

Supplementary sheet (MODEL 6300 Quick manual) (English)

Supports 256M / 512M / 1G / 2G / 4G / 8GB CF cards.

* with the instrument ver 1.10

(ver 1.08 or earlier supports 128MB or less, 1.09 supports 1GB or less)

• Operation check has completed

Capacity	256MB	512MB	1GB
SanDisk Corp.	SDCFB-256	SDCFB-512	SDCFG-1
Adtec co., Ltd.	AD-CFG256	----	AD-CFX40T1G
BUFFALO INC.	RCF-X256MY	----	RCF-X1GY
Capacity	2GB	4GB	8GB
SanDisk Corp.	Ultra II 15MB/s CF 2GB SDCFH-002G	Ultra II 15MB/s CF 4GB SDCFH-004G	Ultra II 15MB/s CF 8GB SDCFH-008G

* This instrument supports FAT16 and cannot save data of 2GB or more if a card of 4GB or more is used.

(Identified as over capacity when the area of usage exceeds 2GB.)

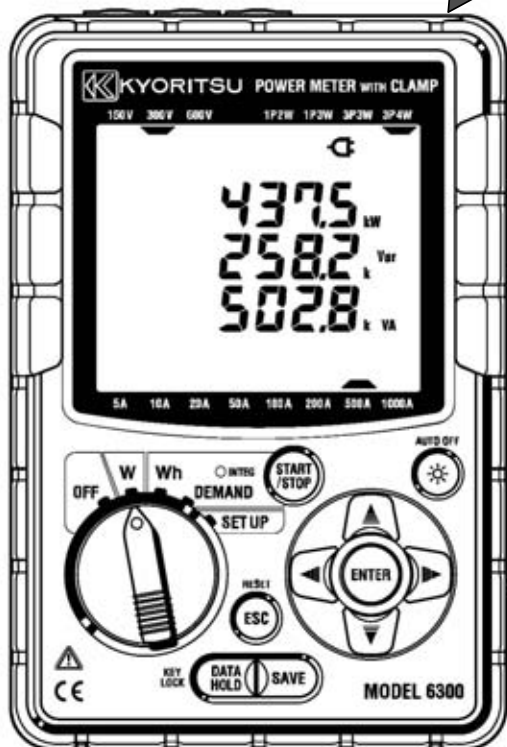
* When a mark of “**CARD**” displayed for several tens of seconds at powering on the instrument, the CF card inserted may not be appropriate to be used with this instrument. In this case, try to format the card on this instrument. If it is failed, the card cannot be used with this instrument.

• Max possible recoding time

Capacity		256MB	512MB	1GB	2GB	4GB	8GB
Instantaneous measurement		400,000	800,000	1,000,000 or more			
Interval at Integration/ Demand measurement	1sec	2 days	4 days	9 days	18 days		
	1min	144 days	288 days	over 1 year			
	30min	over 1 year					
Max number of files		20					

Quick manual

Read the Manual in the
supplied CD-ROM first.



DIGITAL POWER METER

MODEL 6300



KYORITSU ELECTRICAL INSTRUMENTS
WORKS, LTD.

● Preface

This Quick manual is a simplified version of the full instruction manual which can be found in the supplied CD-ROM.

This manual is intended only as a handy reference guide and should only be used after having read the full instruction manual which contains full details on each function of this instrument and the items contained in the package.

● Safety Warning!

The instruction manual contains warnings and safety procedures which have to be observed to ensure safe operation of the instrument and maintain it in a safe condition. Thus, these operating instructions have to be read prior to using the instrument.

