

# OPERATION MANUAL

## Tone Generator TG5xs



### **Main Features:**

Standard Audio Tone Technology with Variable Interrupt Rate  
'qTrace' Tracer Tone Technology Provides Visual Accurate Wire Location  
'Touch' Button Technology  
Quick Change Battery  
Low Battery Indication  
High Impact Resistance  
Fully Sealed to IP67  
Two Year Warranty

### **Generator TG5xs**

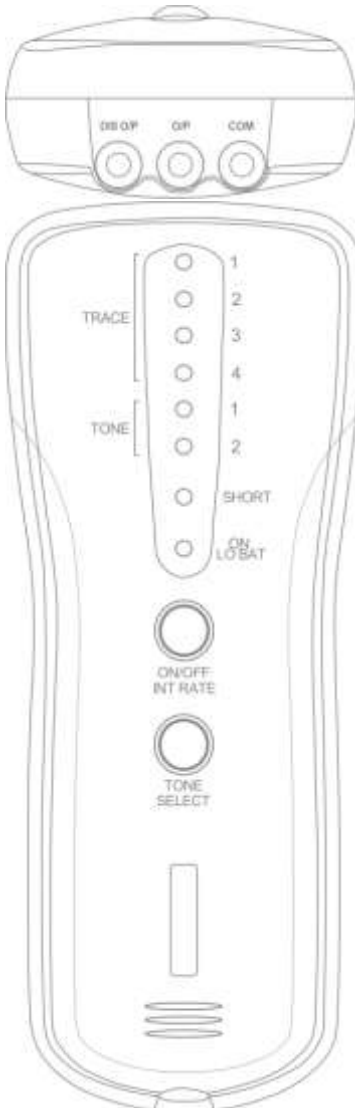
4 'qTrace' Visual Tones  
2 Standard Audio Tones (900Hz, 1kHz) with 4 Interrupt Rates  
Audible Tone Selection Confirmation  
Balanced High-voltage Sine Wave Output  
Transformer or Capacitive Line Coupling  
Continuity Short Indication

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## Introduction

The JSD TestPhone TG5xs Tone Generator provides a high output voltage sinusoidal audible tone for the purpose of tracing individual conductors through a copper cable network using the AM5xs Tone Amplifier. The product features four (4) constant 'qTrace' tones and two (2) standard tones each with four (4) rates of interrupt to allow Tones from multiple TG5xs Tone Generators to be identified by a single AM5xs Tone Amplifier. The high voltage balanced sinusoidal signal is transformer coupled to allow loop through resistance measurements or allow TDR/Insulation resistance testing on the capacitive coupling output. Visual indication of line short is also provided along with audible indication of the currently selected tone for local confirmation.



### Powering `ON` and Operating the Tone

The TG5xs is switched `on` by pressing the [**ON/OFF INT RATE**] button for two (2) seconds, whereupon tone `1` will be reproduced on the monitor speaker for two (2) seconds, the **TONE `1`** indicator will illuminate and the **'ON LO BAT'** indicator will flash slowly.

Insert one of the supplied test leads into the **'COM'** socket on the product and for normal directly coupled output the other test lead into the **'O/P'** socket. If requiring a capacitive coupling (for use on live circuits) use the **'DIS O/P'** socket instead. Connect the flying ends of the test leads to the copper wire pair you wish to trace within the cable network.

### Normal Tone Generating (Audio Indication)

The Tone Generator is switched on to Tone `1` (1 kHz). By touching **TONE SELECT** you can switch to Tone `2` (900 Hz). It's indicated by **TONE `2`** illuminating and the new tone being reproduced on the monitor speaker for two (2) seconds.

### Interrupt Rate

Each tone may be interrupted with four (4) different rates. To select an interrupt rate momentarily press **'ON/OFF INT RATE'**. New rate is being reproduced on the monitor speaker for two (2) seconds. Current tone indicator is flashing with current rate.

### `qTrace` Tone Generating (Visual Indication)

'qTrace' tones are selectable by momentarily touching **TONE SELECT** until one of the **'TRACE' `1` to `4`** indicators is illuminated. The new 'qTrace' tone is confirmed by being reproduced on the monitor

speaker for 2 seconds. A maximum of four (4) 'qTrace' tones may be traced at the same time using four separate TG5 Tone Generators and with just a single AM5xs Tone Amplifier.

### **Range**

The TG5xs will generate a standard tone which should be picked up at 12 miles and q Trace Tones at up to 15 miles.

