POWER METER SERIES

KEW 6310

NEW

KYORITSU
KEW POWER QUALITY ANALYZER

NEW
ARRIVAL!! **POWER QUALITY ANALYZER**

TO CONTROL COMPLETELY POWER QUALITY AND POWER CONSUMPTION (ENERGY)!

True RMS CE

- **12 kinds of Power Measurements for Power Control and Applicable to Power Quality Control including Harmonics Analysis.**

- **One click easy-to-use operation helps complicated setting and processing of large data through the setting / analyzing software provided as accessory.**

- **Direct communication with PC via USB cable**

- **Built-in Input / Output Function of external signal enables the signal transmission to alarms.**

- **Pull / Insert of CF card possible whenever on recording under the function of memory backup device (1GB usable).**

- **Can monitor insulation at leakage current by using optional leak clamp sensors.**

- **Built-in Print Screen Function enables to record display screen (Records 512 screens by using CF card: 1 screen 40KB).**

- **Can display Waveform and Vector, and can confirm the wiring connection, too.**

IEC61010-1 CAT.III 600V.

ALL FUNCTIONS NECESSARY FOR POWER QUALITY & POWER

Can Make Measurement Very Easily By One-Touch Key.
Abnormal Power Quality Causes Unexpected Troubles
And Defective Products.
KEW6310 Very Helpful To Find Out Various
Troubles And Solution to Energy Saving.

Power Source can be taken through the measured line by using optional Power Supply Adaptor

(Refer Page 7)

2-way power supply system by AC and Battery, and Nickel hydrogen battery usable with rechargeable function (Protect rechargeable circuit with select cover)

*Can display Waveform and Vector, and can confirm the wiring connection,*

Power Consumption (Energy) Control

12 Kinds of Power Measurements

Voltage, Current, Active power, Reactive power, Apparent power, Power factor, Frequency, Current flowing on the neutral line (Only on 3 phase 4 wire measurement), Active power energy, Reactive power energy, Apparent power energy, Demand measurement (with digital output alarm function available)
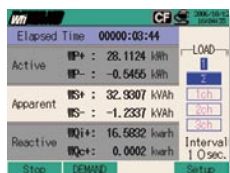
Can Measure Regenerative power under Power Energy Deregulation in Japan.

Can judge either demand or regenerative power. (Regenerative power: Generated by privately owned generators and supplied to power companies.)
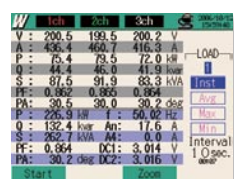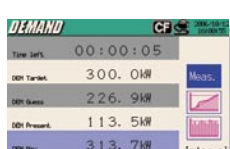
Instantaneous value measurement / saving

Measures Current / Voltage / Instantaneous averaged value of Power etc. / Maximum value / Minimum value.

Integration value measurement / saving

Measures Active power energy / Apparent power energy / Reactive power energy.

Demand value measurement / saving

Sets Demand target value and measures Demand value from start to stop of measurement. Can warn with digital output

PRINT SCREEN KEY Can save LCD's display screen in BMP (Bitmap) file. (Record 512 screens with CF card: One screen 40KB).

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Direct Data Transmission to PC via USB

Easy-to-use setting-up and analyzing with KEW PQA MASTER supplied.

【System requirements】
PC with CPU: Pentium3 500MHz or higher and with operating system of Windows®2000/XP
Memory: 64Mbyte or more
Display: Resolution 800 x 600 dots, 65536 colors or more
Hard-disk: space required 100Mbyte or more
Others: with CD-ROM drive and USB driver
* Windows® is a registered trademark of Microsoft in the United States.
* Pentium is registered trademark of Intel in the United States.

Designed For Various Wiring Systems

Single Phase 2 wires (4 system load measurement possible),
Single Phase 3 wires (2 system load measurement possible),
Three Phase   3 wires (2 system load measurement possible),
Three Phase   4 wires.

Power Quality Control

Can measure up to 63rd Harmonics

Can measure Swells / Dips / Instantaneous Stop, Transients, Inrush current, Unbalanced, and can simulate phase advance condenser, too.
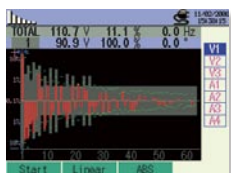
Wave Range Measurement / Saving

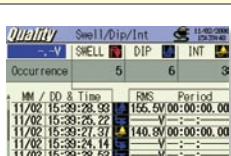Displays vector / waveform corresponding to voltage and current of each channel.

Harmonics Measurement / Saving

Measures and analyzes harmonics contents of current and voltage of each phase.

Quality

Can measure Swells / Dips / Interruptions, Transients, Inrush current, Unbalanced, and can simulate power factor correction with capacitor banks.

CF Card Interface Loaded

### External Memory up to 1GB Available.[1]

Recordable Number of Data Point / Approx. Time

Destination to save data		CF Card						Internal Memory
Capacity		32MB	64MB	128MB	256MB	512MB	1GB	1.8MB
Instantaneous Measurement	1sec	16H	1D	2D	4D	8D	20D	8min
	1min	10D	21D	1M	2M	5M	11M	2H
	30min	10M	1Y	over 1Y	over 1Y	over 1Y	over 1Y	2D
Integration Measurement	1sec	6H	12H	1D	2D	4D	8D	2min
	1min	7D	15D	1M	2M	4M	8M	1H
	30min	7M	1Y	over 1Y	over 1Y	over 1Y	over 1Y	1D
DEMAND Measurement	1sec	3H	6H	13H	1D	1D	4D	1min
	1min	6D	12D	24D	1M	3M	6M	1H
	30min	6M	1Y	over 1Y	over 1Y	over 1Y	over 1Y	1D
WAVE Range	1sec	22min	44min	1H	2H	5H	11H	0.1min
	1min	22H	1D	3D	7D	14D	29D	10min
	30min	28D	1M	3M	7M	1Y	over 1Y	5H
Harmonic Anaysis	1sec	49min	1H	3H	6H	13H	1D	0.3min
	1min	2D	4D	8D	16D	1M	2M	23min
	30min	2M	4M	8M	1Y	over 1Y	over 1Y	11H
Swell / Dip / Int Measurement	Data	15,400	30,900	61,900	123,900	247,900	484,200	123
Transient Measurement	Data	14,100	28,300	56,600	113,200	226,500	442,400	113
Inrush Current Measurement	Data	15,500	31,000	62,100	124,300	248,600	485,600	124
Unbalance Ratio	1sec	16H	1D	2D	4D	8D	20D	8min
	1min	10D	21D	1M	2M	5M	10M	2H
	30min	10M	1Y	over 1Y	over 1Y	over 1Y	over 1Y	2D
Capacitance	1sec	12H	1D	2D	4D	8D	16D	4min
	1min	9D	18D	1M	2M	4M	9M	1H
	30min	9M	1Y	over 1Y	over 1Y	over 1Y	over 1Y	2D
Max number of file	Measurement data file (CSV)	512						6
	Graphics file (BMP)							7
	Setting file (KAS)							20

CF card (operation check has completed)	Capacity	32MB	64MB	128MB	256MB	512MB	1GB
	SanDisk Corporation	SDCFB-32	SDCFB-64	SDCFB-128	SDCFB-256	SDCFB-512	SDCFG-1
	Adtec co., Ltd.	AD-CFG32	AD-CFG64	AD-CFG128	AD-CFG256		AD-CFX40T1G

* In case that no file exist in the CF card or the Internal memory.where: H= hour(s), D=day(s), M=month(s), Y=year(s)
* CF Card with more or less capacity other than listed above cannot be used with this instrument.
* Company name and model name are the trademark or the registered trademark.
* A Compact Flash Card (CF card) may not operate properly even if any of the above are used due to manufacture's specification change, etc. The use of supplied CF Card or optional Kyoritsu CF Card is recommended.

Voltage Input Terminals
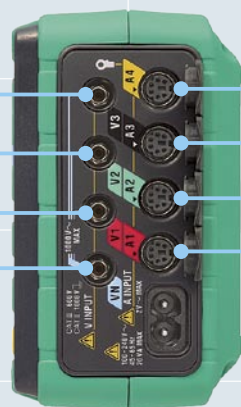
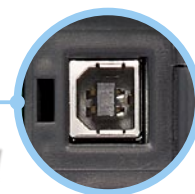### Easy-To-Use Clamp type Setting
(Clamp Sensors: Option)

The Instrument automatically recognizes clamp sensors connected (Easy-to-use setting).

Current Input Terminals (With cover)

Can monitor insulation at leakage current by using leakage clamp sensors (Option).
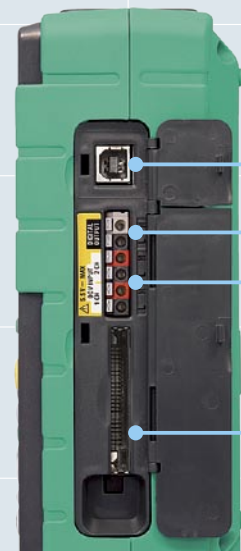
USB Terminal

Digital Output Terminal[2]
(1ch) *Open Collector Output (P8)

Analogue Input Terminal
(2ch : DC 50m/500m/5V)

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backup device.

