

Universal Zebra

Basic ECM Motor Testing and Troubleshooting for HVAC/R *Mini-Manual*



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Specifications

Maximum Input Voltage29 Volts AC

Unit Size6.5”L. x 4.5”W. x 2.25”H.

Unit Weight13 oz.

WarrantyOne Year Limited Warranty

A Replacement and/or Extension Harness with Connector is available - Part Number: UZREP.

This manual has information to help you safely use your *Universal Zebra* to test ECM Motors. Please read it completely before using your tool.

Safety Information

- This manual is NOT comprehensive training. Do not use this tool if you are not a trained and experienced HVAC Technician. Additionally, study the training videos located on www.UniversalZebra.com or order and watch the DVD before using this tool or a new adapter.
- ECM Motors and their power supply circuits have voltages that can be lethal. Capacitors inside Modules retain high voltages after the power supply is removed; heed the Motor's cautions and warnings to remain safe.
- Make certain that the 24VAC power source that you are connecting the UZ-1's alligator clips to is REALLY 24 VAC; even a brief touch of a clip to line voltage will probably destroy your tool and the Motor, and possibly expose you to dangerous voltages. Verify the voltage present at the connection point first!
- Inspect this tool before each use: If any part of the tool (including, but not limited to: the case; wire insulation; connection clips; or connection clip insulators) becomes damaged, loose, broken, or frayed, discontinue use of the tool until repaired or replaced. An accessory case designed to protect your adapters and the tool, is available from your Distributor, #UZACC.

Using the Universal Zebra

We know most Techs won't (*or don't want to*) study a thick manual for each of their tools. So, this mini-manual is **NOT** a complete tutorial on how to use the Universal Zebra System. Visit our website at: www.UniversalZebra.com, to watch short training videos on the UZ-1 and all available accessories.

Basic tool use involves:

- Selecting the correct adapter for the motor being tested.
- Plugging the adapter into the motor.
- Plugging the adapter into the UZ-1's harness.
- Placing the correct magnetic overlay in the UZ-1's lid (*reading any motor-specific instructions there.*)
- Providing 24VAC power to the UZ-1 through the alligator leads (*note that certain motors require you to attach the Black clip to 24V COMMON, and the Red clip to 24V HOT.*)
- Using some or all of the six available switch selections and LED indicators to test your motor in various conditions. (*Most motors won't have all six available speeds to test. Some, because they use serial data streams, can only be operated in one speed with this type of tool.*)
- A PWM adapter is also available to run those type motors from 0 to 100% of their rated speed.

Bench testing can now be performed on ECM Motors! Power harnesses with the special motor plugs required are now available; see www.UniversalZebra.com

Adapters!

The Universal Zebra System is constantly being improved. We are committed to designing new, low-cost adapters for every new ECM Motor that you might encounter, whenever possible. A sheet of adapters available on the date your UZ-1 was manufactured was shipped inside the tool; chances are that sheet was obsolete by the time that you received the tool.

Our website, www.UniversalZebra.com will list all new adapters on the day they become available, and we'll also list ones that are currently under development. If your Distributor doesn't have the ones you want, they can quickly order them for you.

Each adapter has a short Video Tutorial available for you to learn how to safely and effectively use it with the Universal Zebra System.

Please email us at the address on our website if you have encountered a motor that doesn't yet have an available adapter (or isn't listed as 'under development'), and you would like one. In 2010, we learned that nine new ECM motor manufacturers were producing new motors; there may be more that we haven't heard of yet. Our desire is to help all HVAC Tech's have the best available tools for ECM System diagnosis and repair. Visit our website for other tools, too.

Training Videos

Our website, www.UniversalZebra.com has a short tutorial video for the Universal Zebra tool and for each available adapter and accessory.

Since the number of available adapters is expected to be changing rapidly over the next few years, and a website video can be easily added for each new adapter or accessory, we encourage you to use the web to get information about any part of the Universal Zebra System.

We realize that while most HVAC Technicians have access to sufficiently fast internet service to comfortably watch these videos online, not every Tech will, nor will every Tech want to use that service.

Therefore, a DVD is available that has the same training videos available on the website. It can be played in a DVD player, and in many computers. The drawback of the DVD is that it only includes tutorials on current adapters. A new DVD must be ordered to see videos for products made afterwards. Your cost (including mailing in the USA) is \$3. Credit card orders may be placed by phone: 1-888-HI-ZEBRA. The post office discourages mailing currency, but if you do, please do not send coins. Our mailing address is available on the website.

Avoiding Problems & Help

Harnesses and adapters are designed to fit and test specific motor series. Do not attempt to test a motor that a UZ-1 adapter wasn't designed for; even if you think the connector may fit - improper voltages or conditions may exist that will damage the tool, the motor, or you. Instead, visit our website to see if an adapter is now available for that motor.

Make certain that the 24VAC power source that you are connecting the UZ-1's alligator clips to is REALLY 24 VAC; even a brief touch of a clip to line voltage will probably destroy your tool and motor, and possibly expose you to dangerous voltages. A safer way to connect is to connect the adapter to the motor *last*.

An extension or replacement harness set is available, see your Distributor or visit our web. Other tools, quality products, & hints are also available. See: **www.UniversalZebra.com** and **www.ZebraInstruments.com**

One Year Limited Warranty

For a period of one year from the original end-user's date of purchase, Zebra Instruments warrants that this tool is without manufacturing defects. Should you encounter any problems, please contact us and we will attempt to resolve your problem as quickly as possible. This resolution may include replacement, exchange, or repair of a defective tool; at our option. This warranty does not apply to tools that have been exposed to: voltages and/or currents that are higher than those specified in this manual; abuse or rough handling; any damage to connectors, harnesses, or adapters; or damage from moisture or chemicals. Out-of-warranty repairs are available for a nominal charge plus shipping. Please contact us for an RMA (return authorization number) before returning a tool for repair.

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