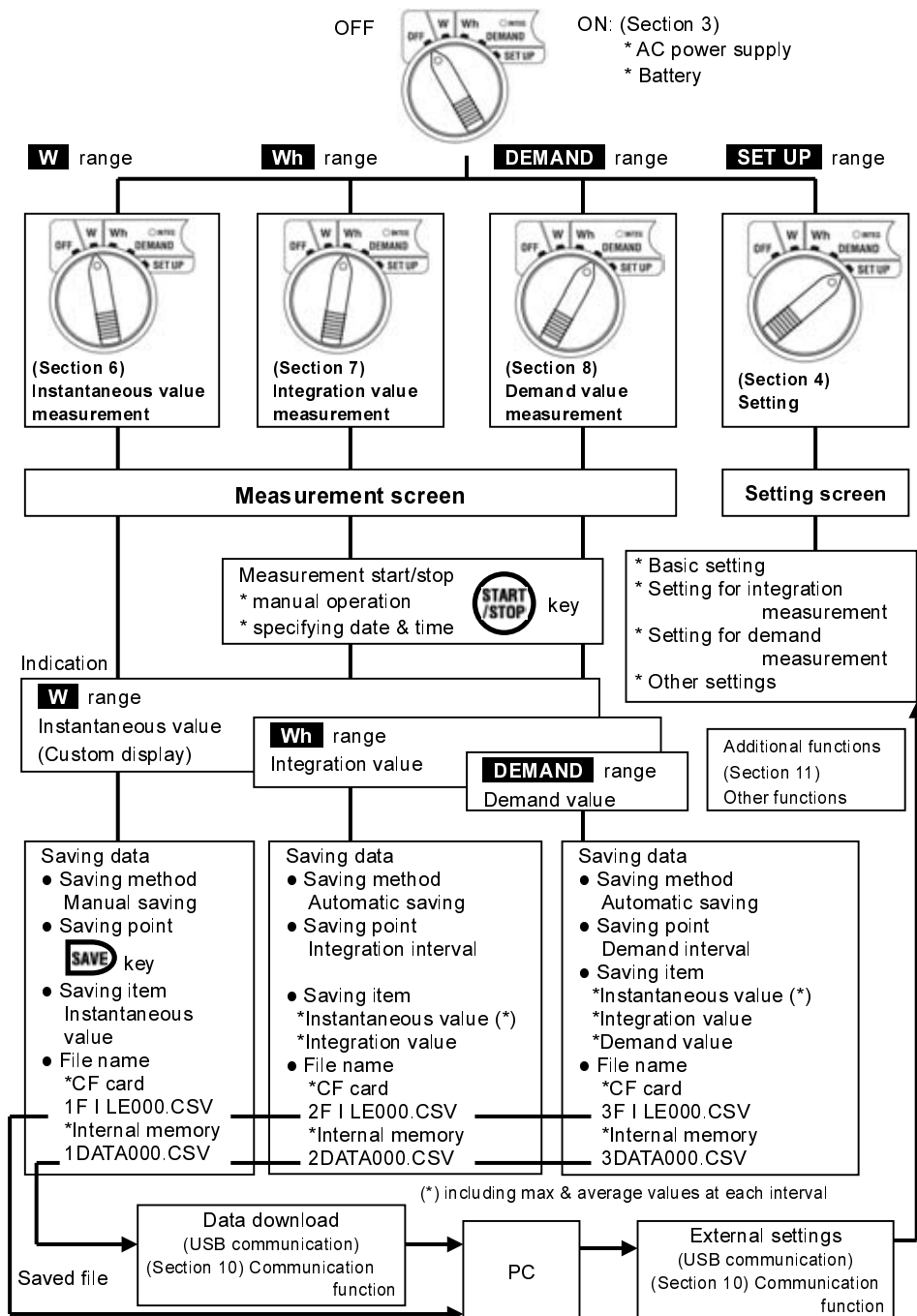
Contents

1. Functional overview	2
2. Instrument layout	3
3. Setting: SET UP range	5
4. Wiring	8
5. Instantaneous value measurement: W range	9
6. Integration value measurement: Wh range	13
7. Demand value measurement: DEMAND range	16
8. CF card/ Save data	19

Each section heading in this manual is followed by a cross reference (enclosed in parenthesis) to the Instruction manual. The subheadings are also followed by a similar cross reference which refers to the corresponding clause in the instruction manual.

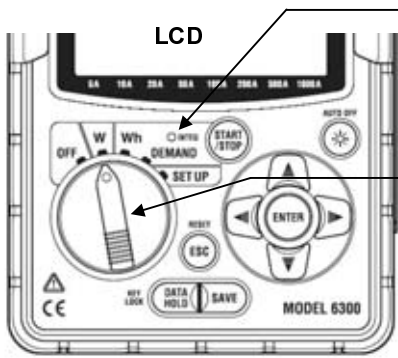
The contents of this Quick manual are subject to change without prior notice.

1. Functional overview (Section 1)



2. Instrument layout (Section 2)

• Display & keys (2-1)



LED status indicator

- *Lights up : During integration/ demand measurement
- *Flashes : During integration/ demand stand-by mode

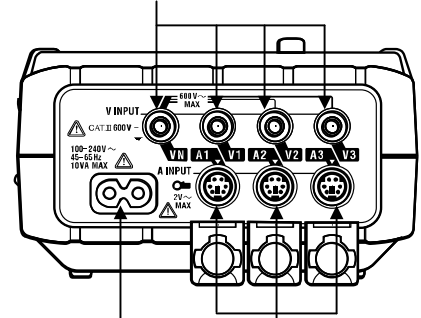
Function switch

- * Turns the instrument on when it is in any position other than OFF.
(Section 3)
- 1. AC power supply, or
- 2. Battery

Keys	Details	Keys	Details
	Starts/ Stops integration and demand measurement.		* Cancels a setting * Clears integration/ demand value
	Switches on/off the backlight of the LCD.		* Data hold * Key lock Pressing this key for at least 2 sec locks keys. Pressing again this key for at least 2 sec releases key lock.
	Measurement screen: Switches the display contents. Setting screen: Changes selection, number, or moves digits.		
	Confirms entry such as a change to a setting.		Saves the instantaneous measurement data.

• Connector (2-2)

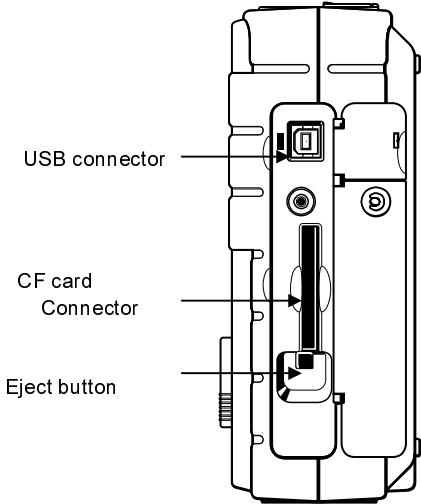
Voltage input terminal
(VN, V1, V2, V3)



Power supply connector

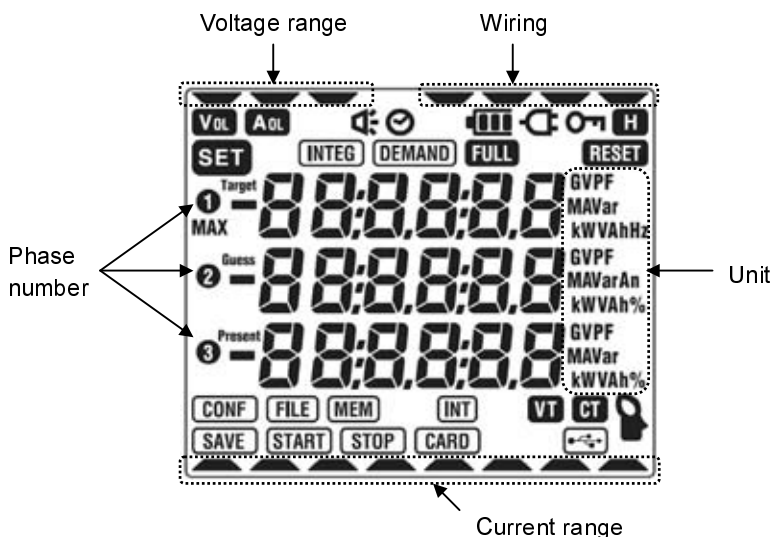
Current input terminal
(A1, A2, A3)

• CF card/ USB part (2-3)



- Marks displayed on the LCD (2-1)

< All marks to be displayed on the LCD >



< Marks indicate the measurement status or functions >

Mark	Measurement status or function
	Displayed when the keys are locked.
	Displayed when voltage exceeds a certain value.
	Displayed when current exceeds a certain value.
	Displayed when instrument is operating with AC power supply.
	Displayed when instrument if operating with batteries.
	Displayed when data hold function is activated.
	Displayed during integration, Flashes during stand-by mode.
	Displayed during demand, Flashes during stand-by mode.
	Displayed when the capacity of CF card or internal memory is full.
	Displayed while saving data in CF card.
	Displayed when opening/ closing a file at measurement.
	Displayed when saving data.
	Displayed when a file exists in the internal memory.
	Displayed when VT ratio is set to at a value other than 1.
	Displayed when CT ratio is set to at a value other than 1.

