Power cable testing and diagnosis

HV400 / 500

DAC Test and Diagnosis System 400 / 500 kV kV_{peak}, for (E) HVAC and HVDC power cable systems

realDAC® HIGH VOLTAGE

Efficient, integrated diagnostics, comprehensive results

- ✓ Powerful PD monitored DAC withstand testing with application of IEEE, IEC, CENELEC and Cigré recommendations
- ✓ Highly sensitive PD measurement and diagnosis with automatic real-time PD localisation
- ✓ Integrated dissipation factor measurement at DAC voltages
- ✓ WIFI controlled automatic PD calibrator, ranging from 1 pC up to 150 000 pC
- ✓ Compact and lightweight
- ✓ All in one onsite testing and diagnosis of MV power cables up to 345 kV (1.31 x Uo)
- ✓ Built in Time Domain Reflectometer (TDR)
- ✓ High security, no electrical connection between DAC system and operating device (Wi-Fi)
- ✓ Automatic breakdown detection function during charging and testing
- ✓ Optional dual sided PD measurement and localisation, for long cables (ds version)
- ✓ Optional Extended Power (EP) version, for faster measurements on long cables

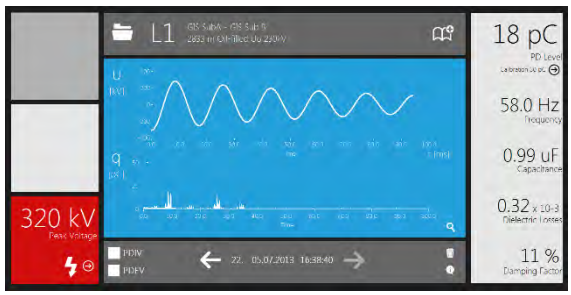
The inventor of realDAC

Technical Data HV400 / 500, HV400EP, HV400EPds

Note: This data sheet indicates general figures, exact specifications are provided on project base.

Max. output voltage	400 kV_{peak}, 282 kV_{rms} * 500 kV_{peak}, 353 kV_{rms} * Precision +/- 1 % Resolution 0.1 kV
Frequency range damped AC	10 Hz … 800 Hz
DAC Test object capacitance range	0.02 … 25 µF @ 400 kV_{peak} 0.02 … 15 µF @ 500 kV_{peak}
HV energizing current	14 mA, up to 70 mA (HV400EP) * 10 mA, up to 50 mA (HV500EP) *
PD measuring range	10 pC … 150 nC
PD measuring bandwidth	Acc. to IEC 60270
PD localisation bandwidth	150 kHz … 50 MHz, wide range automatic bandwidth adaptation for short and long cables
PD measuring resolution	1 pC
PD localisation accuracy	< 1% of cable length +/- 6 meters for ds version
TDR joint localisation	Integrated in calibration mode
Dissipation Factor (DF) measurement	0.10 … 10.00 %
Analysis software	DAC Explorer software, comprehensive viewing, processing, analysing and reporting of measurement data
Power supply (One HV master power supply unit)	3 phases AC 230/400 V * ± 10%, 48 … 63 Hz, 6 kVA …. 30 kVA * (EP version)
Ambient temperature (operating)	-20 °C … +65 °C, 95%, non-condensing
Net weight	approx. 770 kg (HV400 standard system only) approx. 950 kg (HV500 standard system only)
Dimensions (approximative)	Ø 800 x H 2200 mm (HV divider) Ø 700 x H 3000 mm (Coil unit) Ø 800 x H 2200 mm (HV power supply) Ø 600 x H 220 mm (HV switch)
Flight cases (approximative)	10 cases on wheels, tot. weight 1250 kg 11 cases on wheels, tot. weight 1550 kg (incl. system)

Changes to specifications are subject to change without notice, * different test voltages and energizing current on request



Applications

- Capable of performing all necessary on-site tests and measurements on all types of (E)HV power cables
- After-laying testing of newly installed or repaired cable systems
- Testing in line with IEC 60840, IEC 62067, IEEE 400 and CENELEC HD 632 S2
- Routine testing and diagnostics for assessment of service-aged cables
- PD monitored voltage withstand testing and non-destructive diagnostic testing
- Comprehensive PD measurement capabilities according to IEC 60270, IEC 60885-3, IEEE 400.3

Features

- PD monitored withstand test by applying DAC voltage excitations up to 400 / 500 kV_{peak}
- Measurement of PD level, PD inception and PD extinction voltage
- Phase resolved PD analysis
- Multiple PD spot localisation in cable insulation and accessories
- Extended diagnosis with tip-up Dissipation Factor (Tanδ) values at DAC voltages
- Modular compact DAC system components stored in light-weight flight cases
- Easy to transport in standard trucks/vans or on airplanes
- Low energy mains consumption, mains only mall external power generator needed
- Flexible arrangement on site if accessibility is limited and space is tight
- Online "Live" PD Mapping
- Wireless controlled calibrator, for simple and fast calibration
- Calibration by cable length or propagation velocity
- Automatic breakdown detection function during charging and testing
- Optional Extended Power (EP) version for extra-long HV cables
- Expandable with double-sided measuring systems (ds version). Having a PD detector at both cable ends. This allows PD to be located even on very long cables, and the location accuracy is significantly higher.

onsite hv / Seitz Instruments AG member of onsite hv group
Mellingerstrasse 12 CH-5443 Niederrohrdorf Phone + 41 56 496 74 80 info@onsitehv.com www.onsitehv.com