

DIGITAL COMBINED DEVICE SVG-5

PASSPORT

4221-005-86866068-2015 PS



1. APPLICATION

1.1. A digital combined device SVG-5 is applied for:

- making a measures of voltage root mean squares for AC sine wave signals;
- making a measures of voltage frequency for AC sine wave signals;
- generation of AC sine wave signals;
- visual observing and invistigation of a singals with various form;
- analysing a spectra of signals.

This device can be applied for technical maintenance and repair of devivces which are using in high-frequency channels applied for connection and data exchange.

1.2. SVG-5 comprises 5 main devices:

- Generator of sive wave singal – «GENERATOR»;
- Voltmeter with switch-selectable pass band for making a measures of AC voltage root mean squares – «VOLTMETER»;
- Frequency meter – «FREQMETER»;
- Indicator of signal wave form – «OSCILL.».
- Indicator of signal spectrum – «SPECTRUM».

1.3. View of ambient class for the SVG-5 UHL 3.1 device: in accordance with Russian National Standard 15150 - 69.

1.4. Maximum permissible values for mechanical and climatic exposure on the SVG-5 device are in accordance with Russian National Standard GOST 22261-94 for group 3.

1.5. As an instrument for making measures, a device SVG-5 should be tested periodically with definite time period.

1.6. Techincal service and reconstruction of devices for RF connection and data transmission should be performed by especial reconstruction enterprises or on-location. Before starting the work it is necessary to overview the operations manual (SVG-5.00.00.000 RE).

2. TECHNICAL DATA

2.1. Measuremenr units:

Indication of input and output voltage levels is given in Volts (V) and can be given in relative units (dB), in accordance with preliminary established measurement conditions. A level 0 dB corresponds to the voltage of 0.775 V. A connection between measurement units can be given by formula:

$$U = 0.775 \cdot 10^{\frac{A}{20}},$$

where A is the signal level measured in dB.

A measurement unit dB is additional unit and can be defined after some calculations.

2.2. Type of input and output:

- «S» - non-symmetrical (Single);
- «D» - symmetrical (Differential).

2.3. Generator of sine wave signal:

- | | |
|--|---|
| - Frequency band for output signal | 300 Hz ... 2.5 MHz; |
| - Step for setting the frequency | 1Hz, 10Hz, 100Hz, 1kHz, 10kHz; |
| - Roughness for setting the frequency | $\pm 1 \cdot 10^{-5} \% \pm 1\text{Hz}$; |
| - Relative instability of frequency | $\pm 1 \cdot 10^{-5} \%$; |
| - Level of output voltage for characteristic impedance termination | 8 mV...3.88 V |

- Step for setting the level of output voltage (от - 40 дБ до +14 дБ);
1mV, 10mV, 100mV, 1V
(0,1dB, 1dB, 10dB);
- Output resistance for S type output 50 Ω;
- Output resistance for D type output 100 Ω;
- Relative roughness for setting the level ± 5 %;
- Relative roughness for output resistances ± 5 %;
- Output voltage harmonic distortion factor for characteristic impedance termination 1 %;
- Output voltage offset, less than 2 mV;
- Level of ourput voltage without load is twice more than that for characteristic impedance termination.

2.4. Wide-band root mean square voltmeter:

- Range of levels for the voltage being measured 8 mV... 3.88 V
(- 40 dB... + 14 dB);
- Frequency band for input signal 300 Hz ... 2.5 MHz;
- Relative roughness for measuring the level within frequency band ±5 % (300 Hz ...1 MHz);
±10 % (>1 MHz);
- Input resistance for S type input 50 Ω ... ≥1 MΩ;
- Input resistance for D type input 100 Ω ... ≥2 MΩ;

2.5. Narrow-band (selective) root mean square voltmeter:

- Range of levels for the voltage being measured 8 mV... 3.88 V
(- 40 dB ... + 14 dB);
- Frequency band for input signal 300 Hz ... 2.5 MHz;
- Step for setting the frequency 1Hz, 10Hz, 100Hz, 1kHz,
10kHz;
- Relative roughness for measuring the level ± 5 %;
- Pass band width for the level «-3dB» 40 Hz, 100 Hz, 1,7 kHz;
- Input resistance for S type input 50 Ω;
- Input resistance for D type input 100 Ω.

Notice: for making preliminary estimations this voltmeter allows to connect the non-certified loads of 75 Ω, 100 Ω and 600 Ω for S type input as well as 150 Ω, 200 Ω and 1200 Ω for D type input.

2.6. Frequency meter (freqmeter)

- Measurable band 30 Hz... 2,5 MHz;
- Range for levels of the voltage being measured 15 mV... 3.88 V;
- Relative roughness of the frequency measurement ±3,5 · 10⁻⁴ %;

2.7. Oscilliograph indicator:

- Magnituge sweep range 10 μV ...100 V;
- Time sweep range 5 nsec ... 1 sec;
- Output signal frequency band 300 Hz... 2,5 MHz;
- Number of channels 1.

2.8. Spectrum analyser:

- Visual displaying frequency in accordance with freq. scale, max 4 MHz;
- Measuring sensitivity for frequency scale 5 kHz, 50 kHz and 400 kHz;
- Sudden dynamic range 60 dB;
- Full dynamic range 80 dB.

- 2.9. Saving the measurenet conditions 10 sets of parameters

| | |
|---|--|
| 2.10. Memory of voltmeter | 128 results of measurements |
| 2.11. Ramp-up time | 0,5 h. |
| 2.12. Continious work time | 8 h. |
| 2.13. Supplying | AC, 220 V $\pm 10\%$, 50 Hz $\pm 2\%$ |
| 2.14. Power input, max | 40 VA. |
| 2.15. Average recovery time, less than | 2 h. |
| 2.16. Average mean time to failure, more than | 18000 h. |
| 2.17. Average life span | 8 years. |
| 2.18. Sizes of device, mm, less than | 360 x 380 x 140 |
| 2.19. Net weight of device, kg, less than | 6 |
| 2.20. Net weight of devices with transporting case, kg, less than | 11 |

3. PARAMETERS FOR SAFETY AND RELIABILITY

3.1. Parameters for safety.

3.1.1. Average mean time to failure for this device working under the necessary conditions should be not less than 18000 hours

3.1.2. Average life time 8 years.

3.2. Safety requirements.

3.2.1. This device is certified in accordance with safety requirements presented to the measurent tools by Russian National Standards GOST 22261-94 and GOST R 51350-99. For ground connection, a ground connector is placed on the rear panel of this device.

3.2.2. This device is protected against water and solid objects as well as protection against access of peoples to the dangerous parts of device and have the index IP21 of Russian National Standard GOST 14254-96. This device is applied to be used ibn life, commercial and industrial zones with low power consumption without any limitations.

4. VENDOR PACKAGE

4.1. This device is packaged in accordance with the Table 2.

Table 2. Vendor package.

| Name and notation | Nomenclature | Number, pcs. |
|--|---------------------------|--------------|
| Digital combined device SVG-5 | | 1 |
| Cable for symmetrical connection | | 1 |
| Cable for non-symmetrical connection | | 1 |
| Supply cable ~ 220 V $\pm 10\%$, 50 Hz $\pm 2\%$; | | 1 |
| Passport | 4221-005-86866068-2015 PS | 1 |
| Operations manual | 4221-005-86866068-2015 RE | 1 |
| Test code | 4221-005-86866068-2015 I | 1 |
| Transportation case | | 1 |

5. ACCEPTANCE CERTIFICATE

Device SVG-5 with serial number _____ is produced and accepted in accordance with technical conditions TU 4221-86866068-2015 and considered as ready for operation.

Person responsible
for certification _____
signature

Date of issue «__» _____ 201__ year

Stamp of certification
department

6. CUTOVER CERTIFICATE

Device SVG-5 (4221-005-86866068-2015) is placed into operation (sold by reseller) in accordance with actual technical documentation

Person responsible
for sell _____
signature

Sell date «__» _____ 201__ year

Stamp

7. MANUFACTURER'S WARRANTY

7.1. A manufacturer warrant that device SVG-5 is efficient and corresponds to the technical characteristics indicated in the technical documentation attached to the device since the customer will provide the required conditions of storage, transportation and exploitation.

7.2. Warranty period consists 24 month and should be started from the date of placing into operation (date of selling the device to the customer). However, this date should not be later than 2 years from the date of issue of this device.

7.3. In the case of breakdown of SVG-5 device during the warranty period a manufacturer is agreed to make the free of charge repair of this device after verification that all conditions of storage and operation indicated in technical documentation attached to the device are performed by customer.

7.4. A warranty repair **is not able** for devices:

- with traces of external mechanical defects;
- with traces of attack of external aggressive media;
- when passport is absent or the serial number of SVG-5 device is not in accordance with the serial number indicated in the passport.

7.5. In the case of breakdown of SVG-5 device during the warranty period this warranty period should be prolonged for the period between date of issuing the reclamation until to the date of shipping of repaired device to the customer.

7.6. Warranty service and repair should be made by Kontour ETC Ltd.

Postal code of manufacturer:

630058 Novosibirsk Russia

Russkaya Str., h. 39 of. 518 Kontour ETC Ltd.

Tel. (8-383) 292-18-75, tel./fax 306-67-17

E-mail: kontour@bk.ru

8. MARKING AND PACKAGE

8.1. Marking of SVG-5 device is placed on rear panel of a device and contain:

- Name of a device;
- Trademark and name of manufacturer;
- Number of technical conditions for a device (sign of National Register);
- Number of the device in accordance with numbering system accepted by manufacturer;
- Year of manufacturing this device.

8.2. SVG-5 device together with technical documentation and connecting cables is packing into the especial transporting case, which provides a storage and transportation of a device.

9. REPAIR CERTIFICATE

9.1. Repair (1) of device SVG-5 with serial number _____ is performed for the following positions: _____

Device SVG-5 is certified in accordance with actual technical documentation and is recommended to place into operation.

Person responsible
for certification _____
signature

Date of issue «___» _____ 201

Stamp of certification
department

9.2. Repair (2) of device SVG-5 with serial number _____ is performed for the following positions: _____

Device SVG-5 is certified in accordance with actual technical documentation and is recommended to place into operation.

Person responsible
for certification _____
signature

Date of issue «___» _____ 201

Stamp of certification
department

NOTICE OF DEFECT

In the case of breakdown of the device SVG-5 during his warranty period it is necessary to transfer it to the recovery enterprise together with this passport and following data:

Period and conditions of storage _____

Date of start of the warranty period _____

Date of breakdown (1) of the SVG-5 device _____

Description of breakdown _____

This Notice is created at «___» _____ 201__ year _____
signature

Date of breakdown (2) of the SVG-5 device _____

Description of breakdown _____

This Notice is created at «___» _____ 201__ year _____
signature

