

Fully Automatic  
Oil Test Sets

# BA SERIES



**Dielectric Breakdown  
Strength Analyzers for  
Insulation Liquids**

**Field Portable and  
Laboratory based  
Instruments**



**HV Diagnostics**  
INC.

## APPLICATION

Electrical insulation oils often form the critical insulation medium for many types of electrical apparatus, such as transformers, circuit breakers, taps changers, cables, medical apparatus, bucket trucks, etc. When this liquid insulation becomes compromised due to aging and / or contamination, the electrical insulation properties can be negatively affected causing a potential insulation flashover, often resulting in catastrophic consequences.

A primary method of testing these liquid insulations is to measure the voltage withstand capability of the material – a measurement of the oil's ability to withstand electrical stresses. The voltage withstand capability of the liquid is often reduced when the liquid becomes contaminated. This contamination can be due to dirt, water/moisture ingress, particulates, cellulosic fibers, etc. High breakdown values on the other hand can indicate that the dielectric properties of the oil have not been compromised.

## DESCRIPTION

HV Diagnostic's fully automatic BA series of oil test instruments has revolutionized the industry with industry leading size, portability, accuracy and reliability. The rugged, very portable BA75 is the smallest and lightest unit on the market with 75kV of output voltage available, ideally suited for the field environments. In addition, both the model BA75 and BA100 test instruments are perfectly suitable for the laboratory environment.

The instruments are designed to perform accurate AC voltage breakdown tests on mineral, silicon, natural and synthetic ester based electrical insulation liquids.

Various national and international oil testing standards exist that establish the testing procedures and limits used to assess insulation dielectric strength for both maintenance and acceptance purposes. These standards are pre-programmed into the instruments, allowing the operator to effortlessly perform the tests in an accurate and efficient way.

## FEATURES:

- Easy to use, intuitive, menu driven display format.
- Display of actual AC voltage waveform breakdown.
- Operator viewable, screened HV test chamber.
- Rugged, compact, light-weight design, with carrying handle.
- Ultra bright, vibrant color LCD display visible in both night and/or day environments.
- Automatic download to printer, USB memory stick / flashdrive, or PC.
- Automatic direct PDF download of test results.
- Direct, precise measurement of current and voltage offering repeatable, accurate results.
- Ultrafast, low energy switch-off (<5 $\mu$ S) time suitable for testing silicon oils.
- Compatible with mineral, silicon and ester based oils.
- Pre-installed fully automatic international standards – just “set & forget” - new updates via USB.
- User-programmable measuring test sequences.
- No nuisance error messages or nuisance tripping.
- Integrated printer and temperature measurement.
- Accurate, easy-to-use, adjustable electrode gap spacing mechanism integrated into every test cell.
- Moisture impervious test cell construction (non plastic/resin) prevents contamination of oil samples.
- Low volume test cell available where applicable.
- EMC shielding of instrument for safety and interference elimination.
- Multiple safety interlocks built into system – HV startup, zero interlock and screened construction.
- ATA approved transport / shipping cases for both instruments and test cells available.

## STANDARD DELIVERY INCLUDES

Unlike many manufacturers that use the "bait and switch" tactic of offering their basic unit at a low price and then providing the other features as expensive add-on "options", we include most of these "options" with our standard instrument.

### Standard delivery includes:

**BA75** (Part # 800 001) or **BA100** (Part # 801 001) Test Instrument

- Integrated Battery
- Integrated Printer
- Integrated Carrying Handle
- USB Flash Drive / Memory Stick
- Mains Cable
- Extra Paper Roll
- Calibration Sheet
- Operational Manual
- Bluetooth Communication Module
- BA Control Center Software



