*Quality and reliability is our tradition*

KYORITSU®

# POWER METER SERIES
# KEW 6310


## 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.
- 2-way power supply by AC and Battery, and Nickel hydrogen battery usable with rechargeable function.
- 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.
- Complies fully with International Safety Standards 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

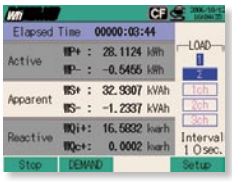
Voltage, Current, Active power, Reactive power, Apparent power, Power factor, Frequency, Current flowing on the neutral line (Only on 3 phase 4 wire measurement), Active power energy, Reactive power energy, Apparent power energy, Demand measurement (with digital output alarm function available)

### 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 terminal when the set value exceeds the target value.

# CONSUMPTION (ENERGY) CONTROL BUILT-IN THIS COMPACT MODEL

## 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.

## 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.

## 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.

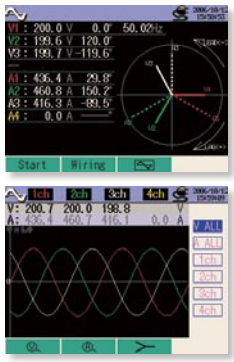
## Power Quality Control

### Can measure up to 63rd Harmonics

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

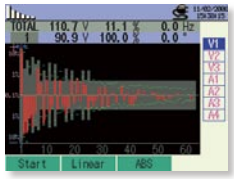
**Wave Range Measurement / Saving**

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



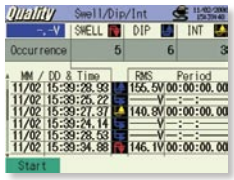
**Harmonics Measurement / Saving**

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

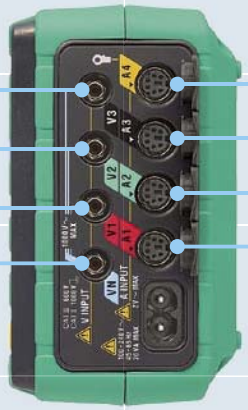


**Quality**

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



### Voltage Input Terminals



### Current Input Terminals (With cover)

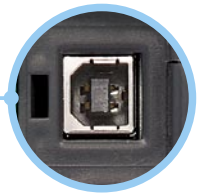
### Can monitor insulation at leakage current by using leakage clamp sensors (Option).

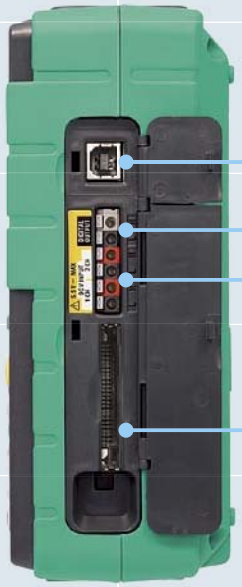
### Easy-To-Use Clamp type Setting

(Clamp Sensors: Option)

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

### USB Terminal





### Digital Output Terminal*2

**(1ch)** *Open Collector Output (P8)

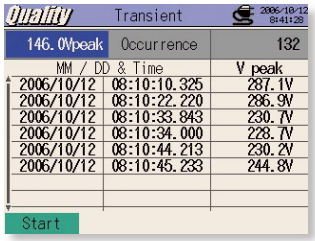

### Analogue Input Terminal

**(2ch : DC 50m/500m/5V)**

### CF Card Connector

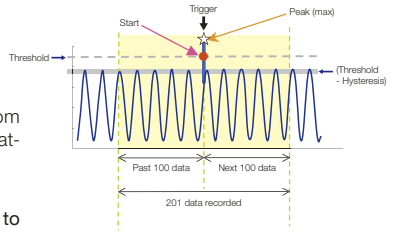
Can Take Out and Put In CF Card whenever on recording under the function of memory backup device.

*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

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

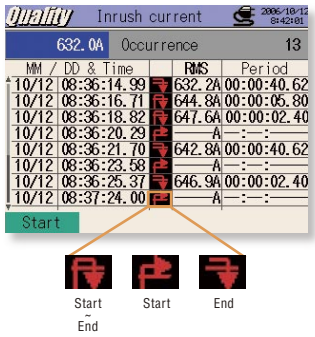



### Cause of Transients Over Voltage

- 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.

