



## **General Catalogue**

CABLE TESTING & DIAGNOSTICS  
TRANSFORMER OIL TESTING

**b2**  
electronics





## Innovation in High Voltage

b2 electronics offers a wide range of VLF test sets with maximum output voltages from 29 kV up to 120 kV. All our VLF test sets provide a pure sinusoidal output voltage and high modularity, thus they are the ideal voltage source for our PD & TD diagnostics equipment. Transformer oil testers with voltages up to 100 kV complete our product portfolio.

With partners in more than 80 countries, we are always close to our customers. From our first interaction to delivery and beyond, we share our knowledge and attach great importance to a trustful partnership.



# OUR PRODUCT PORTFOLIO

## VLF CABLE TESTING, DIAGNOSTICS & TRANSFORMER OIL TESTING



### VLF CABLE TESTING

VLF cable testing with 0.01 Hz to 0.1 Hz is a standardized and state-of-the-art method to determine the condition of cables in medium- and high voltage networks. Compared to DC testing, it prevents damage to the insulation of aged extruded cables which can cause premature cable failures. VLF is suitable for various insulations, such as XLPE, PILC, PE, EPR.

Due to the negative side effects of DC hipot testing, VLF AC waveform testing of MV & HV cables during installation, acceptance or maintenance is nowadays recommended by most cable testing standards, including IEEE 400.2, IEC 60502-2, DIN VDE 0276-620 and 0276-621, CENELEC HD 620 S2 and HD 621 S1.



### INSULATION OIL TESTING

Ultra-light breakdown analyzers from b2 electronics are straightforward to operate and ideally suited for both laboratory and on-site transformer insulation oil testing, performing a fully automated oil breakdown test.

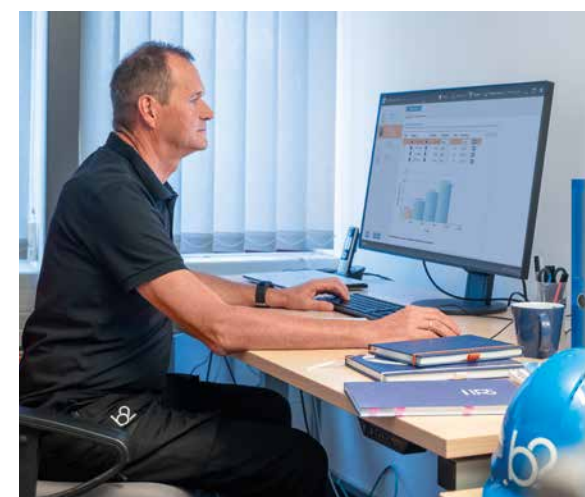
In order to fit the needs of our clients, we offer a wide range of reliable transformer oil testers, with test voltages up to 100 kV (sine wave). Breakdown Analyzer test sets from b2 electronics include predefined and fully automatic test sequences which comply with all relevant international standards.



### VLF CABLE DIAGNOSTICS

Conducting diagnostics on MV & HV cables enables early detection of vulnerabilities and prevents potential breakdowns during operation. Partial Discharge (PD) diagnostics allows a precise analysis of cables, joints and terminations. By finding the exact PD location, detected damages can be fixed before they result in a cable failure. This leads to massive improvement in the network stability and reduction of repair costs.

Tan Delta (TD) diagnostics is a proven, simple and reliable test method for evaluating the overall dielectric condition of cables and other electrical systems. As water trees in aged polymeric cables (e.g. XLPE) do not generate PD by themselves, they can be only determined conducting a TD test.



### b2 SOFTWARE SOLUTIONS

For each of our product series, b2 electronics provides tailor-made powerful software solutions which feature flexible and fast data acquisition, customized test sequences and extensive reporting capabilities. Additionally, they are offering remote control of b2 devices to further increase the safety and usability for specific applications.

b2 ControlCenter is a versatile software solution for HVA test sets. b2 Suite is a software for testing, diagnostics and report management. BA ControlCenter evaluates fast and accurately the condition of transformer insulation oils. To stay up to date, all b2 software solutions are maintained regularly.





## HVA VLF CABLE TEST SETS



### UNLIMITED OPERATING TIME

HVA test sets are designed for continuous operation without any thermal limitations.



### DRY SYSTEM

HVA test sets are constructed with non-arcing contacts and no need to change oil. This eliminates routine servicing and makes the test sets almost maintenance-free.



### COMPACT & PORTABLE

Our HVA test sets are designed for maximum portability, resulting in widely applicable devices for any type of on-site use.



### TRUE MODULARITY

All our HVA test sets can be easily extended to a complete diagnostics system by adding our PD, TD or PDTD series products at a later point of time. This keeps the initial investment low.

\* additional sheath fault locator needed

## HVA VLF CABLE TEST SETS

The HVA series consists of truly compact and portable VLF test sets which determine the condition of MV and HV cables at frequencies from 0.01 Hz to 0.1 Hz. They all perform VLF (sine- & square wave) withstand testing, DC testing, as well as sheath testing with sheath fault location mode\*.

b2's VLF test sets provide cable testing in ranges of maximum output voltages from 24 kV<sub>rms</sub> / 34 kV<sub>peak</sub> to 85 kV<sub>rms</sub> / 120 kV<sub>peak</sub> with weights starting at only 20 kg / 44 lbs.

## EXTRA POWER VLF CABLE TEST SETS

These are HVA series members with an output current up to 120 mA, extending greatly the maximum load and therefore the testable length of a cable.

