GENERAFRIO

DIGITAL STICK METER
MODELS: HS32, HS33

Built-in magnetic hanger.

Fieldpiece

OPERATOR'S MANUAL

For your safety...

General: Disconnect the test leads before opening the case. Inspect the test leads for damage to the insulation or exposed metal. Replace if suspect. Never ground yourself when taking electrical measurements. Do not touch exposed metal pipes, outlets, fixtures, etc., which might be at ground potential. Keep your body isolated from ground by using dry clothing, rubber shoes, rubber mats, or any approved insulating material. When disconnecting from a circuit, disconnect the "RED" lead first, then the common lead. Work with others. Use one hand for testing. Turn off power to the circuit under test before cutting, unsoldering, or breaking the circuit. Keep your fingers behind the finger guards on the probes. Do not measure resistance when circuit is powered. Do not apply more than rated voltage between input and ground.

All voltage tests: All voltage ranges will withstand up to 600V. Do not apply more than 600VDC or 600VAC.

AC tests: Disconnect the meter from the circuit before turning any inductor off, including motors, transformers, and solenoids. High voltage transients can damage the meter beyond repair. Do not use during electrical storms.

Maintenance

Clean the exterior with clean dry cloth. Do not use liquid.

Battery replacement: When the multimeter displays "[+ -]" the battery must be replaced. Disconnect and unplug leads, turn meter off, and remove the battery cover. Replace the battery with a NEDA type 1604 9V battery.

Limited warranty

This meter is warranted against defects in material or workmanship for one years from date of purchase. Fieldpiece will replace or repair the defective unit, at its option, subject to verification of the defect.

This warranty does not apply to defects resulting from abuse, neglect, accident, unauthorized repair, alteration, or unreasonable use of the instrument.

Any implied warranties arising from the sale of a Fieldpiece product, including but not limited to implied warranties of merchantability and fitness for a particular purpose, are limited to the above. Fieldpiece 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 of such damage, expenses, or economic loss.

State laws vary. The above limitations or exclusions may not apply to you.

Service

Call Fieldpiece Instruments for one-price-fix-all warranty service pricing. Send check or money order for the amount quoted. Send the meter freight prepaid to Fieldpiece Instruments. Send proof of date and location of purchase for in-warranty service. The meter will be repaired or replaced, at the option of Fieldpiece, and returned via least cost transportation.

Fieldpiece
Designed in USA
MADE IN TAIWAN

www.fieldpiece.com.

Non-contact voltage

With the red NCV tab on the tip of the meter close to an AC voltage, press and hold the NCV button. The NCV LED will light and the beeper will beep. The closer you get to AC voltage, the louder the beep. The NCV function is sensitive enough to detect 24VAC on thermostats.

Hi voltage indicator

In any VAC/VDC range, when you touch a voltage greater than 30V, the beeper will beep and the red Hi-V LED will blink. BE CAREFUL!

Capacitance

For motor-start and motor-run capacitors. Disconnect the capacitor from power first. Short the terminals to discharge the capacitors. Disconnect any resistors that might be between the terminals of the capacitor.

MIN/MAX and data HOLD

Press MIN/MAX once to begin recording MIN and MAX. Press MIN/MAX to select current reading's MIN or MAX. Hold down for 2 seconds to exit MIN/MAX function. Press HOLD to hold data.

Temperature (HS33)

Plug any K-type thermocouple directly into the meter to measure temperature. Temperature measurement will be accurate even in fast changing environments because of excellent temperature compensation. One thermocouple is included. No adapter is required.

Attach to Fieldpiece accessory head

Connect your Fieldpiece accessory head directly to the top of HS series and switch to range indicated by head.

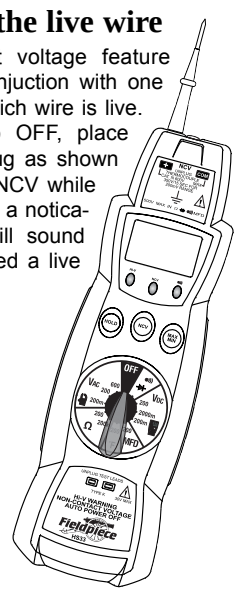
Field °F calibration (HS33)

For accuracies of ±°F, calibrate the HS33 to a known temperature. A glass of stabilized ice water is very close to 32°F (0°C) and is usually very convenient but any known temperature can be used.

1. Select the 200°F range.
2. Remove back case and hold the battery in place with a rubber band so terminals are touching.
3. Stabilize a large cup of ice water.
4. Immerse the thermocouple probe and let it stabilize.
5. Adjust VR3 (below battery) to get close to 32°F (0°C) then adjust VR1 (right of battery) to get within 0.1°F (0.1°C) of 32.0°F (0.0°C).
6. To calibrate in °C, close the jumper that is just below VR1.

