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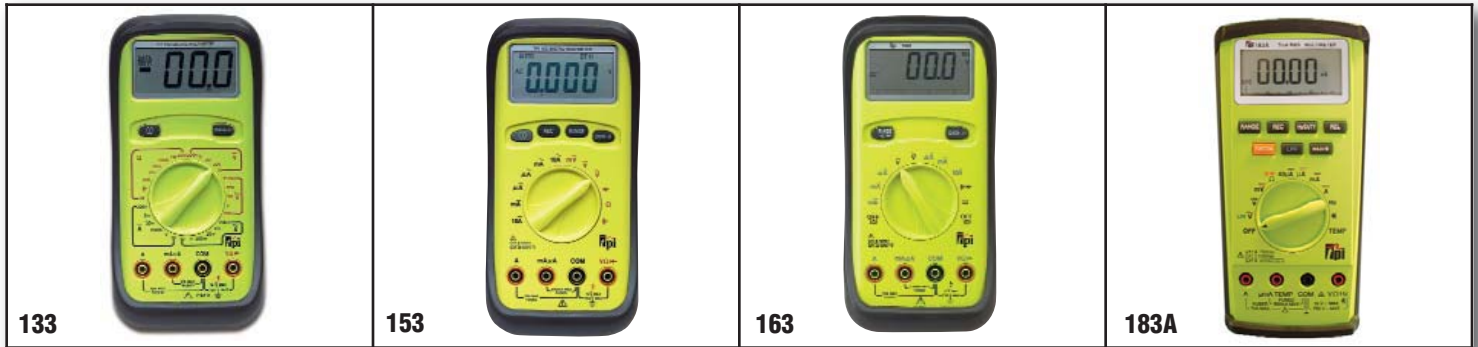
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PRODUCT No.	MEASUREMENTS	RANGES	FEATURES & BENEFITS	APPLICATIONS
<b>100</b> Easy, One Button Operation DMM	<b>Basic DC Accuracy</b> <b>DC Voltage</b> <b>AC Voltage</b> <b>OHM</b>	0.5% 600V 600V 40MΩ	<ul style="list-style-type: none"> <li>• Easy, one button operation</li> <li>• Automatically measures DC volts, AC volts and ohms (resistance)</li> <li>• 0 to 600 volts AC/DC</li> <li>• 10M ohm impedance</li> <li>• Auto power off</li> <li>• Protective rubber boot</li> <li>• cULus 61010-1</li> <li>• CAT II 1,000-V / CATIII 600V</li> <li>• 3 Year Limited Warranty</li> </ul>	<ul style="list-style-type: none"> <li>• Measure line and control circuit voltages</li> <li>• Measure resistance of motor windings, transformers and solenoids</li> <li>• Make general AC/DC voltage and resistance measurements</li> <li>• Measure the resistance of elements and electric heater cores</li> <li>• Test continuity of wiring</li> <li>• Verify voltage at breakers and outlets</li> <li>• Use as a back-up meter in your tool box</li> </ul>
<b>120</b> Digital Multimeter	<b>Basic DC Accuracy</b> <b>DCV</b> <b>ACV</b> <b>OHM</b>	0.5% 2V, 200V, 200V, 600V 200V, 600V 2kΩ	<ul style="list-style-type: none"> <li>• Safety Meets CE and IEC 1010 requirements. UL Listed.</li> <li>• Large LCD Easy to read at all angles and the majority of lighting levels.</li> <li>• Data Hold Freeze readings on the display.</li> <li>• Rubber Boot Added protection when the instrument is dropped. (120NB does not include boot.)</li> <li>• Versatile Use accessories like a carbon monoxide attachment to expand the capabilities of the 120.</li> </ul>	<b>HVAC/R APPLICATIONS</b> <ul style="list-style-type: none"> <li>• Line voltage.</li> <li>• Control circuit voltage.</li> <li>• Heating element resistance (continuity).</li> <li>• Compressor winding resistance.</li> <li>• Contactor and relay coil resistance.</li> <li>• Continuity of wiring</li> </ul> <b>ELECTRICAL APPLICATIONS</b> <ul style="list-style-type: none"> <li>• Measure line voltage.</li> <li>• Continuity of circuit breakers</li> <li>• Voltage of direct drive DC motors.</li> </ul>
<b>122</b> Digital Multimeter	<b>Basic DC Accuracy</b> <b>DCV</b> <b>ACV</b> <b>OHM</b>	0.5% 2000mv, 20V, 200V, 600V 2000mV, 200V, 600V 2kΩ	<ul style="list-style-type: none"> <li>• Safety Meets CE and IEC 1010 requirements. UL Listed.</li> <li>• Large LCD Easy to read at all angles and the majority of lighting levels.</li> <li>• Data Hold Freeze readings on the display.</li> <li>• Rubber Boot Added protection when the instrument is dropped. (122NB does not include boot.)</li> <li>• Versatile Use accessories like a carbon monoxide attachment to expand the capabilities of the 122.</li> </ul>	<b>HVAC/R APPLICATIONS</b> <ul style="list-style-type: none"> <li>• Line voltage.</li> <li>• Control circuit voltage.</li> <li>• Heating element resistance (continuity).</li> <li>• Compressor winding resistance.</li> <li>• Contactor and relay coil resistance.</li> <li>• Continuity of wiring</li> </ul> <b>ELECTRICAL APPLICATIONS</b> <ul style="list-style-type: none"> <li>• Measure line voltage.</li> <li>• Continuity of circuit breakers</li> <li>• Voltage of direct drive DC motors.</li> </ul>
<b>126</b> Digital Multimeter	<b>Basic DC Accuracy</b> <b>DCV</b> <b>ACV</b> <b>DCA</b> <b>ACA</b> <b>OHM</b>	0.3% 400mV, 4V, 40V, 400V, 1000V 4V, 40V, 400V, 750V 400μA, 4mA, 40mA, 40mA 400μA, 4000μA, 40mA, 400mA 400Ω, 4kΩ, 40kΩ, 400kΩ, 4MΩ, 40MΩ	<ul style="list-style-type: none"> <li>• Agency Approval Meets CE and IEC 1010 requirements.</li> <li>• Record Records Min/Max values.</li> <li>• Range Allows you to either manual range or use auto range to select the appropriate range.</li> <li>• Auto Off Preserves battery life. LCD shows off when in this mode. Automatically powers down after 30 minutes of inactivity.</li> <li>• 3 Year Warranty</li> </ul>	<b>HVAC/R APPLICATIONS</b> <ul style="list-style-type: none"> <li>• Thermocouples in furnaces or gas applications</li> <li>• Heat anticipator current in thermostats</li> <li>• Flame safeguard control current</li> <li>• Heating element resistance (continuity)</li> <li>• Compressor winding resistance</li> <li>• Contactor and relay coil resistance</li> <li>• Temperature w/ optional temperature adapter</li> </ul> <b>ELECTRICAL APPLICATIONS</b> <ul style="list-style-type: none"> <li>• Line voltage</li> <li>• Control circuit voltage</li> <li>• Continuity of wiring</li> </ul>



PRODUCT No.	MEASUREMENTS	RANGES	FEATURES & BENEFITS	APPLICATIONS
<b>133</b> Manual Ranging DMM	<b>Basic DC Accuracy</b> <b>DC Voltage</b> <b>AC Voltage</b> <b>AC Amps</b> <b>DC Amps</b> <b>OHM</b>	0.5% 1,000V 750V 10A 10A 20MΩ	<ul style="list-style-type: none"> <li>• 2,000 count LCD</li> <li>• Measures AC/DC volts, AC/DC amps, resistance, diodes and continuity</li> <li>• Data hold</li> <li>• Protective rubber boot</li> <li>• CAT II - 1000V, CAT III - 600V</li> <li>• 3 Year Limited Warranty</li> </ul>	<b>HVAC/R APPLICATIONS</b> <ul style="list-style-type: none"> <li>• Thermocouples in furnaces and gas appliances</li> <li>• Heat anticipator current in thermostats</li> <li>• Flame safety control current</li> <li>• Heating element resistance</li> </ul> <b>ELECTRICAL APPLICATIONS</b> <ul style="list-style-type: none"> <li>• Line and control voltages</li> <li>• Continuity of wiring</li> <li>• Line current up to 10 amps</li> <li>• Power supply current</li> </ul>
<b>153</b> Digital Multimeter	<b>Basic DC Accuracy</b> <b>DCV</b> <b>ACV</b> <b>DCA</b> <b>ACA</b> <b>OHM</b>	0.3% 400mV, 4V, 40V, 400V, 1000V 4V, 40V, 400V, 750V 400μA, 4mA, 40mA, 400mA, 4A, 10A 400μA, 4000μA, 40mA, 400mA, 4A, 10A 400Ω, 4kΩ, 40kΩ, 400kΩ, 4MΩ, 40MΩ	<ul style="list-style-type: none"> <li>• Agency Approval Meets CE and IEC 1010 requirements. UL Listed to U.S. and Canadian Safety Standards.</li> <li>• Sleep Instrument automatically powers down after 30 minutes of inactivity, however, it will continue acquiring data in its various modes. Pressing any push button or turning the rotary switch returns the 153 back to normal.</li> <li>• Record Records Min/Max values.</li> <li>• Range Allows you to either manual range or use auto range to select the appropriate range.</li> <li>• Auto Off Preserves battery life. LCD shows OFF when in this mode.</li> <li>• 3 Year Warranty</li> </ul>	<b>HVAC/R APPLICATIONS</b> <ul style="list-style-type: none"> <li>• Thermocouples in furnaces or gas applications</li> <li>• Heat anticipator current in thermostats</li> <li>• Motor run and start capacitors</li> <li>• Flame safeguard control current</li> <li>• Heating element resistance (continuity)</li> <li>• Compressor winding resistance</li> <li>• Contactor and relay coil resistance</li> <li>• Temperature w/ optional temperature adapter</li> </ul> <b>ELECTRICAL APPLICATIONS</b> <ul style="list-style-type: none"> <li>• Line voltage</li> <li>• Voltage of direct drive DC motors</li> <li>• Control circuit voltage</li> <li>• Continuity of wiring</li> <li>• Continuity of circuit breakers</li> <li>• Bar graph to indicate rapid fluctuations in measurements</li> </ul>
<b>163</b> Digital Multimeter	<b>Basic DC Accuracy</b> <b>DCV</b> <b>ACV</b> <b>DCA</b> <b>Fuse</b> <b>OHM</b>	0.5% 326mV, 3.26V, 32.60V, 326V, 1000V 3.26V, 32.6V, 326V, 750V 326μA, 3260mA, 32.6mA, 326mA, 10A 3260mA, 32.6mA, 326mA, 10A 326Ω, 3.26kΩ, 32.6kΩ, 326Ω, 3.26MΩ, 32.6M	<ul style="list-style-type: none"> <li>• Safety Meets CE and IEC 1010 requirements. UL Listed to U.S. and Canadian Safety Standards.</li> <li>• Data Hold Holds the reading on the display.</li> <li>• Range Allows you to either manual range or use auto range to select the appropriate range.</li> <li>• Auto Off Preserves battery life. LCD shows OFF when in this mode.</li> <li>• Large LCD Easy to read at all angles and the majority of lighting levels.</li> <li>• Rubber Boot Added protection when the instrument is dropped.</li> </ul>	<b>HVAC/R APPLICATIONS</b> <ul style="list-style-type: none"> <li>• Thermocouples in furnaces or gas applications</li> <li>• Heat anticipator current in thermostats</li> <li>• Flame safeguard control current</li> <li>• Heating element resistance (continuity)</li> <li>• Compressor winding resistance</li> <li>• Contactor and relay coil resistance</li> <li>• Motor start and run capacitance</li> <li>• Temperature with optional temperature adapter (A310)</li> </ul> <b>ELECTRICAL APPLICATIONS</b> <ul style="list-style-type: none"> <li>• Line voltage</li> <li>• Control circuit voltage</li> <li>• Continuity of wiring</li> <li>• Frequency on controls and line voltages</li> <li>• Record min/max voltage of controls and line voltages</li> <li>• Bar graph to indicate rapid fluctuations in measurements</li> <li>• Voltage of direct drive DC motors</li> <li>• Measure power supply voltage</li> </ul>
<b>183A</b> True RMS DMM with temperature, capacitance, duty cycle, & low-pass filter	<b>Basic DC Accuracy</b> <b>DC Voltage</b> <b>AC Voltage</b> <b>DC Microamps</b> <b>Temperature</b> <b>Capacitance</b> <b>Resistance</b> <b>AC Amps</b> <b>DC Amps</b> <b>Frequency</b>	0.5% 1,000V 750V 40uA -40°C to 1,300°C 4,000uF 40MΩ 10A 10A Up to 10MHz	<ul style="list-style-type: none"> <li>• 4,000 count</li> <li>• True RMS for more accurate measurements</li> <li>• Auto/manual ranging</li> <li>• Temperature measurement</li> <li>• Duty cycle (% pulse width modulation) for measuring modulating gas valves</li> <li>• Low pass filter for noisy environments</li> <li>• Separate battery and fuse compartment</li> <li>• Auto power off</li> <li>• IR serial interface</li> <li>• cULus 61010-1</li> <li>• CAT II - 1000V, CAT III - 600V</li> <li>• 3 Year Limited Warranty</li> </ul>	<b>HVAC/R APPLICATIONS</b> <ul style="list-style-type: none"> <li>• Test run and start capacitors</li> <li>• Measure ambient and duct temp</li> <li>• Test control (thermostat, thermocouple, flame safety) and line voltages</li> <li>• Measure PWM of modulation gas valves</li> <li>• Heat anticipator current</li> <li>• Heating element resistance</li> <li>• Compressor winding resistance</li> <li>• Contactor and relay coil resistance</li> <li>• Continuity of wiring</li> <li>• Bar graph to indicate rapid fluctuations in measurements</li> </ul> <b>ELECTRICAL APPLICATIONS</b> <ul style="list-style-type: none"> <li>• Measure resistance and test for continuity</li> <li>• Line current up to 10 amps (in series)</li> </ul>



PRODUCT No.	MEASUREMENTS	RANGES	FEATURES & BENEFITS	APPLICATIONS
<b>192</b> Digital Multimeter	<b>Basic DC Accuracy</b> <b>DCV</b>  <b>ACV</b> <b>DCA/ACA</b>  <b>OHM</b>  <b>CAPACITANCE</b>  <b>Inductance</b> <b>Frequency</b>	0.05% 50mV, 500mV, 5V, 50V, 500V, 1000V 5V, 50V, 500V, 750V 500μA, 5000μA, 50mA, 500mA, 5A, 10A 500Ω, 5kΩ, 50kΩ, 500kΩ, 5MΩ, 50MΩ 100nF, 1μF, 10μF, 100μF 100mH 50Hz, 500Hz, 5KHz, 50KHz, 500KHz	<ul style="list-style-type: none"> <li>• Safety Meets CE and IEC 1010 requirements. UL Listed to U.S. and Canadian Safety Standards.</li> <li>• True RMS Needed to accurately measure nonsinusoidal AC voltage and current waveforms found on many controls and circuits.</li> <li>• Triple Display Shows more than one reading simultaneously.</li> <li>• Two-Hold System Holds two readings on the display at the same time.</li> <li>• Auto Power Off Automatically powers instrument down after 15 minutes of inactivity, yet will continue acquiring data in its various modes.</li> <li>• Record Records Min/Max and Average values</li> <li>• Compare Compares stored value with measured value for matching components.</li> <li>• Relative Percentage Displays measured value as a % of stored value for checking component tolerances.</li> <li>• RS232 Output Transfers data directly to a PC while measuring.</li> <li>• Back Light Allows viewing in any light condition.</li> <li>• Auto range Automatically selects the best range for the measurement.</li> </ul>	<b>HVAC/R APPLICATIONS</b> <ul style="list-style-type: none"> <li>• Heat anticipator current in thermostats.</li> <li>• Flame safeguard control current.</li> <li>• Heating element resistance (continuity).</li> <li>• Compressor winding resistance.</li> <li>• Contactor and relay coil resistance.</li> <li>• Motor start and run capacitance.</li> </ul> <b>ELECTRICAL APPLICATIONS</b> <ul style="list-style-type: none"> <li>• Line voltage.</li> <li>• Control circuit voltage.</li> <li>• Continuity of wiring.</li> <li>• Frequency of line and control voltage.</li> <li>• Record min/max voltage of controls and line voltages.</li> <li>• Continuity of circuit breakers.</li> <li>• Voltage of direct drive DC motors.</li> <li>• Measure power supply voltage.</li> </ul>
<b>194</b> 50,000 count True RMS DMM with Logging	<b>Basic DC Accuracy</b> <b>DC Voltage</b> <b>AC Voltage</b> <b>DC Amps</b> <b>AC Amps</b> <b>Resistance</b> <b>Frequency</b> <b>Temperature</b> <b>Capacitance</b> <b>Inductance</b> <b>Conductance</b> <b>Duty Cycle</b> <b>Pulse Width</b> <b>dB</b>	0.05% 1000V 1000V 10A 10A 50MΩ 5MHz 2462°F 20000uF 300mH 50nS 0.1 to 99.9% 500mS, 1S 60dB	<ul style="list-style-type: none"> <li>• 0.05% basic accuracy true RMS DMM</li> <li>• CATIV 600V rated for safety</li> <li>• Time stamp data logging</li> <li>• 50,000 count display with backlight</li> <li>• Min/max record</li> <li>• Relative and compare modes</li> <li>• Two hold system</li> <li>• Diode test and audible continuity</li> <li>• PC communication (optional A192 cable &amp; software required)</li> <li>• cULus 61010-1</li> <li>• CATIII-1000VC, CATIII-1000V, CAT IV-600V, CAT III 1000V</li> <li>• Limited Life time Warranty</li> </ul>	<b>HVAC/R APPLICATIONS</b> <ul style="list-style-type: none"> <li>• Test run and start capacitors</li> <li>• Measure ambient and duct temperatures</li> <li>• Check and adjust variable frequency drive motors</li> <li>• Heat anticipator current in thermostats.</li> <li>• Flame safeguard control current.</li> <li>• Heating element resistance (continuity).</li> <li>• Compressor winding resistance.</li> <li>• Contactor and relay coil resistance.</li> <li>• Motor start and run capacitance.</li> </ul> <b>ELECTRICAL APPLICATIONS</b> <ul style="list-style-type: none"> <li>• Measure line and control circuit voltages in CAT IV applications safely</li> <li>• Check power distribution in industrial equipment</li> <li>• Monitor equipment over time to detect intermittent problems</li> <li>• Line voltage.</li> <li>• Control circuit voltage.</li> <li>• Continuity of wiring.</li> <li>• Frequency of line and control voltage.</li> <li>• Record min/max voltage of controls and line voltages.</li> <li>• Continuity of circuit breakers.</li> <li>• Voltage of direct drive DC motors.</li> <li>• Measure power supply voltage.</li> </ul>



PRODUCT No.	MEASUREMENTS	RANGES	FEATURES & BENEFITS	APPLICATIONS
<b>196</b> Process Control DMM	<b>Basic DC Accuracy</b> <b>DC Voltage</b> <b>AC Voltage</b> <b>DC Amps</b> <b>AC Amps</b> <b>Resistance</b> <b>Frequency</b> <b>Process source output</b>	0.05% 1000V 1000V 1A 1A 50M 500KHz 0 to 24mA DC	<ul style="list-style-type: none"> <li>0 to 24mA DC output for simulating and testing process loop controls</li> <li>50,000 count display with backlight</li> <li>0.05% Basic accuracy DMM</li> <li>Min/max record</li> <li>Relative and compare modes</li> <li>Diode test and audible continuity</li> <li>Two hold system</li> <li>PC communication (optional A192 cable &amp; software required)</li> <li>cULus 61010-1</li> <li>CAT II-1000VDC, 750VAC, CATIII-600V</li> <li>Limited Life time Warranty</li> </ul>	<ul style="list-style-type: none"> <li>Test and calibrate process loops and controls</li> <li>Test 4-20mA transducers (pressure, strain, temperature, flow, level)</li> <li>Check loop powered isolators</li> <li>Test two wire transmitters</li> <li>Check valve positioners, signal conditioners and process scaled indicators</li> </ul>
<b>440</b> Handheld Oscilloscope with True RMS DMM	<b>Bandwidth</b> <b>Sample Rate</b> <b>Basic DC Accuracy</b> <b>DCV</b> <b>ACV</b> <b>DCA/ACA</b> <b>Ohms</b> <b>Capacitance</b> <b>Frequency</b>	1MHz 20 megasamples per second 0.3% Up to 1,000 volts Up to 750 volts Up to 10 amps Up to 30MΩ Up to 400uF Up to 2 MHz	<ul style="list-style-type: none"> <li>True RMS DMM</li> <li>1MHz oscilloscope</li> <li>Trend mode</li> <li>Component test</li> <li>Logic test</li> <li>Frequency counter</li> <li>4,000 count</li> <li>cULus 61010-1</li> <li>CAT II - 1000V, CAT III - 600V</li> <li>3 Year Limited Warranty</li> </ul>	<ul style="list-style-type: none"> <li>View industrial signals such as motor control, UPS, switching power supplies and PLC controls with 1MHz bandwidth</li> <li>Capture noise spikes, glitches and intermittents with 20 megasamples per second sampling rate</li> <li>Full autoranging, true RMS DMM</li> <li>Continually updated display provides a live presentation</li> </ul>
<b>460</b> Handheld 20MHz Digital Oscilloscope	<b>DCV (CH1, CH2)</b> <b>Basic DC Accuracy</b> <b>ACV (CH1, CH2)</b> <b>Basic ACV Accuracy</b> <b>Frequency (CH1, CH2)</b> <b>Basic Frequency Accuracy</b> <b>Ohm (CH1 only)</b> <b>Basic Ohm Accuracy</b> <b>Continuity (CH1 only)</b> <b>Diode Test</b>	400mV, 4, 40, 400, 600V ± (0.5% + 5 digits) 400mV, 4, 40, 400, 600V ± 0.75% ± (1% + 10 digits) 1 Hz to 20 MHz ± (0.5% + 5 digits) 400, 4k, 40k, 400k, 4M, 20M ± (0.5% + 5 digits) < 0.1k ohm, ± (2% + 5 digits) 5mA maximum output	<ul style="list-style-type: none"> <li>4,000 count true RMS DMM, CACV, DCV ohms and continuity buzzer need optional adapters for current measurement</li> <li>20 MHz Bandwidth</li> <li>Cursor Readout</li> <li>Decibels</li> <li>Pre and Post Triggering</li> <li>Trend Mode</li> <li>Dual Input</li> <li>Real Time Sample Rate</li> <li>Bright LCD Backlight</li> <li>Optically Isolated RS232 Output</li> <li>Continuous Autoset</li> <li>cULus 61010-1</li> <li>CAT II - 1000V, CAT III - 600V</li> <li>3 Year Limited Warranty</li> </ul>	<ul style="list-style-type: none"> <li>Power Quality</li> <li>Variable Speed Drives</li> <li>Industrial Motor Controls</li> <li>Battery Testing</li> <li>Programmable Logic Controls</li> <li>NC/CNC Machines</li> <li>Uninterruptable Power Supplies</li> <li>Audio</li> <li>Video</li> <li>Industrial Lighting Controls</li> <li>Factory Automation</li> <li>Line Conditioners</li> <li>Voltage Regulators</li> <li>Inverters</li> <li>Gaming Industry</li> </ul>



PRODUCT No.	MEASUREMENTS	RANGES	FEATURES & BENEFITS	APPLICATIONS
<b>265</b> Digital Clamp-On Meter	<b>Basic DC Accuracy</b> <b>DC Voltage</b> <b>AC Voltage</b> <b>AC Amps</b> <b>Frequency</b> <b>Capacitance</b> <b>Resistance</b>	0.5% 600V 600V 400A 40MHz 4,000 $\mu$ F 40M $\Omega$	<ul style="list-style-type: none"> <li>• Auto &amp; manual ranging</li> <li>• Data hold button</li> <li>• Auto power off</li> <li>• Slim-jaw and body design for use in crowded electrical panels</li> <li>• 4,000 count display</li> <li>• Capacitance range up to 4,000 microfarads to test run and start capacitors</li> <li>• 0.1 DC millivolt resolution to accurately measure thermocouples and use optional adapters</li> <li>• 0.01 AC amp resolution to measure heat anticipator current</li> <li>• Frequency measurement capability</li> </ul>	<b>HVAC/R APPLICATIONS</b> <ul style="list-style-type: none"> <li>• Test start and run capacitors</li> <li>• Measure heat anticipator current</li> <li>• Determine thermocouple voltage</li> <li>• Measure heating element resistance</li> </ul> <b>ELECTRICAL APPLICATIONS</b> <ul style="list-style-type: none"> <li>• Measure motor run current</li> <li>• Test line and control voltage</li> <li>• Measure and adjust variable frequency drives</li> </ul>
<b>270</b> Digital Clamp-On Meter	<b>Basic DC Accuracy</b> <b>DC Voltage</b> <b>AC Voltage</b> <b>AC Amps</b> <b>Resistance</b> <b>Frequency</b> <b>Capacitance</b> <b>Temperature</b>	0.5% 600V 600V 400A 40M $\Omega$ 400MHz 4,000 $\mu$ F 1,000 $^{\circ}$ F	<ul style="list-style-type: none"> <li>• Measure motor in-rush current</li> <li>• Measure temperature differential</li> <li>• Non-contact voltage feature can be used to see if power is being supplied to the 24VAC control circuit of thermostats</li> <li>• Frequency, min/max/record, data hold and peak hold</li> <li>• Up to 4,000 microfarads to test run and start capacitors</li> <li>• 4,000 count display with 11 segment analog bargraph</li> <li>• Auto and manual ranging</li> </ul>	<b>HVAC/R APPLICATIONS</b> <ul style="list-style-type: none"> <li>• Measure flame safety control current</li> <li>• Test run and start capacitors &amp; motors</li> <li>• Measure heat anticipator current</li> <li>• Determine thermocouple voltage</li> <li>• Measure heating element resistance</li> <li>• Measure air temperature in ducts</li> <li>• Measure temperature differential using relative mode</li> </ul> <b>ELECTRICAL APPLICATIONS</b> <ul style="list-style-type: none"> <li>• Measure motor run current and capture peak motor start up and amperage</li> <li>• Test line and control voltage</li> <li>• Test for the presense of voltage in circuits without contacting the circuit</li> </ul>
<b>275</b> Digital Clamp-On Meter with True RMS, AC/DC amps 11,000 Count	<b>Basic DC Accuracy</b> <b>DC Voltage</b> <b>AC Voltage</b> <b>AC Amps</b> <b>DC Amps</b> <b>Resistance</b> <b>Frequency</b> <b>Capacitance</b> <b>Temperature</b>	0.5% 600V 600V 400A 400A 110M $\Omega$ 110MHz 4,000 $\mu$ F 1,000 $^{\circ}$ F	<ul style="list-style-type: none"> <li>• True RMS AC/DC amps</li> <li>• Measure motor in-rush current</li> <li>• Measure temperature differential with relative mode</li> <li>• Non-contact voltage feature can be used to see if power is being supplied to the 24VAC control circuit of thermostats</li> <li>• Frequency, min/max/record, data hold, and peak hold</li> <li>• Up to 4,000 microfarads to test run and start capacitors</li> <li>• 11,000 count display with 41 segment analog bargraph</li> <li>• Auto and manual ranging</li> </ul>	<b>HVAC/R APPLICATIONS</b> <ul style="list-style-type: none"> <li>• Measure flame safety control current</li> <li>• Test run and start capacitors &amp; motors</li> <li>• Measure heat anticipator current</li> <li>• Determine thermocouple voltage</li> <li>• Measure heating element resistance</li> <li>• Measure air temperature in ducts</li> <li>• Measure temperature differential using relative mode</li> </ul> <b>ELECTRICAL APPLICATIONS</b> <ul style="list-style-type: none"> <li>• Measure motor run current and capture peak motor start up and amperage</li> <li>• Test line and control voltage</li> <li>• Test for the presense of voltage in circuits without contacting the circuit</li> </ul>