## YOUR BENEFITS

- Pure sinusoidal output voltage (load-independent) over the entire power range
- Easily exchangeable HV test lead
- Breakdown voltage and load detection
- Safety: Dual Discharge Device (DDD) and integrated 12 kV backfeed protection (at 50/60 Hz)
- Real time oscilloscope view of the output voltage on the HVA display
- Programmable test sequences with a tailor-made software tool



HVA120



HVA34







## smartVLF® CABLE TEST SETS



### BLUETOOTH® & USB 2.0

Any smartVLF® test set can be easily connected to b2 ControlCenter or b2 Suite software via Bluetooth®. This allows live monitoring of measurements. A USB 2.0 interface secures simple upload & download of data or test sequences.



### TROLLEY VERSIONS

HVA34-1, HVA34TD-1, HVA45 & HVA45TD test sets come with an integrated trolley mounted to the housing for even easier handling.



### MONITORED WITHSTAND TEST

The TD versions of our smartVLF® test sets combine cable testing and TD diagnostics as per the IEEE 400.2 guide.



### IP67

HVA28, HVA28TD, HVA34-1, HVA34-1, HVA45 & HVA45TD test sets come with a watertight and very rugged case featuring a protection class of IP67. This makes additional transport boxes obsolete.

## smartVLF® CABLE TEST SETS

Our ultra-light and powerful smartVLF® test sets determine the condition of medium voltage cables at frequencies from 0.01 Hz to 0.1 Hz. They all perform VLF (sine- & square wave) withstand testing, DC testing, as well as sheath testing with sheath fault location mode\*.

These VLF test sets provide cable testing in ranges of maximum output voltages from 21 kV<sub>rms</sub> / 29 kV<sub>peak</sub> to 48 kV<sub>rms</sub> / 68 kV<sub>peak</sub> at weights as low as 14 kg / 31 lbs. to 63 kg / 139 lbs.

## INTEGRATED TD FUNCTIONALITY

To comply with international test guides (such as IEEE 400.2) smartVLF® test sets are available with an optional integrated Tan Delta diagnostics unit, allowing Monitored Withstand Tests. Additionally, all systems can be operated in combination with our external PD & PDTD diagnostic systems.

## YOUR BENEFITS

- TD measurements with an accuracy of  $\pm 0.1 \text{ E-3}$
- Pure sinusoidal output voltage (load-independent) over the entire power range
- Continuous and unlimited operation without any thermal limitations
- Easily exchangeable HV test lead
- Oil-free design eliminates routine servicing and makes the HVA test sets almost maintenance-free
- Safety: Dual Discharge Device (DDD) and integrated 12 kV backfeed protection (at 50/60 Hz)
- Programmable test sequences with a tailor-made software tool



\* additional sheath fault locator needed





## smartVLF® CABLE TEST SETS WITH TAN DELTA DIAGNOSTICS & ARC PRE-LOCATION (APL)



### UNLIMITED OPERATING TIME

HVA test sets are designed for continuous operation without any thermal limitations.



### DRY SYSTEM

HVA test sets are constructed with non-arcing contacts and no need to change oil. This eliminates routine servicing and makes the test sets almost maintenance-free.



### COMPACT & PORTABLE

Our HVA test sets are designed for maximum portability, resulting in widely applicable devices for any type of on-site use.



### TRUE MODULARITY

All our HVA test sets can be easily extended to a complete diagnostics system by adding our PD, TD or PDTD series products at a later point of time. This keeps the initial investment low.



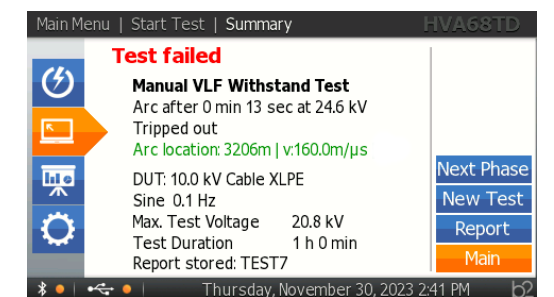
## INNOVATING THE FUTURE OF VLF TESTING

The reliable distribution of electricity with medium voltage cables is nowadays more important than ever. In order to avoid failures during their operation, cables need to be tested.

The HVA68TD represents a significant advancement in on-site cable testing solutions. In addition to standard VLF withstand testing and Tan Delta diagnostics, the HVA68TD offers integrated Arc Pre-Location (APL), making it the smartest VLF test set available.

## ARC PRE-LOCATION (APL) A NEW DIMENSION IN VLF TESTING

VLF withstand tests are used to detect weaknesses in the cable insulation. While a healthy cable is passing the voltage withstand test unharmed, a cable with pre-damaged insulation will break down during this test, resulting in an arc. In such cases, the integration of the APL functionality during the VLF testing provides immediate information about the distance to this arc. This adds additional value to traditional VLF testing, which helps to save time and cost in the subsequent cable fault location process.



APL result

## GET TO KNOW THE HVA68TD

The HVA68TD is a truly compact & portable VLF test set that determines the condition of medium voltage cables with a voltage rating up to 46 kV (acc. to IEEE 400.2). It performs a standard testing like VLF & DC testing, as well as sheath testing with sheath fault location mode (additional fault probe needed).

The high output power of the HVA expands greatly the load possibilities. It allows testing longer cables or several phases in parallel. The integrated Tan Delta diagnostics unit enables a straightforward condition assessment of the cable system.