Easily detect the live wire

The non-contact voltage feature can be used in conjuction with one probe tip to find which wire is live. With meter set to OFF, place probe tip in red plug as shown below. Hold down NCV while touching each wire, a noticably louder buzz will sound when you've touched a live wire.



Symbols used:

⚠ Caution, risk of electric shock

⚠ Caution, refer to manual.

⏚ Ground

⧈ Double insulation

⚠ WARNINGS ⚠

DISCONNECT AND UNPLUG TEST LEADS before opening case.

TEST NCV FUNCTION ON KNOWN LIVE WIRE before using.

DO NOT APPLY VOLTAGE greater than 30VAC or 60VDC to the thermocouple or the jacks when the rotary dial is on OF.

REMOVE THE THERMOCOUPLE when taking voltage measurements.

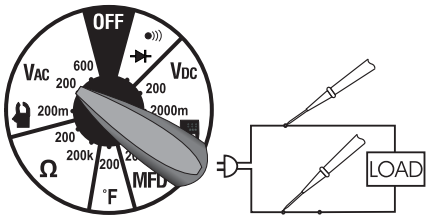
DISCONNECT THE TEST LEADS when taking temperature measurements.

DO NOT APPLY VOLTAGE TO THE JACKS when the rotary dial is on microamps. Even low voltages can cause a current overload and blow the fuse. Replace blown fuse to regain function.

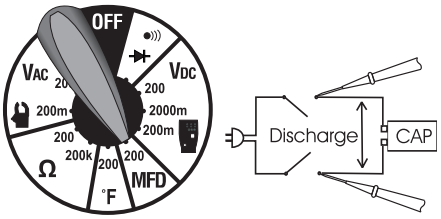
P/N: 7000-1659

v16

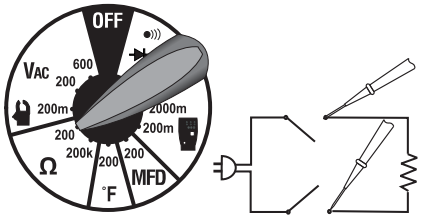
Voltage



Capacitance



Resistance

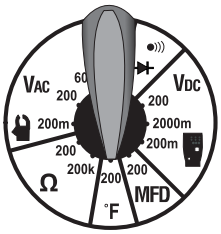


Selecting Ranges

For DC voltage, set the meter to the VDC parameter instead of VAC as shown above.

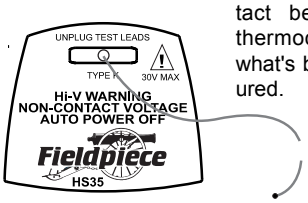
For all ranges choose a range just above the value you expect. If display reads "OL" (overload), select a higher range. If display shows less than three numbers, select a lower range for better resolution.

Temperature (HS33)

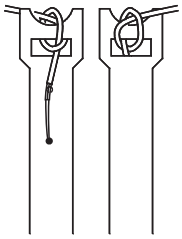


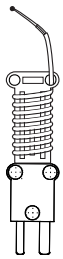
Disconnect test leads from voltage before plugging in thermocouple!

Insure the temperature being measured is stable. Maintain good contact between the thermocouple and what's being measured.



The velcro strip supplied is intended to be used as shown on the right. Tie thermocouple like this and wrap velcro around surface to make sure bare wires are in close contact with surface being measured. This is especially helpfull when taking pipe temps.

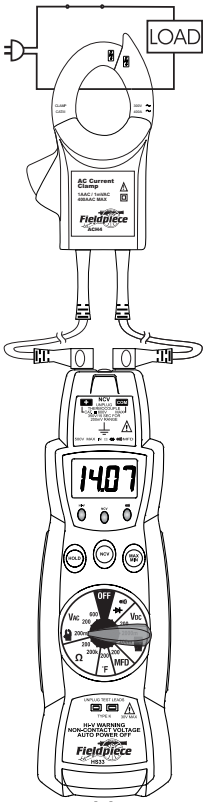




The k-type thermocouple supplied is designed with a "wrap tab" to keep the wire out of the way when not needed. Just wrap the wire around tab and pull through the hole at the top to keep in place as shown to the left. No more clutter when stored.

Works with Fieldpiece accessory heads!

(1)



(2)

Connect to Fieldpiece accessory heads by simply attaching them to the top of meter **(1)** or attach remotely through leads **(2)**. For most heads, move dial to range shown **(1)**. For the AAC clamp (ACH4), move dial to VAC range **(2)**.

