



Megger

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DELTA4000 Accessories



TESTING LARGE SPECIMENS

Resonating Inductor

The resonating inductor expands the capacitance range of the DELTA automated insulation power factor test sets. The resonating inductor is a self-contained, air-insulated tool which allows the user to perform capacitance and dissipation factor tests on high-capacitance items such as large motors, large generators and long cable runs.

A manual tuning wheel on the resonating inductor varies the inductance to tune the parallel circuit for minimum load current.

Resonating Inductor includes:

High-voltage interface cable, 8 ft (2.4 m)	30012-13
Ground interconnect lead, 8 ft (2.4 m)	30991-1
Inductor return cable, 8 ft (2.4 m), with connector	1001-802
Ground lead, 15 ft (4.6 m)	4702-5
Cable bag	18313
Instruction manual	670600a_UG

SPECIFICATIONS

Maximum Capacitive Load	1 μ F, at 60 Hz - 12kV
	1.2 μ F, at 50 Hz - 12 kV
	1.33 μ F, at 45 Hz - 12 kV
	(from DELTA4000 variable frequency source)
Dimensions	38.7 H x 21.4 W x 25.3 D in.
	983 H x 543 W x 641 D mm
Weight	280 lbs (127 kg)



Cat. No. 670600-1

Adapter Kit for Use with DELTA4000 and Competitor's Resonating Inductor

Megger provides adapter kits that offer solutions for users who already own an older style or competitor's resonating inductor and need to connect to a DELTA4000. Our C/N 1002-455 includes:

High-voltage interface cable, 8 ft (2.4 m)	30012-14
Inductor return cable, 8 ft (2.4 m), with connector	1001-802
Adapter kit box, unterminated	1002-231-1
Connector assembly	1002-506



Cat. No. 1002- 455

For more information about these products, visit our website www.megger.com



FIELD & LAB CALIBRATION

Laboratory Calibration Adjustment Tool, CAL4000

The CAL4000 is designed for use in performing calibration adjustments of the DELTA4000 series of instruments. Together with provided software, it allows for proper adjustment of critical measurements within the DELTA4000 including: tan delta (PF), capacitance, voltage, current, watts and other measurements. Operators are able to perform the calibration adjustments within a 20 to 30 minute timeframe. This tool does not replace a traceable report, only a method to bring the DELTA4000 to within specified accuracy.



Cat. No. 2002-137

Ratio and Reference Capacitors

When field testing, the reliability of test results is critical in determining the true condition of the transformer or related asset. In order to confirm proper operation of the DELTA4000 and its nominal accuracy, Megger has developed a set of capacitors that provide this confirmation of results. The capacitors come in a set of three where two capacitors contain one nominal tan delta (PF) value as to simulate a typical test result. The third capacitor is of a higher value and serves a second purpose as a TTR add-on function capability. All units include a field transit case for easy store and protection. Capacitors can be purchased individually should the specific need arise.

SPECIFICATIONS

HV Capacitors	10 nf, 10 kV – C/N 36610
	100 pf, 10 kV – C/N 36610-1
	1000 pf, 10 kV – C/N 36610-2

Transit case for capacitor with set of 3 above C/N 36610-CC



Cat. No. 36610-KIT2

Shown here: TTR cap, 2 ref caps, test hook, test clip, transit case

HV Reference Standard, Capacitance and Tan Delta (PF)

This is typically used by laboratories where traceable calibration results for capacitance and tan delta (PF) are required. The reference standard can be used with the DELTA4000 and any related test equipment that performs similar testing as the DELTA4000. The reference standard offers a maximum test voltage of 10 kV. To confirm proper DELTA4000 accuracy at critical values, this unit comes with six switch selectable tan delta (PF) test points. It is supplied with a report traceable to NIST.

SPECIFICATIONS

Rated Voltage	10 kV maximum (with oil)
Nominal Capacitance	High to low 100 pF (±1.0%) (internal SF6 filled capacitor, 10 psig)
Tan delta (PF) (at 0 position)	High to low <0.005% (50ppm)
Nominal tan delta values (switch positions)	0.0%, 0.105%, 0.32%, 1.05%, 3.2%, 10.5%
Weight	18 lbs (8.4 kg)
Dimensions	11 x 9.5 x 16 in. (28 x 24 x 41 cm)



Cat. No. 670500-1



FIELD AND LAB OIL TESTING

Field Oil Cell

As an optional accessory, the field oil cell allows spot testing of oil while in the field without the delay required when sending samples to the lab. This cell is also useful for validation of oil taken from a tanker prior to filling a transformer, and associated assets. The oil cell has added value when validation of the condition/operation of a DELTA unit is required.