3. Setting: **SET UP** range (Section 4)

3.1 List of setting items (4-1)

Each Setting	Item No./ Setting item	Mark	Setting
Basic setting	01 Wiring	-	1P2W(1ch)/ 1P2W(2ch)/ 1P2W(3ch)/ 1P3W/ 3P3W /3P4W
	02 Voltage range	-	150/ 300/ 600V
	03 Current range	-	Range (04 Clamp sensor) 5/ 10/ 20/ 50A : (50A) 10/ 20/ 50/ 100A : (100A) 20/ 50/ 100/ 200A : (200A) 50/ 100/ 200/ 500A : (500A) 100/ 200/ 500/ 1000A : (1000A) 1000/ 3000A : (3000A)
	04 Clamp sensor		50/ 100/ 200/ 500/ 1000/ 3000A
	05 VT ratio		1 ~ 10000
	06 CT ratio		1.00 ~ 10000.0
Other settings	07 Time (*1)		Year : Month : Day, Hour : Minute : Second
	08 Buzzer		on (sound) oFF (not sound)
Settings only for integration measurement	09 Integration interval	 	1/ 2/ 5/ 10/ 15/ 20/ 30 sec. 1/ 2/ 5/ 10/ 15/ 20/ 30 min., 1 hour
	10 Integration start time & date	 	Year : Month : Day, Hour : Minute : Second
	11 Integration stop time & date	 	Year : Month : Day, Hour : Minute : Second
	12 Reset of integration value	 	on (reset) oFF (not reset)
Settings only for demand measurement	13 Demand Interval	 	1/ 2/ 5/ 10/ 15/ 20/ 30 sec. 1/ 2/ 5/ 10/ 15/ 20/ 30 min., 1 hour
	14 Demand start time & date	 	Year : Month : Day, Hour : Minute : Second
	15 Demand stop time & date	 	Year : Month : Day, Hour : Minute : Second
	16 Demand target value	 Target	0.1W ~ 999.9GW
	17 Demand inspection cycle	 	Can select a time from any three of preceding time as demand interval. <e.g.> Interval =30min. →10/ 15/ 20 min.
	18 Reset of demand value	 	on (reset) oFF (not reset)

Each Setting	Item No./ Setting item	Mark	Setting
Setting for CF card	19 Use of CF card (*2)		on (use) oFF (not use, use internal memory)
	20 Formatting of CF card (*3)		on (formatting) oFF (not formatting)
	21 Deleting the data in CF card		dEL (delete) not.dEL (not delete)
Other settings	22 Deleting the data in internal memory		dEL (delete) not.dEL (not delete)
	23 System reset		on (reset) oFF (not reset)
	24 Loading settings		Save number 01 ~ 20
	25 Saving settings		Save number 01 ~ 20

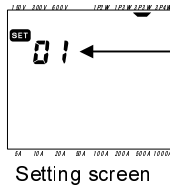
(*1) Time has been adjusted to Japanese local time at the shipment.

(*2) A message "on" is displayed on the LCD when powering on the instrument while the formatted CF card has been inserted.

(*3) Format a CF Card before use.

3-2 Setting procedure (4-3)

STEP 1 Set the Function switch to **SET UP** range. (setting screen)



Item number

Setting screen

STEP 2 Switch the setting items (Item number 01 ~ 25) with ◀ ▶ keys.



STEP 3 Press the **ENTER** key on the selected item.
(Then settings blink and the instrument gets setting change mode.)

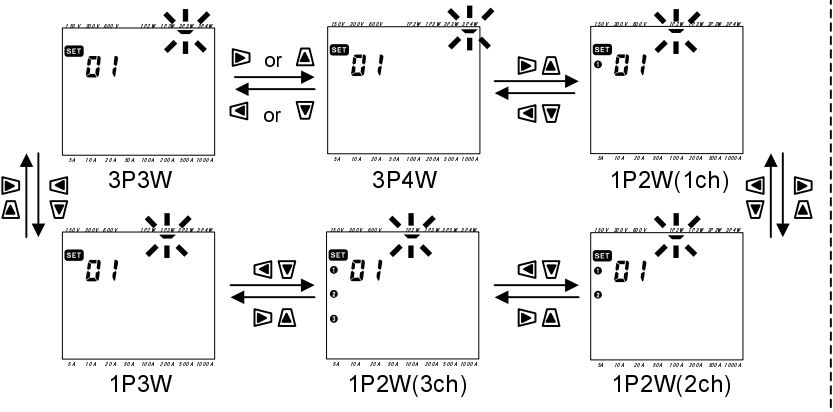
STEP 4 Change the settings with ◀ ▶ keys.



< Example >

Item number [01], Setting item [Wiring]

Setting [1P2W(1ch)/ 1P2W(2ch)/ 1P2W(3ch)/ 1P3W/ 3P3W/ 3P4W]



STEP 5 Enter the settings.

(Press the **ENTER** key.)

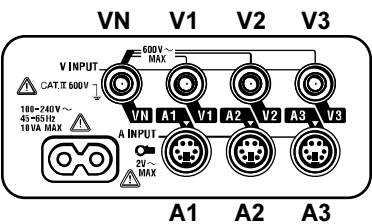
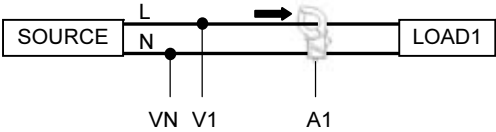
STEP 5 Cancel the settings.

(Press the **ESC** key.)

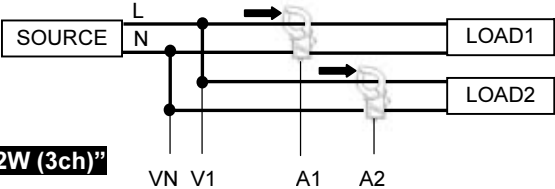
Setting ends: Proceed to **STEP2** to do other settings.

