

# WT1500 Series Precision Power Analyzer

New release in August 2026

## Laboratory-Class Performance for Power Measurement Systems



### High-Performance

**Laboratory-class measurement performance for high-voltage, high-efficiency power applications.**

- Class-leading  $\pm 0.038\%$  accuracy
- High-voltage measurement capability (2000 V)
- Wide bandwidth (2 MHz)



### Integrable

**Build compact and efficient test systems**

- Space-saving 2U design
- Data output to CAN/CAN-FD
- Low-latency data output via UDP



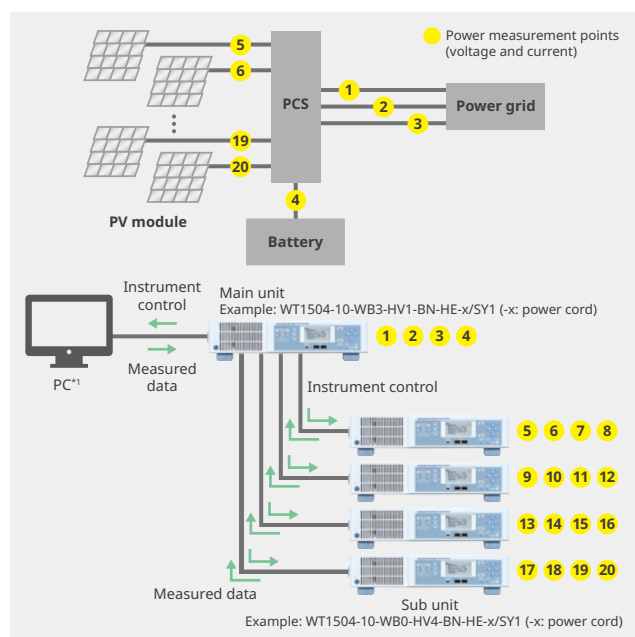
### Scalable

**Scale from standalone testing to synchronized multi-channel measurement systems**

- Expandable channel architecture (20 channels)
- Flexible motor evaluation (Encoder/Resolver support)
- Controlled via an external touchscreen as a stand-alone instrument



### Application Example 1: Evaluation of Power Conditioning System (PCS)



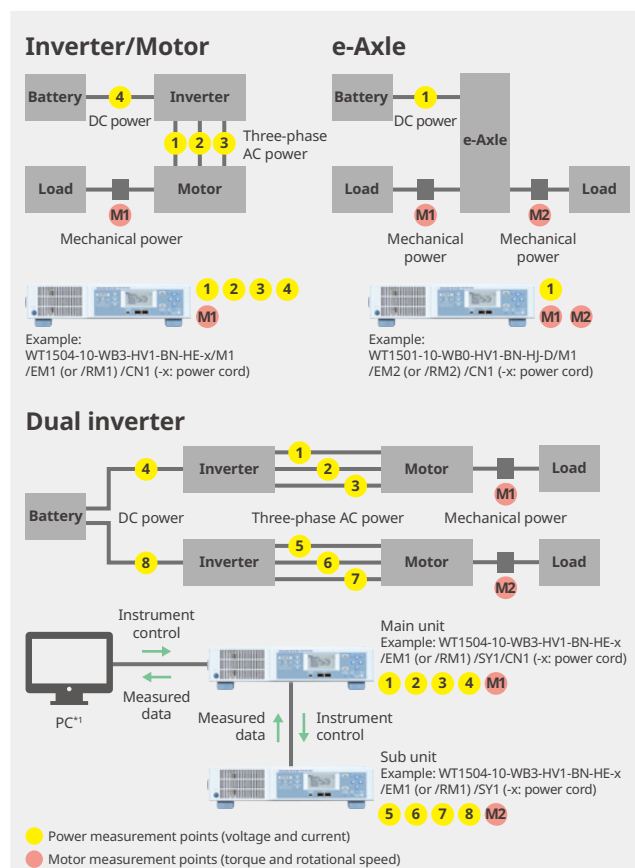
## Background/Challenges

Renewable energy systems are moving to higher operating voltages (> 1500 V) and multi-string architectures to improve efficiency and reduce costs. These trends increase the number of measurement points while demanding highly accurate power measurements.

