

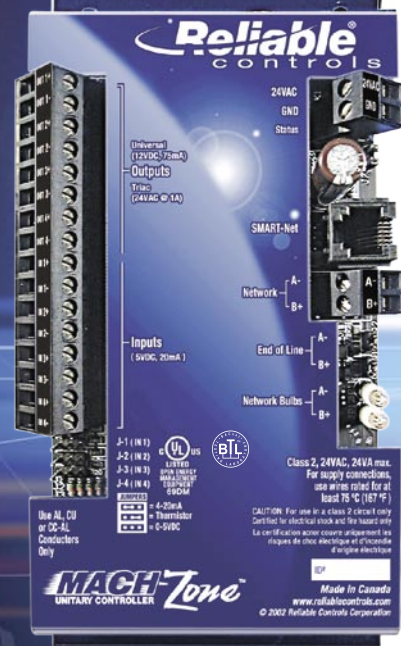
Reliable Controls MACH-System

# Reliable controls

...people and technology you can rely on™

- BACNET® LISTED DEVICE
- MOUNTS DIRECTLY TO EQUIPMENT OR IN ENCLOSURE
- FULLY PROGRAMMABLE, AND NETWORKABLE SINGLE ZONE CONTROLLER
- 4 UNIVERSAL INPUTS AND 4 UNIVERSAL OUTPUTS CONFIGURED BY USER
- EASY TO WIRE 45 DEGREE REMOVABLE CONNECTORS
- DATA ACQUISITION AND DATA STORAGE ONBOARD
- ROBUST POWDER-COATED STEEL PACKAGE
- 5 YEAR WARRANTY

## MACH-Zone™ UNITARY CONTROLLER



The Reliable Controls® MACH-Zone™ controller is an excellent solution for any small unitary single zone application, and ships with the Reliable Controls® *industry best* 5 year warranty.



The Reliable Controls<sup>®</sup> MACH-Zone<sup>™</sup> is a fully programmable, versatile BACnet<sup>®</sup> listed controller designed for unitary control applications. The MACH-Zone<sup>™</sup> controller is ideal for small rooftop and heat pump applications. The controller features 4 universal Inputs and 4 Universal Outputs with optional triac outputs. The MACH-Zone<sup>™</sup> ships standard with removable connectors and support for 4 SMART-Sensor<sup>™</sup> LCDs.

## TECHNICAL SPECIFICATION

- Processor**
- 25 MHz, high-performance 16-bit embedded microcontroller
- Memory**
- 32k RAM
  - 128k Flash EEPROM operating system firmware and controller configurations
  - Minimum 10 year retention
- Supply Voltages**
- 24 VAC/VDC, 24 VA max.
- Communications**
- EIA-485 @ 76.8 kbps max.
  - SMART-Net<sup>™</sup> (4 SMART-Sensors<sup>™</sup> max.)
- SETUP-Tool<sup>™</sup>**
- SETUP-Tool<sup>™</sup> required for configuration
- Universal Inputs**
- 4 universal inputs
  - 10-bit A/D converter
  - Analog: 0-5 VDC, 4-20 mA, thermistor
  - Digital: dry contact
  - Impedance: 15k  $\Omega$  on 0-5 VDC range, 250  $\Omega$  on 4-20 mA range, 10k  $\Omega$  on thermistor range
- 40 Hz pulse counting (supports flow meters)
  - 24 VAC over voltage protection
- Universal Outputs**
- 8 bit D/A converter
  - Analog: 0-12 VDC
  - Digital: 0-12 VDC
  - Output power: 75 mA @ 12 VDC
  - 24 VAC over voltage and short protection
- Triac Outputs**
- 24 VAC @ 0.5 A
  - Common return
- Dimensions**
- 15.5 cm L x 8.8 cm W x 2.5 cm H (6.25" L x 3.5" W x 1.0" H)
- Weight**
- 0.3 kg (1.0 lb.)
- Ambient Limits**
- Operating: 0 °C to 40 °C (32 °F to 104 °F)
  - Shipping: -20 °C to 60 °C (-40 °F to 140 °F)
  - Humidity: 10% to 90% RH non-condensing

## FEATURES

- Protocol**
- BACnet<sup>®</sup>
    - MS/TP (EIA-485)
  - Reliable Controls<sup>®</sup>
    - Network (EIA-485/Token Bus)
- 4 Control-BASIC<sup>™</sup> Programs**
- User programmable control strategy in a readable, BASIC-like language
  - 2000 bytes per program
- 4 Inputs**
- Universal ranges
  - Jumper selectable 0-5 VDC, 4-20 mA, thermistor, and dry contact
- 4 Outputs**
- Universal ranges (base model)
  - Scalable 0-12 VDC, 75 mA (max.)
  - Single stage triac
  - Dual stage triac
- 48 Variables**
- Selectable standard and custom ranges, as well as fixed or program-driven values
- 4 PID Controllers**
- Standard P, PI, or PID controllers for closed loop control
- 2 Trend Logs**
- Each trend log stores 72 samples of 6 points at programmable time intervals
- 4 Runtime Logs**
- Totals the on time and records the on/off times of a digital point
  - Holds 48 samples
- 2 System Groups**
- Allows related points to be grouped on to one display
  - 50 points/group
- 1 Weekly Schedule**
- 4 on/off times for each weekday and 2 override days
- 5 Custom Tables**
- For creating custom input ranges and Control-BASIC<sup>™</sup> lookup tables
- SMART-Net<sup>™</sup> Port**
- Networks up to 4 SMART-Sensors<sup>™</sup>
  - SMART-Sensor<sup>™</sup> #5 is dedicated to SETUP-Tool<sup>™</sup>
- 32 Network In Points**
- 32 Network Out Points**
- Warranty**
- 5 years
- Certification**
- BTL listed to ASHRAE Standard 135
  - ISO 16484-5
  - UL listed 916
  - FCC CFR47 Part 15/B
  - UUKL Pending

## ORDERING

- MZ-U** (base model)
- MACH-Zone<sup>™</sup> controller with 4 universal inputs and 4 universal outputs
- MZ-4T**
- Base model with 4 triac outputs
- MZ-RT**
- Base model with 2 dual stage triac, 1 single stage, triac, 1 universal output

## APPLICATION DIAGRAM

