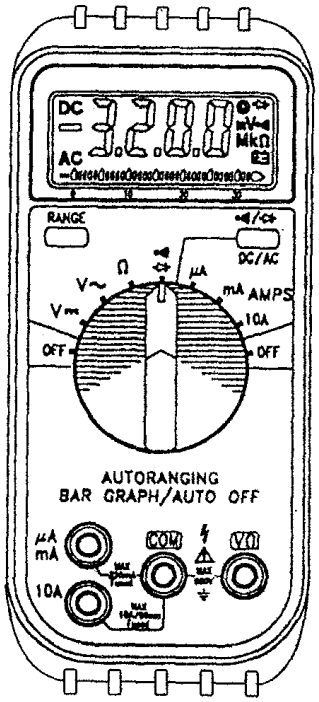
IDEAL INDUSTRIES INC.
TECHNICAL MANUAL
MODEL: 61-362

The Service Information provides the following information

- Precautions and safety information
- Specifications
- Performance test procedure
- Calibration and calibration adjustment procedure
- Basic maintenance (replacing the battery and fuses)



Form number: 61362
Rev 1. date: May 2001

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Introduction

⚠ Warning
To avoid shock or injury, do not perform the verification tests or calibration procedures described in this manual unless you are qualified to do so.
The information provided in this document is for the use of qualified personnel only.

⚠ Caution
The 61-362 serials contain parts that can be damaged by static discharge.
Follow the standard practices for handling static sensitive devices.

For additional information about IDEAL INDUSTRIES and its products, and services, visit IDEAL INDUSTRIES web site at:
www.idealindustries.com

SAFETY

Review the following safety precautions to avoid injury and prevent damage to this product or any products connected to it. To avoid potential hazards, use the product only as specified.

It is recommended that you read through the Operation or User manual before starting. Not all Caution, Warning, or Danger precautions are listed in this manual.

⚠ CAUTION.
These statements identify conditions or practices that could result in damage to the equipment or other property.

⚠ WARNING.
These statements identify conditions or practices that could result in personal injury or loss of life.

Specific precautions

Use proper Fuse. To avoid fire hazard, use only the fuse type and rating specified for this product.

Do not operate without covers. To avoid personal injury, do not apply any voltage or current to the product without the covers in place.

Electric overload. Never apply a voltage to a connector on the product that is outside the range specified for that connector.

Avoid electric shock. To avoid injury or loss of life, do not connect or disconnect probes or test leads while they are connected to a voltage source.

Do not operate in wet/damp conditions. To avoid electric shock, do not operate this product in wet or damp conditions.

General specifications
Model 61-362

Characteristics	Description
Display	3 ½ Digit LCD display
Display Count	3200 count, maximum reading 3199 32 segment analog bar graph
Over range Indication	"OL" displayed
Sampling Rate	2 time/second
Operating Environment: Relative Humidity	0°C to 50°C (32°F to 122°F) 70%RH
Temperature Coefficient	0.05X x (accuracy) per °F (32°F to 65°F, 85°F to 122°F
Storage Environment:	-20°C to 60°C (0°F to 140°F) at <70 relative humidity
Power source:	9V Battery (NEDA 1604)
Battery Live:	200 hours typical (alkaline)
Low Battery Indicator:	symbol indicates low battery voltage
Auto Power Off mode	Approximately 25 minutes
A protection Fuse	0.5A/250V fast acting fuse Type LA-3895 10A/600V fast acting fuse, Type LA-3897
Dimensions	5.75" H X 2.75" W X 1.5" D {without holster}
Weight:	Approximately 18.0 oz. including battery
Safety	UL1244, and Design to comply with IEC 1010-1 Cat III

RANGES and ACCURACY SPECIFICATION
61-362

Function Setting	**Ranges**	**Accuracy**
AC Voltage	3.200V/32.00V/320.0V/ 600V 50Hz to 500Hz	2.0% ± 4 digits
DC Voltage	320.0mV/32.00V/320.0V/600V 3.200V	1.2% ± 1digit 0.8% ± 1digit
AC Current	320µA/3200 µA/32.00mA/320mA 10A, 50Hz to 500Hz	2.5% ± 4 digits 3.5% ± 4 digits
DC Current	320µA/3.20mA/32.00mA 10A,	2.0% ± 1 digit 3.0% ± 1 digit
Resistance	320.0Ω 3.200k/32.00k/320.0k 3.200MΩ 32.00MΩ	2.0% ± 3 digits 1.5% ± 3 digits 2.5% ± 3 digits 5.0% ± 5 digits
Continuity	beep on < 100Ω	Not Specified
Diode Check	2V DC max	10% ± 2 digit

AC Converter: Average responding, RMS Calibrated to Sine Wave
Overload Protection: **AC and DC Volts**: 600V DC or AC rms .
Resistance, Diode, Continuity: 500V DC or AC rms
mA input: .5A/250V DC/AC rms
Amps input: 10A/600V DC/AC rms

PERFORMANCE VERIFICAITONS

Perform the following analysis, if the meter conforms to the limits listed in Table 1 the meter is functioning correctly. If the meter does not conform to any of the listed limits the calibration procedure must be performed.

