

# DISCONNECTOR ANALYZER & TIMER

## DIS-H

- Motor current, voltage and power consumption measurement
- Compact and ergonomic design - only 1,5 kg (3.3 lbs)
- Graphical touch-screen color display, 145 mm (5.7 in)
- New **Dark mode** display feature for improved visibility
- Overlay analysis of up to 4 graphical results
- Disconnectors and earthing switches motors testing
- Internal battery power supply (user replaceable)
- Battery operation for up to 8 hours



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### Description

DIS-H is a handheld, battery -powered disconnector analyzer that is ideal for recording motors operating time, voltage, current and power consumption. It is a digital instrument for condition assessment of HV/MV disconnectors in electric utilities and industrial facilities.

The application of the disconnector analyzer can improve the operation and extend the life of the disconnecting motor drive.

Before the start of the test, the DC current clamp needs to be connected to the output channel of the motor. The recording starts when the motor begins with opening or closing the corresponding disconnector.

The hooked DC current clamp measures the current through the motor depending on the previously defined operation settings.

DIS-H can measure the following parameters:

- DC supply voltage
- Motor current, voltage and power consumption
- Motor operating time

Two different operational modes:

- Open
- Close

DIS-H displays numerical and graphical results (it can overlay up to 4 test results in graphical form). This enables quick onsite analysis of potential defects by comparing the obtained test results. In addition, through the graphical results comparison, the user may compare the obtained results of the disconnecting motor drive of all three phases of a single-pole disconnector.

## Features



DIS-H handset front, top, bottom, and back view

### 1 – Touchscreen display

Touchscreen color display 5.7 in, that can display both graphical and numerical results.

### 2 – Soft keys

Used for selecting preferred (test) settings (options/menus) as an alternative to the touchscreen.

### 3 – Alphanumeric keypad

Used for entering the disconnecter data, test data and control functions.

### 4 – Power ON/OFF indicator

Indicates if the instrument is turned ON/OFF.

### 5 – Power ON/OFF button

Used for turning ON/OFF the instrument turning.

### 6 – DC voltage channel input

Used for a voltage measurement of the motor's power source.

### 7 – DC current clamp input

Used for a DC motor current recording and measurement.

### 8 – DC power supply

12 V DC, 3 A  
DC adapter 90-264 V AC (47-63 Hz) / 12 V DC

### 9 – Flash drive

Used for a direct download of test results on a USB memory stick, and upload of the test results to the DIS-H instrument.

### 10 – PC communication

USB interface for PC.

### 11 – Mounting magnets

Three magnets that can be used to mount the DIS-H instrument to any metal surface.

### 12 – Battery cover

The battery is user replaceable and can be replaced easily by removing the battery cover.

## Application

The list of the instrument application includes:

- Offline testing of disconnectors and earthing switches.
- Motor current, voltage, power consumption and operating time measurement.
- Evaluating the state of the disconnecting motor by graphically and numerically showing the voltage and current values of the disconnector motor drive.

## Motor test

The motor test is important to determine the condition of the disconnector motor drive and provide us with essential information on, how would the disconnector operate in a real-life situation, where a specified service is needed.

A disconnector is usually used in cases where a service or maintenance is needed on the power system, where it ensures that the complete electrical circuit is de-energized and grounded. HV disconnectors are mostly used within electrical substations in order to isolate electrical equipment such as circuit breakers and transformers. In case that the disconnectors operating mechanism is motorized, the motor has to be capable of being controlled either remotely or locally.

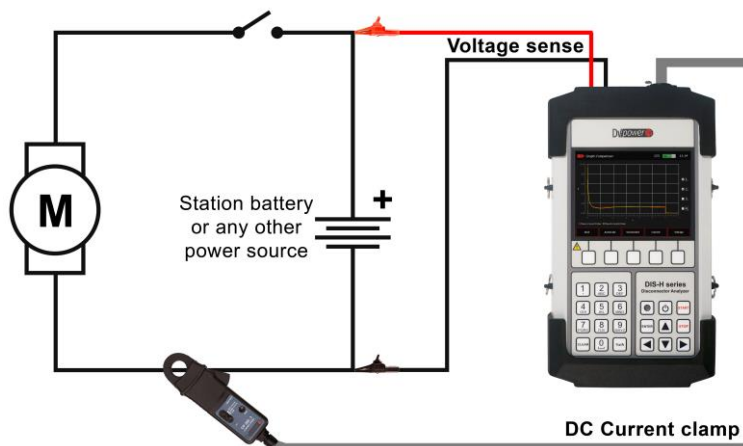
Before the start of the test, the DC current clamp needs to be connected to the DC clamp input connector. The current clamp provides the recording of the motor current waveform. In addition, the Voltage sense cables have to be connected to the DC Voltage input of the DIS-H device and in parallel to the station battery or any other power source used to operate the motor drive.