4. Wiring (Section 5)

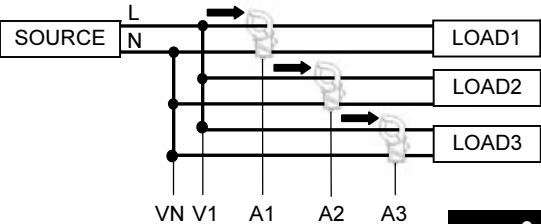
• Single-phase 2-wire (1ch) “1P2W (1ch)”



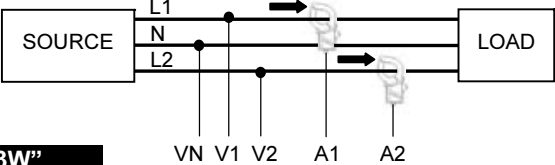
• Single-phase 2-wire (2ch) “1P2W (2ch)”



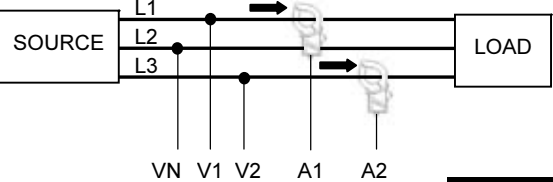
• Single-phase 2-wire (3ch) “1P2W (3ch)”



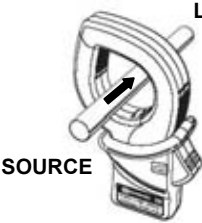
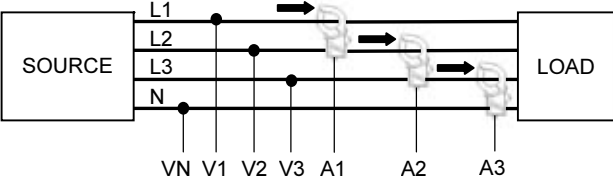
• Single-phase 3-wire “1P3W”



• Three-phase 3-wire “3P3W”

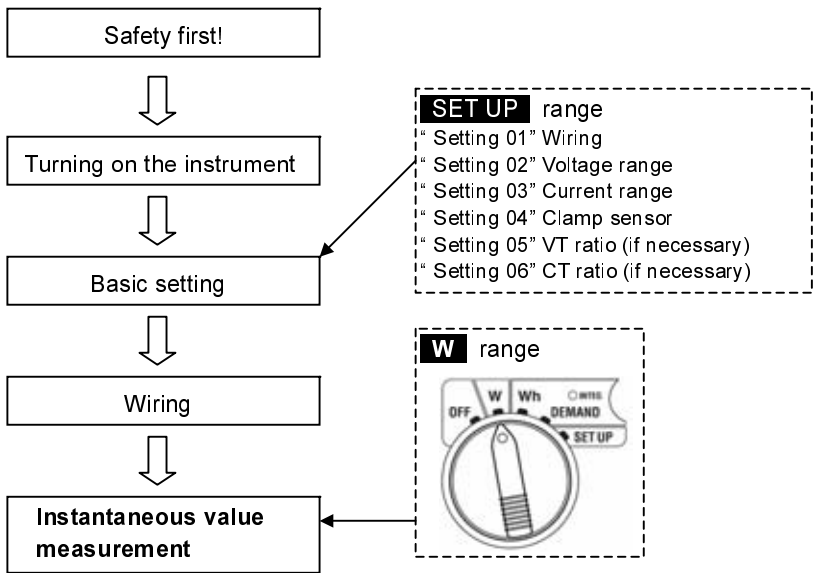


• Three-phase 4-wire “3P4W”



5. Instantaneous value measurement: **W** range (Section 6)

• Measurement flow chart



• Displayed items on **W** range

Displayed parameters			Unit
Voltage (RMS)	V : Average voltage of V_i	V_i : Voltage per phase	V
Current (RMS)	A : Average current of V_i	A_i : Current per phase	A
Active power	P : Total active power Polarity: + (no mark) consumption, - (minus) regenerating	P_i : Active power per phase	W
Reactive power	Q : Total reactive power Polarity: + (no mark) phase lag, - (minus) phase lead	Q_i : Reactive power per phase	Var
Apparent power	S : Total apparent power	S_i : Apparent power per phase	VA
Power factor	PF : Total power factor Polarity: + (no mark) phase lag, - (minus) phase lead	Pfi : Power factor per phase	PF
Frequency	f : Frequency at $V1$		Hz
Neutral current	In^{**} : Current on a neutral line (only at three-phase 4-wire)		An

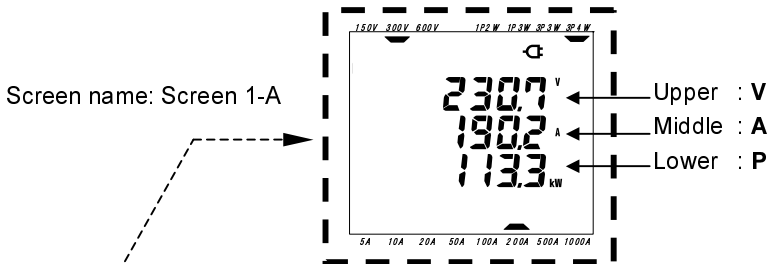
* $i = 1, 2, 3$

** : The recorded/displayed In (neutral current) value will not be a true value in situations where there is an earth leakage or leakage current flowing through the live conductors of the three phase system that is being monitored using the Power Meter Model 6300.

5.1 Display screen modes(6-1, 6-2)

Three parameters are displayed on one screen as shown below. (On Screen 1-A: V/ A/ P) Display screens vary depending on the wiring configuration.

- In case of a Three-phase 4-wire “3P4W” (15 screens)



		X Axis						
		A	B	C	D	E	F	G
Screen name	Y Axis	(1-A)	(1-B)	(1-C)	(1-D)			
Upper		V	V1	V2	V3	-	-	-
Middle		A	A1	A2	A3			
Lower		P	P1	P2	P3			
Screen name		(2-A)	(2-B)	(2-C)	(2-D)			
Upper		P	P1	P2	P3	-	-	-
Middle		S	S1	S2	S3			
Lower		PF	PF1	PF2	PF3			
Screen name		(3-A)	(3-B)	(3-C)	(3-D)	(3-E)	(3-F)	(3-G)
Upper		V1	A1	P1	PF1	S1	Q1	f
Middle		V2	A2	P2	PF2	S2	Q2	In
Lower		V3	A3	P3	PF3	S3	Q3	-

* Screen 1-A appears on switching on the instrument .

* Pressing or key displays the screens along the X axis of the above table.
(eg. from Screen 1-A to 1-D, Screen 2-A to 2-D, Screen 3-A to 3-G)

* Pressing or key displays the screens along the Y axis of the above table
Pressing key whilst on any Screen 1, displays screen 3-A, and 2-A by pressing key.

Pressing key whilst on any screen 2, displays screen 1-A, and 3-A by pressing key.

Pressing key whilst on any screen 3, displays screen 2-A, and 1-A by pressing key.

* On the display screen, ①, ②, ③ correspond to the respective phase .

(e.g. On Screen 1-B, ① and on Screen 3-A, all ① ② ③ are displayed.

On Screen 1-A, 2-A and 3-G, the numbers will not be displayed.)

●other wiring configuration

Display screen can be switched in the same way to switch “3P4W”.

