



MACH-Pro2™

Building Controller

Perennial performance - expanded

Destined to be an expandable workhorse of the industry, the Reliable Controls MACH-Pro2 is a rugged, flexible and fully programmable BACnet® Building Controller (B-BC) ideal for large rooftop equipment or mid-sized mechanical room applications.



Member of
BACnet
International



Better by design

www.reliablecontrols.com/MP2

TECH SPECS

Processor

- 100 MHz, high-performance, 32-bit embedded microcontroller

Memory

- 8 MB operating RAM
- 1 MB non-volatile RAM (trends and dynamic values)
- 4 MB Flash EEPROM operating system, database, and controller configuration

Supply Voltages

- 24 VAC $\pm 10\%$, 75 VA max. 50/60 Hz
- 24 VDC $\pm 10\%$ 26 W max.

Communications

- 2 EIA-485 @ 76.8 kbps max. Auto-baud detection
- 1 EIA-232 @ 115.2 kbps max. PC or modem
- SMART-Net port @ 16 sensors max.

Universal Inputs

- 12 universal inputs
- 12-bit A/D converter
- Analog: 0–10 VDC 4–20 mA, thermistor
- Binary: dry contact
- Impedance: 1M Ω for 0–10 VDC range 250 Ω for 4–20 mA range 20k Ω pull-up for thermistor/dry contact range
- Pulse counting up to 150 Hz (supports flow meters)
- 24 VAC over-voltage protection

8 Outputs

- 12-bit D/A converter
- Analog: 0–12 VDC
- Binary: 0/12 VDC
- Manual ON provides adjustable 0–12 VDC (HOA model only)
- LED indicator (glows proportionally)
- Output power: 75 mA @ 12 VDC
- 24 VAC over-voltage and short protection

Expansion Modules

- Up to 3 MACH-ProPoint™ expansion modules

Peripheral Power

- Onboard variable 15–24 VDC power supply providing up to 200 mA of DC power to peripheral devices (if powered by 24 VDC, the maximum voltage output is 22 VDC)

Real-Time Clock

- ± 1 second per day

Memory/RTC Backup

- 72 hour backup
- 10 years for database

SETUP-Tool™

- SETUP-Tool optional for configuration

Dimensions

- 25.4 cm L x 13.7 cm W x 3.9 cm H (10" L x 5 ³/₈" W x 1 ¹/₂" H)

FEATURES

Protocol

- BACnet
- MS/TP and PTP

12 Inputs

- Universal ranges
- Jumper selectable 0–10 VDC, 4–20 mA, thermistor/dry contact
- Expandable using MACH-ProPoint expansion modules
- Maximum possible inputs of 84 (using 3 MPP-I modules)

8 Outputs

- Universal ranges
- Optional HOA (Hand/Off/Auto) switches
- HOA position feedback to RC-Studio®
- Expandable using MACH-ProPoint expansion modules
- Maximum possible outputs of 56 (using 3 MPP-O modules)

256 Variables

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

64 PID Loops

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

32 Schedules

- 14 On/Off times for each weekday or exception

6 Calendars

- Days of the year designated as holidays

20 Custom Tables

- For creating custom scaling functions

64 System Groups

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

64 Control-BASIC™ Programs

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

Trend Logs

- Each Trend Log stores up to 8 points
- Values recorded at user-defined intervals
- Dynamically assigned

Runtime Logs

- Totals the On time and records the On/Off times of every binary point
- Holds 200 events
- Dynamically assigned

128 Variable Arrays

- Up to 128 elements in a one-dimensional array

128 User Passwords

- Protects access to system
- Each user is assigned a user name and an access level

24 Custom Units

- 8 analog engineering units
- 8 binary engineering units
- 8 multistate units

SMART-Net™ Port

- Networks up to 16 SMART-Sensors™

Real-Time Clock

Warranty

- 5 years

Certification

- BTL Listed (B-BC)
- UL 916 Listed
- FCC CFR 47 Part 15/B
- CE

ORDERING

MP2

- MACH-Pro2 controller

MP2-H

- MACH-Pro2 controller with HOA (Hand/Off/Auto) switches and potentiometer overrides for each output

ACCESSORIES

MPP-IO

- MACH-ProPoint I/O expansion module with 12 universal inputs, 4 output sockets and 4 universal outputs

MPP-IO-H

- MPP-IO with HOA (Hand/Off/Auto) switches and potentiometer overrides for each output

MPP-IO-DL

- Door label sheet for MP-S, MP-S-H, MPW-S, MPW-S-H, MPP-IO, MPP-IO-H, MP1, MP1-H, MP2, and MP2-H

MPP-IO-U

- MPP-IO Universal expansion module with 12 universal inputs and 8 universal outputs

MPP-IO-U-H

- MPP-IO Universal with HOA (Hand/Off/Auto) switches and potentiometer overrides for each output

