# Power Analyzer/Meter

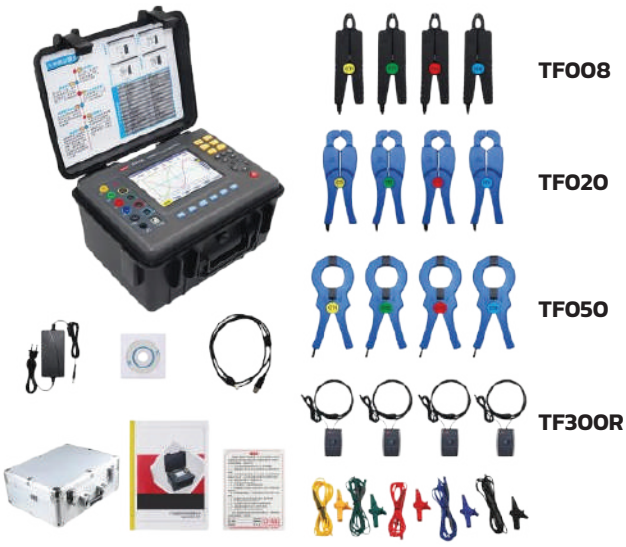
## Power Quality Anaylzer
## TM-4000

### Product description:

TM-4000 Power Quality Analyzer is a comprehensive test instrument specially designed by our company for three-phase, multi-functional, intelligent and simple man-machine operation. Easy to use, large LCD color display, high resolution, box structure and other features. Simultaneous measurement of 4 currents (ABC three-phase and neutral current), 4 voltages (three-phase voltage and neutral to ground voltage), current - voltage peaks, maximum and minimum values over a period of time, three-phase Balance, short-time voltage flicker, transformer K factor, active power, reactive power, apparent power, power factor, displacement power factor, active energy, reactive energy, apparent energy, harmonic ratio, total harmonic distortion Degree; Display real-time waveform of current and voltage, phasor diagram, harmonic ratio column chart; dynamically capture voltage and current transients, monitor startup current, monitor various power parameters and generate alarm list, record test data for a long time and generate trend graph. This measurement and analysis instrument that can more quickly and accurately eliminate complex power system faults and monitor and maintain power quality parameters more comprehensively and systematically

### Features

- Real-time waveform display (4 channels of voltage/current)
- True RMS values of voltages and currents.
- Peak current and voltage
- The maximum/minimum value of current and voltage over a period of time
- Pharos diagram display
- Harmonic measurement of each phase, up to the 50th harmonic
- Calculation of Total Harmonic Distortion (THD)
- Active/reactive/apparent power value and total value of each phase
- Transformer K factor calculation




### Ordering Informations

**TM-4000** : Power Quality Analyzer

### Standard Accessories :

- User Manual
- Power adapter
- USB cable
- Carry Bag
- Carry Bag
- Software CD
- Test lead wires set (5ea)
- Crocodile clips 5 ea
- Certification

### Optional Accessories :

- TF-series : Clamp current sensor & Rosowski Coil sensor (below the table)

| Current Clamp Type | Current True Value | Current True Value Max Error | Phase Angle Maximum Error |
|---|---|---|---|
| TF008 Current Clamp | 0.10A ~ 99mA | ±(1%+3dgt) | ±(1.5°), Arms ≥ 20mA |
| | 100mA ~ 10.0A | ±(1%+3dgt) | ±(1°) |
| TF020 Current Clamp | 0.10A ~ 0.99A | ±(1%+3dgt) | ±(1.5°) |
| | 1.00A ~ 100A | ±(1%+3dgt) | ±(1°) |
| TF050 Current Clamp | 1.0A ~ 9.9A | ±(1%+3dgt) | ±(3°) |
| | 10.0A ~ 1000A | ±(1%+3dgt) | ±(2°) |
| TF300R Flexible Coli Current Sensor | 10A ~ 199A | ±(1%+3dgt) | ±(3°) |
| | 200A ~ 6000A | ±(1%+3dgt) | ±(2°) |
| Optional Transformer | Instrument Input current 1mA ~ 500mA | The selected transformer error: ±1% | The selected transformer error : ±(1°) |