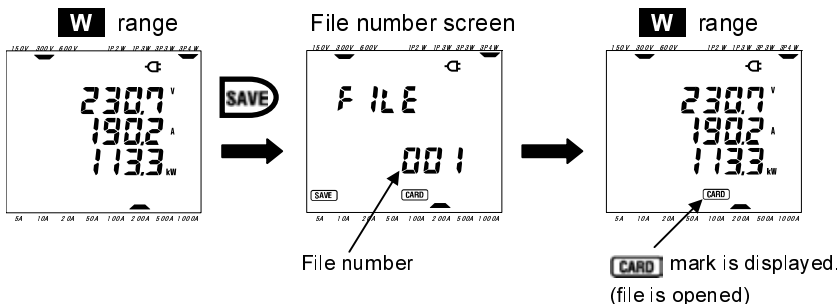
Wiring	A	B	C	D	E	F	G
1P2W (1ch) 9 screens	V A P	-	-	-	-	-	-
	P S PF	-	-	-	-	-	-
	V - -	A - -	P - -	PF - -	S - -	Q - -	f - -
1P2W (2ch) 13 screens	V A P	V A1 P1	V A2 P2	-	-	-	-
	P S PF	P1 S1 PF1	P2 S2 PF2	-	-	-	-
	V - -	A1 A2 -	P1 P2 -	PF1 PF2 -	S1 S2 -	Q1 Q2 -	f - -
1P2W (3ch) 15 screens	V A P	V A1 P1	V A2 P2	V A3 P3	-	-	-
	P S PF	P1 S1 PF1	P2 S2 PF2	P3 S3 PF3	-	-	-
	V - -	A1 A2 A3	P1 P2 P3	PF1 PF2 PF3	S1 S2 S3	Q1 Q2 Q3	f - -
1P3W 13 screens	V A P	V1 A1 P1	V2 A2 P2	-	-	-	-
	P S PF	P1 S1 PF1	P2 S2 PF2	-	-	-	-
	V1 V2 -	A1 A2 -	P1 P2 -	PF1 PF2 -	S1 S2 -	Q1 Q2 -	f - -
3P3W 13 screens	V A P	V1 A1 P1	V2 A2 P2	-	-	-	-
	P S PF	P1 S1 PF1	P2 S2 PF2	-	-	-	-
	V1 V2 -	A1 A2 -	P1 P2 -	PF1 PF2 -	S1 S2 -	Q1 Q2 -	f - -

5.2 Data saving procedure (6-4)

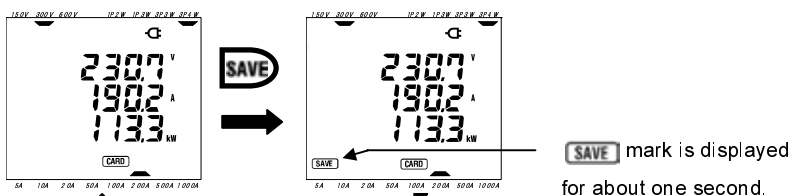
The instantaneous value (on **W** range) can be saved only by a manual operation.

Opening a file

Pressing the **SAVE** key on **W** range during a measurement displays File number screen and file is opened. (First data is recorded at this stage.)

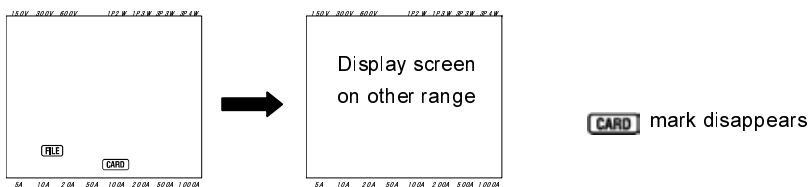


Pressing the **SAVE** key again records next (second) data stream.



Closing a file

Set the Function switch to any position other than **W** and **OFF**.



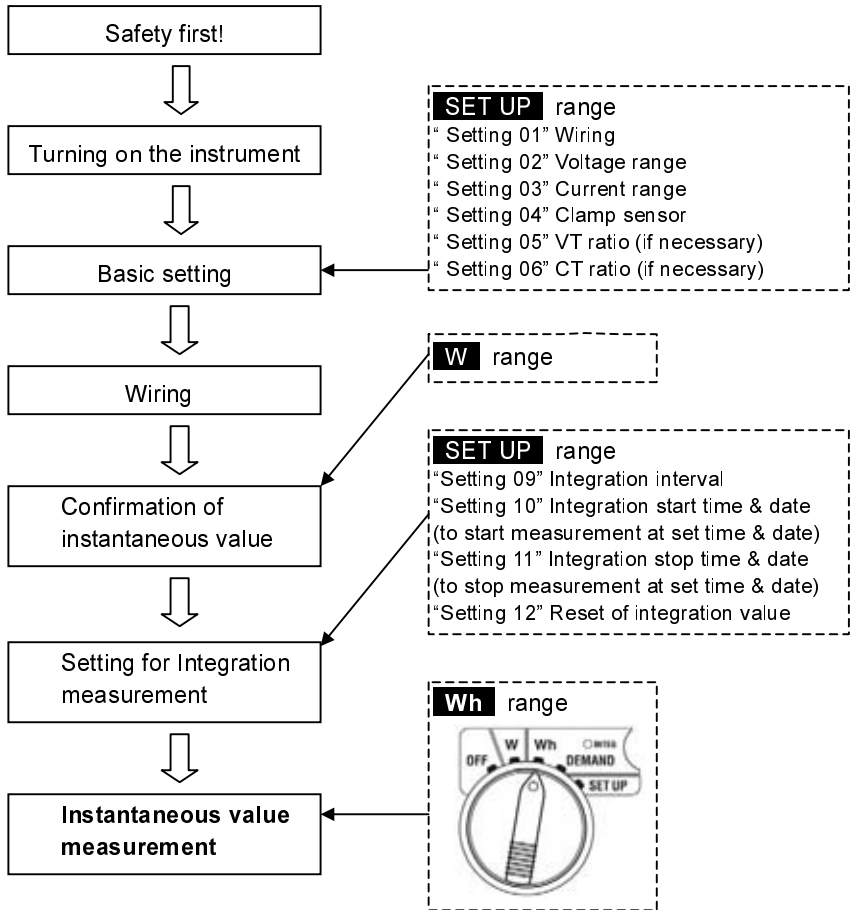
Completing Data saving Procedure

According to above procedure, data can be saved to one file whenever the **SAVE** key is pressed.

