



Model 3166 Clamp On Power HiTESTER

User's Guide



Method for Calculating FD Storage Capacity

Procedure for Opening FD DATA with Microsoft Excel



other information are available on our website.

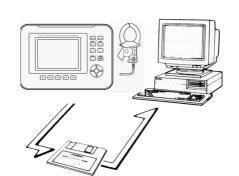
Power Management to Match a New Era

Using a personal computer for speedy power measurement and data processing

Using a personal computer allows energy-saving measures to be made efficiently, by providing the necessary measurements, statistics and analyses.

★ Data transfer using a 3.5" floppy disk

Using a 1.2 MB / 1.44 MB floppy disk (*) (MS-DOS* written, and settings saved and restored. The measur that it can be loaded rapidly into a standard spreadshee (*) Requires the optional Model 9595 FDD Unit.



Transfer to computer using a 3.5" floppy disk

Example of Data Analysis Using a Spreadsheet Program

*Excel and MS-DOS are registered

	A	В	С	D	1		E	trademan	trademarks of Microsoft Corpora		
1	TIME	ΨP	Pmax	U1max		I1max		_			
2	0:00	67.58E+3	85.38E+3	220	.84E+0	12	0.40E+	<u>)</u>			
3	1:00	67.50E+3	75.24E+3	218	.00E+0	12	4.01E+0	<u>)</u>			
4	2:00	83.27E+3	102.83E+3	220	.42E+0	13	5. 57E+0	<u>)</u>			
5	3:00	92.72E+3	110.27E+3	216	.46E+0	15	i1.23E+0	<u>)</u>			
6	4:00	102.58E+3	127.33E+3	214	.64E+0	20	4.26E+0	<u>)</u>			
7	5:00	105.28E+3	132.13E+3	211	.28E+0	22	3.04E+0	<u>)</u>			
8	6:00	104.19E+3	130.21E+3	204	.76E+0	22	0.15E+0	2			
9	7:00	113.91E+3	148.		B	<u> </u>	C	 	E	FG	;
10	8:00	131.98E+3	162.	A	Б		U	U U	E	F G	
11	9:00	156.20E+3	165.				TIME H	ISTORY GRAPH		WP	
12	10:00	165.23E+3	182. '							Pmax	
13	11:00	187.30E+3	212.8	250.OE+3					;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;		٦
14	12:00	128.73E+3	157.0								
15	13:00	167.12E+3	172. (
16	14:00	178.92E+3	192.1	200.OE+3							1
17	15:00	156.29E+3	210.					- 🖌 🚺 🗡		\mathbf{N}	
18	16:00	189.62E+3	<u>212.(</u> ≧ê	150.0E+3		<u> </u>	_				4
19	17:00	174.27E+3	<u>188. </u> 188. 1				•••				
20	18:00	147.52E+3	188.1 HE HALL				- i - i - i				
21	19:00	137.86E+3	152. g 🕺	100.0E+3	1				+ + + + +		-
22	20:00	112.82E+3	152. 0 T.xew 123. WWW 120. 9								
23	21:00	86.27E+3	<u>120. (</u> 🛱								
24	22:00		78. ′	50.0E+3							1
25	23:00	73.10E+3	85.8								
				000.0E+0							
					0:00	4:00	6:00	2:00 8:00 5:00 0:00	4:00 6:00	2:00 00 00 00 00 00 00 00 00 00 00 00 00	
					0:00	1 4.	.9	8:00 10:00 12:00	14:00 16:00	18:00 20:00 22:00	

TIME

How to Calculate FD Storage Capacity

For Automatic Output

1 For Integrated Measurement Mode

Storage capacity for all connection modes Unit: B (bytes)

(Items to be saved select any item from 2 to 6)	1 ¢2W	1 ф3W 3ф3W	3φ3W (3 A)	3 φ4W
1	Time data (be sure to save)	47	47	47	47
2	Instantaneous value	75	97	119	141
3	Maximum value	196	252	308	364
4	Minimum Value	196	252	308	364
5	Integrated Power Value	84	84	84	84
6	Interval Time Average	43	43	43	43
	TOTAL				

Multiple items can be selected

Calculation Method

Possible number of saves =

{FD capacity - 4 kb [settings file, header] - ([total bytes of data to be saved for list item 1 to 6])} / (Total bytes of data to be saved for list item 1 to 6)

(Where settings file size is approx. 3 kb and header is approx. 1 kb)

