

# ATS Series

Automatic  
Multi-Conductor  
Cable Test Sets



**HIPOTRONICS**<sup>®</sup>  
THE MEASURE OF A LEADER



ROBINSON  
INSTRUMENTS

# Test Multiple Conductors, Not

*For your multi-conductor cable to make it to your final test area, it had to survive numerous manufacturing steps, dodge several forklift trucks, spend hours or days waiting in line, and elude the fate of the inexperienced technician. Once it is tested, the only thing worse than finding problems during final test is not finding them at all. Hipotronics ATS Series™ Automatic Multi-Conductor Cable Test Sets are the tool you need to identify problems during final test and ensure quality to your customer.*

*The ATS Series Test Sets provide for the needs of all your shop personnel. Your Quality Assurance Managers will appreciate the test data storage and flexible report generation. Your Engineering Department will appreciate the ability to test any cable design at any low frequency test criteria. Your operators will find the Windows 95™ interface intuitive and easy to use. The Maintenance Department will appreciate the reliability and serviceability of the equipment. Test Lab Personnel will like the fact that most sample testing can now be done on the factory floor. Finally, your customers will appreciate the fact that they get perfect cable every time.*

*For over 35 years Hipotronics has been providing the solution for multi-conductor cable testing. If you don't have a Hipotronics ATS Series yet, there is no need to wait any longer.*



## All of Your Tests, All of Your Needs.

**Easy Operation.** Hipotronics understands that not every test technician is a computer expert. That's why we made the Windows 95-based ATS Test Sets so easy to use. Our software program is easy to understand and flows smoothly from one operation to the next in a sequence that makes sense to your test technicians. Test setup is quick and simple using supervisor defined test specifications and databases. The tests can be easily paused, restarted, or rerun depending on operator need, thus eliminating costly, frustrating waiting periods. Since the program is written for the familiar Windows 95 operating system, training time is minimal.

**Completeness.** The ATS Series offers you the ability to perform every low frequency test you'll need. The ATS Series is minimally rated for 10kV operation, therefore, no matter what your product is rated for today (or in the future), you will have the capability to test it. In addition, the ATS Series performs the complete range of low-frequency tests, including tests typically done on sample cable lengths or reels. Never again will your laboratory personnel have to waste hours performing sample tests one conductor at a time - now these tests can be done in minutes on your regular production line with the ATS Series!

# Multiple Times

**Productivity.** Most multi-conductor cable plants run multiple shifts. Test bottlenecks are costly. In order to enhance productivity and minimize test equipment investment, Hipotronics has built multiple features into the ATS Series to speed testing. Matrix Hipot Testing allows multiple conductors to be hipotted at one time. Multiple Reel Testing allows many reels of few conductors to be hooked up on one HV switch assembly, with test results separated by reel. Multiple Test Cage Capability allows setup in one area while testing is being done in another area. Of course, the simplicity and automation of the Windows 95-based software program also enhances system productivity and minimizes training time.

**Results Reporting.** In addition to performing the full range of low frequency tests, you'll also want the ability to quickly and easily read test results and report failures to Q.A./Q.C. and fault finding personnel. The ATS provides operators with an easy to read green/red indication of conductor pass/failure. Failures are identified on a test report using an operator-supplied description of the conductor (i.e., "white w/blue stripe"). Printouts identify all tests performed and clearly indicate failed conductors (if any). Results may be stored in the test database for later recall by Q.A./Q.C. personnel.

**Password Protection of Sensitive Areas.** Industry practices, test standards, and quality philosophies (ISO9000) have caused a shift in test specification and control from production personnel to Engineering, Q.A./Q.C. and Supervisory level employees. The ATS Series mirrors that trend by restricting access to those portions of the system that affect system calibration, test database definition, etc. You can ship with confidence knowing that your cable has been tested correctly and accurately.