The HV test lead for the HVA68TD offers flexible connections with two different Device Under Test (DUT) adapters. Designed for easy transport & quick setup, the adapters are color-coded for standard & partial discharge testing, ensuring secure & reliable connections.



HVA68TD test lead

HVA SERIES  
VLF TEST SETS

HVA34  
SH5006



HVA60  
SH5014



HVA90  
SH5017



EXTRA POWER VLF TEST SETS

HVA30-7  
SH5005



HVA40-5  
SH5009



HVA54-3  
SH5012



HVA68-2  
SH5016



Output voltage							
- VLF sinusoidal	0 ... 24 kV <sub>rms</sub> / 0 ... 34 kV <sub>peak</sub>	0 ... 44 kV <sub>rms</sub> / 0 ... 62 kV <sub>peak</sub>	0 ... 64 kV <sub>rms</sub> / 0 ... 90 kV <sub>peak</sub>	0 ... 24 kV <sub>rms</sub> / 0 ... 34 kV <sub>peak</sub>	0 ... 32 kV <sub>rms</sub> / 0 ... 45 kV <sub>peak</sub>	0 ... 38 kV <sub>rms</sub> / 0 ... 54 kV <sub>peak</sub>	0 ... 48 kV <sub>rms</sub> / 0 ... 68 kV <sub>peak</sub>
- DC	-34 kV ... 34 kV	-60 kV ... 60 kV	-90 kV ... 90 kV	-34 kV ... 34 kV	-45 kV ... 45 kV	-54 kV ... 54 kV	-65 kV ... 65 kV
- VLF square wave	0 ... 34 kV	0 ... 60 kV	0 ... 90 kV	0 ... 34 kV	0 ... 45 kV	0 ... 54 kV	0 ... 60 kV
Output current (max.)	32 mA	44 mA	57 mA	120 mA	120 mA	120 mA	88 mA
Output load	0.9 µF @ 0.1 Hz @ 24 kV <sub>rms</sub> 1.2 µF @ 0.1 Hz @ 20 kV <sub>rms</sub>	1.0 µF @ 0.1 Hz @ 44 kV <sub>rms</sub> 1.4 µF @ 0.1 Hz @ 33 kV <sub>rms</sub>	1.0 µF @ 0.1 Hz @ 64 kV <sub>rms</sub> 1.5 µF @ 0.1 Hz @ 43 kV <sub>rms</sub>	6.0 µF @ 0.1 Hz @ 24 kV <sub>rms</sub> 7.2 µF @ 0.1 Hz @ 20 kV <sub>rms</sub>	3.8 µF @ 0.1 Hz @ 32 kV <sub>rms</sub> 5.0 µF @ 0.1 Hz @ 27 kV <sub>rms</sub>	2.7 µF @ 0.1 Hz @ 38 kV <sub>rms</sub> 3.6 µF @ 0.1 Hz @ 33 kV <sub>rms</sub>	1.7 µF @ 0.1 Hz @ 48 kV <sub>rms</sub> 2.1 µF @ 0.1 Hz @ 43 kV <sub>rms</sub>
Max. load capacitance <sup>1</sup>	12 µF	10 µF	10 µF	15 µF	15 µF	10 µF	10 µF
Weight	20 kg / 44 lbs	57 kg / 125.6 lbs	127 kg / 280 lbs	57 kg / 125.6 lbs	57 kg / 125.6 lbs	57 kg / 125.6 lbs	57 kg / 125.6 lbs

smartVLF® TEST SETS

HVA94  
SH5018



HVA120  
SH5019



HVA28  
SH5001  
HVA28TD\*  
SH5002



HVA34-1  
SH5007  
HVA34TD-1\*  
SH5008



HVA45  
SH5010  
HVA45TD\*  
SH5011



+ 4 kV Option\*\*  
Output voltage  
(VLF sinusoidal)  
0 ... 34.6 kV<sub>rms</sub>  
0 ... 49 kV<sub>peak</sub>

HVA68TD  
SH5250



Output voltage						
- VLF sinusoidal	0 ... 66 kV <sub>rms</sub> / 0 ... 94 kV <sub>peak</sub>	0 ... 85 kV <sub>rms</sub> / 0 ... 120 kV <sub>peak</sub>	0 ... 21 kV <sub>rms</sub> / 0 ... 29 kV <sub>peak</sub>	0 ... 24 kV <sub>rms</sub> / 0 ... 34 kV <sub>peak</sub>	0 ... 32.3 kV <sub>rms</sub> / 0 ... 45 kV <sub>peak</sub>	0 ... 48 kV <sub>rms</sub> / 0 ... 68 kV <sub>peak</sub>
- DC	-90 kV ... 90 kV	-100 kV ... 100 kV	-28 kV ... 28 kV	-34 kV ... 34 kV	-45 kV ... 45 kV	-68 kV ... 68 kV
- VLF square wave	0 ... 90 kV	0 ... 100 kV	0 ... 28 kV	0 ... 34 kV	0 ... 45 kV	0 ... 68 kV
Output current (max.)	57 mA	80 mA	17 mA	45 mA	45 mA	100 mA
Output load	0.9 µF @ 0.1 Hz @ 66 kV <sub>rms</sub> 1.4 µF @ 0.1 Hz @ 43 kV <sub>rms</sub>	0.5 µF @ 0.1 Hz @ 85 kV <sub>rms</sub> 2.0 µF @ 0.1 Hz @ 43 kV <sub>rms</sub>	0.5 µF @ 0.1 Hz @ 21 kV <sub>rms</sub> 0.9 µF @ 0.1 Hz @ 16 kV <sub>rms</sub>	1.5 µF @ 0.1 Hz @ 24 kV <sub>rms</sub> 2.2 µF @ 0.1 Hz @ 20 kV <sub>rms</sub>	0.8 µF @ 0.1 Hz @ 34 kV <sub>rms</sub> ** 0.9 µF @ 0.1 Hz @ 32 kV <sub>rms</sub>	1.7 µF @ 0.1 Hz @ 48 kV <sub>rms</sub> 2.1 µF @ 0.1 Hz @ 43 kV <sub>rms</sub>
Max. load capacitance <sup>1</sup>	10 µF	5 µF	10 µF	10 µF	10 µF	10 µF
Weight	128 kg / 282.2 lbs	198 kg / 436.5 lbs	14 kg / 31 lbs	39 kg / 86 lbs	39 kg / 86 lbs	63 kg / 139 lbs