SPECIFICATIONS

Display: 3½ digit liquid crystal display (LCD) with a maximum reading of 1999.
Overrange: "OL" mark indication.
Auto power off: 60 minutes.
Operating environment: 32 to 122°F (0 to 50°C) at <70% R.H.
Storage temperature: -4 to 140°F (-20 to 60°C), 0 to 80% R.H. with battery removed.
Accuracy: Specifications good in ambient conditions of 73°F ±9°F (23°C ±5°C), <75% relative humidity.
Temperature Coefficient: 0.1×(specified accuracy) per °F/°C. (32 to 64°F (0 to 18°C), 82 to 122°F (28 to 50°C)).
Power: Single standard 9-volt battery, NEDA 1604, JIS 006P, IEC 6F22.
Battery life: 300 hours typical with alkaline.
Accessories: One pair test leads, one pair alligator clips, k-type thermocouple (HS33), 9V battery (installed), and operating instructions.
Safety: UL, CE, Cat III 600V, UL3111, IEC/EN61010-1, C-Tick certified.

Diode test

Test current: ~1.0mA
Accuracy: ±(1.5% rdg + 3 dgts)
Open circuit volts: 3.0VDC typical
Overload protection: 500VDC or AC rms

Continuity

Audible indication: Less than 100Ω
Response time: 100ms
Green LED will be on continuously.
Overload protection: 500VDC or AC rms

Capacitance

Range: 200μF
Resolution: 0.1μF
Accuracy: ±(3% rdg + 5 dgts)
Overload protection: 500VDC or AC rms

DC volts

Ranges: 200mV, 2000mV, 20V(HS32), 200V
Resolution: 0.1mV
Accuracy: ±(0.5% rdg + 1 dgt)
Input impedance: 560kΩ on V inputs, 10MΩ on mV input
Overload protection: 600VDC or AC rms, 500VDC/350VAC rms 15 sec on 200mV range
Transient protection: 6kV for 10μ sec

AC volts (50Hz - 500Hz)

Ranges: 200mV, 200V, 600V
Resolution: 0.1mV
Accuracy: ±(1.2% rdg + 3 dgts) ±(2.0% rdg + 5 dgts) on 600V range
Input impedance: 560kΩ on V input, 10MΩ on mV input
Overload protection: 600V DC or AC rms
Transient protection: 6kV for 10μ sec

Resistance

Ranges: 200Ω, 200kΩ
Resolution: 0.1Ω
Accuracy: ±(1.0% rdg + 4 dgts)
Open circuit volts: 0.3VDC typical, (3.0VDC on 200Ω range)
Overload protection: 500VDC or AC rms

Temperature (HS33)

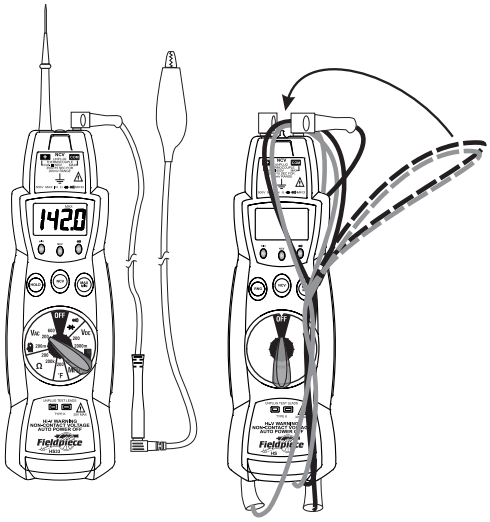
Range: -30 to 200°F (-34 to 93°C)
Resolution: 0.1°F/°C
Accuracy: ±1°F, 32 to 120°F (0 to 48°C), ±1% + 1.5°F, -4 to 200°F (-20 to 93°C), ±2% + 3°F, -30 to -4°F (-34 to -20°C).
Sensor type: K-type thermocouple
Overload protection: 60 VDC or 30 VAC rms

Available Fieldpiece access. heads

There is a Fieldpiece accessory head available for just about any job. There are heads to measure temperature, RH%, wet bulb, dew point, vacuum (microns of mercury), manometer (inches of water column), amps AC&DC, high voltage, CO, CO2, air velocity, and many more.

Using & storing test leads

Because the wire insulation is silicone the leads will stay flexible in cold weather and will not melt if bumped by a soldering iron.

Disconnect top half of test lead and plug tip directly into meter to make voltage testing easy. Use with included alligator clip (ASA2) as shown for even easier operation.

For convenient lead storage, wrap the leads as shown. Pull leads around front between overhanging tips, twist, and pull over one of the lead plugs.