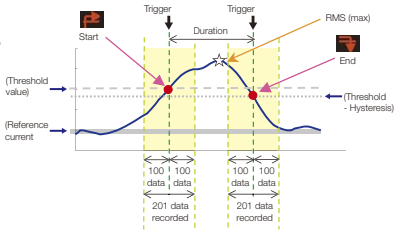
### Bad Effect of Transients Over Voltage

Destroys the instrument's power source and causes reset action due to sudden voltage change (Spike).




## Inrush Current QUALITY

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

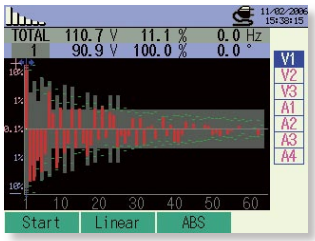



### Cause of Inrush Current

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

- 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

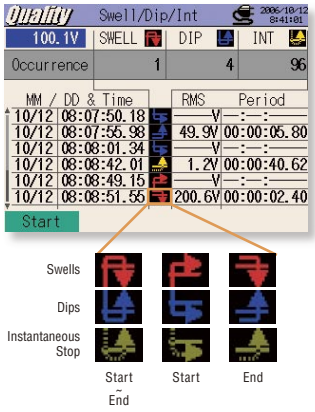
Control circuits of instruments use inverter circuit (condenser input type converter circuit) and thyristor control circuit (phase control circuit). These circuits cause distortion in the current. The distortion causes harmonics.

### 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.

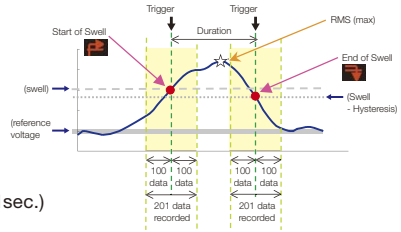
### Instruments Causing Harmonics

- 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

- 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)

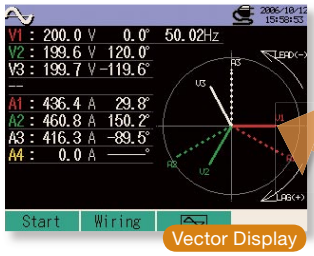
Voltage drop happens by Inrush Current caused at the time of starting of load of motors etc.

### Cause of Instantaneous Stop

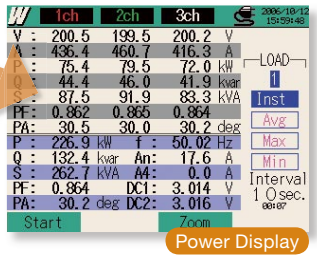
Power supply stops instantaneously due to thunderbolt etc.
(Under 1 sec.) (Interruption of Service → Power supply stop more than 1sec.)

### Bad Effect of Swells/Dips/Instantaneous Stop

Stops operation of instruments / welding robots and causes reset of OA appliances like PC.




## Unbalance Rate QUALITY




- One Touch Switch to Vector display and Power display
- Easy-to-Use Confirming Phase angle difference thanks to Vector display

### Cause of Unbalance

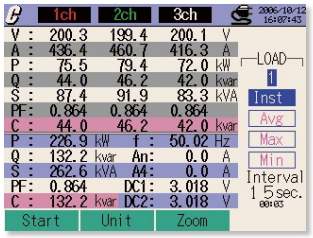
Specific Phase gets over loaded due to fluctuation of power line load and unbalanced equipment built. These cause distortion of voltage / current, voltage drop and antiphase voltage.

### Bad Effect of Unbalance

Causes unbalance of voltage / current, uneven turning of motor, antiphase voltage, harmonics etc.

# SIMPLE AND EASY-TO-USE SETTING TO POWER CONSUMPTION (ENERGY) CONTROL

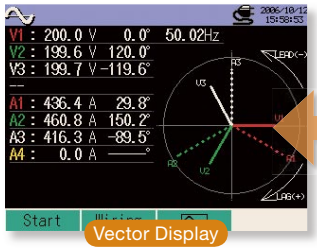
## Phase Advance Condenser QUALITY

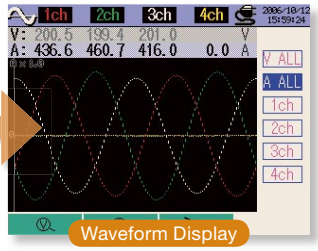



- Selects Best Capacity of Phase Advance Condenser by Referring to Loaded Capacity and Power Factor of Transformer.