<sup>1</sup> at lower frequency and voltage | \* with integrated Tan Delta diagnostics

\*\* default: the HVA45TD is supplied with an output voltage of 45 kV<sub>peak</sub>, 32.3 kV<sub>rms</sub>. The option + 4 kV must be ordered additionally.





# b2 ControlCenter



## CUSTOMIZED TEST SEQUENCES

Individual test sequences can be created with the help of the sequence editor and uploaded to HVA test sets.



## EASY REPORTING

Reports can be easily generated and managed. b2 CC offers multiple measurement and graphical options as well as several formats for individual data processing and customized reporting of test results.



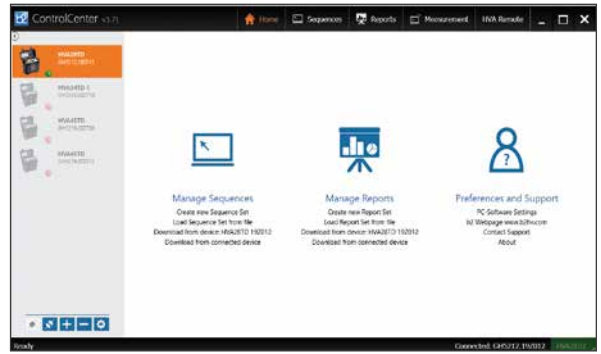
## MONITORED WITHSTAND TEST

The b2 CC allows to visualize Monitored Withstand Tests by displaying live data of simultaneously ongoing VLF withstand tests and TD diagnostics, as per IEEE 400.2.

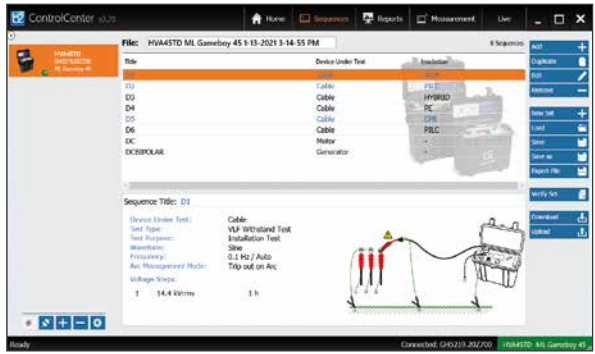


## HVA REMOTE (OPTIONAL)

Remote control via PC further increases the safety and usability of our HVA test sets.



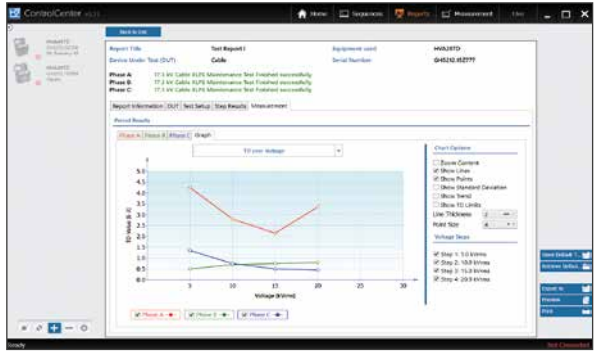
User interface



Report management



MWT - TD limits setting



Tan Delta diagnostics

## POWERFUL SOFTWARE SOLUTION FOR HVA TEST SETS

b2 ControlCenter (b2 CC) is designed for all HVA test sets from b2 electronics. It features flexible and fast data acquisition, customized test sequences and extensive reporting capabilities. For HVA test sets with an internal TD diagnostics unit, b2 CC serves as a comprehensive diagnostics platform providing an even wider range of options, such as defining, executing and viewing Monitored Withstand Tests (MWT).

## YOUR BENEFITS

- Connect devices via Bluetooth® or serial connection (depending on the device being used)
- Manage customized or pre-programmed sequences and upload them to the test set
- Get real-time measurement data from the connected test set and create reports directly on your computer
- Extensive reporting capabilities





## PARTIAL DISCHARGE & TAN DELTA DIAGNOSTICS

### PARTIAL DISCHARGE (PD) DIAGNOSTICS

Measuring Partial Discharge (PD) on medium voltage cables is essential to ensure fault-free power distribution.

Conducting diagnostics of medium- and high voltage cables enables early detection of vulnerabilities and preventive maintenance work to guarantee the long-term performance of the distribution system.

b2 electronics offers the widest range of portable and modular PD measurement solutions on the market, with maximum test voltages as high as 141 kV<sub>rms</sub>.