## OPTIONAL ITEMS

Part #	Model	Item	Image
800 002	BA 75	ASTM877 Test Cell complete with lid and 2.54mm/0.1" spacer gauge (0.4L)	
801 002	BA 100		
800 003	BA 75	ASTM877 Reduced Volume test cell with 2.54mm/0.1" spacer gauge (0.1L)	
801 003	BA 100		
800 004	BA 75	ASTM1816 Test Cell complete with integrated stirrer in lid supplied with 1mm or 2 mm spacer gauge (please specify gauge size required at time of ordering). (0.4L)	
801 004	BA 100		
800 008	BA 75	IEC 60 156 Fig I Test Cell complete with lid, magnetic stirrer, lifting stick and 2.5mm spacer gauge (0.4L)	
801 008	BA 100		
800 009	BA 75	IEC 60 156 Fig II Test Cell complete with lid, magnetic stirrer, lifting stick and 2.5mm spacer gauge (0.4L)	
801 009	BA 100		
800 010	BA 75 BA 100	12V DC Power Supply cord for connection to standard cigarette lighter outlet in most vehicles 15ft/5m	
800 011	BA 75 BA 100	Tool for disassembling the electrode arms in the test cells.	
Shipping / Transport Cases:			
800 005	BA 75	ATA approved transport case for the BA instrument	
801 005	BA 100		
800 006	BA 75	ATA approved transport case to house two test cells	
801 006	BA 100		

Part #	Model	Item	Image
800 110	-both-	Spacer Gauge 1mm	
800 111	-both-	Spacer Gauge 2mm	
800 112	-both-	Spacer Gauge 2.54mm / 0.1"	
800 113	-both-	Spacer Gauge 4mm	
800 114	-both-	Spacer Gauge 5mm	
Printer Consumable parts:			
800 102	BA 75 BA 100	Printer Paper Roll for integrated printer	
800 103	BA 75 BA 100	Printer Ink Ribbon for integrated printer	
Voltage Check Calibrator for BA Series: VT75 / VT100			
800 201	BA 75	VT Calibrator for BA instrument without Multimeter (Multimeter provided by Customer)	
801 201	BA 100		
800 201M	BA 75	VT Calibrator for BA instrument with suitable, traceable NIST traceable Multimeter.	
801 201M	BA 100		
Test Cell Electrodes			
800 301	BA 75 BA 100	Electrode Pair for ASTM1816 / IEC 60 156 Fig II test cells.	
800 302	BA 75 BA 100	Electrode Pair for ASTM 877 test cells.	
800 303	BA 75 BA 100	Electrode Pair for IEC 60 156 Fig I test cells.	

# BA 75 and BA 100

## Technical Data

Model	BA75	BA100
Ordering Information (Part #)	800 001	801 001
Power Supply / Input Voltage (universal)	85V ... 264V AC rms (47 ... 63Hz) and 12 V DC external supply	
Power Supply Consumption	60VA	75VA
Internal Rechargeable Battery	1x12V / 7.2Ah	
Output Voltage	0-75kV rms	0-100kV rms
Voltage Measurement Accuracy	±1kV over full Range	
Voltage Resolution Displayed	0.1kV	
Voltage Rate of Rise / Slew Rate	0.5...10kV/s	
Trip Time on Discharge Detection	<5µs	
Temperature Measurement Range	0...100°C / 32...212°F	
Temperature Resolution	1°C / 1°F	
Display	2.8" color LCD (ultra-bright)	
Pre-programmed International Standards	ASTM 1816-04-1 ASTM 1816-04-2 ASTM 877-02A ASTM 877-02B ÖVE EN 60156 BS EN 60156 NF EN 60156 UNE EN 60156 SABS EN 60156 PA SEV EN 60156 NEN 101 56 IEC 60156 VDE 370-5 / 96 AS 1767:2:1 Single measurement Other standards possible	
Customer Specific User Programmable Stds	Almost Unlimited	
PC Software " BA Control Center"	Included	
Communication Interface	USB memory stick, Bluetooth®	
Printer	Dot Matrix Ink Printer	
Printer Paper	44.5mm / 1.75"	
Operating Temperature	-5...45°C / 23...113°F	
Storage Temperature	-20...60°C / -4...140°F	
Relative Humidity (Operating)	<90%, Non Condensing	
Dimensions	16.9 x 11 x 9.85"	20.51 x 13.5 x 11.81"
	430 x 280 x 250mm	521 x 343 x 300mm
Weight	22kgs / 48.5 lbs including batteries	32kgs / 71 lbs including batteries

**Note:** Due to continuous development the information detailed in this document may change without notice.

# BA 75 and BA 100 Equipment Layout

## Equipment Layout:

