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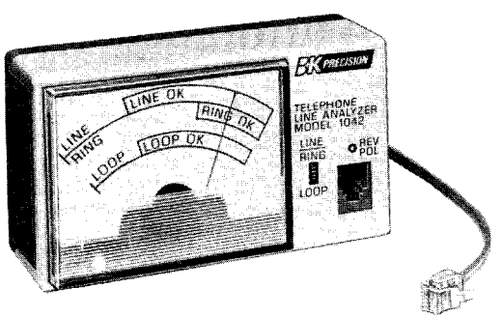
INSTRUCTION FOLDER

BK PRECISION

MODEL 1042

TELEPHONE LINE ANALYZER



BK PRECISION

SPECIFICATIONS

DC LINE TEST

Switch Position: LINE/RING.

LINE OK: 40 Vdc to 121 Vdc full scale.

Accuracy: ±3% of reading at 40 Vdc.

REVERSE POLARITY: Indicator on for reverse telephone line polarity (tip voltage negative with respect to the ring conductor).

RING TEST

Switch Position: LINE/RING

RING "?": 40 Vrms to 50 Vrms, 20 Hz superimposed on 48 Vdc.

RING OK: 50 Vrms to 130 Vrms, 20 Hz full scale superimposed on 48 Vdc.
The REVERSE POLARITY indicator flickers during RING TEST.

LOOP TEST

Switch Position: LOOP.

LOOP OK: Lower end of "LOOP OK" scale corresponds to 20 mA dc developed across 200 Ω internal load.
Full scale corresponds to 60 mA.

Accuracy: ±3% of reading at 20 mA dc.

GENERAL: INPUT jack accepts RJ-11 type plug. Attached telephone cord terminated in 6-position RJ-11 plug.

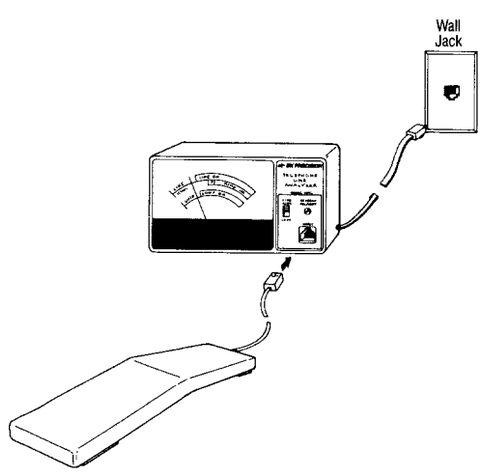
OPERATING TEMPERATURE: 0° to 50°C.

PHYSICAL SIZE: HWD (2.75 x 5 x 1.5")
(7 x 12.7 x 3.8 cm).

WEIGHT: 7.5 oz (.2 kg).

SIMPLIFIED INSTRUCTIONS

For more detailed explanations, see OPERATING INSTRUCTIONS



LINE TEST

1. Connect unit and telephone as shown and hang up all telephone products on the line.
2. Set switch to LINE/RING position.
3. Reading should be in the LINE OK area.
4. Pick up telephone.
5. Reading should drop to near zero deflection and return to LINE OK when telephone is hung up.

RING TEST

1. Connect unit and telephone as shown and hang up all telephone products on the line.
2. Set switch to LINE/RING position.
3. Have someone call your number.
4. Reading should be in RING OK area (needle will vibrate) during ringing.

LOOP TEST

1. Connect unit and telephone as shown and hang up all telephone products on the line.
2. Set switch to LOOP position.
3. Reading should be in the LOOP OK area.
4. Do not leave in LOOP position; calls can not be received and callers will get busy signal.

TELEPHONE CORD TEST

It is only neccesary to perform this test if other tests indicate a good telephone line, telephone is still inoperative, and **the telephone cord is detachable at both ends.**

1. Connect telephone cord between wall jack and jack on Analyzer and plug analyzer's cord into telephone.
2. Set switch to LINE/RING position.
3. While observing the reading, bunch the cord up, squeeze it, and release it.
4. If there is no reading or the reading fluctuates, the cord is defective and must be replaced.

LIMITED 90-DAY WARRANTY

MAXTEC INTERNATIONAL CORPORATION warrants to the original purchaser that its **B & K-Precision** product, and the component parts thereof, will be free from defects in workmanship and materials for a period of 90 days from the date of purchase.

MAXTEC will, without charge, repair or replace, at its option, defective product or component parts upon delivery to an authorized **B & K-Precision** service contractor or the factory service department, accompanied by proof of the purchase date in the form of a sales receipt.

Exclusions: This warranty does not apply in the event of misuse or abuse of the product or as a result of unauthorized alterations or repairs. It is void if the serial number is altered, defaced or removed.

MAXTEC shall not be liable for any consequential damages, including without limitation damages resulting from loss of use. Some states do not allow limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

This warranty gives you specific rights and you may also have other rights which vary from state to state.

For your convenience we suggest you contact your **B & K-Precision** distributor, who may be authorized to make repairs or can refer you to the nearest service contractor. If warranty service cannot be obtained locally, please send the unit to **B & K-Precision** Service Department, 6470 West Cortland Street, Chicago, Illinois 60635, properly packaged to avoid damage in shipment.

B & K-Precision Test Instruments warrants products sold only in the U.S.A. and its overseas territories. In other countries, each distributor warrants the B & K-Precision products which it sells.

WARRANTY SERVICE INSTRUCTIONS
(For U.S.A. and its Overseas Territories)

To send in the unit for servicing, pack it securely (preferably double-packed). Enclose a letter describing the problem and include your name and address. Deliver to, or ship PREPAID (UPS preferred in U.S.A.) to the nearest **B & K-Precision** authorized service agency (see list enclosed with unit).

If your list of authorized **B & K-Precision** service agencies has been misplaced, contact your distributor for the name of your nearest service agency, or write to:

B & K-Precision, Factory Service Department
Maxtec International Corporation
6470 West Cortland Street
Chicago, Illinois 60635
Tel (312) 889-1448

Also use this address for technical inquiries and replacement parts orders.

BK PRECISION®

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Chicago, Illinois 60635

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OPERATING INSTRUCTIONS

LINE TEST

1. Disconnect telephone from wall jack and plug it into INPUT jack on front panel of analyzer.
2. With the analyzer's switch in the LINE/RING position, connect the plug from the analyzer into the modular wall jack. The analyzer can now monitor line conditions with the user's telephone operating. With the telephone hung up (on hook), the analyzer's meter will read the DC voltage that is present on the telephone line.
3. The meter should read in the LINE OK area. If it doesn't, first verify that all telephone devices on the line under test are hung up (on hook). If they are, unplug one device at a time and observe the meter. If unplugging a particular device causes the meter reading to increase, it is likely that the device is defective. A properly operating device causes negligible line loading when hung up. If new wiring has been installed, particularly by the do-it-yourselfer, it should be re-examined and possibly disconnected to verify that it is not loading or shorting the incoming line.
4. If the REVERSE POLARITY Indicator lights, it indicates that the telephone line polarity is reversed. This may be the cause of an operating problem if the telephone is polarity sensitive. All line tests can be made with either polarity (with the REVERSE POLARITY Indicator ON or OFF).
5. Once an acceptable line voltage reading is obtained, pick up each telephone device (go off-hook) and observe the meter. The reading should drop to near zero deflection and return to the normal reading when hung up.

RING TEST

If ring voltage is not in the RING OK area, check ring voltage at intervals. If total loading on exchange is heavy, ring voltage could be temporarily low. The telephone company's master ring source only has a certain amount of power available.

1. If line voltage appears OK, dial a ring-back number (if available) or have someone call you. When the telephone rings, the meter reading should increase into the RING OK area for the duration of the ring; the pointer will vibrate during ringing. Deflection should be at least 1/8" past the LINE TEST reading. This means that if during the LINE TEST the pointer was already in the RING OK area or very close, the needle should deflect an additional 1/8" or more toward the high end of the scale (measured along the line that separates the RING/LINE scale) during this test.
2. If the telephone does not ring but the meter reading increases into the RING OK area, the telephone's ringer circuit may be defective.
3. If the telephone does not ring and the meter reading is not in the RING OK area, it may be caused by having a large number of telephone products on the line. This may load the ringing signal to the point where it will not ring all the telephone products connected. To determine if this is the problem, add up the ringer equivalence numbers (R.E.N.) indicated on each telephone product. If the total is five or greater, you have exceeded the total ringer equivalence that the telephone company guarantees to ring.
4. Disconnect telephone products one at a time and repeat the RING TEST.

5. If only one telephone is plugged into the line and a low ring reading is observed, unplug the telephone from the analyzer's jack and check whether the ring voltage reading increases significantly. If there is a large increase in the reading, the ringer circuit of the telephone may be defective. If the increase is very small and the meter reading remains in the marginal area, there is a ring voltage problem. Before calling the telephone company, make sure that modifications performed by the user are not the cause of the problem.

NOTE

When the meter reading during this test is in the RING "?" area of the scale, the ringing signal is very close to the minimum voltage guaranteed by the telephone company. Not all telephones will ring in this situation.

LOOP TEST

This test verifies the condition of the telephone line from the central office to the telephone jack in the home.

1. If the "LINE TEST" and "RING TEST" produced low readings after performing all additional checks suggested, the telephone line itself may be the cause of the problem.
2. With all telephone products hung up (on hook), and the analyzer connected as originally instructed (the telephone plugged into the INPUT jack on the analyzer and the analyzer plugged into the wall jack), place the analyzer's switch in the LOOP position. If the meter reading is not in the LOOP OK area, once again, before calling the telephone company, check all telephone products by unplugging one at a time and observing the meter.

3. Before calling the telephone company, repeat the test several times at 15 minute intervals to determine if it is a temporary condition.

NOTE

Do not leave the analyzer connected to the telephone line with the LOOP test selected. This test simulates an off-hook condition. A party attempting to call you will get a busy signal.

TELEPHONE CORD TEST

With the analyzer and the telephone still connected as originally instructed (the telephone plugged into the jack on the analyzer, the analyzer plugged into the wall jack, and the switch on the analyzer in the LINE/RING position), the analyzer may indicate acceptable readings but the telephone may still be inoperative. If so, the telephone cord (between the wall jack and the telephone) may be defective. This test can only be performed on telephone cords that are detachable at both ends.

1. If the telephone line cord is detachable, verify that both ends are properly seated in their sockets.
2. If the telephone is still inoperative, connect the telephone cord between the wall jack and the jack on the analyzer and plug the analyzer's cord into the telephone.
3. Select the LINE/RING test position on the analyzer and, bunch the cord up, squeeze it and release it while checking for abrupt changes in the meter reading.
4. Move the cord up and down and back and forth near each plug and observe the meter.
5. If there is no reading or if the reading fluctuates during steps 3 and 4, the cord is defective and must be replaced.

SCHEMATIC DIAGRAM AND PARTS LIST

CALIBRATION PROCEDURE

1. Set S1 to LINE/RING position. Apply 40 VDC to line input with polarity as shown. Adjust R1 so that needle just touches LINE OK area on M1.
2. Reverse polarity of input voltage. REVERSE POLARITY LED should light and M1 should read within 5% of reading in step 1.
3. Apply a 40 Vrms, 20 Hz signal riding at a 48 VDC level to line input. Reading should be within 5% of lowest area on "RING ?" (on M1).
4. Set switch S1 to LOOP position. Apply 20 mADC to line input. Adjust R2 so that the needle just touches LOOP OK area of M1.

PARTS LIST

DESCRIPTION	B & K-PRECISION PART NO.
RESISTORS	
Unlisted resistors are ±5%, 1/4 W. See schematic diagram for value.	
200 Ω ±5%, 1W	002-001-5-201
100 kΩ Trimmer Pot	008-228-9-001
30 kΩ Trimmer Pot	008-230-9-001
MISCELLANEOUS	
Diode, 1N4004	151-050-9-001
LED, Red	158-057-9-001
Slide Switch, DPDT	084-133-9-001
Panel Meter, 1 mA	320-129-9-001
Modular Jack	777-026-9-001
Modular Cord (RJ-11 with 4' cord)	428-058-9-001
Front Case	271-227-9-001
Back Case	271-228-9-001

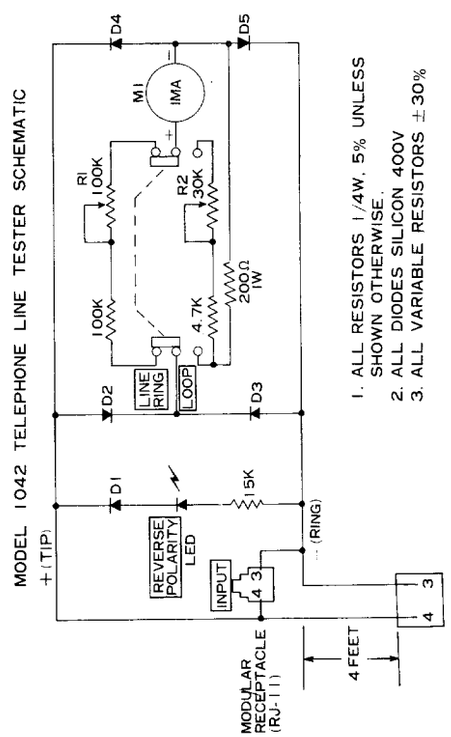
PARTS ORDERING INFORMATION

Orders will be shipped C.O.D. unless previous open account arrangements have been made or remittance accompanies order. Advance remittance must cover handling and postage or express charges. Specify model and serial number when ordering replacement parts.

ORDER REPLACEMENT PARTS FROM:

B & K-Precision, Factory Service Department
Maxtec International Corporation
6470 West Cortland Street
Chicago, Illinois 60635
Telephone (312) 889-1448

Also use this address for technical inquiries.



1. ALL RESISTORS 1/4W, 5% UNLESS SHOWN OTHERWISE.
2. ALL DIODES SILICON 400V
3. ALL VARIABLE RESISTORS ±30%