SPECIFICATIONS

Cell Type	3 terminal
Maximum Voltage	2 kV empty; 10 kV with insulating oil
Volume	0.6 L (20 fl. oz.)
Gap Space	0.35 in. (0.9 cm)
Weight	6 lbs (2.7 kg)
Temperature Limits	
Field oil cell	+2° C to +80° C



Cat. No. 670511

High-temperature Lab Oil Cell

The high-temperature lab oil cell is of the identical construction/dimension as the field oil cell with the exception of the insulated spacers. The difference is the plastic insulators of the lab oil cell are replaced with Borosilicate glass, which allows operation under higher temperatures with no significant effect on results. The lab oil cell is designed to test to ASTM D924, IEC250, and other related standards. Because this glass can break easily, it is not recommended for rough field use. It does include a rugged transit case to ensure safe transport.

SPECIFICATIONS

Cell Type	3 terminal
Maximum Voltage	2 kV empty; 10 kV with insulating oil
Volume	0.6 L (20 fl. oz.)
Gap Space	0.35 in. (0.9 cm)
Weight	6 lbs (2.7 kg)
Temperature Limits	
High-temp lab cell	+2° C to +105° C



Cat. No. 1004-716

All accessories above are included

For more information about these products,
visit our website www.megger.com



SAFETY EQUIPMENT

External High-Voltage Strobe

For safe testing procedures, Megger offers a high-intensity flashing strobe complete with a 60 ft (18 m) detachable cable. A rugged connector on both ends enables typical field use. The cable used is oil resistant and designed for varying temperature condition.

The following can be purchased separately

HV strobe	Cat. No. 90009-210
Detachable cable, 60 ft (18 m)	Cat. No. 1004-532



Cat. No. 1004-639

Safety Foot Interlock

For hands-free operation, Megger offers a foot-operated safety switch. It comes with a 6.6 ft (2 m) rugged cable and an industrial rated mechanical foot pedal. This is a convenient accessory for operation of the DELTA4000 while performing routine testing



Cat. No. 1001-852

TRANSIT CASES

Hard-Sided Transport Case

Sturdy protection for your DELTA4000 and its test leads is critical. Megger offers a rugged, moisture-proof solution for storage and transport of your investment. This case is made of a tough plastic designed for harsh environments. Its foam-padded interior offers extra protection for your valuable equipment in an organized manner.

SPECIFICATIONS

Dimensions	27 x 27 x 16 in. (69 x 69 x 41 cm)
Dust and water protection rating	IP54
Weight	37 lbs (17 kg) empty



Cat. No. 2005-115



TRANSIT CASES

Soft-Padded Carry Case

If a rugged transit case is not needed or desired, a soft-padded case is available to carry your DELTA4000. This case is convenient to store the unit in when not in use yet durable enough to transport the DELTA4000 between jobs.

This carry case is **NOT** intended for transporting instruments via commercial carriers; its intention is for local transit from location to location

SPECIFICATIONS

Dimensions	11 x 12 x 20 in (28 x 30.5 x 50.8 cm)
Weight	1.6 lbs (0.7 kg)



Cat. No. 2001-766

Transport Cart

For substations and related environments where terrain is rough, and DELTA4000 is required to be moved to various testing locations, Megger offers a collapsible trolley/cart. The DELTA4000 can be setup on the cart for easy testing and allows for convenient movement throughout the testing area. The cart is equipped with a sturdy, wide handle for comfortable steering and control.

SPECIFICATIONS

Dimensions	14 x 59 x 23 in. (35 x 148 x 58 cm)
Weight	59 lbs (27 kg)