MPP-I

- MPP Input expansion module with 24 universal inputs

MPP-I-DL

- Door label sheet for MPP-I

MPP-O

- MACH-ProPoint output expansion module with 16 universal outputs

MPP-O-H

- MPP-O with HOA (Hand/Off/Auto) switches and potentiometer overrides for each output

MPP-O-DL

- Door label sheet for MPP-O

Mounting

- #8 clearance holes on 23.0 cm L x 11.0 cm W (9 ¹/₁₆" L x 4 ⁵/₁₆" W)
- Screw depth 25 mm (1")

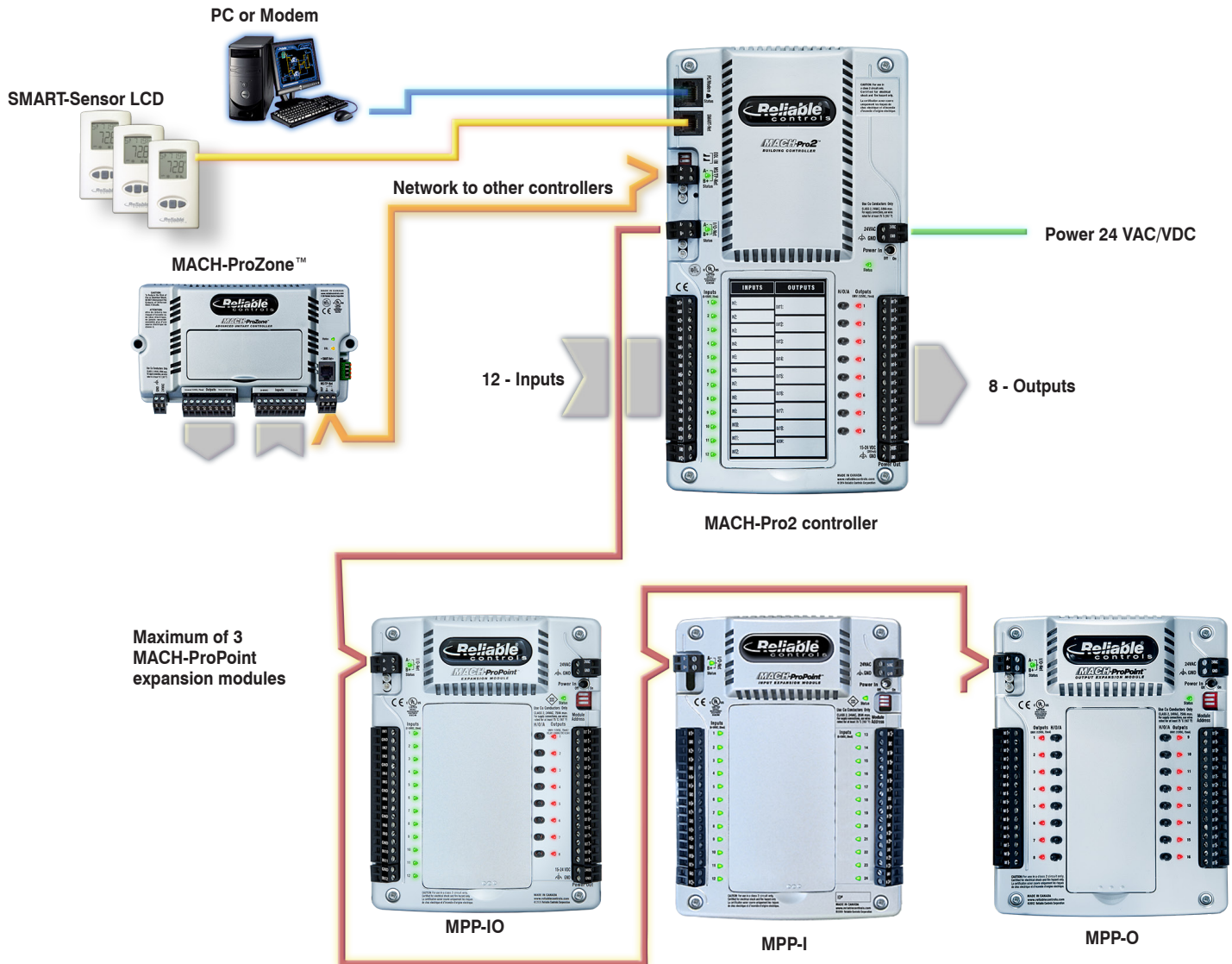
Weight

- .6 kg (1.3 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

APPLICATION DIAGRAM



Connect up to 3 MACH-ProPoint expansion modules (MPP-I, MPP-IO, MPP-IO-U and/or MPP-O) with a maximum input count of 84, and a maximum output count of 56 per controller. Expansion modules are daisy-chained to the I/O-Net port of a MACH-Pro2 controller in any combination while limiting the total inputs, outputs, and modules below maximum.