**Tests Performed.** The ATS Series of Automatic Multi-Conductor Cable Test Sets are available in a wide variety of configurations to allow testing of many different types of multi-conductor cable. ATS Series Test Sets can perform the following tests:

- **Continuity**
- **Hipot** (up to 10kVac/20kVdc)
  - conductor to conductor
  - conductor to shield
- **Insulation Resistance** (optional)
- **Conductor Resistance**  
(100-5000 Ohms,  $\pm 1\%$ )
- **Conductor Resistance Unbalance**
- **Mutual Capacitance** (with installed capacitance meter)
- **Low Voltage Shield Isolation**

## Applications

- Telephone Cable
- SCSI Cables
- Category Cables
- Control/Signal Cables
- LAN Cables

# Our Software Makes it Simple

## Windows 95™- based Software

The ATS Test Set emulates the look of a conventional test set through its Windows 95 graphical user interface. A new operator can quickly learn the ATS. Full on-line help is provided.

## Testing Control

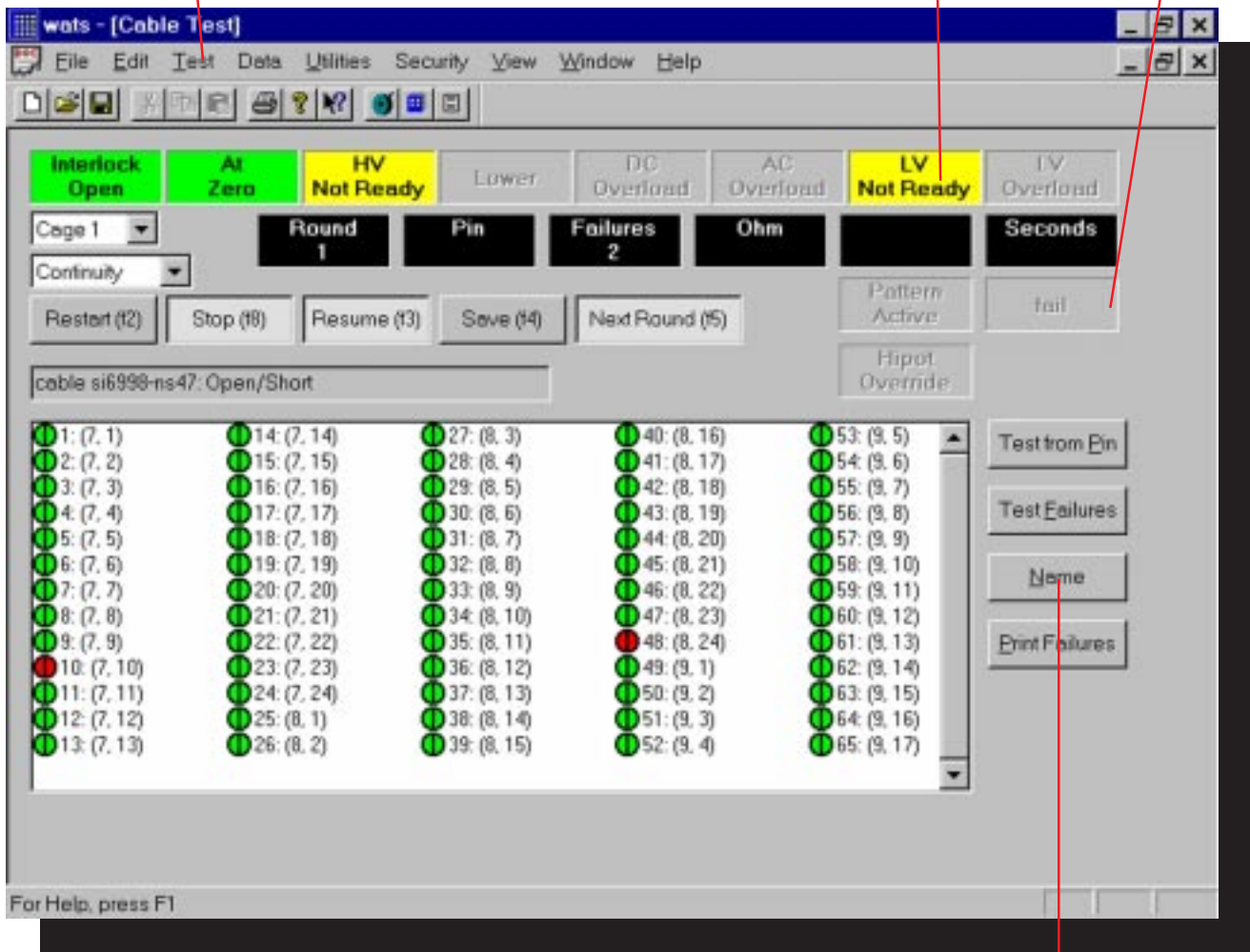
How can you be assured that my operators run the correct tests? The ATS Test Set allows database definition of cable types. Operators then select from a list of tests from the pull-down menu. There is no opportunity to do wrong or incorrect tests.