## WT1500 Solutions

- High-accuracy power measurement of  $\pm 0.038\%$  (DC, 50/60 Hz)\*<sup>2</sup>
- Measure up to 2000 V DC directly\*<sup>3</sup>
- 20 synchronized power channels with centralized control\*<sup>4</sup>

## Application Example 2: Efficiency Evaluation of EV Powertrains



## Background/Challenges

EV powertrains are evolving toward integrated e-Axles and dual-inverter architectures to improve efficiency, reduce weight, and simplify system design. These architectures require simultaneous measurement of electrical and mechanical signals, including DC, AC, torque, and speed, across multiple power paths. As the number of measurement points increases, synchronized, high-accuracy multi-channel acquisition and seamless integration with control systems via interfaces such as CAN and CAN-FD become essential.

## WT1500 Solutions

- High-accuracy power measurement of  $\pm 0.038\%$  (DC, 50/60 Hz)\*<sup>2</sup>, with wideband performance up to 2 MHz\*<sup>5</sup>
- Flexible, scalable channel configuration to support multi-inverter and multi-motor testing, with synchronization across multiple units\*<sup>4</sup>
- Simultaneous measurement of electrical and mechanical signals, including support for encoder and resolver inputs\*<sup>6</sup>
- Integrated data output via CAN/CAN-FD for seamless connection to ECU and control systems\*<sup>7</sup>
- Low-latency data transfer through UDP communication

\*1: Communication commands, web server and WTVIEWERfree (free software) can be available.

\*2: This is accuracy of the WT1500. Accuracy of current sensor is added to this.

\*3: For measurements exceeding 1000 V, use the HV element, the 758932 high-voltage safety terminal adapter, and compatible cables.

\*4: The /SY1 option, the 720941 optical transceiver module, and the 720942 optical fiber cord are required.

\*5: A WB element is required.

\*6: As options, you can select the input signal (encoder or resolver) and the number of motors to be analyzed (1 to 4): /EM1 (up to 2-motor analysis with encoder), /RM1 (1-motor analysis with resolver), /EM2 (up to 4-motor analysis with encoder), /RM2 (up to 2-motor analysis with resolver), or /EM1RM1 (up to 2-motor analysis with encoder and 1-motor analysis with resolver).

\*7: The /CN1 option is required. Normal measurement data or harmonic measurement data can be output at each data update interval.

# WT1500 Key Features

## 4 Power + 4 Motor Channels in Just 2U

**High performance**

**Space-saving design**

|         | Max. number of element | Current input |                |
|---------|------------------------|---------------|----------------|
|         |                        | Direct        | Current sensor |
| WT5000  | 7                      | ✓             | ✓✓             |
| WT1800R | 6                      | ✓             | ✓✓             |
| WT1500  | 4                      | —             | ✓✓             |
| WT500   | 3                      | ✓             | ✓              |
| WT300E  | 3                      | ✓             | ✓              |

✓: Available, ✓✓: Power supply for current sensor is available, —: Not available

## Class-Leading Accuracy, High Voltage & Wide Bandwidth

|                                       | HV Element | WB Element |
|---------------------------------------|------------|------------|
| Maximum Voltage Range                 | 2000 V     | 1000 V     |
| Frequency bandwidth (voltage/current) | 300 kHz    | 2 MHz      |
| Power Accuracy (DC, 50/60 Hz)         | ±0.038%    |            |

## Broad Current Sensor Compatibility

Current input terminal\*2

Voltage input terminal

Dedicated cable 761964 (3 m) 761965 (5 m)

Conversion adapter 761962

Conversion adapter 761963

AC/DC Current sensor (e.g., CT1000A)\*3

AC/DC Split core current sensor (CT1000S)

Current clamp-on probe (e.g., 720930)

\*1: Total accuracy. Current sensor accuracy is added to power accuracy. \*2: A current sensor is required for current measurement. Current sensor accuracy is added to current and power accuracy. \*3: Can also be connected using the 761966 conversion adapter and the 761954/55/56 dedicated cable. \*4: Multi-unit synchronization requires the /SY1 option. The /SY1 option will be available soon. It can be added to a purchased unit using an upcoming option upgrade license.

