




Compatible Devices (Partial Portfolio)




Mx-RPW




Mx-ML2



Mx-EDWS



Mx-EKCS



Mx-RTS1

M9-MTB

HVAC CONTROL BOARD

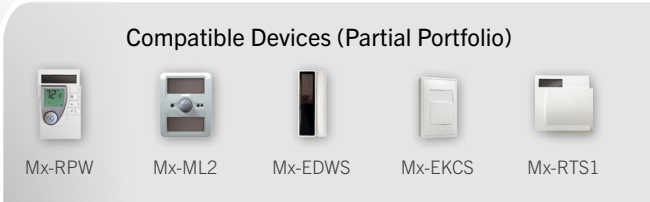
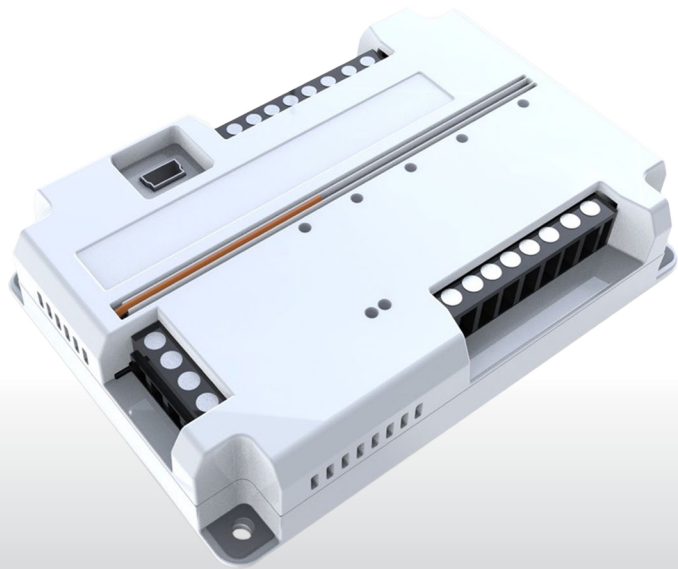
DESCRIPTION

The Magnum HVAC Control Board (Mx-MTB) has the ability to control fan coil units, PTAC units, heat pumps, up to two cool and three heat. The Mx-MTB uses wireless communication to provide quick and easy implementation of the energy-saving HVAC controls. When the Mx-MTB receives an “occupied” signal from any of Magnum’s wireless sensors (including Mx-RPW), the user immediately gains full control of the HVAC settings. When the Mx-MTB receives an “unoccupied” signal, it sets the room back to the preset unoccupied temperature. When used with Magnum’s Gateway, the thermostat can also be connected to BACNet HVAC control systems.

TECHNICAL SPECIFICATIONS

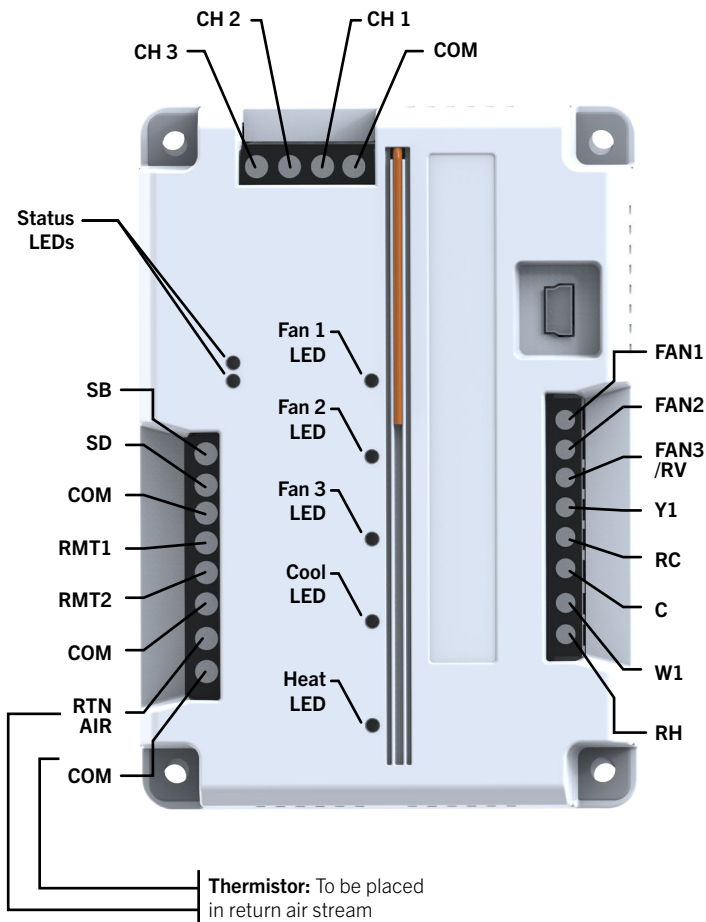
Part Numbers (Frequency Dependent)	M9-MTB (902 MHz - North America) M8-MTB (868 MHz - Europe and China) MJ-MTB (928 MHz - Japan)
Range	50 ft-150 ft typical
Input Voltage	24 VAC
Max Loads	24V (1.5 amp/circuit)
Temperature Monitor Range	32°F to 99.9° F (0°C to 37.7°C)
Temperature Set Point Range	60°F to 85°F(15.5°C to 29.5°C)
Operating Environment	14°F to 131°F (-10°C to 55°C) Non Condensing Humidity
Storage Environment	-4°F to 131°F (-20°C to 55°C) Non Condensing Humidity
Fan Control	Selectable: Auto Cycle, Low, Medium, High, Economy, Off
Memory	Stores up to 30 Device IDs
Accuracy	+ / - 1°F (0.5°C)
Heat / Cool Control	<ul style="list-style-type: none"> • Compressor • Reversing Valve • Medium Fan • Auxiliary Heat • Low Fan • High Fan Relays
Dimensions	3” W x 4.25” L x 0.875” H (76.2 mm W x 107.95 mm L x 22.225 mm H)
Radio Certifications	TCM300U FCC (SZV-STM300U); IC (Canada 5713A-STM300U)

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M9-MTB HVAC CONTROL BOARD

CONNECTION OVERVIEW



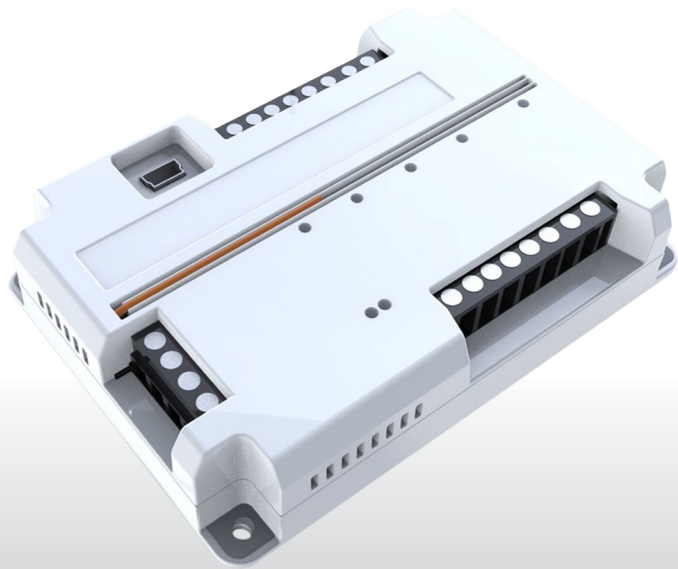
COMPATIBLE DEVICES

- Mx-RPW (Room Control Panel / Occupancy Sensor)
- Mx-MRC1 (Window / Door Sensor)
- Mx-EDWS (Window / Door Sensor)
- Mx-EKCS (Key Card Reader)
- Mx-KC1 (Key Card Reader)
- Mx-ML2 (Motion / Lux Sensor)
- Mx-EOSC (Motion / Lux Sensor)
- Mx-EOSW (Motion / Lux Sensor)
- Mx-RTS1 (Single Channel Remote Temp Sensor)
- Mx-RTHS1 (1 Channel Remote Temp / rH Sensor)
- Mx-RTS3 (Three Channel Remote Temp Sensor)
- Mx-RTS1-SP (Single Channel Remote Temp Sensor with Set Point Dial)
- Mx-RTHS1 (1 Channel Remote Temp / rH Sensor with Set Point Dial)