Additionally, our PDTD devices are capable of measuring PD & TD simultaneously. This saves time and prevents pre-conditioning of the cable, since PD & TD are tested simultaneously and not one after the other.



PDTD90-2



PDTD68



TD90-MC

### TAN DELTA (TD) DIAGNOSTICS

b2 electronics offers different TD diagnostics solutions. Our smart VLF® test sets with a built-in TD functionality underline the portability of the HVA test sets as the smartest VLF high voltage generators on the market.

We also offer external TD devices which enable updating any HVA test set with a TD diagnostics unit.

### YOUR BENEFITS

- Tailor-made VLF, PD & TD test system from a single source
- Easy handling and simple wiring
- PD measurement setup according to IEC 60270
- Locate and define possible PD faults in your DUT (see details at b2 Suite)
- Guard – leakage current correction for TD diagnostics available



#### COMPACT & PORTABLE

Our PD & TD systems are designed for maximum portability and on-site use. This makes them utilizable for versatile applications, e.g. off-shore.



#### TRUE MODULARITY

All our HVA test sets can be easily extended to a complete diagnostics system by adding our PD, TD or PDTD series products at a later point of time. This keeps the initial investment low.



#### AUTOMATIC MODE

With the b2 Suite software, you get manual and incremental test modes with self-explanatory menus, as well as a fully automatic measurement mode reducing operational efforts.



#### SIMULTANEOUS PD & TD MEASUREMENT

PDTD diagnostics units allow parallel measurement of PD & TD, resulting in significant time savings for the measurement and prevent pre-conditioning of the cable.



Corona spheres







## PDTD68 - VLF PARTIAL DISCHARGE DIAGNOSTICS SYSTEM WITH INTEGRATED TAN DELTA UNIT



**PRECISE & SENSITIVE  
REAL TIME LOCALIZATION**  
PD faults are localized with 1% accuracy and a resolution of 0.1 pC and 0.1 m.



**SIMULTANEOUS  
PD & TD MEASUREMENT**  
Parallel PD & TD diagnostics significantly saves time and prevents pre-conditioning of the cable.



**SIMPLE, SAFE & STRAIGHTFORWARD WIRING**  
Provides a simple wiring and a secure, galvanically isolated, high-speed data transfer connection for PD & TD data via a single connection cable.



**ONE SINGLE COMPACT & PORTABLE DEVICE**  
Our PDTD series is designed for maximum portability and on-site use. The single unit design makes them utilizable for versatile applications, e.g. off-shore.

## PDTD SERIES - TWO BECOME ONE

To make diagnostics on power cables as easy and efficient as possible, we have developed the PDTD series, which allows simultaneous partial discharge (PD) & Tan Delta (TD) diagnostics in one single device.

Besides the built-in HV filter, large coupling capacitor, and newly developed data acquisition unit, the PDTD series devices also include a built-in TD diagnostics unit. This integration results in the smallest VLF PDTD devices on the market for voltages up to 68 kV<sub>peak</sub>.



## PD DIAGNOSTICS MADE EASY!

The PDTD68 is an integrated VLF diagnostics system specially designed for the use with HVA VLF test sets. Thanks to its practical design and the single fiber optic interface to the PC it enables a simple and safe measurement setup, which can be built up very quickly.

A large 22 nF coupling capacitor ensure sensitive and accurate PD measurements.

The PDTD68 is also equipped with a battery supply, which allows use in locations without a permanent power source. It can just as easily be powered and charged via USB-C (PD 3.0).



Top view:  
HV connections



Bottom view:  
Control & data connections

## YOUR BENEFITS

- Tailor-made VLF, PD & TD test system from a single source - the PDTD device can be combined with all HVA test sets
- Enables simultaneous and sensitive PD & TD diagnostics up to 68 kV<sub>peak</sub> with the smallest PDTD device available
- One compact device powered by an integrated battery or via USB-C (PD 3.0)
- Accurate and precise PD fault localization including the PD phase pattern of each PD event
- PD Test setup and calibration according to IEC 60270
- TD testing according to IEEE 400.2 with an accuracy of 0.1 E-3
- PD & TD diagnostics of all kinds of medium voltage cables with length up to 100 km





TD SERIES

TD60-MC  
SH5023



TD90-MC  
SH5025



TD120-MC  
SH5026



Operating voltage			
- sine wave	1 - 44 kV <sub>rms</sub>	1 - 64 kV <sub>rms</sub>	1 - 85 kV <sub>rms</sub>
- frequency	0.01-0.1 Hz in steps of 0.01 Hz	0.01-0.1 Hz in steps of 0.01 Hz	0.01-0.1 Hz in steps of 0.01 Hz
Voltage measurement			
- resolution / accuracy	0.1 kV <sub>rms</sub> / 1 % of reading	0.1 kV <sub>rms</sub> / 1 % of reading	0.1 kV <sub>rms</sub> / 1 % of reading
Current measurement			
- resolution / accuracy	1 μA <sub>rms</sub> / 1 % of reading	1 μA <sub>rms</sub> / 1 % of reading	1 μA <sub>rms</sub> / 1 % of reading
Tan Delta			
- resolution / accuracy	1 x 10 <sup>-5</sup> / ± 1 x 10 <sup>-4</sup>	1 x 10 <sup>-5</sup> / ± 1 x 10 <sup>-4</sup>	1 x 10 <sup>-5</sup> / ± 1 x 10 <sup>-4</sup>

