



PC80 MKII Phase Checker

User Guide

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The PC80 is an advanced measuring system which allows an engineer to check the phase accuracy of any electronic audio system. It is ideal for the toolbox being small, light and battery powered.

The system is made up of two hand held units. The emitter (PC80E) generates a wide band 1Hz pulse as an output signal on an XLR connector or through its own built in speaker, this signal is then passed through the signal chain under test and fed into the receiver (PC80R), electrically via its XLR connector or acoustically by the internal microphone. Indication is then given as to whether the received signal is in or out of phase.

GENERATOR

Pulse rate	1Hz
Frequency spectrum, electrical	1Hz to 20KHz
Frequency spectrum, acoustic	200Hz to 5KHz
Output level, electrical	0 to 1V
(Acoustic level is fixed)	
Output load impedance	!K Ohm to infinity
Output source impedance	1K Ohm
Power	9V PP3 battery (= approx 50 hours)
Power drain	10mA

RECEIVER

Frequency spectrum, electrical	1Hz to 20KHz
Frequency spectrum, acoustic	10Hz to 1KHz
Input impedance (Mic)	1K Ohm
Input impedance (Line)	10K Ohm
Input level (Mic)	10mV - 1V
Input level (Line)	0.5V to 50V
Output level	0V to 1V
Power	9V PP3 battery (= approx 50 hours)
Power drain	10mA

PHYSICAL CHARACTERISTICS (each box)

Dimensions	113mm W x 60mm D x 31mm H
Weight	0.25 Kg
Shipping weight	0.65 Kg
Operating temperature	0 - 50 deg C
Storage temperature	-30 - +75 deg C

INSPECTION & UNPACKING

The PC80 is carefully packed at the factory in a carton designed to withstand transit handling, however, if transit damage is evident, DO NOT discard any of the packaging and notify the carrier immediately, it is they who are responsible for any claims.

OPERATING ENVIRONMENT

The units are designed to operate between 0 and 50 deg C (32-122 F) and in an atmosphere of relative humidity up to 80%.

POWER REQUIREMENTS

Each unit is powered by a 9V PP3 battery which is fitted by removing the rear cover of the box (4 screws) and plugging the battery into the connector provided.

EXTERNAL CONNECTIONS

Generator:	Output male XLR type
Receiver:	Input female XLR type

4. OPERATING INSTRUCTIONS

The generator provides special pulses which may be fed to the audio system to be tested either by the in-built speaker or via the output connector, the level of this may be adjusted by the level control. The speaker output level is fixed.

Once this signal has been fed through the system under test, the receiver will be able to indicate whether the received signal is in phase or out of phase, the appropriate LED (IN-PHASE or REVERSE) will flash at the speed of the pulse. The signal may be fed into the receiver by one of three methods, this is determined by the INPUT-MODE switch.

- Selecting INT uses the built in microphone.
- Selecting EXT allows an external microphone to be used.
- Selecting LINE allows a line level signal to be used.

Note: The unit does not provide phantom power for a microphone input.

- Feed the signal from the generator into a public address system and place the receiver in front of each loudspeaker in turn to ensure that the system is in-phase.
- For a multi-mic application. Connect the receiver to a mixing console output and feed each microphone with the generated pulse. The receiver may then be used to check that all the mics are in phase, (if out of phase, cancellation effects may occur where mics are close together).
- The system may be used for checking phase transmission on tape recorders, (be prepared for some surprises!). This test can be made by recording the generated signal onto tape and connecting the receiver to the machines output. This is really useful in the recording studio, when using effects off tape which are combined and for checking tape machine wiring.
- The system may also be used to check telephone lines, satellite links etc.

Notes:

It is important to note that the PC80 measures absolute phase.

Care should be taken when using the PC80 because **some crossover networks and speaker systems deliberately place certain speakers out of phase for correct operation.**

Check the technical specifications of the system before commencing the test.

The system is not affected by any propagation delay or time delay effects.

The PC80 is designed to be an overall polarity checker of electronic audio systems, **not a cable tester**.

If a false reading is found in a system and a cable fault is suspected then ideally a cable tester should be used to trace the fault. The LA Audio 'T-Box' will check a cable and indicate which pin is o/c or which wires are swapped. However, if you want to check an individual XLR cable and the PC80 is what you have at hand:

- Set the 'Hot Pin' switch on both units to Pin 2 and select 'LINE' as the input on the Receiver.
- Set the 'Hot Pin' switch on both units to Pin 3.

If the cable is correct the 'Green' LED will flash in both cases, if the cable is reversed it will show nothing, thus indicating a fault condition.

Note: The Level potentiometer on the Emmitter should be set to approximately 3 o'clock for this test.

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