### **`SHORT` Indication**

Should the connected copper wire pair be shorted at any point along its length then the 'SHORT' indicator will be illuminated.

*Note: A direct short of the output should be avoided to prevent fast discharge of the internal batteries.*

### **Powering `OFF` the Tone**

To switch `off` the TG5xs the [ON/OFF INT RATE] button should be touched for longer than two (2) seconds, at which point the tone generator will shut down and the `ON LO BAT` indicator will be extinguished. Should the TG5xs remain active for longer than sixty (60) minutes with no button activity then it will automatically shut down to conserve battery power.

### **Battery**

#### **Insertion**

The product is energised upon insertion of four AA size Alkaline batteries and will 'sleep' in low power mode. Access to the battery compartment can be gained by removing the two screws on the back of the unit. Insert four (4) AA size 1.5V Alkaline batteries into the battery compartment. If the unit is not going to be used for a long period of time remove the battery.

#### **Replacement**

Should the AA batteries be low and require replacing, the product will give a steady illumination on the 'ON LO BAT' indicator and produce a **BEEP-BEEP-BEEP** audible indication every ten (10) seconds.

### **Additional Information**

The `qTrace` is Quick trace discrimination system based on the generation and detection of four distinct DTMF tones over a copper cable network.

### **Connections**

Line - 3x 4mm banana socket

<b>Socket</b>	<b>Description</b>
'COM'	Common connection
'O/P'	Normal output
'DIS O/P'	Capacitive output

## Visual Indications

<b>ON/ Low battery</b>	Red LED indicator `ON/ LO BAT`	
	OFF	OFF
	Slow flash	ON
	ON	Low battery
<b>`qTrace` indication</b>	4 Yellow LED indicators `TRACE`	
	`1` ON	`qTrace` tone 1 selected
	`2` ON	`qTrace` tone 2 selected
	`3` ON	`qTrace` tone 3 selected
	`4` ON	`qTrace` tone 4 selected
<b>Tone indication</b>	2 Yellow LED indicators `TONE`	
	`1` ON	Tone 1 selected
	`2` ON	Tone 2 selected
<b>Short indication</b>	Green LED indicator `SHORT`	
	OFF	NO SHORT detected
	ON	SHORT detected

## Audible indication

Condition	Indication
Power ON/OFF or tone/ interrupt rate change	New tone/interrupt rate reproduced for 2 seconds
Battery low	BEEP-BEEP-BEEP tones every 10 seconds

## Characteristics

### Tg5xs

#### DC Characteristics

Battery voltage 6V nominal (4x AA/LR6/15A Alkaline)  
 Battery supply current 140uA RMS (OFF), 20mA (ON and idle)  
 200mA (O/P short circuit)

Battery low voltage 5.0V  
 Short indication resistance <= 10kΩ (ohms)

#### AC Characteristics

Output waveform Sinusoidal (1kHz ±80Hz, 900Hz ±80Hz)  
 Output impedance app. 18-20Ω (ohms) on Direct connection  
 Output voltage 31V p/p 11V RMS  
 Output capacitance 470nF 'DIS O/P' output  
 Interrupt rates 800mS, 600mS, 400mS and 200mS

#### General timings

ON/OFF button touch (power) 2 seconds (ON to OFF or OFF to ON)  
 Battery LOW indication period 10 seconds  
 Short detection indication period 0.5 seconds  
 Operating Environment -25°C - +70°C; humidity up to 80%

Dimensions 16.0 x 6.5 x 3.0 (cm)  
 Weight 247 (g)

### AM5xs

#### DC Characteristics

Battery voltage 9V nominal (PP3/6LR61/1604A Alkaline)  
 Battery supply current 75uA RMS (OFF), 62mA (ON and idle)  
 250mA (Max sensitivity/input signal)

Battery low voltage 7.5V

#### AC Characteristics

Speaker output power 0.25W into 8R @ 9V  
 Speaker total harmonic distortion 2% @ 0.25W  
 Filter bandwidth 800 - 1500Hz (3dB down)  
 Data detection bandwidth 25 - 250kHz

#### General timings

ON/OFF button touch (power) 2 seconds (ON to OFF or OFF to ON)  
 ON/OFF button touch (filter mode) 5 seconds (OFF to ON)  
 Battery LOW indication period 10 seconds  
 Data detection indication period 2 seconds  
 Operating Environment -25°C - +70°C; humidity up to 80%

Dimensions 23.5 x 5.5 x 3.0 (cm)  
 Weight 190 (g)

Supplied by: