



# HIGH CURRENT/ CIRCUIT BREAKER TEST SET

## Description

PHENIX Technologies HC Series Circuit Breaker Test Sets represent a new era of economical and portable primary injection testing through the following industry leading innovations:

- Versatility of either manual control through the User Interface Panel or remote control interface through **WinHC PC** software both allowing numerous automated test modes.



**Model HC-20C**  
Lightweight,  
Modular Field Unit



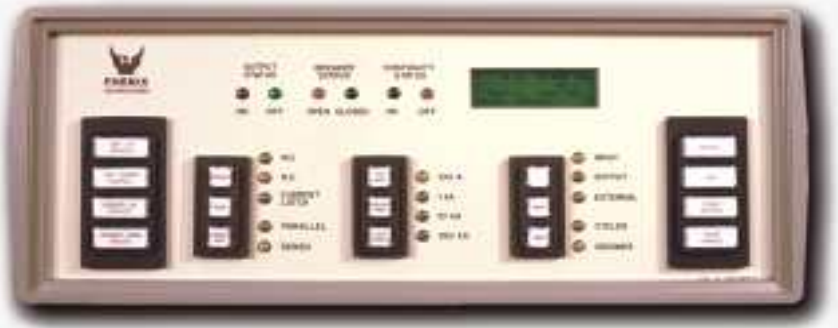
**Model HC-75C**

- Increase your test reliability and productivity. WinHC PC software provides advanced database and report capabilities for test duplication and recall, report generation and current wave shape display.
- Designs based on time-proven concepts of the power offered by a 32-bit embedded computer.
- High reliability SCR's have been combined with a phase angle firing system to deliver precise, repeatable current pulses with minimal distortion.
- Wide ranging test versatility and exceptional accuracy through automated hardware combined with a highly intelligent monitor/controller.
- Continuously variable output over entire test range utilizing a motorized vernier and programmable tap selector allowing for both auto-jog and current-hold capabilities.

## Application

- These test sets are universal in application. They will test virtually any low voltage, molded case, or metal clad direct acting AC circuit breaker by simulating overload and fault conditions.
- Maximum testing capability up to 7,500 amp breakers.
- Other applications include testing current transformers and thermal or magnetic motor overload relays.
- Configured in a series, they can be used for substation maintenance for primary injection testing on high voltage circuit breakers and protective relays.

## User Interface Panel Display



User Interface Panel provides full manual testing capabilities without the need for computer software. Results can be easily printed using the printer port.

## Standard Design & Safety Features

- Windows™ based software (laptop computer not included).
- Main power circuit breaker with indicator lamp.
- Control power switch with indicator lamp & Output On indicator.
- Interlock Open indicator.
- Emergency Off mushroom type switch.
- Ruggedly constructed cabinet with casters.
- Computerized controls with user-friendly, menu-driven commands.
- Interface port for optional printer.
- Heavy duty coated canvas protective cover.
- Two copies of operation/maintenance manual with schematics and parts list.
- Output leads, quadruple 4/0, 5 feet (1.5m) (1 set available for HC-12C & HC-20 C only).
- Auxiliary contact leads, 5 feet (1.5m).
- Standard HCS-1 and HCS-2 stab sets supplied with each unit.
- Digital AC voltmeter for monitoring input, output and external voltage up to 600 VAC.
- Current meter accuracy 0.8% of reading +0.3% of range.

