FUNCTION	RANGE	FREQUENCY (Hz)	ACCURACY RELATIVE TO CALIBRATION STANDARDS [2] ±(ppmR + ppmFS) [3]		CALIBRATION UNCERTAINTY (ppm)	TEMPERATURE COEFFICIENT (ppm/°C) [4]
			24 Hour 23°C±1°C	1 Year [4]		
DC VOLTAGE	100.00000mV		3 + 1	10 + 1	4.5	0.3
	1.00000000V		2 + 0.5	8 + 0.5	3.5	0.25
	10.0000000V		2 + 0.25	7 + 0.25	2.5	0.25
	100.000000V		3 + 0.5	8 + 0.5	4.5	0.4
	1000.00000V		3 + 1	10 + 1	4.5	0.4
AC VOLTAGE	100.0000mV	40-2k	150 + 70	250 + 70	40	5
High Speed		2k-20k	300 + 120	400 + 120	170	10
		20k-100k	800 + 220	0.16% + 0.022%	450	50
10Hz-1MHz	1.000000V to 100.0000V	40-20k	100 + 50	200 + 50	30	10
[5]		20k-100k	400 + 200	0.1% + 0.02%	70	50
		100k-300k	0.5% + 0.5%	1% + 1%	200	50
		300k-1M	1.5% + 1%	2% + 2%	500	50
	1000.000V [7]	40-2k	150 + 70	250 + 70	100	10
		2k-20k	300 + 120	400 + 120	100	10
		20k-100k	800 + 220	0.16% + 0.022%	200	50
AC VOLTAGE	100.0000mV	40-10k	60 + 20	100 + 20	40	5
High Accuracy		10k-30k	250 + 30	300 + 40	170	10
		30k-100k	400 + 100	700 + 100	450	50
1Hz-1MHz	1.000000V to 100.0000V	40-100	50 + 10	80 + 10	30	5
[5] [6]		100-2k	30 + 10	60 + 10	30	5
		2k-10k	50 + 10	80 + 10	30	5
		10k-30k	100 + 20	200 + 20	30	10
		30k-100k	250 + 100	500 + 100	70	50
		100k-300k	0.15% + 0.1%	0.3% + 0.1%	200	50
		300k-1M	1% + 0.5%	1% + 1%	500	50
	1000.000V [7]	40-10k	50 + 10	80 + 10	100	10
		10k-30k	100 + 20	200 + 20	100	10
		30k-100k	250 + 100	500 + 100	200	50
RESISTANCE	10.000000Ω	10mA	6 + 2	18 + 2	4.5	2
	100.000000Ω	10mA	3 + 0.5	10 + 0.5	4.5	1
	1.00000000kΩ	1mA	3 + 0.5	10 + 0.5	4.5	1
	10.0000000kΩ	100μA	3 + 0.5	10 + 0.5	4.5	1
	100.000000kΩ	100μA	3 + 0.5	10 + 0.5	8	1
	1.00000000MΩ	10μA	6 + 1	15 + 1	12	1
	10.0000000MΩ	1μA	12 + 5	30 + 5	15	4
	100.0000MΩ	100nA	50 + 50	400 + 50	100	40
	1.000000GΩ	10nA	500 + 500	0.3% + 500	1000	300
DC CURRENT	100.0000μA		20 + 2	50 + 2	20	8
	1.000000mA		20 + 2	50 + 2	20	8
	10.00000mA		20 + 2	50 + 2	20	8
	100.0000mA		30 + 5	100 + 5	20	8
	1.000000A		100 + 10	150 + 10	50	10
AC CURRENT	100.000μA	10-5k	150 + 50	200 + 100	200	15
[5]	1.00000mA	10-5k	150 + 50	200 + 100	130	15
	10.0000mA	10-5k	150 + 50	200 + 100	130	15
	100.000mA	10-5k	150 + 50	200 + 100	130	15
	1.00000A	10-1k	400 + 100	500 + 200	130	15
		1k-5k	0.1% + 0.03%	0.15% + 0.04%	130	15

NOTES

[1] 100% overrange on all ranges (except 1kV DC & AC).

[2] Specifications for max resolution in each function, normal read mode.

[3] FS = 2 × Full Range.

[4] Valid for 30 days after Selfcal, ±1°C Selfcal Temperature, and within ±15°C (DCV & ACV) or ±5°C (other functions) of Autocal Temperature. Assumes Autocal at 23°C±5°C.

[5] Valid for signals > 1% FS, max. Volt.Hertz 3×10^7.

[6] Assumes Transfer mode selected.

[7] >300V, add $\pm 0.0024(R-300)^2$ppmR.

