# ACS

## AC Test Sets

*Datasheet*


HAEFELY

Current and voltage – our passion

Designed by Tettex

# General Description

AC high voltage sources are used for dielectric proof tests on high voltage components - according to IEC and ANSI standards - such as distribution transformers, instrument transformers, switchgear, bushings, motors, cable terminations to give just a few examples.

The ACS range is our latest generation of standard dielectric test sets, they are easy and safe to use with long trouble free life cycle.

HAEFELY HVC 300 AC controls the system. This state of the art PLC based control includes all necessary components for the operation of the test system and communicates with a standard Windows based computer running CaMS™ (Control and Measurement Studio), our universal platform for controlling test systems and measuring instruments

The ACS test sets can be combined with our highly accurate measuring instruments to perform additionaltests like partial discharges or tan δ (dissipation factor).

| Features | Advantages |
|---|---|
| ▪ Fulfils IEC, IEEE and other relevant standards | ☑ Guarantees test procedures and measurements as defined in the standards, guarantees reliable and traceable test results. |
| ▪ Highest industrial Safety Integrity Level SIL 3 (ISO 61508) certified. | ☑ Guarantees maximum operator safety. |
| ▪ All in one solution from a single supplier | ☑ Plug and play including the source and the measuring devices |
| ▪ HVC 300 AC control unit with HAEFELY CaMS™ user interface | ☑ Windows based graphical user interface allows the operator to start using the system with minimal training. |
| ▪ Tank type oil isolated HV transformer with capacitive bushing, temperature indicator and dehydrated breather. | ☑ Reliable transformer design which guarantees a long trouble free life. |
| ▪ Fastest and most reliable electronic flash detection | ☑ keeps the test object safe in case of failure faster than a traditional current detection based method |
| ▪ PD free (option) | ☑ The PD free options allows a PD level <1 pC(1) |

(1) at the end of HV filter. (Inherent PD of the system, not considering environmental noise)

# Applications

Performing dielectric test in high voltage apparatus like:

- HV components
- Instrument Transformers
- Distribution Transformers
- Switchgear
- Bushings and Arrestors
- Rotating machines
- Cable joints
- Connectors and isolators

# Scope of Supply

AC dielectric test set ACS VV(1)-PP(2) including:

- STL Regulating cabinet
- HVC 300 AC embedded measuring and control device
- PK Tank type step up transformer
- CaMS™ Remote Software
- Power, measuring and communications cables, 20m length
- Ground Stick
- Emergency stop
- Test report
- Instruction Manuals

(3)VV = VOLTAGE (kV) ; (4)PP = POWER (kVA), For accessories and options please see the ACS brochure, can be download from www.haefely.com

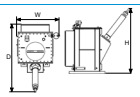
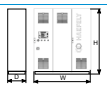
# Technical Data

## General

| | Reg. | Transf. | O. Volt. (1) (kV) | O. Power (kVA) | O. Current (mA) | I. Power (kVA) | Duty Cycle |
|---|---|---|---|---|---|---|---|
| ACS 25-20 | STL 20 | PK 25-20 | 25 | 20 | 800(2) | 22 | 1h ON, 1h OFF, 4 times/day |
| ACS 25-40 | STL 40 | PK 25-40 | 25 | 40 | 1600(2) | 42 | 1h ON, 1h OFF, 4 times/day |
| ACS 25-60 | STL 60 | PK 25-60 | 25 | 60 | 2400(3) | 62 | 15' ON, 1h OFF, 4 times/day |
| ACS 25-80 | STL 100 | PK 25-80 | 25 | 80 | 3200(3) | 82 | 15' ON, 1h OFF, 4 times/day |
| ACS 50-20 | STL 20 | PK 50-20 | 50 | 20 | 400(2) | 22 | 1h ON, 1h OFF, 4 times/day |
| ACS 50-40 | STL 40 | PK 50-40 | 50 | 40 | 800(2) | 42 | 1h ON, 1h OFF, 4 times/day |
| ACS 50-60 | STL 60 | PK 50-60 | 50 | 60 | 1200(2) | 62 | 1h ON, 1h OFF, 4 times/day |
| ACS 50-100 | STL 100 | PK 50-100 | 50 | 100 | 2000(2) | 102 | 1h ON, 1h OFF, 4 times/day |
| ACS 75-20 | STL 20 | PK 75-20 | 75 | 20 | 267(2) | 22 | 1h ON, 1h OFF, 4 times/day |
| ACS 75-40 | STL 40 | PK 75-40 | 75 | 40 | 533(2) | 42 | 1h ON, 1h OFF, 4 times/day |
| ACS 75-60 | STL 60 | PK 75-60 | 75 | 60 | 800(2) | 62 | 1h ON, 1h OFF, 4 times/day |
| ACS 75-100 | STL 100 | PK 75-100 | 75 | 100 | 1333(3) | 102 | 15' ON, 1h OFF, 4 times/day |
| ACS 100-20 | STL 20 | PK 100-20 | 100 | 20 | 200(2) | 22 | 1h ON, 1h OFF, 4 times/day |
| ACS 100-40 | STL 40 | PK 100-40 | 100 | 40 | 400(2) | 42 | 1h ON, 1h OFF, 4 times/day |
| ACS 100-60 | STL 60 | PK 100-60 | 100 | 60 | 600(2) | 62 | 1h ON, 1h OFF, 4 times/day |
| ACS 100-100 | STL 100 | PK 100-100 | 100 | 100 | 1000(2) | 102 | 1h ON, 1h OFF, 4 times/day |

(1)Output voltage at continuous duty cycle, 75% of the output voltage, (2) Output current at continuous duty cycle & 75% of the output current. (3) Ask Haefely for continuous duty

## Mechanical

| | PK 25 - 20<br>PK 25 - 40 | PK 25 - 60<br>PK 25 - 80 | PK 50-20<br>PK 50-40 | PK 50 - 60<br>PK 50 -100 | PK 75-20<br>PK 75-40 | PK 75-60<br>PK 75-100 | PK 100-20<br>PK 100-40 | PK 100-60<br>PK 100-100 |
|---|---|---|---|---|---|---|---|---|
| Dimen. (2)<br>W - Width<br>D - Depth<br>H - Height |  <br>900 mm<br>1500 mm<br>1600 mm | <br>950 mm<br>1500 mm<br>1600 mm | <br>900 mm<br>1500 mm<br>1600 mm | <br>980 mm<br>1550 mm<br>1600 mm | <br>900 mm<br>1550 mm<br>1700 mm | <br>980 mm<br>1600 mm<br>1700 mm | <br>995 mm<br>1600 mm<br>1700 mm | <br>1100 mm<br>1650 mm<br>1700 mm |
| Weight (2) | 520 kg | 930 kg | 530 kg | 950 kg | 540 Kg | 970 kg | 560 kg | 990 kg |
| | **STL 20** | | **STL 40** | | **STL 60** | | **STL 100** | |
| Dimen. (2)<br>W - Width<br>D - Depth<br>H - Height |  <br>1800 mm<br>890 mm<br>2200 mm | | 1800 mm<br>890 mm<br>2200 mm | | 1800 mm<br>890 mm<br>2200 mm | | 1800 mm<br>890 mm<br>2200 mm | |
| Weight (2) | 625 kg | | 740 kg | | 850 kg | | 920 kg | |

(2) Dimensions and weights are approximate and can vary with the final design.

## Common specs

| PD level | Standard | ACS PD FREE 10(opt) | ACS PDFREE 1(opt) |
|---|---|---|---|
| PD level | <25 pC | <10 pC | <1 pC |
| Tan δ, GST mode ready | Yes | | |
| Bushing | Resin impregnated paper, bushing tap as capacitive divider for voltage reading. | | |
| Control | HVC 300 AC CaMS™ software on Windows based computer(opt), ethernet or fiber optic connection(opt) | | |

## Measurement

| | |
|---|---|
| Voltage meas. modes | peak, peak/√2, rms. |
| Voltage range / accuracy | 1$V_{peak}$ … 200 $V_{peak}$ (8 ranges) / ± 1.0% RD, ± 0.01% Range. 4 digits. |
| Flash detection | Included, transient detection on voltage reading, response time < 20msec. |
| Current meas. modes | Peak, rms |
| Current ranges / accuracy | 100 mA …. 5A (6 ranges) / ± 1.0% RD, ± 0.01% Range – 4 digits |
| Overcurrent detection | Included, slope |

## Environmental and Power Supply

| | |
|---|---|
| Operating temperature | 0°C …. +40°C |
| Storage temperature | -5°C … +50°C |
| Humidity | 5 … 90% r.h , non-condensing |
| Altitude above see level | < 1000 m , voltage derated by 1% per 100m above |
| Colours | RAL 9002 (Tanks and cibicles) , Aluminium (Electrodes) |
| Power supply Spec. | 2 x 400 V ± 10 %(3) (Standard) – Other input voltages with the ACS TRANS(opt) |

## PC, Screen Resolution and Operation System Requirements

| | |
|---|---|
| PC min. configuration | Intel Core i3® / AMD Athlon II X2® or better, 4 GB RAM, Ethernet / USB 2.0 |
| Screen resolution | 1920 x 1080 (FHD) |
| Operation system | Windows 10™ 64 bits |

## Applicable Standards

| | |
|---|---|
| Safety | SIL III |
| CE conformity | EMC Directive 2014/30/EU |

(opt) optional

# Global Presence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Current and voltage – our passion

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