Cat. No. 1001-530

For more information about these products, visit our website www.megger.com

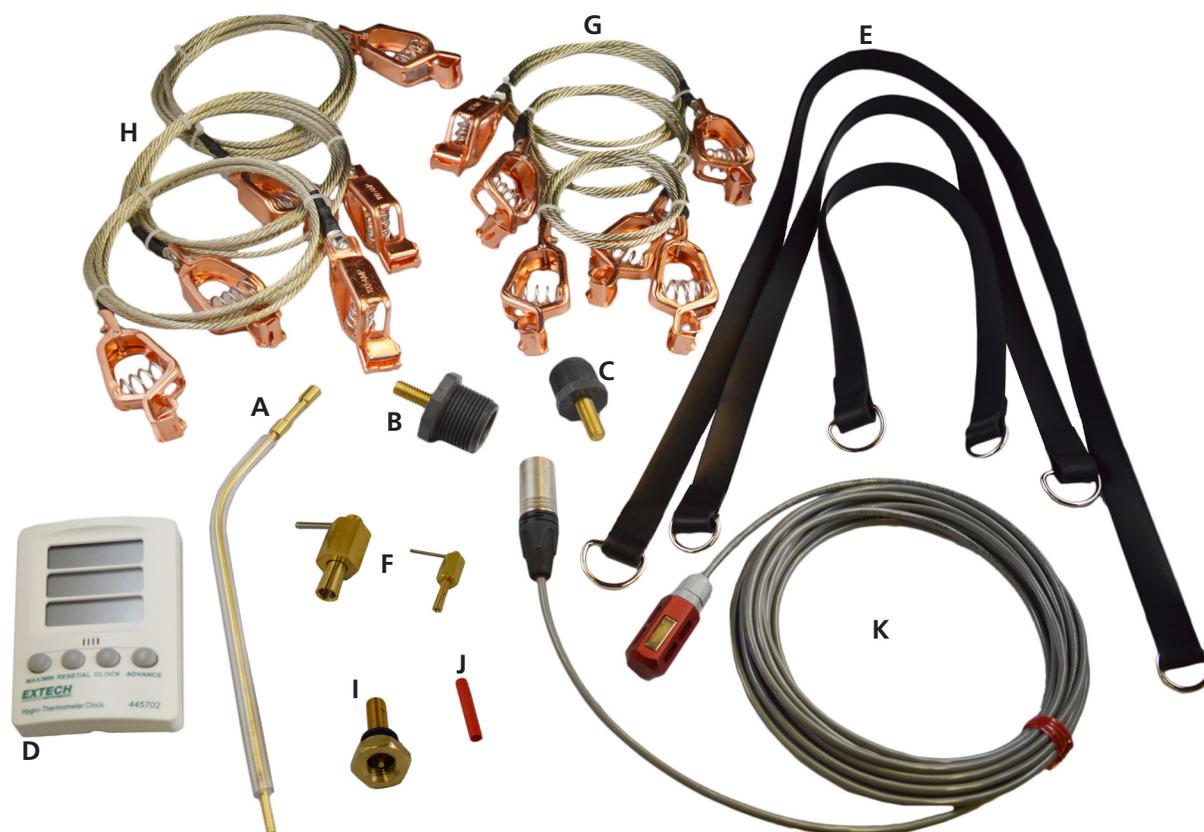


ACCESSORY KITS

Standard Kit

Cat. No. 670501

Testing transformers requires the performance of specific tests where additional apparatus is needed. Megger offers a kit that includes the most commonly used tools.



A	J" probe bushing adapter probe	30917	G	Shorting leads, non-insulated, 3 ft (1 m)	P34726-1
B	Bushing tap adapter, 1 in. (2.5 cm)	30918-100	H	Shorting leads, non-insulated, 6 ft (2 m)	P34726-2
C	Bushing tap adapter, 0.75 in. (1.9 cm)	30918-000	I	Bushing tap adapter – ABB (older style bushings)	2006-375
D	Thermometer – hygrometer – clock	670504	J	Bushing tap adapter, female-to-female banana jack (qty 3)	90014-353
E	Hot collar strap (set of 3)	670505	K	Temperature humidity probe with 20 ft (7 m) lead	2002-138
F	Bushing tap adapter, mini (set of 2)	670506			



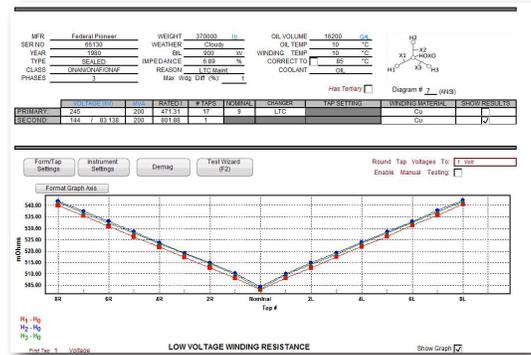
DATA MANAGEMENT SOFTWARE

PowerDB Pro and Advanced

PowerDB Pro software is a relational database with formatted test forms for data entry and reporting. Over 300 test forms are comprised in the standard forms library. Data is entered, or gathered, by remote users in “field” databases and then merged into a central master database for access by all users. Data can be imported from various sources, acquired directly from test instruments, or entered manually. Assets are efficiently organized in the database and can be searched for by location, serial number or asset ID number.

Another optional software program is PowerDB Advanced, which gives customers access to all forms within PowerDB Pro but without the relational database. The forms and ability to edit the results allow customers easy access to useful forms that can be used as a platform to develop a reliable test program.

- PowerDB Pro software on USB dongle Cat. No. DB1001S-A
- PowerDB Pro software via soft key Cat. No. DB1001-A
- PowerDB Advanced Cat. No. DB1011



EXTENDED WARRANTY

Extended Warranty Program

An extended warranty is offered as a safeguard against unexpected instrument repairs. This also helps to ensure that repair costs are covered without undue financial stress. Megger offers an extended warranty beyond the standard 12-month increments of 6 additional months, followed by 12 months, 24 months and 36 month terms. Customers are only responsible for proper return to Megger Authorized Centers, and for their shipment back.

