

### MPU-1

The MPU-1 is a self-contained microprocessor-based controller for multiplexed zone package units. Applications include packaged rooftop DX units with up to two stages of cooling, two stages of heating, economizer, and bypass damper.

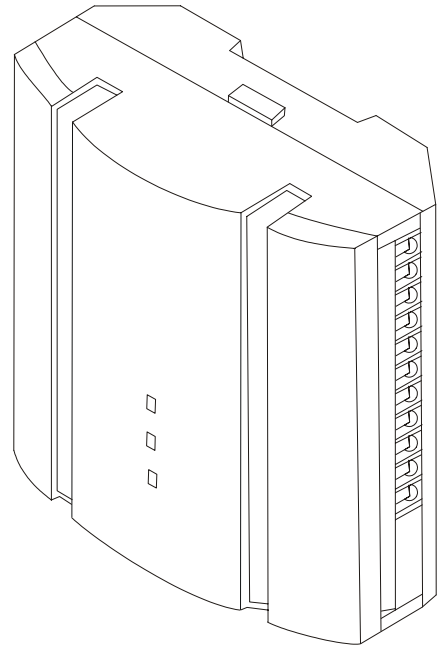
### Overview

Digital inputs are provided for fan status, mixed air low limit indication, smoke detector, filter status and indoor air quality (IAQ). Analog inputs are provided for mixed air temperature, return air humidity, supply air temperature, and supply duct static pressure. The MPU-1 incorporates digital outputs in the form of triacs for fan start/stop, two cooling stages, two heating stages, and a two-position economizer. In addition, two analog outputs are provided to control a modulated economizer and bypass damper.

The MPU-1 is based on the LONWORKS® networking technology. The controller can be networked to a higher-level control system for monitoring and control applications.

### Features

- Two stages of cooling
- Two stages of heating
- Modulated bypass damper
- Digital or modulated economizer
- Economizer enabled based on enthalpy calculations or dry bulb
- Minimum cycle timers for stages
- Runtime accumulation for heating, cooling, and fan
- Local backup schedule
- Multiplexed control of 32 zones based on zone demand
- Supply air temperature safety limits
- Time proportioned control of the staged outputs to reduce cycling
- Proportional + Integral control of the modulated economizer
- Proportional + Integral control of static pressure
- LONWORKS interface to building automation systems
- Mixed air low limit protection
- Filter status input
- Smoke detection input
- IAQ compensation based on IAQ alarm input or zone controller alarm
- Fan control energized on call for heating, cooling, or ventilation
- Automatic heat/cool changeover
- Automatic configuration with the LCI
- Alarm/Event reporting



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# Specifications

## Electrical

### Inputs

- Cabling: twisted shielded pair, 18 AWG recommended—500 feet max. (152 meters)
- Resolution: 10 bit

### Freeze Indication, Filter Status, Smoke Detect, Local IAQ Alarm

- Dry Contact
- Normally Open
- 5 Volts DC Max

### Fan Status

- Dry Contact
- Normally Closed
- 5 Volts DC Max

### Return Air Humidity, Static Pressure

- 0 - 10 Volts DC

### Mixed Air Temperature, Supply Air Temperature

- Precon Type III 10K thermistor

## Outputs

### Fan Start/Stop, Heating Stage 1, Heating Stage 2, Cooling Stage 1, Cooling Stage 2, Two-position Economizer

- 24 Volts AC
- 1 Amp at 50 °C, 0.5 Amps at 85 °C

### Modulated Economizer, Bypass Damper

- 0-10 Volts DC
- 2K Ohm minimum load
- 8 bit resolution

## FTT-10A Network

- Speed: 78 KBPS
- Cabling: Maximum node-to-node distance: 1312 feet (400 meters)
- Maximum total distance: 1640 feet (500 meters)
- 42.4 Volts DC max

**Table 1: Network Wire Specifications**

Cable Type	Pairs	Details	Connect Air Catalog No.
Level 4 22AWG (0.65mm)	1	Unshielded, Plenum, U.L. Type CMP	W221P-2001
Level 4 22AWG (0.65mm)	1	Unshielded, Non-Plenum, U.L. Type CM	W221P-1002

For detailed specifications, refer to the FTT-10A Free-Topology Transceiver User's Guide published by Echelon Corporation. For information on ordering Connect Air items, contact Connect Air International; 4240 B Street; Auburn, WA 98001 <[www.connect-air.com](http://www.connect-air.com)>.

## Power

### Power Requirements

- 24 VAC nominal (requires an external supply)

### Power Consumption

- With no external loads: 15 VA

## Mechanical

### Housing

- Dimensions: 4 3/8" high, 4 5/16" wide, 2" deep (111 mm high, 110 mm wide, 51 mm deep)
- ABS Polycarbonate

### Weight

- Controller Weight: 0.45 pounds (0.22 kilograms)
- Shipping Weight: 0.60 pounds (0.28 kilograms)

## Electronics

- Processor: 3150 Neuron 10 MHz
- Flash: 48 Kilobytes
- SRAM: 8 Kilobytes
- Termination: 0.197" (5.0 mm) Pluggable Terminal Blocks, 14-22 AWG

## Environmental

- Temperature: -40 °F to 185 °F (-40 °C to 85 °C)
- Humidity: 0 to 90%, non-condensing

## Agency Listings

- UL 916

## Agency Compliances

- FCC Part 15 Class A
- CE