) 5)}	0.01 mV	±(4.0%rdg + 60dgts)
6.0000 V ⁵⁾	0.0001 V	
60.000 V ⁵⁾	0.001 V	
600.00 V	0.01 V	Unspec'd
1000.0 V	0.1 V	

¹⁾ Accuracy specified from 10% to 100% of range

²⁾ Signal peak absolute values, including DC bias, less than 1000mVpeak.

³⁾ Accuracy adds 1% @ >5kHz ~ 7kHz

⁴⁾ Bandwidth specified to 10kHz only for 600V range

⁵⁾ Accuracy specified from 30% to 100% of range

Input Impedance: 10MΩ, 75pF nominal

(140pF nominal for 600mV range)

Residual reading less than 50 digits with test leads shorted.

LoZ AUTO-DCV

Range	Resolution	Accuracy
6.0000 V	0.0001 V	±(0.5%rdg + 30dgt)
60.000 V	0.001 V	
600.00 V	0.01 V	
1000.0 V	0.1 V	

LoZ Auto-DCV Threshold:

> +1.0VDC or < -1.0VDC nominal

LoZ Auto-DCV Input Impedance:

Initially approx. 2.1kΩ, 140pF nominal;

Impedance increases abruptly within a fraction

of a second as display voltage is above 50V (typical).

Ended up impedances vs display voltages typically are:

12kΩ @ 100V,

90kΩ @ 300V,

300kΩ @ 600V,

670kΩ @ 1000V

AC CURRENT

Range	Resolution	Accuracy ¹⁾	Burden Voltage
40Hz – 3kHz			
600.00μA	0.01 μA	±(0.9%rdg + 20dgts)	0.2mV/μA
6000.0μA	0.1 μA		2.0mVmA
60.000mA	0.001 mA		
600.00mA	0.01 mA		±(1.0%rdg + 30dgts)
6.0000A	0.0001 A		
10.000A ²⁾	0.001 A		

¹⁾ Accuracy unspecified @ <10% of range

²⁾ 10A continuous up to ambient 40°C only, and is <3 mins on per >15 mins off @ 40°C ~55 °C; >10A to 20A for <30 seconds on per >15 mins off

AC+DC CURRENT

AC/DC CURRENT			
Range	Resolution	Accuracy ¹⁾	Burden Voltage
0Hz, 40Hz – 3kHz			
600.00μA	0.01 μA	±(1.0%rdg + 30dgts)	0.2mV/μA
6000.0μA	0.1 μA		2.0mV/mA
60.000mA	0.001 mA		
600.00mA	0.01 mA		±(1.2%rdg + 40dgts)
6.0000A	0.0001 A		
10.000A ²⁾	0.001 A		

¹⁾ Accuracy unspecified @ <10% of range

²⁾ 10A continuous up to ambient 40°C only, and is <3 mins on per >15 mins off @ 40°C ~55 °C; >10A to 20A for <30 seconds on per >15 mins off

DC CURRENT

Range	Resolution	Accuracy	Burden Voltage
600.00μA ¹²⁾	0.01 μA	±(0.075%rdg + 20dgt)	0.2mV/μA
6000.0μA	0.1 μA	±(0.075%rdg + 20dgt)	0.2mV/μA
60.000mA ²⁾	0.001 mA	±(0.075%rdg + 20dgt)	2.0mV/mA
600.00mA	0.01 mA	±(0.15%rdg + 20dgt)	2.0mV/mA
6.0000A	0.0001 A	±(0.3%rdg + 20dgt)	30mV/A
10.000A ³⁾	0.001 A	±(0.3%rdg + 30dgt)	30mV/A

¹⁾ Specified with Open-circuit-voltage (OCV) of Current-loop-under-test at >100μV.

²⁾ The meter shows a few negative residue counts when the input is short-circuited, with OCV at zero volt. It is the nature of the internal protection circuit design, and will not affect measurement readings at nominal OCVs greater than 100μV in significant measurements.

³⁾ 10A continuous up to ambient 40°C only, and is <3 mins on per >15 mins off @ 40°C ~ 55°C; >10A to 20A for <30 seconds on per >15 mins off

HZ LOGIC LEVEL FREQUENCY

Range	Resolution	Accuracy ¹²⁾
5.000Hz ~ 1.0000MHz	0.001Hz ~ 0.0001MHz	0.002% + 4d

¹⁾ Sensitivity: >3.0Vp square wave

²⁾ Specified with Pulse Width > 0.5μs

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ELECTRICAL SPECIFICATIONS : KM 788BT

RESISTANCE

Range	Resolution	Accuracy ¹⁾
600.00 Ω	0.01 Ω	±(0.085%rdg + 10dgts)
6.0000 kΩ	0.0001kΩ	±(0.085%rdg + 4dgts)
60.000 kΩ	0.001 kΩ	±(0.085%rdg + 4dgts)
600.00 kΩ	0.01 kΩ	±(0.15%rdg + 4dgts)
6.0000 MΩ ²⁾	0.0001 MΩ	±(1.5%rdg + 5dgts)
60.000 MΩ ^{3,4)}	0.001 MΩ	±(2.0%rdg + 5dgts)
99.99 nS ⁵⁾	0.01 nS	±(1.0%rdg + 10dgts)

Open Circuit Voltage:

< 1.3VDC (<1.5VDC for 600Ω range)

¹⁾ **Temperature Coefficient:** 0.20x(specified accuracy)/ °C @ (-20°C ~ 18°C or 28°C ~ 55°C)