APPLICATIONS

- Hotels & Resorts
- Colleges & Universities
- New Construction
- Executive Offices
- Perimeter Zones
- Daylight Harvesting
- Restrooms
- Private Offices
- Retrofits
- Conference Rooms
- Lighted Hallways
- Cruise Ships
- Classrooms
- Daycare Facilities

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ADDITIONAL AVAILABLE MTB1 WIRED CONNECTIONS

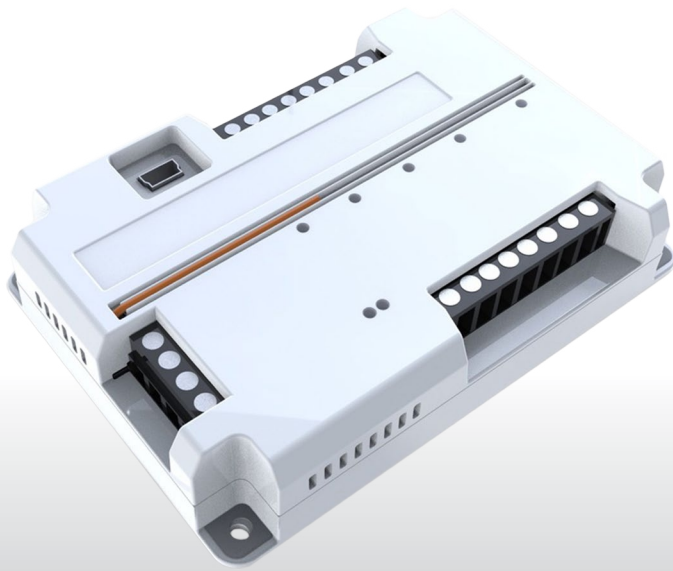
Name	Signal	Type	Connections	Allowable Usage (Must be so configured)
SB	NO, NC	Dry Contact	SB - COM	Wired Entry Door Switch Wired Motion Sensor
SD	NO, NC	Dry Contact	SD - COM	Wired Balcony Door Wired Window Sensor
RMT1	10K Thermistor, Type 2		RMT1 - COM	Pipe Temperature Sensor (Aquastat) Return Air Temperature Sensor Supply Air Temperature Sensor Outdoor Temperature Sensor
RMT2	10K Thermistor, Type 2		RMT2 - COM	Pipe Temperature Sensor (Aquastat) Return Air Temperature Sensor Supply Air Temperature Sensor Outdoor Temperature Sensor
RTN AIR	10K Thermistor, Type 2 (Provided)	Required	RTN AIR - COM	Required Return Air Temperature Sensor Required for Any and All Configurations Not Configurable
CH1	0-10V Assignable Output	Analog	CH1 - COM	Function and Polarity are Assignable Using AirConfig
CH2	0-10V Assignable Output	Analog	CH2 - COM	Function and Polarity are Assignable Using AirConfig
CH3	0-10V Assignable Output	Analog	CH3 - COM	Function and Polarity are Assignable Using AirConfig

Notes: All "COM" terminals are electrically connected to the "C" power connection.

NOTE: The MTB requires the return air sensor (included) to be connected for ALL configurations. It is NOT optional. The MTB will not operate without it being connected and it should be located in a return air stream.