*DIS-H mounted on the disconnectors cubicle during testing*

The DC Voltage measurement provides a clear indication of the DC station battery condition or any other power source and associated wiring.

The recording will start once the motor begins with its operation of opening or closing a certain disconnector. Where, the recording is triggered by either current or voltage threshold value depending on the previously set settings. In addition, the trigger waiting time can be set as 10 s, 20s and unlimited waiting period.



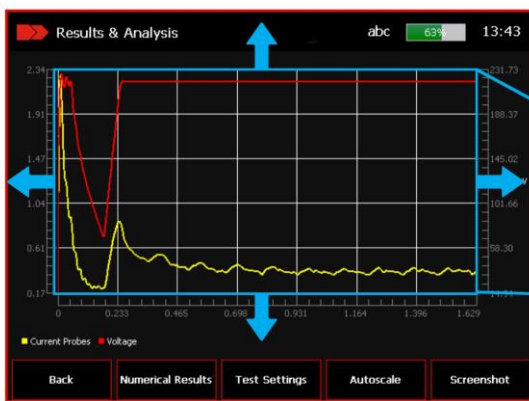
*DIS-H connection to the motor drive of the disconnector*

## Analysis Tool

In addition to the DV-Win analyzation software that is listed as part of the included accessories of the DIS-H instrument, analysis of the test results can be performed by using the standalone instrument as well. The instrument can compare up to 2 numerical results, and up to 4 graphical results.

The user may take screenshots of the graphical results and store them directly to the internal memory of the instrument (single result) or to a USB Flash Drive (comparing two or more results). The images stored within the internal memory will be transferred together with the test result during the process of exporting the results to a USB Flash Drive. In addition, after each performed test, the instrument will generate a **.csv** report that will include all current and voltage values with respect to the time point, and store the file within the internal memory of the instrument.

The results can now be imported to and exported from the DIS-H instrument using the included USB cable and the USB Flash Drive.

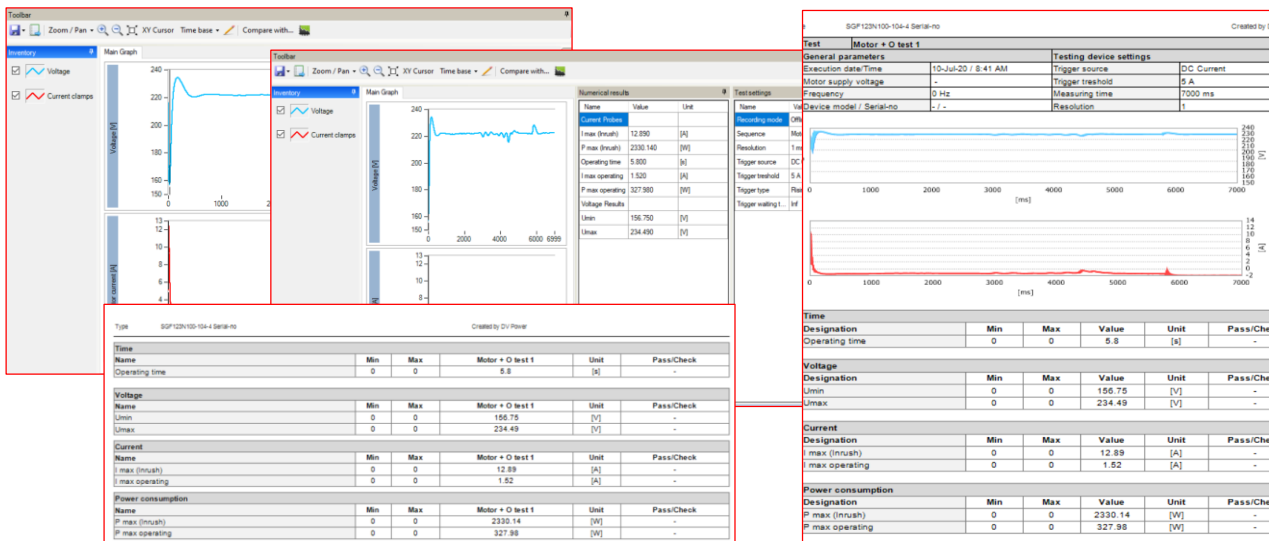


The user can easily navigate through a zoomed-in graphical result using the arrows (▲▼◀▶) on the DIS-H instrument for detailed analysis. (e.g. observing the Inrush current)

## DV-Win software

DV-Win software provides acquisition and analysis of the obtained test results. Graphical representation of a variety of measurement results uses cursors and powerful zoom functions for detailed analysis.