- Additional 6-month product warranty Y6-WARRANTY
- Additional 12-month product warranty Y12-WARRANTY
- Additional 24-month product warranty Y24-WARRANTY
- Additional 36-month product warranty Y36-WARRANTY





ORDERING INFORMATION

Item (Qty)	Cat. No.	Item (Qty)	Cat. No.
Optional Accessories		Optional Accessories	
Standard accessory kit, includes:	670501	DELTA4110 Insulation Diagnostic System (DELTA4100 control unit and DELTA4010 HV unit)	DELTA4110
<ul style="list-style-type: none"> ▪ Mini bushing tap connectors [set of 2] P/N 670506 ▪ Hot collar straps [set of 3] P/N 670505 ▪ Thermometer – hygrometer – clock [1] P/N 670504 ▪ Temperature and humidity probe, complete with 20 ft (7 m) lead, P/N 2002-138 ▪ 0.75" bushing tap adapter [1] P/N 30918-000 ▪ 1" bushing tap adapter [1] P/N 30918-100 ▪ "J" probe bushing tap adapter [1], P/N 30917 ▪ 3 ft (1 m) non-insulating shorting lead, 3 each of P/N 34726-1 ▪ 6 ft (2 m) non-insulating shorting lead, 3 each of P/N 34726-2 ▪ Bushing tap adapter - ABB (older style bushings) P/N 2006-375 ▪ Bushing tap adapter, female-to-female banana jack [3] P/N 90014-353 			
Safety foot interlock, 3 m (10 ft)	1001-852	Included Accessories	
External HV Strobe P/N 90009-210, complete with 60 ft (18 m) detachable lead P/N 1004-532	1004-639	High Voltage lead: 21m (70ft), double shielded	30012-11
Soft padded carrying case for control or HV unit (2 required)	2001-766	Measurement lead, color-coded red	25572-1
Transport case (2 required)	2005-115	Measurement lead, color-coded blue	25572-2
Transport cart / trolley	1001-530	Ground lead: 9 m (30 ft)	2002-131
Calibration kit (CAL4000)	2002-137	Input power cable 25A EU	17032-19
High-voltage reference standard	670500-1	Input power cable 16A US	17032-23
Transit case for 670500-1	670635	Input power cable 16A UK	17032-21
HV TTR capacitor, single phase (10 nF, 10 kV)	36610	Safety hand switch, interlock #1: 21 m (70 ft)	1001-850
HV reference capacitor (100 pF, 10 kV)	36610-1	Safety hand switch, interlock #2: 2.4 m (8 ft)	1001-851
HV reference capacitor (1000 pF, 10 kV)	36610-2	HV Unit power cable, 1 m (3 ft)	2002-132
Transit case for capacitor set of 3 above	36610-CC	HV Unit control cable, 1 m (3 ft)	2002-133
Capacitor kit (TTR cap, 2 ref caps, transit case)	36610-KIT2	Ground lead cable, 1 m (3 ft)	2002-134
Resonating inductor	670600-1	USB control cable, 2 m (7 ft)	CA-USB
Adapter kit for DELTA4000 & competitor's resonating inductor	1002-455	Ethernet cable, CAT 5, 2 m (7 ft)	36798
Oil test cell, field model, complete with transit case	670511	Soft case for HV cable	2001-507
Oil test cell, high-temperature lab model, complete with transit case	1004-716	Soft case for other cables/accessories	2005-265
Optional software		DELTA4000 software bundle, CD	1001-981
PowerDB Pro Software, on USB dongle	DB1001S-A	PowerDB Lite software	
PowerDB Pro Software, via soft key	DB1001-A		
Extended Warranty Program			
Additional 6-month product warranty	Y6-WARRANTY		
Additional 12-month product warranty	Y12-WARRANTY		
Additional 24-month product warranty	Y24-WARRANTY		
Additional 36-month product warranty	Y36-WARRANTY		



Advanced. Reliable. Accurate.

The DELTA4000 and its related accessories, help determine the healthy insulation condition of a transformer, as well as help diagnose the beginnings of failure within the components where high voltage stress and mechanical wear begin to weaken insulation.

The DELTA4000 Series is another "industry first" from the insulation testing leader...Megger.

Reputation and Expertise

Megger has been manufacturing insulation diagnostic test equipment since 1889. Our team of applications/design engineers, many of whom are former Utility employees, have the knowledge to help you understand the importance of diagnostic testing.

Megger

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