- * When data is saved to the internal memory, the **MEM** mark is displayed instead of the **CARD** mark.
- * File shall be closed first. Data will not be saved when a file is not closed.
- * File has to be closed ! Data will not be saved unless a file is closed.

6. Integration value measurement: **Wh** range (Section 7)

• Measurement flow chart



• Items displayed on **Wh** range

Displayed parameters			Unit
Active electrical energy (consumption)	WP	: Total active electrical energy	Wh
	WP1/WP2/WP3	: Active electrical energy per phase	
Apparent electrical energy (consumption)	WS	: Total apparent electrical energy	VAh
	WS1/WS2/WS3	: Apparent electrical energy per phase	
Elapsed time of integration	TIME	: Hour; Min.; Sec. Hour; Min. Hour	-

6.1 Measurement execution (7-1, 7-2)

●Manual mode

Press the **START/STOP** key.
(at least for 2 sec.)

Wh range

●Automatic mode (setting the date and time)

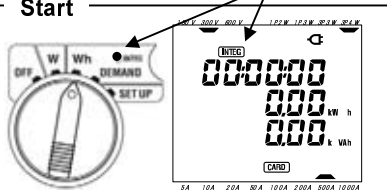
Make setting at Setting 10 & 11
Press the **START/STOP** key.



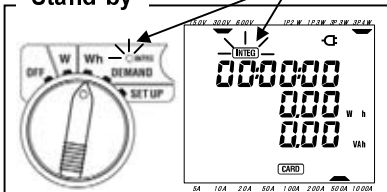
File number screen is displayed for about 2sec. (**open a file**)

- * Start measurement manually.
- * When automatic measurement is set, the instrument goes into stand-by mode and measurement starts at the set time & date. In stand-by mode, both LED status indicator and the **INTEG** mark flash. Both indicators are displayed when measurement starts.

Start

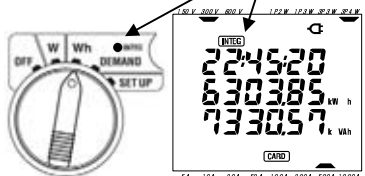


Stand-by



←

Measuring



- * Indicated value is refreshed every 1 sec.
- * Data is saved at the interval, which is pre set at "Setting 09".
- * During a measurement, instantaneous value can be viewed on **W** range and settings can be viewed on **SET UP** range.

Manual operation

Press the **START/STOP** key.
(at least for 2 sec.)

Stop

Automatic operation

Measurement ends at set time & date

←

When measurement ends (**close a file**), the **INTEG** mark disappears and LED status Indicator goes off.

* In case the data to be saved to the internal memory, the **MEM** mark is displayed instead of the **CARD** mark.

* Ensure that the file is closed. Data will not be saved unless a file is closed.

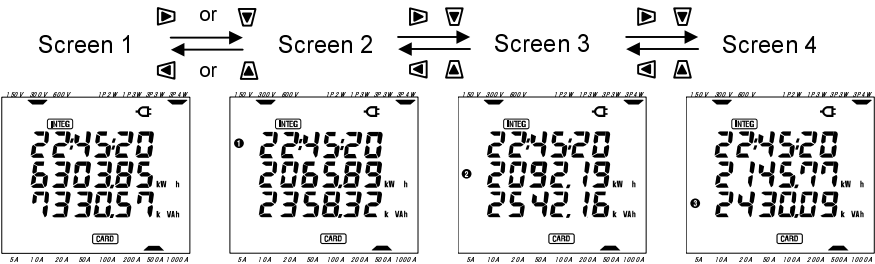
Following a measurement, integration value is still shown on the display screen.

When the value is not requires for the subsequent measurement, reset (7-3) the integration value by pressing the **ESC** key for at least 2 sec. and select "dEL", or at "Setting 12".

6.2 Display screen / Data capturing (7-4, 7-5)

- Display screen modes

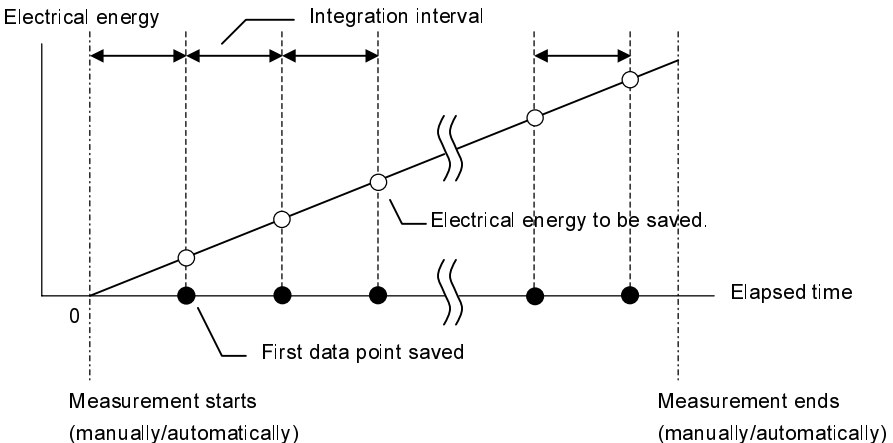
< For Three-phase 4-wire “3P4W” configuration >



