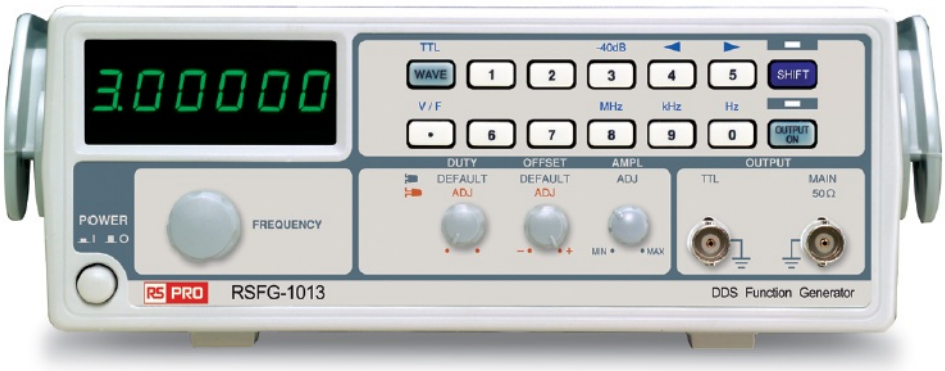
Contents [hide]

RS PRO RSFG-1013 Function Generator



Limited Warranty

This product is warranted to the original purchaser against defects in material and

workmanship for 3 years from the date of purchase. During this warranty period, RS PRO will, at its option, replace or repair the defective unit, subject to verification of the defect or malfunction. This warranty does not cover fuses, disposable batteries, or damage from abuse, neglect, accident, unauthorized repair, alteration, contamination, or abnormal conditions of operation or handling. Any implied warranties arising out of the sale of this product, including but not limited to implied warranties of merchantability and fitness for a particular purpose, are limited to the above. RS PRO shall not be liable for loss of use of the instrument or other incidental or consequential damages, expenses, or economic loss, or for any claim or claims for such damage, expense or economic loss. Some states or countries laws vary, so the above limitations or exclusions may not apply to you. For full terms and conditions, refer to the RS PRO website.

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The information in this quick start guide was correct at the time of printing. However we continue to improve our products and therefore reserve the right to change the specifications, equipment, and maintenance procedures at any time without notice.

SAFETY INSTRUCTIONS

Safety Symbols

These safety symbols may appear in the user manual or on the instrument.

Warning: Identifies conditions or practices that could result in injury or loss of life.

Caution: Identifies conditions or practices that could result in damage to the instrument or to other properties.

DANGER High Voltage

Attention Refer to the Manual

Protective Conductor Terminal

Frame or Chassis Terminal

Earth (ground) Terminal

Do not dispose electronic equipment as unsorted municipal waste. Please use a separate collection facility or contact the supplier from which this instrument was purchased.

