HANDHELD-PORTABLE ANALOG SIGNAL GENERATOR
MODEL ASG

DESCRIPTION

The **Model ASG** is a handheld, battery- or plug-in power supply powered, pocket-size analog signal generator. It generates a 0-10 VDC signal in increments of 1V or a 0-20 mA signal in increments of 2 mA. The LED bar graph visually indicates analog signal level. The **Model ASG** can also continuously ramp to user-defined minimum or maximum values with user- defined ramp-time settings.

FEATURES

- *Powered by 9V battery or plug-in power supply*
- *Pocket size*
- *Bar graph LED for signal display*
- *0-20 mA (2 mA increments)*
- *0-10 VDC (1 VDC increments)*
- *Ramp function to minimum and maximum values*
- *Variable ramp function timing*
- *Low battery indication*
- *User-defined auto shutoff times for battery conservation*
- *Separate milliamp and voltage output jacks*
- *6' (1.83m) leads with alligator clips*
- *Up to 30 hours continuous use on a single battery*
- *Perfect for loop-powered circuits and externally powered circuits*
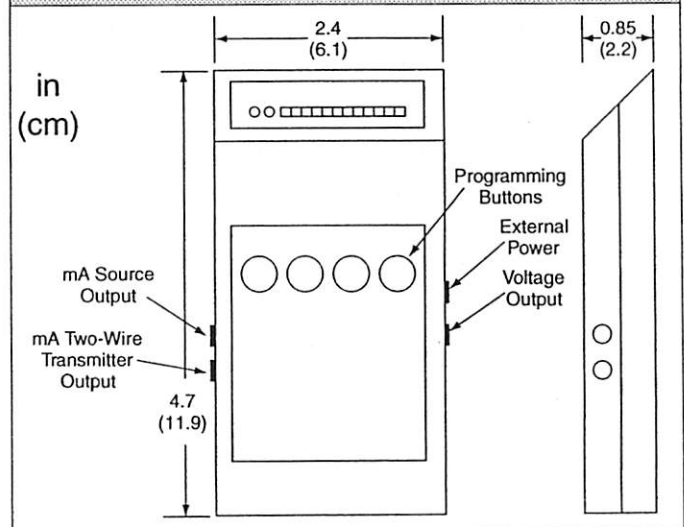
ASG with Carrying Case

APPLICATIONS

- *Troubleshooting transmitters, transducers, and actuators*
- *Calibrating transducers, displays, and other analog signal devices*

SPECIFICATIONS

Power	9V battery or 120 VAC plug-in power supply
Impedance	
Voltage	1000Ω min
Current	300Ω max
Resolution	
Current	2 mA
Voltage	1 VDC
Accuracy (72°F)	
Current	±0.5% FS or ±0.1 mA
Voltage	±0.5% FS or ±0.05 VDC
Operating temp	32° to 122°F (0° to 50°C)
Weight	14 oz (0.4 kg) with accessories
Dimensions	4.7"H x 2.40"W x 0.85"D (11.9 x 6.1 x 2.2 cm)
Output	0-20 mA (2 mA increments) 0-10 VDC (1 VDC increments)
Ramping time intervals	2-20 sec (2-sec increments)
Auto shutoff times	2-20 min. (2-min. increments)
Accessories included	9V battery, 120 VAC plug-in power supply, 6' (1.83m) wire leads, carrying case

DIMENSIONS / WIRING

in (cm)

2.4 (6.1)   0.85 (2.2)

4.7 (11.9)

mA Source Output

mA Two-Wire Transmitter Output

Programming Buttons

External Power

Voltage Output

1

OPERATION

Adjusting the **ASG** is accomplished through buttons 1 through 4 on the front and verified through the LEDs on the top of the **ASG**.

Analog Outputs
The **ASG** has three individual outputs-mA source, two-wire transmitter, and voltage output. The voltage output operates over a 0-10 VDC range. The "mA Source Output" will source a 0-20 mA signal powered by the battery supplied with the **ASG**. The output labeled "mA two wire xmitter" requires an external power supply and is intended for loop powered circuits.

Display
The LEDs on the top of the **ASG** verify the progress of all adjustments and indicate status of various functions of the **ASG**.

The "Status LED" indicates normal operation, low battery, and ramp mode. When this LED is in the off state, it indicates that the **ASG** is working normally. If the "Status LED" is lit continuously during normal operation, the battery is low. The "Status LED" will blink whenever the **ASG** is in a ramping mode.