*1 : Downloading data from CF cards needs the optional card reader (8319) or card readers being on sale.
*2 : The example of digital output is reference only. Please use the function according to customer's use.

Transients / Over Voltage (Impulse) `QUALITY`

Quality	Transient		2006/10/12 8:41:29
146.0Vpeak	Occurrence		132
MM / DD & Time			V peak
2006/10/12	08:10:10.325		287.1V
2006/10/12	08:10:22.220		286.9V
2006/10/12	08:10:33.843		230.7V
2006/10/12	08:10:34.000		228.7V
2006/10/12	08:10:44.213		230.2V
2006/10/12	08:10:45.233		244.8V
Start			

- ● Can Set Detecting Level Value (Threshold Value).
- ● Easy-to-Use Checking the Occurrence data On The Display.

Cause of Transients Over Voltage
- Arises from defective contact etc. of Breakers, Magnets and Relays. Reaches highest value (peak value) of voltage in a very short time from inputting voltage and this is a unipolar type voltage change (Spike) that attenuates slowly.
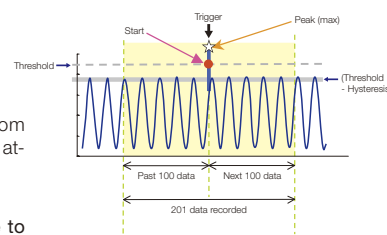
Bad Effect of Transients Over Voltage
Destroys the instrument's power source and causes reset action due to sudden voltage change (Spike).

Inrush Current `QUALITY`

Quality	Inrush current		2006/10/12 8:42:01
632.0A	Occurrence		13
MM / DD & Time		RMS	Period
10/12	08:36:14.99	632.2A	00:00:40.62
10/12	08:36:16.71	644.8A	00:00:05.80
10/12	08:36:18.82	647.6A	00:00:02.40
10/12	08:36:20.29	A	-:-:
10/12	08:36:21.70	642.8A	00:00:40.62
10/12	08:36:23.58	A	-:-:
10/12	08:36:25.37	646.9A	00:00:02.40
10/12	08:37:24.00	A	-:-:
Start			

Start ~ End   Start   End

- ● Can Set Detecting Level Value (Threshold Value).
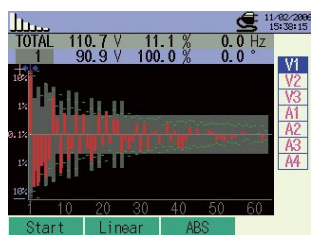- ● Easy-to-Use Confirming the Occurrence data On The Display.

Cause of Inrush Current
Large current (Surge current) flows transiently at the time of starting of instruments etc. which have built-in motor, incandescent lamp, larger capacity smoothing condenser.
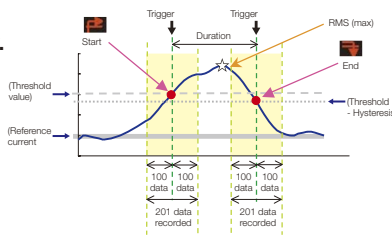
Bad Effect of Inrush Current
Causes bad effect to power switch's welding, fusing, breaker's trip and converter circuit etc. and also causes unstable power voltage.

Harmonics Analysis

TOTAL	110.7 V	11.1 %	0.0 Hz	11/02/2006 15:38:15
1	90.9 V	100.0 %	0.0 °	

V1 V2 V3 A1 A2 A3 A4

Start | Linear | ABS

- ● Can Measure and Analyze from 1st to 63rd Harmonics.
- ● Harmonics Contents (THD: Total Harmonics Distortion Display)
- ● Can Judge Inflow / Outflow.
- ● Can Set Detecting Level Value (Threshold Value).

Cause of Harmonics
Control circuits of instruments use inverter circuit (condenser input type converter circuit) and thyristor control circuit (phase control circuit). These circuits cause distortion in the current. The distortion causes harmonics.

Bad Effect of Harmonics
Causes burning of phase advance condenser and reactor, beat of transformer, wrong way of breaker, flicker of TV image, noise of audio players etc.

Instruments Causing Harmonics
- Factory / Building
  Direct current motor power device, electric furnace, inverter appliance, uninterrupted power supply, PC, fluorescent lamp, elevator, air-conditioning equipment etc.
- Residential House
  Air Conditioner, PC, TV, Washing Machine, Refrigerator, Cleaner, Fluorescent Lamp etc.

