



Manuals.plus /

- › KYOHRITSU /
- › KYORITSU KEW 6516 Multi Function Tester Instruction Manual

KYOHRITSU KEW 6516

KYORITSU KEW 6516 Multi Function Tester Instruction Manual

Comprehensive Guide for Safe and Effective Operation

1. INTRODUCTION

The KYORITSU KEW 6516 is a high-quality, multi-function installation tester designed for electrical professionals. This device integrates 12 essential testing functions into a single unit, ensuring comprehensive safety and performance verification of electrical installations. This manual provides detailed instructions for the safe and correct operation of your KEW 6516 tester.

2. PRODUCT OVERVIEW

The KEW 6516 is engineered for efficiency and accuracy, featuring a large color LCD for clear data display and an intuitive interface. It combines various testing capabilities, making it an indispensable tool for electrical installation and maintenance.

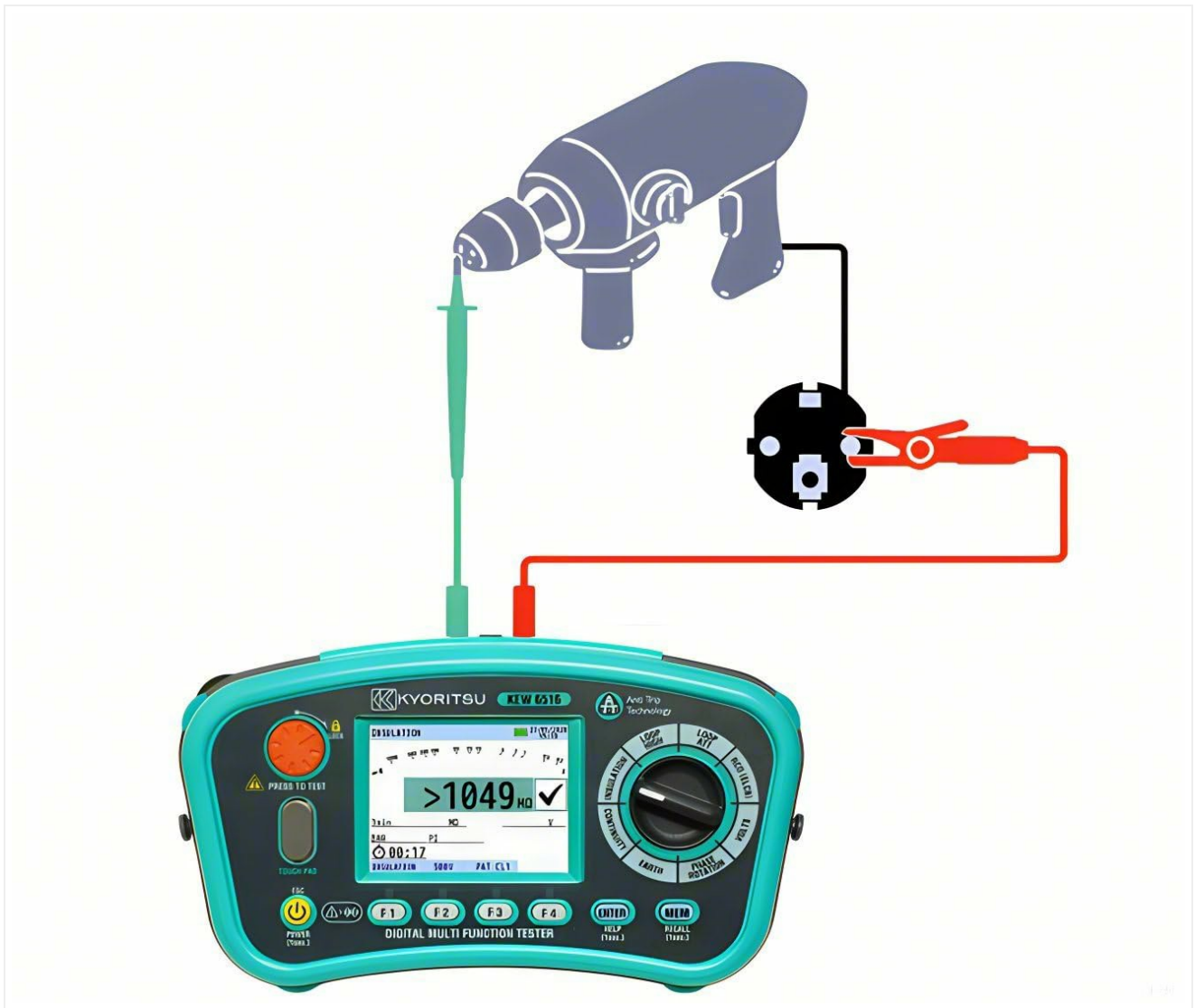