## 20 Synchronized Power Channels

Intuitive operation via an external touchscreen monitor

One main controls 20 power and 20 motor channels by multi-unit synchronization links up to 5 chassis.\*4

## Front Panel/Rear Panel (EIA Rackmount model -RE)

Approx. 426 mm

Approx. 88 mm (2U)

### Standard Features

- 1 Power switch

2 Inlet ports

3 Indicator

4 LCD\*1

5 Control keys

6 USB Type-C port  
(External monitor\*2/USB keyboard/USB mouse/USB storage device/wireless LAN adapter)

7 USB Type-A port  
(USB keyboard/USB mouse/USB storage device/wireless LAN adapter)
- 8 WB element  
Max. 1000 V/2 MHz (−3 dB)

9 HV element  
Max. 2000 V/300 kHz (−3 dB)

10 USB port for PCs

11 Ethernet port

12 External start signal I/O connector (MEAS START)

13 External clock input connector (EXT CLK)

14 Functional ground terminal

15 Outlet ports\*3

### Options

- 1 Rack mount bracket (−RE, −RJ)\*4

2 SFP port (for multi-unit synchronization) (/SY1)\*5

3 Motor evaluation function (up to 2 sets)  
Encoder signal terminal (/EM1, /EM2, /EM1RM1)  
Resolver signal terminal (/RM1, /RM2, /EM1RM1)

4 CAN/CAN FD connector (/CN1)

\*1: On the WT1500 display, measured values can be shown numerically, and some settings, including network settings, can be configured. When connected to a PC or external monitor, the following functions are available.  
PC: Web server function [display of measurement results as numeric values and graphs (waveform, bar, vector, and trend), and instrument settings from the menu screen]; PC application software (WTViewerEFree); communication commands  
External monitor: Display of measurement results as numeric values and graphs (waveform, bar, vector, and trend), and instrument settings from the menu screen  
\*2: If you connect a touchscreen monitor, you can use intuitive touch controls.  
\*3: Outlet ports are also provided on the top panel and side panel.  
\*4: The instrument can be mounted in a system rack compliant with JIS or EIA standards. For the benchtop model (−BN), rack mount brackets are not included; instead, a handle and feet are provided.  
\*5: SFP ports are standard, but the /SY1 option is required to use the multi-unit synchronization feature. The /SY1 option can be added the later using the add-on license 761091.