Example

1.44 MB format

• When connection mode is 3-phase, 3-wire and the selected save items are instantaneous value, integrated power value, and interval time average:

Possible number of saves = (1.44 MB - 4 kb - (47 B + 97 B + 84 B; 43 B)) /

(47 B + 97 B + 84 B + 43 B)

= 5297.9 times

When the output interval time is 10 minutes:
 Possible save hours = 5297 times x 10 minutes / 60 minutes = 882 hours = approx. 36 days

Reference

Save timing

Integrated data: for each output interval (including integration start time)

How to Calculate FD Storage Capacity

For Automatic Output



For Demand Measurement Mode

Storage capacity for all connection modes Unit: B (bytes)

	Items to be saved (select any item from 2 to 6)	1 φ2 W	1φ3W 3φ3W	3¢3W (3 A)	3 4W	
1	Time data (be sure to save)		47	47	47	
2	2 Instantaneous value		97	119	141	
3	3 Maximum value		252	308	364	
4	4 Minimum Value		252	308	364	Multi
5	Integrated Power Value	84	84	84	84	
6	Interval Time Average (When daily, weekly, monthly reporting, or integrated is selected)	203	203	203	203	
	Interval Time Average (for demand setting)	43	43	43	43	
	TOTAL]

Multiple items can be selected

Calculation Method

Possible number of saves =

(FD capacity - 4 kb [settings file, header]) / (total bytes of data to be saved for list item 1 to 6) (Where settings file size is approx. 3 kb and header is approx. 1 kb)

Example 1: 1.44 MB format

- When connection mode is 3-phase, 3-wire and the selected save items are instantaneous value, integrated power value, interval time average, and demand:
 Possible number of saves = (1.44 MB 4 kb) / (47 B + 97 B + 84 B + 43 B) = 5298.9 times
- When Demand time is 30 minutes:
 Possible save hours = 5298 times x 30 minutes / 60 minutes = 2649 hours = approx. 110 days

How to Calculate FD Storage Capacity

For Automatic Output

When Multiple Items are Selected for Calculation

(when the data includes items with different save timings)

Example 2: 1.44 MB format

From the table, when connection mode is three-phase, three-wire, demand time is 30 minutes, and the selected save items are instantaneous value, integrated power value, interval time average, demand, and daily reporting:

Demand data = 47 B + 97 B + 84 B + 43 B = 271 B

Daily reporting data = 47 B + 97 B + 84 B + 203 B = 431 B

• When possible save time is X:

* 1.44 MB - 5 kb [setting file and header] = 271 B x X / (30 minutes/60 minutes) + 431 B x X / 24 hours (Where setting file size is approx. 3 kb, and demand data header and daily reporting data header are approx. 1 kb each.)

From the above expression: possible save time X = 2562 hours = approx. 106 days.

Example 3: 1.44 MB format (when the data includes items with different save timings)

From the table, when connection mode is three-phase, three-wire, demand time is 30 minutes, and the selected save items are instantaneous value, integrated power value, interval time average, demand, daily reporting, weekly reporting, monthly reporting, and integrated:

Demand data = 47 B + 97 B + 84 B + 43 B = 271 BDaily report data = 47 B + 97 B + 84 B + 203 B = 431 BWeekly report data = 47 B + 97 B + 84 B + 203 B = 431 BMonthly report data = 47 B + 97 B + 84 B + 203 B = 431 B

Integrated data = 47 B + 97 B + 84 B + 203 B = 431 B

- When possible save time is X:
 - 1.44 MB 8 kb [setting file and header] 431 B [integrated data]
 - = 271 B x X / (30 minutes/60 minutes) + 431 B x X / 24 hours + 431 x X/(24 hours x 7)
 - + 431 x X/ (24 hours x 30)

(Where setting file size is approx. 3 kb, and demand data header, daily reporting data header, weekly reporting data header, monthly reporting data header, and integrated data header are approx. 1kb each)

From the above expression: possible save time X = 2542 hours = approx. 105 days.

Reference

Save timing: Demand data is saved at the set demand hour, daily reporting data is saved every 24 hours, weekly reporting data is saved every 7 days, monthly reporting data is saved every month, and integrated data is saved when demand measurement is completed.

How to Open FD Data using Microsoft Excel

- 1. Place the floppy disk containing the measurement files in the floppy disk drive.
- 2. Click Open in the Microsoft Excel File menu to display the Open File dialog box.
- 3. Select 3.5 inch FD (A:) from the File Destination box.
- 4. Select All files from Files of type scroll down box.