## Technical Specifications\*

Model	HC12C	HC20C	HC40C	HC75C
<b>Input Voltage</b>	240/480 V	240/480 V	480 V <sup>(1)</sup>	480 V <sup>(1)</sup>
<b>Input Current</b>	80/40 A	170/85 A	200 A	400 A
<b>Output</b>				
<b>Parallel Connection</b>	7.5 V	10 V	12 V	16 V
Continuous	1200 A	2000 A	4000 A	7500 A
30 min ON / 30 min OFF	1700 A	3000 A	6000 A	10000 A
1 min ON / 10 min OFF	2500 A	4500 A	9000 A	15000 A
1 sec ON / 2 min OFF	12000 A	20000 A	40000 A	75000 A
<b>Series Connection</b>	15 V	20 V	24 V	32 V
30 min ON / 30 min OFF	850 A	1500 A	3000 A	5000 A
1 min ON / 10 min OFF	1250 A	2250 A	4500 A	7500 A
1 sec ON / 2 min OFF	6000 A	10000 A	20000 A	37500 A
<b>Weight</b>				
Controller	17 lbs. / 8 kg	←	←	←
Regulator Module	120 lbs. / 54 kg	190 lbs. / 86 kg	↓	↓
Transformer Module	210 lbs. / 95 kg	320 lbs. / 145 kg	↓	↓
Regulator & Transformer	330 lbs. / 150 kg	510 lbs. / 231 kg	950 lbs. / 431 kg	1300 lbs. / 590 kg
<b>Dimensions (LxWxH)</b>				
Controller	20 x 16 x 8" 508 x 406 x 203 mm	←	←	←
Regulator Module	24 x 19 x 19 1/2" 610 x 483 x 495 mm	30 x 19 x 19 1/2" 762 x 483 x 495 mm	↓	↓
Transformer Module	24 x 19 1/4 x 24 1/2" 610 x 489 x 622 mm	30 x 19 1/4 x 24 1/2" 762 x 489 x 622 mm	↓	↓
Regulator & Transformer	24 x 19 3/4 x 42 1/2" 610 x 502 x 1080 mm	30 x 19 3/4 x 42 3/4" 762 x 502 x 1086 mm	46 x 27 x 48" 1168 x 686 x 1219 mm	55 x 27 x 48" 1397 x 686 x 1219 mm

<sup>(1)</sup> Units will operate on 440 V input with approximately 8% reduction in output capacity.

\* Specifications subject to change without notice.

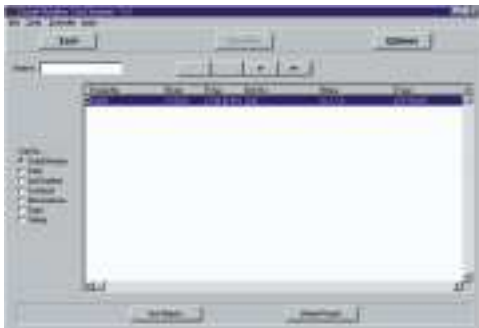
## Exclusive Features

- 1. NORMAL**—In this mode the operator manually controls the operation of the test set.
- 2. Jog-To-Hold**—In this mode the test set jogs the output on at “Jog On Cycles” and off for “Jog Off Secs” and raises the output until the “Hold Amps” is reached.
- 3. Jog-To-Trip**—In this mode the test set jogs the output on at “Jog On Cycles” and off for “Jog Off Secs” until the circuit breaker under test trips.
- 4. Current Hold**—In this mode the output is held to within 1% of the “Hold Amps.”
- 5. Memory**—This mode is used for testing the sensitivity pickup of electronic controllers. (When the Stop button is pressed the current level is remembered).

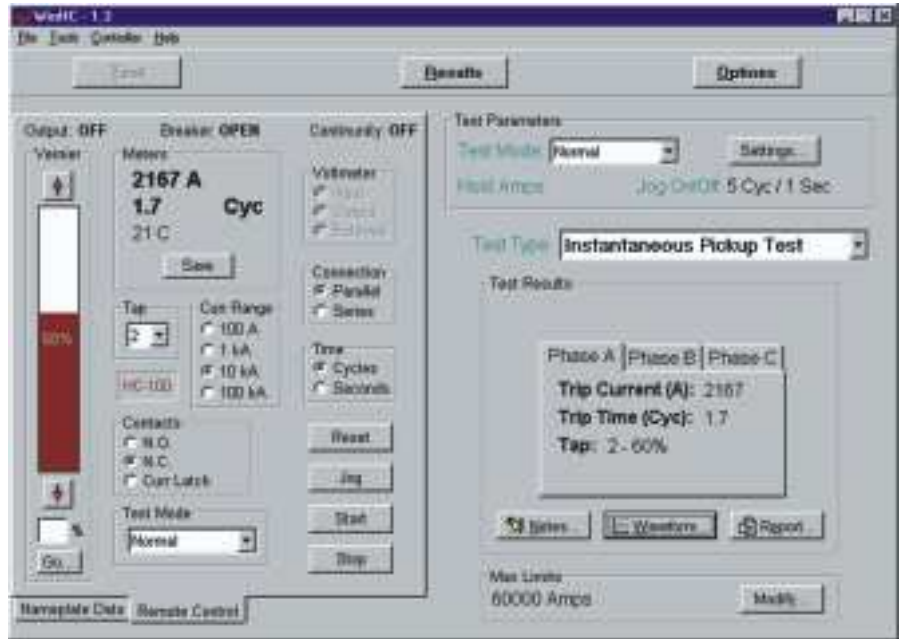
### Programmable Phase Angle Firing.