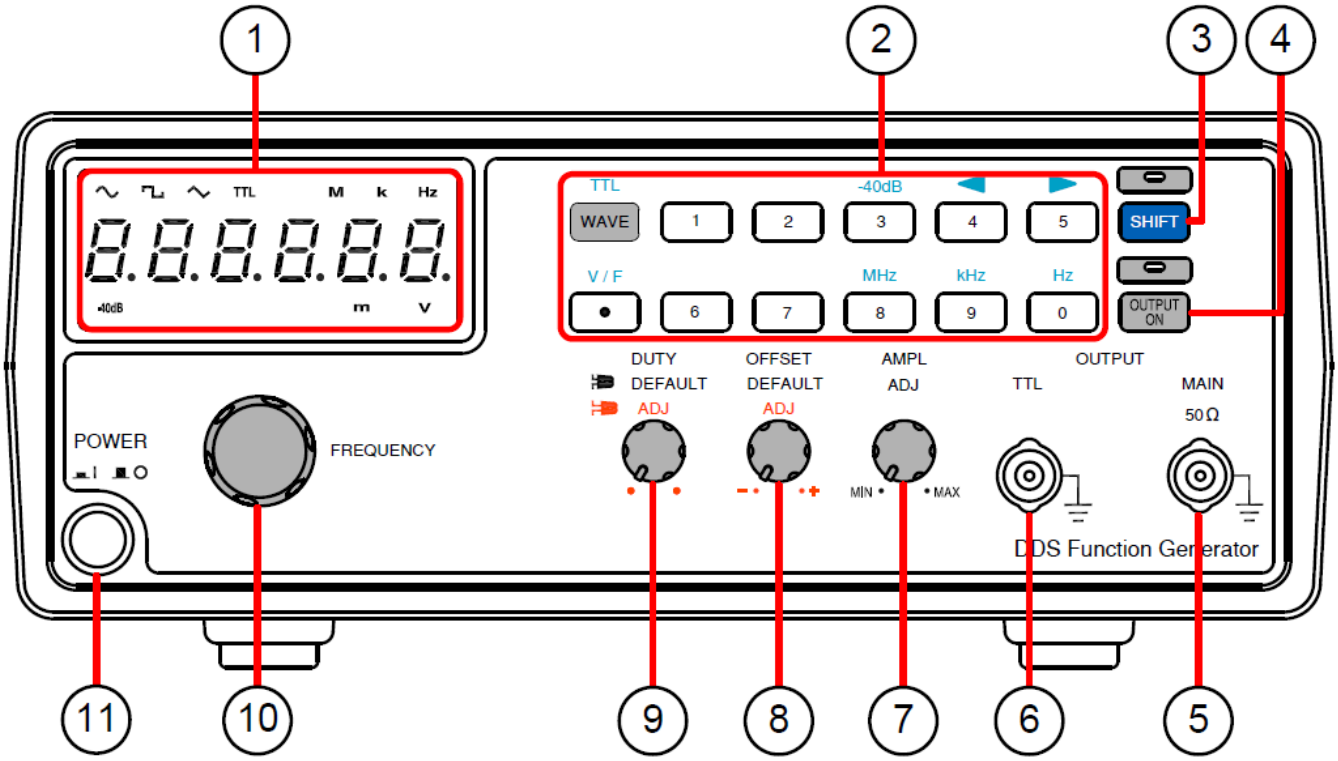
Main Features

Performance	• High resolution using DDS technology • High frequency accuracy: ±20ppm • Low distortion: –55dBc @ ≤200kHz • High resolution 100mHz

Features	• Digital user interface with 6-digit LED display • Various output waveforms: Sine, Square, and Triangle • TTL output • Amplitude control • –40dB attenuation • Duty control • Variable DC offset control • Output On/Off control • Voltage display • Output overload protection
Interface	• Frequency output • TTL output