OTHER SPECIFICATIONS	
DCV	
Type	Multi-slope, multi-cycle A-D converter
CMRR (1kΩ unbalance):	140dB at DC
	>80dB + NMRR at 1-60Hz
NMRR: filter out	60dB at line frequency
[1] filter in	add to above 40dB at 50Hz + 12dB/octave
Protection: all ranges	1kV RMS
Input Impedance:	
0.1V to 10v ranges	>10,000MΩ
100V & 1000V ranges	10MΩ±0.1%
Max Input Current:	50pA
Ratio Accuracy:	±(Net ChA Accuracy + Net ChB Accuracy)
Settling Time:	
to 10ppm step size	
filter out	<500µs
filter in	<500ms
ACV	
Type:	True RMS, AC coupled measures AC component with up to 1000V DC bias on any range. DC coupled gives $\sqrt{(AC^2+DC^2)}$
CMRR (1kΩ unbalance):	<90dB at DC-60Hz
Crest Factor:	5:1 at Full Range (10:1 at 25% of range)
Protection: all ranges	1kV RMS
Input Impedance	1MΩ in parallel with 150pF
LF Accuracy:	
(DC Coupled)	
DC	Add ±(50ppmR+20ppmFS+20µV)
1Hz-10Hz	Add ±(20ppmR+50ppmFS)
10Hz-40Hz	Add ±20ppmR
Ratio Accuracy:	±(Net ChA Accuracy + Net ChB Accuracy)
Settling Time:	
to 100ppm step size	
1kHz	<30ms (option 10 only)
360Hz	<100ms (option 10 only)
100Hz	<500ms (option 12 only)
40Hz	<1s
10Hz	<5s
1Hz	<50s (option 12 only)
Frequency Accuracy:	
(1 year, 13°C-33°C, typical)	±(10ppmR+0.5ppmFS+1 digit)
Frequency Resolution:	Selectable, 4½ digits or 6½ digits
Sample Interval:	
Fast Gate	50ms (4½ digits, 200Hz-1MHz)
Normal Gate	1s (6½ digits, 10Hz-1MHz)
Frequency Range:	10Hz-1MHz, from 5% of range to limits set by Max Volt × Hertz.
RESISTANCE	
Type	True 4 wire with Ohms guard. 2 wire selectable.
Max Lead Resistance:	100Ω in any or all leads.
Protection: all ranges	250V RMS
Ratio Accuracy:	±(Net ChA Accuracy + Net ChB Accuracy)
Settling Time:	Up to 100kΩ range generally the same as DCV, but depends on external connections
DCI	
Type:	Multi-slope, multi-cycle A-D converter.
Protection:	<2A internally clamped, >2A rear panel fuse
Ratio Accuracy:	±(Net ChA Accuracy + Net ChB Accuracy)
Settling Time:	As DCV
ACI	
Type:	True RMS AC coupled. DC coupled gives $\sqrt{(AC^2+DC^2)}$.
Crest Factor:	3:1 at Full Range
Protection:	<2A internally clamped, >2A rear panel fuse
Ratio Accuracy:	±(Net ChA Accuracy + Net ChB Accuracy)
Settling Time:	As ACV

NOTE: [1] Not valid for 5½ digits

FUNCTION		DIGITS	READ RATE (Readings/s)				ADDITIONAL ERRORS (ppmR+ppmFS)	
DCV RESISTANCE [1] DCI [2]			Normal		Fast		Normal	Fast
		8	1/10		1/6		0+0	0+0
		7	1/2		3		0+0	0+0
		6	10		50		0+0.5	0+3
		5	50		1000		0+5	0+30
ACV (Option 10) ACI			1kHz	360Hz	40Hz	10Hz		
		6	20	8	1	1/5	0+0	
		5	20	8	1	1/5	0+0	
ACV (Option 12) [3] ACI [4]			100Hz	40Hz	10Hz	1Hz		
	Transfer OFF	6	3	1	1/5	1/50	200+20	
		5	4	1	1/5	1/50	200+20	
	Transfer ON	6	1	1/2	1/5	1/50	0+0	
		5	2	1/2	1/5	1/50	0+5	

NOTES:
[1] Excluding True Ohms.
[2] Max DCI resolution is 6½ digits.
[3] Assumes frequency monitor set to Fast Gate.
[4] Max ACI resolution is 5½ digits. Read rate as for ACV. Transfer off. Additional error is 0+0.

GENERAL	
POWER SUPPLY	100-130V or 200-260V, 47-63Hz
POWER CONSUMPTION	37VA
OPERATING TEMPERATURE	0°C to +50°C
STORAGE TEMPERATURE	−40°C to +70°C
DIMENSIONS (H×W×D)	88mm (3.5") × 427mm (16.8") × 487mm (19.2")
WEIGHT	13.5kg (30lbs)
SAFETY	Designed to UL1244, IEC 348, BS4743
WARRANTY	1 Year

ORDERING INFORMATION

Model 1271:	8½ Digit Selfcal Digital Multimeter (Includes DCV, Rear Input and IEEE-488.2 Interface)
Option 10:	True RMS High Speed AC Converter
Option 12:	True RMS High Accuracy AC Converter
Option 20:	2 wire and 4 wire Resistance Converter
Option 30:	Current Converter (Only available with Option 20)
Option 40:	Comprehensive Ratio
Option 70:	Isolated Analog Output
Option 80:	115V, 60Hz Line Operation
Option 81:	115V, 50Hz Line Operation
Option 90:	Rack Mounting Kit
Model 1271MT	as 1271 mainframe with MATE(CIIL) Interface and including Options 12, 20, 30, 40 & 70

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