Open	? ×
Look in: 🛃 3½ Floppy (A:) 💽 💽 🔯 📧 🏢 🏢 🖽 💆	2
sample1.itg	<u>O</u> pen
in sample1.set In sample2.dem	Cancel
sample2.set	<u>A</u> dvanced
Find files that match these search criteria: File name: Text or property:	✓ Eind Now
Files of type: All Files	New Search
4 file(s) found.	

5. Select a file and click Open.

OUTPUT TIME 12:30:00 13:00:00

DEMAND START DATE 98/03/09

98/03/09

DEMAND ST

12:00:00

2.0 0.0

6. Text Import Wizard - Step 1 of 3 appears.

7. For the original data type, select the "Delimited-Characters such as commas or tabs separate each field" option button.

Text Import Wizard - Step 1 of 3								
The Text Wizard has determined that your data is Delimited. If this is correct, choose Next, or choose the Data Type that best describes your data.								
Original data type Choose the file type that best describes your data:								
© Delimited - Characters such as commas or tabs separate each field. C Fixed width - Fields are aligned in columns with spaces between each field.								
Start import at <u>ro</u> w: 1 🚔 File <u>O</u> rigin: Windows (ANS								
Preview of file A:\sample2.dem.								
1 "OUTPUT DATE", "OUTPUT TIME", "DEMAND START DATE", "DEM 298/03/09 12:30:00 98/03/09 12:00:00 +6 6174E+3 +6 63								

8. Click Next and Step 2 of 3 appears.

Text Import Wizard - Step 2 of 3				
This screen lets you set the delimiters your data contains. Yo how your text is affected in the preview below.	ou can see			
	at consecutive delimiters	9. Select "comma'	' as the delimit	er character.
		ort Wizard - Step 2 of	3	
Data preview		en lets you set the delimit r text is affected in the pr		tains. You can see
OUTPUT DATE, "OUTPUT TIME", "DEMAND STA 98/03/09,12:30:00,98/03/09,12:00:00,+ 98/03/09.13:00:00.98/03/09.12:30:00.+	-6.6174E		Comma	Treat consecutive delimiters
		bace 🔽 <u>O</u> ther:		Text <u>Q</u> ualifier: "
10. Click Finish.	Data pre	view		

- 11. You can paste up to 3166 data items onto a
- Microsoft Excel worksheet.
- OUTPUT DATE 12. If you optimize the column width, data will be easier 98/03/09 20 20.2 20.9 to read.

X	🗙 Microsoft Excel - sample2.dem										
	Eile Edit View Insert Format Iools Data Window Help										
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4	Arial ▼ 10 ▼ B Z U 書 書 喜 国 \$ %,*28 # 律 目 - ◇ - ▲ -										
	A1 💌	= OUTF	PUT DATE								
	Α	В	С	D	E	F	G	Н		J	К
1	OUTPUT DATE	OUTPUT TIME	DEMAND START DATE	DEMAND START TIME	U1	U2	11	12	Р	Q	S 🚽
2	98/03/09	12:30:00	98/03/09	12:00:00	6.62E+03	6.63E+03	6.44E+01	6.28E+01	4.45E+05	-6.00E+05	7.48E+
3	98/03/09	13:00:00	98/03/09	12:30:00	6.48E+03	6.53E+03	6.38E+01	6.54E+01	5.73E+05	-4.77E+05	7.45E+
4	98/03/09	13:30:00	98/03/09	13:00:00	6.73E+03	6.74E+03	6.71E+01	6.81E+01	6.45E+05	-4.82E+05	8.06E+
5	98/03/09	14:00:00	98/03/09	13:30:00	6.65E+03	6.69E+03	6.82E+01	7.01E+01	6.88E+05	-4.33E+05	8.13E+
6	98/03/09	14:30:00	98/03/09	14:00:00	6.61E+03	6.63E+03	6.65E+01	6.67E+01	6.17E+05	-4.65E+05	7.73E+
7	98/03/09	15:00:00	98/03/09	14:30:00	6.72E+03	6.76E+03	6.31E+01	6.48E+01	5.91E+05	-4.84E+05	7.64E+
8		15:30:00	98/03/09	15:00:00	6.62E+03	6.67E+03	6.33E+01	6.49E+01	5.92E+05	-4.67E+05	7.54E+
9	98/03/09	16:00:00	98/03/09	15:30:00	6.63E+03	6.67E+03	6.56E+01	6.75E+01	6.32E+05	-4.63E+05	7.83E+