**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.**

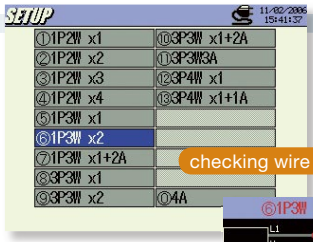
## Wave Range (Waveform Display)

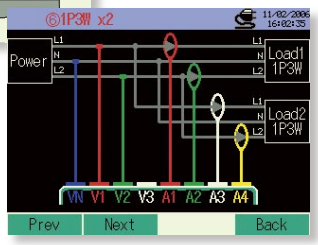


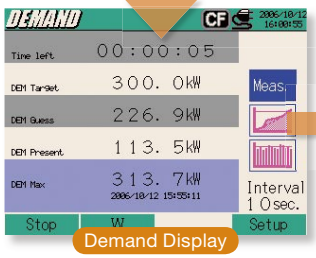

- Check fluctuation of voltage and current simultaneously in each phase.
- Easy-to-Use Switching to Vector display and Waveform display.
- Built-in Function Confirming Wiring Connection

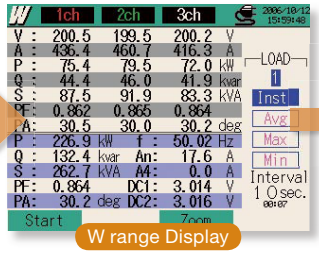
## POWER CONSUMPTION (ENERGY) CONTROL W Wh DEMAND

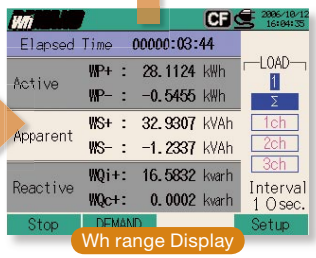


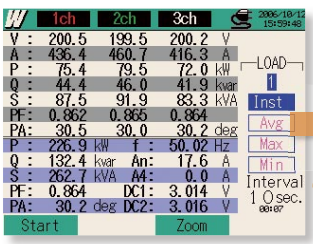

- 12 kinds of Power Measurements
  Voltage, Current, Active power, Reactive power, Apparent power, Power factor, Frequency, Current flowing on the neutral line (Only on 3 phase 4 wire measurement), Active power energy, Reactive power energy, Apparent power energy, Demand measurement (with digital output 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.



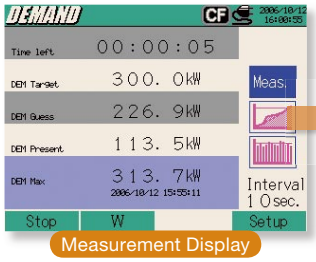



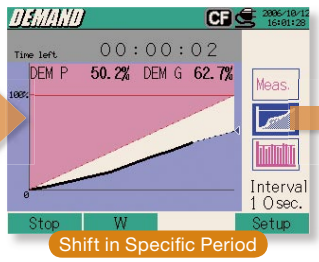



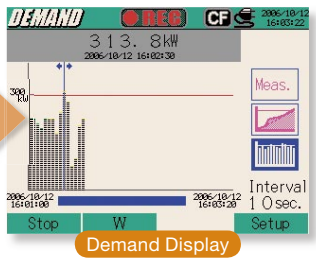

- Monitors Power Consumption and Power Factor in each Phase.
  Can recognize working status in each phase.
- Measures Regenerative Power under Power Deregulation (Ex. in Japan).
  Can distinguish either Demand or Regenerative power.
  (Regenerative power: Generated by privately owned generators and supplied to power companies.)
- Enlarged Screen Function (Setting possible at option)
- Visual Function Helps Check Demand Transition.





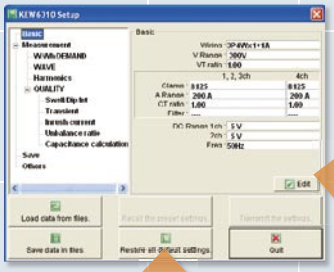


## SIMPLY CONNECT KEW6310 AND PC VIA USB, THEN ONE CLICK FOR EASY-TO-USE SETTING!
## BUILT-IN NAVIGATION FUNCTION (W / HELP FUNCTION) HELPS YOU WHENEVER YOU NEED.