Figure 2.1: Main product view of the KYORITSU KEW 6516 Multi Function Tester, showcasing its robust design and clear display.

2.1 Key Features

- **12-in-1 Testing Functions:** Includes Loop, RCD, Earth, Insulation, Continuity, Phase Rotation, Volts, SPD, PAT, PSC, PFC, and Frequency testing.
- **Large Color LCD:** 3.5-inch dot matrix display for clear visualization of all test data.
- **Anti-Trip Technology (ATT):** Enables no-trip LOOP L-PE testing on all RCDs, with 2-wire and 3-wire options.
- **Hands-Free Testing:** Facilitated by a remote probe and lockdown function.
- **HELP Function:** Provides on-screen connection diagrams for selected functions.
- **High Resolution Loop Impedance:** 0.001 Ω resolution for precise measurements.

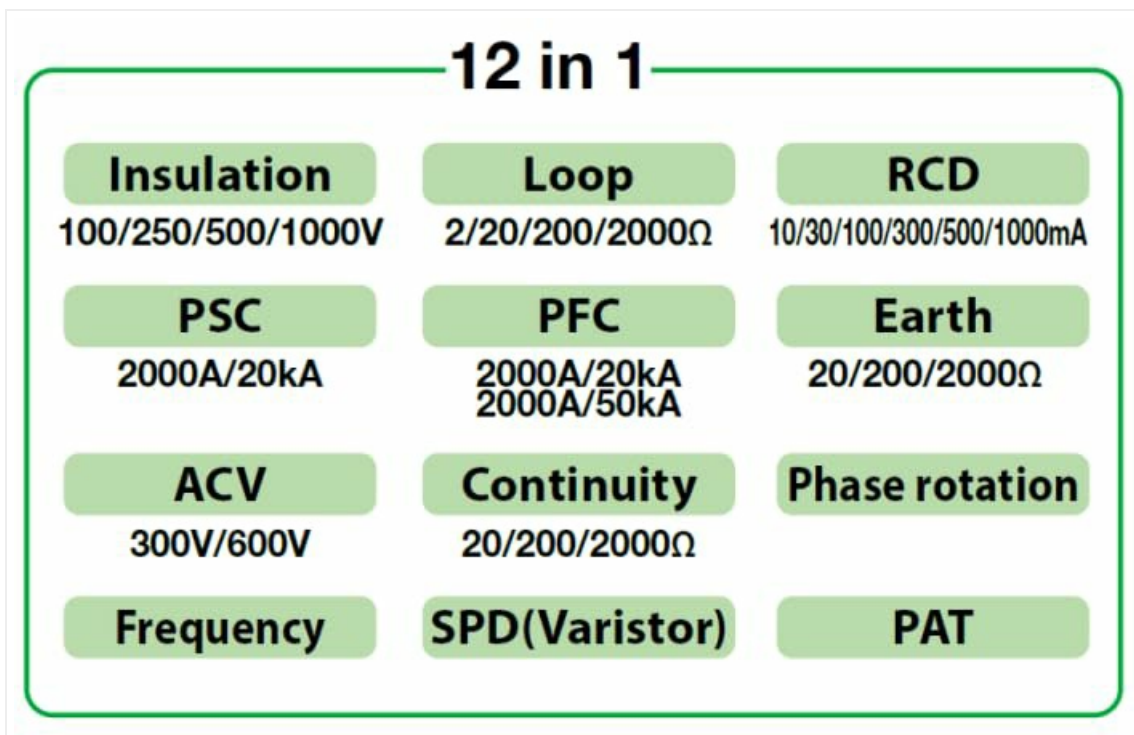


Figure 2.2: Diagram illustrating the 12-in-1 testing functions of the KYORITSU KEW 6516, including Insulation, Loop, RCD, PSC, PFC, Earth, ACV, Continuity, Phase Rotation, Frequency, SPD (Varistor), and PAT.

3. SETUP

3.1 Battery Installation

The KEW 6516 requires 1 Lithium Polymer battery, which is included. Ensure the battery is correctly inserted into the battery compartment, observing polarity markings. Close the battery cover securely.

3.2 Connecting Test Leads

Connect the appropriate test leads to the input terminals of the KEW 6516 according to the specific test function you intend to perform. Refer to the on-screen HELP function for connection diagrams if unsure.

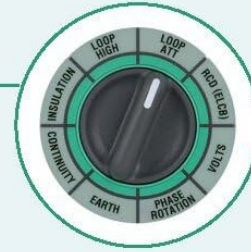
4. OPERATING INSTRUCTIONS

The KEW 6516 is designed for straightforward operation. Follow these general steps for most testing functions:

1. **Set the Rotary Dial:** Turn the rotary dial to select your desired testing range or function.
2. **Connect the Instrument:** Connect the test leads to the circuit or installation under test as indicated by the HELP function.
3. **Press the Test Button:** Initiate the measurement by pressing the 'PRESS TO TEST' button.

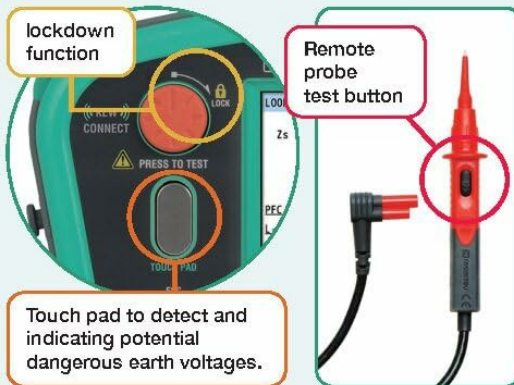
Operation in 3 simple steps

- ✔ Set the rotary dial to your testing range.
- ✔ Connect the instrument to the installation under test.
- ✔ Press the test button.



Hands free testing

By remote probe or using the Lockdown function of the test button.



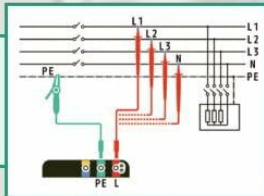
Large LCD

All the test data is shown in one large colored screen.



Anti-Trip Technology (with 2 & 3 wire)

For no trip LOOP L-PE testing on all RCDs.
With 3 wire (L, N, PE), to get the best accuracy readings.
With 2 wire only, very useful in case of no Neutral (i.e. 3-phase motor lines).

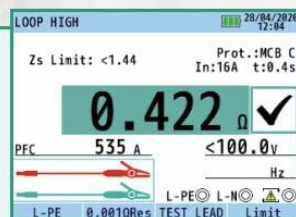


HELP Key

HELP function will show how to connect the instrument according to the function selected.

0.001 resolution

Thanks to high test current of 25A, the Loop Impedance Phase to Earth is measured with high resolution of 0.001 ohm. This can be useful when testing in the main switchboard closer to the transformer.



Loop test from a wall socket



Continuity check of equipotential bonding

Figure 4.1: Detailed operational features of the KYORITSU KEW 6516, including "Operation in 3 simple steps," "Hands free testing" with remote probe, "Large LCD" display, "Anti-Trip Technology," "HELP Key," "0.001 resolution" for loop impedance, and examples of "Loop test from a wall socket" and "Continuity check of equipotential bonding."

4.1 Specific Testing Functions

4.1.1 Loop Test

The KEW 6516 performs loop impedance tests with high accuracy, offering a 0.001Ω resolution. It features Anti-Trip Technology (ATT) for L-PE testing on all RCDs without tripping them. This function is available with both 2-wire and 3-wire connections, which is particularly useful in installations without a neutral line (e.g., 3-phase motor lines). The Zs Limit function compares measured values against standard requirements.



Figure 4.2: KYORITSU KEW 6516 Multi Function Tester in use, performing an electrical measurement within a circuit breaker panel.

4.1.2 RCD Test

Test various RCD types including AC, A, F, B (General & Selective), and EV, as well as variable RCDs. The tester supports single and auto test modes, ramp tests, and contact voltage measurements.

4.1.3 Earth Resistance Test

Conduct 2-wire and 3-wire earth resistance tests. All necessary accessories for these tests are included with the instrument.

4.1.4 Insulation Resistance Test

Perform insulation resistance tests at 100V, 250V, 500V, and 1000V. The device features an auto-discharge voltage function for safety.

MULTIFUNCTION INSTALLATION TESTER

KEW 6516 / 6516BT

A lot of Testing Power in the hands of Electrical Installation Professionals!



Figure 4.3: Example of the KYORITSU KEW 6516 performing an insulation test on an electrical appliance.

4.1.5 Continuity Test

Measure continuity at 200mA or 15mA, with a selectable buzzer for quick judgment of results.

4.1.6 Phase Rotation

Clearly indicates the sequence of phases on 3-phase lines directly on the display.

4.1.7 Voltage Measurement (Volts)

Measures TRMS voltage from 2V to 600V, along with mains frequency.

4.1.8 SPD Test

Tests Surge Protection Devices (SPDs) that utilize varistors, determining their tripping voltage without causing damage.

4.1.9 PAT Test

Functions as a Portable Appliance Tester, performing insulation and protective conductor resistance tests for portable appliances.

4.1.10 PSC/PFC Testing

Measures Prospective Short Circuit Current (PSC) and Prospective Fault Current (PFC).

4.1.11 Frequency Testing

Measures the frequency of the mains supply.

4.2 Connectivity

The KEW 6516 allows data transfer via USB to a PC for reporting. The KEW 6516BT model also offers Bluetooth connectivity for data transfer to tablets or smartphones, compatible with the KEW Smart app.

Wide variety of RCDs can be tested

Type AC, A, F, B (General & Selective) EV and Variable RCDs. Single and Auto test, Ramp test and Contact voltage.

RCD		RCD	
0° (+)	180°	0°	180°
TYPE AC		TYPE AC	
x1/2	ms	x1/2	>2000ms >2000ms
x1	ms	x1	10.4ms 20.5ms
x5	ms	x5	8.4ms 18.0ms
UL 50V		230.4V	
0.0V		50.0Hz	
AUTO 30mA		L-PE L-N	

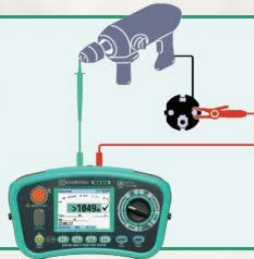
SPD test

SPD (Surge Protection Device) which contains varistor can be tested measuring the tripping voltage without damage it.



PAT test

PAT test (PAT = Portable Appliance Tester) It is possible to check the insulation resistance and earth bond continuity of portable appliances for class I and II.



Connectivity

KEW 6516 can download the test data by connecting the USB adapter (Model 8212-USB) and then print complete Test Reports by a PC. While KEW 6516BT can transfer the test data to a Tablet or Smartphone via Bluetooth. Such test data can be saved, shared and sent by email. The USB adapter can also be ordered as an option.



Zs/Ra Limit

The verification of safety requirement on an electrical installation is simplified by using Zs/Ra Limit function. This function will automatically check if the measured loop impedance for TN (or earth loop for TT) is low enough to trip (disconnect) the MCB / Fuse / RCD giving the result of PASS(✓) or FAIL(x) on the display.

LOOP ATT.	
Zs Limit: <2.87	Prot.: MCB B In: 16A t: 0.4s
0.21 Ω ✓	
PFC	1112 A 230.7V
L-N	0.05 Ω 50.0Hz
PSC	4.75kA
L-PE 3W	Pulse ON Limit

KEW 6516 and KEW 6516BT come complete with everything you need for testing an electrical installation

Accessories



Optional Accessories



MODEL 7272
2 cord reels with test leads, 2 spikes, an earth test lead, a carrying case.



MODEL 8017A
Extension prod long

MODEL 8259
Adapter for measurement terminal [red, yellow, green/1 set]



KEW 8601
EVSE ADAPTER
TYPE1 plug

KEW 8602
EVSE ADAPTER
TYPE2 plug

MFT and EVSE ADAPTER Kits
KEW 6516-EV2 : KEW 6516×1, KEW 8602×1
KEW 6516BT-EV2 : KEW 6516BT×1, KEW 8602×1

Figure 4.4: Advanced testing capabilities of the KYORITSU KEW 6516, covering "Wide variety of RCDs can be tested," "SPD Test," "PAT Test," "Zs/Ra Limit" verification, and "Connectivity" options via USB and Bluetooth for data transfer.

5. MAINTENANCE

To ensure the longevity and accuracy of your KEW 6516, follow these maintenance guidelines:

- **Cleaning:** Wipe the instrument with a soft, dry cloth. Do not use abrasive cleaners or solvents.
- **Storage:** Store the tester in a cool, dry place, away from direct sunlight and extreme temperatures.
- **Battery Care:** Remove the battery if the instrument will not be used for an extended period to prevent leakage.
- **Calibration:** Regular calibration by authorized service centers is recommended to maintain measurement accuracy.

6. TROUBLESHOOTING

If you encounter issues with your KEW 6516, consider the following common troubleshooting steps:

- **No Power:** Check battery charge and ensure it is correctly installed.
- **Incorrect Readings:** Verify that test leads are securely connected and not damaged. Ensure the correct function and range are selected on the rotary dial.
- **Display Errors:** Refer to the HELP function on the device for specific error codes or connection guidance.
- **Instrument Not Responding:** Try turning the unit off and on again. If the problem persists, contact customer support.

7. SPECIFICATIONS

The following table details the technical specifications of the KYORITSU KEW 6516 Multi Function Tester.

Table 7.1: KYORITSU KEW 6516/6516BT Specifications

Function	Test Voltage / Range	Measuring Ranges	Accuracy	Remarks
Insulation Resistance Test	100V	0.000 to 200.0M Ω (Auto-ranging)	$\pm(2\%rdg+6dgt)$	
	250V	0.000 to 200.0M Ω (Auto-ranging)	$\pm(2\%rdg+6dgt)$	
	500V	0.000 to 1000M Ω (Auto-ranging)	$\pm(2\%rdg+6dgt)$	
	1000V	0.000 to 2000M Ω (Auto-ranging)	$\pm(2\%rdg+6dgt)$	
Rated current	1.0-1.2mA (at 1M Ω), 1.0-1.2mA (at 2.5M Ω), 1.0-1.2mA (at 5M Ω), 1.0-1.2mA (at 10M Ω)			
Short circuit current	1.5mA max			
Loop Impedance	Function	LOOP ATT, LOOP HI, LOOP RCD		
	Rated voltage	L-PE(3-wire), L-PE(2-wire), L-PE(RCD), L-N/L-L		
	Impedance range	2.00 Ω , 20.00 Ω , 200.0 Ω , 2000 Ω		
	Accuracy	$\pm(3\%rdg+5dgt)$		
	Nominal test current at Zs external loop	L-PE:15mA, L-N:20A/500ms		
PSC/PFC	Range	2000A/20kA (PSC), 2000A/20kA (PFC)		
	Accuracy	$\pm(5\%rdg+5dgt)$		
	Remarks	PSC/PFC accuracy is derived from measured loop impedance specification and measured voltage specification.		
RCD	Rated voltage	100-250V (50/60Hz)		
	Function	x1/2, x1, x5, Ramp, Auto, Uc		
	RCD type	AC, A, F, B (General & Selective), EV, Variable		
	Trip current setting	10/30/100/300/500/1000mA		
	Accuracy	Trip current: $\pm(2\%rdg+2dgt)$, Trip time: $\pm(2\%rdg+2ms)$		
Continuity	Range	0.00 Ω to 2000 Ω (Auto-ranging)		
	Measuring current	200mA or 15mA		

Function	Test Voltage / Range Accuracy	Measuring Ranges $\pm(2\%rdg+2dgt)$	Accuracy	Remarks
Volts	Range	2-600V (TRMS, Auto-ranging)		
	Frequency	45-65Hz		
	Accuracy	$\pm(2\%rdg+2dgt)$		
Earth	Range	0.00 Ω to 2000 Ω (Auto-ranging)		
	Accuracy	$\pm(2\%rdg+2dgt)$		
	Remarks	2-wire and 3-wire test.		
General Standards	IEC 61010-1 CAT IV 300V / CAT III 600V, Pollution degree 2, IEC 61010-2-034, IEC 61557-1,2,3,4,5,6,7,10, IEC 60529(IP40), IEC 61326(EMC)			
Communication Interface	USB (KEW 6516), Bluetooth (KEW 6516BT)			
Power Source	1 Lithium Polymer battery (included)			
Dimension	136(L) × 235(W) × 114(D) mm			
Weight	1350g (including batteries)			
Accessories	7246 (Distribution board test lead), 7222A (Earth resistance test leads), 8041 (Auxiliary earth spike), 8042 (Auxiliary earth spike), 9119 (Shoulder strap), 9124 (Carrying case), 8121 (USB adapter with KEW Report software), 8122 (USB adapter with KEW Smart software)			
Optional Accessories	8212 (USB adapter with KEW Report software), 8259 (Adapter for measurement terminals), 7272 (Precision measurement cord set), 8017A (Extension prod long), 8601 (EVSE Adapter), 8602 (EVSE Adapter)			

● KEW 6516 / 6516BT Specifications

Insulation resistance		SPD(Varistor)				
Test voltage	100V	250V	500V	1000V	Max. 1000V	
Measuring ranges	2.000/20.00/200.0MΩ (Auto-ranging)		20.00/200.0/1000MΩ (Auto-ranging)		0-1000V(goes up by 1V)	
Accuracy	±2%rdg±6dgt (2.000/20.00MΩ) ±5%rdg±6dgt (200.0MΩ)		±2%rdg±6dgt (20.00/200.0MΩ) ±5%rdg±6dgt (1000MΩ)		±5%rdg±5dgt	
Rated current	1.0-1.2mA @0.1MΩ	1.0-1.2mA @0.25MΩ	1.0-1.2mA @0.5MΩ	1.0-1.2mA @1MΩ	-	
Short circuit current	1.5mA max					
Loop impedance						
Function	LOOP ATT L-PE/L-N(3wire)		L-PE(2wire)	LOOP HIGH L-PE(0.01ΩRes)	L-PE(0.001ΩRes) L-N/L-L	
Rated voltage	100-260V(50/60Hz)		48-260V(50/60Hz)	48-260V(50/60Hz)	100-260V(50/60Hz) 48-500V(50/60Hz)	
Impedance range	20.00/200.0/2000Ω (Auto-ranging)		20.00/200.0/2000Ω (Auto-ranging)	2.000Ω	20.00Ω	
Accuracy	±3%rdg±6dgt		±3%rdg±10dgt	±3%rdg±4dgt	±3%rdg±4dgt	
Nominal test current at 0Ω external loop: Magnitude/Duration at 230V	L-N:6A/60ms N-PE:10mA		L-PE:15mA	20Ω:6A/20ms 200Ω:0.5A/20ms 2000Ω:15mA/500ms	25A/20ms 6A/20ms	
PSC/PFC						
Range	2000A/20kA(L-N(PSC)/L-PE(PFC))		2000A/20kA(PFC)	2000A/20kA(PFC)	2000A/50kA(PFC)	
Accuracy	PSC/PFC accuracy is derived from measured loop impedance specification and measured voltage specification					
RCD						
Rated voltage	100-260V(50/60Hz)					
Function	x1/2, x1_x5, Ramp, Auto, Uic 6/10/30/100/300/500/1000mA/variable					
RCD type	AC(G/S)		A(G/S)	F(G/S)	B(G/S)	
Trip current setting	x1/2, x1, Uic	10/30/100/300/500/1000mA(G)	10/30/100/300/500mA	10/30/100/300/500mA	10/30/100/300mA	
	x5	10/30/100mA	10/30/100mA	10/30/100mA	10/30mA	
	Ramp	10/30/100/300/500mA	10/30/100/300/500mA	10/30/100/300/500mA	10/30/100/300mA	
Accuracy	Trip current	x1/2	-8% - -2%	-10% - 0%	-10% - 0%	-10% - 0%
		x1	+2% - +8%	0% - +10%	0% - +10%	0% - +10%
		x5	+2% - +8%	0% - +10%	0% - +10%	0% - +10%
	Trip time	x1/2	200ms(G/S):±1%rdg±2ms	-	-	-
		x1	550ms(G/S):±1%rdg±2ms, 1000ms(S):±1%rdg±2ms	-	-	10.5s:±1%±2ms
x5	410ms(G/S):±1%rdg±2ms	-	-	-		
Continuity						
Range	20.00/200.0/2000Ω (Auto-ranging)					
Open circuit voltage (DC)	7-14V					
Measuring current	200mA	>200mA or more(2Ω or less)				
	15mA	15mA±3mA(short-circuit)				
Accuracy	±2%rdg±8dgt					
Phase Rotation						
Rated voltage	48-600V(50/60Hz)					
Remarks	Remarks Correct phase sequence: are displayed "1.2.3" and mark Reversed phase sequence:are displayed "3.2.1" and mark					
General						
Applicable Standards	IEC 61010-1 CAT I/ 300V / CAT III 600V Pollution degree 2, IEC 61010-2-034, IEC 61557-1,2,3,4,5,6,7,10, IEC 60529(IP40), IEC 61326(EMC)					
Communication Interface	USB, Bluetooth® 5.0*, Android™ 5.0 or later, iOS 10.0 or later					
Power source	LP6(AA)1.5V × 8					
Dimension	136(L) × 235(W) × 114(D)mm					
Weight	1350g (including batteries)					
Accessories	Mains test lead*, 7281(Test leads with remote control switch), 7246(Distribution board test lead), 7288(Earth resistance test leads), 8041(Auxiliary earth spikes(2 spikes/1 set)) 9084(Soft case), 9142(Carrying case), 9151(Shoulder strap), 9199(Shoulder pad), LP6(AA) × 8, Instruction manual, 8212-USB(USB adapter with "KEW Report(Software)"),*, Calibration certificate					
Optional Accessories	8212-USB(USB adapter with "KEW Report(Software)"),*, 8259(Adapter for measurement terminal), 7272(Precision measurement Cord set), 8017A(Extension prod long) 8601(EVSE ADAPTER), 8602(EVSE ADAPTER)					

* 6516BT only

† 7187A:British plug,7218A:EU/European SCHUKO plug, 7221A(SA) South african plug, 7222A:(AU)Australian plug

‡ 8212-USB - Standard accessory for 6516, optional accessory for 6516BT

Bluetooth is a trademark or registered trademark of Bluetooth SIG, Inc.

Android is a trademark or registered trademark of Google Inc.

iOS is a trademark or registered trademark of Cisco Technology, Inc. in the United States and other countries.

Figure 7.1: Overview of standard and optional accessories available for the KYORITSU KEW 6516 and KEW 6516BT, including test leads, probes, and adapters.

8. WARRANTY AND SUPPORT

KYORITSU products are manufactured to high-quality standards. While specific warranty details may vary by region, general support is available for product inquiries and technical assistance.

Spare Part Availability: EU spare parts are available for a duration of 1 year from the date of purchase.

For technical support, service, or warranty claims, please contact your local KYORITSU distributor or visit the official KYORITSU website for contact information.