KUSAM-MECO KM-582

KUSAM-MECO KM-582 Digital RCD (ELCB) Tester Instruction Manual

Model: KM-582

1. Introduction

This manual provides detailed instructions for the safe and effective operation of the KUSAM-MECO KM-582 Digital RCD (ELCB) Tester. Please read this manual thoroughly before using the device to ensure proper functionality and to prevent potential hazards.

Figure 1: KUSAM-MECO KM-582 Digital RCD (ELCB) Tester. This image shows the front panel of the KM-582 tester, displaying its LCD screen, control buttons, and rotary switch.

2. Safety Information

Important Safety Precautions:

- Always adhere to local and national safety regulations.
- This device is rated CAT III 600V. Do not exceed these limits.
- Ensure the device is in good working condition before each use. Do not use if damaged.
- Never attempt to test live circuits without proper training and safety equipment.
- Fuse protection is integrated. If a fuse blows, replace it with the specified type and rating.
- Over-range indication will alert you if measurements exceed the device's capabilities.
- Disconnect the test leads from the circuit before changing functions or ranges.

3. Key Features

Figure 2: KM-582 Features Overview. This diagram highlights key features such as the LCD backlight, fuse protection, auto power-off function, and buzzer indication for disconnect.

- **Clear LCD Display:** 1000-count LCD with backlight for visibility in various lighting conditions.
- **Enhanced Safety:** CAT III 600V compliance, fuse protection, and over-range indication.
- **Auto Functions:** Auto power-off to conserve battery and auto ramp for simplified testing.
- **Audible Alerts:** Buzzer indications for disconnects, misoperation, and power-off.
- **Data Hold:** Freeze measurements for easy recording and review.

4. Package Contents and Setup

4.1. Unpacking and Inspection

Carefully unpack the device and inspect for any signs of damage. If any damage is found, contact your supplier immediately.

4.2. Included Components

Figure 3: Included Accessories. This image displays the accessories that come with the KM-582 tester, including the carrying case, outer cover, test leads, and power connection leads.

- KUSAM-MECO KM-582 Digital RCD (ELCB) Tester
- Test Leads (Red, Green, Blue)
- Power Connection Leads
- Carrying Case
- Outer Cover
- Belt
- Instruction Manual (this document)

4.3. Battery Installation

The KM-582 is battery powered. Refer to the battery compartment on the rear of the device for installation. Ensure correct polarity. Replace batteries when the low battery indicator appears on the LCD.

4.4. Connecting Test Leads

Connect the test leads securely into the corresponding input terminals on the tester. Ensure a firm connection to prevent

inaccurate readings or hazards.

Figure 4: Test Lead Connection Example. This image illustrates how to correctly connect the red, green, and blue test leads into the designated ports on the KM-582 tester.

5. Operating Instructions

5.1. Powering On/Off

Turn the rotary switch to any desired function (e.g., X1, X1/2) to power on the device. Turn it to "OFF" to power off. The device also features an auto power-off function to save battery life after a period of inactivity.

5.2. RCD (ELCB) Testing

1. **Select Test Current (IΔn):** Press the `IΔn` button to cycle through available RCD trip currents (e.g., 10mA, 20mA, 30mA, 100mA, 300mA, 500mA).
2. **Select Multiplier:** Use the rotary switch to select the desired current multiplier:
    - **X1/2:** Tests at half the rated trip current. The RCD should **not** trip.
    - **X1:** Tests at the rated trip current. The RCD **should** trip within the specified time.

- **X5:** Tests at five times the rated trip current (for specific RCD types). The RCD **should** trip faster.
- **AUTO RAMP:** Gradually increases the test current until the RCD trips, determining the actual trip current.

3. **Select Phase Angle:** Press the **PHASE/UL** button to select the desired phase angle (0° or 180°).
4. **Select Connection Type:** Press the **L-N/L-PE** button to select between Line-Neutral or Line-Earth connection for testing.
5. **Initiate Test:** Connect the test leads to the circuit. Press the large **TEST** button to begin the RCD test. The LCD will display the trip time in milliseconds (ms).
6. **Interpret Results:** Compare the displayed trip time with the RCD's specifications. A buzzer will sound for disconnects or misoperation.

5.3. Voltage and Frequency Measurement

To measure voltage and frequency:

1. Turn the rotary switch to **VOLTS**.
2. Connect the test leads to the circuit points where voltage is to be measured.
3. The LCD will display the voltage. Press the **VOLT/FREQ** button to toggle between voltage and frequency display.

5.4. Backlight Operation

- **Backlight:** Press the **L-N/L-PE** button (which has a lightbulb icon) to activate the LCD backlight for improved visibility in low-light conditions. Press again to turn off.

6. Maintenance

6.1. Cleaning

Wipe the device with a soft, damp cloth. Do not use abrasive cleaners or solvents. Ensure the device is dry before storage or next use.

6.2. Battery Replacement

When the low battery indicator appears, replace the batteries promptly. Open the battery compartment on the rear of the device, remove old batteries, and insert new ones, observing correct polarity. Dispose of old batteries responsibly.

6.3. Fuse Replacement

If the internal fuse blows, it must be replaced by a qualified technician with a fuse of the exact specified type and rating to maintain safety compliance.

6.4. Storage

Store the device in its carrying case in a cool, dry place, away from direct sunlight and extreme temperatures. Remove batteries if storing for extended periods.

7. Troubleshooting

Problem	Possible Cause	Solution
Device does not power on.	Dead or incorrectly installed batteries.	Check battery polarity; replace batteries.

Problem	Possible Cause	Solution
Inaccurate readings.	Poor test lead connection; damaged leads; incorrect function selected.	Ensure leads are securely connected; inspect leads for damage; verify correct function and range.
RCD does not trip during test.	RCD fault; incorrect test current/multiplier; circuit issue.	Verify RCD functionality with another method; recheck test settings; consult a qualified electrician.
"OL" or Over-range indication.	Measured value exceeds device's range.	Ensure the measurement is within the specified range of the KM-582.

8. Technical Specifications

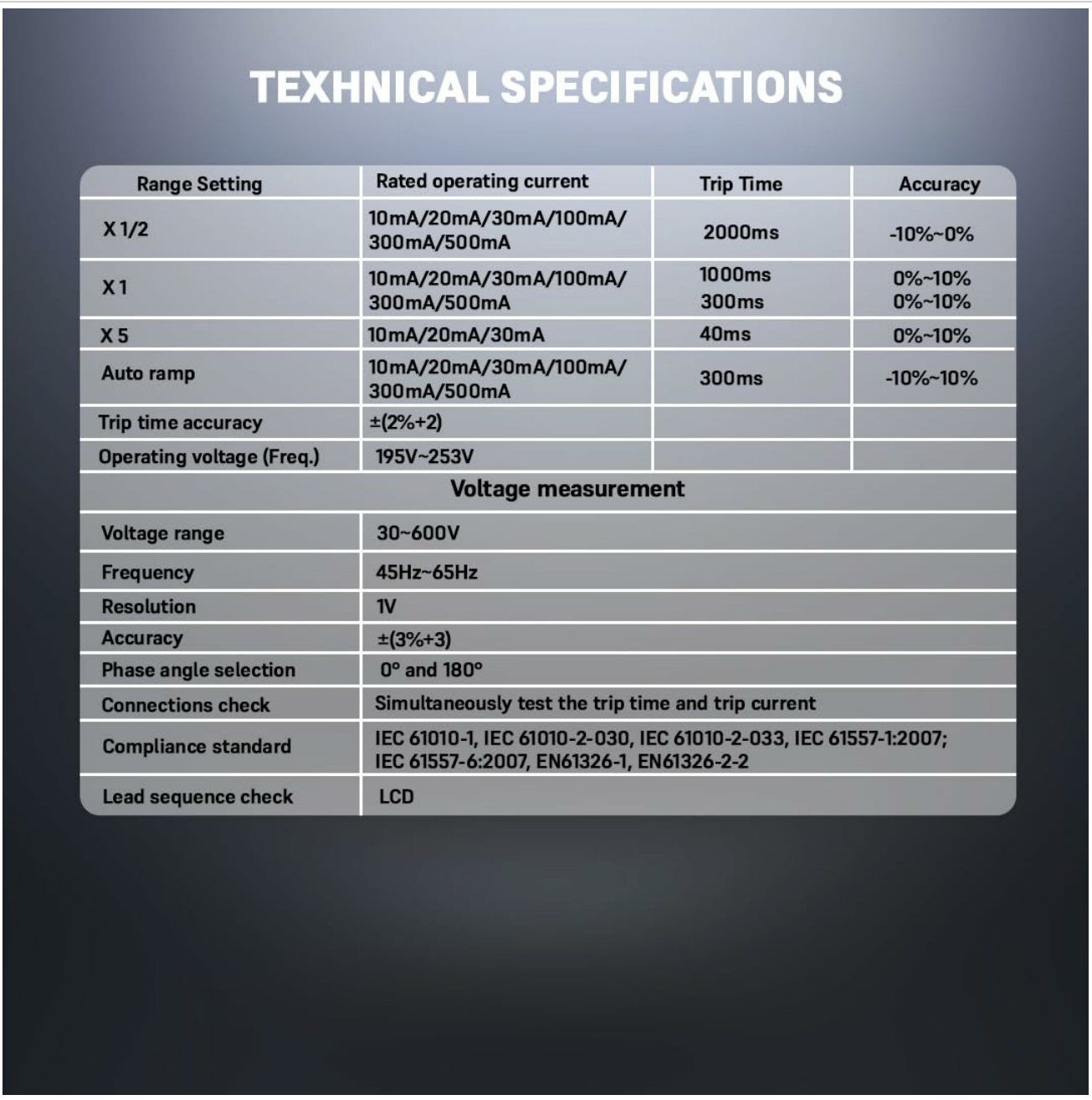

Figure 5: Technical Specifications. This table provides detailed technical specifications for the KM-582, including range settings, trip times, accuracy, voltage range, and compliance standards.

Parameter	Details

Parameter	Details
Display	1000-count LCD with Backlight
Safety Rating	CAT III 600V
Operating Voltage (Freq.)	195V-253V
Voltage Range	30-600V
Frequency Range	45Hz-65Hz
Voltage Resolution	1V
Voltage Accuracy	±(3%+3)
Phase Angle Selection	0° and 180°
Compliance Standard	IEC 61010-1, IEC 61010-2-030, IEC 61010-2-033, IEC 61557-1:2007; IEC 61557-6:2007, EN61326-1, EN61326-2-2
Power Source	Battery Powered
Auto Power-Off	Yes
Data Hold	Yes

RCD Trip Current and Time Specifications:

Range Setting	Rated Operating Current	Trip Time	Accuracy
X 1/2	10mA/20mA/30mA/100mA/300mA/500mA	2000ms	-10%~0%
X 1	10mA/20mA/30mA/100mA/300mA/500mA	1000ms	0%~10%
X 5	10mA/20mA/30mA	40ms	0%~10%
Auto ramp	10mA/20mA/30mA/100mA/300mA/500mA	300ms	-10%~10%
Trip time accuracy	±(2%+2)		

9. Warranty and Support

9.1. Warranty Information

The KUSAM-MECO KM-582 Digital RCD (ELCB) Tester comes with a **1 Year Warranty** from the date of purchase. This warranty covers manufacturing defects and faulty workmanship under normal use. It does not cover damage caused by misuse, accidents, unauthorized modifications, or improper maintenance.

9.2. Customer Support

For technical assistance, warranty claims, or service inquiries, please contact KUSAM-MECO customer support. Refer to the official KUSAM-MECO website or your purchase documentation for the most current contact information.

Manufacturer: Kusam Electrical Industries Limited, India.