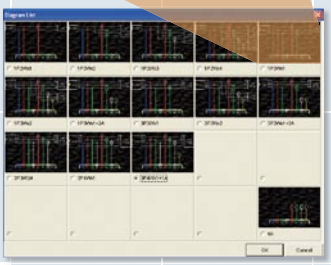
# SETTING FUNCTION



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


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

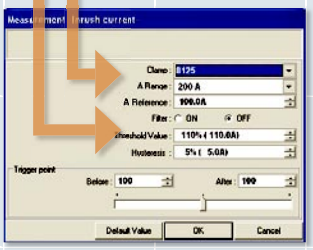

Checks Wiring Connection on Screen

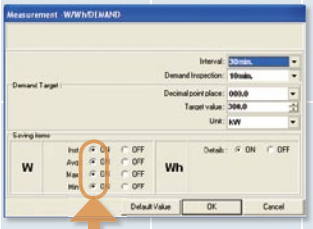


## EASY-TO-USE CLICK SYSTEM FOR COMPLICATED SETTINGS

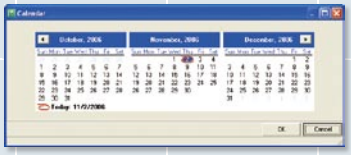
Eliminates harmonics element by filter

Recognizes clamp sensors automatically




Records necessary data only



Easy-to-use pre-setting with calendar function

*The present time synchronizes with PC.

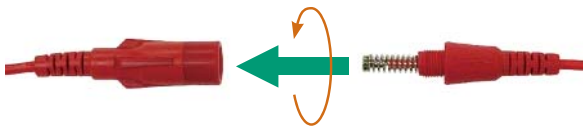
## Options

### 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

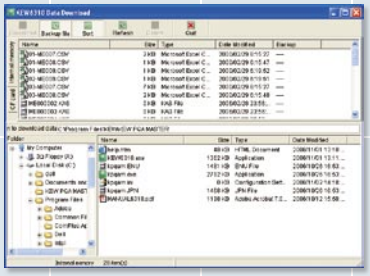
Power source can be taken through the measured line (100~240V)

# FOR EASY-TO-USE SETTING AND ANALYZING!

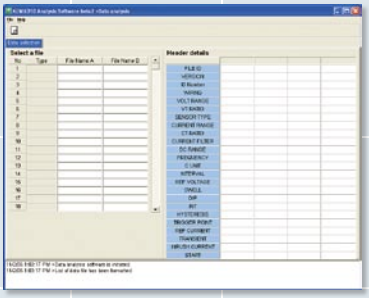
Analysis Soft Supplied !