Swells/Dips/Instantaneous Stop `QUALITY`

Quality	Swell/Dip/Int			2006/10/12 8:41:01
100.1V	SWELL	DIP	INT	
Occurrence	1	4	96	
MM / DD & Time		RMS	Period	
10/12	08:07:50.18	V	-:-:	
10/12	08:07:55.98	49.9V	00:00:05.80	
10/12	08:08:01.34	V	-:-:	
10/12	08:08:42.01	1.2V	00:00:40.62	
10/12	08:08:49.15	V	-:-:	
10/12	08:08:51.55	200.6V	00:00:02.40	
Start				

Swells
Dips
Instantaneous Stop

Start ~ End   Start   End

- ● Can Set Detecting Level Value (Threshold value).
- ● Easy-to-Use Confirming the Occurrence data such as Swells/Dips/Instantaneous Stop on the Display.

Cause of Swells (Voltage rise)
Voltage rises instantaneously by Inrush Current caused at the time of power input of the power line switchgear.
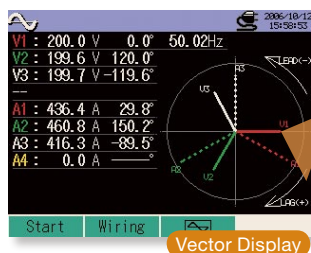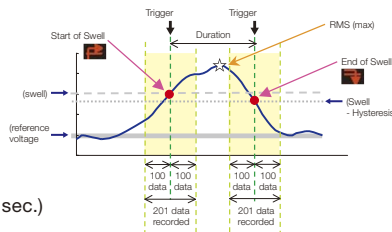
Cause of Dips (Voltage drop)
Voltage drop happens by Inrush Current caused at the time of starting of load of motors etc.

Cause of Instantaneous Stop
Power supply stops instantaneously due to thunderbolt etc.
(Under 1 sec.) (Interruption of Service → Power supply stop more than 1sec.)

Bad Effect of Swells/Dips/Instantaneous Stop
Stops operation of instruments / welding robots and causes reset of OA appliances like PC.

Unbalance Rate `QUALITY`

V1 : 200.0 V	0.0°	50.02Hz
V2 : 199.6 V	120.0°	
V3 : 199.7 V	-119.6°	
A1 : 436.4 A	29.8°	
A2 : 460.8 A	150.2°	
A3 : 416.3 A	-89.5°	
A4 : 0.0 A		

Start | Wiring

Vector Display

W	1ch	2ch	3ch	2006/10/12 15:58:48
V :	200.5	199.5	200.2	V
A :	436.4	460.7	416.3	A
P :	75.4	79.5	72.0	kW
Q :	44.4	46.0	41.9	kvar
S :	87.5	91.9	83.3	kVA
PF:	0.862	0.865	0.864	
PA:	30.5	30.0	30.2	deg
P : 226.9 kW	f : 50.02 Hz			
Q : 132.4 kvar	An: 17.6 A			
S : 262.7 kVA	A4: 0.0 A			

LOAD 1
Inst
Avg
Max
Min
Interval

- ● One Touch Switch to Vector display and Power display
- ● Easy-to-Use Confirming Phase angle difference thanks to Vector display
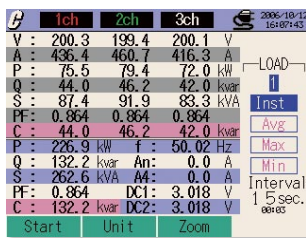
Cause of Unbalance
Specific Phase gets over loaded due to fluctuation of power line load and unbalanced equipment built. These cause distortion of voltage / current, voltage drop and antiphase voltage, harmonics etc.

Phase Advance Condenser QUALITY

- Selects Best Capacity of Phase Advance Condenser by Referring to Loaded Capacity and Power Factor of Transformer.

Abnormal Power Quality Causes; Power down on On-Line in life lines, Defective products in production lines, Fire and Electric shock affecting damage directly to person.
Be sure to monitor power lines to prevent troubles in the power lines.

