

Data Sheet no. 1.54/4

Operator Device, Type BG 5R, for AC Voltage Test Systems based on Resonant Circuits

1. Application

AC test systems with resonant circuit of variable inductance are operated by the operator device type BG 5R, consisting of the hardware BG 5 with a special Human Machine Interface (HMI) software "R".

The operator device BG 5R is an integral component of the HIGHVOLT basic control BC 5R for AC voltage test systems (Catalog Sheet 1.52) based on resonant circuits of variable inductance. It serves as control and display of test procedures.

The BG 5R allows manual control of the test system and simple automatic test procedures. It is related to conventional test equipment control with completely separate external measuring devices (PD, $\tan \delta$, current, etc.). The operator device BG 5R is a typical industrial HMI with a standard operator panel SIEMENS OP 177. All HIGHVOLT controls using a BG 5R can be extended to the computer control system CMS 23.

2. Design

The test system control is protected against unauthorized switching-on by a key-operated switch. In case of emergency the test system can be switched off by pressing the self-locking emergency-off switch.

The switches for standby and operation of the test system ON/OFF and other main functions are operated by fixed function keys. The corresponding status is indicated by LED. Other operator functions can be selected by soft keys of the operator panel OP 177. Several displays of the operator panel show the preset and actual values of the test data as well as status messages and failure messages.

The circuit of the basic control BC 5 contains mainly SIMATIC components, e.g. the Programmable Logic Controller (PLC).

The communication between operator device (HMI) and system control (PLC) built into the switchgear is realized by a PROFIBUS-DP interface via a fiber-optic link. The operator device BG 5R is delivered as stand-alone unit in a casing or as plug-in 19"-unit. The plug-in 19"-unit can be inserted into an operator rack or an operator desk together with other 19"-units.

3. Operation.

The operator device BG 5R for resonant circuit based AC test systems contains fixed function keys such as for the manual adjustment of voltage up/down and inductance tune of the reactor. There are also function keys to start, stop and break automatic resonant adjustment and increase of the high voltage to the preselected value in the automatic mode.

The inductance of the reactor can be manually or automatically tuned with the operator device until the circuit reaches resonance, this means the capacitive test power is compensated. The information about the compensation state is displayed on the screen.

Inputs can be entered by system keys or also by soft keys displayed on the touch screen. Some functions can be selected easily by pressing a soft key, e.g. the selection of two regulating speeds.

The input of limits for the high voltage as well as for the primary and secondary current within the system's nominal values allows adaptation of the test system to expected test data and enables the test object's protection. Essential system settings (e.g. voltage divider ratio) are protected by a password.

The BG 5R can be equipped optionally with an AC/DC peak voltmeter MU 18 (Data Sheet 5.56). Examples of displays "PRESET" and "TEST" are shown in Fig. 1 and Fig. 2.

Examples of display:

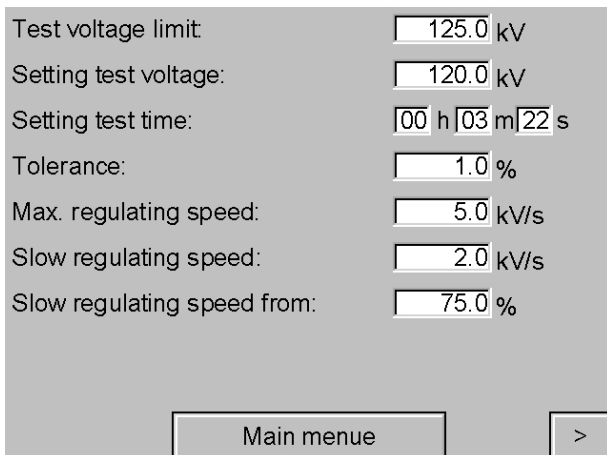


Fig. 1: Preselection of parameters

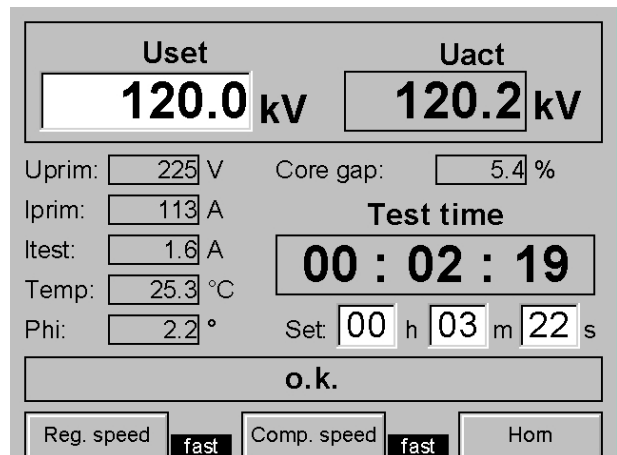


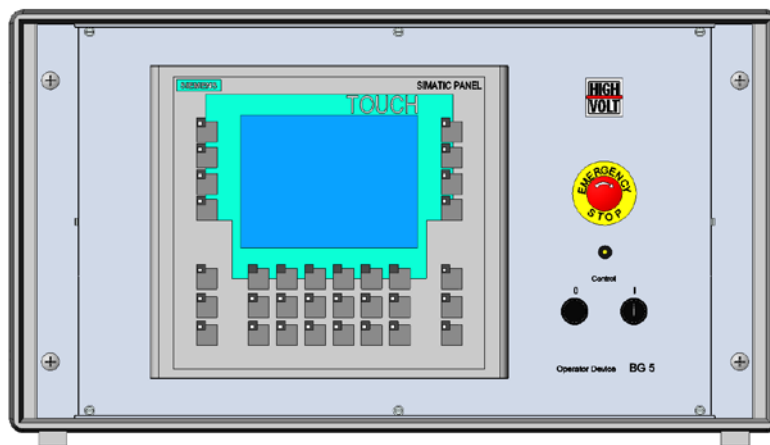
Fig. 2: Data display during a test

Technical Data

Supply voltage (fed from control cubicle): 230 V \pm 10 %, 50/60 Hz
 Operator panel OP 177: LCD-STN with 4 shades of blue, backlight, 320 x 240 pixels, resistive analog touch screen and contrast control

Dimensions W x H x D / Weight
 Plug-in 19"-unit: 483 mm (6 HU) x 267 mm x 333 mm / 6 kg
 Stand-alone unit: 520 mm x 297 mm x 333 mm / 15 kg

Operator device BG 5R in a casing:



For further information please contact:

or our local representative:

HIGHVOLT Prüftechnik Dresden GmbH
 Marie-Curie-Strasse 10

D-01139 Dresden / Germany
 Tel. +49 351 8425-648
 Fax +49 351 8425-679
 e-mail dresden@highvolt.de
 website http://www.highvolt.de