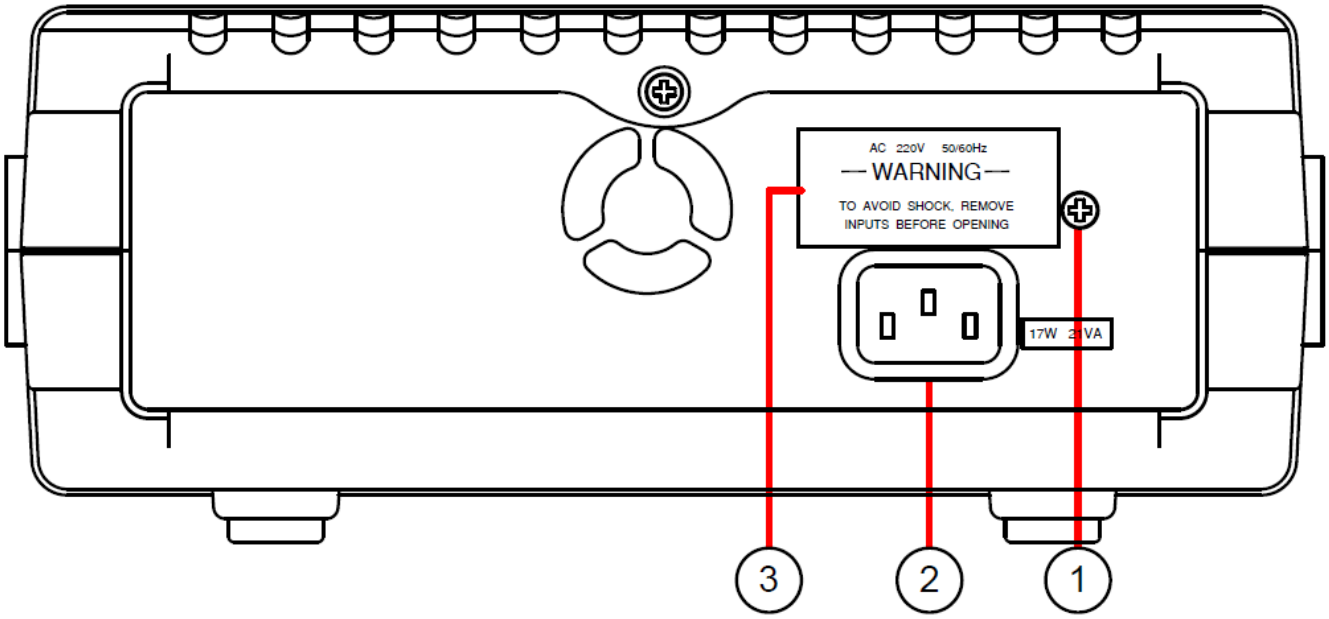
Appearance

Front Panel Overview



Description	
1. Main Display	2. Entry Keys
3. Shift Key	4. Output On/OFF key
5. Main Output	6. TTL Output
7. Amplitude Control	8. Offset Control
9. Duty Control	10. Frequency Adjustment Knob
11. Power Switch	

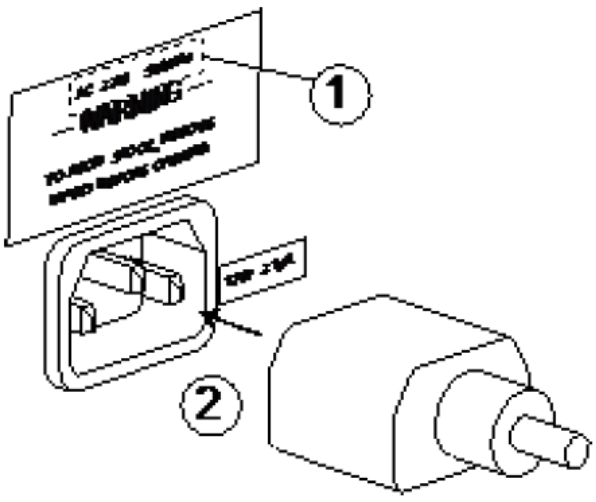
Rear Panel Overview

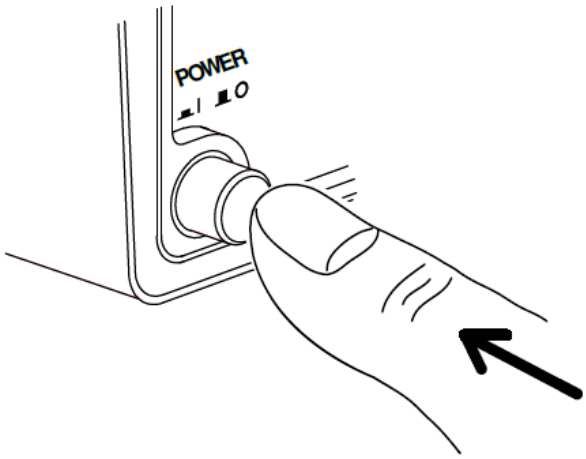


Description	
1. Ground Terminal	2. AC Power Input
3. AC rating information	

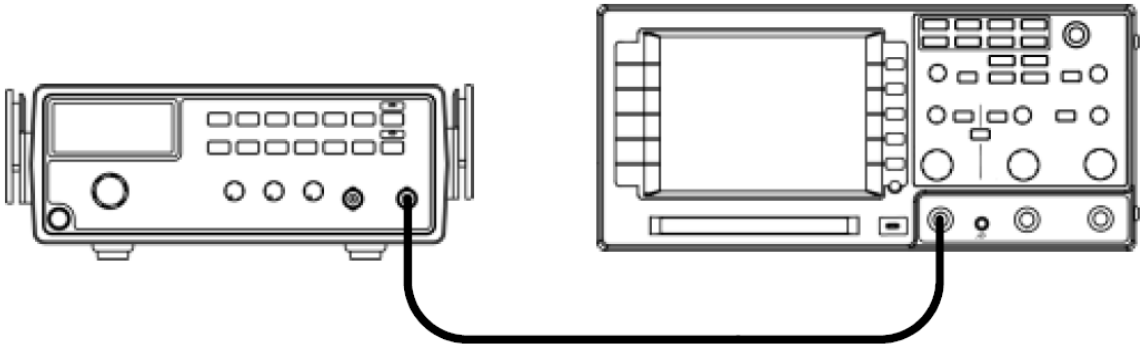
START UP

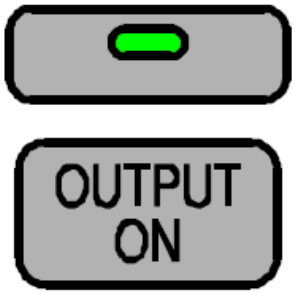
Power Up

Step	1. Connect the power cord to the AC voltage input. Check the voltage level displayed on the label (1) and make sure it is identical to the AC line. Then connect the power cord (2). 

