

# Martindale Growlers

## General Information

When an alternating current is passed through a Growler, it sets up a magnetic flux in the iron of the armature or stator spanned by the jaws of the Growler.

As this flux passes through any coil, it induces a potential. A current will flow if the coil is short-circuited. When current flows, it sets up a magnetic field around the shorted coil which can be detected with an iron feeler. (The increased load on the Growler sometimes changes the tone of the hum; hence the name "Growler".) In many cases a meter can be used to measure a change in magnetic flux (Type B-1-M), or to measure the increased current requirements of the Growler (M-1 Meter-Unit). Open coils can also be found; see discussion below.

**Both B-1 and B-1-M have Adjustable Jaws with Face Length 2-1/2".**



**At Left:  
Type B-1 Adjustable  
Bench Growler**



**At Right:  
Type B-1-M Adjustable Bench  
Growler with meter and conti-  
nuity test.**

Type B-1 has adjustable jaws 2-1/2" long. Armature capacity: 1" to 18" diameter. There are no obstructions at the ends of the jaws, thus allowing small armatures with fans, bearings, etc., to fit properly.

Type B-1-M is the same size as B-1, and has in addition a meter and continuity test prods. The meter is connected to a secondary winding on the Growler and shows changes in magnetic flux as shorts are encountered. The test prods are used to detect grounds. A light in one prod glows when a circuit is complete. The test current is 1 milliampere at 115 volts — shock-proof, and safer than required. Both prods are protected from ground.



**Type U-2 Universal Adjustable Growler  
may be used as both an external  
Growler for armatures and an Internal  
Growler for stators.**

**Adjustable Jaws. Face Length 4".**

Type U-2 Growler has adjustable jaws 4" long, and may be used on armatures over 1", and on stators over 5-3/4" inside diameter. The U-2 can be used with the M-1 Meter Unit.

M-1 Meter Unit is designed for use with the U-2 Growler. The meter shows variations in the line current drawn by the Growler when a short is encountered. The adjusting knob sets the meter pointer to mid-scale on a good coil. The test prods are used for detecting grounds, as on the B-1-M.

**No. M-1 Meter Unit**



## Foot-Switch

A Foot-Switch with an 8 ft. line cord, and a female connection is available for use with any of the Growlers. Large armatures cannot be easily rotated without shutting off the Growler current. This is conveniently done with the Foot-Switch, while the hands are left free to turn the armature.



**Type F and I-X Growler**

**Type F and Type I-X  
both have built-in  
feeler. Type F has  
fixed position feeler,  
Type I-X feeler is  
adjustable.**

Types F and I-X are similar in appearance, with built-in feeler as pictured, except the feeler on Model I-X is adjustable, which gives it a wider range of applications. Both have fixed jaws 2" long, and a thumb-switch.

Both can be used in stators as small as 2-3/8" inside diameter, and on armatures from 2-1/2" diameter up. The built-in feeler makes testing a one-hand operation, and is especially desirable in small stators where there isn't room for a separate feeler. The adjustable feeler on the I-X is more satisfactory where a variety of large and small armatures and stators are involved.

## How Growlers Are Used

The most common way of using a Growler is the "feeler method" in which the Growler spans a slot containing a coil, and a "feeler" of iron, such as a hack-saw blade is held about 1/4" above the slot containing the other side of the same coil.



If the coil is shorted the feeler will be pulled down to the slot and will stick and vibrate. The action is very positive and is recognized instantly.

The feeler can also be used on the same side of the coil that is spanned by the Growler, either a

separate feeler or the convenient built-in feeler of Types F and I-X.

## Open Circuits

Open circuits can be detected by shorting adjacent commutator bars with a screw driver, or any other piece of metal. Good coils will spark as the bars are shorted. No sparks indicate the coil is open. Test field coils by shorting lead wires. Another way is to use a continuity tester — such as the one on the M-1 Meter Unit and B-1-M Growler, or others shown in this catalog.

Grounds can also be detected with a continuity tester.

