Features and technical data

• Housing:	metal housing
• Color:	red
• Dimensions / (LxWxH) / mm:	148 x 73 x 40
• Weight:	~ 0,72 Kg
• Status LED (clear):	Indication of the correct mains plug position of the PDV03/MKII and excessive leakage current of the DUT
• Red LEDs:	Operating status and phase display
• Button	Measurement/calibration

Accessories supplied

- Operating instructions
- Earth connection cable

This phase detector has been manufactured in accordance with European safety standards. Read the safety instructions and the operating instructions carefully before measuring with the device. Any liability and warranty claims will be invalidated if the device is used for purposes other than those for which it is intended or if the instructions are not followed.

Please also take a look at our other products. You can find them on our website.

Notes

Use the options available in your country for environmentally friendly disposal of the appliance packaging.

CE mark of conformity: The device complies with the requirements set out in the EMC Directive 2014/30/EU on electromagnetic compatibility. The company Dipl.-Ing. Michael Franken/mfe (registered trademark) is registered with the ear foundation (elektro-altgeräte register) as an authorized joint body pursuant to § 6 (1) sentence 1, § 17 (1) and (2) ElektroG in conjunction with the notification of the Federal Environment Agency dated 06.07.2005 for the brand mfe / consumer electronics devices / other consumer electronics devices (with the exception of TV sets) under WEEE reg. no. DE 64544546

Technical changes and errors excepted.

BDA-PDV03_MKII-ENG_101224

Michael Franken Electronic - Friedenstraße 4 - 41812 Erkelenz - Tel.: +49 (0) 24 32-80 726 - mfe.technology - info@mfe.technology

Phase detector PDV03/MKII

Operating instructions

Congratulations!

You have chosen the best phase detector on the market. Of course, you can hardly wait to put your phase detector into operation. However, please read the entire operating instructions carefully beforehand, as this is the only way to learn how to operate the device correctly.This phase detector has been manufactured in accordance with European safety standards. Please also familiarize yourself with the safety instructions before handling the PDV03/MKII.

Brief overview

- Measurement during operation of the test specimen
- New μC-controlled complex measuring method
- Internal reference for calibration/self-adjustment
- 200 measurements/test (~ 5 seconds)
- One test button for measurement or calibration
- Input voltage range: 90-267 V~ / 50-60 Hz
- 16 amps max. (Schuko plug)
- Phase-correct connection of the PDV03/MKII can be checked via status LED
- Compact dimensions
- Enclosed earth cable for test objects with 2-pin mains plug
- 2-year guarantee
- Solid steel housing, powder-coated
- High-quality button
- Non-abrasive and non-slip rubber feet
- Type plate and quick guide on the underside of the device
- CE mark in accordance with EN61326-1/EN61000-3-2/ EN61010-1/EN61000-3-3

General information

The PDV03/MKII is a device for quickly determining the correct phase polarity of audio components at the mains socket. The device under test is measured separately during operation. For the measurement, only the mains plug of the device under test is plugged into the phase detector. The phase is displayed via 2 LEDs during a measurement process. **All sources of interference such as cooling devices, computers etc. should also be phased out in order to minimize the level of interference they cause!**

Safety instructions

Ensure that children cannot use the appliance. The appliance must not be opened. Do not make any modifications to the appliance. Only have repairs to the appliance carried out by a specialist workshop named by the distributor or manufacturer, or directly by the manufacturer. Incorrect repairs can result in considerable danger to the user. The appliance should not be used immediately after transportation from a cold to a warm room or vice versa or in extremely high humidity.

Basic checks that the device performs automatically / measurement preparation

1. First, the mains socket is checked. The status LED (clear LED) is used to indicate the correct mains plug position of the PDV03/MKII in the mains socket. The mains plug is correctly plugged in when the status LED has gone out after ~ 0.6s - now you can mark the phase on the mains socket, see the marking on the mains plug of the PDV03/MKII (viewed from behind the mains plug, cable outlet downwards, the phase is on the right). If the status LED lights up yellow, turn the mains plug. If the protective conductor (earth/PE) is missing at the mains socket, the status LED will always light up yellow, regardless of which way the mains plug is inserted.
2. The leakage current of a test object is continuously measured. If this is >3.5mA (according to DIN VDE 0701-0702, the maximum leakage current of general devices must not exceed 3.5mA), the status LED lights up red and the test object is switched off immediately (~15ms) ==> no measurement is possible. If too high a leakage current is detected, you must reset the PDV03/MKII before measuring a new DUT by disconnecting the mains plug of the PDV03/MKII and reconnecting it after >=3s without the connection to the DUT. If the leakage current of a device under test is too high (==> switch-off), you should repeat the procedure with the mains plug of the device under test turned off. It is possible that the leakage current will then be lower; if not, no measurement is possible on this DUT.

Measuring procedure

1. **There is no test object in the phase detector yet!** Insert the mains plug of the PDV03/MKII correctly into a mains socket. The red LEDs flash alternately (t=500ms). After the status LED has gone out, you will hear the click of a relay and the device is ready for use. You can now mark the phase at the mains socket, see the marking on the mains plug of the PDV03/MKII.
2. To calibrate the phase detector, press and hold the measurement button for t>2s. During the calibration process (t~10s) the red LEDs are off, after successful calibration both red LEDs flash simultaneously (t=500ms). If the calibration was not successful, both red LEDs flash alternately (t=80ms) ==> repeat calibration. Calibration is important as mains interference and the amplitude of the mains voltage affect the measurement. If you now measure several devices, you do not have to recalibrate each time.
3. Switch off the device under test. Remove all AF connections, at least on one side. Only the loudspeaker cables to passive loudspeakers may remain connected. Insert the mains plug of the device under test into the phase detector. Only for devices with Euro plugs (2-pin flat plug) must the earth cable (enclosed) also be connected between the pole terminal of the phase detector and the housing or an RCA socket of the device under test.
4. Switch on the test specimen and wait for the usual time for the operating conditions to stabilize. Do not touch the test specimen during the measurement so as not to falsify the measurement result. Trigger the measurement by briefly (t<2s) pressing the measurement button. During the measurement, both red LEDs are off; after a clear measurement, one LED on the phase-correct side of the mains plug lights up permanently. Mark this point. If the measurement result is neutral (plug position does not affect the sound), both red LEDs light up permanently. If you turn the mains plug of the device under test 180° and measure again, the other LED lights up if the measurement result is clear. Everything else means that the measured values are so close to each other and that it does not matter how the mains plug of the device under test is plugged in.
5. Insert the mains plug of the test object with the marking into the mains socket so that its phase matches the marking. You can use the PDV03/MKII as described under **point 1** to determine the phase of mains sockets and mark them accordingly.

   Note: As everything from the mains plug onwards is included in the measurement result when measuring with the phase detector (mains cable coverings, y capacitors, switching capacitances, winding capacitances, ...), this can and may of course deviate from a phase already marked at the factory! As all components age and values change, this measurement should be repeated from time to time, especially after replacing a mains cable or repositioning components.