# Digital Clamp-On Meters



PRODUCT No.	MEASUREMENTS	RANGES	FEATURES & BENEFITS	APPLICATIONS
<b>293</b> Digital Clamp-On Meter with True RMS,	<b>Basic DC Accuracy</b> <b>DC Voltage</b> <b>AC Voltage</b> <b>AC Amps</b> <b>Resistance</b> <b>Frequency</b>	0.75% 600V 600V 700A 40M 10KHz	<ul style="list-style-type: none"> <li>• True RMS</li> <li>• Measure AC/DC volts</li> <li>• Measure AC amps</li> <li>• Trim mode for stable readings</li> <li>• 4,000 count with 34 segment bar graph</li> <li>• Data hold</li> <li>• Sleep mode</li> <li>• HDR mode to determine if signal is clean or dirty</li> </ul>	<b>HVAC/R APPLICATIONS</b> <ul style="list-style-type: none"> <li>• Heat anticipator current in thermostats</li> <li>• Heating element resistance</li> <li>• Compressor winding resistance</li> </ul> <b>ELECTRICAL APPLICATIONS</b> <ul style="list-style-type: none"> <li>• Line voltage</li> <li>• Control circuit voltage</li> <li>• Contactor and relay coil resistance</li> <li>• Motor and compressor start up current</li> <li>• Continuity of wiring</li> <li>• Frequency on control and line voltage</li> <li>• Record/min/max voltage of controls and line voltages</li> <li>• Bar graph to indicate rapid fluctuations</li> </ul>
<b>296</b> True RMS 700 AC/DC amps	<b>Basic DC Accuracy</b> <b>DC Voltage</b> <b>AC Voltage</b> <b>AC Amps</b> <b>Resistance</b> <b>Frequency</b> <b>DC Amps</b>	0.75% 600V 600V 700A 40M 10KHz 700A	<ul style="list-style-type: none"> <li>• True RMS</li> <li>• Measure AC/DC volts</li> <li>• Measure AC amps</li> <li>• Trim mode for stable readings</li> <li>• 4,000 count with 34 segment bar graph</li> <li>• Data hold</li> <li>• Sleep mode</li> <li>• HDR mode to determine if signal is clean or dirty</li> <li>• Measure DC Amps</li> </ul>	<b>HVAC/R APPLICATIONS</b> <ul style="list-style-type: none"> <li>• Heat anticipator current in thermostats</li> <li>• Heating element resistance</li> <li>• Compressor winding resistance</li> </ul> <b>ELECTRICAL APPLICATIONS</b> <ul style="list-style-type: none"> <li>• Line voltage</li> <li>• Control circuit voltage</li> <li>• Contactor and relay coil resistance</li> <li>• Motor and compressor start up current</li> <li>• Continuity of wiring</li> <li>• Frequency on control and line voltage</li> <li>• Record/min/max voltage of controls and line voltages</li> <li>• Bar graph to indicate rapid fluctuations</li> </ul>



# Combustion Efficiency Analyzers (Flue Gas Analyzers)

Gas and Pressure Inlet Ports

Charge Socket Only 712/709R

Thermocouple Sockets

### Improve Efficiency: Increase Business

1. Use efficiency calculations to confirm the need for service, or equipment upgrades.
2. Validate service work with concrete documentation of resulting increased efficiency.
3. Minimize call-backs by using TPI analyzers to determine combustion efficiency at installation or setup.

### TPI Analyzers Feature Quick & Easy Setup

Fast purge and easy fuel selection save time the startup. The last fuel selected is the default setting on TPI analyzers - a big time-saver!

Infrared Window

Exhaust Port

**Scroll/Enter Key:** Scrolls through the five pages of combustion analysis information, Toggles between differential calculation On and Off, Toggles T2 temperature On and Off

**Up Arrow Key:** Saves the ratio readings, scrolls through selectable fuels, Toggles between gross and net efficiency, toggles between °C and °F, Scrolls between pressure readings mbar, kPa, and inH2O

**Down Arrow Key:** Zeros pressure reading

**Store/Logger:** Stores Data to a location. Activates the logging function

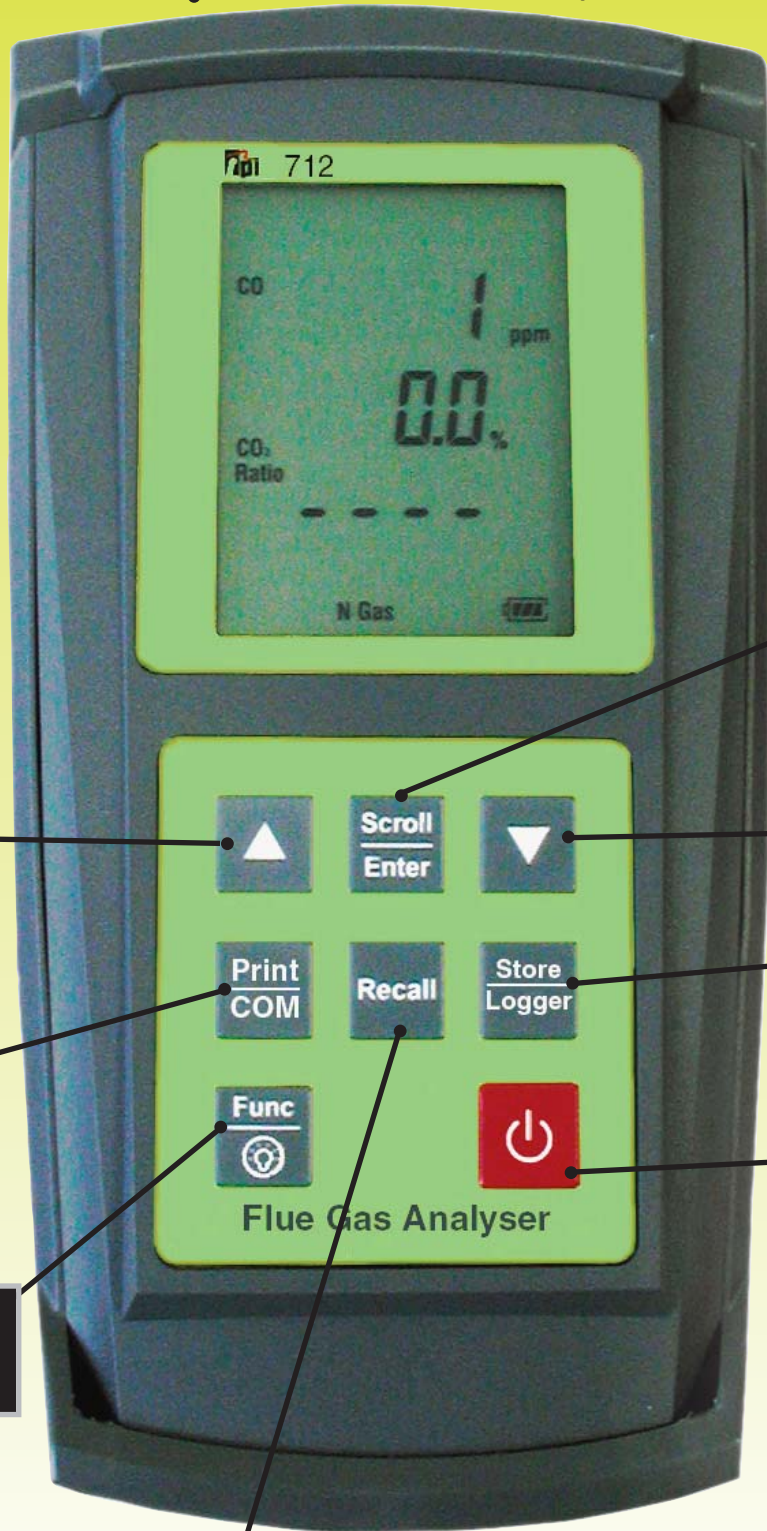
**Print/COM:** Print real data or data stored to a location. Activates the COM port

**On/Off Key:** Turns instrument On and Off

**Function/Backlight Key:** Scrolls through Temperature, Pressure & Leak Detection Turns backlight On and Off

**Recall:** Recalls stored data on the LCD

200mm x 90mm x 60mm





# Combustion Efficiency Analyzers (Flue Gas Analyzers)

The carbon monoxide sensor used in TPI combustion efficiency analyzers feature an on-board filter capable of filtering NO (nitric oxide), NO2 (nitrogen dioxide) and NOX (combination of NO and NO2) to prevent cross sensitivity errors.



Use the A773 sulfur filter when working on oil fuel applications to extend sensor life and eliminate erratic reading due to sulfur being present. Do not use an A773 filter when measuring NOX

PRODUCT No.	MEASUREMENTS	RANGES	FEATURES & BENEFITS	APPLICATIONS
<b>708</b> Combustion Efficiency Analyzer	CO O2 CO2 Temperature Efficiency Excess air CO/CO2 ratio CO Air Free	0 to 9,999ppm 0 to 25% 0 to 25% calculated -58°F to 1832°F (-50°C to 1,000°C) 0 to 100% calculated	<ul style="list-style-type: none"> <li>• Quick and simple operation</li> <li>• Large, easy-to-read 3-line display</li> <li>• Infrared printing capabilities</li> <li>• 10 pre-programmed selectable fuels</li> <li>• Real time date stamp</li> <li>• 50 data storage locations</li> </ul>	<ul style="list-style-type: none"> <li>• Tuning of residential furnaces and domestic boilers</li> <li>• Ambient and stack testing for CO</li> <li>• CO safety measurements in and around combustion sources</li> <li>• Differential temperature testing</li> </ul>
<b>709</b> Combustion Efficiency Analyzer w/ Differential Digital Manometer	CO O2 CO2 Temperature Efficiency Excess air CO/CO2 ratio CO Air Free Pressure	0 to 9,999ppm 0 to 25% 0 to 25% calculated -58°F to 1832°F (-50°C to 1,000°C) 0 to 100% calculated -150 to 150mBar	<ul style="list-style-type: none"> <li>• Quick and simple operation</li> <li>• Large, easy-to-read 3-line display</li> <li>• Infrared printing capabilities</li> <li>• 10 pre-programmed selectable fuels</li> <li>• Dual input differential manometer</li> <li>• Real time date stamp</li> <li>• 50 data storage locations</li> <li>• Protective rubber boot</li> </ul>	<ul style="list-style-type: none"> <li>• Tuning of residential furnaces and domestic boilers</li> <li>• Ambient and stack testing for CO</li> <li>• CO safety measurements in and around combustion sources</li> <li>• Differential temperature testing</li> <li>• Gas pressure checks</li> </ul>
<b>709R</b>	Same features as the 709 with the addition of rechargeable battery and larger A795 water trap/filter assembly			
<b>712</b> Flue Gas Analyzer	CO O2 CO2 Temperature Efficiency Excess air CO/CO2 ratio CO Air Free Pressure Leak Detector (combustible gas)	0 to 9,999ppm 0 to 25% 0 to 25% calculated -58°F to 1832°F (-50°C to 1,000°C) 0 to 100% calculated -150 to 150mBar 0 to 10,000ppm (Methane)	<ul style="list-style-type: none"> <li>• Quick and simple operation</li> <li>• Large, easy-to-read 3-line display</li> <li>• Infrared printing capabilities</li> <li>• 10 pre-programmed selectable fuels</li> <li>• Real time date stamp</li> <li>• 50 data storage locations</li> <li>• Protective rubber boot</li> <li>• Data logger (100 step, 4 pages)</li> <li>• PC data analysis software (optional)</li> <li>• Ni-MH or AC/DC adapter operation</li> </ul>	<ul style="list-style-type: none"> <li>• Tuning of residential furnaces and domestic boilers</li> <li>• Ambient and stack testing for CO</li> <li>• CO safety measurements in and around combustion sources</li> <li>• Differential temperature testing</li> <li>• Dual input differential manometer with 3 selectable units of measure: kPa, mBar, inH2O</li> <li>• Built in tightness pressure test</li> <li>• Built in CO room test</li> </ul>

## TPI Analyzer Care

The combustion analyzers use state of the art electrochemical sensors. This sensor technology provides the longest lasting, most accurate and reliable means for performing combustion tests. The sensors in will need to be replaced periodically and calibration is recommended once every year.

Always follow these analyzer maintenance procedures

- Keep the battery of your analyzer charged / fresh so power is constantly being supplied to your sensors.
- Use the mini pump filter when testing flue gases and periodically check and replace the filter as needed.
- Make sure the in-line filter / water trap is installed properly and periodically check and replace the filter as needed.
- Remove water or condensation from the inside of the in-line filter / water trap assembly prior to performing tests.
- Use the optional oil filter (A773) when performing tests on oil burning equipment.

To See More of Combustion Efficiency Analyzers see page 3 and to see Combustion Efficiency Analyzers Kit see page 5



# Combustion Efficiency Analyzers (Flue Gas Analyzers)



PRODUCT No.	MEASUREMENTS	RANGES	FEATURES & BENEFITS	APPLICATIONS
<b>715</b> Combustion Analyzer	Oxygen Carbon Monoxide Nitric Oxide Carbon Dioxide NOX CO/CO2 Ratio Combustion Eff.	0-25% 0-9.999% 0-5,000ppm 0-25% 0-5250ppm 0-0.999 0-100%	<ul style="list-style-type: none"> <li>• Measure up to 9.999% CO</li> <li>• Built-in differential thermometer</li> <li>• Measure NO (Nitric Oxide), Calculate NOx</li> <li>• Store function to save up to 10 readings</li> <li>• Calculates combustion efficiency</li> <li>• Pump driven for fast response</li> <li>• Push on fittings for fast and easy use</li> <li>• Large easy to read backlit display</li> <li>• Will not shut off if 15 ppm CO is present for increased safety</li> <li>• Ten selectable fuels</li> <li>• Optional A740 IR printer available for hard copies of test results</li> </ul>	<ul style="list-style-type: none"> <li>• Compressor engines</li> <li>• Large industrial boilers</li> </ul>
<b>716 &amp; 716N</b> Flue Gas Analyzer	CO O2 CO2 NO (only on the 716N) NOX (only on the 716N) Temperature Efficiency Excess air CO/CO2 ratio CO Air Free Pressure	0 to 9,999ppm 0 to 25% 0 to 25% calculated 0 to 5,000ppm Calculated -58°F to 1832°F (-50°C to 1,000°C) 0 to 100% calculated -150 to 150mBar	<ul style="list-style-type: none"> <li>• Quick and simple operation</li> <li>• Large, easy-to-read 3-line display</li> <li>• Infrared printing capabilities</li> <li>• 10 pre-programmed selectable fuels</li> <li>• Real time date stamp</li> <li>• 100 data storage locations</li> <li>• Protective rubber boot</li> <li>• Data logger (100 step, 4 pages)</li> <li>• PC data analysis software (optional)</li> <li>• Ni-MH or AC/DC adapter operation</li> </ul>	<ul style="list-style-type: none"> <li>• Tuning of residential furnaces and domestic boilers</li> <li>• Ambient and stack testing for CO</li> <li>• CO safety measurements in and around combustion sources</li> <li>• Differential temperature testing</li> <li>• Dual input differential manometer with 3 selectable units of measure: kPa, mBar, inH2O</li> </ul>

## Combustion Efficiency Analyzers Accessories



PRODUCT No.	DESCRIPTION
<b>A603</b> Brass Hose Barb Fitting	Use for checking gas pressure on gas valves 1/4" hose barb x 1/8 NPT thread
<b>A611</b> Gas Valve Pressure Adapter	Use for checking gas pressure on gas valve where the inert gas is in a tight or hard to reach location. Can be used with any TPI digital manometer
<b>A615</b>	Stainless Steel Hose w/ Fittings
<b>A740</b>	Infrared Printer
<b>A762</b>	In-Line Filter Complete
<b>A763</b> Mini pump protection filter	Provides additional protection for the pump and strain relief for the flue probe
<b>A765</b> Rubber Boot	Protective rubber boot for the following meters: 707, 708, 709, 709R 712 and 714
<b>A770</b> Flue Probe	Flue probe w/ water trap and filter 7.5 foot
<b>A774</b> Silicone Tubing	6 foot length of silicone tubing for pressure measurements. Very flexible and will not go hard in cold temperatures
<b>A776</b> Static Tip	Measure static pressure with A776. It has a magnet to secure in place in duct work 1/4" hole required to use
<b>A784</b>	Flow Regulator
<b>A787</b> Carrying Case	Soft carrying case with shoulder strap
<b>A791</b> Adapter tubing	Use with A774 pressure tube to check pressure on larger gas valve fittings
<b>GK11M</b> K-type thermocouple	Fiberglass insulated multi-purpose beaded thermocouple probe



# Combustion Analyzer Standard Accessories

All TPI combustion analyzers have:

A765	A787	A770	GK11M	A763

Plus these additional accessories:

**708**

**A794:** in-line water/filter trap



**709**

**A794:** in-line water/filter trap



**A774:** pressure tubing



**709R**

**A795:** in-line water/filter



**A774:** pressure tubing



**A766:** battery charger



**712 and 716 + 716N**

**A795:** in-line water/filter



**A794F:** spare in-line filter



**A774:** pressure tubing



**A776:** two static tips



**A603:** two 1/4" barbed to 1/8" NPT fittings



**A611:** gas valve adapter



**A791:** adapter tubing



**A766:** battery charger





# Combustion Efficiency Analyzers (Flue Gas Analyzers) Kits

## COMBUSTION EFFICIENCY ANALYZERS (FLUE GAS ANALYZERS) KITS

<b>708A740</b> 708 Combustion Analyzer and A740 IR printer	<b>708</b> <ul style="list-style-type: none"> <li>• Fast purge &amp; fuel selection during start up</li> <li>• Work on high efficiency furnaces and oil</li> <li>• Measure CO, O<sub>2</sub>; and calculate efficiency, CO<sub>2</sub>, excess air and CO air free</li> <li>• Dual input temperature</li> </ul>	<b>A740</b> <ul style="list-style-type: none"> <li>• Easy to use</li> <li>• Battery operated</li> <li>• Self test facility</li> <li>• Adjustable contrast</li> <li>• Manual paper feed</li> <li>• Maximum transmitting distance 16"(45cm)</li> </ul>		
<b>709A740</b> 709 Combustion Analyzer and A740 IR printer	<b>709</b> <ul style="list-style-type: none"> <li>• Fast purge &amp; fuel selection during start up</li> <li>• Work on high efficiency furnaces and oil</li> <li>• Measure CO, O<sub>2</sub>; and calculate efficiency, CO<sub>2</sub>, excess air and CO air free</li> <li>• Dual input temperature</li> <li>• Dual input pressure with 0.001 inches water resolution for high efficiency &amp; oil</li> </ul>	<b>A704</b> <ul style="list-style-type: none"> <li>• Easy to use</li> <li>• Battery operated</li> <li>• Self test facility</li> <li>• Adjustable contrast</li> <li>• Manual paper feed</li> <li>• Maximum transmitting distance 16"(45cm)</li> </ul>		
<b>709A740C1</b> 709 Combustion Analyzer, A740 IR printer and A773 sulfur filter for oil work	<b>709</b> <ul style="list-style-type: none"> <li>• Fast purge &amp; fuel selection during start up</li> <li>• Work on high efficiency furnaces and oil</li> <li>• Measure CO, O<sub>2</sub>; and calculate efficiency, CO<sub>2</sub>, excess air and CO air free</li> <li>• Dual input temperature</li> <li>• Dual input pressure with 0.001 inches water resolution for high efficiency &amp; oil</li> </ul>	<b>A740</b> <ul style="list-style-type: none"> <li>• Battery operated</li> <li>• Self test facility</li> <li>• Adjustable contrast</li> <li>• Manual paper feed</li> <li>• Maximum transmitting distance 16"(45cm)</li> </ul>	<b>A773</b> Use the A773 when working on oil fired appliances to extend the life of your sensors by eliminating acid gas exposure to your analyzer	
<b>709A7400IL</b> 709 Combustion Analyzer, A740 IR printer, A773 sulfur filter for oil work, A788 Smoke Test Pump and A790 Analog Pressure Gauge	<b>709</b> <ul style="list-style-type: none"> <li>• Fast purge &amp; fuel selection during start up</li> <li>• Work on high efficiency furnaces and oil</li> <li>• Measure CO, O<sub>2</sub>; and calculate efficiency, CO<sub>2</sub>, excess air and CO air free</li> <li>• Dual input temperature</li> <li>• Dual input pressure with 0.001 inches water resolution for high efficiency &amp; oil</li> </ul>	<b>A740</b> <ul style="list-style-type: none"> <li>• Battery operated</li> <li>• Self test facility</li> <li>• Adjustable contrast</li> <li>• Manual paper feed</li> <li>• Maximum transmitting distance 16"(45cm)</li> </ul>	<b>A790</b> Measures oil pressure  <b>A788</b> Included with test pump: <ul style="list-style-type: none"> <li>• Smoke pump tester</li> <li>• Smoke pump test paper</li> <li>• Smoke scale</li> </ul>	
<b>712A740</b> 712 Combustion Analyzer and A740 IR printer	<b>712</b> <ul style="list-style-type: none"> <li>• Fast purge &amp; fuel selection during start up</li> <li>• Work on high efficiency furnaces and oil</li> <li>• Measure CO, O<sub>2</sub>; and calculate efficiency, CO<sub>2</sub>, excess air and CO air free</li> <li>• Dual input temperature</li> <li>• Dual input pressure with 0.001 inches water resolution for high efficiency &amp; oil</li> <li>• Optional A767 adapter for PC interface</li> </ul>	<b>A740</b> <ul style="list-style-type: none"> <li>• Easy to use</li> <li>• Battery operated</li> <li>• Self test facility</li> <li>• Adjustable contrast</li> <li>• Manual paper feed</li> <li>• Maximum transmitting distance 16"(45cm)</li> </ul>		
<b>715K3</b> Combustion Analyzer	<b>715</b> <ul style="list-style-type: none"> <li>• Measure up to 9.999% CO</li> <li>• Measure NO (Nitric Oxide), Calculate NOx</li> <li>• Calculates combustion efficiency</li> <li>• Push on fittings for fast and easy use</li> <li>• Will not shut off if 15 ppm CO is present for increased safety</li> <li>• Built-in differential thermometer</li> <li>• Store function to save up to 10 readings</li> <li>• Pump driven for fast response</li> <li>• Large easy to read backlit display</li> <li>• Ten selectable fuels</li> </ul>		<b>A740</b> <ul style="list-style-type: none"> <li>• Easy to use</li> <li>• Battery operated</li> <li>• Self test facility</li> <li>• Adjustable contrast</li> <li>• Manual paper feed</li> <li>• Maximum transmitting distance 16"(45cm)</li> </ul>	<b>A787</b> Soft Carrying Case A615 Stainless Steel <b>A770</b> Flue Probe <b>GK11M</b> K-type thermocouple <b>A615</b> Stainless Steel Hose w/ Fittings <b>A784</b> Flow Regulator <b>A763</b> Mini pump protection filter <b>A763</b> Mini pump protection filter

### Should I set my analyzer to net or gross efficiency?

Gross efficiency is the correct choice for applications in the United States.

### Can I use any of the TPI analyzers to test for the presence of combustible gas in the flue?

Yes, the 712 has the ability to test for combustible gases in the flue.

### Can I log and send test data to a computer?

Yes, the 712 and 714 have the ability to communicate to a computer by using the optional A767 infrared adapter.

### Can I test for CO in ambient air?

Yes, the 707, 708, 709, 712, and 714 can all test for carbon monoxide in ambient air.

### Do any of the TPI analyzers have a built in manometer?

Yes, the 709, 712, and 714 have built in differential manometers.

Pressure applied to the (-) port is subtracted from the pressure applied to the (+) port. Examples of pressures being measured:

(+) port = 10"H<sub>2</sub>O, (-) port = Not Connected, Displayed reading = 10"H<sub>2</sub>O

(+) port = 10"H<sub>2</sub>O, (-) port = 5"H<sub>2</sub>O, Displayed reading = 5"H<sub>2</sub>O

(+) port = Not Connected, (-) port = 10"H<sub>2</sub>O, Displayed reading = -10"H<sub>2</sub>O

### When should I use the optional A773 oil filter?

Always use an A773 sulfur filter when working on oil fuel applications. It will eliminate erratic readings due to sulfur being present. Do not use an A773 filter when measuring NOx

### Tech Tip:

The primary way to affect change in combustion efficiency when working with modern gas fired equipment is through gas manifold pressure adjustment. Confirm manifold pressures are within manufacturers specifications prior to performing a combustion test. Once manifold pressures are within limits a combustion test can be performed to provide information regarding any adjustments that may be needed.



# CO Analyzers, Ambient CO & Combustible Gas

National Ambient Air Quality Primary Standards in the US call for less than 9ppm carbon monoxide for an 8 hour average during any 12 month period. Concentrations of 1 to 2 ppm may be found in homes with a normal operating gas furnace, to well over 1,000ppm in homes with a faulty furnace. Just 200ppm CO over 2 to 3 hours can cause slight headache, fatigue, dizziness, and nausea. Carbon Monoxide testing is crucial service provided by HVAC/R technicians.