²⁾ **Constant Test Current:** 0.1μA Typical

³⁾ **Constant Test Current:** 0.01μA Typical

⁴⁾ Specified accuracy adds 0.5% @ >50MΩ

⁵⁾ Specified accuracy adds 30d @ <10nS

LoZ AUTO-ACV

Range	Resolution	Accuracy ¹⁾
6.0000 V	0.0001 V	±(1.0%rdg + 40dgts)
60.000 V	0.001 V	
600.00 V	0.01 V	
1000.0 V	0.1 V	

¹⁾ **Accuracy** specified from 10%~100% of range

LoZ Auto-ACV Threshold:

> 1.0VAC (50/60Hz) nominal

LoZ Auto-ACV Input Impedance:

Initially approx. 2.1kΩ, 140pF nominal;
Impedance increases abruptly within a fraction of a second as display voltage is above 50V (typical). Ended up impedances vs display voltages typically are:
12kΩ @ 100V,
90kΩ @ 300V,
300kΩ @ 600V,
670kΩ @ 1000V

CAPACITANCE

Range	Resolution	Accuracy ^{1,2)}
10.00 nF	0.01 nF	±(1.0%rdg + 10dgts)
100.0 nF ~ 1000nF	0.1 ~ 1 nF	±(1.0%rdg + 2dgts)
10.00 μF ~ 1.000mF	0.01μF ~ 0.001mF	±(1.8%rdg + 4dgts)
10.00 mF	0.01 mF	±(2.0%rdg + 4dgts)

¹⁾ Accuracies with film capacitor or better

²⁾ Temperature Coefficient: 0.20 x (specified accuracy) / °C

@ (-20°C ~ 18°C or 28°C ~ 55°C)

~Hz LINE LEVEL FREQUENCY

Function Range	Sensitivity (Sine RMS)	Range
6 V	0.4 V	10Hz ~ 50kHz
60 V	4 V	10Hz ~ 50kHz
600 V	40 V	10Hz ~ 30kHz
1000 V	400 V	10Hz ~ 5kHz
VFD 600 V	40 V	10Hz ~ 400Hz
VFD 1000 V	400 V	10Hz ~ 400Hz
600 μA	40 μA	10Hz ~ 5kHz
6000 μA	400 μA	10Hz ~ 5kHz
60 mA	4 mA	10Hz ~ 5kHz
600 mA	40 mA	10Hz ~ 5kHz
6 A	0.6 A	10Hz ~ 3kHz
10 A	6 A	10Hz ~ 3kHz

Accuracy : 0.05%+5d

DC LOOP CURRENT %4~20mA

4mA = 0% (zero); 20mA = 100% (span)
Resolution: 0.01% Accuracy: ± 25d

% DUTY CYCLE

5V Logic Frequency	Range Specified
5Hz ~ 1kHz	0.10% ~ 99.99%
1kHz ~ 10kHz	1.00% ~ 99.00%
10kHz ~ 500kHz	20.00% ~ 80.00%

Accuracy : 3d/kHz+2d

Sensitivity: >3.0Vp square wave

CREST mode (Instantaneous Peak Hold)

Accuracy: Specified accuracy ± 100 digits for changes > 0.35ms in duration

Availability: Voltage and Current functions

Resolution: 6000 counts

AutoHold Real-Read™

Accuracy: Specified accuracy ± 50 digits

Availability: Resistance, Continuity, LoZ AutoV,

VFD Volts, Voltage and Current functions

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ELECTRICAL SPECIFICATIONS : KM 788BT

RECORD mode (MAX MIN AVG)

Function Mode Where Available	Added Uncertainty ¹⁾ to Specified Accuracy	Min. Volts/Amps Signal Duration	REC Nominal Update Rate per Second
DC	±30d	300ms	10
AC	±300d (±80d ²⁾)	460ms	5 (10)
VFD	±180d	800ms	5
DC+AC	±300d ²⁾	2s	1
nS	–	–	1
Cx	–	–	Subject to Cx Values
Hz, T1-T2	–	–	2
Ω, T1, T2, Others	–	–	5

¹⁾ Specified at Range Locked (Manual-ranging)

²⁾ Specified at AC Inputs >15% of Range

NON-CONTACT EF-DETECTION (NCV)

Bar-Graph Indication	EF-H (Hi Sensitivity)	EF-L (Lo Sensitivity)
	Typical Voltage (Tolerance)	
-	25V (18V~45V)	60V (50V~140V)
- -	50V (30V~80V)	120V (100V~260V)
- - -	80V (70V~160V)	230V (180V~400V)
- - - -	120V (110V~250V)	400V (330V~490V)
- - - - -	350V (>270V)	600V (>500V)

Indication: Bar-graph segments & audible beep tones proportional to the field strength

Detection Frequency: 50/60Hz

Detection Antenna: Top-left end of the meter

Probe-Contact EF-Detection (Single-pole):

For more precise indication of live wires, such as distinguishing between live and ground connections, use one single test probe to test via terminal COM for direct metal contact probing to achieve the most distinctive indications.

BEEPLIT™ CONTINUITY TESTER

Audible threshold:	between 100Ω & 420Ω
Response time	< 100μs
Audible Indication	Beep Sound
Visible Response	LCD Backlight

BEEPLIT™ DIODE TESTER

Range	Accuracy	Test Current (Typical)
3.0000V	±(1%rdg + 20dgts)	0.35mA

Open Circuit Voltage : <3.1VDC

Short-Beep-Alert Threshold: Drop Across 0.850V

BeepLit™ continuous ON Threshold: < 0.100V

Audible Indication: Beep Sound

Visible Indication: LCD Backlight

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