Wave Range (Waveform Display)

Vector Display
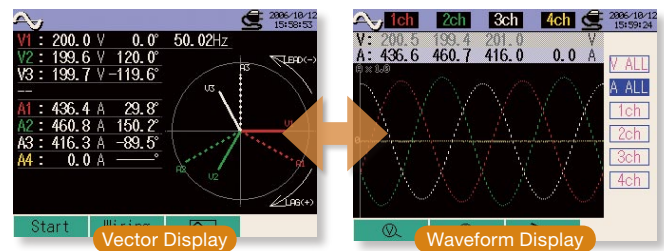
Waveform Display

- Check fluctuation of voltage and current simultaneously in each phase.
- Easy-to-Use Switching to Vector display and Waveform display.
- Built-in Function Confirming Wiring Connection

POWER CONSUMPTION (ENERGY) CONTROL W Wh DEMAND

- **12 kinds of Power Measurements**

  Voltage, Current, Active power, Reactive power, Apparent power, Power factor, Frequency, Current flowing on the neutral line (Only on 3 phase 4 wire measurement), Active power energy, Reactive power energy, Apparent power energy, Demand measurement (with digital output function & buzzer warning)

- **Monitors in Leakage Current by Using Leakage Clamp Sensors.**
- **Easy-to-use Confirming Wire Connection and Setting**
- **Designed to Various Wiring System**

  Single Phase 2 Wires (4 system load measurement possible), Single Phase 3 Wires (2 system load measurement possible), Three Phase 3 wires (2 system load measurement possible), Three Phase 4 wires.

- **Easy-to-Use One-Touch Switch for Display of W (Instantaneous value) / Wh (Integration power consumption) / Demand and Can down load all these data at single operation.**


checking wire connection and setting

Demand Display

W range Display

Wh range Display
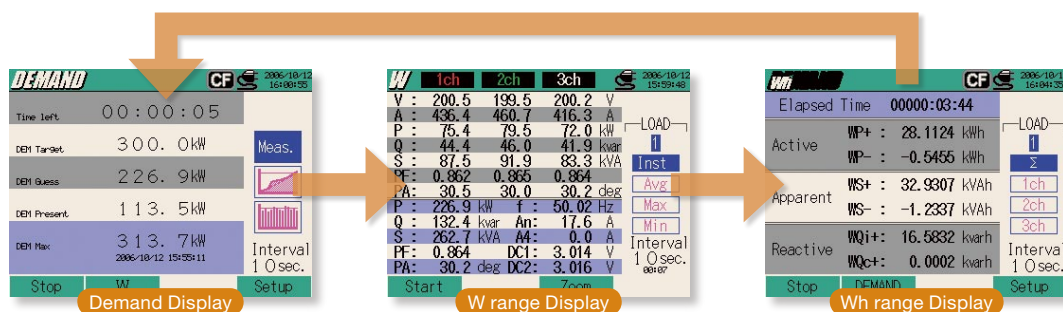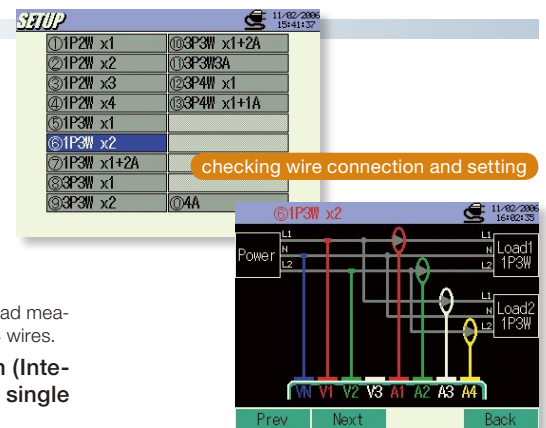
- **Monitors Power Consumption and Power Factor in each Phase.**

  Can recognize working status in each phase.

- **Measures Regenerative Power under Power Deregulation (Ex. in Japan).**

  Can distinguish either Demand or Regenerative power.
  (Regenerative power: Generated by privately owned generators and supplied to power companies.)

- **Enlarged Screen Function (Setting possible at option)**
- **Visual Function Helps Check Demand Transition.**

Enlarge

Measurement Display

Shift in Specific Period

Demand Display
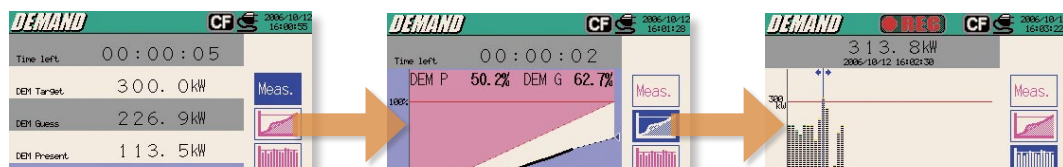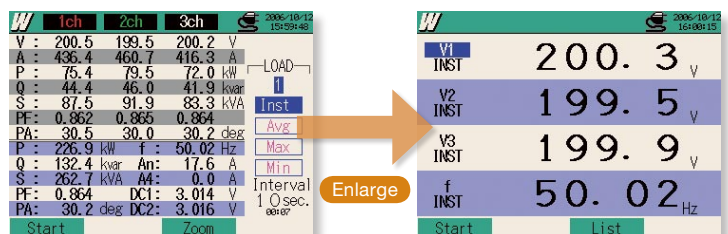
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SIMPLY CONNECT KEW6310 AND PC VIA USB, THEN ONE CLICK FOR EASY-TO-USE SETTING!
BUILT-IN NAVIGATION FUNCTION (W / HELP FUNCTION) HELPS YOU WHENEVER YOU NEED.