PRODUCT No.	MEASUREMENTS	RANGES	FEATURES & BENEFITS	APPLICATIONS
<b>706</b> Advanced High CO Meter	CO	0 to 9,999ppm over 9,999 pm readout in % 1.0 to 9.9% 9.9% equals 99,999ppm	<ul style="list-style-type: none"> <li>• Quick and simple operation</li> <li>• Large, easy-to-read 3-line display</li> <li>• Infrared printing capabilities</li> <li>• Real time date stamp</li> <li>• 50 data storage locations</li> <li>• Auto range</li> <li>• Protective rubber boot</li> </ul>	<ul style="list-style-type: none"> <li>• Tune forklifts by testing exhaust</li> </ul>
<b>707</b> Advanced CO Meter	CO	0 to 9,999ppm	<ul style="list-style-type: none"> <li>• Quick and simple operation</li> <li>• Large, easy-to-read 3-line display</li> <li>• Infrared printing capabilities</li> <li>• Real time date stamp</li> <li>• 50 data storage locations</li> <li>• Protective rubber boot</li> </ul>	<ul style="list-style-type: none"> <li>• Ambient CO safety checks</li> <li>• Checking flue gasses for the amount of carbon monoxide present</li> </ul>
<b>770</b> Carbon Monoxide Monitor	CO	0 to 999ppm	<ul style="list-style-type: none"> <li>• Quick and simple operation</li> <li>• Large, easy-to-read LCD</li> <li>• Visual and audible alarm</li> <li>• Optional earphone attachment</li> <li>• Built-in alarm</li> </ul>	<ul style="list-style-type: none"> <li>• Ambient CO safety checks</li> </ul>
<b>775</b> Ambient CO & Combustible Gas Leak Detector	CO Combustible Gases	0 to 2,000ppm Methane > 50ppm	<ul style="list-style-type: none"> <li>• Quick and simple operation</li> <li>• Large, easy-to-read LCD</li> <li>• Visual and audible tic rate</li> <li>• 16" gooseneck handle length</li> <li>• Optional earphone attachment</li> <li>• One hand operation</li> <li>• Visual and audible alarm</li> </ul>	<ul style="list-style-type: none"> <li>• CO safety measurements in and around combustion sources</li> <li>• Ambient CO safety checks</li> <li>• Locate combustible gas leaks</li> </ul>
<b>A771</b> Carbon Monoxide Adapter	CO Use with DMM or clamp on	0 to 2,000ppm	<ul style="list-style-type: none"> <li>• Quick and simple operation</li> <li>• Visual and audible alarm</li> <li>• Built-in alarm is preset to 30ppm</li> </ul>	<ul style="list-style-type: none"> <li>• Ambient CO safety checks</li> </ul>



1. Attach the A771 connector to the Volt and Common input jacks of the DMM or clamp-on meter.
2. Select the DC Volt function on the meter and turn the A771 on.
3. Begin reading carbon monoxide levels on the meter.





# Combustible Gas Detectors



PRODUCT No.	MEASUREMENTS	RANGES	FEATURES & BENEFITS	APPLICATIONS
<b>719</b> Combustible Gas Leak Detector	<b>Combustible Gases</b>	>30ppm Methane	<ul style="list-style-type: none"> <li>• Quick and simple operation</li> <li>• Visual and audible leak detection</li> <li>• Adjustable tic rate</li> <li>• Optional earphone attachment</li> <li>• One-hand operation</li> <li>• 16" gooseneck probe length</li> </ul>	<ul style="list-style-type: none"> <li>• Detect combustible gases including natural gas methane, propane (LPG), gasoline, diesel, kerosene, etc.</li> <li>• Trace natural gas lines and fittings for leaks</li> <li>• Check gas operated equipment for leaks</li> </ul>
<b>720b</b> Combustible Gas Leak Detector	<b>Combustible Gases</b>	>10ppm Methane	<ul style="list-style-type: none"> <li>• Quick and simple operation</li> <li>• Visual and audible leak detection</li> <li>• Adjustable tic rate</li> <li>• Optional earphone attachment</li> <li>• One-hand operation</li> <li>• 16" gooseneck probe length</li> </ul>	<ul style="list-style-type: none"> <li>• Detect combustible gasses including natural gas methane, propane (LPG), gasoline, diesel, and kerosene</li> <li>• Trace natural gas lines and fittings for leaks</li> <li>• Check gas operated equipment for leaks</li> </ul>
<b>721</b> Combustible Gas Leak Detector with ppm + % LEL Display	<b>Combustible Gases</b>	> 10ppm Methane	<ul style="list-style-type: none"> <li>• Quick and simple operation</li> <li>• Visual and audible leak detection</li> <li>• Audio and visual alarm with user adjustable alarm setting</li> <li>• Display leaks in real ppm, stepped ppm, and %LEL (Lower Explosive Limit).</li> <li>• Two line display with bargraph and backlight</li> <li>• Adjustable tic rate</li> <li>• Optional earphone attachment.</li> <li>• 16" gooseneck probe length</li> </ul>	<ul style="list-style-type: none"> <li>• Detect combustible gases including natural gas methane, propane (LPG), gaso line, diesel, kerosene, etc.</li> <li>• Test areas for lower explosive limit (%LEL) concentration of combustible gases.</li> <li>• Trace natural gas lines and fittings for leaks</li> <li>• Check gas operated equipment for leaks</li> </ul>
<b>725</b> Pocket Combustible Gas Leak Detector	<b>Combustible Gases</b>	>1,000ppm Methane	<ul style="list-style-type: none"> <li>• Quick and simple operation</li> <li>• Pocket sized</li> <li>• Visual and audible leak detection</li> </ul>	<ul style="list-style-type: none"> <li>• Trace natural gas lines and fittings for leaks</li> <li>• Check gas operated equipment for leaks</li> </ul>
<b>775</b> Ambient CO & Combustible Gas Leak Detector	<b>CO</b> <b>Combustible Gases</b>	0 to 2,000 ppm > 50ppm Methane	<ul style="list-style-type: none"> <li>• Quick and simple operation</li> <li>• Display CO in ppm</li> <li>• Large, easy-to-read LCD</li> <li>• Visual and audible tic rate</li> <li>• 16" gooseneck handle length</li> <li>• Optional earphone attachment</li> <li>• One hand operation</li> <li>• Visual and audible alarm</li> </ul>	<ul style="list-style-type: none"> <li>• CO safety measurements in and around combustion sources</li> <li>• Ambient CO safety checks</li> <li>• Locate combustible gas leaks</li> </ul>



PRODUCT No.	MEASUREMENTS	RANGES	FEATURES & BENEFITS	APPLICATIONS
<b>735A</b> Measure Leak, LEL and CO	<b>Combustible Gases</b>	0 to 50,000 ppm 0 to 100% LEL	<ul style="list-style-type: none"> <li>• Internal Pump</li> <li>• Water/Dust Filter</li> <li>• Push Button Operation</li> <li>• Field Calibration</li> <li>• Date/Time Display</li> <li>• Calibration Alert</li> <li>• Operation Memory</li> <li>• Calibration Memory</li> <li>• Infrared Download</li> <li>• Audible/Visual Alarms</li> <li>• Backlit LCD</li> <li>• Hard Carrying Case</li> <li>• Programmable Auto Shut Off</li> </ul>	<ul style="list-style-type: none"> <li>• Gas Leak Survey/Investigations</li> <li>• Confined Space Monitoring</li> <li>• Gas Emergency Investigations</li> <li>• Vessel Testing</li> </ul>
	<b>CO</b>	0 to 2,000 ppm		
<b>737K1</b> Purge Probe Kit: measure leaks, LEL, and % volume	<b>Combustible Gases</b>	0 to 50,000 ppm 0 to 100% LEL 2.5 to 100% Gas	<ul style="list-style-type: none"> <li>• Internal Pump</li> <li>• Water/Dust Filter</li> <li>• Push Button Operation</li> <li>• Field Calibration</li> <li>• Date/Time Display</li> <li>• Calibration Alert</li> <li>• Operation Memory</li> <li>• Calibration Memory</li> <li>• Infrared Download</li> <li>• Audible/Visual Alarms</li> <li>• Backlit LCD</li> <li>• Hard Carrying Case</li> <li>• Programmable Auto Shut Off</li> </ul>	<ul style="list-style-type: none"> <li>• Gas Leak Survey/Investigations</li> <li>• Confined Space Monitoring</li> <li>• Gas Emergency Investigations</li> <li>• Vessel Testing</li> </ul>
<b>739A</b> Measure Leaks, LEL, O2, CO and H2S	<b>Combustible Gases</b>	0 to 50,000 ppm 0 to 100% LEL	<ul style="list-style-type: none"> <li>• Internal Pump</li> <li>• Water/Dust Filter</li> <li>• Push Button Operation</li> <li>• Field Calibration</li> <li>• Date/Time Display</li> <li>• Calibration Alert</li> <li>• Operation Memory</li> <li>• Calibration Memory</li> <li>• Infrared Download</li> <li>• Audible/Visual Alarms</li> <li>• Backlit LCD</li> <li>• Hard Carrying Case</li> <li>• Programmable Auto Shut Off</li> </ul>	<ul style="list-style-type: none"> <li>• Gas Leak Survey/Investigations</li> <li>• Confined Space Monitoring</li> <li>• Gas Emergency Investigations</li> <li>• Vessel Testing</li> </ul>
	<b>O2</b>	0 to 25%		
	<b>CO</b>	0 to 2,000 ppm		
	<b>H2S</b>	0 to 100 ppm		



PRODUCT No.	MEASUREMENTS	RANGES	FEATURES & BENEFITS	APPLICATIONS
<b>HXG-2</b> Combustible Gas Detectors	Combustible Gases	>10 ppm	<ul style="list-style-type: none"> <li>• UL 913 intrinsically safe</li> <li>• Calibrated to NIS traceable standards</li> <li>• Instant response</li> <li>• 10 ppm sensitivity</li> <li>• Adjustable tic rate</li> <li>• Settable alarm</li> <li>• Visual and audible leak indication</li> <li>• 16" gooseneck</li> <li>• Hard carrying case</li> </ul>	<ul style="list-style-type: none"> <li>• Test for cracked heat exchanges.</li> </ul>
<b>HXG-2D</b> Combustible Gas Leak Detector	Combustible Gases	>10 ppm	<ul style="list-style-type: none"> <li>• Combustible Gas Leak Detector capable of displaying ppm or %LEL (Lower Explosive Limit).</li> <li>• Designed to meet UL 913 intrinsic safety (Approval Pending)</li> <li>• 10 ppm sensitivity (methane)</li> <li>• Instant response</li> <li>• Electronic tick rate control</li> <li>• Settable alarm</li> <li>• Visual and audible leak indication</li> <li>• 16" gooseneck</li> <li>• Hard carrying case</li> </ul>	<ul style="list-style-type: none"> <li>• Detect combustible gasses including natural gas methane, propane (LPG), gasoline, diesel, and kerosene</li> <li>• Trace natural gas lines and fittings for leaks</li> <li>• Check gas generation for leaks</li> </ul>
<b>HXG-3</b> Combustible Gas Leak Detector	Combustible Gases	>10 ppm	<ul style="list-style-type: none"> <li>• Combustible Gas Leak Detector capable of displaying ppm and %LEL (Lower Explosive Limit) simultaneously on a two line backlit display.</li> <li>• UL 913 intrinsic safety rating</li> <li>• 10 ppm sensitivity (methane)</li> <li>• Instant response</li> <li>• Electronic tick rate control</li> <li>• Settable alarm</li> <li>• Visual and audible leak indication</li> <li>• 16" gooseneck</li> <li>• Hard carrying case</li> </ul>	<ul style="list-style-type: none"> <li>• Confined Space Monitoring</li> <li>• Vessel Testing</li> <li>• Manhole Entry</li> <li>• Vault Entry</li> <li>• Leak Detection</li> <li>• Leak Pinpointing</li> <li>• Pipeline Purging</li> </ul>



# Refrigerant Leak Detectors & Digital Vacuum Gauge

TPI refrigerant leak detectors feature 400 hours sensor life under normal use; a spare sensor is included with each instrument for a total of 800 hours of continuous use.

### Tech Tip: extend your sensor life

Sensor life can be extended by fitting a ½" long piece of vinyl tubing onto the sensor tip. This tubing helps prevent foreign material from getting inside the sensor during tests; clean or replace the tube regularly.

- Capable of detecting all existing refrigerants and blends including 404A, PURON® and R-507 (AZ50®)
- Two sensitivities to choose from: 0.2oz/yr (750A) and 0.1oz/yr (753A)
- Pump driven model (753A) to detect R-507 (AZ50) and newer heavier blends quickly.
- Field replaceable sensor tip included for easy maintenance



PRODUCT No.	SPECIFICATIONS	FEATURES & BENEFITS	APPLICATIONS
<b>750a</b> 0.2oz/yr sensitivity	<b>Power Supply</b> 2 "C" Alkaline Batteries <b>Sensor</b> Conductive Polymer Ionization (CPI) <b>Sensitivity</b> Selectable to 0.3 oz/yr 134a <b>Warm up</b> Approx 3 seconds <b>Response time</b> Instantaneous <b>Duty Cycle</b> Continuous <b>Battery Life</b> Approx. 30 hrs. <b>Size</b> 3.0" x 9.5" x 1.75" (77 x 240 x 47) mm <b>Weight</b> 1.1 lbs (500g) <b>Probe Length</b> 16"	<ul style="list-style-type: none"> <li>• Pinpoint small leaks easily by elimination of background concentration with fully adjustable tic rate</li> <li>• Visual indicators for power, tic rate and battery replacement</li> <li>• One-hand operation</li> <li>• Optional earphone attachment</li> <li>• Detects all existing refrigerants and blends including 404A, PURON 410A and *R-507 (AZ50).</li> <li>• 400 hour individual sensor life; a spare sensor is included with each instrument for a total of 800 hours of continuous sensor use.</li> <li>• Fast response; Begin testing immediately after power on</li> </ul>	Whether testing for leaks in air conditioning, refrigeration, or automotive AC, the versatile 700 series spans the diverse needs of technicians, refrigeration engineers, and maintenance personnel around the globe. From freezer coils to heat pumps, experience fast, reliable results that save you both time and money.
<b>753a</b> 0.1oz/yr sensitivity with pump	<b>Power Supply</b> 2 "C" Alkaline Batteries <b>Sensor</b> Conductive Polymer Ionization (CPI) <b>Sensitivity</b> Selectable to 0.1 oz/yr 134a <b>Warm up</b> Approx 7 seconds <b>Response time</b> Instantaneous <b>Duty Cycle</b> Continuous <b>Battery Life</b> Approx. 30 hrs. <b>Size</b> 3.0" x 9.5" x 1.75" (77 x 240 x 47) mm <b>Weight</b> 1.1 lbs (500g) <b>Probe Length</b> 16"	<ul style="list-style-type: none"> <li>• Pinpoint small leaks easily by elimination of background concentration with fully adjustable tic rate</li> <li>• Visual indicators for power, tic rate and battery replacement</li> <li>• One-hand operation</li> <li>• Optional earphone attachment</li> <li>• Detects all existing refrigerants and blends including 404A, PURON 410A and *R-507 (AZ50).</li> <li>• 400 hour individual sensor life; a spare sensor is included with each instrument for a total of 800 hours of continuous sensor use.</li> <li>• Fast response; Begin testing immediately after power on</li> </ul>	Whether testing for leaks in air conditioning, refrigeration, or automotive AC, the versatile 700 series spans the diverse needs of technicians, refrigeration engineers, and maintenance personnel around the globe. From freezer coils to heat pumps, experience fast, reliable results that save you both time and money.

### 605 Digital Vacuum Gauge



#### Features & Benefits

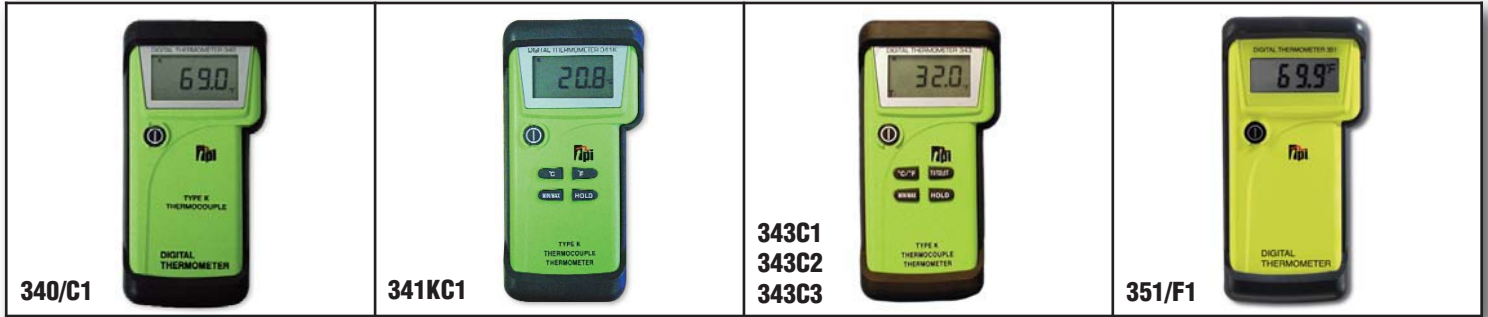
- 12,000 to 15 micron range, 1 micron resolution
- Wall hook and magnets for hands free use
- 300 PSI over pressure for safety
- Cleanable sensor
- Seven units of measure: Microns, PSI, inHg, mBar, Pascals, mTorr and Torr
- Auto power off after 20 minutes

#### Applications

- Verify vacuum before charging refrigerant system
- Prevent moisture and air from remaining in system
- Find small leaks



# Contact Temperature Testers



PRODUCT No.	MEASUREMENTS	RANGES	FEATURES & BENEFITS	APPLICATIONS
<b>340/C1</b> Single Input K-Type Thermocouple Thermometer	<b>Range (K-Type)</b> <b>Accuracy</b> <b>Resolution</b> <b>Connector Type</b>	-40°F to 1200°F (-40°C to 650°C) ±(1% of reading + 4°F) 0.1° / 1° Submini	<ul style="list-style-type: none"> <li>• Single button operation</li> <li>• Auto Resolution (0.1° / 1°)</li> <li>• °C/°F Selectable (Switch in battery compartment)</li> <li>• Auto Off</li> <li>• Protective rubber boot</li> <li>• Easy to read LCD display</li> </ul>	<ul style="list-style-type: none"> <li>• Ovens</li> <li>• Foods, liquids in the baking/cooking processes</li> <li>• Grills</li> <li>• Steam Tables</li> <li>• Food storage areas, freezers and refrigerators</li> <li>• Between packs in transport</li> </ul>
<b>341KC1</b> Single Input K-Type Thermocouple Thermometer with Field Calibration	<b>Range (K-Type)</b> <b>Accuracy</b> <b>Resolution</b> <b>Connector Type</b>	-58 to 2,462 °F (-50 to 1,350 °C) -58 to 2,462 °F (-50 to 1,350 °C) 0.1° / 1° Submini, Single Input	<ul style="list-style-type: none"> <li>• Auto Field Calibrate in less than 10 seconds in ice water to achieve +/- 1°F system (tester &amp; probe) accuracy within 30°F to 120°F temperature range</li> <li>• Min / Max Record</li> <li>• Auto Resolution (0.1° / 1°)</li> <li>• °C/°F Selectable</li> <li>• Hold feature freezes reading on display</li> <li>• Auto Off</li> <li>• Protective rubber boot</li> <li>• Easy to read LCD display</li> </ul>	<ul style="list-style-type: none"> <li>• Ovens</li> <li>• Foods, liquids in the baking/cooking processes</li> <li>• Grills</li> <li>• Steam Tables</li> <li>• Food storage areas, freezers and refrigerators</li> <li>• Between packs in transport</li> </ul>
<b>343C1</b> <b>343C2</b> <b>343C3</b> Dual Input K-Type Thermocouple Thermometer with Field Calibration	<b>Range (K-Type)</b> <b>Accuracy</b> <b>Resolution</b> <b>Connector Type</b>	-58 to 2,462 °F (-50 to 1,350 °C) -58 to 2,462 °F (-50 to 1,350 °C) 0.1° / 1° Submini, Dual Input	<ul style="list-style-type: none"> <li>• Auto Field Calibrate in less than 10 seconds in ice water to achieve +/- 1°F system (tester &amp; probe) accuracy within 30°F to 120°F temperature range</li> <li>• Temp1, Temp2, display modes</li> <li>• Min / Max Record</li> <li>• Auto Resolution (0.1° / 1°)</li> <li>• °C/°F Selectable</li> <li>• Hold feature freezes reading on display</li> <li>• Auto Off</li> <li>• Protective rubber boot</li> <li>• Easy to read LCD display</li> </ul>	<ul style="list-style-type: none"> <li>• Ovens</li> <li>• Foods, liquids in the baking/cooking processes</li> <li>• Grills</li> <li>• Steam Tables</li> <li>• Food storage areas, freezers and refrigerators</li> <li>• Between packs in transport</li> <li>• 343C3: same as above plus measure supply + suction line temperatures</li> </ul>
<b>351/F1</b> Thermistor Thermometer	<b>Range</b> <b>Accuracy</b> <b>Resolution</b> <b>Connector Type</b> <b>IP Rating:</b>	-40°F to 220°F -58 to 2,462 °F ±1.0°F (32°F to 158°F), ±2.0°F (<32°F & >158°F) 0.1° / 1° (Automatic selection) Bi-pole 63 (Water Resistant)	<ul style="list-style-type: none"> <li>• Auto Off</li> <li>• Includes A304 Protective Rubber Boot</li> </ul>	<ul style="list-style-type: none"> <li>• Ovens</li> <li>• Foods, liquids in the baking/cooking processes</li> <li>• Grills</li> <li>• Steam Tables</li> <li>• Food storage areas, freezers and refrigerators</li> <li>• Between packs in transport</li> </ul>



PRODUCT No.	MEASUREMENTS	RANGES	FEATURES & BENEFITS	APPLICATIONS
<b>353</b> T-Type Thermocouple & Thermistor Thermometer	<b>Range (Thermistor)</b> <b>Accuracy (Thermistor)</b> <b>Measurement Range (T-Type)</b> <b>Basic Accuracy (T-Type)</b> <b>Resolution</b> <b>Connector Type</b> <b>IP Rating</b>	-40°F to 220°F ±1.0°F 328°F to 750°F 0.3% of reading 0.1° / 1° (Automatic selection) Lumberg 63 (Water Resistant)	<ul style="list-style-type: none"> <li>• Auto Off</li> <li>• Includes A305 Protective Rubber Boot</li> </ul>	<ul style="list-style-type: none"> <li>• Ovens</li> <li>• Foods, liquids in the baking/cooking processes</li> <li>• Grills</li> <li>• Steam Tables</li> <li>• Food storage areas, freezers and refrigerators</li> <li>• Between packs in transport</li> </ul>
<b>354</b> T-Type Thermocouple & Thermistor Thermometer	<b>Range (Thermistor)</b> <b>Accuracy (Thermistor)</b> <b>Measurement Range (T-Type)</b> <b>Basic Accuracy (T-Type)</b> <b>Resolution</b> <b>Connector Type</b> <b>IP Rating</b>	-40°F to 220°F (-40°C to 110°C) ±1.8°F, (±1°C) 328°F to 750°F (-200°C to 400°C) 0.3% of reading 0.1° / 1° Lumberg 63 (Water Resistant)	<ul style="list-style-type: none"> <li>• Min/Max Record</li> <li>• Data Hold</li> <li>• Selectable Resolution (0.1° / 1°)</li> <li>• °C/°F Selectable</li> <li>• Auto Off</li> <li>• Includes A305 Protective Rubber Boot</li> </ul>	<ul style="list-style-type: none"> <li>• Ovens</li> <li>• Foods, liquids in the baking/cooking processes</li> <li>• Grills</li> <li>• Steam Tables</li> <li>• Food storage areas, freezers and refrigerators</li> <li>• Between packs in transport</li> </ul>
<b>365</b> K-Type Thermocouple Thermometer	<b>Range (K-Type)</b> <b>Accuracy</b> <b>Resolution</b> <b>Connector Type</b> <b>IP Rating</b>	-328°F to 1112°F (-200°C to 600°C) ±(0.1% of reading) 0.1° / 1° Sub-Mini 67 (Water Proof)	<ul style="list-style-type: none"> <li>• Large two line LCD display with clock display, alarm clock, alarm timer, and over temperature alarm</li> <li>• Multi use belt clip (A366): can used as a belt clip or wall mount</li> <li>• Auto Resolution (0.1° / 1°)</li> <li>• °C/°F Selectable</li> <li>• Auto Off</li> <li>• Overmolded case</li> <li>• Up to 14,000 hour battery life (AA alkaline batteries x 2)</li> </ul>	<ul style="list-style-type: none"> <li>• Validate the temperature of incoming food product prior to accepting deliveries.</li> <li>• Measure food storage temperature.</li> <li>• Verify cooking and storage temperature.</li> <li>• Confirm hot and cold holding cabinet temperatures.</li> <li>• Measure food reheating temperatures.</li> <li>• Monitor frozen food thawing temperature.</li> </ul>
<b>367D</b> Data Logging Thermometer (K & T-Type Thermocouple & Thermistor)	<b>Range (Thermistor)</b> <b>Range (K-Type)</b> <b>Range (T-Type)</b> <b>Accuracy</b> <b>Resolution</b> <b>Connector Type</b> <b>IP Rating</b>	-58°F to 302°F (-50°C to 150°C) -328°F to 1112°F (-200°C to 600°C) -328°F to 752°F (-200°C to 400°C) ±(0.1% of reading) 0.1° / 1° Lumberg 67 (Water Proof)	<ul style="list-style-type: none"> <li>• AUTO FIELD CALIBRATION Perform ice bath calibration to achieve ±1°F system accuracy within the 30°F to 120°F temperature range. Calibration is easy two-step process performed with key pad, no additional tools needed.</li> <li>• Data logging capability: 16,000 readings with sampling interval from 1 second up to 24 hours.</li> <li>• Store 16 readings</li> <li>• Real time and logged data transfer to PC via optional USB docking station (A367)</li> <li>• Multi use belt clip (A366): can used as a belt clip or wall mount</li> <li>• Large two line LCD display with clock display, alarm clock, alarm timer, and over temperature alarm</li> <li>• Fast reading mode - Increases sample rate</li> <li>• Min/Max Record and Data Hold</li> <li>• Selectable Resolution (0.1° / 1°)</li> <li>• °C/°F Selectable</li> <li>• Up to 14,000 hour battery life (7,000hrs data logging) (AA alkaline batteries x 2)</li> <li>• Auto Off</li> <li>• Overmolded case</li> </ul>	<ul style="list-style-type: none"> <li>• Validate the temperature of incoming food product prior to accepting deliveries.</li> <li>• Measure food storage temperature.</li> <li>• Verify cooking and storage temperature.</li> <li>• Confirm hot and cold holding cabinet temperatures.</li> <li>• Measure food reheating temperatures.</li> <li>• Monitor frozen food thawing temperature.</li> </ul>



