

# UG36

## High Voltage Tester

6 000 V DC / 10 mA

### Product Information Sheet





## Short summary - overview

Item number	201866
Test voltage	100 – 6 000 V DC, PI - regulated
Test current, limit	0,1 - 10 mA
safety current limited	< 12 mA, EN 50191
Testing time	1 s - 99 min, endless
Potential free	suitable for testing with test pistols, according to EN 50191

## Functions and range of application

- Over limit trip and peak detection
- Voltage ramp, key panel interlock, minimum current monitoring
- Remote-controllable (DLL, ASCII, LabVIEW, C#, DataView, Digital-IO)
- Source-sense operation, test pistols with start automatic (patented \*)
- Monitoring of connection and cable failure (patented \*)
- 15 programmable sets of parameters
- Signalling: Acoustic, optical and via interface
- Safety circuit including two interlock safety relays

(\*) patented:  
The ETL contact monitoring (KÜ) is a patented technology:

German patents  
100 11 466.0 and 100 11 345.1

European patents  
01 105 568.8 und 01 105 567.0)

### Universal usage

- Individual test device
- In semi-automatic test stations
- In all-automatic test stations
- 19" rack version available

### Remote-controllable

- Control interface (RS232) for remote control by PC (DLL, ASCII, LabVIEW, C# or GUI software DataView)
- Digital interface for remote control by PLC (Start, Stopp, In Operation, Failed, Passed)

### Usage

- Potential free testing with test pistols
- Testing with fixed cables and two-hand operation
- Testing with safety test cage (automatic protection against direct contact)
- Semi- or fully- automatic testing on a production line.

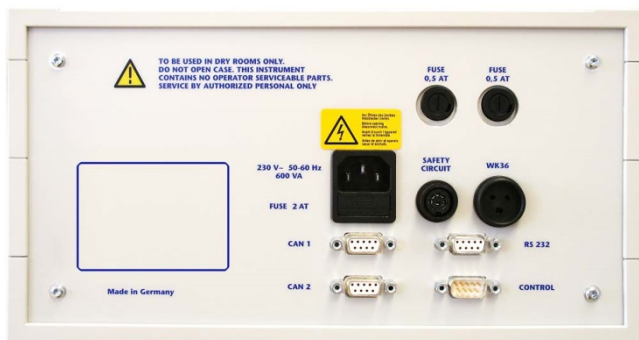
## Device views

### Front side



- LED – display elements
- Display of preset and actual values: Voltage, current, testing time
- Pushbuttons for setting-up test parameters
- Function selection buttons
- Signalling: danger, test running, test fail, type of fault

### Back side



### Interfaces and connections

- Control interface / digital IO
- RS232 Interface
- ETL CAN bus for controlling peripheral equipment (Relay matrix, etc... )
- Safety circuit, signal lights
- Fuses, Mains voltage

## Detailed functional description

### Shut-down over limit detection and peak detection

Insulation fault of the test object can be detected by several criteria. Insulation fault alarm will be triggered by a current over limit exceedance or by a special peak detection in order to detect even low-energy spikes.

### Voltage ramp and detection of disruptive discharge voltage

The voltage ramp can be switched on in addition. Parameters like rise time and fall time are freely selectable. The voltage ramp enables safe testing and it is absolutely necessary for testing to norms which require special voltage curves. The voltage at which an isolation fault is detected, will be permanently displayed as a flashing value.

### Key panel interlock

The key panel interlock prevents incorrect setting of parameters. It can be set up individually. For example all pushbuttons may be locked. Also desired functions can be left unlocked.

### Test device for operating "Stand-Alone" or remotely controlled via interface

The test device can be controlled by a Windows software (user interface software DataView), by a self created custom software application (LabView, DLL, C#), simple command parameters (ASCII) or digitally with a PLC (Digital-IO).

### Automatic start up

The start signal can be triggered by slightly pressing the test pistons to the test object. The test voltage will only be switched-on when the tips of both test pistons are safely connected to the test object. This will prevent the test object from voltage peaks and ensures the correct of test time.

### **Cable break monitoring and connection monitoring to the test object**

The high voltage cables are designed for 4-wire-technology. Source-sense monitoring ensures maximum process reliability (Patent).

### **Freely programmable sets of parameters**

15 freely programmable sets of parameters are available for recalling test parameters.

### **Signalling: Acoustic, optical and communication interface**

Faulty test objects can be reliably identified. Indication lights will also flash additionally.

### **Safety circuit including two forcibly guided safety relays**

The safety technology is designed according to EN 50191.

### **Measuring of current and voltage directly on the high voltage section**

Direct measurement guarantees absolute accurate test results.

### **Regulated test voltage**

Continuously PI-controlled (power integral) test voltage is stabilized regardless of fluctuations in the mains voltage.

### **High voltage, potential-free**

The test voltage is potential-free. This grants highest possible security for the operating person and is a requirement for performing high voltage tests by using test pistols.

### **Individual setup**

Start options, language, behaviour of digital IO interface, voltage ramp options, options for connection and cable break monitoring, etc.

### **Updatable via interface**

For customer specific adaptations and updates.

## **Interfaces**

### **Control interface / Digital-IO**

Digital interface for connection to a PLC, footswitch or a remote panel including signalling of start, stop, good result, bad result, faulty test object and in operation.

### **RS232 / PC-interface**

For Computer connection. All parameters are selectable in a major control program. The defined test values will be automatically adjusted by the test device. The RS232 interface also allows permanent data logging and controlling of status information.

PC-software options are: The data management software DataView or drivers (DLL, ASCII, LabVIEW, C#) for your own application.

### **RS232 / ASCII printout**

Direct connection for a terminal program or to a protocol printer. Results are sent by the device in ASCII format and can be read from the interface alternatively to the other software options. The output language is adjustable.