<Other wiring configurations>

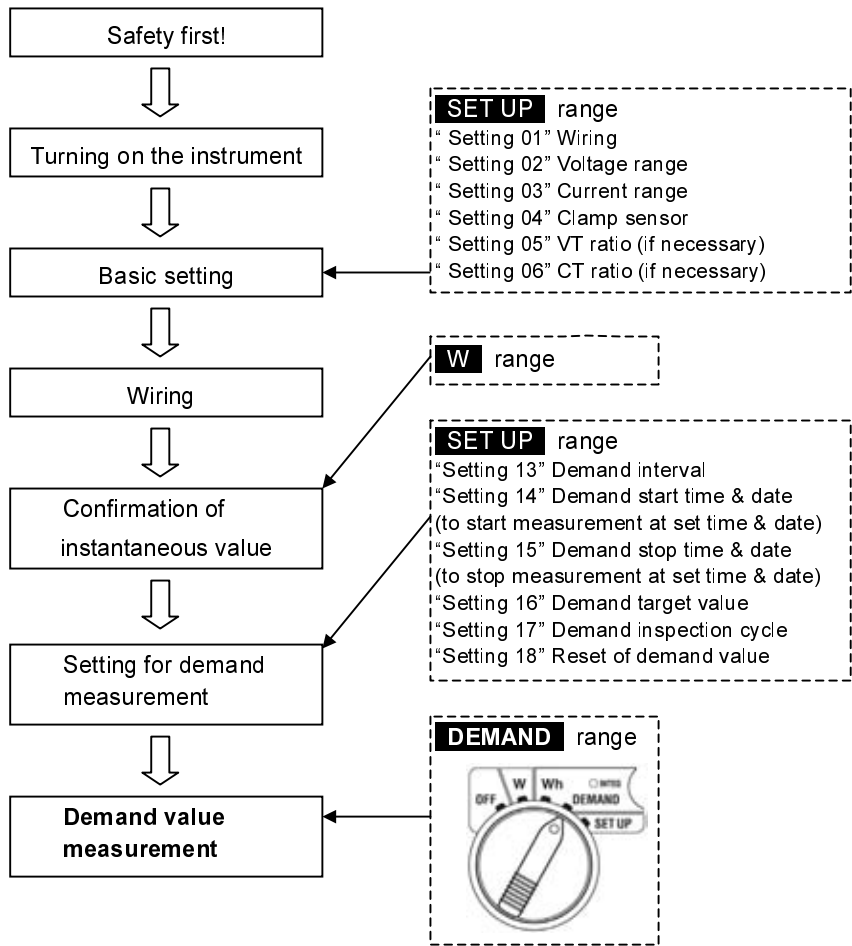
Wiring(“Setting 01”)	Displayed at	Displayed contents			
		Screen1	Screen2	Screen3	Screen4
1P2W (1ch)	Upper Middle Lower	TIME WP WS	-	-	-
1P2W (2ch) 1P3W 3P3W	Upper Middle Lower	TIME WP WS	TIME WP1 WS1	TIME WP2 WS2	-
1P2W (3ch) 3P4W	Upper Middle Lower	TIME WP WS	TIME WP1 WS1	TIME WP2 WS2	TIME WP3 WS3

- Saving capturing (Data is saved automatically without user intervention.)



7. Demand value measurement: **DEMAND** range (Section 8)

• Measurement flow chart



• Displayed items on **DEMAND** range

Displayed parameters	Unit
Target value	W
Predicted value	W
Present value	W
Load factor	%
Remaining time	-
Max. demand value	W
Date and time when max. demand value measured	-

7.1 Measurement execution (8-3, 8-4)

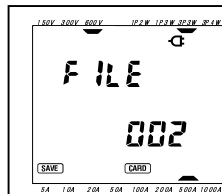
●Manual mode

Press the **START/STOP** key.
(at least for 2 sec.)

DEMAND
range

●Automatic mode (setting the date and time)

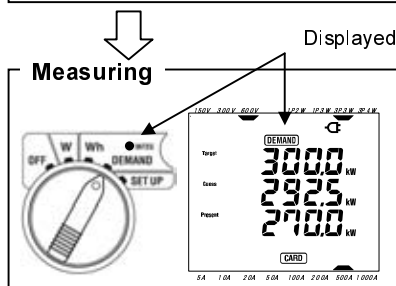
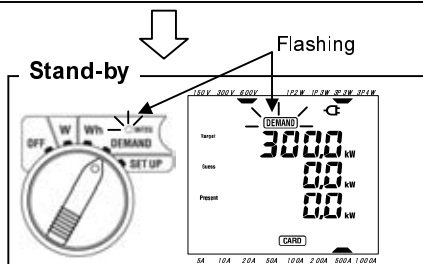
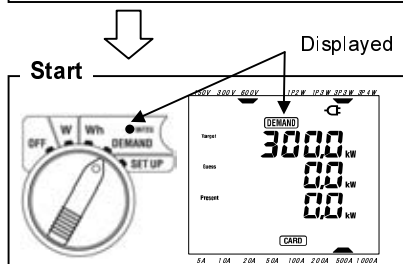
Make setting at Setting 14 & 15
Press the **START/STOP** key.



File number screen is displayed for about 2sec. (**open a file**)

* Start measurement manually.

* When automatic measurement is set, the instrument goes into stand-by mode and measurement starts at the set time & date. In stand-by mode, LED status indicator and the **DEMAND** mark flash. Both are displayed when measurement starts.



* Indicated value is refreshed every 1 sec.

* Data is saved at the interval, which is pre set at "Setting 13".

* During a measurement, instantaneous value can be viewed on **W** range, integration value on **Wh** range and settings can be viewed on **SET UP** range.

Manual operation

Press the **START/STOP** key.
(at least for 2 sec.)

DEMAND
range

Automatic operation

Measurement ends at set time & date

When measurement ends (**close a file**), the **DEMAND** mark disappear and LED status Indicator goes off.

* In case the data to be saved to the internal memory, the **MEM** mark is displayed instead of the **CARD** mark.

* Ensure that the file is closed. Data will not be saved unless a file is closed.

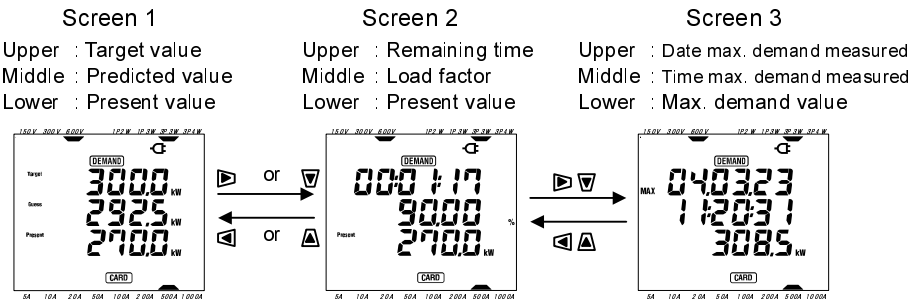
After a measurement, demand value is kept indicated on the display screen.

Demand value is reset (8-5) by pressing the **ESC** key for at least 2 sec. and select "dEL", or at "Setting 18".

7.2 Display screen / Data capturing

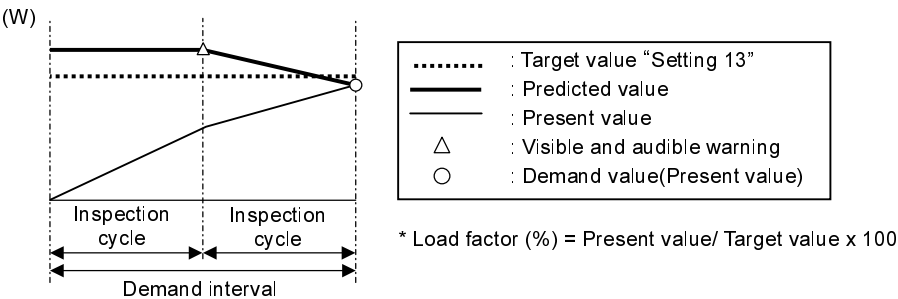
• Display screen modes

Three display screens are common to each wiring configuration, and can be activated as follows.