# Infrared (IR) Thermometers (Non-Contact)



PRODUCT No.	MEASUREMENTS	RANGES	FEATURES & BENEFITS	APPLICATIONS
<b>368</b> Close-Focus, Pocket Size Infrared Thermometer	<b>Range</b> <b>Operating temp Accuracy</b> <b>Response Time</b> <b>Resolution</b> <b>Emmissivity</b> <b>Distant to Spot Ratio</b> <b>Battery</b> <b>Battery Life</b>	-7° to 248°F (-22° to 120°C) 32° to 104°F (0° to 40°C) 2% of reading or ±3.5%, whichever is greater Less than 0.5 second 0.1°F/C 0.95 fixed 1:1.3 A003 50 hours continuous use, auto off after 10 sec.	<ul style="list-style-type: none"> <li>• Close focus 1/8" ~ 1.5"</li> <li>• Selectable Fahrenheit of Centigrade temperature range: 7° to 248°F or -22° to 120°C</li> <li>• Compact - Easily fits in your pocket</li> <li>• Auto Data Hold: Point the unit at the sur face to be measured then press and hold down the ON/SET button. Temperature will be displayed in less than 2 seconds and held on the display for 10 seconds.</li> <li>• Min/Max functions displays the minimum or maximum temperature of 8 samplings in 0.5 seconds.</li> <li>• AUTO sets the 368 into scan mode to continuously scan surface temperatures in real time. Automatically powers off after 60 minutes.</li> <li>• NOTE: Close-focus IR thermometers should be held a distance .5 to 2 inches from surface to be measured to obtain an accurate reading (spot size 0.35")</li> </ul>	<ul style="list-style-type: none"> <li>• Tubing, piping and sheet metal temperature</li> <li>• Leaks around cooler or freezer doors</li> </ul>
<b>370</b> Infrared Thermometers (IR)	<b>Range</b> <b>Accuracy</b> <b>Distance to Target Ratio</b> <b>Response Time</b> <b>Spectral Response</b> <b>Emmissivity</b> <b>Display Resolution</b> <b>Operating Temperature</b>	14°F to 500°F (-10°C to 260°C ) +/-2% of reading or +/-3.5°F whichever is greater 8:1 500mS 7 to 14um 0.95 Fixed 0.1° / 1° (Automatic) 32°F to 120°F (0°C to 50°C)	<ul style="list-style-type: none"> <li>• Laser pointer</li> <li>• Record function (Min/Max)</li> <li>• Display data hold function</li> <li>• Back light</li> <li>• Trigger switch</li> <li>• 8:1 distance to spot ratio</li> <li>• °C and °F selectable</li> <li>• Gun-type compact design</li> <li>• Operating lock function</li> <li>• 9V battery and soft pouch included</li> </ul>	<ul style="list-style-type: none"> <li>• Heating &amp; AC/R system measurements on all non-metallic and many metallic surfaces</li> <li>• Troubleshoot overheating devices</li> <li>• Vent and return air temperature measurements</li> <li>• Tubing, piping and sheet metal temperature</li> </ul>
<b>371</b> Infrared Thermometers (IR)	<b>Range</b> <b>Accuracy</b> <b>Distance to Target Ratio</b> <b>Response Time</b> <b>Spectral Response</b> <b>Emmissivity</b> <b>Display Resolution</b> <b>Operating Temperature</b>	14°F to 500°F (-10°C to 260°C ) +/-2% of reading or +/-3.5°F whichever is greater 8:1 500mS 7 to 14um 0.95 Fixed 0.1° / 1° (Automatic) 32°F to 120°F (0°C to 50°C)	<ul style="list-style-type: none"> <li>• Laser pointer</li> <li>• Record function (Min/Max)</li> <li>• Display data hold function</li> <li>• Back light</li> <li>• Trigger switch</li> <li>• °C and °F selectable</li> <li>• Gun-type compact design</li> <li>• Operating lock function</li> <li>• 9V battery and soft pouch included</li> </ul>	<ul style="list-style-type: none"> <li>• Heating &amp; AC/R system measurements on all non-metallic and many metallic surfaces</li> <li>• Troubleshooting overheat devices</li> <li>• Remote vent and return temperature measurements</li> <li>• Tubing, piping, and sheet metal temperature</li> </ul>
<b>375</b> Infrared Thermometers (IR)	<b>Range</b> <b>Accuracy</b> <b>Contact (K-Type) Range</b> <b>Accuracy</b> <b>Distance to Target Ratio</b> <b>Response Time</b> <b>Spectral Response</b> <b>Emmissivity</b> <b>Display Resolution</b> <b>Operating Temperature</b>	0°F to 950°F (-18°C to 510°C) +/-2% of reading or +/-3.5°F whichever is greater -40°F to 2,192°F (-40°C to 1,200°C) ±(0.5% of reading +3°F) 11.5:1 500mS 7 to 14um 0.3 to 0.99 adjustable 0.1° / 1° (Automatic) 32°F to 120°F (0°C to 50°C)	<ul style="list-style-type: none"> <li>• Laser pointer</li> <li>• Record function (Min/Max)</li> <li>• Display data hold function</li> <li>• Back light</li> <li>• Trigger switch</li> <li>• 8:1 distance to spot ratio</li> <li>• °C and °F selectable</li> <li>• Gun-type compact design</li> <li>• Operating lock function</li> <li>• 9V battery and soft pouch included</li> </ul>	<ul style="list-style-type: none"> <li>• Heating &amp; AC/R system measurements on all non-metallic and many metallic surfaces</li> <li>• Troubleshoot overheating devices</li> <li>• Vent air and return temperature measurements</li> <li>• Tubing, piping, and sheet metal temperature</li> </ul>



# Infrared (IR) Thermometers (Non-Contact)



PRODUCT No.	MEASUREMENTS	RANGES	FEATURES & BENEFITS	APPLICATIONS
376 Infrared Thermometers (IR)	<b>Range</b> <b>Accuracy</b> <b>Contact (K-Type) Range</b> <b>Accuracy</b> <b>Distance to Target Ratio</b> <b>Response Time</b> <b>Spectral Response</b> <b>Emissivity</b> <b>Display Resolution</b> <b>Operating Temperature</b>	-58°F to 950°F -50°C to 510°C +/-2% of reading or +/- 3.5°F whichever is greater -40°F to 2,192°F -40°C to 1,200°C ±(0.5% of reading +3°F) 11.5:1 500mS 7 to 14um 0.3 to 0.99 adjustable 0.1° / 1° (Automatic) 32°F to 120°F (0°C to 50°C)	<ul style="list-style-type: none"> <li>• Laser pointer</li> <li>• Record function (Min/Max)</li> <li>• Display data hold function</li> <li>• Back light</li> <li>• Trigger switch</li> <li>• 8:1 distance to spot ratio</li> <li>• °C and °F selectable</li> <li>• Gun-type compact design</li> <li>• Operating lock function</li> <li>• 9V battery and soft pouch included</li> </ul>	<ul style="list-style-type: none"> <li>• Heating &amp; AC/R system measurements on all non-metallic and many metallic surfaces</li> <li>• Troubleshoot overheating devices</li> <li>• Vent air and return temperature measurements</li> <li>• Tubing, piping and sheet metal temperature</li> </ul>
377 Infrared Thermometers (IR)	<b>Range</b> <b>Accuracy</b> <b>Contact (K-Type) Range</b> <b>Accuracy</b> <b>Distance to Target Ratio</b> <b>Response Time</b> <b>Spectral Response</b> <b>Emissivity</b> <b>Display Resolution</b> <b>Operating Temperature</b>	0°F to 1832°F -18°C to 1000°C +/-2% of reading or +/- 3.5°F whichever is greater -40°F to 2,192°F -40°C to 1,200°C ±(0.5% of reading +3°F) 11.5:1 500mS 7 to 14um 0.3 to 0.99 adjustable 0.1° / 1° (Automatic) 32°F to 120°F (0°C to 50°C)	<ul style="list-style-type: none"> <li>• Laser pointer</li> <li>• Record function (Min/Max)</li> <li>• Display data hold function</li> <li>• Back light</li> <li>• Trigger switch</li> <li>• 8:1 distance to spot ratio</li> <li>• °C and °F selectable</li> <li>• Gun-type compact design</li> <li>• Operating lock function</li> <li>• 9V battery and soft pouch included</li> </ul>	<ul style="list-style-type: none"> <li>• Heating &amp; AC/R system measurements on all non-metallic and many metallic surfaces</li> <li>• Troubleshoot overheating devices</li> <li>• Vent air and return temperature measurements</li> <li>• Tubing, piping and sheet metal temperature</li> </ul>
380 Infrared Thermometers	<b>Range</b> <b>Accuracy</b> <b>Distance to Target Ratio</b> <b>Response Time</b> <b>Spectral Response</b> <b>Emissivity</b> <b>Display Resolution</b> <b>Operating Temperature</b>	-4°F to 572°F -20°C to 300°C +/-2% of reading or +/- 3.5°F whichever is greater 9.5:1 500mS 7 to 14um 0.95 Fixed 0.1° / 1° (Automatic) 32°F to 120°F (0°C to 50°C)	<ul style="list-style-type: none"> <li>• Easy to use single button operation</li> <li>• 0.1 resolution for best reading (380/381)</li> <li>• Last reading hold</li> <li>• Soft holster pouch included</li> <li>• 8:1 distance to spot ratio</li> <li>• Large, easy to read display</li> <li>• °C and °F selectable</li> <li>• 9V battery included</li> </ul>	<ul style="list-style-type: none"> <li>• Remote vent and return temperature measurement</li> <li>• Tubing, piping and sheet metal temperature</li> <li>• Leaks around cooler or freezer doors</li> </ul>



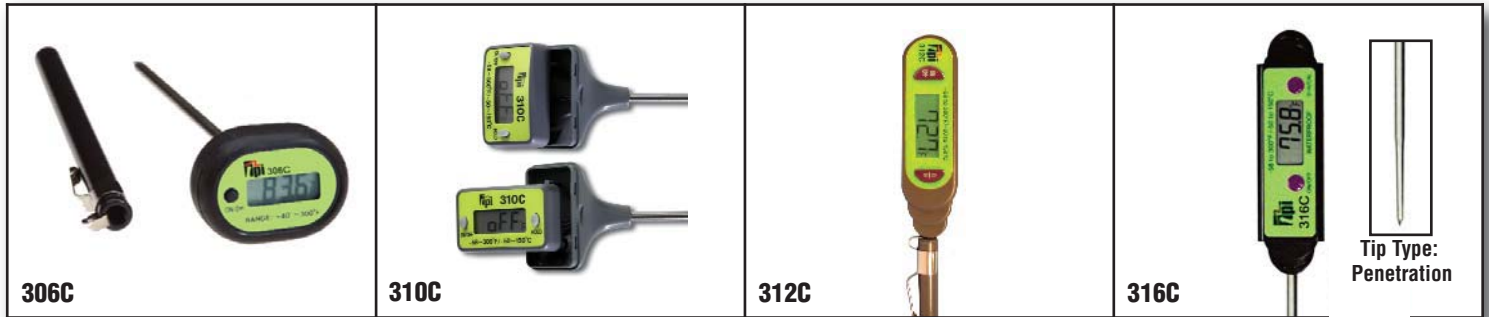
# Infrared (IR) Thermometers (Non-Contact)



PRODUCT No.	MEASUREMENTS	RANGES	FEATURES & BENEFITS	APPLICATIONS
<b>381</b> Infrared Thermometers	<b>Range</b> <b>Accuracy</b> <b>Distance to Target Ratio</b> <b>Response Time</b> <b>Spectral Response</b> <b>Emissivity</b> <b>Display Resolution</b> <b>Operating Temperature</b>	-4°F to 572°F (-20°C to 300°C) +/-2% of reading or +/- 3.5°F whichever is greater 9.5:1 500mS 7 to 14um 0.95 Fixed 0.1° / 1° (Automatic) 32°F to 120°F (0°C to 50°C)	<ul style="list-style-type: none"> <li>• Easy to use single button operation</li> <li>• 0.1 resolution for best reading (380/381)</li> <li>• Last reading hold</li> <li>• Soft holster pouch included</li> <li>• 8:1 distance to spot ratio</li> <li>• Large, easy to read display</li> <li>• °C and °F selectable</li> <li>• 9V battery included</li> </ul>	<ul style="list-style-type: none"> <li>• Vent air and return temperature measurements</li> <li>• Tubing, piping and sheet metal temperature</li> <li>• Leaks around cooler or freezer doors</li> </ul>
<b>381F</b> Infrared Thermometers	<b>Range</b> <b>Accuracy</b> <b>Distance to Target Ratio</b> <b>Response Time</b> <b>Spectral Response</b> <b>Emissivity</b> <b>Display Resolution</b> <b>Operating Temperature</b>	-4°F to 572°F (-20°C to 300°C) +/-2% of reading or +/- 3.5°F whichever is greater 9.5:1 500mS 7 to 14um 0.95 Fixed 0.1° / 1° (Automatic) 32°F to 120°F (0°C to 50°C)	<ul style="list-style-type: none"> <li>• Easy to use single button operation</li> <li>• 0.1 resolution for best reading (380/381)</li> <li>• Last reading hold</li> <li>• Soft holster pouch included</li> <li>• 8:1 distance to spot ratio</li> <li>• Large, easy to read display</li> <li>• °C and °F selectable</li> <li>• 9V battery included</li> </ul>	<ul style="list-style-type: none"> <li>• Vent air and return temperature measurements</li> <li>• Tubing, piping and sheet metal temperature</li> <li>• Leaks around cooler or freezer doors</li> </ul>
<b>383</b> Infrared Thermometers	<b>Range</b> <b>Accuracy</b> <b>Distance to Target Ratio</b> <b>Response Time</b> <b>Spectral Response</b> <b>Emissivity</b> <b>Display Resolution</b> <b>Operating Temperature</b>	-31°F to 999°F -35°C to 560°C +/-2% of reading or +/- 3.5°F whichever is greater 9.5:1 500mS 7 to 14um 0.95 Fixed 0.1° / 1° (Automatic) 32°F to 120°F (0°C to 50°C)	<ul style="list-style-type: none"> <li>• Easy to use single button operation</li> <li>• 0.1 resolution for best reading (380/381)</li> <li>• Last reading hold</li> <li>• Soft holster pouch included</li> <li>• 8:1 distance to spot ratio</li> <li>• Large, easy to read display</li> <li>• °C and °F selectable</li> <li>• 9V battery included</li> </ul>	<ul style="list-style-type: none"> <li>• Vent air and return temperature measurements</li> <li>• Tubing, piping and sheet metal temperature</li> <li>• Leaks around cooler or freezer doors</li> </ul>
<b>384</b> Infrared Thermometers	<b>Range</b> <b>Accuracy</b> <b>Distance to Target Ratio</b> <b>Response Time</b> <b>Spectral Response</b> <b>Emissivity</b> <b>Display Resolution</b> <b>Operating Temperature</b>	-31°F to 1832°F -35°C to 1000°C +/-2% of reading or +/- 3.5°F whichever is greater 9.5:1 500mS 7 to 14um 0.95 Fixed 0.1° / 1° (Automatic) 32°F to 120°F (0°C to 50°C)	<ul style="list-style-type: none"> <li>• Easy to use single button operation</li> <li>• 0.1 resolution for best reading (380/381)</li> <li>• Last reading hold</li> <li>• Soft holster pouch included</li> <li>• 8:1 distance to spot ratio</li> <li>• Large, easy to read display</li> <li>• °C and °F selectable</li> <li>• 9V battery included</li> </ul>	<ul style="list-style-type: none"> <li>• Vent air and return temperature measurements</li> <li>• Tubing, piping and sheet metal temperature</li> <li>• Leaks around cooler or freezer doors</li> </ul>



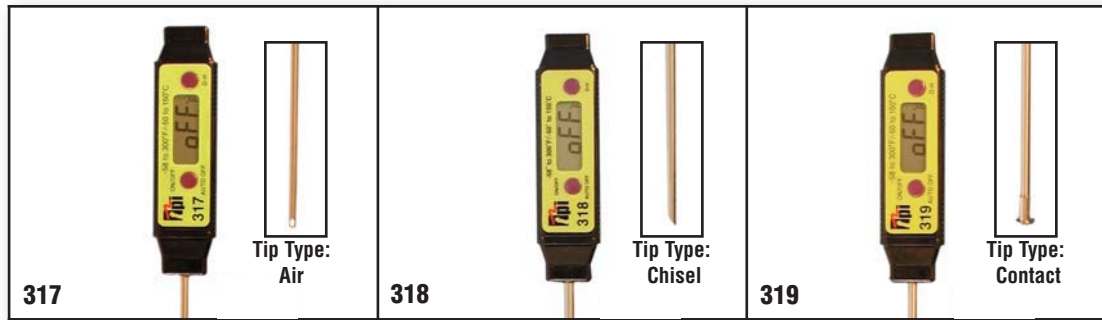
# Pocket Digital Thermometers



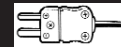
PRODUCT No.	MEASUREMENTS	RANGES	FEATURES & BENEFITS	APPLICATIONS
<b>306C</b> Pocket Digital Thermometers	<b>Range</b> <b>Accuracy</b> <b>Resolution</b> <b>Sample Rate</b> <b>Stem Length</b> <b>Tip Type</b> <b>°C / °F Selectable</b> <b>Data Hold</b> <b>Auto Off</b> <b>Battery Type</b>	-58°F to 300°F (-50°C to 150°C) +/-2°F (+/-1°C) 0.1°F/°C 1 reading every 1.5 second 4.9" Penetration Yes Yes Yes LR44	<ul style="list-style-type: none"> <li>• Field calibrateable to ±2°F</li> <li>• Easy-to-read LCD</li> <li>• Data Hold for hard to reach areas</li> <li>• Penetration tip</li> <li>• Auto off</li> <li>• 3-year limited warranty</li> </ul>	<ul style="list-style-type: none"> <li>• Ambient air</li> <li>• Calibrate thermostats</li> <li>• Vents</li> <li>• Compressor heads</li> <li>• Registers</li> <li>• Grill and surface temperatures</li> <li>• Serving temperatures</li> </ul>
<b>310C</b> Pocket Digital Thermometers	<b>Range</b> <b>Accuracy</b> <b>Resolution</b> <b>Sample Rate</b> <b>Stem Length</b> <b>Tip Type</b> <b>°C / °F Selectable</b> <b>Data Hold</b> <b>Auto Off</b> <b>Battery Type</b>	-58°F to 300°F (-50°C to 150°C) +/-2°F (+/-1°C) 0.1°F/°C 1 reading every 1.5 second 4.9" Penetration Yes Yes Yes LR44	<ul style="list-style-type: none"> <li>• Reversible head for best viewing</li> <li>• Field calibrateable to ±2°F</li> <li>• Easy-to-read LCD</li> <li>• Data Hold for hard to reach areas</li> <li>• Penetration tip</li> <li>• Auto off</li> <li>• 3-year limited warranty</li> </ul>	<ul style="list-style-type: none"> <li>• Ambient air</li> <li>• Calibrate thermostats</li> <li>• Vents</li> <li>• Compressor heads</li> <li>• Registers</li> <li>• Grill and surface temperatures</li> <li>• Serving temperatures</li> </ul>
<b>312C</b> Pocket Digital Thermometers	<b>Range</b> <b>Accuracy</b> <b>Resolution</b> <b>Sample Rate</b> <b>Stem Length</b> <b>Tip Type</b> <b>°C / °F Selectable</b> <b>Data Hold</b> <b>Auto Off</b> <b>Battery Type</b>	-58°F to 300°F (-50°C to 150°C) +/-2°F (+/-1°C) 0.1°F/°C 1 reading every 1.5 second 4.9" Penetration Yes Yes Yes LR44	<ul style="list-style-type: none"> <li>• Field calibrateable to ±2°F</li> <li>• Easy-to-read LCD</li> <li>• Data Hold for hard to reach areas</li> <li>• Penetration tip</li> <li>• Auto off</li> <li>• 3.1 mm stem for fast response</li> <li>• 4.9 inch stem for insertion in liquids and semi-solids</li> <li>• IP Rating IP67</li> <li>• 3-year limited warranty</li> </ul>	<ul style="list-style-type: none"> <li>• Ambient air</li> <li>• Calibrate thermostats</li> <li>• Vents</li> <li>• Compressor heads</li> <li>• Registers</li> <li>• Grill and surface temperatures</li> <li>• Serving temperatures</li> </ul>
<b>316C</b> Pocket Digital Thermometers	<b>Range</b> <b>Accuracy</b> <b>Resolution</b> <b>Sample Rate</b> <b>Stem Length</b> <b>Tip Type</b> <b>°C / °F Selectable</b> <b>Data Hold</b> <b>Auto Off</b> <b>Battery Type</b>	-58°F to 300°F (-50°C to 150°C) +/-2°F (+/-1°C) 0.1°F/°C 1 reading every 1.5 second 2.8" Penetration Yes Yes Yes LR44	<ul style="list-style-type: none"> <li>• Auto field calibration to +/- 2F</li> <li>• Tapered stem (3.1 mm diameter) to fit into a Pete's Plug</li> <li>• Reinforced, heavy-duty housing for strength</li> <li>• Waterproof (IP63)</li> <li>• Fits in your pocket</li> <li>• -58°F to 300°F (-50°C to 150°C)</li> <li>• Rugged design to withstand a 10 foot drop</li> <li>• Magnetic clip perfect for air duct applications</li> <li>• 3-year limited warranty</li> </ul>	<ul style="list-style-type: none"> <li>• Ambient air</li> <li>• Calibrate thermostats</li> <li>• Vents</li> <li>• Compressor heads</li> <li>• Registers</li> <li>• Grill and surface temperatures</li> <li>• Serving temperatures</li> </ul>



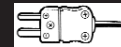
# Pocket Digital Thermometers



PRODUCT No.	MEASUREMENTS	RANGES	FEATURES & BENEFITS	APPLICATIONS
<b>317</b> Pocket Digital Thermometers	<b>Range</b>	-58°F to 300°F (-50°C to 150°C)	<ul style="list-style-type: none"> <li>• Air tip</li> <li>• Field calibrateable to ±2°F</li> <li>• Rugged and waterproof (IP63)</li> <li>• 3.1mm stem for "Pete's" plug</li> <li>• Auto off</li> <li>• Magnetic clip perfect for air duct applications</li> <li>• 3-year limited warranty</li> </ul>	<ul style="list-style-type: none"> <li>• Ambient air</li> <li>• Calibrate thermostats</li> <li>• Vents</li> <li>• Compressor heads</li> <li>• Registers</li> <li>• Grill and surface temperatures</li> <li>• Serving temperatures</li> </ul>
	<b>Accuracy</b>	+/-2°F (+/-1°C)		
	<b>Resolution</b>	0.1°F/°C		
	<b>Sample Rate</b>	1 reading every 1.5 second		
	<b>Stem Length</b>	2.8"		
	<b>Tip Type</b>	Air		
	<b>°C / °F Selectable</b>	Yes		
	<b>Data Hold</b>	Yes		
	<b>Auto Off</b>	Yes		
	<b>Battery Type</b>	LR44		
<b>318</b> Pocket Digital Thermometers	<b>Range</b>	-58°F to 300°F (-50°C to 150°C)	<ul style="list-style-type: none"> <li>• Field calibrateable to ±2°F</li> <li>• Rugged and waterproof (IP63)</li> <li>• Chisel tip</li> <li>• Auto off</li> <li>• Magnetic clip perfect for air duct applications</li> <li>• 3-year limited warranty</li> </ul>	<ul style="list-style-type: none"> <li>• Ambient air</li> <li>• Calibrate thermostats</li> <li>• Vents</li> <li>• Compressor heads</li> <li>• Registers</li> <li>• Grill and surface temperatures</li> <li>• Serving temperatures</li> </ul>
	<b>Accuracy</b>	+/-2°F (+/-1°C)		
	<b>Resolution</b>	0.1°F/°C		
	<b>Sample Rate</b>	1 reading every 1.5 second		
	<b>Stem Length</b>	2.8"		
	<b>Tip Type</b>	Chisel		
	<b>°C / °F Selectable</b>	Yes		
	<b>Data Hold</b>	Yes		
	<b>Auto Off</b>	Yes		
	<b>Battery Type</b>	LR44		
<b>319</b> Pocket Digital Thermometers	<b>Range</b>	-58°F to 300°F (-50°C to 150°C)	<ul style="list-style-type: none"> <li>• Contact tip</li> <li>• Field calibrateable to ±2°F</li> <li>• Rugged and waterproof (IP63)</li> <li>• Auto off</li> <li>• Magnetic clip perfect for air duct applications</li> <li>• 3-year limited warranty</li> </ul>	<ul style="list-style-type: none"> <li>• Ambient air</li> <li>• Calibrate thermostats</li> <li>• Vents</li> <li>• Compressor heads</li> <li>• Registers</li> <li>• Grill and surface temperatures</li> <li>• Serving temperatures</li> </ul>
	<b>Accuracy</b>	+/-2°F (+/-1°C)		
	<b>Resolution</b>	0.1°F/°C		
	<b>Sample Rate</b>	1 reading every 1.5 second		
	<b>Stem Length</b>	2.8"		
	<b>Tip Type</b>	Contact		
	<b>°C / °F Selectable</b>	Yes		
	<b>Data Hold</b>	Yes		
	<b>Auto Off</b>	Yes		
	<b>Battery Type</b>	LR44		