PD SERIES

PD30-E  
SH5027



PD60-2  
SH5030  
PDTD60-2\*  
SH5031



PD90-2  
SH5032  
PDTD90-2\*  
SH5033



Operating voltage			
- sine wave	max. 34 kV, 24 kV <sub>rms</sub>	max. 62 kV, 44 kV <sub>rms</sub>	max. 90 kV, 64 kV <sub>rms</sub>
Capacitance			
Coupling capacitor	~ 1.8 nF	~ 1 nF	~ 1 nF
Velocity range (v/2)	10 - 150 m/μs	10 - 150 m/μs	10 - 150 m/μs
Sample rate up to	250 MS/s	250 MS/s	250 MS/s
Bandwidth	100 MHz   analog filter	100 MHz   analog filter	100 MHz   analog filter
Tan Delta*			
- resolution / accuracy		1 x 10 <sup>-5</sup> / ± 1 x 10 <sup>-4</sup>	1 x 10 <sup>-5</sup> / ± 1 x 10 <sup>-4</sup>

\* with integrated Tan Delta diagnostics

PDTD SERIES

PD120-2  
SH5035  
PDTD120-2\*  
SH5034



PDTD200-2\*  
SH5037



PDTD68\*  
SH5060



Operating voltage		
- sine wave	max. 120 kV, 85 kV <sub>rms</sub>	max. 200 kV, 141 kV <sub>rms</sub>
Capacitance		
Coupling capacitor	~ 1 nF	~ 0.75 nF
Velocity range (v/2)	10 - 150 m/μs	10 - 150 m/μs
Sample rate up to	250 MS/s	250 MS/s
Bandwidth	100 MHz   analog filter	100 MHz   analog filter
Tan Delta*		
- resolution / accuracy	1 x 10 <sup>-5</sup> / ± 1 x 10 <sup>-4</sup>	1 x 10 <sup>-5</sup> / ± 1 x 10 <sup>-4</sup>

1 x 10<sup>-5</sup> / ± 1 x 10<sup>-4</sup>







**b2 Suite v2**



**SIMULTANEOUS PD & TD MEASUREMENT**  
The parallel measurement of PD & TD results in significant time savings. In addition, it prevents pre-conditioning of the cable.



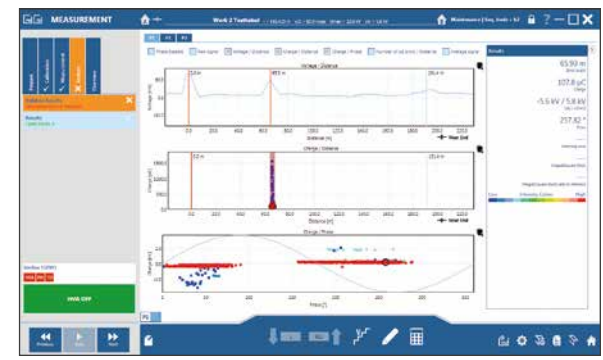
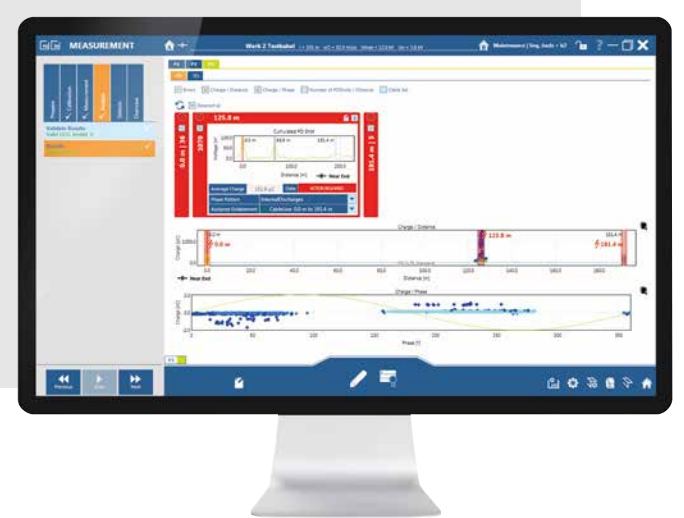
**RELIABLE DETECTION OF PD ACTIVITIES**  
In order to locate PD precisely, the b2 Suite algorithms separate PD events from noise signals.



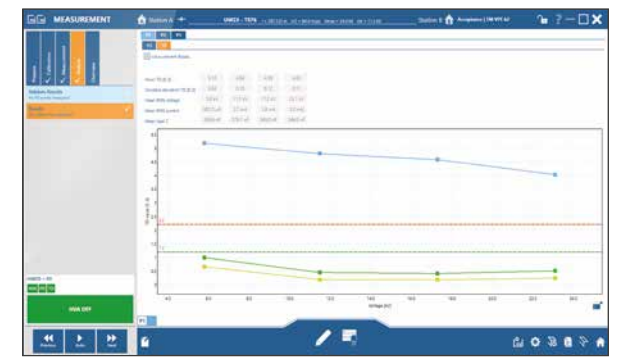
**MONITORED WITHSTAND TEST**  
The b2 Suite allows to visualize Monitored Withstand Tests by displaying live data of simultaneously ongoing VLF withstand tests and TD diagnostics, as per IEEE 400.2.