SETTING FUNCTION

Downloaded CSV file data can be processed easily with spreadsheet like Excel etc.

Can go to specific fields anytime by only recalling saved setting if setting of the measurement is saved depending on the specific field.

Checks Wiring Connection on Screen

EASY-TO-USE CLICK SYSTEM
FOR COMPLICATED SETTINGS

Eliminates harmonics element by filter

Recognizes clamp sensors automatically

Records necessary data only

Easy-to-use pre-setting with calendar function

*The present time synchronizes with PC.

Options

SMALL TYPE SAFETY CLIP
MODEL 7198

Length: 650mm

The measuring terminal of voltage test lead (7141) is downsized. Can connect it to M5 size screw on breaker terminals.

CARRYING CASE WITH MAGNET
MODEL 9132

Easy-to-use setting with magnet on the steel plate etc. of switch board
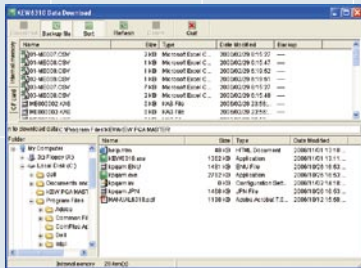
POWER SUPPLY ADAPTOR
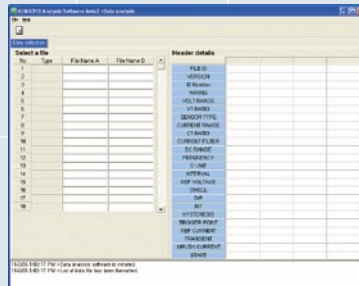## MODEL 8312

NEW

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FOR EASY-TO-USE SETTING AND ANALYZING!

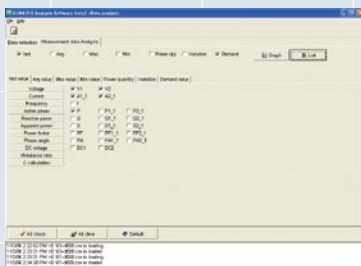**Analysis Soft Supplied !**

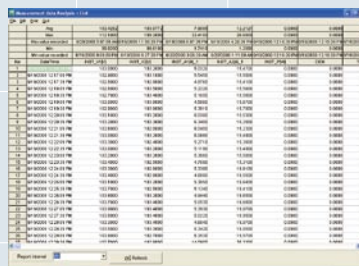## ANALYSIS FUNCTION

1. Open necessary data file

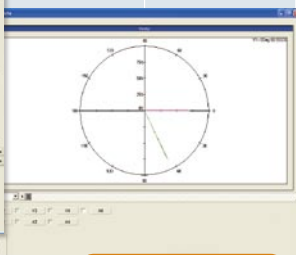**2. Start analyzing measured data**

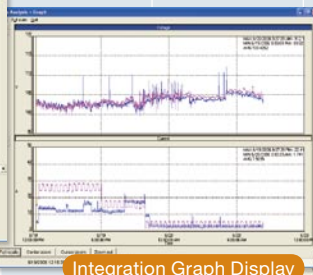**3. Select necessary data**

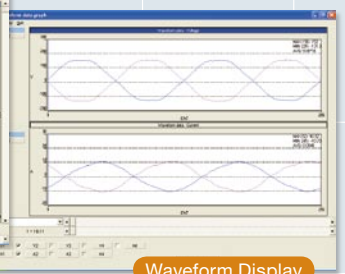**4. Data List Display**

5. Graph Display

- Harmonics Level Display
- Phase Angle Display
- Integration Graph Display
- Waveform Display

- Can analyze large recorded data in a simple operation and make report easily.

- Can register, delete, refer, analyze and copy by collective data control.

- Can check real-time data during recording by PC.

- Can process data by taking out necessary part only of original data.

- Can set kinds of line and color in each graph display.

- Spreadsheet Function
  Can display value data like spreadsheet that is displayed in the range of graph when selecting the tab of graph display, harmonics wave time-series display, harmonics wave instantaneous value display. Besides, can use them as text data.