## Specifications

Type	Length Face	Range for Armatures, Diameter	Range for Stators Diameter	Weight — Lbs.		Catalog Number	
				Net	Ship	115 V. 60 Hz.	230 V. 60 Hz.
U-2	4"	1" & up	5-3/4" & up	18-3/4	20	GRLRU2A	GRLRU2B
B-1	2-1/2"	1" - 18"	—	11-1/4	12-1/2	GRLRB1A	GRLRB1B
B-1-M	2-1/2"	1" - 18"	—	12	15	GRLRB1MA	GRLRB1MB
F	2"	2-1/2"-12"	2-3/8"-12"	3-1/2	5-1/2	JGRLFA	JGRLFB
I-X	2"	2-1/2"-12"	2-3/8"-12"	3-1/2	5-1/2	JGRLIXA	JGRLIXB
M-1 Meter Unit	—	—	—	4-3/4	6-3/4	GRLR23A	GRLR23B
Foot Switch	—	—	—	2-1/2	3-1/2	JGRLFSA	GRLR19

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## Digital Multimeter

with Adjustable Display

### Dimensions:

7-1/2" x 3-1/2" x 1-1/2"

### Features:

- ⇨ Measurement functions include AC/DC Voltage and Current, Resistance, Diode, Continuity and Transistor (9 Functions over 30 Ranges)
- ⇨ Auto Power Off
- ⇨ Overrange, Polarity, and Low Battery Indications
- ⇨ Color Coded Input Jacks with Overload and Current Fuse Protection
- ⇨ Complete with Test Leads, 9V Battery, and Holster

### Ranges:

DC Voltage: 200mV, 2V, 20V, 200V, 1000V

AC Voltage: 200mV, 2V, 20V, 200V, 750V

DCCurrent: 20µA, 200µA, 2mA, 20mA, 200mA, 2A, 10A

AC Current: 20µA, 200µA, 2mA, 20mA, 200mA, 2A, 10A

Resistance ( Ω ): 200, 2K, 20K, 200K, 2M, 20M, 200M

### Catalog Number

Digital Multimeter .....VAOTMV110

Net Weight 1 lb. 4 ozs., Shipping Weight 3 lbs.



## V.A.O. Testers

Simpson Models 260-8 and 260-8P



Mirrored Scale

UL Listed

Dimensions:  
5-1/4" x 7" x 3-1/8"

### Features:

- ⇨ **Model 260-8** — world famous; offers movement overload protection, input protection, increased stability, and self-shielded meter movement.
- ⇨ **Model 260-8P** — is identical to Model 260-8, but with built-in meter and tester protection approaching 100% which makes this instrument virtually GOOF-PROOF. A reset button pops out indicating overload. Circuits cannot be reset while the overload is present. This is especially important for inexperienced operators.

### Ranges:

Volts, D.C.: 0-0.250, 1, 2.5, 10, 50, 250, 500, 1000.

Volts, A.C.: 0-2.5, 10, 25, 50, 250, 500, 1000.

Amperes, D.C.: 0-10 (250 MV Drop).

Amperes, A.C.: up to 250 amperes in 6 ranges with Model 150-2 Amp-Clamp.

Milliamperes, D.C. only: 0-1, 10, 100, 500.

Ohms: Rx1 0-2000 (12 center)

Rx100 0-200,000 (1,200 center)

Rx10,000 0-20 megohms (120,000 center)

dB Scale, (IMW 600 ohms) - 20 to + 10, - 8 to + 22,  
+ 6 to + 36, + 20 to + 50.

### Catalog Number

Model 260-8 complete with leads .....VAOT2608

Model 260-8P complete with leads .....VAOT2608P

Net Weight 3-1/2 lbs., Shipping Weight 5 lbs.

Carrying Case for either of above .....VAOT260C

## A.C./D.C. Digital Clamp-On Multimeter

Full Function Digital Multimeter

### Features:

- ⇨ Measures AC/DC Current plus Voltage, Resistance and Diode
- ⇨ 1.3" clamp jaw opening
- ⇨ Large 3-1/2" digit LCD with low battery indication
- ⇨ Temperature measurements on 38095F
- ⇨ True RMS AC response on 38095F
- ⇨ Peak hold to store and recall motor in-rush current; Data Hold; overload protection
- ⇨ Dual hall effect sensors provide 2% DCA accuracy
- ⇨ Manual DCAzero adjust improves accuracy
- ⇨ Complete with 9V battery, carrying case, test leads and bead wire K thermocouple probe for 38095F



### Ranges:

DC Voltage: 200mV\*, 200V, 600V

AC Voltage: 200V, 600V

(\*Range applies to Model 380922 only.)

AC/DCCurrent: 200A, 1000A or 2000A  
(AC Frequency Response 40 to 400 Hz)

Resistance ( Ω ): 2000

Temperature: -40 to 2000°F

### Dimensions:

9" x 3" x 1-1/2"

### Catalog Number

Model 380922 1000A AC/DC Clamp-On + DMM,  
(without temperature function) .....VAOT380922

Model 380923 2000A AC/DC Clamp-On + DMM,  
(without temperature function) .....VAOT380923

Model 38095F 1000A True RMS AC/DC Clamp-On +  
DMM + Temperature Function .....VAOT38095F

Net Weight 1 lb. 10 ozs., Shipping Weight 3 lbs.