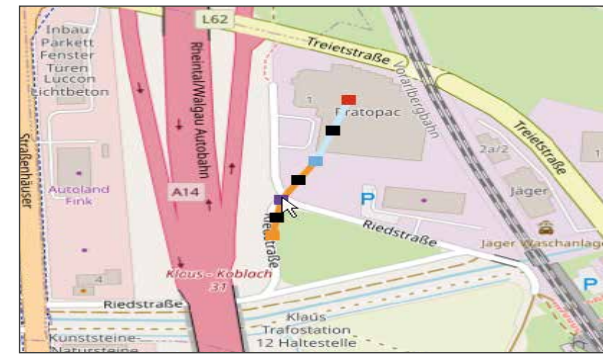
**EASY & INDIVIDUAL REPORTING**  
b2 Suite allows both simple and fast as well as individual and comprehensive reporting. Measurement data and additional files are included with the click of a button, allowing completion of measurements including reporting in only 15 minutes.



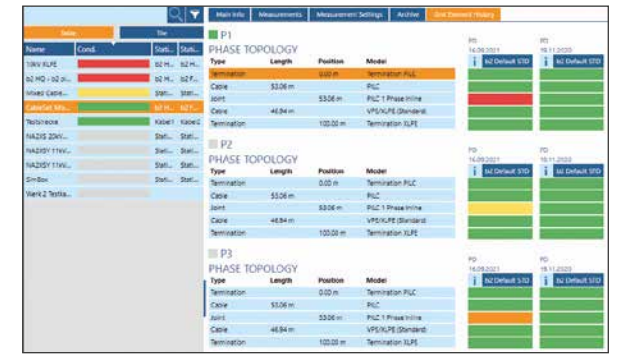
Phase-resolved PD pattern



TD over voltage chart



Direct mapping of the cable trace



Trend of the selected grid element over all taken PD measurements

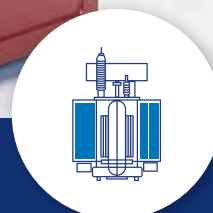
## SOFTWARE SOLUTION FOR TESTING, DIAGNOSTICS & REPORTING

b2 Suite is an all-in-one computer software. A guided diagnostics process leads the operator through the entire cable testing process that includes VLF testing, PD & TD diagnostics, measurement data analysis and reporting, in real time. At the same time, it ensures the analysis and evaluation of the measured data in a comprehensive and easy-reading way. A fast comparison with past measurements in order to perform reproducible measurements is also available.

## YOUR BENEFITS

- Automatic and manual operation modes for VLF testing, PD & TD diagnostics
- Visualization of PD events over the total cable length
- Powerful and comprehensive database
- Definition or recommendation of measuring parameters based on IEEE 400.2, CENELEC HD 620 S2:2010





## BA TRANSFORMER OIL TESTERS



### ULTRA-FAST SWITCH-OFF TIME

Modern mineral or silicon oils as well as new ester oils make oil testing increasingly challenging. An ultra-fast switch-off time ( $<5 \mu s$ ) ensures reliable and reproducible test results.



### AUTOMATIC TESTING ACCORDING TO STANDARDS

For reliable and comparable oil testing results BA test sets come with a set of predefined test sequences. This set complies with all relevant international and national oil testing standards.



### RUGGED DESIGN WITH RELIABLE RFI/EMC SHIELDING

A metal housing ensures best possible RFI/EMC shielding. The rugged design also permits usage in tough environments.



### COMPACT & PORTABLE

BA models are the lightest and the smallest oil testers of their ratings available on the market.

## BA SERIES

Ultra-light Breakdown Analyzers (BA) from b2 electronics are straightforward to operate and ideally suited for both laboratory and on-site transformer insulation oil testing, performing a fully automated oil breakdown test. In order to fit the needs of all our clients, we offer a wide range of reliable transformer oil testers, with test voltages up to 100 kV (sine wave).

BA test sets from b2 electronics include predefined and fully automatic test sequences, which comply with all relevant international standards.



Transport case (optional)