	2. Push and turn on the main power switch on the front panel. 
	3. The display shows the default setup: Sine wave, 1kHz 

Functionality check

Step	1. Connect SFG main output to measurement device such as oscilloscope. 

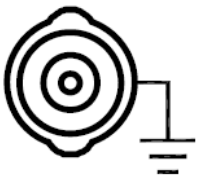
	2. Press the output key. The output is activated and the LED turns on. 
	3. Observe the output waveform: 1kHz, sine wave.

Operation Shortcuts

Sine Wave

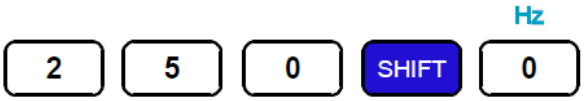
250Hz, −40dB amplitude

OUTPUT 50 Ω

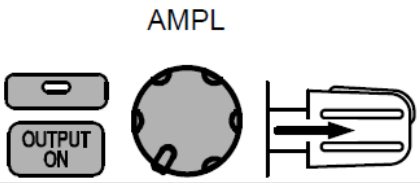


1. Press Wave key and select Sine.

2. Press 2 + 5 + 0 + Shift + 0(Hz) key.



3. Press Output key, then pull Amplitude knob.

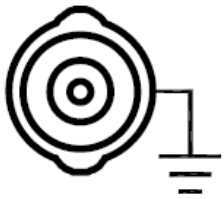


4. Press Output key, then press Shift + 3 (−40dB) key.

Triangle wave

8kHz, +2V Offset

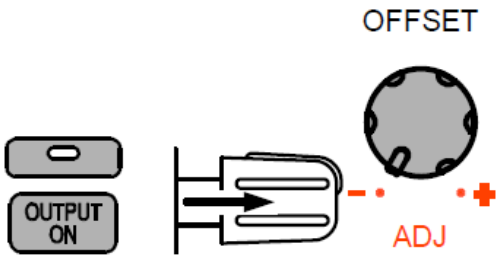
OUTPUT 50 Ω



1. Press Wave key and select Triangle.

2. Press 8 + Shift + 9 (kHz) key.

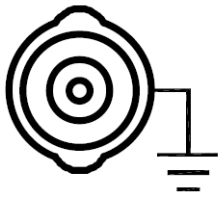
3. Press Output key, then pull Offset knob and rotate.



Square Wave

1MHz, 45% duty

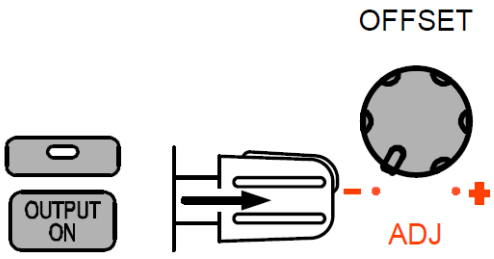
OUTPUT 50 Ω



1. Press Wave key and select Square.

2. Press 1 + Shift + 8 (MHz) key.

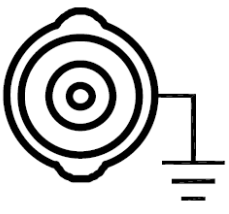
3. Press Output key, then pull Duty knob and rotate.



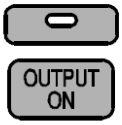
TTL Output

TTL Output 10kHz

TTL OUTPUT

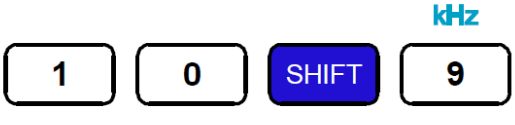


1. Press Output key.



2. Press Shift + Wave (TTL) key.

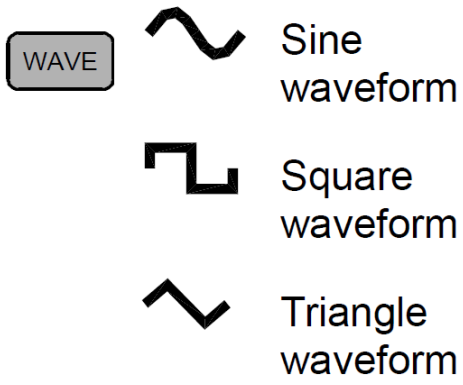
3. Press 1 + 0 + Shift + 9 (kHz) key.