- Detailed analysis of the test results.
- The test results can be viewed, edited, saved, printed and exported.
- Selecting the measurement points and intervals using the two cursors.
- Zoom and pan graph feature.
- Viewing and overlaying several graphs, for an easy test result comparison.
- Generation of a completely editable test report that can be exported in a variety of formats.



## Technical data

### Time measurement

Time measurement resolution:

- 1 ms to 10 ms depending on test duration (sampling rate up to 10 kHz)
- Time accuracy: 0,05% of the reading  $\pm$  resolution

### DC Current Clamps

- Measuring ranges: 30/300 A
- Frequency range: DC to 20 kHz (-3 dB)

### DC Voltage Measurement

- Range:  $\pm 300$  V DC
- Typical accuracy:  $\pm 0,5\%$  RDG  $\pm 0,5\%$  FS
- Guaranteed accuracy:  $\pm 1\%$  RDG  $\pm 1\%$  FS

### Handset and inline power supply

- 12 V DC, 3 A
- Input: 90 – 264 V AC, 50/60 Hz

### Internal battery supply

- 2 x 3,7 V, 2900 mAh rechargeable and user replaceable Li-ion battery
- 8 hours under normal usage

### Display

- Touch screen color display 145 mm (5.7 in)
- Graphic and numeric results

### Applicable standards

- Safety:
  - Low Voltage Directive: Directive 2014/35/EU (CE conform)
  - Applicable standards, for a class I instrument, pollution degree 2, Installation category II: IEC EN 61010-1
- Electromagnetic Compatibility:
  - Directive 2014/30/EU (CE conform)
  - Applicable standard: EN 61326-1
- CAN/CSA-C22.2 No. 61010-1

### Encapsulation class / Ingress protection

- IP40

### Environmental conditions

- Operating temperature:
  - 10 °C to + 55 °C / 14 °F to +131 °F
- Storage & transportation:
  - 40 °C to + 70°C / -40 °F to +158 °F
- Humidity 5 % - 95 % relative humidity, non condensing

### Dimensions and weight

- Dimensions (L x W x H):
  - 310 x 170 x 58 mm / 12.21 x 6.69 x 2.28 in
- Weight:
  - 1,5 kg / 3.3 lbs.

### Warranty

- 3 years + additional 1 (one) year upon registration on DV Power official website ([www.dv-power.com](http://www.dv-power.com))

*All specifications herein are valid at ambient temperature of + 25 °C and recommended accessories. Specifications are subject to change without notice.*



## Accessories



Voltage sense cable set 2 x 5 m (16.4 ft) 2,5 mm<sup>2</sup> (13 AWG) with banana plugs



Current clamp 30/300 A power supplied from the instrument with extension 5 m (16.4 ft)



Test probe with grip jaws (red, black)



Dolphin clip (red, black)



Cable bag



Power supply adapter



Plastic transport case for DIS-H



Resistive touch pen

## Order info

Instrument with included accessories	Article No.
Disconnecter Analyzer DIS-H with DV-Win software including USB stick and mini USB cable, Carrying belts, Resistive touch pen and Plastic transport case	DISH000-N-00
Power supply adapter	
Recommended accessories	Article No.
Current clamp 30/300 A power supplied from the instrument with extension 5 m	CACL-0300-06
Voltage sense cable set 2 x 5 m 2,5 mm <sup>2</sup> with banana plugs	S2-05-02BPBP
Dolphin clip (black)	DOLPIN-CL-B0
Dolphin clip (red)	DOLPIN-CL-R0
Optional accessories	Article No.
Voltage sense cable set 2 x 2 m 2,5 mm <sup>2</sup> with banana plugs	S2-02-02BPBP
Voltage sense cable set 2 x 10 m 2,5 mm <sup>2</sup> with banana plugs	S2-10-02BPBP
Test probe with grip jaws (black)	TESTPR-GJ-B0
Test probe with grip jaws (red)	TESTPR-GJ-R0
Test probe with split test clamps (black)	TESTPR-SC-B0
Test probe with split test clamps (red)	TESTPR-SC-R0
Resistive touch pen	RSTCH-PEN-00
Cable bag	CABLE-BAG-00
Plastic transport case for DIS-H	HARD-CASE-DH
Plastic transport case for accessories	PLAST-CAS-00
Power supply adapter EU 3 A	PWR-ADP3A-EU
Power supply adapter NA 3 A	PWR-ADP3A-NA
Power supply adapter UK 3 A	PWR-ADP3A-UK
Power supply adapter AU 3 A	PWR-ADP3A-AU

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