The "mA Over Load LED" will light whenever the circuit exceeds 300Ω. Note: This "Over Load LED" will light if the leads are not connected to a device due to an open circuit.

The "Output LEDs" indicate the analog signal level, ramp times duration and programming, and auto off times. The "Signal Level LEDs" are read as either mA or voltage with the appropriate scale. During ramping mode calibration, the mA scale is used to represent time in seconds. For instance, 2 represents 2 seconds and 20 represents 20 seconds. During the auto-off change mode the mA scale represents time in minutes. (See Auto-Off Function on page 4)
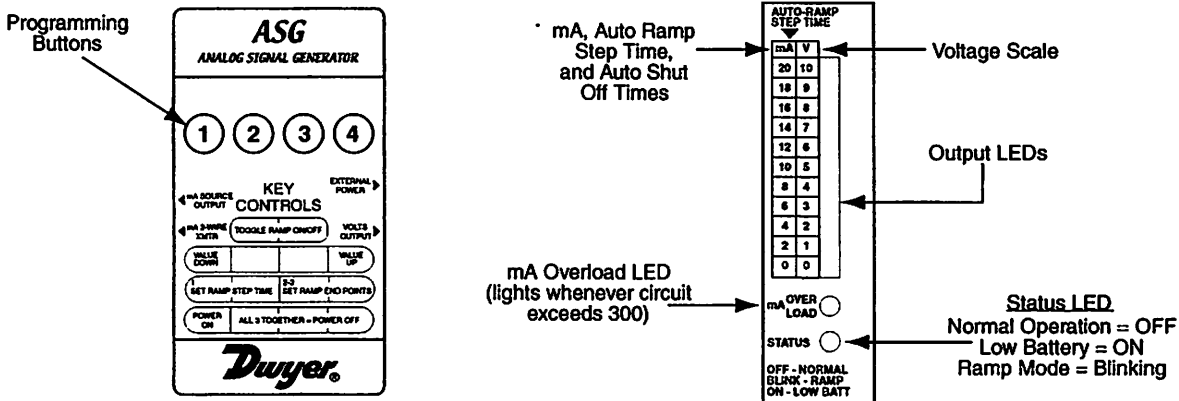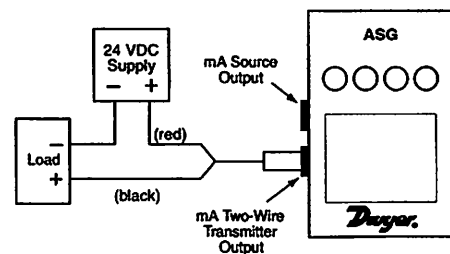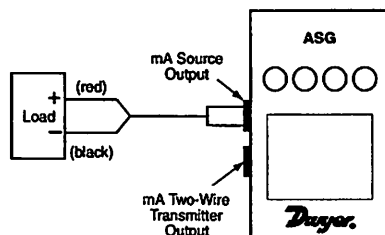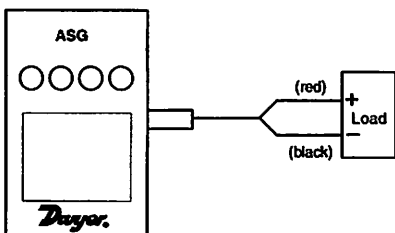
LEGEND

● Press and Release   ◪ Press and hold until action has occurred   ◉ Press either highlighted button

Note: All time selection is set using the mA scale to represent time in seconds or minutes.

Programming Buttons

ASG
ANALOG SIGNAL GENERATOR

① ② ③ ④

KEY CONTROLS

mA, Auto Ramp Step Time, and Auto Shut Off Times

mA Overload LED (lights whenever circuit exceeds 300)

AUTO-RAMP STEP TIME

Voltage Scale

Output LEDs

Status LED
Normal Operation = OFF
Low Battery = ON
Ramp Mode = Blinking

WIRING

Voltage Output

mA Source Output

mA Two-Wire XMTR Output

● Press and Release ⊘ Press and hold until action has occurred ◉ Press either highlighted button

Power On/Off
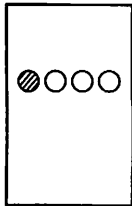
FIGURE 1a **FIGURE 1b**
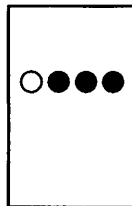
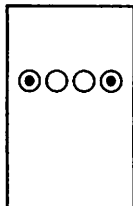| ACTION	INSTRUCTION	VERIFICATION
On	Press button #1 down until "Output LEDs" ramp up and back full scale (Figure 1a)	0 mA/VDC LED will be continuously lit
Off	Press buttons 2, 3, & 4 simultaneously (Figure 1b)	All LEDs will turn off

