



Get in the zone

Small, durable and packed with flexibility, the Reliable Controls® MACH-ProZone™ is a fully programmable BACnet Building Controller (B-BC) with highly scalable I/O in a very small footprint. The MACH-ProZone is ideal for a wide range of applications that include small to mid-sized roof top and heatpump applications, and small mechanical room applications.



Better by design

Tech Specs

Processor

- 66 MHz, high-performance, 32-bit embedded microcontroller with onboard Flash memory
- Controller database, values and configuration held in robust non-volatile memory
- Operating System firmware easily updated at any time over the network

Supply Voltages

- 24 VAC $\pm 10\%$ 25 VA max. 50/60 Hz
- 24 VDC $\pm 10\%$ 12 W max.

Communications

- EIA-485 @ 76.8 kbps max.
- SMART-Net™ (8 SMART-Sensors max.)
- Auto-baud detection

Universal Inputs

- 12-bit A/D converter
- Soft selectable: 0–10 VDC, 4–20 mA, thermistor/dry contact
- Impedance: 3M Ω on 0–10 VDC range 250 Ω on 4–20 mA range 20k Ω on thermistor range
- Pulse counting up to 40 Hz (supports flow meters)
- 24 VAC over-voltage protection

Universal Outputs

- 12-bit D/A converter
- Analog: 0–12 VDC
- Binary: 0/12 VDC
- Output power: 75 mA @ 12 VDC
- 24 VAC over-voltage and short protection
- Jumper selectable TRIAC

TRIAC Outputs

- 24 VAC @ 0.5 A

SETUP-Tool™

- SETUP-Tool optional for configuration

Real-time Clock (optional)

- ± 5 seconds per month

Memory/RTC Backup

- 72 hour backup
- 10 years for database

Terminal Blocks

- 12 to 30 AWG (3.31 mm² to 0.05 mm²)
- Stranded or solid core
- Copper conductors only

Dimensions

- 10.9 cm L x 19.1 cm W x 4.9 cm H (4 ⁵/₁₆" L x 7 ¹/₂" W x 1 ⁵/₁₆" H)

Features

Dynamic Database

- Allows a maximum of 128 objects to be created of any supported type in any model of controller
- Typical Object Configuration table (below) shows the usage of expanded memory

Protocol

- BACnet® - MS/TP (EIA-485)

Control-BASIC Programs

- 8500 bytes of programmable control strategy in a readable, BASIC-like language
- 3200 bytes per program

Inputs

- Universal ranges
- Soft selectable 0–10 VDC, 4–20 mA, thermistor/dry contact

Outputs

- Universal ranges
- Jumper selectable 0–12 VDC, or TRIAC

Variables

- Selectable standard and custom ranges, as well as fixed or program-driven values

PID Loops

- Standard P, PI, or PID controllers for closed loop control

Single-Point Trend Logs

- Stores 128 samples at programmable time intervals

Multipoint Trend Logs

- Each Trend Log stores 128 samples of 8 points at programmable time intervals

Runtime Report

- Records the total On time and the total number of transitions, as well as daily transitions for every binary point
- A 50 sample runtime log is optional for each binary point

System Groups

- Allows related points to be grouped onto one display
- 80 points/group

Schedules

- 7 On/Off times for each weekday or exception

Calendars

- Days of the year designated as holidays

Arrays

- Up to 128 elements in a one-dimensional array

Tables

- For creating custom input ranges and Control-BASIC™ lookup tables

Custom Units

- 8 analog engineering units
- 8 binary engineering units
- 8 multistate units with 8 states, 32-characters each

SMART-Net Port

- Networks up to 8 SMART-Sensors™

64 Network In Points

32 Network Out Points

- The total maximum number of writes and shares to other devices

Warranty

- 5 years

Certification

- BTL Listed (B-BC)
- UL916 Listed
- CE

Ordering

MPZ-44-XM

- MACH-ProZone controller with 4 inputs, 4 outputs, and expanded memory

MPZ-48-XM

- MPZ controller with 4 inputs, 8 outputs, and expanded memory

MPZ-84-XM

- MPZ controller with 8 inputs, 4 outputs, and expanded memory

MPZ-88

- MPZ controller with 8 inputs, 8 outputs, and expanded memory

Accessories

MPZ-DL

- Door lid decal kit for MPZ series

KN-JB4

- 4 position insulated jumper bar for MPZ (package of 10)

Options

- C Adds battery backup for real-time clock

Mounting

- DIN rail, or
- #8 clearance holes on 17.8 cm W (7" W) centerline

Weight

- 0.3 kg (0.7 lb.)

Ambient Limits

- Operating: -20 °C to 55 °C (-4 °F to 131 °F)
- Shipping: -40 °C to 60 °C (-40 °F to 140 °F)
- Humidity: 10% to 90% RH non-condensing

Typical Object Configuration

There are physical limitations to the number of inputs, outputs, and SMART-Sensors that can be connected to a MACH-ProZone controller. For other object types, there are no imposed limits for the maximum number of objects of a single type that can be created. The total number of objects (including inputs, outputs, and SMART-Sensors) is limited to 128, and is also limited by the onboard memory. The table below details typical databases that fit in all models.

Memory	Variables	Loops	Schedules	Calendars	Tables*	Groups	Multipoint Trend**	Runtime*	Arrays	Program	SMART-Sensor***
-XM and MPZ-88	64	8	4	2	4	4	10	128	4	8	8

* Tables and Runtime Logs are not counted in the 128 object limit. Inputs, outputs, and the device object are counted in the 128 object limit.

** Trends are configured to store 128 samples.

*** All models accommodate a maximum of 8 SMART-Sensors.

APPLICATION DIAGRAM