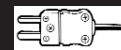
MODEL #	DESCRIPTION	APPLICATION	RANGE °F/°C	PROBE TIP	DIMENSIONS	INSULATION MATERIAL
<b>CK11M</b> Contact surface probe, water proof	Contact temperatures on flat and uneven surfaces	-58° to 500°F -50° to 250°C		32	Stem Length: 4" (102mm) Diameter: 0.13" (3.2mm) Lead Length: 39.4" (1M) IP Rating: N/A	Polyurethane
<b>CK12M</b> Contact surface probe, right angle, waterproof	Contact temperatures on flat and uneven surfaces	-58° to 500°F -50° to 250°C		32	Stem Length: 4" (102mm) w/90° bend Diameter: 0.3" (7.5mm) Lead Length: 39.4" (1M) IP Rating: N/A	Polyurethane
<b>CK13M</b> Heavy-duty contact surface probe	Contact temperatures on flat and uneven high temperature surfaces	-58° to 1202°F -50° to 650°C		36	Stem Length: 4" (102mm) Diameter: 0.6" (14mm) Lead Length: 39.4" (1M) IP Rating: N/A	Polyurethane
<b>CK14M</b> Right angle heavy-duty contact surface probe	Contact temperatures on flat and uneven high temperature surfaces	-58° to 1202°F -50° to 650°C		36	Stem Length: 6" (152mm) w/90° bend Diameter: 0.6" (14mm) Lead Length: 39.4" (1M) IP Rating: N/A	Polyurethane
<b>CK16M</b> Heavy-duty contact surface probe	Contact temperatures on flat and uneven high temperature surfaces	-40° to 950°F -40° to 510°C		36	Stem Length: 8" (203mm) Diameter: 0.6" (14mm) Lead Length: 39.4" (1M) IP Rating: N/A	Polyurethane
<b>CK17M</b> Contact surface probe, 45 degree angle	Contact temperatures on flat and uneven surfaces	-40° to 500°F -50° to 250°C		32	Stem Length: 4" (102mm) w/45° bend Diameter: 0.3" (7.5mm) Lead Length: 39.4" (1M) IP Rating: N/A	Polyurethane
<b>CK18M</b> Contact surface probe	Contact temperatures on flat surfaces	-58° to 500°F -50° to 250°C		32	Stem Length: N/A Nominal: 2.36" (60mm) Lead Length: 39.4" (1M) IP Rating: N/A	Polyurethane
<b>CK20M</b> Pipe clamp probe	Clamp probe for pipe temperatures	-58° to 212°F -50° to 100°C		N/A	Max jaw opening: 0.79" Nominal jaw opening: 0.25" Lead Length: 39.4" (1M) IP Rating: N/A	Polyurethane
<b>CK21M</b> Pipe clamp probe	Clamp probe for pipe temperatures	-58° to 212°F -50° to 100°C		N/A	Max jaw opening: 1.2" Nominal jaw opening: 0.75" Lead Length: 39.4" (1M) IP Rating: N/A	Polyurethane
<b>CK22M</b> Fast response contact surface probe, 45 degree angle swivel head sensor	Contact temperatures on flat and uneven surfaces	-58° to 500°F -50° to 250°C		32	Stem Length: 4.5" (114mm) w/45° bend Diameter: 0.5" (12.7mm) Lead Length: 39.4" (1M) IP Rating: N/A	Polyurethane
<b>CK23M</b> Fast response contact surface probe, 90 degree angle swivel head sensor	Contact temperatures on flat and uneven surfaces	-58° to 500°F -50° to 260°C		32	Stem Length: 4.9" (125mm) w/90° bend Diameter: 0.5" (12.7mm) Lead Length: 39.4" (1M) IP Rating: N/A	Polyurethane
<b>FK11M</b> Chisel tip penetration probe	General purpose penetration into semi-solids and liquids	-58° to 500°F -50° to 250°C		20	Stem Length: 4" (102mm) Diameter: 0.13" (3.2mm) Lead Length: 39.4" (1M) IP Rating: 67	Polyurethane
<b>FK12M</b> Pointed tip tapered penetration probe	Heavy duty penetration into semi-solids and liquids tapered shaft resist bending	-58° to 500°F -50° to 250°C		21	Stem Length: 11.8" (300mm) Diameter: 0.25 / 0.10" (6.4 / 2.5mm) Lead Length: 39.4" (1M) IP Rating: 67	Polyurethane
<b>FK13M</b> Pointed tip penetration probe for HK11M handle	General purpose penetration into semi-solids and liquids	-40° to 1562°F -40° to 850°C		20	Stem Length: 8" (203mm) Diameter: 0.15" (3.75mm) Lead Length: N/A IP Rating: 67	N/A
<b>FK14M</b> Chisel tip penetration probe	General purpose penetration into semi-solids and liquids	-40° to 1562°F -40° to 850°C		20	Stem Length: 8" (203mm) Diameter: 0.15" (3.75mm) Lead Length: 39.4" (1M) IP Rating: 67	Polyurethane



MODEL #	DESCRIPTION	APPLICATION	RANGE °F/°C	PROBE TIP	DIMENSIONS	INSULATION MATERIAL
<b>FK15M</b> Tapered tip low mass quick response penetration probe	Food temperature measurements and other light duty applications	-58° to 500°F -50° to 250°C		20	Stem Length: 3.75" (80mm) Diameter: 0.06 (1.6mm) Lead Length: 39.4" (1M) IP Rating: N/A	Teflon
<b>FK21M</b> Tapered chisel tip penetration probe	General purpose light duty penetration applications requiring fast response	-58° to 500°F -50° to 250°C		21	Stem Length: 4" (101.6mm) Diameter: 0.13"/.06" (3.2/1.6mm) Lead Length: 39.4" (1M) IP Rating: 67	Polyurethane
<b>FK22M</b> Pointed tip penetration probe	General purpose light duty penetration applications requiring fast response	-58° to 500°F -50° to 250°C		21	Stem Length: 4" (101.6mm) Diameter: 0.09/0.06" (3.2/2.5mm) Lead Length: 39.4" (1M) IP Rating: N/A	Teflon
<b>FK23M</b> Rack clamp probe	General purpose air / liquid probe with clip	-40° to 950°F -40° to 510°C		28	Stem Length: N/A Diameter: N/A Lead Length: 177" (4.5M) IP Rating: 67	Teflon
<b>FK24M</b> Heavy duty T-handle long stem penetration probe	General purpose penetration into semi-solids and liquids	-40° to 500°F -40° to 250°C		21	Stem Length: 24" (610mm) Diameter: 0.37"/0.15" (9.5mm/3.76mm) Lead Length: 39.4" (1M) IP Rating: 67	Polyurethane
<b>FK25M</b> Flat sensor pack probe	Between pack temperatures	-40° to 400°F -40° to 204°C		34	Stem Length: N/A Diameter: N/A Lead Length: 39.4" (1.2M) IP Rating: 67	Polyurethane
<b>FK26M</b> Petes plug probe	Petes plug temperatures	-40° to 400°F -40° to 204°C		24	Stem Length: 3" (76mm) Diameter: 0.12" (3mm) Lead Length: 39.4" (1M) IP Rating: 67	Polyurethane
<b>FK30M</b> Long stem heavy duty T-handle penetration probe	Heavy duty penetration into semi-solids and liquids tapered shaft resist bending	-58° to 500°F -50° to 250°C		22	Stem Length: 24" (609.60mm) Diameter: 0.38" (9.5mm) Lead Length: 39.4" (1M) IP Rating: 67	Polyurethane
<b>FK32M</b> Long stem heavy duty T-handle penetration probe	Heavy duty penetration into semi-solids and liquids tapered shaft resist bending	-58° to 500°F -50° to 250°C		24	Stem Length: 18" (457mm) Diameter: 0.37"/0.15" (9.5mm/3.76mm) Lead Length: 39.4" (1M) IP Rating: 67	Polyurethane
<b>GK11M</b> General purpose beaded tip probe	Exposed junction for fast response in non-food liquid, air and surface applications	-40° to 950°F -40° to 510°C		42	Stem Length: N/A Diameter: 28 gauge Lead Length: 48" (1.2M) IP Rating: N/A	Fiberglass
<b>GK12M</b> General purpose beaded tip probe with rack clip	Exposed junction for fast response in air applications.	-40° to 950°F -40° to 510°C		42	Stem Length: N/A Diameter: 20 gauge Lead Length: 48" (1.2M) IP Rating: N/A	Fiberglass
<b>GK13M</b> General purpose beaded tip probe	Exposed junction for fast response in food and non-food liquid, air and surface applications	-40° to 400°F -40° to 204°C		42	Stem Length: N/A Diameter: 24 gauge Lead Length: 48" (1.2M) IP Rating: N/A	Teflon
<b>GK14M</b> Rigid stem hooded exposed tip probe	Exposed junction for fast response in air applications.	-58° to 910°F -40° to 510°C		44	Stem Length: 3.74" (95mm) Diameter: 0.13" (3.75mm) Lead Length: 39.4" (1M) IP Rating: N/A	Polyurethane
<b>GK16M</b> General purpose caged air probe for use with HK11M handle	Caged exposed junction for fast response in air	-40° to 500°F -40° to 260°C		46	Stem Length: 8" (203mm) Diameter: 0.26" (6.5mm) Lead Length: 39.4" (1M) IP Rating: N/A	N/A
<b>GK17M</b> General purpose caged air probe	Caged exposed junction for fast response in air	-40° to 500°F -40° to 260°C		46	Stem Length: 8" (203mm) Diameter: 0.26" (6.5mm) Lead Length: 39.4" (1M) IP Rating: N/A	Polyurethane



# K-Type Thermocouple with Sub-Mini Connector Probes



MODEL # DESCRIPTION	APPLICATION	RANGE °F °C	PROBE TIP	DIMENSIONS	INSULATION MATERIAL
<b>GK18M</b> General purpose caged air probe with rack clip and armored cable	Caged exposed junction for fast response in air	-40° to 586°F -40° to 308°C		48 Stem Length: N/A Diameter: N/A Lead Length: 39.4" (1M) IP Rating: N/A	Braided stainless steel
<b>GK19M</b> General purpose beaded tip probe with armored cable	Exposed junction for fast response in non-food liquid, air and surface applications	-40° to 950°F -40° to 510°C		42 Stem Length: N/A Diameter: 28 gauge Lead Length: 48" (1.2M) IP Rating: N/A	Braided stainless steel
<b>GK20M</b> Flue temperature probe	Exposed junction with cone stop, fast response in flue temperature applications	-40° to 932°F -40° to 260°C		42 Stem Length: 4.33" (110mm) Diameter: 0.24" (6mm) Lead Length: 16" (4.9M) IP Rating: N/A	Teflon
<b>HK11M</b> Handle for use with K-type interchangeable probe tips	Use with FK13M, CK15M, and GK16M	N/A		N/A Stem Length: N/A Diameter: N/A Lead Length: 39.4" (1M) IP Rating: N/A	Polyurethane

# J-Type Thermocouple with Sub-Mini Connector Probes



MODEL # DESCRIPTION	APPLICATION	RANGE °F °C	PROBE TIP	DIMENSIONS	INSULATION MATERIAL
<b>GJ11M</b> Standard fiberglass insulation, 4 foot, beaded end (disposable)	Exposed junction for fast response	-40° to 950°F -40° to 500°C		Stem Length: N/A Diameter: 24 Gauge Lead Length: 1.2 IP Rating: N/A	Fiberglass
<b>GJ12M</b> GJ11M with oven clip	Oven clip to shield sensor from direct radiated heat	-40° to 950°F -40° to 500°C		Stem Length: N/A Diameter: 24 Gauge Lead Length: 1.2 IP Rating: N/A	Fiberglass

# Thermistor Probe with Lumberg Connectors



MODEL # DESCRIPTION	APPLICATION	RANGE °F °C	PROBE TIP	DIMENSIONS	INSULATION MATERIAL
<b>FX11L</b> Liquid immersion probe	General Purpose, Liquid	-40° to 300°F -40° to 150°C		24 Stem Length: 4" (102mm) Diameter: 0.13" (3.2mm) Lead Length: 39.4" (1M) IP Rating: 67	PVC

# K-Type Thermocouple with Lumberg Connector Probes



MODEL # DESCRIPTION	APPLICATION	RANGE °F °C	PROBE TIP	DIMENSIONS	INSULATION MATERIAL
<b>FK21L</b> Contact surface probe with ribbon sensor. Water proof	Food Penetration	-58° to 500°F -50° to 250°C		21 Stem Length: 4" (101.6mm) Diameter: 0.13/.06" (3.2/1.6mm) Lead Length: 39.4" (1M) IP Rating: 67	Polyurethane
<b>FK22L</b> Oven food probe	Testing food temperatures during cooking	-58° to 500°F -50° to 250°C		20 Stem Length: 4" (101.6mm) Diameter: 0.09/.06" (3.2/1.6mm) Lead Length: 47.2" (1.2M) IP Rating:	Teflon
<b>FK23L</b> Immersion / Penetration probe no handle or lead	Food Penetration	-58° to 500°F -50° to 250°C		21 Stem Length: 3.9" (100mm) Diameter: 0.15" (3.75mm) Lead Length: NA IP Rating: 67	NA
<b>FK25L</b> Flat sensor pack probe	Between pack	-40° to 400°F -40° to 204°C		34 Stem Length: NA Diameter: NA Lead Length: 47.2" (1.2M) IP Rating: 67	Teflon








# T-Type Thermocouple with Lumberg Connector Probes



MODEL # DESCRIPTION	APPLICATION	RANGE °F °C	PROBE TIP	DIMENSIONS	INSULATION MATERIAL
<b>FT11L</b> Chisel tip penetration probe	General purpose penetration into semi-solids and liquids	-148° to 500°F -100° to 250°C		22 Stem Length: 4" (101.6mm) Diameter: 0.13/.15" (3.2mm/2.2mm) Lead Length: 39.4" (1M) IP Rating: 67	Polyurethane
<b>FT12L</b> Needle probe	Weiner probe for food processing	-148° to 500°F -100° to 250°C		22 Stem Length: 4" (101.6mm) Diameter: 0.13" (3.2mm) Lead Length: 39.4" (1.0M) IP Rating: 67	PVC
<b>FT15L</b> Needle probe	Weiner probe for food processing	-148° to 500°F -100° to 250°C		22 Stem Length: 3.15" (80mm) Diameter: 0.06" (1.6mm) Lead Length: 39.4" (1.2M) IP Rating: N/A	Teflon
<b>FT21L</b> Tapered end for food penetration Waterproof	Food penetration	-148° to 500°F -100° to 250°C		21 Stem Length: 3.75" (95.3mm) Diameter: 3.2/1.6mm Lead Length: 39.4" (1.0M) IP Rating: 67	PVC
<b>FT22L</b> Oven food probe	Testing food temperature during cooking	-40° to 500°F -50° to 250°C		22 Stem Length: 3.93" (100mm) Diameter: 0.13" (3.2mm) Lead Length: 98.4" (2.5M) IP Rating: N/A	Teflon
<b>FT23L</b> Oven food probe	Testing food temperature during cooking	-40° to 950°F -40° to 510°C		28 Stem Length: NA Diameter: NA Lead Length: 177.2" (4.5M) IP Rating: N/A	Teflon
<b>FT24L</b> Heavy duty T-handle long stem penetration probe	General purpose penetration into semi-solids and liquids	-40° to 500°F -40° to 250°C		21 Stem Length: 24" (610mm) Diameter: 0.37/0.15" (9.5mm/3.76mm) Lead Length: 39.4" (1M) IP Rating: 67	Polyurethane
<b>GT13L</b> Beaded probe with FDA approved insulation	General Purpose. Air	-148° to 500°F -100° to 250°C		42 Stem Length: NA Diameter: NA Lead Length: 47.2" (1.2M) IP Rating: 67	Teflon
<b>GT19L</b> Oven clamp probe	Special hanging Clip for ovens. Air.	-40° to 500°F -40° to 510°C		48 Stem Length: NA Diameter: NA Lead Length: 39.4" (1M) IP Rating: 67	SS

## Thermistor Probe with Bipolar Connector



MODEL # DESCRIPTION	APPLICATION	RANGE °F °C	PROBE TIP	DIMENSIONS	INSULATION MATERIAL
<b>CX13B</b> Surface flat disk probe	Surface	-40° to 300°F -40° to 150°C		30 Stem Length: 3.15" (80mm) Diameter: 0.3" (7.5mm) Lead Length: 15.7" (0.4M) IP Rating: N/A	PVC
<b>FX12B</b> Liquid immersion probe	General Purpose	-40° to 300°F -40° to 150°C		24 Stem Length: 3.15" (80mm) Diameter: 0.13" (3.2mm) Lead Length: 15.7" (0.4M) IP Rating: N/A	PVC
<b>FX13B</b> Liquid immersion probe	General Purpose	-40° to 300°F -40° to 150°C		24 Stem Length: 8" (203mm) Diameter: 0.13" (3.2mm) Lead Length: 15.7" (0.4M) IP Rating: 67	PVC
<b>GX15B</b> Shielded air probe	Air	-40° to 300°F -40° to 150°C		44 Stem Length: 3.15" (80mm) Diameter: 0.13" (3.2mm) Lead Length: 15.7" (0.4M) IP Rating: N/A	PVC
<b>EX11B</b> extension lead	Thermistor probes	N/A		NA Stem Length: N/A Diameter: N/A Lead Length: 36" (0.9M) IP Rating: N/A	PVC



PRODUCT No.	MEASUREMENTS	RANGES	FEATURES & BENEFITS	APPLICATIONS
<b>605</b> Digital Vacuum Gauge	Vacuum	12,000 to 15 microns	<ul style="list-style-type: none"> <li>Fast and simple operation</li> <li>Easy-to-read LCD</li> <li>Seven selectable units of measure</li> <li>Display updates every 0.5 seconds</li> <li>Auto power off after 10 minutes when vacuum above 12,000 microns (12 Torr)</li> </ul>	<ul style="list-style-type: none"> <li>Verify the vacuum before you change a refrigeration system</li> <li>Prevents moisture and air being left in the system</li> <li>Finds small leaks</li> <li>300 PSI overpressure</li> </ul>
<b>608</b> Single Input Manometer	inH2O mbar kPa psi	±60 ±15 ±150 ±2.175	<ul style="list-style-type: none"> <li>Four selectable units of measure</li> <li>Temperature compensated</li> <li>Auto power off</li> <li>Backlight display</li> <li>Wall hook and magnets for hands free use</li> <li>Accuracy: +/- 1% of fullscale</li> </ul>	<ul style="list-style-type: none"> <li>Adjust appliance regulators</li> <li>Set delivery pressures</li> <li>Leakage "shut-in" tests</li> <li>Regulator adjustments for pressure and lock-up tests</li> <li>Test pressure switch operation on a 2-stage gas furnace in both positive and negative pressures</li> </ul>
<b>610</b> Single Input Manometer	inH2O	±80.29	<ul style="list-style-type: none"> <li>Autoranging provides high resolution &amp; accuracy at low pressure where it is needed</li> <li>Auto power off</li> <li>Record/ Min/Max</li> <li>Zero function</li> </ul>	<ul style="list-style-type: none"> <li>Replace messy U-tube manometers</li> <li>Test low pressure gas systems for leaks</li> <li>Replace expensive pressure gauges</li> </ul>
<b>615</b> Single Input Manometer	inH2O mbar KPa PSI mmH2O mmHg in Hg	±80.29 ±200 ±20 ±2.9 ±2039 ±150 ±5.9	<ul style="list-style-type: none"> <li>Single input with +/-80" H2O range.</li> <li>Seven units of measure (mbar, kPa, PSI, mmHg, inHg, mmH2O, inH2O).</li> <li>Display - 4 digit with backlight</li> <li>Smooth - Stabilizes display when measuring fluctuating pressures</li> <li>Data Hold - Freezes reading on display.</li> <li>Min / Max - Records Min/Max readings</li> <li>Auto Off - Conserve battery power.</li> </ul>	<ul style="list-style-type: none"> <li>Adjusting appliance regulators</li> <li>Setting delivery pressures</li> <li>Leakage "shut-in" tests</li> <li>Regulator adjustments for pressure and lock-up tests</li> <li>Test pressure switch operation on a 2-stage gas furnace in both positive and negative pressures</li> </ul>



PRODUCT No.	MEASUREMENTS	RANGES	FEATURES & BENEFITS	APPLICATIONS
<b>620</b> Dual Input Differential Manometer	inH <sub>2</sub> O	±80.29	<ul style="list-style-type: none"> <li>• Autoranging provides high resolution &amp; accuracy at low pressure where it is needed</li> <li>• Auto power off</li> <li>• Record/ Min/Max</li> <li>• Zero function</li> </ul>	<ul style="list-style-type: none"> <li>• Replace messy U-tube manometers</li> <li>• Test low pressure gas systems for leaks</li> <li>• Replace expensive pressure gauges</li> </ul>
<b>621</b> Dual Input Manometer (Three Decimal Place Resolution)	inH <sub>2</sub> O mbar kPa psi mmH <sub>2</sub> O mmHg inHg	±120 ±300 ±30 ±5 ±3,000 ±220 ±9	<ul style="list-style-type: none"> <li>• 0.004 inH<sub>2</sub>O resolution less than 40 inches of water; 0.04 inH<sub>2</sub>O resolution over 40 inches</li> <li>• Dual input &amp; differential</li> <li>• Autoranging</li> <li>• Seven units of pressure</li> </ul>	<ul style="list-style-type: none"> <li>• Adjust appliance regulators</li> <li>• Setting delivery pressures</li> <li>• Leakage "shut-in" tests</li> <li>• Regulator adjustments for pressure and lock-up tests</li> <li>• Test pressure switch operation on a 2-stage gas furnace in both positive and negative pressures</li> </ul>
<b>625</b> Dual Input Differential Manometer	inH <sub>2</sub> O mbar kPa psi mmH <sub>2</sub> O mmHg inHg	±80.29 ±200 ±20 ±2.9 ±2,039 ±150 ±5.9	<ul style="list-style-type: none"> <li>• Autoranging provides high resolution &amp; accuracy at low pressure where it is needed</li> <li>• Auto power off</li> <li>• Record/Min/Max</li> <li>• Zero function</li> </ul>	<ul style="list-style-type: none"> <li>• Replace messy U-tube manometers</li> <li>• Test low pressure gas systems for leaks</li> <li>• Replace expensive pressure gauges</li> </ul>
<b>635</b> Dual Input Differential Manometer	inH <sub>2</sub> O mbar kPa psi mmH <sub>2</sub> O mmHg inHg	±140 ±350 ±35 ±5 ±3,568 ±262 ±10	<ul style="list-style-type: none"> <li>• Differential input with +/- 5 PSI range.</li> <li>• Seven units of measure (mbar, kPa, PSI, mmHg, inHg, mH<sub>2</sub>O, inH<sub>2</sub>O).</li> <li>• Display - 4 digit dual line with backlight</li> <li>• Smooth - Stabilizes display when measuring fluctuating pressures</li> <li>• Data Hold - Freezes reading on display.</li> <li>• Min / Max - Records Min/Max readings</li> <li>• Auto Off - Conserve battery power.</li> </ul>	<ul style="list-style-type: none"> <li>• Pressure activated actuators</li> <li>• Setting delivery pressures</li> <li>• Regulator adjustments for pressure and lock-up tests</li> </ul>



### Pressure Kit 621C3

- Temperature compensated for improved accuracy
- Adjust appliance regulators
- Set delivery pressures
- Leakage "shut-in" tests
- Regulator adjustments for pressure and lock-up tests
- Test pressure switch operation on a 2-stage gas furnace in both positive and negative pressures
- Test air flow, static pressure drop, and draft pressure measurements
- When setting up a high efficiency gas hot water heater, you need to check the static pressure in the exhaust stack. Do this by using the static tip and firing up the gas hot water heater, then capture the min and max readings. If not enough pressure out the exhaust, wind can blow down the exhaust and extinguish the pilot light.

### 621C3 Pressure Kit includes:

- 621 Dual Input Digital Manometer
- A774 6' silicone tubing
- A776 (2) static tip
- A605 (2) 1/4" tapered "T"
- A603 (2) brass fitting, 1/4" NPT to 1/4" barb
- A908 shoulder strap carrying case
- A612 protective rubber boot



PRODUCT No.	MEASUREMENTS	RANGES	FEATURES & BENEFITS	APPLICATIONS
<b>645</b> Dual Differential Input Manometer	inH2O bar kPa psi mmH2O mmHg inHg	±302 ±2,000 ±200 ±29 ±71.38 ±1,500 ±59	<ul style="list-style-type: none"> <li>Differential input with + 29 PSI range.</li> <li>Seven units of measure (mbar, kPa, PSI, mmHg, inHg, mH2O, inH2O).</li> <li>Display - 4 digit dual line with backlight</li> <li>Smooth - Stabilizes display when measuring fluctuating pressures</li> <li>Data Hold - Freezes reading on display.</li> <li>Min / Max - Records Min/Max readings</li> <li>Auto Off - Conserve battery power.</li> </ul>	<ul style="list-style-type: none"> <li>Pressure activated actuators</li> <li>Check for proper pressure in pneumatic systems</li> <li>Check utility supply gas pressure</li> <li>Industrial HVAC systems</li> </ul>
<b>645NPT</b> Dual Differential Input Manometer	inH2O bar kPa psi mmH2O mmHg inHg	±302 ±2,000 ±200 ±29 ±71.38 ±1,500 ±59	<ul style="list-style-type: none"> <li>Differential input with + 29 PSI range.</li> <li>Dual 1/4" NPT Fittings</li> <li>Seven units of measure (mbar, kPa, PSI, mmHg, inHg, mH2O, inH2O).</li> <li>Display - 4 digit dual line with backlight</li> <li>Smooth - Stabilizes display when measuring fluctuating pressures</li> <li>Data Hold - Freezes reading on display.</li> <li>Min / Max - Records Min/Max readings</li> <li>Auto Off - Conserve battery power.</li> </ul>	<ul style="list-style-type: none"> <li>Check for proper pressure in pneumatic systems</li> <li>Check utility supply gas pressure</li> <li>Industrial HVAC systems</li> </ul>
<b>665</b> For Air/Gas	inH2O bar kPa psi mmH2O mmHg inHg	±2,810 ±7,000 ±700.0 ±101.5 ±71.38 ±5,250 ±206.7	<ul style="list-style-type: none"> <li>Measure differential pressure</li> <li>Store up to 16 measurements</li> <li>Log up to 5,000 measurements with date and time stamp for retrieval with optional A665 docking station and software</li> <li>MIN / MAX record</li> <li>Seven selectable units of measure</li> <li>5 digit dual line display with backlight</li> <li>Auto power off</li> <li>Data hold</li> <li>A614 protective rubber boot with magnets</li> </ul>	<ul style="list-style-type: none"> <li>Check for proper pressure in pneumatic systems</li> <li>Check utility supply gas pressure</li> <li>Check for proper pressures in clean rooms</li> <li>Industrial HVAC systems</li> <li>Check operation of industrial pressure systems</li> </ul>
<b>665L</b> For Air/Gas and Non-Corrosive Liquid	inH2O bar kPa psi mmH2O mmHg inHg	±2,810 ±7,000 ±700.0 ±101.5 ±71.38 ±5,250 ±206.7	<ul style="list-style-type: none"> <li>Measure differential pressure</li> <li>Store up to 16 measurements</li> <li>Log up to 5,000 measurements with date and time stamp for retrieval with optional A665 docking station and software</li> <li>MIN / MAX record</li> <li>Seven selectable units of measure</li> <li>5 digit dual line display with backlight</li> <li>Auto power off</li> <li>Data hold</li> <li>A614 protective rubber boot with magnets</li> </ul>	<ul style="list-style-type: none"> <li>Check for proper pressure in pneumatic systems</li> <li>Check utility supply gas pressure</li> <li>Check for proper pressures in clean rooms</li> <li>Industrial HVAC systems</li> <li>Check operation of industrial pressure systems</li> </ul>

### Carrying Case A908

Shoulder strap carrying case



### Protective Rubber Boot A612

Protective rubber boot with tilt stand for the following manometers: 610, 615, 620, and 625.



### Static Tip A776

Measure static pressure with A776. It has a magnet to secure place in duct work, 1/4" hole required to use.



### Brass Hose Barb Fitting A603

Use for checking gas pressure on gas valves 1/4" hose barb x 1/8 NPT thread.



### Silicone Tubing A774

6 foot length of silicone tubing for pressure measurements. Very flexible in extreme temperatures.





PRODUCT No.	MEASUREMENTS	RANGES	FEATURES & BENEFITS	APPLICATIONS
<b>440</b> Handheld Oscilloscope with True RMS DMM	<b>Bandwidth</b> <b>Sample Rate</b>  <b>Basic DC Accuracy</b> <b>DCV</b> <b>ACV</b> <b>DCA/ACA</b> <b>Ohms</b> <b>Capacitance</b> <b>Frequency</b>	1MHz 20 megasamples per second 0.3% Up to 1,000 volts Up to 750 volts Up to 10 amps Up to 30MΩ Up to 400uF Up to 2 MHz	<ul style="list-style-type: none"> <li>• True RMS DMM</li> <li>• 1MHz oscilloscope</li> <li>• Trend mode</li> <li>• Component test</li> <li>• Logic test</li> <li>• Frequency counter</li> <li>• 4,000 count</li> <li>• cULus 61010-1</li> <li>• CAT II - 1000V, CAT III - 600V</li> <li>• 3 Year Limited Warranty</li> </ul>	<ul style="list-style-type: none"> <li>• View industrial signals such as motor control, UPS, switching power supplies and PLC controls with 1MHz bandwidth</li> <li>• Capture noise spikes, glitches and intermittents with 20 megasamples per second sampling rate</li> <li>• Full autoranging, true RMS DMM</li> <li>• Continually updated display provides a live presentation</li> </ul>
<b>460</b> Handheld 20MHz Digital Oscilloscope	<b>DCV (CH1, CH2)</b>  <b>Basic DC Accuracy</b> <b>ACV (CH1, CH2)</b>  <b>Basic ACV Accuracy</b>  <b>Frequency (CH1, CH2)</b> <b>Basic Frequency Accuracy</b> <b>Ohm (CH1 only)</b>  <b>Basic Ohm Accuracy</b> <b>Continuity (CH1 only)</b>  <b>Diode Test</b>	400mV, 4, 40, 400, 600V ± (0.5% + 5 digits) 400mV, 4, 40, 400, 600V ± 0.75% ± (1% + 10 digits) 1 Hz to 20 MHz ± (0.5% + 5 digits) 400, 4k, 40k, 400k, 4M, 20M ± (0.5% + 5 digits) < 0.1k ohm, ± (2% + 5 digits) 5mA maximum output	<ul style="list-style-type: none"> <li>• 4,000 count true RMS DMM, CACV, DCV ohms and continuity buzzer need optional adapters for current measurement</li> <li>• 20 MHz Bandwidth</li> <li>• Cursor Readout</li> <li>• Decibels</li> <li>• Pre and Post Triggering</li> <li>• Trend Mode</li> <li>• Dual Input</li> <li>• Real Time Sample Rate</li> <li>• Bright LCD Backlight</li> <li>• Optically Isolated RS232 Output</li> <li>• Continuous Autoset</li> <li>• cULus 61010-1</li> <li>• CAT II - 1000V, CAT III - 600V</li> <li>• 3 Year Limited Warranty</li> </ul>	<ul style="list-style-type: none"> <li>• Power Quality</li> <li>• Variable Speed Drives</li> <li>• Industrial Motor Controls</li> <li>• Battery Testing</li> <li>• Programmable Logic Controls</li> <li>• NC/CNC Machines</li> <li>• Uninterruptable Power Supplies</li> <li>• Audio</li> <li>• Video</li> <li>• Industrial Lighting Controls</li> <li>• Factory Automation</li> <li>• Line Conditioners</li> <li>• Voltage Regulators</li> <li>• Inverters</li> <li>• Gaming Industry</li> </ul>



PRODUCT No.	FEATURES	BENEFITS	MARKETS
<b>9020 Pro</b> Diagnose basic vibration problems: out of balance, misalignment, looseness, and bearing damage.	<b>Frequency Ranges</b> 0 Hz to 1 kHz 0 Hz to 15 kHz  <b>Frequency Resolution</b> Up to 0.3 Hz 400, 800, 1600, 3200  <b>Displayed Amplitude Units</b> Acceleration in g Velocity in mm/s (or inches/s) Bearing noise in BDU (bearing damage units)  <b>Displayed Frequency Units</b> Hertz (Hz), RPM or CPM  <b>Input Range</b> +/- 50g with standard 25mV/g TPI accelerometer	<ul style="list-style-type: none"> <li>Automatically detects out of balance, misalignment, looseness and bearing defects</li> <li>Predictive analysis capabilities that accurately calculate time frame to failure</li> <li>Condition based monitoring analyzes bearing wear and gear degradation</li> <li>Saves and reads measurement values to/from RFID tags with Optional RFID</li> <li>Built-in IEPE (constant current) accelerometer power supply</li> <li>Rugged fully waterproof construction meets IP67 and MIL-STD-810F requirements.</li> </ul>	<ul style="list-style-type: none"> <li>Commercial/ Industrial HVAC</li> <li>Food Processing</li> <li>Manufacturers</li> <li>Mining</li> <li>Packaging</li> <li>Petrochemical</li> <li>Printing &amp; Paper Processing</li> <li>Utilities</li> </ul>
<b>9040 Ultra</b> All features of Pro plus very high resolution, RFID and bearing database capability.	<b>Frequency Ranges</b> 0 Hz to 1 kHz 0 Hz to 15 kHz  <b>Frequency Resolution</b> Up to 0.3 Hz 400, 800, 1600, 3200, 6400, 12800, 25,600 or 51,200 lines FFT  <b>Displayed Amplitude Units</b> Acceleration in g Velocity in mm/s (or inches/s) Bearing noise in BDU (bearing damage units)  <b>Displayed Frequency Units</b> Hertz (Hz), RPM or CPM  <b>Input Range</b> +/- 50g with standard 25mV/g TPI accelerometer	<ul style="list-style-type: none"> <li>Automatically detects out of balance, misalignment, looseness and bearing defects</li> <li>Predictive analysis capabilities that accurately calculate time frame to failure</li> <li>Condition based monitoring analyzes bearing wear and gear degradation</li> <li>Automatic RFID measurement point identification</li> <li>Saves and reads measurement values to/from RFID tags</li> <li>User selectable defined envelope filters and demodulation functionality</li> <li>Built-in IEPE (constant current) accelerometer power supply</li> <li>High resolution (0.3Hz) frequency spectra from 0Hz to 15kHz</li> <li>Rugged fully waterproof construction meets IP67 and MIL-STD-810F requirements.</li> </ul>	<ul style="list-style-type: none"> <li>Commercial/Industrial HVAC</li> <li>Food Processing</li> <li>Manufacturers</li> <li>Mining</li> <li>Packaging</li> <li>Petrochemical</li> <li>Printing &amp; Paper Processing</li> <li>Utilities</li> </ul>
<b>9060 Balancer</b> Balancing wizard: single and two plane balancing wizards guide you through the process of balancing.	<b>RPM Measurement</b> 10 RPM to 50,000 RPM  <b>Balancing RPM Range</b> 60 RPM to 6,000 RPM  <b>Input Range</b> +/- 50g with standard TPI accelerometer +/- 5g with high sensitivity TPI accelerometer  <b>Dynamic Range</b> +/- 50g to +/- 0.01g with standard TPI accelerometer +/- 5g to +/- 0.001g with high sensitivity TPI accelerometer  <b>Rotor Types</b> 4 predefined rotor types for two plane balancing: Symmetrical / Outboard Place / Overhung / Narrow	<ul style="list-style-type: none"> <li>Easy to use balancing in single and two planes with balancer wizard</li> <li>Built-in ISO quality grade levels and RPM measurement</li> <li>Value priced</li> <li>MIL-SPEC case Automated report generation</li> <li>Automatic report generator on PC with balancer results + graphs</li> </ul>	<ul style="list-style-type: none"> <li>Commercial / Industrial HVAC</li> <li>Food Processing</li> <li>Manufacturers</li> <li>Mining</li> <li>Packaging</li> <li>Petrochemical</li> <li>Printing &amp; Paper Processing</li> <li>Utilities</li> </ul>



**9010  
Lube**

**9000  
Inspection**

PRODUCT No.	FEATURES	BENEFITS	MARKETS
<p><b>9010 Lube</b> Measure bearing noise before, during and after lubrication. Determine optimum lubrication levels. Record and trend lube usage. Auto identifies lube points and lube type..</p>	<p><b>Displayed</b> Units Bearing noise in BDU (bearing damage units) 100 BDU = 1g RMS</p> <p><b>Displayed Lube Units</b> Number of pumps added, Liters, cc's, Fluid Ounces or user defined</p> <p><b>RFID (optional)</b> 13.56 MHz I-Code SL</p> <p><b>RFID Data Format</b> Stores lube point ID, last reading, lube type etc</p> <p><b>Accelerometer Connection</b> IEPE BNC</p>	<ul style="list-style-type: none"> <li>• Measure bearing noise before, during and after lubrication</li> <li>• Determine optimum lubrication levels</li> <li>• Record and trend lube usage</li> <li>• Auto identifies lube points and lube type</li> <li>• Easy to follow routes</li> <li>• Record and trend ALL process information</li> <li>• Optional RFID feature allows you to save readings to RFID tags</li> </ul>	<ul style="list-style-type: none"> <li>• Commercial/Industrial HVAC</li> <li>• Food Processing</li> <li>• Manufacturers</li> <li>• Mining</li> <li>• Packaging</li> <li>• Petrochemical</li> <li>• Printing &amp; Paper Processing</li> <li>• Utilities</li> </ul>
<p><b>9000 Inspection</b> Verify inspections are getting done. Easy To use. Consistently capture the same Metrics for every asset. Value priced. Rugged IP67 case. Automated report generation.</p>	<ul style="list-style-type: none"> <li>• <b>Handheld PC with touch screen and keypad entry capability.</b></li> <li>• <b>User defined inspection criteria prompts the operator during inspections</b></li> <li>• <b>Answers are uploaded to the included trending software that automatically flags warnings and alarms</b></li> <li>• <b>The software is capable of sending alert emails as well</b></li> <li>• <b>Optional RFID feature allows assets to be easily recognized by assigning them RFID tags</b></li> </ul>	<ul style="list-style-type: none"> <li>• Easy to use</li> <li>• Consistently capture the same metrics for every asset</li> <li>• Optional RFID for route verification</li> <li>• Value priced</li> <li>• Ruggedized IP67 case</li> <li>• Automated report generation</li> </ul>	<ul style="list-style-type: none"> <li>• Commercial / Industrial HVAC</li> <li>• Food Processing</li> <li>• Manufacturers</li> <li>• Mining</li> <li>• Packaging</li> <li>• Petrochemical</li> <li>• Printing &amp; Paper Processing</li> <li>• Utilities</li> </ul>

## Smart Vibration Meter



**9070  
Smart  
Vibration  
Meter**

PRODUCT No.	FEATURES	BENEFITS	MARKETS
<p><b>9070 The Smart Vibration Meter</b></p>	<ul style="list-style-type: none"> <li>• <b>Full Color OLED Display</b></li> <li>• <b>Built-in accelerometer with interchangeable stinger and magnetic mount</b></li> </ul>	<ul style="list-style-type: none"> <li>• ISO Built-in Alarms</li> <li>• Easily identify bearing problems with BDU Reading</li> <li>• Easily identify balance, alignment, looseness problems with our built in band filters</li> <li>• 800 line FFT (spectrum)</li> <li>• Ruggedized IP67 case</li> <li>• 3-year Limited Warranty</li> </ul>	<ul style="list-style-type: none"> <li>• Commercial/Industrial HVAC</li> <li>• Food Processing</li> <li>• Manufacturers</li> <li>• Mining</li> <li>• Packaging</li> <li>• Petrochemical</li> <li>• Printing &amp; Paper Processing</li> <li>• Utilities</li> <li>• Automotive</li> </ul>



PRODUCT No.	MEASUREMENTS	RANGES	FEATURES & BENEFITS	APPLICATIONS
<b>556C1</b> Air Velocity	<b>Air Velocity</b> <b>Air Flow:</b> <b>Temperature</b>	80ft./min. to 5916ft./min 0cfm to 9999cfm -5°F to 175°F (-20°C to 80°C)	<ul style="list-style-type: none"> <li>• Measure air velocity, air flow and temperature</li> <li>• Five units of air velocity (m/s, km/hr, mile/hr, knots, ft/min)</li> <li>• Two units of air flow (cfm, cmm)</li> <li>• Send real time and logged data to a PC via optional A500 interface cable</li> <li>• Four digit dual line display simultaneously shows air flow and temperature</li> <li>• Data record displays minimum, maximum and average readings</li> <li>• Data log up to 1000 readings in 1 sec to 999 sec intervals</li> </ul>	<ul style="list-style-type: none"> <li>• Air velocity measurements in heating, ventilation and air conditioning systems</li> <li>• Air duct analysis</li> <li>• Fume hoods</li> <li>• Floor registers</li> <li>• Exhaust grills</li> </ul>
<b>575C1</b> Digital Combo vane & hotwire anemometer	<b>Air Velocity</b>          <b>Temperature</b>	Vane: 80 to 4900 ft/min (0.4 to 25 m/s) Hot Wire: 40 to 3900 ft/min (0.2 to 20 m/s) -5°F to 175°F (-20°C to +80°C)	<ul style="list-style-type: none"> <li>• Measure air velocity and temperature simultaneously</li> <li>• Record max, min &amp; avg</li> <li>• Multiple measuring units: m/s, km/h, ft/min, knots, mile/h</li> <li>• Download to a computer using the optional A500 cable</li> </ul>	<ul style="list-style-type: none"> <li>• Air velocity measurements in heating, ventilation and air conditioning systems</li> <li>• Air duct analysis</li> <li>• Fume hoods</li> <li>• Floor registers</li> <li>• Exhaust grills</li> </ul>



PRODUCT No.	MEASUREMENTS	RANGES	FEATURES & BENEFITS	APPLICATIONS
<b>597C1</b> Digital Hygrometer/ Psychrometer	<b>Relative Humidity (RH)</b> <b>Ambient Temperature</b> <b>Dew Point</b>  <b>Wet Bulb</b>	0 to 100% -40°F to 122°F -40°C to 50°C -40°F to 176°F -40°C to 80°C 41°F to 140°F 5°C to 60°C	<ul style="list-style-type: none"> <li>• Data record function for maximum &amp; minimum temperature of humidity reading</li> <li>• Serial output through RS-232</li> <li>• 39" cable length, hard wired</li> <li>• Auto power off</li> <li>• Protective rubber boot</li> </ul>	<ul style="list-style-type: none"> <li>• Building maintenance</li> <li>• Computer rooms</li> <li>• Heating &amp; air conditioning systems</li> <li>• Bakeries</li> <li>• Humidistats calibration</li> </ul>



PRODUCT No.	MEASUREMENTS	RANGES	FEATURES & BENEFITS	APPLICATIONS
<b>1008a</b> Handheld Indoor Air Quality Meter	<b>CO2</b> <b>Temperature</b>	0 to 5000ppm -5 to 140°F (-20 to 60°C)	<ul style="list-style-type: none"> <li>• Measure Carbon Dioxide (CO2) levels</li> <li>• Measure ambient air temperature</li> <li>• Log up to 48 readings in 30 minute intervals</li> <li>• Send test data to a PC with included USB cable and software</li> <li>• Print test data with optional A740 printer</li> </ul>	<ul style="list-style-type: none"> <li>• Check ambient CO2 levels in work and living spaces</li> <li>• Monitor results of control systems</li> <li>• Measure Ambient air temperature</li> </ul>
<b>1010a</b> Handheld Indoor Air Quality Meter w/ CO and humidity measurement	<b>CO2</b> <b>Temperature</b> <b>Relative Humidity</b> <b>Dew Point</b> <b>Wet Bulb</b> <b>CO</b> <b>% outside air (calculated)</b>	0 to 5000ppm -5 to 140°F (-20 to 60°C) 5 to 95% -47 to 135°F (-44 to 57°C) 3 to 135°F (-16 to 57°C) 0 to 500ppm 0 to 100	<ul style="list-style-type: none"> <li>• Calculate percent outside air to maintain acceptable CO2 levels in buildings and work spaces</li> <li>• Measure and display Carbon Dioxide (CO2) and Carbon Monoxide</li> <li>• Measure ambient air temperature</li> <li>• Measure relative humidity, dew point and wet bulb</li> <li>• Log up to 10,000 readings in 1 second to 1 hour intervals</li> <li>• Send test data to a PC with included USB cable and software</li> <li>• Print test data with date and time stamp using optional A740 printer</li> </ul>	<ul style="list-style-type: none"> <li>• Check ambient CO and CO2 levels in work and living spaces</li> <li>• Monitor results of air control systems</li> <li>• Ambient air temperature and Humidity</li> <li>• Test dew point and wet bulb humidity</li> </ul>



PRODUCT No.	SPECIFICATIONS	FEATURES & BENEFITS	APPLICATIONS
<b>1020</b> Handheld Particle Counter	<p><b>Particle Size Range:</b> 0.3, 0.5, 1, 2, 5 micron size selectable</p> <p><b>Concentration Range:</b> 0 to 3,000,000 particles per cubic foot</p> <p><b>Sensitivity:</b> 0.3 microns</p> <p><b>Display:</b> 16 character 2 line LCD</p>	<ul style="list-style-type: none"> <li>• Single channel with ranges of 0.3, 0.5, 1, 2, 5 microns capable of showing cumulative particle counts</li> <li>• USB2 output</li> <li>• Simple menu system to select particle sizes and sample time</li> </ul>	<ul style="list-style-type: none"> <li>• Controlled environments</li> <li>• Indoor air quality</li> <li>• Process control</li> <li>• Filter testing</li> <li>• Compliance testing</li> <li>• Emission sourcing</li> <li>• Remote sampling</li> </ul>



PRODUCT No.	DESCRIPTION
<b>40 / 45 / 50</b> AC Volt Testers	<p><b>Determine the presence or absence of AC voltage without disconnecting the system in question.</b></p> <ul style="list-style-type: none"> <li>• No switch required, always 'on' ready for use</li> <li>• Uses 2 AAA batteries (included)</li> <li>• UL listed</li> <li>• Lifetime warranty</li> <li>• 40 (low voltage): Red glow indicates presence of 24-90 V</li> <li>• 45: Red glow (visual alarm) indicates presence of 50-1,000 V</li> <li>• 50: Audible buzzer and visual alarm, red glow indicates presence of 50-1,000 V</li> </ul>
<b>395</b> Handheld Refractometer	<p><b>Use the 395 to determine the freezing point of fluids including those used in hydronic heating systems.</b></p> <ul style="list-style-type: none"> <li>• Test propylene glycol, ethylene glycol and battery fluids</li> <li>• Does not degrade like litmus paper; allows for more accurate readings</li> <li>• Cushioned eye piece for easy viewing</li> <li>• Smooth focus adjustment for reliable repeat testing</li> </ul>
<b>397</b> pH Meter - Pen Style	<ul style="list-style-type: none"> <li>• Wide pH range of 0.10-14.00pH covers most applications</li> <li>• Operating temperature from 40 - 120 °F (5 - 50 °C); for temperature compensated readings</li> <li>• Waterproof design protects the meter during use</li> <li>• Low power consumption extends battery life for low operation costs</li> <li>• Auto-off function turns power off automatically after 10 minutes</li> <li>• Replaceable Glass Test Tip Electrode that screws on for ease of use</li> <li>• Protective case included for storage</li> </ul>
<b>505</b> Photo/Contact Tachometer Surface Speed	<p><b>Use the 505 photo / contact tachometer to determine RPM and surface speed</b></p> <ul style="list-style-type: none"> <li>• Non-contact (photo) and contact RPM and surface speed</li> <li>• Wide Measuring Range: 0.5 to 30,000 RPM</li> <li>• Last measurement, maximum measurement and minimum measurement automatically saved and recalled</li> </ul>
<b>510</b> Solar Irradiance Meter	<p><b>Use the 510 to measure electromagnetic radiation (irradiance)</b></p> <ul style="list-style-type: none"> <li>• Displays results in W/m<sup>2</sup> or BTU</li> <li>• 0 to 1999 W/m<sup>2</sup> (0 to 634 BTU) range</li> <li>• Min / Max and Data hold functions</li> </ul>
<b>810</b> Fiber Optic	<p><b>Use the 810 to perform non-invasive visual inspections of equipment including heat exchangers</b></p> <ul style="list-style-type: none"> <li>• Small 0.26 inch tip diameter</li> <li>• Hi-resolution 8,000 pixel image offers enhanced vision and clarity</li> <li>• Obedient wand maintains position after adjustment and protects fiber optic bundle</li> <li>• Sealed tip for use in non-corrosive liquids</li> <li>• Super bright LED flashlight light source provides longer battery life</li> <li>• Detect refrigerant dye with optional A813 blue light source</li> </ul>








PRODUCT No.	DESCRIPTION
SAIT25 IRT	<p><b>Digital Insulation Resistance Tester (IRT)</b></p> <ul style="list-style-type: none"> <li>• Test Voltages: 250V/500V/1,000V</li> <li>• Insulation Resistance: 100MΩ/200MΩ/400MΩ</li> <li>• Continuity: 2Ω/20Ω</li> <li>• Includes A085 UL listed silicone test lead set with screw on alligator clips and A073 test lead set with large alligator clips</li> </ul>
SAIT200 IRT	<p><b>Analog Insulation Resistance Tester (IRT) with large scale</b></p> <ul style="list-style-type: none"> <li>• Test Voltages: 250V/500V/1,000V</li> <li>• Insulation Resistance: 100MΩ/200MΩ/400MΩ</li> <li>• Continuity: 2Ω/20Ω</li> <li>• Includes A085 UL listed silicone test lead set with screw on alligator clips and A073 test lead set with large alligator clips</li> </ul>
SDIT30 IRT	<p><b>Digital Insulation Resistance Tester (IRT)</b></p> <ul style="list-style-type: none"> <li>• Test Voltages: 250V/500V/1,000V</li> <li>• Insulation Resistance: 2,000MΩ/2,000MΩ/2,000MΩ</li> <li>• Continuity: 200Ω</li> <li>• Includes A085 UL listed silicone test lead set with screw on alligator clips and A073 test lead set with large alligator clips</li> </ul>
SDIT300 IRT	<p><b>Digital Insulation Resistance Tester (IRT) with AC volts</b></p> <ul style="list-style-type: none"> <li>• Test Voltages: 250V/500V/1,000V</li> <li>• Insulation Resistance: 20MΩ/200MΩ/2,000MΩ</li> <li>• AC Voltage: 200V/600V</li> <li>• Continuity 20Ω/200Ω</li> <li>• Includes A085 UL listed silicone test lead set with screw on alligator clips and A073 test lead set with large alligator clips</li> </ul>
SPD480 Phase Rotation Indicator	<p><b>The SPD480 determines phase rotations on secondary potential transformers</b></p> <ul style="list-style-type: none"> <li>• Easy to operate - connect one lead to each phase.</li> <li>• Large alligator clips for easy connection to cables and bus bars.</li> <li>• Operates properly on variable frequency drives. Does not give false readings by pulsed waveforms.</li> <li>• Verify proper rotation on feeder extensions.</li> <li>• Determine phase rotation on secondary potential transformers.</li> </ul>












PRODUCT No.	FEATURES
<b>390</b> TDS / Salt Meter	Measure the concentration of total dissolved solids (TDS) and salt (NaCl). Test TDS levels to determine water purity and filtration performance levels. Measure the amount of salt in food, seafood, and processed foods to monitor overall salt intake. <b>Salt Measurement range:</b> 0.001% to 5.0% <b>Temperature Measurement Range:</b> 32°F to 212°F (0°C to 100°C) <b>TDS Measurement Range:</b> 0 to 999ppm (mg/L)
<b>K-type thermocouple calibrator</b>	<b>VKF300M K-type thermocouple calibrator:</b> Perform on-site K-type thermometer calibration verification. K-Type output: -4°F, 32°F, 41°F 212°F and 428°F Accuracy: +/-1°F at 79°F (Centigrade Version: VKC300M)
<b>Temperature verification test caps:</b>	Use to verify proper calibration of TPI thermistor thermometers with bi-pole and Lumberg probe connectors.
<b>Bi-Pole Thermistor Test Cap</b>	<b>Bi-Pole Thermistor Test Cap</b> VX11B.....-18°C or -0.4°F VX12B .....0°C or 32°F VX13B .....70°C or 158°F
<b>Lumberg Thermistor Test Caps</b>	<b>Lumberg Thermistor Test Caps</b> VX11L..... 0.4 F or -18 °C VX12L .....32 F or 0 °C VX13L .....158 F or 70 °C
<b>A385</b> IR Validator	Use to verify the calibration of infrared thermometers. <ul style="list-style-type: none"> <li>• Connect a reference thermometer, like the 367, 341K, or 315C to the test port on the side of the A385.</li> <li>• Insert the nose of the infrared thermometer into the validator and allow the reading to stabilize.</li> <li>• Compare the displayed reading to the reference thermometer</li> </ul>
<b>A304</b> tilt stand protective boot for the 340, 341K and 351	Enjoy upright viewing. Built-in stand also frees the hand. Store your instrument face down inside boot to protect the screen. The A304 comes standard on the 340, 341, and 351 temperature testers

