## Ease of Use

How do your operators quickly tell passed conductors from failed? It's easy with the ATS Test Set. A "pass" is indicated in green, a "failure" in red.

## Test Indicators

Where are test status indicators and controls located? All in one place on the ATS Test Set monitor! Relevant information about test set status and cable test results are displayed in an easy to read and understand format.



## Retest Capability

How long does it take to ascertain real failures from bad connections? Not long at all. The ATS Test Set allows quick retest of failures only, or testing beginning from a specific pin. This increases your operator productivity.

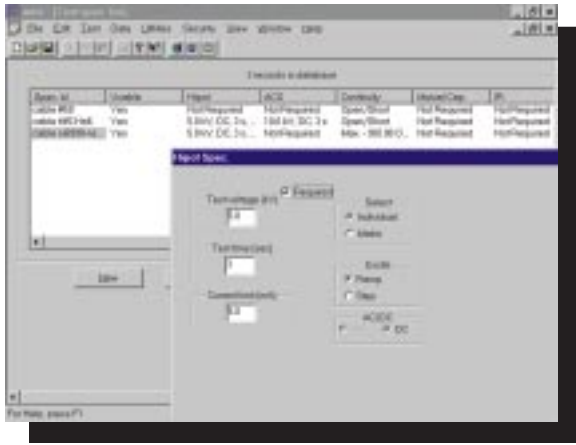
## Labeling Failed Conductors

How can my test technicians identify failed conductors for others to site locate? The ATS Test Set makes it easy to label failed pins on the test report. Press the NAME button and type in a label (for instance "blue-white") and the label will print on the failure test report. Nobody has to guess anymore.

## Maximum Flexibility

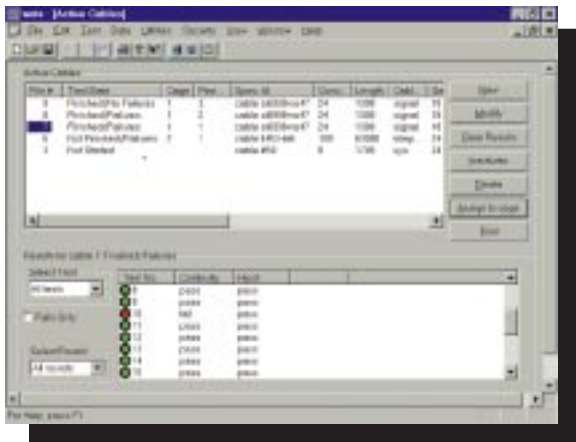
What range of product can the ATS test? The ATS Test Set allows testing of multiple reels on one HV switching assembly, multiple "rounds" of testing for very large cables, and user-defined test patterns. In all cases, test data is stored and printed out by individual cable reel, so both your customer and in-house employees see what they need to.





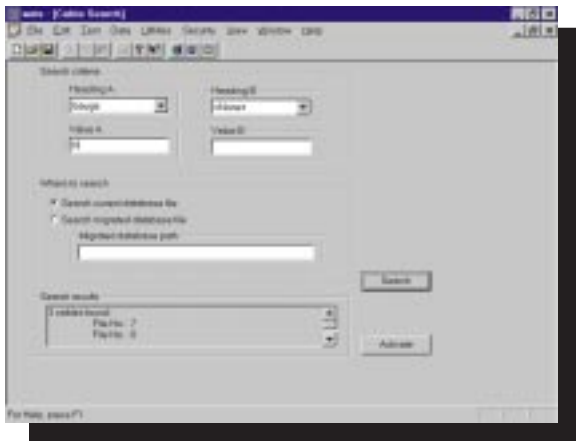
## Test Specification Database

The Windows 95™ ATS Test Set software gives the Q.A./Supervisory/Manufacturing Engineering personnel complete control over cable test specifications. The operator only chooses tests from the selections listed. The password-protected test specifications database can be used to create new test specifications, or to edit, inactivate, or delete existing specifications. In addition, any operator can view a complete specification without needing a password. All summary test specification data is included in the main display. As in all Windows 95-based programs, complete control over the appearance of the screen is permitted.