Main Specifications

|                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Wiring Systems</b>                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Single-phase two-wire, Single-phase three-wire, Three-phase three-wire, Three-phase four-wire                                                                                                                                                                                                                                                                                                                                                   |
| <b>Number of elements</b>                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Select from 1, 2, 3, and 4 (-HV, -WB)                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>A/D converter</b>                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Resolution: 16 bits, Sample rate: 2.5 MS/s                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Data update rate</b>                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Auto/10 m/50 m/100 m/200 m/500 m/1/2/5/10/20 s                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Power accuracy</b>                                                                                                                                                                                                                                                                                                                                                                                                                           |
| DC: ±0.018% of reading ±0.02% of range, 50/60 Hz: ±0.018% of reading ±0.02% of range                                                                                                                                                                                                                                                                                                                                                            |
| <b>Voltage input</b>                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Measurement range<br>WB element: 6/15/30/60/150/300/600/1000 V<br>HV element: 6/15/30/60/150/300/600/1000/2000 V                                                                                                                                                                                                                                                                                                                                |
| <b>Current input</b>                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Measurement range<br>When sensor output type is current: 25 m/50 m/100 m/250 m/500 mA/1 A<br>When sensor output type is voltage: 50 m/100 m/200 m/500 mV/1/2/5 V                                                                                                                                                                                                                                                                                |
| <b>Frequency bandwidth (voltage/current)</b>                                                                                                                                                                                                                                                                                                                                                                                                    |
| WB element: DC to 2 MHz (typical), HV element: DC to 300 kHz (typical)                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Measurement function</b>                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Normal measurement: Voltage (U), Current (I), Active power (P), Apparent power (S), Reactive power (Q), Power factor (λ), Phase difference (Φ), Voltage/current frequency (fU, fI), Corrected Power (Pc), Integraion (WP etc.), Voltage/current ripple rate (Urip, Irip), Three-phase voltage/ current unbalance factor (UubfΣ, IubfΣ), etc.<br>Motor evaluation: Motor rotating speed, torque, sync speed, slip, motor output, auxiliary input |
| <b>Harmonic measurement</b>                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Fundamental frequency: 0.1 Hz to 2.6 kHz, Upper limit: Max. 100 order                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Motor evaluation</b>                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Encoder: Max. number of motor evaluation: 4 (without electrical angle) or 2 (with electrical angle), Input type: Analog or pulse<br>Resolver: Max. number of motor evaluation: 2, Electrical angle measurement error: ±0.1° Typ, Maximum display: 150000 rpm                                                                                                                                                                                    |
| <b>CAN data output</b>                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Interval: Output at the update rate, Number of items: Max. 512 (related to bit rate)                                                                                                                                                                                                                                                                                                                                                            |
| <b>Multi-unit synchronization</b>                                                                                                                                                                                                                                                                                                                                                                                                               |
| Synchronization accuracy: ±400 ns<br>*During multi-unit synchronization, the data update interval cannot be set to 10 ms.                                                                                                                                                                                                                                                                                                                       |
| <b>Time synchronization</b>                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Synchronization source: Supports IEEE1588-2008 (PTP v2) (slave only)                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Internal memory</b>                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 2 GB (standard) or 32 GB (/M1 option)                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Computer interface</b>                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Ethernet: Communication protocol TCP/IP, Supported services UDP, Web server, Modbus/ TCP server, etc.<br>USB: Type B connector (receptacle)                                                                                                                                                                                                                                                                                                     |
| <b>External dimensions/weight</b>                                                                                                                                                                                                                                                                                                                                                                                                               |
| 426 mm (W) × 88.5 mm (H) × 450 mm (D) (excluding handles and protrusions), Approx. 7.6 kg (-BN, main unit with 4-input element and /EM2/CN1 option installed)                                                                                                                                                                                                                                                                                   |



For more information,  
please visit our website

NOTICE

- Before operating the product, read the user's manual thoroughly for proper and safe operation.

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Yokogawa's approach to preserving the global environment

- Yokogawa's electrical products are developed and produced in facilities that have received ISO14001 approval.
- In order to protect the global environment, Yokogawa's electrical products are designed in accordance with Yokogawa's Environmentally Friendly Product Design Guidelines and Product Design Assessment Criteria.

This is a Class A instrument based on Emission standards EN61326-1 and EN55011, and is designed for an industrial environment.  
Operation of this equipment in a residential area may cause radio interference, in which case users will be responsible for any interference which they cause.



