

Model 3210C

*100 Ampere
AC Current Standard*



**KH KROHN-HITE
CORPORATION**

Operating Manual

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3210C
OPERATORS
MANUAL

Serial No. _____

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3210C OPERATORS MANUAL



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NOTE: Errata and addendum (if any) will appear in the back of this manual.

LIST OF DRAWINGS

Description	Drawing Number
Watt Hour Meter Set up	A-4559
Schematic - Power Supply & Control Circuit	B-3944E
Schematic - 100 Amp AC Transconductance Amplifier	B-3945J
Layout - 3210C Adjustments & Test Points	B-4051C
Reference Drawing	930727A

LIMITED WARRANTY

The Krohn-Hite Corporation (K-H) warrants to the original purchaser each instrument manufactured by them to be free from defects in material and workmanship. This warranty is limited to servicing, repairing and/or replacing any instrument or part thereof returned to the K-H factory for that purpose in accordance with the instructions set forth below; and furthermore to repair or replace all materials, except tubes, fuses, transistors and other semiconductor devices which shall within one year of shipment to the original purchaser be returned to the K-H factory and upon examination be deemed defective.

K-H instruments may not be returned to the factory under the terms of this warranty without the prior authorization of the K-H Service Department. All instruments returned to K-H for service hereunder should be carefully packed and shipped. All transportation charges shall be paid by the purchaser.

K-H reserves the right to discontinue instruments without notice and to make changes to any instrument at any time without incurring any obligation to so modify instruments previously sold.

This warranty is expressly in lieu of all other obligations or liabilities on the part of K-H. No other person or persons is authorized to assume in the behalf of K-H any liability in the connection with the sale of its instruments.

CAUTION: The instrument you have purchased is a precision instrument manufactured under exacting standards. Any attempts to repair, modify or otherwise tamper with the instrument by anyone other than an K-H employee or authorized representative may result in this warranty becoming void.

FACTORY SERVICE REQUEST AND AUTHORIZATION

WARRANTY SERVICE

Instruments may be returned only on prior authorization. Please obtain a RETURN AUTHORIZATION NUMBER either directly from the factory or from an authorized K-H Representative. (See General Information below.)

CHARGEABLE REPAIRS

If requested, an estimate of charges will be submitted prior to repairs. We suggest that you request a RETURN AUTHORIZATION NUMBER to facilitate handling.

GENERAL INFORMATION

- A) Please provide the following information in order to expedite the repair:
 - 1) Indicate MODEL
 - 2) Serial Number
 - 3 Complete description of the trouble:

Symptoms, measurements taken, equipment used, lash-up procedures, attempted repairs, suspected location of failure and any other pertinent information.
- B) Freight Charges must be PREPAID.
- C) The RETURN AUTHORIZATION NUMBER should be noted on your documentation.
- D) See Packing Suggestions - next page.

PACKING SUGGESTION

Although your K-H instrument is built for laboratory, production environment and some field environment, it is NOT ruggedized. Therefore ...

1. Be sure the carton is **STRONG** enough to carry the weight of the instrument, e.g. use double wall corrugation.
2. Be sure the carton is **LARGE** enough to allow for sufficient packing material, e.g., at least 2 inches all around the instrument. The packing material should be able to be compressed and then return to its approximate original volume.
3. For better handling, the shipment should always be by **AIR FREIGHT** (except for short distances). You might use either UPS "blue label" or common air freight carrier, second day air.

Please do not bounce it across the country in a truck. It may not hurt it, but it certainly is not going to do a laboratory instrument much good.

4. **QUESTIONS?** Just contact us. We will be pleased to help you.

SECTION I

1.0.0 DESCRIPTION AND APPLICATIONS

1.1.0 General Description

- 1.1.1 The 3210C, AC 100 ampere calibrator is an accurate voltage to current amplifier or transconductance amplifier. The application of a precise voltage to the input terminals produces a proportional current into any load within the compliance range of the instrument. The AC input voltage band width is 40 Hz to 500 Hz.
- 1.1.2 The unit is laboratory calibrated with instruments and load resistors traceable to U. S. National Institute of Standards & Technology.
- 1.1.3 Applying power and connecting the load to the proper set of output terminals prepares the unit for operation.
- 1.1.4 The Model 3210C is equipped for rack mounting in a standard 19 inch rack. It is completely enclosed in dust covers and therefore suitable for bench top use. Tilt bale is available on request.
- 1.1.5 The overall size is 7H x 19W x 17D inches. It weighs 43 pounds. A 3-prong American-European standard detachable power cord is used.
- 1.1.6 The instrument has been designed to be easily transported from one location to another and will be within operational specification within 30 minutes after power is applied.
- 1.2.0 Applications:
Direct calibration of Watt Meters and Watt-hour Meters (with applicable Voltage Standard), Meter Shunts, AC Current Meters, Current to Voltage Transducers, Current to Pneumatic Transducers, DMMs, and relay coil current testing.