Activate waveform

Sine/ Square/ Triangle

1. Press the wave key repeatedly. The corresponding indicator appears on the display.

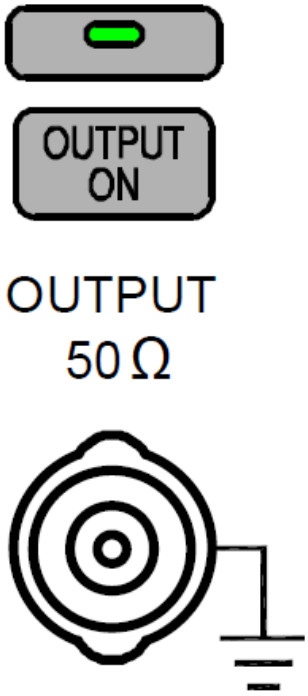


2. Press the output key. The LED turns On.

3. The waveform comes out from the main terminal.

10Vp-p (50Ω load)

20Vp-p (no load)



Set Frequency

Enter frequency

Enter the waveform frequency using the numerical keys.

					MHz
1.2MHz	1	•	2	SHIFT	8
					kHz
37kHz	3	7	SHIFT	9	
					Hz
45Hz	4	5	SHIFT	0	

Edit frequency

SHIFT → 4

Left cursor key moves the active cursor left.

(Flashing) (Flashing)

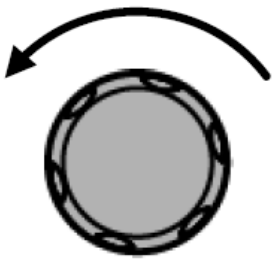
100.0 → 100.0

SHIFT → 5

Right cursor key moves the active cursor right.

(Flashing) (Flashing)

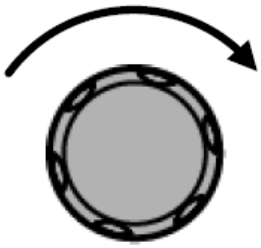
100.0 → 100.0



Turn the Frequency knob left to decrease the frequency.

(Flashing)

100.0 → 99.0

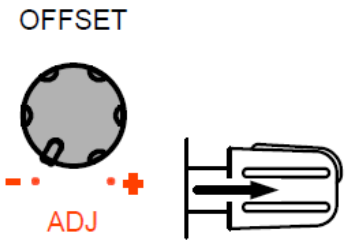
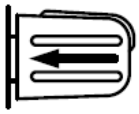


Turn the frequency knob right to increase the frequency.

(Flashing)

100.0 → 10 1.0

Set Duty Cycle

Enter duty cycle	1. Pull out the Duty knob. Turn right (left) to increase (decrease) the duty cycle. The default is set at 50%.	
	2. Press the Duty knob. The edited duty cycle is stored.	

SPECIFICATIONS

RSFG-1013 must be powered for at least 30 minutes within the ambient temperature 18˚C ~ 28˚C to meet this spec.

Main

Output Function	Sine, Square, Triangle
Amplitude Range	10Vpp (50Ω load)
Amplitude Accuracy	±20% at maximum position
Impedance	50Ω ± 10%
Attenuator	–40dB ± 1dB x1
DC Offset	< –5V ~ >+5V (50Ω load)
Duty Range	25% ~ 75%, ≤1MHz (Square Wave)
Display	6 digits LED display

Frequency

Sine/Square Waveform Range	0.1Hz ~ 3MHz
Triangle Waveform Range	0.1Hz ~ 1MHz

Resolution	0.1Hz maximum
Stability	±20ppm
Accuracy	±20ppm
Aging	±5ppm/year
Sine/Square Waveform Range	0.1Hz ~ 3MHz
Triangle Waveform Range	0.1Hz ~ 1MHz

Sine Wave

Harmonic Distortion	≥ -55dBc, 0.1Hz ~ 200kHz ≥ -40dBc, 0.2MHz ~ 2MHz ≥ -35dBc, 2MHz ~ 3MHz (At maximum position without any attenuation to 1/10 of any combination setting, TTL Off)
Flatness	< ± 0.3dB, 0.1Hz ~ 1MHz < ± 0.5dB, 1MHz ~ 2MHz < ± 1dB, 2MHz ~ 3MHz (At the max amplitude relating to 1kHz)

Triangle Wave

Linearity	≥ 98%, 0.1Hz ~ 100kHz ≥ 95%, 100kHz ~ 1MHz

Square Wave

Symmetry	±5% of period + 4ns, 0.1Hz ~ 100kHz
Rise/ Fall Time	≤ 100ns at maximum output, 50Ω load