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Models and suffix codes

| Model                      | Suffix Code | Description                           |
|----------------------------|-------------|---------------------------------------|
| One input element model    |             |                                       |
| WT1501-10                  | -WB0-HV1    | HV element × 1                        |
|                            | -WB1-HV0    | WB element × 1                        |
| Two input elements model   |             |                                       |
| WT1502-10                  | -WB0-HV2    | HV element × 2                        |
|                            | -WB1-HV1    | WB element × 1 HV element × 1         |
|                            | -WB2-HV0    | WB element × 2                        |
| Three input elements model |             |                                       |
| WT1503-10                  | -WB0-HV3    | HV element × 3                        |
|                            | -WB1-HV2    | WB element × 1 HV element × 2         |
|                            | -WB2-HV1    | WB element × 2 HV element × 1         |
|                            | -WB3-HV0    | WB element × 3                        |
| Four input elements model  |             |                                       |
| WT1504-10                  | -WB0-HV4    | HV element × 4                        |
|                            | -WB1-HV3    | WB element × 1 HV element × 3         |
|                            | -WB2-HV2    | WB element × 2 HV element × 2         |
|                            | -WB3-HV1    | WB element × 3 HV element × 1         |
|                            | -WB4-HV0    | WB element × 4                        |
| Standard Options           |             |                                       |
| Installation*1             | -BN         | Benchtop                              |
|                            | -RE         | EIA-compliant Rackmount               |
|                            | -RJ         | JIS-compliant Rackmount               |
| Language                   | -HE         | English/Japanese Menu                 |
|                            | -HC         | Chinese/English Menu                  |
|                            | -HG         | German/English Menu                   |
| Power Cord                 | -B          | Indian Standard                       |
|                            | -D          | UL/CSA Standard PSE compliant         |
|                            | -F          | VDE Standard                          |
|                            | -H          | GB Standard                           |
|                            | -N          | NBR Standard                          |
|                            | -Q          | BS Standard                           |
|                            | -R          | AS Standard                           |
|                            | -T          | Taiwanese Standard                    |
|                            | -U          | IEC Plug Type B                       |
| Additional Options         |             |                                       |
| Option                     | /M1         | 32 GB Built-in Memory                 |
|                            | /EM1*2      | Motor Evaluation for Encoder 1        |
|                            | /RM1*2      | Motor Evaluation for Resolver 1       |
|                            | /EM2*2      | Motor Evaluation for Encoder 2        |
|                            | /RM2*2      | Motor Evaluation for Resolver 2       |
|                            | /EM1RM1*2   | Motor Evaluation for Encoder/Resolver |
|                            | /SY1*3      | Multi-unit Synchronization            |
|                            | /CN1        | CAN/CAN-FD Interface                  |

[Standard accessories] Power cord, User's manuals\*4, Safety terminal adapter 758931 (provided two adapters in a set times WB element number), High voltage safety terminal adapter 758932 (provided two adapters in a set times HV element number)  
\*1: The following parts are included according to the option: -BN: 1 set (4 pieces) of feet/rubber stoppers and 1 set of handle, -RE: rack mounting bracket for EIA, -RJ: rack mounting bracket for JIS  
\*2: Select only one of these options. See \*6 on page 2 for details.  
\*3: The /SY1 option will be available soon. It can be added to a purchased unit using an upcoming option upgrade license.  
\*4: Start guide as the printed material, and User's manual can be downloaded from our web page.  
\*Please purchase any other cables or adapters as needed.

Accessory (sold separately)

| Model number | Product                                  | Description                                                                    |
|--------------|------------------------------------------|--------------------------------------------------------------------------------|
| 758932       | High Voltage Safety Terminal Adapter Set | Two pieces in one set. Rated voltage: 2500 V DC, 1500 V CAT II, 1000 V CAT III |
| 761962       | Conversion Adapter                       | Circular 20 pin - BNC/power connector                                          |
| 761963       | Conversion Adapter                       | Circular 20 pin - BNC/power connector                                          |
| 761964       | Current Sensor Cable                     | Circular 20 pin - D-sub 9 pin, 3 m.                                            |
| 761965       | Current Sensor Cable                     | Circular 20 pin - D-sub 9 pin, 5 m.                                            |
| 761966       | Conversion Adapter                       | Circular 20 pin - D-sub 9 pin                                                  |

\*A current sensor is required for current measurement. Please refer to Bulletin CT1000-00E and Bulletin CT1000S-01EN for details on current sensors.

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[Ed: 01/d] Printed in Japan, 607(YMI)