# Modular Test Leads

MODEL # DESCRIPTION	VOLTAGE / AMPERAGE RATING	AGENCY LISTING		CATEGORY RATING	INSULATION MATERIAL	DIMENSION	TYPE
<b>A079</b> Fixed Shroud to Fixed Shroud	Maximum Voltage: 1000V Maximum Amperage: 10A	Cul us 61010 IEC 61010		CAT III 1000V	Silicone	Lead Length: 3.9 feet (1.2 Meter) Prod Length: N/A Jaw Opening: N/A	0.16" (4.0mm) Shroud plug & 0.16" (4.0mm) Shroud plug
<b>A081</b> 90° Fixed Shroud to Shutter Plug	Maximum Voltage: 1000V Maximum Amperage: 10A	cULus 61010 IEC 61010		CAT III 1000V	Silicone	Lead Length: 3.9 feet (1.2 Meter) Prod Length: N/A Jaw Opening: N/A	0.16" (4.0mm) male banana plug
<b>A082</b> 90° Fixed Shroud to Fixed Shroud	Maximum Voltage: 1000V Maximum Amperage: 10A	cULus 61010 IEC 61010		CAT III 1000V	Silicone	Lead Length: 3.9 feet (1.2 Meter) Prod Length: N/A Jaw Opening: N/A	0.16" (4.0mm) male banana plug
<b>A086</b> Shutter Plug to Shutter Plug	Maximum Voltage: 1000V Maximum Amperage: 10A	cULus 61010 IEC 61010		CAT III 1000V	Silicone	Lead Length: 3.9 feet (1.2 Meter) Prod Length: N/A Jaw Opening: N/A	0.16" (4.0mm) Shutter Plug & 0.16" (4.0mm) Shutter Plug
<b>A087</b> Fixed Shroud to Shutter Plug	Maximum Voltage: 1000V Maximum Amperage: 10A	cULus 61010 IEC 61010		CAT III 1000V	Silicone	Lead Length: 3.9 feet (1.2 Meter) Prod Length: N/A Jaw Opening: N/A	0.16" (4.0mm) male banana plug

## Modular Tips

MODEL # DESCRIPTION	VOLTAGE / AMPERAGE RATING	AGENCY LISTING		CATEGORY RATING	DIMENSION	TYPE
<b>A034</b> Small Fully Insulated Crocodile Clips Red and Black Set	Maximum Voltage: 50V Maximum Amperage: 10A	N/A		N/A	Lead Length: N/A Prod Length: N/A Jaw Opening: 0.16" (4.0mm)	0.16" (4.0mm) female Banana Plug
<b>A034B</b> Small Fully Insulated Crocodile Black Clip	Maximum Voltage: 50V Maximum Amperage: 10A	N/A		N/A	Lead Length: N/A Prod Length: N/A Jaw Opening: 0.16" (4.0mm)	0.16" (4.0mm) female Banana Plug
<b>A034R</b> Small Fully Insulated Crocodile Red Clip	Maximum Voltage: 50V Maximum Amperage: 10A	N/A		N/A	Lead Length: N/A Prod Length: N/A Jaw Opening: 0.16" (4.0mm)	0.16" (4.0mm) female Banana Plug
<b>A036</b> GS 38 Compliant Termination Red and Black Set	Maximum Voltage: 1000V Maximum Amperage: 0.5A	cULus 61010 IEC 61010		CAT III 1000V	Lead Length: N/A Prod Length: 0.12" (3.0mm) Jaw Opening: N/A	0.16" (4.0mm) female banana plug
<b>A036B</b> GS 38 Compliant Termination Black Clip	Maximum Voltage: 1000V Maximum Amperage: 0.5A	cULus 61010 IEC 61010		CAT III 1000V	Lead Length: N/A Prod Length: 0.12" (3.0mm) Jaw Opening: N/A	0.16" (4.0mm) female banana plug
<b>A036R</b> GS 38 Compliant Termination Red Clip	Maximum Voltage: 1000V Maximum Amperage: 0.5A	cULus 61010 IEC 61010		CAT III 1000V	Lead Length: N/A Prod Length: 0.12" (3.0mm) Jaw Opening: N/A	0.16" (4.0mm) female banana plug
<b>A037</b> Standard Red and Black Set	Maximum Voltage: 1000V Maximum Amperage: 10A	cULus 61010 IEC 61010		CAT III 1000V	Lead Length: N/A Prod Length: 0.08" (2.0mm) Jaw Opening: N/A	0.16" (4.0mm) female banana plug
<b>A037B</b> Standard prod Black Clip	Maximum Voltage: 1000V Maximum Amperage: 10A	cULus 61010 IEC 61010		CAT III 1000V	Lead Length: N/A Prod Length: 0.08" (2.0mm) Jaw Opening: N/A	0.16" (4.0mm) female banana plug
<b>A037R</b> Standard prod Red Clip	Maximum Voltage: 1000V Maximum Amperage: 10A	cULus 61010 IEC 61010		CAT III 1000V	Lead Length: N/A Prod Length: 0.08" (2.0mm) Jaw Opening: N/A	0.16" (4.0mm) female banana plug



MODEL # DESCRIPTION	VOLTAGE / AMPERAGE RATING	AGENCY LISTING		CATEGORY RATING	DIMENSION	TYPE
<b>A038</b> Hook Plunger Clip Red and Black Set	Maximum Voltage: 1000V Maximum Amperage: 10A	cULus 61010 IEC 61010		CAT III 1000V	Lead Length: N/A Prod Length: 0.4" (10.0mm) Jaw Opening: N/A	0.16" (4.0mm) female banana plug
<b>A038B</b> Hook Plunger Black Clip	Maximum Voltage: 1000V Maximum Amperage: 10A	cULus 61010 IEC 61010		CAT III 1000V	Lead Length: N/A Prod Length: 0.4" (10.0mm) Jaw Opening: N/A	0.16" (4.0mm) female banana plug
<b>A038R</b> Hook Plunger Red Clip	Maximum Voltage: 1000V Maximum Amperage: 10A	cULus 61010 IEC 61010		CAT III 1000V	Lead Length: N/A Prod Length: 0.4" (10.0mm) Jaw Opening: N/A	0.16" (4.0mm) female banana plug
<b>A039</b> Spade Terminal	Maximum Voltage: N/A Maximum Amperage: N/A	N/A		N/A	Lead Length: N/A Prod Length: N/A Jaw Opening: N/A	0.16" (4.0mm) female banana plug
<b>A039B</b> Spade Terminal Black	Maximum Voltage: N/A Maximum Amperage: N/A	N/A		N/A	Lead Length: N/A Prod Length: N/A Jaw Opening: N/A	0.16" (4.0mm) female banana plug
<b>A039R</b> Spade Terminal Red	Maximum Voltage: N/A Maximum Amperage: N/A	N/A		N/A	Lead Length: N/A Prod Length: N/A Jaw Opening: N/A	0.16" (4.0mm) female banana plug
<b>A052</b> Modular Plug Adaptor	Maximum Voltage: 1000V Maximum Amperage: 10A	N/A		N/A	Lead Length: N/A Prod Length: N/A Jaw Opening: N/A	M4.0/0.7 -0.16" (4.0mm) Shrouded Socket Plug
<b>A053</b> Banana Adaptor	Maximum Voltage: N/A Maximum Amperage: N/A	N/A		N/A	Lead Length: N/A Prod Length: N/A Jaw Opening: N/A	M4.0 / 0.7 thread 0.16" (4.0mm) Banana Plug
<b>A054</b> Probe Tip Red and Black Set (Sharp Steel Point)	Maximum Voltage: 1000V Maximum Amperage: 10A	cULus 61010 IEC 61010		CAT III 1000V	Lead Length: N/A Prod Length: 0.75" (19.00mm) / 0.08" (2.0mm) diameter Jaw Opening: N/A	0.16" (4.0mm) female banana plug
<b>A054B</b> Probe Tip Black (Sharp Steel Point )	Maximum Voltage: 1000V Maximum Amperage: 10A	cULus 61010 IEC 61010		CAT III 1000V	Lead Length: N/A Prod Length: 0.75" (19.00mm) / 0.08" (2.0mm) diameter Jaw Opening: N/A	0.16" (4.0mm) female banana plug
<b>A054R</b> Probe Tip Red (Sharp Steel Point )	Maximum Voltage: 1000V Maximum Amperage: 10A	cULus 61010 IEC 61010		CAT III 1000V	Lead Length: N/A Prod Length: 0.75" (19.00mm) / 0.08" (2.0mm) diameter Jaw Opening: N/A	0.16" (4.0mm) female banana plug
<b>A055</b> Prod set with Tapered Stainless Steel Tip, Red and Black Set	Maximum Voltage: 1000V Maximum Amperage: 10A	cULus 61010 IEC 61010		CAT III 1000V	Lead Length: N/A Prod Length: 0.43" (11.00mm) / 0.04" (0.9mm) diameter Jaw Opening: N/A	0.16" (4.0mm) female banana plug
<b>A055B</b> Prod set with Tapered Stainless Steel Tip, Black	Maximum Voltage: 1000V Maximum Amperage: 10A	cULus 61010 IEC 61010		CAT III 1000V	Lead Length: N/A Prod Length: 0.43" (11.00mm) / 0.04" (0.9mm) diameter Jaw Opening: N/A	0.16" (4.0mm) female banana plug
<b>A055R</b> Prod set with Tapered Stainless Steel Tip, Red	Maximum Voltage: 1000V Maximum Amperage: 10A	cULus 61010 IEC 61010		CAT III 1000V	Lead Length: N/A Prod Length: 0.43" (11.00mm) / 0.04" (0.9mm) diameter Jaw Opening: N/A	0.16" (4.0mm) female banana plug

MODEL # DESCRIPTION	VOLTAGE / AMPERAGE RATING	AGENCY LISTING		CATEGORY RATING	DIMENSION	TYPE
<b>A057</b> Back Probing Probes Part. Red and Black Set	Maximum Voltage: 600V Maximum Amperage: 10A	N/A		N/A	Lead Length: N/A Prod Length: 0.71" (18.8mm) / 0.04" (1.0mm) diameter Jaw Opening: N/A	0.16" (4.0mm) female banana plug
<b>A057B</b> Back Probing Probes Part. Black	Maximum Voltage: 600V Maximum Amperage: 10A	N/A		N/A	Lead Length: N/A Prod Length: 0.71" (18.8mm) / 0.04" (1.0mm) diameter Jaw Opening: N/A	0.16" (4.0mm) female banana plug
<b>A057R</b> Back Probing Probes Part. Red	Maximum Voltage: 600V Maximum Amperage: 10A	N/A		N/A	Lead Length: N/A Prod Length: 0.71" (18.8mm) / 0.04" (1.0mm) diameter Jaw Opening: N/A	0.16" (4.0mm) female banana plug
<b>A058</b> Flanged Fully Insulated Crocodile Clip. Red and Black Set	Maximum Voltage: 1000V Maximum Amperage: 10A	cULus 61010 IEC 61010		CAT III 600 V CAT II 1000V	Lead Length: N/A Prod Length: N/A Jaw Opening: 1.02" (26.00mm)	0.16" (4.0mm) female banana plug
<b>A058B</b> Flanged Fully Insulated Crocodile Clip. Black	Maximum Voltage: 1000V Maximum Amperage: 10A	cULus 61010 IEC 61010		CAT III 600 V CAT II 1000V	Lead Length: N/A Prod Length: N/A Jaw Opening: 1.02" (26.00mm)	0.16" (4.0mm) female banana plug
<b>A058R</b> Flanged Fully Insulated Crocodile Clip. Red	Maximum Voltage: 1000V Maximum Amperage: 10A	cULus 61010 IEC 61010		CAT III 600 V CAT II 1000V	Lead Length: N/A Prod Length: N/A Jaw Opening: 1.02" (26.00mm)	0.16" (4.0mm) female banana plug
<b>A066</b> 1000V Fully Insulated Crocodile Clip Red and Black Set	Maximum Voltage: 1000V Maximum Amperage: 10A	cULus 61010 IEC 61010		CAT III 1000V	Lead Length: N/A Prod Length: N/A Jaw Opening: 0.79" (20.00mm)	0.16" (4.0mm) female banana plug
<b>A066B</b> 1000V Fully Insulated Crocodile Black Clip	Maximum Voltage: 1000V Maximum Amperage: 10A	cULus 61010 IEC 61010		CAT III 1000V	Lead Length: N/A Prod Length: N/A Jaw Opening: 0.79" (20.00mm)	0.16" (4.0mm) female banana plug
<b>A066R</b> 1000V Fully Insulated Crocodile Red Clip	Maximum Voltage: 1000V Maximum Amperage: 10A	cULus 61010 IEC 61010		CAT III 1000V	Lead Length: N/A Prod Length: N/A Jaw Opening: 0.79" (20.00mm)	0.16" (4.0mm) female banana plug
<b>A067</b> Modular Grabber Clips. Red and Black Set	Maximum Voltage: 1000V Maximum Amperage: 10A	cULus 61010 IEC 61010		CAT III 1000V	Lead Length: N/A Prod Length: N/A Jaw Opening: 0.59" (15.00mm)	0.16" (4.0mm) male banana plug
<b>A067B</b> Modular Grabber Black Clip.	Maximum Voltage: 1000V Maximum Amperage: 10A	cULus 61010 IEC 61010		CAT III 1000V	Lead Length: N/A Prod Length: N/A Jaw Opening: 0.59" (15.00mm)	0.16" (4.0mm) male banana plug
<b>A067R</b> Modular Grabber Red Clip.	Maximum Voltage: 1000V Maximum Amperage: 10A	cULus 61010 IEC 61010		CAT III 1000V	Lead Length: N/A Prod Length: N/A Jaw Opening: 0.59" (15.00mm)	0.16" (4.0mm) male banana plug

MODEL # DESCRIPTION	VOLTAGE / AMPERAGE RATING	AGENCY LISTING		CATEGORY RATING	DIMENSION	TYPE
<b>A068</b> Safety Crocodile Clip Red and Black Set	Maximum Voltage: 1000V Maximum Amperage: 10A	cULus 61010 IEC 61010		CAT II 1000 V	Lead Length: N/A Prod Length: N/A Jaw Opening: 0.79" (20.00mm)	0.16" (4.0mm) male banana plug
<b>A068B</b> Safety Crocodile Black Clip	Maximum Voltage: 1000V Maximum Amperage: 10A	cULus 61010 IEC 61010		CAT II 1000 V	Lead Length: N/A Prod Length: N/A Jaw Opening: 0.79" (20.00mm)	0.16" (4.0mm) male banana plug
<b>A068R</b> Safety Crocodile Red Clip	Maximum Voltage: 1000V Maximum Amperage: 10A	cULus 61010 IEC 61010		CAT II 1000 V	Lead Length: N/A Prod Length: N/A Jaw Opening: 0.79" (20.00mm)	0.16" (4.0mm) male banana plug
<b>A069</b> Plunger Clip Red and Black Set	Maximum Voltage: 1000V Maximum Amperage: 5mA	cULus 61010 IEC 61010		CAT III 1000 V CAT IV 600 V	Lead Length: N/A Prod Length: 0.3" (7.50mm) / 0.3" (0.8mm) diameter Jaw Opening: 0.255" (6.50mm)	0.16" (4.0mm) male banana plug
<b>A069B</b> Plunger Black Clip	Maximum Voltage: 1000V Maximum Amperage: 5mA	cULus 61010 IEC 61010		CAT III 1000 V CAT IV 600 V	Lead Length: N/A Prod Length: 0.3" (7.50mm) / 0.3" (0.8mm) diameter Jaw Opening: 0.255" (6.50mm)	0.16" (4.0mm) male banana plug
<b>A069R</b> Plunger Red Clip	Maximum Voltage: 1000V Maximum Amperage: 5mA	cULus 61010 IEC 61010		CAT III 1000 V CAT IV 600 V	Lead Length: N/A Prod Length: 0.3" (7.50mm) / 0.3" (0.8mm) diameter Jaw Opening: 0.255" (6.50mm)	0.16" (4.0mm) male banana plug

## Fused Test Leads

MODEL # DESCRIPTION	VOLTAGE / AMPERAGE RATING	AGENCY LISTING		CATEGORY RATING	INSULATION MATERIAL	DIMENSION	TYPE
<b>A041</b> Silicone Fused Test Lead Set with Screw On Alligator Clips	Maximum Voltage: 600V Maximum Amperage: 5A	N/A		N/A	Silicone	Lead Length: 0.65" (16.5mm) Prod Length: 47" (1.2m) Jaw Opening: 0.28" (7mm)	0.16" (4mm) male banana plug
<b>A089</b> Deluxe Fuse Probe Kits 1000V GS 38 Compliant Fuse Probe Kit	Maximum Voltage: 1000V Maximum Amperage: 0.5A	Cul us 61010 IEC 61010		CAT III 1000V	3.9 feet (1.2 Meter) Double Skin Silicone Cable Multistranded very flexible copper core.	Lead Length: 3.9feet (1.2 Meter) Prod Length: 0.08" (2.0mm) Jaw Opening: 1.02" (26.0mm) (alligator lips)	500mA / 1000V / 50Kv 0.16" (4mm) male banana plug



# Fused Test Leads

MODEL # DESCRIPTION	VOLTAGE / AMPERAGE RATING	AGENCY LISTING		CATEGORY RATING	DIMENSION	TYPE
<b>A083</b> Fused Probe 2mm Fixed Tip Red and Black Set	Maximum Voltage: 1000V Maximum Amperage: 0.5A	CuI us 61010 IEC 61010		CAT III 1000V	Lead Length: N/A Prod Length: 0.08" (2.0mm) Jaw Opening: N/A	Fuse 500mA / 1000V/ 50kA
<b>A083B</b> Fused Probe 2mm Fixed Tip Black	Maximum Voltage: 1000V Maximum Amperage: 0.5A	CuI us 61010 IEC 61010		CAT III 1000V	Lead Length: N/A Prod Length: 0.08" (2.0mm) Jaw Opening: N/A	Fuse 500mA / 1000V/ 50kA
<b>A083R</b> Fused Probe 2mm Fixed Tip Red	Maximum Voltage: 1000V Maximum Amperage: 0.5A	CuI us 61010 IEC 61010		CAT III 1000V	Lead Length: N/A Prod Length: 0.08" (2.0mm) Jaw Opening: N/A	Fuse 500mA / 1000V/ 50kA
<b>A084</b> Fused Probe Screw in Flanged Crocodile Clip Red and Black Set	Maximum Voltage: 1000V Maximum Amperage: 0.5A	CuI us 61010 IEC 61010		CAT III 1000V CAT II 1000V	Lead Length: N/A Prod Length: N/A Jaw Opening: 1.02" (26.00mm)	Fuse 500mA / 1000V/ 50kA
<b>A084B</b> Fused Probe Screw in Flanged Crocodile Black Clip	Maximum Voltage: 1000V Maximum Amperage: 0.5A	CuI us 61010 IEC 61010		CAT III 1000V CAT II 1000V	Lead Length: N/A Prod Length: N/A Jaw Opening: 1.02" (26.00mm)	Fuse 500mA / 1000V/ 50kA
<b>A084R</b> Fused Probe Screw in Flanged Crocodile Red Clip	Maximum Voltage: 1000V Maximum Amperage: 0.5A	CuI us 61010 IEC 61010		CAT III 1000V CAT II 1000V	Lead Length: N/A Prod Length: N/A Jaw Opening: 1.02" (26.00mm)	Fuse 500mA / 1000V/ 50kA
<b>A088</b> Deluxe Fuse Probe Handle and Lead Assembly Red and Black Set	Maximum Voltage: 1000V Maximum Amperage: 0.5A	CuI us 61010 IEC 61010		CAT III 1000V	Lead Length: 47.9" (1.2m) Prod Length: N/A Jaw Opening: N/A	Temperature Rating: 0.16" (4mm) male banana plug use with A083 and A084
<b>A088B</b> Deluxe Fuse Probe Handle and Lead Assembly Black	Maximum Voltage: 1000V Maximum Amperage: 0.5A	CuI us 61010 IEC 61010		CAT III 1000V	Lead Length: 47.9" (1.2m) Prod Length: N/A Jaw Opening: N/A	Temperature Rating: 0.16" (4mm) male banana plug use with A083 and A084
<b>A088R</b> Deluxe Fuse Probe Handle and Lead Assembly Red	Maximum Voltage: 1000V Maximum Amperage: 0.5A	CuI us 61010 IEC 61010		CAT III 1000V	Lead Length: 47.9" (1.2m) Prod Length: N/A Jaw Opening: N/A	Temperature Rating: 0.16" (4mm) male banana plug use with A083 and A084



# Screw-on Test Leads





MODEL # DESCRIPTION	VOLTAGE / AMPERAGE RATING	AGENCY LISTING		CATEGORY RATING	INSULATION MATERIAL	DIMENSION	TYPE
<b>A035</b> Lighted Test Lead Red	Maximum Voltage: 1000V Maximum Amperage: 10A	Cul us 61010 IEC 61010		CAT III 1000V	Silicone	Lead Length: 1080.00mm Prod Length: 16.00mm Jaw Opening: N/A	0.16" (4.0mm) male banana Plug
<b>A050</b> Standard Test lead SET With Alligator clips, (PVC INSULA- TION)	Maximum Voltage: 600V Maximum Amperage: 10A	cULus 61010 IEC 61010		CAT II 600V	PVC	Lead Length: 3.9 feet (1.2 Meter) Prod Length: 0.64" (16.13mm) Jaw Opening (alligator clips): 0.45" (11.30mm)	0.16" (4mm) fixed right angle male banana plug
<b>A060</b> 6 foot Shielded Test Lead Set with Alliga- tor Clips	Maximum Voltage: 1000V Maximum Amperage: 10A	Cul us 61010 IEC 61010		CAT III 1000V CAT IV 600V	PVC	Lead Length: 72" (1829mm) Prod Length: 0.64" (16.13mm)	0.16" (4.0mm) Shutter Plug
<b>A065</b> 10 foot Shielded Test Lead Set with Alliga- tor Clips	Maximum Voltage: 1000V Maximum Amperage: 10V	N/A		N/A	PVC	Lead Length: 120" (3048mm) Prod Length: 120" (3048mm)	0.16" (4.0mm) Shutter Plug
<b>A070</b> UL Approved Test lead Set With Out Alligator Clips	Maximum Voltage: 1000V Maximum Amperage: 10A	cULus 61010 IEC 61010		CAT III 1000V CAT IV 600V	PVC	Lead Length: 47.2" (1200mm) Prod Length: 0.65" (16.5mm)	0.16" (4mm) fixed right angle male banana plug
<b>A075</b> UL Approved Test lead Set With Alligator Clips	Maximum Voltage: 1000V Maximum Amperage: 10A	cULus 61010 IEC 61010		CAT III 1000V CAT IV 600V	PVC	Lead Length: 47.24" (1200mm) Prod Length: 0.65" (16.5mm) Jaw Opening: 0.45" (11.30mm)	0.16" (4mm) fixed right angle male banana plug
<b>A080</b> Test leads with threaded tips.	Maximum Voltage: 1000V Maximum Amperage: 10A	cULus 61010 IEC 61010		CAT III 1000V CAT IV 600V	Silicone	Lead Length: 3.9 feet (1.2 Meter) Prod Length: 0.64" (16.13mm)	0.16" (4mm) fixed right angle male banana plug
<b>A085</b> Test leads with threaded tips and screw on Alligator clips	Maximum Voltage: 1000V Maximum Amperage: 10A	cULus 61010 IEC 61010		CAT III 1000V CAT IV 600V	Silicone	Lead Length: 3.9 feet (1.2 Meter) Prod Length: 0.64" (16.13mm) Jaw Opening (alligator clips): 0.45" (11.30mm)	0.16" (4mm) fixed right angle male banana plug
<b>A150</b> Screw on Alligator Clips	Maximum Voltage: 1000V Maximum Amperage: 10A	cULus 61010 IEC 61010		CAT III 1000V CAT IV 600V	Silicone	Lead Length: N/A Prod Length: N/A Jaw Opening: 0.31" (8.00mm)	0.16" (4.0mm) X 0.28" (0.7mm) Thread

## Push-on Test Leads







MODEL # DESCRIPTION	VOLTAGE / AMPERAGE RATING	AGENCY LISTING		CATEGORY RATING	INSULATION MATERIAL	DIMENSION	TYPE
<b>A040</b> Standard Vinyl Test lead SET (PVC INSU- LATION)	Maximum Voltage: 600V Maximum Amperage: 10A	cULus 61010 IEC 61010		CAT II 600V	PVC	Lead Length: 47.24" (1.2m) Prod Length: 0.635" (16.13mm) Jaw Opening: NA	4mm fixed right angle male banana plug
<b>A140</b> Push-on Alligator Clips	Maximum Voltage: 30V AC/ 60V DC Maximum Amperage: 10mA	NA		NA	Rubber	Lead Length: N/A Prod Length: N/A Jaw Opening: 8.00mm	0.16" (4.0mm) X 0.28" (0.7mm) Thread



# Specialty Test Leads

MODEL # DESCRIPTION	VOLTAGE / AMPERAGE RATING	AGENCY LISTING		CATEGORY RATING	INSULATION MATERIAL	DIMENSION	TYPE
<b>A072</b> Standard Test Lead Set BLK Lead with Battery Clip for Insulation Resistance Testers	Maximum Voltage: 1000V Maximum Amperage: 10A	N/A		CAT III 1000V CAT IV 600V	PVC	Lead Length: 72" (1829mm) Prod Length: 0.65" (16.5mm) Jaw Opening: 0.60" (15.24mm)	0.16" (4mm) fixed right angle male banana plug
<b>A073</b> 4 foot Large Alligator Clip Leads for Insulation Resistance Testers	Maximum Voltage: 1000V Maximum Amperage: 10A	N/A		CAT III 1000V CAT IV 600V	Silicone	Lead Length: 48" (1219.20mm) Prod Length: N/A Jaw Opening: 0.60" (15.24mm)	0.16" (4mm) fixed right angle male banana plug
<b>A115</b> Thermocouple Adapter for Gas Valves	N/A	N/A		N/A	N/A	Lead Length: N/A Prod Length: N/A Jaw Opening: 0.60" (15.24mm)	0.16" (4mm) fixed right angle N/Ae male banana plug
<b>A130</b> Amp Adapter for DMM	Maximum Voltage: 600V Maximum Amperage: 15A & 30A	N/A		CAT III 600V	Silicone	Lead Length: 3.30" (1100mm) Prod Length: 0.635" (16.13mm) Jaw Opening: N/A	4mm banana plug