1.3.0 General Specifications

Power Requirement: 117 Vac or 220 Vac, 50-60 Hz. \pm 5%, 300 W

Temperature Coefficient: 50 ppm/ ° C

Operating Temperature: 10 to 40 C

Weight: 43 lbs.; 19.5 kg

Shipping Weight: 50 lbs.; 22.7 kg

Dimensions: 7H x 19W x 17D inches
17.8H x 48.3W x 43.2D cm

Certification: Certificate of Compliance traceability to U.S.
National Institute of Standards & Technology.

Protection: The unit will automatically go into a standby mode when the maximum compliance voltage is exceeded or when a malfunction has occurred.

1.4.0 Input Specifications

Input Voltages: 0 to 11 Vac (rms), 10 V rms input Produces full scale output of current range.

Input Impedance: 10 k

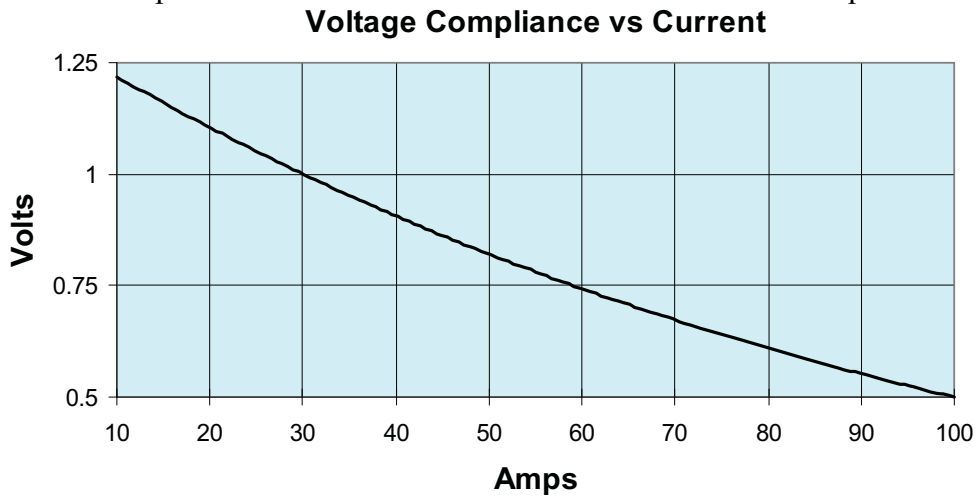
AC Band Width: 40 Hz to 500 Hz

1.5.0 Output Specifications

Ranges: 10 A rms - maximum output 11 A rms
100 A rms - maximum output 110 A rms

Accuracy: $\pm(0.05\%$ of setting $+0.05\%$ of range)

Power Output: ~ 50 Watts at maximum output.



Compliance Voltage: 10 A Range 5.0 Vac rms maximum at 10 Amps
100 A Range 0.5 Vac rms maximum at 100 Amps

Load Regulation: $+0.002\%$ short-circuit to full compliance

Line Regulation: $+0.0005\%$ for $+10\%$ line change

Distortion: 0.25% of setting $+ 0.1\%$ of range as measured at phase out terminals

Ripple & Noise, rms: 0.05% of setting $+0.05\%$ of range *

* - non-additive

SECTION II

2.0.0 INSTALLATION

2.1.0 Mounting

2.1.1 Krohn-Hite Corporation instruments may be obtained in several case configurations.

2.1.2 Portable units are rugged, light weight, completely enclosed in a dust tight case supplied with a carrying handle.

2.1.3 Rack mountable instruments are designed primarily for mounting in the standard 19" relay rack. When installing in the rack, it is recommended that nylon inserts be placed between the cup washer and the front panel to prevent scratching of the paint.

2.2.0 AC Power Input Considerations

2.2.1 All instruments are supplied with a standard three (3) prong polarized plug and power cable.

2.2.2 A multi-tap transformer is provided, however it is set to 115 Vac or 230 Vac via the slide switch on the Rear panel. Other voltages can be accommodated by making the proper selections of the transformer taps.

SECTION III

3.0.0 OPERATION OF INSTRUMENT

3.1.0 Controls and Indicators

- 3.1.1 A 110 V - 220 V switch is located on the rear panel.
- 3.1.2 A "push on" "push off" power switch with mechanical indicator is located on the front panel.
- 3.1.3 Momentary contact STANDBY and OPERATE switches and their associated indicators are located on the front panel. The unit will automatically power-on to the standby state.

CAUTION: OUTPUT CONNECTIONS - Only one set of output terminals may be used at one time.

3.2.0 10 Amp Range Output Connections

- 3.2.1 Number 18 AWG wire or larger is appropriate for the 10 AMP range.

3.3.0 100 Amp Range Output Connections

- 3.3.1 Number 1/0 AWG wire is appropriate for the 100 AMP range. The flexible welding cable is convenient for some applications.
- 3.3.2 Mating Male Connectors

MANUFACTURER: SUPERIOR ELECTRIC COMPANY

PART NUMBER: PP250GR (RED)

PART NUMBER: PP250GB (BLACK)

3.4.0 Input Connections

Connect a sinewave source of the desired amplitude, (10 Vac input) for full range current output and frequency to the input terminals.