## ANALYSIS FUNCTION

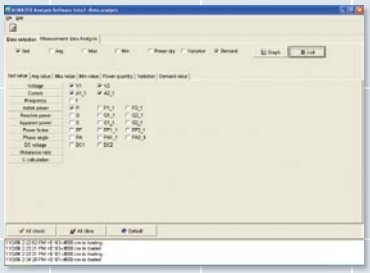
### 1. Open necessary data file



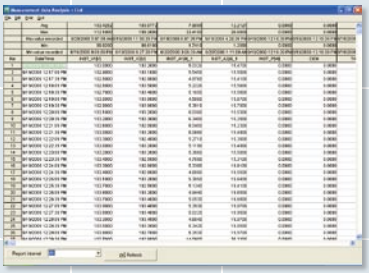
### 2. Start analyzing measured data



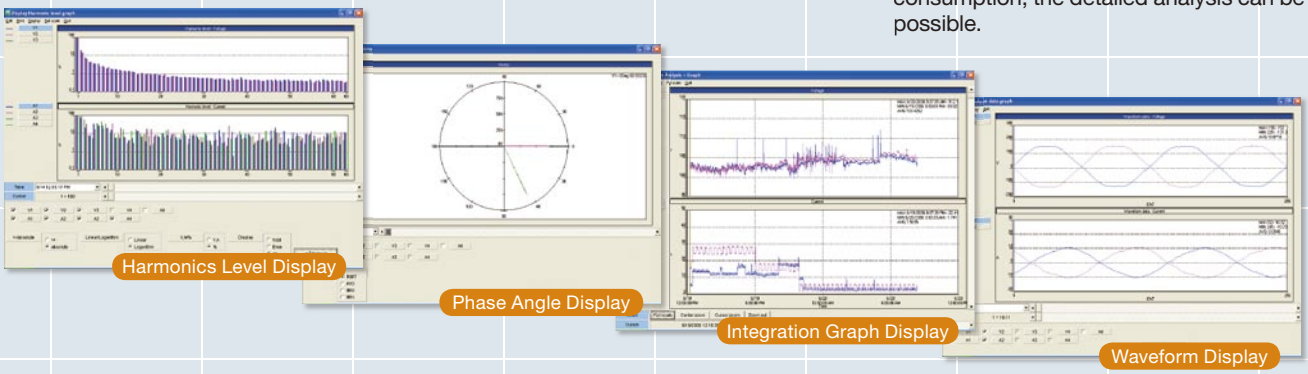
### 3. Select necessary data



### 4. Data List Display



### 5. Graph Display




- 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

MAX AC3000A | φ150 | IEC61010 | CE

| | 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)<br>1000A Range:AC500mV/AC1000A (0.5mV/A)<br>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<br>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 | | |
| Dimensions | 111(L) × 61(W) × 43(D) mm (except for protrusions) | | |
| Weight | Approx. 410g | Approx. 680g | Approx. 950g |
| Accessories | Instruction Manual<br>7199 (Output Cable) × 1<br>9137 (Carrying Case) | Instruction Manual<br>7199 (Output Cable) × 2<br>9137 (Carrying Case) | Instruction Manual<br>7199 (Output Cable) × 3<br>9137 (Carrying Case) |

## Specifications

| | |
|---|---|
| **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<br>8127(100A type) : 10/ 20/ 50/ 100A<br>8126(200A type) : 20/ 50/ 100/ 200A<br>8125(500A type) : 50/ 100/ 200/ 500A<br>8124(1000A type) : 100/ 200/ 500/ 1000A<br>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<br>(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<br>(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<br>(Display digit and unit are unified to the bigger ones of \|WS+\| or \|WS−\|.) |
| Apparent power quantity WS [VAh] | |
| Display range | 0.00VAh ~ 999999GVAh<br>(Display digit and unit are unified to the bigger ones of \|WS+\| or \|WS−\|.) |
| Reactive power quantity WQ [varh] | |
| Display range | 0.00varh ~ 999999Gvarh<br>(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<br>(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<br>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<br>Backlight OFF: 2 hours<br>(ref. at 23°C) | Backlight ON: 2 hours<br>Backlight OFF: 5 hours<br>(ref. at 23°C after full-charge) |

| | |
|---|---|
| **Digital output function** | |
| Output voltage | Open collector output |
| Max. input | 30V/ 50mA/ max. 200mW |
| Output voltage | Hi Level 4.5~5.0V<br>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) | 23°C±5°C, Relative humidity 85% or less<br>(no condensation) |
| Operating Temperature & humidity range | 0°C±40°C, Relative humidity 85% or less<br>(no condensation) |
| Storage Temperature & humidity range | -20°C±60°C, Relative humidity 85% or less<br>(no condensation) |
| Applicable standards | IEC61010-1, Measurement CAT.Ⅲ 600V Pollution degree 2,<br>IEC 61010-031, IEC61326 |
| Dimension | 175(L) x 120(W) x 68(D) mm |
| Weight | approx 900g (including batteries) |
| Accessories | 7141(Voltage test lead)<br>7170(Power cord)<br>7148(USB cable)<br>9125(Carrying case)<br>Input terminal plate (6-kind) × 1 pce.<br>8307(Compact flash card 128MB)<br>8319(Card reader)<br>KEW PQA MASTER(software)<br>Cable maker Quick manual<br>Alkaline size AA battery (LR6) x 6 pcs. |
| Optional | 7198(Small type safety clip)<br>8306(Compact flash card 64MB)<br>8322(Compact flash card 256MB)<br>8323(Compact flash card 1GB)<br>8124, 8125, 8126, 8127, 8128(Load current clamp sensor)<br>8129(Flexible clamp sensor)<br>8146, 8147, 8148(Leakage & Load current clamp sensor)<br>8141, 8142, 8143(Leakage current clamp sensor)<br>8312(Power supply adopter)<br>9132(Carrying case (for instrument)) |

## Safety Warnings :

Please read the "Safety Warnings" in the instruction manual supplied with the instrument thoroughly and completely for correct use. Failure to follow the safety rules can cause fire, trouble, electrical shock, etc. Therefore, make sure to operate the instrument on a correct power supply and voltage rating marked on each instrument.

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