## Specifications

| Model | TM-4000 | |
|---|---|---|
| Display Mode | LCD color screen 640x480 dots, 5. inch, display field 116x88mm. | |
| Number of channels | 4 channels voltage, 4 channels current | |
| Line Voltage<br>Phase Voltage | 1.0V ~ 2000V<br>1.0V ~ 2000V | |
| Current | 008 tips small current clamp : 10mA ~ 10.0A | Jaw size : 7.5x13mm (selection) |
| | 020 round-mouth current clamp : 0.10A ~ 100A | Jaw size : 20x20mm (selection) |
| | 050 round-mouth current clamp : 1.0A ~ 1000A | Jaw size : 50x50mm (selection) |
| | Rogowski coil : 10A ~ 6000A | |
| | Optional transformer : Instrument port inout curect : 1mA ~ 500mA | |
| Electric Power/Power Quantity Parameter | W, VA, var, PF, DPF, COS, tan | |
| Electric Energy Parameter | Wh, varh, Vah | |
| Harmonic | Have, 0 ~ 50 times | |
| Total Harmonic Distortion | Have, 0 ~ 50 times, each phase | |
| Expect Mode | √ | |
| Number of Transient Record Groups | 150 groups | |
| Voltage Flicker | √ | |
| Start Current Mode | 100 second | |
| Three-phase Unbalance | √ | |
| Record | 300 days (record 20 parameters at the same time, record 1 point every 5 second) | |
| Minimum/Maximun Record Value | can measure the maximum and mininum within a period of line | |
| Alarm | 40 different types of parameter selection, 12800 group alarm logs | |
| Peak Value | √ | |
| Phsor Diagram Display | Automatic | |
| Screenshot Capacity | 60 | |
| Power Supply | Rechargeable lithium battery pack 9.6V, external changer | |
| Dimension (LxWxH) | 277.2x227.2x153mm | |
| Weight | Approx. 1.6kg with Battery | |

| Measurement | Measuring Range | Display Resolution | Auximum Error with the reference range |
|---|---|---|---|
| Frequency | 40Hz ~ 70Hz | 0.01Hz | ±(0.03) Hz |
| Phase Voltage True RMS | 1.0V ~ 1000V | Minimum resolution 0.1V | ±(0.5%+5dgt) |
| Line Voltage True RMS | 1.0V ~ 2000V | Minimum resolution 0.1V | ±(0.5%+5dgt) |
| DC Voltage | 1.0V ~ 1000V | Minimum resolution 0.1V | ±(1.0%+5dgt) |
| Current True RMS | 10mA ~ 1000A | Minimum resolution 1mA | ±(0.5%+5dgt) |
| Phase Voltage Peak | 1.0V ~ 1414V | Minimum resolution 0.1V | ±(1.0%+5dgt) |
| Line Voltage Peak | 1.0V ~ 2828V | Minimum resolution 0.1V | ±(1.0%+5dgt) |
| Current Peak | 10mA ~ 1414A | Minimum resolution 1mA | ±(1.0%+5dgt) |
| Peak Factor | 1.00 ~ 3.99 | 0.01 | ±(1%+2dgt) |
| | 4.0 ~ 9.99 | 0.01 | ±(5%+2dgt) |
| Active Power | 0.000W ~ 9999.9kW | Minimum resolution 0.001W | ±(1%+3dgt) Cosϕ ≥0.8 |
| | | | ±(1.5%+10dgt)0.2≤ Cosϕ<0.8 |
| Reactive Power<br>Inductive & Capacitive | 0.000VAR ~ 9999.9kW | Minimum resolution 0.001VAR | ±(1%+3dgt) Sinϕ ≥0.5 |
| | | | ±(1.5%+10dgt) 0.2≤Sinϕ<0.5 |
| Apparent Power | 0.000VA ~ 9999.9VA | Minimum resolution 0.001VA | ±(1%+3dgt) |
| Power Factor | -1.000 ~ 1.000 | 0.001 | ±(1%+3dgt) Cosϕ≥5 |
| | | | ±(1%+3dgt) 0.2≤Cosϕ<0.5 |
| Active Energy | 0.000Wh ~ 9999.9MWh | Minimum resolution 0.001Wh | ±(1%+3dgt) Cosϕ≥0.8 |
| | | | ±(1%+3dgt) 0.2≤Cosϕ<0.8 |
| Reactive Energy<br>Inductive & Capacitive | 0.000VARh ~ 9999.9MVARh | Minimum resolution 0.001VARh | ±(1%+3dgt) Sinϕ≥0.5 |
| | | | ±(1.5%+10dgt) 0.2≤Cosϕ<0.5 |
| Apparent Energy | 0.000VAh ~ 9999.9MVAh | Minimum resolution 0.001VAh | ±(1%+3dgt) |
| Phase Angle | -179° ~ 180° | 1° | ±(2°) |
| Tan@ (VA≥50VA) | -32.76 ~ 32.76 | Minimum resolution 0.001 | ϕ ±(1°) |
| Displacement Power Factor (DPF) | -1.000 ~ 1.000 | 0.001 | ϕ ±(1°) |
| Harmonic Ration Contains 1 to 50 times (Vrms>50V) | 0.0% ~ 99.9% | 0.1% | ±(1%+5dgt) |
| | | | ±(3°) harmonic 1 ~ 25 times |
| Harmonic Angle (Vrms>50V) | -179° ~ 180° | 1° | ±(10°) harmonic 26 ~ 50 times |
| Total Harmonic Rate (THD or THD-F) ≤50 | 0.0% ~ 99.9% | 0.1% | ±(1%+5dgt) |
| Distortion Factor (DF or THD-R) ≤50 | 0.0% ~ 99.9% | 0.1% | ±(1%+10dgt) |
| Transformer K Factor | 1.00 ~ 99.99 | 0.01 | ±(5%) |
| Three-phase Imbalance | 0.0% ~ 100% | 0.1% | ±(1%) |