Performance Verification Preparation

1. Turn on the Calibrator, allow calibrator to warm up. Temperature Stabilization should be reached after 30 minutes.
2. Remove battery cover and using a calibrated meter to ensure the battery measures a minimum of 7.5 V DC. If the battery measures under 7.5V DC, replace the battery before beginning the performance test.
3. Input the values listed in Table 1 for the Standard 61-362

Table 2 Performance Verification 61-362

Function Setting /Range	Input	Low Limit	High Limit
ACV 3.2V	3.000V @ 50Hz	2.936	3.064
ACV 3.2V	3.000V @ 500Hz	2.936	3.064
ACV 32	30.00 @ 50Hz	29.36	30.64
ACV 32	30.00 @ 500Hz	29.36	30.64
ACV 320	300V AC @ 50Hz	293.6	306.4
ACV 320	300V AC @ 500Hz	293.6	306.4
ACV 600	500V AC @ 50Hz	486	514
ACV 600	500V AC@ 60Hz	486	514
DCV 320mV	300mV DC	296.3	303.7
DCV 3.2V	3.000V DC	2.975	3.025
DCV 32V	30.00V DC	29.63	30.37
DCV 320	300.0V DC	296.3	303.7
DCV 600	500V DC	493	507
A DC 320µA	300µA	293.9	306.1
A DC 3200 µA	3000µA	2939	3061
A DC 32mA	30mA	29.39	30.61
A DC 320mA	300mA	293.9	306.1
A DC 10	9.00 DCA	8.70	9.30
A AC 320µA	300µA @ 50Hz	292.1	307.9
A AC 320µA	300µA @ 500Hz	292.1	307.9
A AC 3200µA	3000µA @ 50Hz	2921	3079
A AC 320oµA	3000µA @ 500Hz	2921	3079
A AC 32mA	30mA @ 50Hz	29.21	30.79
A AC 32mA	30mA @ 500Hz	29.21	30.79
A AC 320mA	300mA @ 50Hz	292.1	307.9
A AC 320mA	300mA @500Hz	292.1	307.9
A AC 10A	9A @ 50Hz	8.64	9.36
A AC 10A	9A @ 500Hz	8.64	9.36
Ω 320	300.0	297.7	306.3
Ω 2k	3.000k	2.950	3.048
Ω 32k	30.00k	29.52	30.48
Ω 320k	300.0k	295.2	304.8
Ω 2M	3.000M	2.922	3.078
Ω 32M	30.00M	28.45	31.55
Diode Test	500mV	.448	.552
Continuity Test	120Ω	Beep off	
Continuity Test	80Ω	Beep on	

CALIBRATION

Calibration Preparation

Required Equipment

The class of calibrator or equipment should have an accuracy that exceeds, by an expectable ratio the accuracy of this instrument.

1. Turn on the Calibrator, allow calibrator to warm up. Temperature Stabilization should be reached after 30 minutes.
2. Disconnect the test leads and turn the range switch to "OFF".
3. Remove the screw holding the bottom case cover, just above the battery cover.
4 The case bottom is secured to the case top by two internal snaps. (at the LCD end). lift up on the battery end until the case un-snaps.
5 Using a calibrated meter ensure the battery measures a minimum of 7.5 V dc. If the battery measures under 7.5V DC, replace the battery.

Calibration Procedure

It is recommended that all IDEAL meters undergo the following calibration procedure on an annual basis.

61-362 Calibration Procedure.

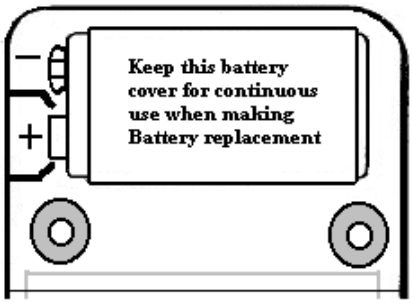
Calibration

1. Set the Function/Range Switch to the "3.200V DC" position.
2. Set the output of the DC calibrator for 3.000V and connect it to the "**V-Ohm**" and "**COM**" input terminals.
3. Adjust VR1 (VR 200 ohm) until the display reads 3.000V +/- 1 digit.

Note : ***This is the only adjustments required for the 61-362. Calibration is complete.***

Battery Replacement (refer to Figure 2)

1. Disconnect the test leads from any circuit under test and turn off meter.
2.Remove the three screws for the back case cover.
3. Remove battery from compartment noting the "+" and "- " position of the Battery terminals.
4. Remove the Battery plastic sleeve and place it on the new battery
   (Damage can occur to circuit if Plastic sleeve is not replace with new Battery)
5. Install new 9V battery into compartment and assure proper polarity of battery.
   (An alkaline type NEDA #1604 is recommended.)
6. Install bottom case cover and secure with screws.



Replacing Fuse (refer to Figure 3)

1. Disconnect the test leads and turn the range switch to "OFF".
2. Remove the three screws holding the bottom case cover
3 Us a digital multimeter in low resistance {ohms} mode to check the two fuses
   mA input, 0.5A / 250V fast acting fuse.
   Amp input, 10A / 600V fast acting fuse
4. Remove the defective fuse with the recommended fuse
   mA with : 0.5A/250V fast acting fuse Type LA-3895 is recommended.
   Amp with: 10A/600V fast acting fuse, Type LA-3897 is recommended
5. Install bottom cover and secure with screws.