This feature assures precisely repeatable current pulses with minimal distortion and DC offset. This is achieved by combining the use of high reliability SCR's with a computer controlled firing system.

**Waveform Display.** This feature allows for viewing of the current waveform injected through the breaker. Detection of DC offset or contact bounce can now be seen. With the use of the programmable phase angle firing circuit, DC offset may be corrected by varying the firing phase-angle.



## WIN PC Main Test Screen



Main Test Screen/Remote Control Screen.

XYZ Company Industrial Drive Anytown, USA (301) 748-8118			
Serial Number: 100000	Model: 100000	Location: 100000	ABC Inc.
Job Number: 100000	System: 100000	Operator: 100000	100000
Manufacturer: 100000	Serial #: 100000	Test Date: 100000	100000
Type: 100000	100000	100000	100000
Rating (A): 100000	100000	100000	100000
Phase (C): 100000	100000	100000	100000
100000	100000	100000	100000
Test Results			
	Phase A	Phase B	Phase C
Long Delay Pickup Test	Trip Current: 375 A	32.5 A	32.5 A
	Trip Time: 11.880 Sec	11.880 Sec	11.880 Sec
Instantaneous Pickup Test	Trip Current: 32 A	32.5 A	32.5 A
	Trip Time: 2.000 Sec	2.000 Sec	2.000 Sec
Manufacturer: Manufacturer			
Model/Reference (App/Imp)	A	B	C
Control Reference (Imp/Clamp)	D	E	C
Status: Test completed per purchase order. Tests passed.			
Tested by: _____			

Customizable Test Reports

## Available Options

- Multiple-tap input auto transformer for 208, 240, and 575 VAC operation.
- Special stab sets.
- Stab plate adaptor for series output connection.
- Optional laptop computer and external printer available.
- Sample test report available upon request.
- Software CD tutorial available upon request.
- Other input voltages available upon request.

## Company Profile

PHENIX TECHNOLOGIES is a leading manufacturer of high voltage, high current, and high power test systems and components. Our test systems are in operation around the world satisfying the testing requirements of our customers.

Our 65,000 square foot headquarters is a modern manufacturing facility where all the major components of our systems are produced. All aspects of electrical and mechanical design, software design, and actual production are performed in this facility and controlled by an ISO9001 quality program. Our engineers offer a unique blend of

theoretical knowledge and practical experience. Our ever-expanding Service and Calibration Department stands ready to assist you during and after installation to insure years of trouble-free service.

Our engineering resources, manufacturing capability, and commitment to flexibility have earned us the reputation as the supplier of choice. From portable test equipment to large, cutting edge automated test systems, Phenix Technologies provides solutions for your testing needs. You owe it to yourself to discuss your testing requirements with Phenix Technologies today.

## The PHENIX Technologies Product Line

- High Voltage AC Dielectric Test Sets
- Resonant Test Sets
- Variable Frequency Resonant Test Sets
- DC Hipots and Insulation Test Sets
- Automatic Insulating Material Testers (D149)
- Microhmmeters
- Liquid Dielectric Test Sets
- Megohmmeters
- Vacuum/Oil Interrupter Testers
- Bucket Truck Testers
- High-Frequency Cable Aging Test Sets
- Heat Cycling Test Sets
- Rubber Goods-Protective Equipment Testers
- Core Loss Testers
- AC, DC and AC/DC Motor Test Sets
- Transformer Test Systems
- Frequency Response Analyzer
- High Current/ Circuit Breaker Test Sets
- Recloser Test Sets
- DC Power Supplies
- High Voltage DC Cable Thumpers
- High Voltage Terminations
- High Power Column-Type Variable Transformers
- High Power Thoma-Type Variable Transformers
- Voltage and Current Stabilizers

Your local representative is



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