Selecting the Output Level

FIGURE 2

ACTION	INSTRUCTION	VERIFICATION
Increase Output	Press button #4 (Figure 2)	"Output LED" will increase to the next output level
Decrease Output	Press button #1 (Figure 2)	"Output LED" will decrease to the next output level

The Ramping Function

The **ASG** will continuously ramp between two user-defined endpoints for a user-specified interval time between each incremental step. The **ASG** is preprogrammed to ramp between 4 mA (2 VDC) and 20 mA (10 VDC) in 10-second increments; however, custom incremental times and end points can be temporarily programmed into the **ASG**.
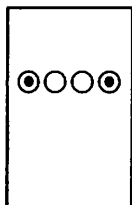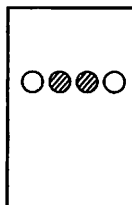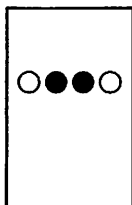
Ramping Start and Stop

FIGURE 3a **FIGURE 3b** **FIGURE 3c**

ACTION	INSTRUCTION	VERIFICATION
Set Starting Point	Press buttons #1 or 4 to desired starting output level (Figure 3a)	Appropriate "Output LED" will light
Start Ramping	Press and hold buttons #2 & 3 (Figure 3b)	"Status LED" and "Output LED" will blink alternately
Stop Ramping	Press buttons #2 & 3 (Figure 3c)	"Status LED" will stop blinking & turn off, "Output LED" will light continuously

● Press and Release   ▨ Press and hold until action has occurred   ◉ Press either highlighted button
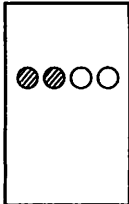
Setting the Ramp Signal Limits

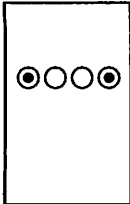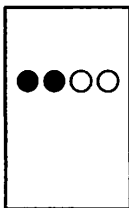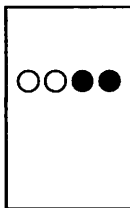**FIGURE 4a**   **FIGURE 4b**

FIGURE 4c   **FIGURE 4d**

ACTION	INSTRUCTION	VERIFICATION
Enter Programming Mode	Press & hold buttons #1 & 2 (Figure 4a)	"Output LED" blinks at the 10 mA position
Set Time Interval*	Press buttons #1 or 4 (Figure 4b)	"Output LED" blinks at the correct time interval position
Enter 1st End Point Mode	Press buttons #1 & 2 (Figure 4c)	"Output LED" blinks twice in succession
Set 1st End Point	Press buttons #1 or 4 (Figure 4b)	"Output LED" blinks twice at first end point position
Enter 2nd End Point Mode	Press buttons #3 & 4 (Figure 4d)	"Output LED" blinks 3 times in succession
Set 2nd End Point	Press buttons #1 or 4 (Figure 4b)	"Output LED" blinks 3 times in 2nd end point position
Exit Ramp Programming Mode	Press buttons #3 & 4 (Figure 4d)	"Output LED" stops blinking and lights continuously

* The Interval Times are based on the mA scale. Each position is interpreted in seconds. For example, 10 mA represents 10 seconds.
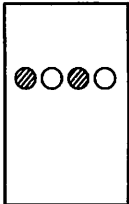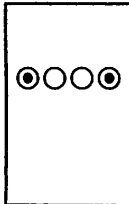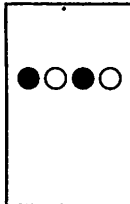
The Auto-Off Function

FIGURE 5a   **FIGURE 5b**   **FIGURE 5c**

ACTION	INSTRUCTION	VERIFICATION
Enter Programming Mode	Press & hold buttons #1 & 3 (Figure 5a)	"Output LED" blinks 4 times in succession
Adjust Auto Off Time*	Press buttons #1 or 4 (Figure 5b)	"Output LED" blinks 4 times at newly adjusted time position
Exit Programming Mode	Press buttons #1 & 3 (Figure 5c)	"Output LED" stops blinking and lights continuously

* Auto Off times are based on the mA scale. Each position is interpreted in minutes. For example, 10 mA represents 10 minutes. Set Auto Off time to zero to disable. The Auto Off time defaults to 6 minutes each time the ASG is turned on.