



CMRR 3.0+

Common Mode Rejection Ratio Tester

The CMRR Tester Combining Accuracy, Convenience and Test Automation All Together

- CMRR Tester designed for diagnostic ECG, monitoring ECG, ambulatory ECG and EEG monitor
- Extreme shielding structure to avoid internal and external noise interference
- Built-in calibrated sine wave generator and Vc voltage measuring circuit to assure output accuracy level
- Exclusive shielding covers can be added for higher CMRR requirement
- Touch screen maximizes the test efficiency in standalone operation
- PC software operation allows to control and conduct test via mouse clicks
- Optional Standard Assistant software pack simplifies the medical standard with test sequences, options, parameters and pass criteria
- Software Development Kit (SDK) assists users in developing customized or automated test software with less efforts

CMRR 3.0+ Specifications

Item	Option	Specifications
Supply voltage	0.5 / 2.828 / 20 / 2 / (70.71) (Vrms)	±1% *
CM point voltage	1.414 / 10 / 1 / (35.355) (Vrms)	±1% (0.25Vrms ±2%)
Frequency	50 / 60 / 100 / 120 (Hz)	±1%
Electrode with Impedance	Change electrode via the touch screen of CMRR 3.0+	None / RA / LA / LL / V1 / V2 / V3 / V4 / V5 / V6 / ALL
Electrode without Impedance	Change electrode via the touch screen of CMRR 3.0+	RA / LA / LL / V1 / V2 / V3 / V4 / V5 / V6
Imbalance impedance, R	51kΩ	51kΩ ± 1%
Imbalance impedance, C	47nF	47nF ± 5%
DC offset	Powered by a replaceable preinstalled battery, can be added on RA / LA / LL / V1 ~ V6	300mV ± 1% Up to 40hrs with intermittent use
100 pF capacitor	Use 11 : 1 (110MΩ : 10MΩ) voltage divider to measure indirectly	100pF ± 5%
Environment	Intended for normal laboratory environment. The selection of critical components is known to be stable in the range shown. The 110MΩ divider may be affected by high humidity in excess of 85%	15-30°C 10-75% RH

*Require to measure with the multimeter of higher accuracy.

CMRR Assistant Software Pack Allows User to Test with Ease

IEC 2-25/2-27 IEC 2-47 YY 0782 YY 0885 YY 1079/1139 EC 11/13 IEC 2-26

Step 1. Preparation

1. No ECG patient cable is attached.
2. The line frequency notch filter (if provided) of ECG is turned off.
3. Set the ECG GAIN to 10 mm/mV and the sweep speed to 25 mm/s.

Step 2. Frequency Setting

☒ 50 Hz ☐ 60 Hz ☐ Both

Step 3. Connection

1. Adjust CMRR3.0 Ct to get Inner shield (Vc) ~ 10.00 Vrms.
2. Connect patient cable to CMRR3.0.

Test Parameter Setting

Electrodes under test

☒ RA ☐ LA ☐ LL ☐ V1 ☐ V2 ☐ V3 ☐ V4 ☐ V5 ☐ V6

The method to test electrode with impedance

☒ Manual

☐ Automatic Measure Duration sec. (default 15 sec.)

Pass Criterion

The resulting values shall not be greater than 10 mm peak-to-valley for each lead.

Test Sequence

Test Sequence : IEC60601-2-25, IEC60601-2-27

0. Select IEC-2-25 / IEC-2-27.
1. No patient cable is attached.
2. The line frequency notch filter (if provided) is turned off.
3. Setup ECG to 10 mm/mV and 25 mm/s.
4. Select "Frequency" to 50 Hz or 60 Hz or Both.
5. If select 50 Hz or Both, start test from 50 Hz.
6. Adjust Ct to get Inner shield (Vc) about 10.00 Vrms.
7. Connect patient cable.
8. Select Manual or Automatic test for each electrode with impedance.
9. If select Automatic test, fill in the time of Measure Duration, then press Run button to
10. If select Manual test, the test steps include:
 - 1) Select "Electrode with Impedance" to "None" to do the test.
 - 2) Select "Electrode with impedance" to "RA" to do the test.
 - 3) Select "DC Offset" to "+300 RA" to do the test.
 - 4) Select "DC Offset" to "-300 RA" to do the test.
 - 5) Set "DC Offset" to "Off".
 - 6) Select "Electrode with Impedance" to "LA" to do the test.
 - 7) Select "Electrode with Impedance" to "LL" to do the test.
 - 8) Select "Electrode with Impedance" to "V1" to do the test.
 - 9) Select "Electrode with Impedance" to "V2" to do the test.
 - 10) Select "Electrode with Impedance" to "V3" to do the test.
 - 11) Select "Electrode with Impedance" to "V4" to do the test.
 - 12) Select "Electrode with Impedance" to "V5" to do the test.
 - 13) Select "Electrode with Impedance" to "V6" to do the test.
11. If select Both at step 4, then repeat the test with 60 Hz.
12. Select "Electrode with Impedance" to "None", finish the test.

- Detailed test sequences for user to test with confidence

- Follow the instruction step by step to proceed required tests



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