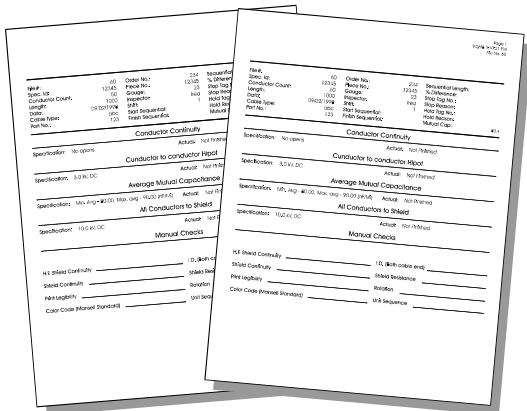
## Active Cable Backlog Window

This is one of two main software windows that an operator will use. In this window, the operator enters information about the cables, chooses the test specification for each cable, and assigns cable reels to various test cages and HV switch assemblies. The ATS Series is very flexible — the operator can create multiple “rounds” of testing for a cable with many conductors or “pin” multiple cables to one HV switch assembly, while still acquiring data and creating test reports for each individual cable reel. For clarity, Test State and partial test results for each cable are clearly indicated at the bottom of the screen.



## Test Result Database

All test data is stored in an Microsoft Access™ database format. This allows easy use of all test data for statistical or process analysis. Routines are built into the ATS Software to allow “migration” or moving of test data to a LAN or other storage drive for permanent safekeeping. The ATS Software also easily allows search for test data on any database directory, with capability provided to define up to two search criteria. This makes it easy to locate cable test data without having to waste time filing and retrieving paper reports.



## Test Reports

A standard test report is provided that summarizes all test failures and indicates overall pass or failure. The complete test report is flexible and can be easily customized to meet almost any customer need. For instance, the user can modify the report so that a company name (or other text) appears at the top of the report. Any user customization of the cable test database will also appear in the report heading. At the bottom of the report, provision is made for the user to add manual test descriptions with check off boxes. Therefore, a separate checklist is not required.



**The Pneumatic Switching Assembly (PSA)** is the switching “heart” of the ATS. The PSA interfaces with the ATS control console and Regulator/ HV Section to either make connections to the HV bus or ground the connection (depending on the test selected) at the appropriate time. The PSAs are available with either threaded stud connections (for connection to optional fan-out board) or self-stripping clip connections (for connection of cable directly to PSA). In addition, swivel stands to hold the unit upright during testing are also available. The PSA does not contain any oil; therefore, costly oil containment systems are not required. The PSA requires an operator-supplied, pressurized air supply with a minimum of 80 PSI pressure.

Shown at left is a 100 position PSA with self-stripping clips.

# Ordering Information

Select from the available configurations listed below.

**Catalog Number ATS**      - x x x x - x

**High Voltage Output and Input**

- 10DCA= 10 kV/30mAdc output only, input 115V, 50/60 Hz.
- 10DCB= 10kV/30mAdc output only, input 220V, 50/60 Hz.
- 20DCA= 20kV/50mAdc output only, input 115V, 50/60 HZ.
- 20DCB= 20kV/50mAdc output only, input 220V, 50/60 HZ.
- 10ACD= 10kV/1.5Aac output only, input 380V, 50/60 HZ.
- 10ACF= 10kV AC output only, input 480V, 50/60 HZ.
- 1010D= 10kV/1.5 Aac, 10kV/30mAdc outputs, input 380V, 50 Hz.