### **CAN-Interface**

Expansion of the test system by add-on features and by further extensions. Any number of ETL test devices and CAN-components may be attached to this interface in a row and can be remotely controlled.

### **Safety circuit**

For integrating an adequate custom safety circuit regarding EN 50191. Three different circuit arrangements are available for standardized testing with test pistols, test cages or transfer lines.

### **Signal light connector**

For connecting a signal light combination consisting of red and green allround lights. According to EN 50191.

## Specifications, device characteristics

### Test voltage

Setup range	100 – 6 000 V DC
Resolution, Digit	10 V
Measurement inaccuracy, precision	1 % of measured value +/- 2 Digits
Voltage stability	regulated output voltage, PI-regulated
Voltage ramp	freely programmable
Display for actual value	LED-Display 13 mm, red
Display for desired value	LED-Display 10 mm, red

### Test current

Setting range, threshold value	0,1 - 10 mA
Resolution / Digit	0,1 mA
Measurement inaccuracy, precision	1 % of Reading +/- 3 Digits
Safety current limited	< 12 mA, according to EN 50191
Display for actual value	LED-Display 13 mm, red
Display for desired value	LED-Display 10 mm, red

### Testing time

Setting range, testing time	1 s - 99 min, continuous
Setting range, ramp time	0,5 s - 99 s
Resolution up to 10 s	0,1 s (Digit)
Resolution display > 10 s	1 s
Measurement inaccuracy, precision	+/- 1 Digit
Start testing time	The test time does not start before the desired test voltage has been reached.
Minimum testing time	1 s
Display for actual value	LED-Display 13 mm, red
Display for desired value	LED-Display 10 mm, red

### General data

Mains supply	230 V, 50 Hz / 60 Hz
Mains connection	Schuko-plug
Tolerance mains voltage	+/- 10%
Current consumption	max. 2 A
Fuse	2 A, T, 5 x 20 mm, 250 V
Displays	LED, permanently shown actual and desired values
Setting of test parameters	manually or all-automatic via interface (ASCII, DLL, LabVIEW, C#, DataView)
Programming	15 sets of parameters, freely programmable
Signalling	acoustic, optical and over interface
Outputs front panel	2 x high voltage outputs (2-poled socket)
Dimensions (W x H x D)	308 x 168 x 273 mm
Weight	appr. 13,9 kg
Casing	synthetic material, RAL 7035

Basic equipment	manual, mains cable, safety circuit plug
Calibration	incl. certificate of factory-calibration traceable to national standards, DAKKS-calibration according to DIN EN ISO/IEC 17025 optional available

### Environmental conditions

Casing	IP20
Humidity	max. 80 %, non condensing
Allowed range of temperature	+ 5 to + 40 °C
Max. height above sea level	2 000 m
Cooling	passive, active cooling optional available

### Interfaces

Control- / Digital-IO	start, stop, GOOD / BAD result, test running
RS232 for remote control	computer connection for terminal programming and controlling by customer specific software applications, optional usage of a protocol printer
CAN Interface	for expanding the test system by additional devices

### Additional functions

Voltage ramp	The voltage ramp time is freely programmable. The test voltage will ramp up to the desired value. Testing then start when this value has been reached.
Fault detection	switch off on threshold value and by peak detection
Contact monitoring	permanently monitoring of contact to the test object, requires suitable 4-pole contact German patents 100 11 466.0 and 100 11 345.1 European Patents 01 105 568.8 and 01 105 567.0
Cable break monitoring	permanently monitoring for lead open circuit and interruption German patents 100 11 466.0 and 100 11 345.1 European patents 01 105 568.8 and 01 105 567.0
Minimum-current monitoring	permanent monitoring during the whole testing process
Automated test start	The ETL test pistol HTP06C has a special hardware layout for detecting a proper connection to the test object. German patents 100 11 466.0 and 100 11 345.1 European patents 01 105 568.8 und 01 105 567.0

### Expanded device-Setup

Ramp function	individual setup
Ramp options	individual setup for ramp-up time and ramp-down options
Locking of pushbuttons	individual setup
Signal-configurator	individual setup for digital result outputs
Buzzer-options	individual setup of acoustic signals
LED-display	individual LED brightness
Start options	individual setup of start modes
Language and mode selection for external printer	printout at pass, fail, continuous or switch off Formats: List or CSV

## Start options for testing

Start- and stop- signal by test pistol	Special 4-wire-technology for automated test start and connection monitoring. Test voltage will only start when both test pistols have contact to the test object.
Automatic start via safety circuit	The test can be started with the closing of the testing cage.
Start button on the device	front panel button for test-start
Start by serial interface	triggered by a PLC or a PC
Start by digital interface	Digital I/O for example by a footswitch, PLC or a push button
Start options	individual setup of start modes

## Outputs – DUT, security components

High-Voltage outputs	The connection is made using the 2 potential-free high voltage output connectors (HV-Socket HVS06C). Each of the outputs are 2-poled (source and sense, AØ 6 mm, IØ 2 mm). Real monitoring of contacts is now possible in an automated environment.
Safety circuit	allows the connection of a safety circuit according to EN 50191
Signal-light connector	for connecting a combined green/red signal light according to EN 50191

## Electrical safety and norms

EN 61010-1	safety regulations for electrical measurement, control- and lab- equipment
EN 61326-1	electrical measurement, control- and lab- equipment – EMC-requirements
EN 61000-3-3/EN 61000-3-2	Electromagnetic compatibility (EMC)
EN 50191	erection and operation of electrical test equipment
EN 60598-1	luminaire / Part 1: General requirements and tests
Contamination level	2
Protection class	1