## Specialty Test Leads

MODEL # DESCRIPTION	VOLTAGE / AMPERAGE RATING	AGENCY LISTING		CATEGORY RATING	DIMENSION	TYPE
<b>A032R</b> 5-way Straight Nose Bed of Nails, Red Boot	Maximum Voltage: 60V DC Maximum Amperage: 10A	N/A		CAT III 1000V	Lead Length: N/A Prod Length: N/A Jaw Opening: 1.00" 25.4mm	Red
<b>A032B</b> 5-way Straight Nose Bed of Nails, Black Boot	Maximum Voltage: 60V DC Maximum Amperage: 10A	N/A		CAT III 1000V	Lead Length: N/A Prod Length: N/A Jaw Opening: 1.00" 25.4mm	Black
<b>A032BL</b> 5-way Straight Nose Bed of Nails, Blue Boot	Maximum Voltage: 60V DC Maximum Amperage: 10A	N/A		CAT III 1000V	Lead Length: N/A Prod Length: N/A Jaw Opening: 1.00" 25.4mm	Blue
<b>A033R</b> 5-way Bent Nose Bed of Nails, Red Boot	Maximum Voltage: 60V DC Maximum Amperage: 10A	N/A		CAT III 1000V	Lead Length: N/A Prod Length: N/A Jaw Opening: 1.00" 25.4mm	Red
<b>A033B</b> 5-way Bent Nose Bed of Nails, Black Boot	Maximum Voltage: 60V DC Maximum Amperage: 10A	N/A		CAT III 1000V	Lead Length: N/A Prod Length: N/A Jaw Opening: 1.00" 25.4mm	Black
<b>A033BL</b> 5-way Bent Nose Bed of Nails, Blue Boot	Maximum Voltage: 60V DC Maximum Amperage: 10A	N/A		CAT III 1000V	Lead Length: N/A Prod Length: N/A Jaw Opening: 1.00" 25.4mm	Blue



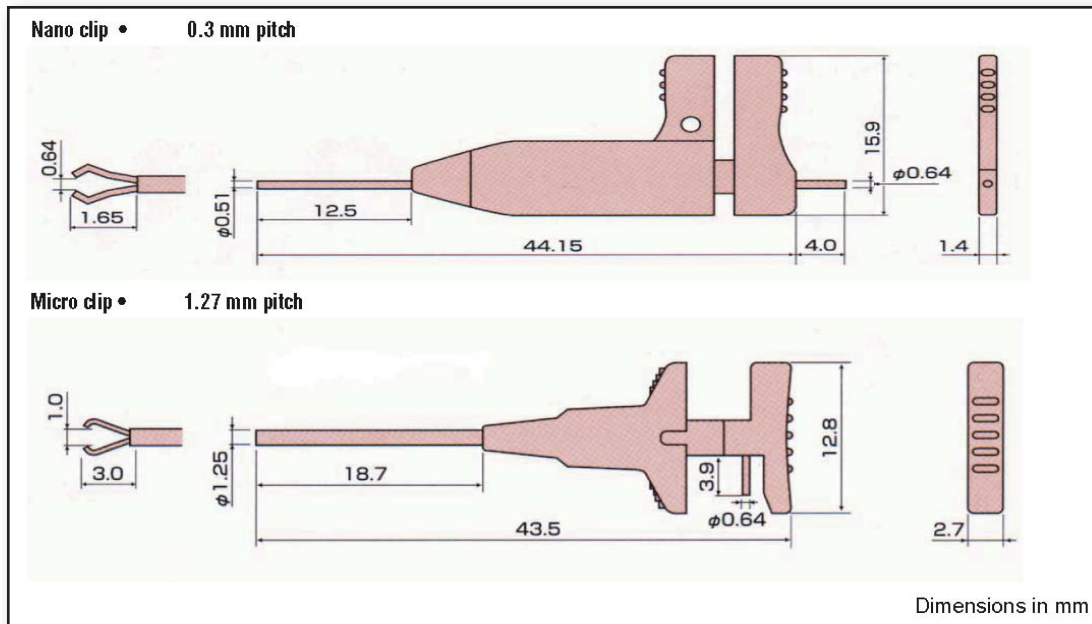
## Switchable Passive Oscilloscope Probes

MODEL #	BANDWIDTH	ATTENUATION	CABLE LENGTH	INPUT / IMPEDANCE	MAX INPUT V DC + PEAK AC	RISE TIME	COMPENSATION RANGE	READOUT	IEC1010
IP060	60MHz	x1 x10	1.5M	1 Meg / 200pF 10Meg / 22pF	600V	6ns	20-45 pF	NA	CAT II
IP100	100MHz	x1 x10	1.5M	1 Meg / 200pF 10Meg / 22pF	600V	6ns	20-45 pF	NA	CAT II
IP250	250MHz	x1 x10	1.5M	1 Meg / 200pF 10Meg / 22pF	600V	1.5ns	10 - 60pF	NA	CAT II
SP60B	60MHz	x1 x10	1.2M	1Meg / 47pF 10Meg / 18pF	600V	5.8ns	10 ~ 30pF	NA	CAT II
SP100B	100MHz	x1 x10	1.2M	1Meg / 47pF 10Meg / 16pF	600V	3.5ns	10 ~ 35pF	NA	CAT II
SP150B	150MHz	x1 x10	1.2M	1Meg / 47pF 10Meg / 15pF	600V	2.3ns	10 ~ 35pF	NA	CAT II
SP200B	200MHz	x1 x10	1.2M	1Meg / 47pF 10Meg / 15pF	600V	1.8ns	10 ~ 35pF	NA	CAT II
SP250B	250MHz	x1 x10	1.2M	1Meg / 47pF 10Meg / 14pF	600V	1.4ns	10 ~ 35pF	NA	CAT II
SP300B	300MHz	x1 x10	1.2M	1Meg / 47pF 10Meg / 13pF	600V	1.1ns	10 ~ 35pF	NA	CAT II

## Non-Switchable Passive Oscilloscope Probes

MODEL #	BANDWIDTH	ATTENUATION	CABLE LENGTH	INPUT / IMPEDANCE	MAX INPUT V DC + PEAK AC	RISE TIME	COMPENSATION RANGE	READOUT	IEC1010
1P20B	15MHz	x1	1.2M	1Meg 47pF	600V	23ns	NA	NA	NA
P100B	100MHz	x10	1.2M	10Meg 16pF	600V	3.5ns	10 ~ 35pF	NA	CAT II
P100BR	100MHz	x10	1.2M	10Meg 16pF	600V	3.5ns	10 ~ 35pF	Yes	CAT II
P200B	200MHz	x10	1.2M	10Meg 15pF	600V	1.8ns	10 ~ 35pF	NA	CAT II
P250	250MHz	x100	1.2M	100Meg 6.5pF	1,200V	1.4ns	10 ~ 35pF	NA	NA
P250R	250MHz	x100	1.2M	100Meg 6.5pF	1,200V	1.4ns	10 ~ 35pF	Yes	NA
P250B	250MHz	x10	1.2M	10Meg 14pF	600V	1.4ns	10 ~ 35pF	NA	CAT II
P250BR	250MHz	x10	1.2M	10Meg 14pF	600V	1.4ns	10 ~ 35pF	Yes	CAT II

FUNCTION	ADF25	ADF25A	ADF25C
<b>Bandwidth</b>	DC -25 MHz (-3dB)	DC -25 MHz (-3dB)	DC -70 MHz (-3dB)
<b>Accuracy</b>	± 2%	± 2%	± 2%
<b>Risetime</b>	14nS	14nS	14nS
<b>CMRR (Typical) @ 50Hz</b>	-80dB	-86dB	-80dB
<b>CMRR (Typical) @ 20kHz</b>	-60dB	-66dB	-60dB
<b>CMRR (Typical) @ 200kHz</b>	50dB	-56dB	50dB
<b>Input Impedance</b>	4M/10pf each side to ground 8M/5pF between inputs	4M/10pf each side to ground 8M/5pF between inputs	10M/10pf each side to ground 20M/5pF between inputs
<b>Input Voltage</b>	±140V DC Inc.Pk AC @ 20:1 or 100V RMS	±170V DC Inc.Pk AC @ 10:1 or 50V RMS	±700V DC Inc.Pk AC @ 100:1 or 400V RMS
<b>Input Voltage</b>	±140V DC Inc.Pk AC @ 20:1 or 100V RMS	±170V DC Inc.Pk AC @ 10:1 or 50V RMS	±700V DC Inc.Pk AC @ 100:1 or 400V RMS
<b>Output Voltage</b>	± 7V minimum 2KΩ load	± 7V minimum 2KΩ load	± 7V minimum 50KΩ load
<b>Offset (typical)</b>	<± 5mV -10° C to + 40° C	<± 5mV -10° C to + 40° C	<± 5mV -10° C to + 40° C
<b>Common Mode</b>	± 1,400V DC Inc. Pk AC or 1,000V RMS	± 1,400V DC Inc. Pk AC or 1,000V RMS	± 7,000VDC Inc. Pk AC 1,000:1 or 5,000V RMS
<b>Noise (typical)</b>	0.7mV RMS	0.7mV RMS	0.9mV RMS
<b>Output Source Impedance</b>	1Ω @ 1kHz. 8Ω @1 MHz	1Ω @ 1kHz. 8Ω @1 MHz	50Ω
<b>Operating Temperature</b>	-10° C to + 40° C (14°F to 104°F)	-10° C to + 40° C (14°F to 104°F)	-10° C to + 40° C (14°F to 104°F)
<b>Power Requirements</b>	4 AA cell or 6V main adapters: DC/600mA or DC/800mA	4 AA cell or 6V main adapters: DC/600mA or DC/800mA	4 AA cell or 6V main adapters: DC/600mA or DC/800mA
<b>Power Supply</b>	Not included	Not included	Not included
<b>Input Leads</b>	45 cm double insulated PVC terminated in 44 mm safety plugs	45 cm double insulated PVC terminated in 44 mm safety plugs	60 cm double insulated Rubber terminated in sprung hooks
<b>IEC1010</b>	CAT III	CAT III	CAT III



## FEATURES

### Access 0.3mm or 1.27mm Pitch Leads

Allows you to attached the clip to a lead on the smallest of surface mount IC's. Normal oscilloscope lead tips are too large and the probe handle is too heavy to access these leads.

### Gold-Plated hood and contact

Ensure minimal signal loss and constant contact with highly conductive gold plating. Fluorine Resin coated barrel extension The barrel of the clip is fully insulated eliminating the chance of clip shorting together.

### Assorted Colors

Clips are available in Black, Red, Yellow, Blue, Green and Gray for easy identification

## SPECIFICATIONS

Maximum Voltage: 25VDC

Maximum Amperage: 300mADC

## DESCRIPTION AND COLOR CHOICE SETS

Part No.	Description	Package Includes
<b>NANO CLIPS 0.3 mm</b>		
NC2BR	black, red	2 clips, 2 lead sets, and ground lead
NC6BR	black, red	6 clips, 3 lead sets, and ground lead
NC6R	red	6 clips, 3 lead sets, and ground lead
NC6B	black	6 clips, 3 lead sets, and ground lead
NC6Y	yellow	6 clips, 3 lead sets, and ground lead
NC6CBlue	blue	6 clips, 3 lead sets, and ground lead
NC6G	green	6 clips, 3 lead sets, and ground lead
NC6GY	gray	6 clips, 3 lead sets, and ground lead
NC12	assorted	12 clips, 6 lead sets, and ground lead
NC1B	black	1 clip
NC1GY	gray	1 clip
NC1Y	yellow	1 clip
NC1G	green	1 clip
NC1 Blue	blue	1 clip
NCGround	ground	1 lead
NCHot	hot	1 lead
NCDual	dual lead	1 lead
LC85	lead out contact	use with 24-28 AWG wire (solder type)
LC65	lead out contact	use crimp tool for Nano clips and micro clips
<b>MICRO CLIPS 1.27 mm</b>		
MC1B	black	1 clip
MC1G	gray	1 clip
MC1R	red	1 clip
MC6	assorted	6 clips
MC12	assorted	6 clips, 3 lead sets, and ground lead



# BNC to BNC Coax Cable Assemblies



## Features

- UL Listed Cable: Ensures quality and consistency in the cable construction.
- Boot is molded to cable connector for added strength: Limits the amount of bending the cable is exposed to at the connector to prevent cable breakage.
- Gold center pins: Ensures that there is a high quality connection maintaining the best return loss in high definition applications.
- Machined Brass Connectors: Unlike die-cast connectors, machined brass connectors have more precise tolerances, strength and positive mating meaning low signal loss for precise video and data applications.
- 95% Shielding: Keeps unwanted RF interference from infiltrating your signal giving you nice, clean output.
- 80° temperature rating: Applicable to any application found indoors.
- Lengths Available up to 100 ft.: Easily route cables into other rooms or floors.
- Individually bagged

## SPECIFICATIONS

		RG58	RG59	RG62
<b>Conductor</b>	Material	Bare Copper	Copper Clad Steel	
	No./mm	1/0.813	1/0.643	
<b>Insulation</b>	Material	Low Density Polyethylene		
	Color	Natural		
	Diameter (mm)	2.95	3.71	
<b>Braided Shielding</b>	Material	Bare Copper		
	No./mm	16/7/0.12	16/7/0.12	
<b>Jacket</b>	Material	Polyvinyl Chloride (PVC)		
	Thickness (mm)	0.72	0.9	1
	Color	Black		
	Outer Diameter (mm)	4.95 ±0.15	6.0 ±0.15	6.15 ±0.15
<b>General</b>	Tensile Strength	1,500 psi		
	Nominal Impedance (Ohm)	53.5	73	93
	Nominal Capacitance (pF/m)	93.5	68.9	44.3
	Attenuation 100MHz (db/km)	138	125	102
	Voltage Rating	30V		
	UL Standard	1354		

Cable Length Tolerance: 12 to 36 inch cables = +/- 1 inch  
Cables above 36 inches = +/- 1.5 inches

## MOLDED BNC TO BNC CABLE ASSEMBLIES

### RG58/U, BNC Male to Male Instrumentation & Data 50 Ohm

Part No.	Length
58-012-1M	12 inch
58-024-1M	24 inch
58-036-1M	36 inch
58-048-1M	48 inch
58-060-1M	60 inch
58-072-1M	72 inch
58-120-1M	10 feet
58-180-1M	15 feet
58-300-1M	25 feet
58-600-1M	50 feet
58-900-1M	75 feet
58-1200-1M	100 feet

### RG59/U, BNC Male to Male Video & General 75 Ohm

Part No.	Length
59-012-1M	12 inch
59-024-1M	24 inch
59-036-1M	36 inch
59-048-1M	48 inch
59-060-1M	60 inch
59-072-1M	72 inch
59-120-1M	10 feet
59-180-1M	15 feet
59-300-1M	25 feet
59-600-1M	50 feet
59-900-1M	75 feet
59-1200-1M	100 feet

### RG62/U, BNC Male to Male Computer & Lab 93 Ohm

Part No.	Length
62-024-1M	24 inch
62-036-1M	36 inch
62-048-1M	48 inch
62-060-1M	60 inch

### Assembled BNC to BNC Cable Assemblies RG58/U, BNC Male to Male Instrumentation & Data 50 Ohm

Part No.	Length
58-024-1A	24 inch
58-036-1A	36 inch
58-048-1A	48 inch
58-060-1A	60 inch



## Features



- UL Listed Cable: Ensures quality and consistency in the cable construction.
- RG-6: Cable type that is standard in the video and cable TV industry
- Molded Ends: Limits the amount of bending the cable is exposed to at the connector to prevent cable breakage.
- Screw-on F-Type Connectors: Ensure positive connection thus eliminating shadows in the picture.
- Lengths Available up to 100 ft.: Easily route cables into other rooms or floors.
- Available in black or white: Easily hide the cable along walls or behind equipment.
- Individually bagged

### SPECIFICATIONS



<b>Conductor</b>	Material	Copper Clad Steel
	No./mm	1/1.02
<b>Insulation</b>	Material	Foam Polyethylene
	Color	White
	Diameter (mm)	4.7
<b>Braided Shielding</b>	Material	Oxygen Free Copper
	No./mm	16/4/0.12
<b>Jacket</b>	Material	Polyvinyl Chloride (PVC)
	Thickness (mm)	1
	Color	Black or White
	Outer Diameter (mm)	7.2 ±0.2
<b>General</b>	Tensile Strength	1,500 psi
	Nominal Impedance (Ohm)	73
	Nominal Capacitance (pF/m)	59
	Attenuation 100MHz (db/km)	89
	Voltage Rating	30V
	UL Standard	1354

### PART NUMBER & DESCRIPTION




Color: Black		Color: White	
Part Number	Length	Part Number	Length
F6-3B	3ft.	F63W	3ft.
F6-6B	6ft.	F6-6W	6ft.
F6-10B	10ft.	F6-10W	10ft.
F6-12B	12ft.	F6-12W	12ft.
F6-15B	15ft.	F6-15W	15ft.
F6-25B	25ft.	F6-25W	25ft.
F6-50B	50ft.	F6-50W	50ft.
F6-75B	75ft.	F6-75W	75ft.
F6-100B	100ft.	F6-100W	100ft.



# Universal Cables & Connector Kits

MODEL	DESCRIPTION	KIT REPLACEMENTS
 <b>TPI-3000A</b>	<ul style="list-style-type: none"> <li>Includes 8 types of connectors for male and female adapters</li> <li>Simply screw on any combination of 24 connectors to any of the six universal interfaces with no soldering or crimping needed</li> <li>Reusable connectors can be used over and over in different combinations to fit and assist customizing the installation</li> <li>Works with universal cables GEX-60 (36"), GEX-48 (48"), and GEX-75 (72")</li> <li>Connector bodies are silver-plated machine brass with Teflon insulation</li> <li>Zippered soft case protects and organizes the individual pieces</li> </ul>	M = male F = female 1. TPI 3001 Universal Interface 2. TPI-3002 BNC M 3. TPI-3003 BNC F 4. TPI-3004 F M 5. TPI-3005 F F 6. TPI-3006 N M 7. TPI-3007 N F 8. TPI-3008 SMA M 9. TPI-3009 SMA F 10. TPI-3010 TNC M 11. TPI-3011 TNC F 12. TPI-3012 UHF M 13. TPI-3013 UHF F 14. TPI-3014 Mini. UHF M 15. TPI-3015 Mini UHF F 16. TPI-3020 RCA M 17. TPI-3021 RCA F
 <b>TPI-5000A</b>	<ul style="list-style-type: none"> <li>Includes 11 types of connectors for male and female adapters</li> <li>Simply screw on any combination of 35 connectors to any of the six universal interfaces with no soldering or crimping needed</li> <li>Reusable connectors can be used over and over in different combinations to fit and assist customizing the installation</li> <li>Works with universal cables GEX-60 (36"), GEX-48 (48") and GEX-75 (72")</li> <li>Connector bodies are silver-plated machine brass with Teflon insulation</li> <li>Hard plastic case protects and organizes the individual pieces 78 inches (2000mm)</li> </ul>	1. TPI 3024 Banana plug-Universal Interface Adapter 2. TPI-3025 BNC-Universal Interface "T" Fitting 3. TPI-3026 Terminal-Universal Interface Adapter 4. TPI-3009 SMA Female 5. TPI-3001 Universal Interface 6. TPI-3008 SMA Male 7. TPI-3007 N Female 8. TPI-3006 N Male 9. TPI-3012 UHF Male 10. TPI-3013 UHF Female 11. TPI-3005 F Female Adapter 12. TPI-3014 Mini UHF Male 13. TPI-3002 BNC Male 14. TPI-3020 RCA Male 15. TPI-3010 TNC Male 16. TPI-3004 F Male 17. TPI-3015 Mini UHF Female 18. TPI-3003 BNC Female 19. TPI-3021 RCA Female 20. TPI-3011 TNC Female/RCA / RCA

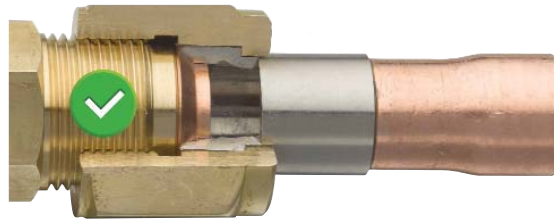
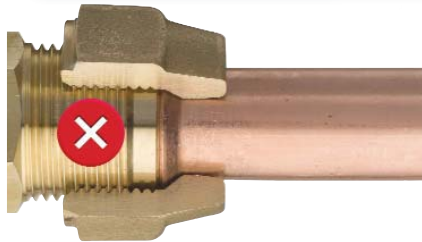
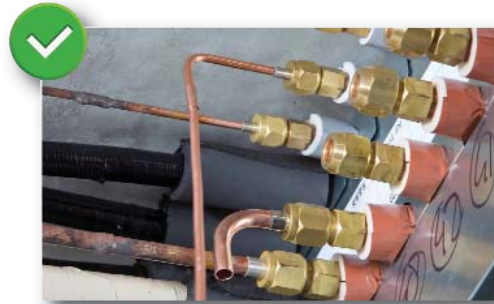
## Audio/Video Cables

MODEL #	DESCRIPTION	ELECTRICAL PERFORMANCE	MECHANICAL PERFORMANCE	INSULATION	LENGTH	DVI / DVI	
<b>CT001147</b>	DVI to DVI Cable	Dielectric Strength: 300VAC / 10ms Insulation Resistance: 10M min Contact Resistance: 2 Ohm max	89-110N cable pull force for 30 seconds		Black PVC Resin UL94V-0 rated	78 inches (2000mm)	DVI / DVI
<b>CT001148</b>	HDMI to HDMI Cable	Dielectric Strength: 300VAC / 10ms Insulation Resistance: 10M min Contact Resistance: 2 Ohm max	89-110N cable pull force for 30 seconds		Black PVC Resin UL94V-0 rated	78 inches (2000mm)	HDMI / HDMI
<b>CT001149</b>	HDMI to DVI Cable	Dielectric Strength: 300VAC / 10ms Insulation Resistance: 10M min Contact Resistance: 2 Ohm max	89-110N cable pull force for 30 seconds		Black PVC Resin UL94V-0 rated	78 inches (2000mm)	HDMI / DVI

MODEL #	DESCRIPTION	LENGTH	CONNECTOR	
<b>HPAVCC3</b>	Audio Video Cable (Red, Blue, Green)		78 inches (2000mm)	RCA / RCA
<b>HPACR3</b>	Audio Video Cable (Red)		78 inches (2000mm)	RCA / RCA
<b>HPACG3</b>	Audio Video Cable (Green)		78 inches (2000mm)	RCA / RCA
<b>HPACB3</b>	Audio Video Cable (Blue)		78 inches (2000mm)	RCA / RCA



# Leak Proof Flare Fittings



In spite of every effort by the HVAC technician to ensure a leak proof connection, standard flare connections often leak over time. The leaks occur due to improper flaring, when replacing a flare connection, or vibrations on the system, just to name a few.

Ensure leak free connections (especially for R410a) with the Flexflair series patented flare connector. The Flexflair series flare connector utilizes a renewable copper trumpet ring and a stainless steel core, which eliminates deformities or cracks that occur when traditional standard copper tube is flared. The unique construction of the Flexflair series flare adapter avoids tension and force on the "flare-connection." By simply replacing the copper trumpet ring after component change-out the Flexflair series flare connector can be used over and over with leak proof results.



## BENEFITS

- RELIABLE:**  
don't have call backs for leaks, especially 410A and high pressure refrigerants.
- EASY TO USE:**  
don't have to make a double flare.
- SAVE TIME & MONEY:**  
eliminates the time and trouble of the double flare.
- RE-USABLE CONNETION:**  
easy component change out with replaceable trumpet ring.

## FEATURES

- Renewable copper trumpet ring
- Stainless steel reinforced SAE core
- Heavy duty oversized nut
- Frost grooves
- Tight tolerances
- Swaged copper

## Flexflair Series

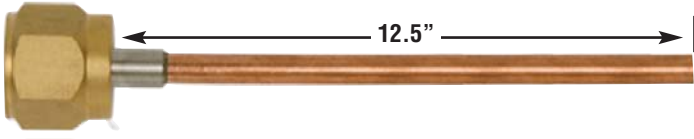

Standard Model	Connection			L/I		Reducing Model	Connection			L/I	
	SAE	ODF					SAE	ODF			
Type	Flare	inch	mm	mm	mm	Type	Flare	inch	mm	mm	mm
FA-2	1/4	1/4	6	45	6						
FA-3	3/8	3/8	10	45	9	FA-3x2	3/8	1/4	6	45	6
FA-4	1/2	1/2	12	54	10	FA-4x3	1/2	3/8	10	45	9
FA-5	5/8	5/8	16	68	13	FA-5x4	5/8	1/2	12	54	10
FA-6	3/4	3/4	18	68	15	FA-6x5	3/4	5/8	16	68	13
FA-7	7/8	7/8	22	87	17	FA-7x6	7/8	3/4	18	68	15

## Trumpet Rings

					
<b>TR-2</b> SAE 1/4	<b>TR-3</b> SAE 3/8	<b>TR-4</b> SAE 1/2	<b>TR-5</b> SAE 5/8	<b>TR-6</b> SAE 3/4	<b>TR-7</b> SAE 7/8

## Fame - S

Designed for the Mitsubishi BC and Samsung MCU controller/box

 <p>FA 3x2</p>	<p>Kit contains one FA 3x2 fitting and one FA 5x4 fitting, each with 12.5 inch long tube and one each TR-3 and TR-5 trumpet ring</p>									
	<p>FA 5x4</p> 	<table border="1"> <thead> <tr> <th>Type</th> <th>SAE</th> <th>ODF</th> </tr> </thead> <tbody> <tr> <td>FA 3x2</td> <td>3/8"</td> <td>1/4"</td> </tr> <tr> <td>FA 5x4</td> <td>5/8"</td> <td>1/2"</td> </tr> </tbody> </table>	Type	SAE	ODF	FA 3x2	3/8"	1/4"	FA 5x4	5/8"
Type	SAE	ODF								
FA 3x2	3/8"	1/4"								
FA 5x4	5/8"	1/2"								