- The data of temperature, illumination etc. can be inserted to the data of 6310 by using analogue terminals. Comparing these measured data with the data of power consumption, the detailed analysis can be possible.

*The display screen designs and functions are subject to change without prior notice.

LOAD CURRENT DETECTING TYPE FLEXIBLE CLAMP SENSOR

KEW 8129

8129-01 (for 1ch)
8129-02 (for 2ch)
8129-03 (for 3ch)

FLEXIBLE CLAMP SENSOR CAN MEASURE UPTO AC3000A HIGH CURRENT

NEW

	8129-01 (for 1ch)	8129-02 (for 2ch)	8129-03 (for 3ch)
Conductor size	max. φ150mm		
Rated current	300/1000/3000A		
Output voltage	300A Range :AC500mV/AC300A (1.67mV/A)		
	1000A Range:AC500mV/AC1000A (0.5mV/A)		
	3000A Range:AC500mV/AC3000A (0.167mV/A)		
Accuracy	±1.0%rdg (45~65Hz)		
Phase Shift	within ±1°		
Withstand voltage	AC5350V for 5 seconds		
Cable length	Sensor part : approx. 2m		
	Output cable : approx. 1m		
Output connector	MINI DIN 6PIN		
Operating temperature & humidity ranges	0~50℃, relative humidity 85% or less (no condensation)		
Output impedance	100Ω or less		
Applicable standards	IEC 61010-1, IEC 61010-2-032 CAT.Ⅲ 600V Pollution degree2, IEC 61326		
	9137 (Carrying Case)	9137 (Carrying Case)	9137 (Carrying Case)

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Instantaneous measurement (W Range)

① Voltage Vi [V]

Range	150/ 300/ 600/ 1000V
Allowable input	10 ~ 110% of each range
Display range	5 ~ 120% of each range
Crest factor	2.5 or less (100% or less of each range)
Accuracy	±0.3%rdg±0.2%f.s. (sine wave, 45 ~ 65Hz)
Instantaneous overload	1200Vrms(1697Vpeak):10 sec

② Current Ai [A]

Range	8128(50A type) : 1/ 5/ 10/ 20/ 50A
	8127(100A type) : 10/ 20/ 50/ 100A
	8126(200A type) : 20/ 50/ 100/ 200A
	8125(500A type) : 50/ 100/ 200/ 500A
	8124(1000A type) : 100/ 200/ 500/ 1000A
	8129(3000A type) : 300/ 1000/ 3000A
Allowable input	10 ~ 110% of each range
Display range	1 ~ 120% of each range
Crest factor	3.0 or less (90% or less of each range)
Accuracy	±0.3%rdg±0.2%f.s.+ Accuracy of Clamp sensor
	(sine wave, 45 ~ 65Hz)
Instantaneous overload	2Vrms(2.828Vpeak): for 10 sec

③ Active power Pi [W]

Range	Depending on combinations of (V Range) x (A Range)
Accuracy	±0.3%rdg±0.2%f.s.+ Accuracy of Clamp sensor
	(Power factor 1, Sine wave 45 ~ 65Hz)
Influence of power factor	±1.0%rdg (reading at power factor 0.5 against power factor 1)
Polarity indication	Consumption: + (no mark) , Regenerating: -

④ Frequency f [Hz]

Accuracy	±0.1%rdg±2dgt
Allowable input	10 ~ 110% of each Voltage range (sine wave. 45 ~ 65Hz)
Display range	40.00 ~ 70.00Hz

⑤ Analogue input DCi [V]

Number of input	2 channel (I = 1,2)
Range	50m/ 500m/ 5V (selectable at each channel)
Accuracy	±0.5%f.s
Input resistance	approx 225KΩ

⑥ Item and formula

Apparent power S [VA], Reactive power Q [Var], Power factor PF, Neutral current

Integration measurement (Wh Range)

Active power quantity WP [Wh]

Display range	0.00Wh ~ 999999GWh
	(Display digit and unit are unified to the bigger ones of |WS+| or |WS-|.)

Apparent power quantity WS [VAh]

Display range	0.00VAh ~ 999999GVAh
	(Display digit and unit are unified to the bigger ones of |WS+| or |WS-|.)

Reactive power quantity WQ [varh]

Display range	0.00varh ~ 999999Gvarh
	(Display digit and unit are unified to the bigger ones of |WS+| or |WS-|.)