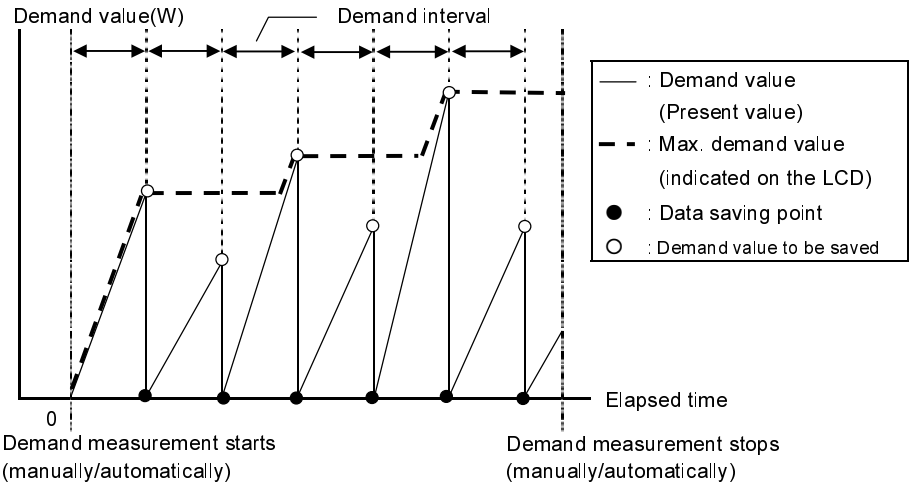


• Data capturing (Data is saved automatically without user intervention.)

< Operation in the demand interval of this instrument >



< Max. demand value and data saving point >



8. CF card (Section 9)/ Data saving (6-4, 7-5, 8-6)

● CF card

* Available capacity

128MB/256MB/512MB/1GB

(CF card with above stated capacity can be used.)

* CF card

(Proper operation of following CF cards has been verified on this instrument.)

Supplier	Model	Capacity
SanDisk Corporation	SDCFB-128	128MB
	SDCFB-256	256MB
	SDCFB-512	512MB
	SDCFG-1	1GB
Adtec co., Ltd.	AD-CFG128	128MB
	AD-CFG256	256MB
	AD-CFX40T1G	1GB
BUFFALO Inc.	RCF-X128MY	128MB
	RCF-X256MY	256MB
	RCF-X1GY	1GB

* Company name and model name are the trademark or the registered trademark.

* A CF Card may not operate properly even if any of the following cards are used due to manufacture's specification change, etc.

Please be aware above issue when purchasing commercially available CF Cards. We can offer following CF Cards (proper operation has been verified) as optional parts. Please feel free to inquire.

● Max recordable number of data points (specification)

Data saved in:		CF card				Internal Memory
Capacity		128MB	256MB	512MB	1GB	128kB**
Instantaneous measurement		400,000 points	800,000 points	1,600,000 points	3,200,000 points	1,000 points
Integration/demand interval	1sec	28 hours	56 hours	112 hours	224 hours	4 minutes
	1min	72 days	144 days	288 days	1 year or more	4 hours
	30min	1 year or more				5 days
File can be saved up to:		20 files				1 file

* In case that no file exists in the CF card.

** Downloading from internal memory takes about 3 min (max capacity: 128kB)

A continuous measurement with alkaline batteries is limited to 7 hours. Use of an ac power supply is required for a continuous measurement more than 7 hours.

● File format and name

Measured data is saved in CSV format, and the file name is allocated automatically.

File name: 3 FILE 001 . C S V

- 1: Instantaneous value measurement
2: Integration measurement
3: Demand measurement

File number (001 ~ 999)
FILE : CF card
DATA : Internal memory

- Selection of parameters for recording

According to each measurement range, the following parameters are selected depending on each wiring configuration.

Manual saving on **W** range : Only the parameters listed in ①
(except for each max/ avg)

Automatic saving on **Wh** range : parameters listed in ① and ②

Automatic saving on **DEMAND** range : parameters listed in ①, ② and ③

Parameters recorded				
①	Voltage (RMS)	Vi : Voltage per phase Vi max : Each max. value of Vi Vi avg : Each average value of Vi		
	Current (RMS)	Ai : Current per phase Ai max : Each max. value of Ai Ai avg : Each average value of Ai		
	Active power	P : Total active power P max : Max. value of P P avg : Average value of P	Pi : Active power per phase Pi max : Each max. value of Pi Pi avg : Each average value of Pi	
	Reactive power	Q : Total reactive power Q max : Max. value of Q Q avg : Average value of Q	Qi : Reactive power per phase Qi max : Each max. value of Qi Qi avg : Each average value of Qi	
	Apparent power	S : Total apparent power S max : Max. value of S S avg : Average value of S	Si : Apparent power per phase Si max : Each max. value of Si Si avg : Each average value of Si	
	Power factor	PF : Total power factor PF max : Max. value of PF PF avg : Average value of PF	Pfi : Power factor per phase Pfi max : Each max. value of Pfi Pfi avg : Each average value of Pfi	
	Frequency	f : Frequency of V1 f max : Max. value of f f avg : Average value of f	Neutral current	In : Neutral current In max : Max. value of In In avg : Average value of In
②	Active electrical energy (consumption) (regenerating) (overall)	+WP : Total active electrical energy(consumption) +WPi : Active electrical energy per phase (consumption) -WP : Total active electrical energy (regenerating) -WPi : Active electrical energy per phase (regenerating) #WP : Total active electrical energy(overall) #WPi : Active electrical energy per phase (overall)		
	Apparent electrical energy (consumption) (regenerating) (overall)	+WS : Total apparent electrical energy (consumption) +WSi : Apparent electrical energy per phase (consumption) -WS : Total apparent electrical energy (regenerating) -WSi : Apparent electrical energy per phase (regenerating) #WS : Total apparent electrical energy(overall) #WSi : Apparent electrical energy per phase (overall)		
	Reactive electrical energy (consumption)	+WQ : Total reactive electrical energy (consumption)		
③	Demand value	#DEM : Total demand value TARGET : Target value	#DEMi : Demand value per phase	

* i = 1, 2, 3

“max” and “avg” mean maximum value and average value during an interval.

MEMO

MEMO

DISTRIBUTOR



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