**IR Option**  
R = IR Option included  
X = Not Included

**High Voltage Switch Type**  
A = 50 pos. w/ self-stripping clips  
B = 100 pos. w/ self stripping clips  
C = 50 pos. w/ threaded stud  
D = 100 pos. w/ threaded stud

**# Hv Switch Assemblies/ Cage**

**# Hv Switch Assemblies**  
1 to 5 allowable

**# of Test Cases**  
1 to 4 allowable

# Hardware and Software Technical Specifications

Each ATS consists of the following items:

- Control Console
- Regulator/HV Section
- Output Switch Box
- Pneumatic Switch Assemblies

The **Control Console** is a slope front cabinet with a writing desk. A VGA monitor, mounted flush with the front panel, displays all test status information and test results. In addition, analog voltmeters display voltage and current during the high voltage tests. The printer

is conveniently located within the writing desk, beneath the keyboard, outputs results through the top of the writing desk. The computer CPU is located within the control console behind a protective door.

The **Regulator/HV Section** is one of two sizes, depending on output voltages selected. This section controls application of voltage to a specific test cage. To optimize productivity, up to four different test cages may be used with the ATS.

## OUTPUT RATINGS:

AC Hipot:	0-10 kV, 1.5A
DC Hipot:	0-20 kV, 50 mA or 0-10 kV, 30 mA
Continuity:	15 VDC
Shield Isolation:	Fixed 120 V, 1A, Go/No Go
Insulation MΩ:	500 Vdc, AutoRange: 0.1 MΩ - 10,000 MΩ (optional)

## TEST POSITIONS:

Multi-Cage Capability  
50 or 100 positions per Switch Assembly  
Expandable up to 2500 test positions  
Selectable sequentially, matrix or user-defined pattern

## VOLTMETER:

4½", single range  
Accuracy: ± 2%, 10% to 100% of Full Scale

## AMMETER:

4½", triple range  
Accuracy: ± 2%, 10% to 100% of Full Scale  
Also digital readout on monitor

## OVERLOAD:

Dual acting overload - Subcycle electronic overload with adjustable sensitivity via potentiometer. Also, steady state user programmed and computer monitored current level.

## COMPUTER:

- Windows 95™-based system using standard keyboard and mouse
- Intel Pentium™ (or equivalent) Processor 200 MHz or faster IBM Compatible Pentium
- 16 MB RAM
- 1.44 MB Disk Drive, 1.7 GB hard disk drive
- 14" VGA Color Monitor
- Epson LX-810 Dot Matrix Printer (or equivalent)

## COMPUTER INTERFACE:

Comm Link	RS422 twisted pair
A/D Converter	Fused Protection 0 to 10VDC / 12 bit resolution 0.1% accuracy
Digital I/O	Optically Isolated Fused Protection

## PHYSICAL CHARACTERISTICS:

Temperature	- 10° - 40° C
Humidity	- Less than 90%, non-condensing
Pollution level	- Low index

## CONTROL CONSOLE SIZE:

Type:	Deluxe Slope Front Cabinet
Width:	28" (711 mm)
Height:	51" (1295 mm)
Depth:	25" (635 mm) + 18" (457 mm) for desktop
Weight:	375 lbs. (170 kg)

## HV SWITCH ASSEMBLY/

### FANOUT BOARD SIZE - 50 POSITION:

Type:	High Voltage Pneumatic Switching
Width:	33" (838 mm)
Height:	18" (457 mm)
Depth:	26" (660 mm)
Weight:	130 lbs. (59 kg)

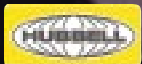
## HV SWITCH ASSEMBLY/

### FANOUT BOARD SIZE - 100 POSITION:

Type:	High Voltage Pneumatic Switching Tank
Width:	33" (838 mm)
Height:	18" (457 mm)
Depth:	36" (914 mm)
Weight:	150 lbs. (68 kg)

## HIGH VOLTAGE REGULATOR SIZE- MAXIMUM DIMENSIONS:

Type:	Floor Standing Cabinet Containing HV Transformer and Regulator
Width:	23" (584 mm)
Height:	72" (1829 mm)
Depth:	25" (635 mm)
Weight:	600 lbs. (272 kg)



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