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24 VAC CONNECTIONS FOR MX-MTB1 CONTROLLER

MTB1 PCB FAN1 FAN2 FAN3/RV Y1 RC C W1 RH	FAN COIL, 4 PIPE LOW SPEED FAN MEDIUM SPEED FAN HIGH SPEED FAN COLD WATER VALVE 24 VAC HOT 24 VAC COMMON HOT WATER VALVE	MTB1 PCB FAN1 FAN2 FAN3/RV Y1 RC C W1 RH	HP11, 1H, 1C LOW SPEED FAN HIGH SPEED FAN REVERSING VALVE COMPRESSOR 24 VAC HOT 24 VAC COMMON UNUSED	MTB1 PCB FAN1 FAN2 FAN3/RV Y1 RC C W1 RH	AH11, 1H, 1C LOW SPEED FAN MEDIUM SPEED FAN HIGH SPEED FAN COMPRESSOR 24 VAC HOT 24 VAC COMMON HEAT
MTB1 PCB FAN1 FAN2 FAN3/RV Y1 RC C W1 RH	FAN COIL, 2 PIPE LOW SPEED FAN MEDIUM SPEED FAN HIGH SPEED FAN WATER VALVE 24 VAC HOT 24 VAC COMMON UNUSED	MTB1 PCB FAN1 FAN2 FAN3/RV Y1 RC C W1 RH	HP12: 1C, 2H LOW SPEED FAN HIGH SPEED FAN REVERSING VALVE COMPRESSOR 24 VAC HOT 24 VAC COMMON SECOND STAGE HEAT	MTB1 PCB FAN1 FAN2 FAN3/RV Y1 RC C W1 RH	AH11, 1H, 1C, 2 XFMR LOW SPEED FAN MEDIUM SPEED FAN HIGH SPEED FAN COMPRESSOR 24 VAC #1 HOT 24 VAC COMMON HEAT 24 VAC #2 HOT
MTB1 PCB FAN1 FAN2 FAN3/RV Y1 RC C W1 RH	FC, 2 PIPE, AUX HEAT LOW SPEED FAN MEDIUM SPEED FAN HIGH SPEED FAN WATER VALVE 24 VAC HOT 24 VAC COMMON AUX HEAT	MTB1 PCB FAN1 FAN2 FAN3/RV Y1 RC C W1 RH	HP22: 2C, 2H FAN STAGE 2 CP REVERSING VALVE STAGE 1 CP 24 VAC HOT 24 VAC COMMON UNUSED	MTB1 PCB FAN1 FAN2 FAN3/RV Y1 RC C W1 RH	AH21: 2C, 1H (RV) FAN STAGE 2 CP UNUSED OR RV STAGE 1 CP 24 VAC HOT 24 VAC COMMON HEAT
MTB1 PCB FAN1 FAN2 FAN3/RV Y1 RC C W1 RH	FC, 2 PIPE, VALVELESS LOW SPEED FAN MEDIUM SPEED FAN HIGH SPEED FAN UNUSED 24 VAC HOT 24 VAC COMMON UNUSED	MTB1 PCB FAN1 FAN2 FAN3/RV Y1 RC C W1 RH	HP23: 2C, 3H FAN STAGE 2 CP REVERSING VALVE STAGE 1 CP 24 VAC HOT 24 VAC COMMON AUX HEAT	MTB1 PCB FAN1 FAN2 FAN3/RV Y1 RC C W1 RH	AH22: 2C, 2H FAN STAGE 2 CP STAGE 2 HEAT STAGE 1 CP 24 VAC HOT 24 VAC COMMON STAGE 1 HEAT

ALL 2-PIPE FAN COILS REQUIRE A PIPE TEMPERATURE SENSOR. SOME AC UNIT CONTROLLERS REQUIRE A REVERSING VALVE INPUT.
 FC = FAN COIL, HP = HEATPUMP, AC = COMPRESSOR BASED COOLING, AUX HEAT = ELEC STRIP or FOSSIL FUEL
 UNUSED CONNECTIONS ARE TO REMAIN UNCONNECTED.

NOTE: THE RC-RH JUMPER IS ON THE MTB PC BOARD ITSELF AND IS NORMALLY POPULATED. TO ACCESS AND CUT THAT JUMPER, THE BOARD MUST BE REMOVED FROM THE CASE. USE FLUSH CUTTING PLIERS.

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