TTL

Level	≥ 3Vpp
Fan Out	20 TTL Load
Rise/ Fall Time	≤ 25ns

General

Power Source	AC110/220/240V ±10%, 50/ 60Hz (Line voltage setting is factory installed)
Operation Environment	Indoor Use, Altitude Up to 2000m Ambient Temperature 0 ~ 40°C Relative Humidity ≤ 80%, 0 ~ 40°C Install Category II / Pollution Degree 2
Storage Environment	Temperature -10 ~ 70°C Humidity ≤ 70%
Accessories	Instruction Manual x 1 GTL-101 x 1
Dimension	251 (W) x 91 (H) x 291 (D)

Weight	Approx. 2.1kg

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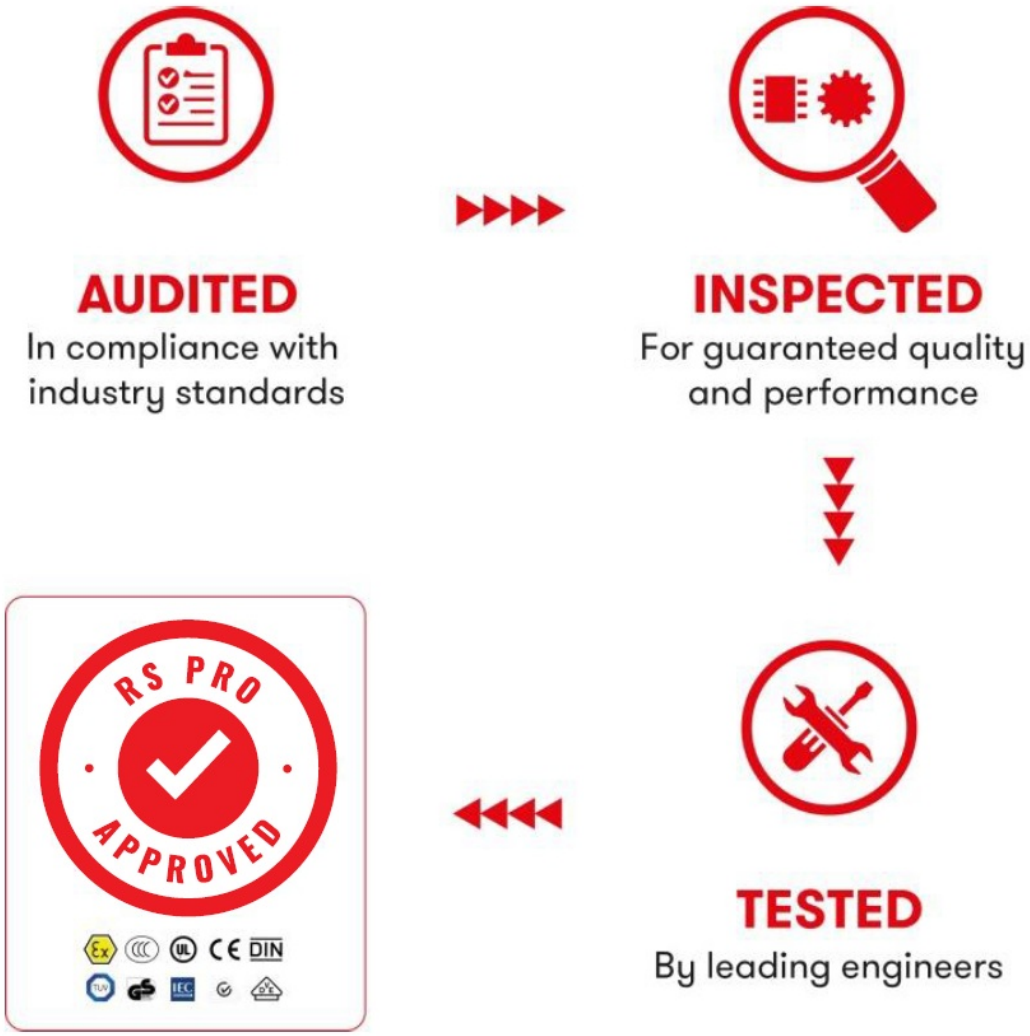

Documents / Resources

	RS PRO RSFG-1013 Function Generator [pdf] User Guide RSFG-1013, 2889873, RSFG-1013 Function Generator, RSFG-1013, Function Generator, Generator

References

- User Manual

RS PRO

2889873, Function Generator, Generator, RS PRO, RSFG-1013, RSFG-1013 Function Generator

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