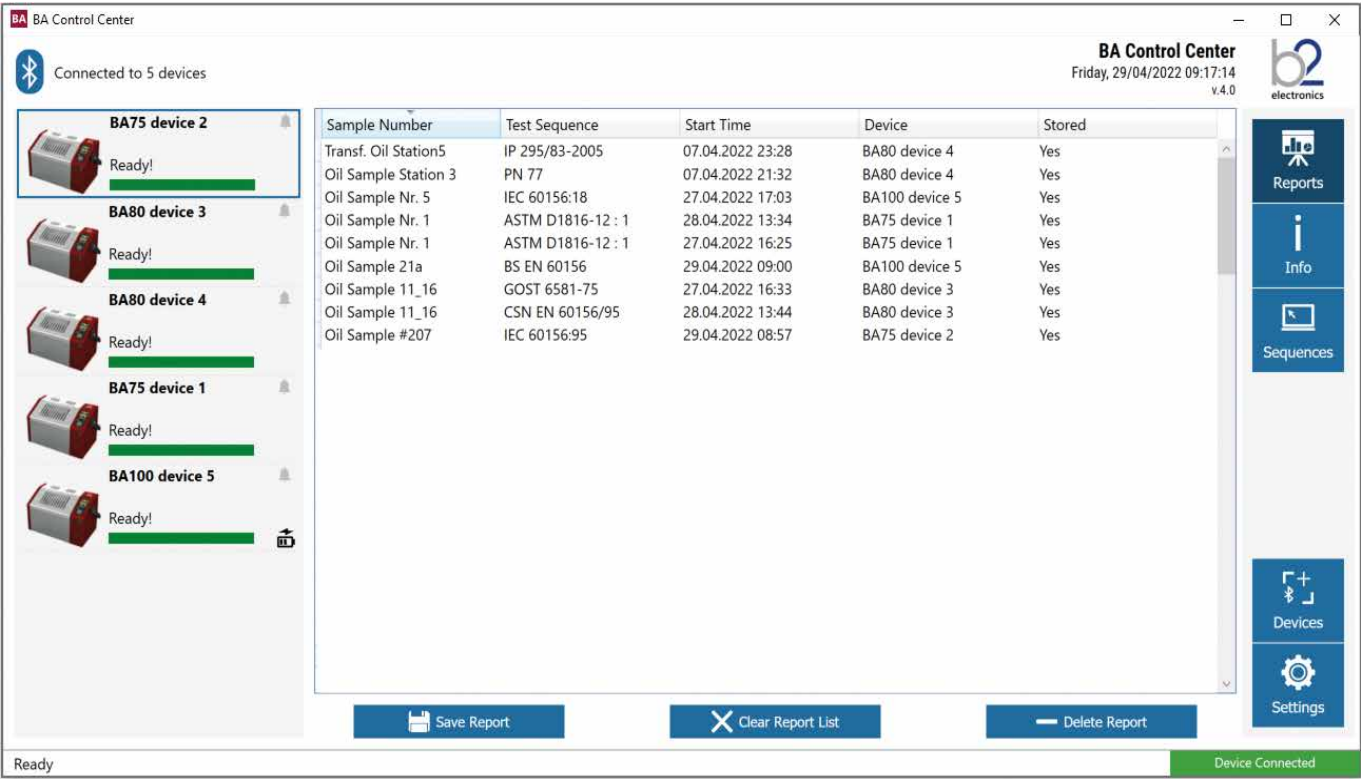
BA100

## YOUR BENEFITS

- Portable test set - ideal for both laboratory and on-site testing
- Suitable for mineral oils, ester, natural, synthetic and silicon fluids
- Automatically generated test reports provided via BA ControlCenter software
- Integrated battery for operation at locations where no mains supply is available
- Automatic test sequences based on relevant international standards (including IEC 60156:2018, ASTM D1816-12, ASTM D877M-13 A/B, etc.)
- Integrated printer for immediate creation of measurement reports
- Test vessels with lockable electrode spacing eliminate the possibility of electrode movement during handling or testing





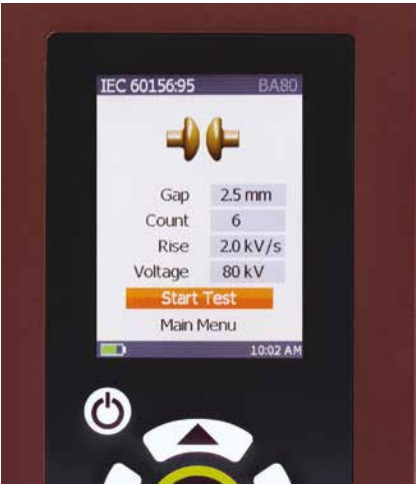


BA ControlCenter SOFTWARE

- Simultaneously manage up to 5 BA test sets
- Start test sequences remotely from your PC
- Create individual test sequences and upload them to the test set via Bluetooth® or USB flash drive
- Load test reports to the PC via Bluetooth® or USB flash drive (as PDF, XML, TXT, ...)



Transfer results via Bluetooth® or USB flash drive



Very bright and high-contrast color display



Print results

BA SERIES



Output voltage	up to 75 kV <sub>rms</sub>	up to 80 kV <sub>rms</sub>
Voltage rise rate	0.5 - 10 kV/s	0.5 - 10 kV/s
Switch-off time on flashover	< 5 µs	< 5 µs
Measurement of oil temperature	0 - 100 °C	0 - 100 °C
Printer / Bluetooth® / USB flash drive	● / ● / ●	● / ● / ●
Weight (incl. battery)	22 kg / 48.5 lbs	22 kg / 48.5 lbs

BA100  
SB5004



Output voltage	up to 100 kV <sub>rms</sub>
Voltage rise rate	0.5 - 10 kV/s
Switch-off time on flashover	< 5 µs
Measurement of oil temperature	0 - 100 °C
Printer / Bluetooth® / USB flash drive	● / ● / ●
Weight (incl. battery)	32 kg / 70.5 lbs

Available test vessels

- Test vessel acc. to ASTM D1816 incl. stirrer, VDE electrode and gauge
- Test vessel acc. to IEC 60156 incl. sphere electrode and gauge
- Test vessel acc. to IEC 60156 incl. mushroom electrode and gauge
- Test vessel acc. to ASTM D877 incl. disc electrode and gauge





Founded in 2001, b2 electronics is an internationally acting company with the goal to innovate high voltage cable testing. With our solutions we help to prevent damage to electrical energy networks in a safe, fast and cost-efficient way. Customers in more than 120 countries put their trust in us and our systems.

### **b2 electronics - the right choice!**

We are engineers who innovate with passion and a sense of responsibility. Our extensive product portfolio is patent proofed and makes us the market leader for compact and lightweight energy cable test and diagnostics equipment. Our solutions are fully researched, developed and manufactured in-house in Austria.



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