Elapsed time : time passed from the start of recording

Display item	hhhhh : mm : ss (Hour : Minute : Second)
Display range	00000:00:00 ~ 99999:59:59

Demand measurement (DEMAND Range)

① Target value (DEM Target)

Display range	Fixed set value (1.000mW ~ 999.9TW)

② Predictive value (DEM Guess)

Display range	Same decimal point place and unit to target value

③ Demand value (present value) (SDEM)

Display range	Same decimal point place and unit to target value

④ Load factor

Display range	0.00 ~ 9999.99% ("OL" is displayed when exceeding this range.)

Waveform measurement (∿ Range)

Displayed data	2 waveforms (256 points)
Scale change	0.1/ 0.2/ 0.5/ 1.0/ 2.0/ 3.0 times of rating

Harmonic measurement (Range)

Meas. Method	PLL synchro system
Measuring range	45 ~ 65Hz
Analysis order	1 ~ 63rd
Window width	2 cycles
Window type	Rectangular
Analysis data	512 points
Analyzing rate	approx once / 2 sec
Display item	(1) Voltage per CH / Current, THD, Frequency
	(2) Voltage/ Rate of content/ Phase angle at each order

Power quality (QUALITY Range)

Swell/ Dip/ Int measurement

Meas. Method	Calculate RMS values based on an overlapped waveform at every half waveform.

Transient measurement

Meas. Method	Sampling at every 100μs, and calculating the max value at every 2ms Judges the presence of events at every 1s.

Inrush current measurement

Meas. Method	Calculate RMS values based on an overlapped waveform at every half waveform.

Unbalance ratio measurement

Save item	(Measurement data at W Range) + (Unbalance ratio)
Measurable wiring configuration	3P3W3A, 3P4W×1, 3P4W×1+1A

Capacitance calculation

Display item	Same to W Range (except for the change from PA to C)
Save item	(Measurement data at W Range) + (calculated capacitance value)

AC power supply

Voltage range	AC100 ~ 240V±10%
Frequency	45 ~ 65Hz
Power consumption	20VA max

DC power supply

	Dry battery	Rechargeable battery
Type	Alkaline (LR6)	Ni-MH(HR-15-51)
Rated voltage	DC9V (=1.5Vx6)	DC7.2V (=1.2Vx6)
Current consumption	500mA typ.(@9V)	560mA typ.(@7.2V)
Possible measurement time	Backlight ON: 1 hour	Backlight ON: 2 hours
	Backlight OFF: 2 hours	Backlight OFF: 5 hours
	(ref. at 23ºC)	(ref. at 23ºC after full-charge)

Digital output function

Output function	Open collector output
Max. input	30V/ 50mA/ max. 200mW
Output voltage	Hi Level 4.5~5.0V
	Lo Level 0~0.5V

Scaling function

VT ratio	0.01~9999.99(in increments of 0.01)
CT ratio	0.01~9999.99(in increments of 0.01)

Recording data

Internal memory

Memory	FLASH memory

PC Card

Card type	Compact flash card (CF card)
Slot	Type Ⅰ/Ⅱ
Format	FAT16
Capacity	32M/ 64M/ 128M/ 256M/ 512M/ 1GB
Max number of file	max 512 files (with name of one-byte 8 characters or less)
Save format	CSV format

External communication function

Communication method	USB Ver1.1

General specification

Indication renewal	every 1 sec
Temperature & humidity range (guaranteed accuracy)	23ºC±5ºC, Relative humidity 85% or less (no condensation)
Operating Temperature & humidity range	0ºC±40ºC, Relative humidity 85% or less (no condensation)
Storage Temperature & humidity range	-20ºC±60ºC, Relative humidity 85% or less (no condensation)
Applicable standards	IEC61010-1, Measurement CAT.Ⅲ 600V Pollution degree 2, IEC 61010-031, IEC61326
Dimension	175(L) × 120(W) × 68(D) mm
Weight	approx 900g (including batteries)
Accessories	7141(Voltage test lead)
	7170(Power cord)
	7148(USB cable)
	9125(Carrying case)
	Input terminal plate (6-kind) × 1 pce.
	8307(Compact flash card 128MB)
	8319(Card reader)
	KEW PQA MASTER(software)
	Cable maker Quick manual
	Alkaline size AA battery (LR6) × 6 pcs.
Optional	7198(Small type safety clip)
	8306(Compact flash card 64MB)
	8322(Compact flash card 256MB)
	8323(Compact flash card 1GB)
	8124, 8125, 8126, 8127, 8128(Load current clamp sensor)
	8129(Flexible clamp sensor)
	8146, 8147, 8148(Leakage & Load current clamp sensor)
	8141, 8142, 8143(Leakage current clamp sensor)
	8312(Power supply adopter)
	9132(Carrying case (for instrument))