I/A Series®

MICROZONE II®

The I/A Series MICROZONE II (MZII) is a fully programmable controller that enhances the I/A Series Facility Management System family offering. The MZII has the ability to employ custom block programs and run them in a stand-alone mode. The MZII block programming language provides the system operator with 100% flexibility for creation of new and unique control strategies.

MICROZONE II is easily applied to a wide variety of mechanical equipment including those that are application specific. Through the Personal System Interface (PSI™) and Xtended Personal System Interface (XPSI™), control programs can be downloaded to all devices requiring the sequence of operation. With the MZII, the I/A Series provides the best of both worlds; full programmability for easy creation and modification of custom control strategies, and easy duplication of controller databases for mechanical equipment containing similar or identical control strategies.

The MZII utilizes state-of-the-art, surface mount technology which helps reduce the size and cost of the product while providing powerful product features. Modularity of hardware along with the networking capabilities allow easy expandability as the needs of the facility change in the future. As with all other programmable I/A Series controllers, the MZII utilizes non-volatile EEPROM memory to store application control programs. EEPROM memory allows an owner to modify existing control sequences or create new ones through the Personal System Interface (PSI).

Features —

- Complete user creation of custom control strategies through block programming structure adapts MZII to virtually any HVAC control sequence or mechanical system.

- Models with battery backed-up time clock provide true stand-alone direct digital control with optimum start stop, scheduling functions, and battery backed-up random access memory (RAM).

- Input/output auto trending with adjustable sample rates continually accumulate and time stamp last 48 analog values and last 10 digital changes of state.

- Satellite point command capability from global controllers eliminates "waste" of unused points.

- "Fast" half (0.5) second input to output response times make MZII directly applicable to static pressure, fume hood and laboratory pressurization applications.

Invensys®

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Table-1   Model Chart.

Model	Description	Battery Backed-up Time Clock
MZ2A-101	Controller card	No
MZ2A-102		Yes

Hardware Specifications

Dimensions See Table-1.

Enclosure Conforms to NEMA-1. UL-916 rated.

Power Supply Input   20.4 to 30.0 Vac, 50/60 Hz.

Maximum Power Consumption 20 VA at 50/60 Hz.

Agency Approvals

UL-916 File #E71385 Category PAZX.

CSA File #LR 3728.

FCC Class B.

UL-864 File #S5381 Categories UUKL, QVAX, and UDTZ.

Transient Compliance Tests ANSI C62.41 (IEEE 587), Categories A and B.

Electrostatic Discharge Test ±15 kV to case, ±5 kV to field wiring terminals.

Ambient Limits

Operating Temperature

UUKL Smoke Control 77 °F (25 °C) nominal.

PAZX Energy Management -40 to 140 °F (-40 to 60 °C).

Shipping and Storage Temperature -40 to 140 °F (-40 to 60 °C).

Humidity 5 to 95% RH, non-condensing.

Microprocessor 80C198, 7 MHz clock speed, 16-bit word size.

Memory 64 KB of EPROM, 2 KB of EEPROM, 8 KB of RAM.

Wiring Terminals See Figure-1.

Battery Backup - Clock and RAM 30 days (replaceable lithium battery).

Battery Backed-up Time Clock Accuracy ±150 sec./mo at 77 °F (25 °C).

Analog To Digital Conversion Resolution 10 bit.

Digital To Analog Conversion Resolution 10 bit.

Input to Output Response Time 0.5 seconds maximum.

Universal Inputs

Quantity 8.

Thermistor Input 20 to 140 °F (-6.67 to 60 °C) range. Barber-Colman TS-5700-850 series or equivalent.

Balco Input -40 to 250 °F (-40 to 121 °C) range. Barber-Colman TS-8000 series or equivalent.

Copper Input -31 to 240 °F (-35 to 116 °C) range. Barber-Colman TS-5600 series or equivalent.

Platinum Input -40 to 240 °F (-40 to 116 °C) range. Barber-Colman TS-5800 series or equivalent.

Potentiometers 1000 to 20,000 Ω resistance.

Voltage 0 to 5 Vdc.

Current 4 to 20 mAdc with 250 Ω shunt resistor.

Contact Input Dry.

Maximum Pulse Count Rate

10 per second (50 msec. minimum On or Off time per pulse) to 1 per 4 minutes (1 input per MZII).

1 per second (0.5 sec. minimum On or Off time per pulse) to 1 per minute (up to 7 inputs per MZII).

Analog Outputs

Quantity 4.

Type 0 to 20 mA range programmable source into 500 Ω maximum load, momentary short circuit protection.

Digital Outputs

Quantity 8.

Contact Ratings

30 VA at 24 Vac, pilot duty.

120 VA at 120 Vac, pilot duty.

Contact Type Form C (SPDT) isolated.

Status Indication Light emitting diode.

Voltage Reference 5.1 Vdc, 20 mA maximum.

Software Specifications

Control Functions Refer to Table-2.

Table-2   MICROZONE II Block Library .

Type	Description
• AO	Analog Output
• DO	Digital Output
• EMS	GCM™ Input
• HOLI	Holiday Schedule
• LOOP	Complex PID Loops
• OSS	Optimum Start/Stop
• RESET	Setpoint Reset
• RGRP	Receive Global Group Data
• SCHED	Weekly/Daily Schedule
• SEQ	Linear/Binary Sequencer
• UI	Universal Input
• UTIL	Utility: Counter, Drive, Flow Detect, Limit, Logic, Math, Stop/Start, Process Alarm, Switch, High/Low, Pulse Width Modulation, Thermostat, Status, Timer
• WINDO	Window Output to GCM

Communications

Ports RS-485 asynchronous at 19,200 baud (adjustable) to global controller. Modular jack provided for local connection of the Personal System Interface.

Local Terminal (PSI) PSI can monitor all device parameters and has access to all program blocks and attributes for complete program editing and creation. Provides up/download capability for system maintenance.

Network Device Access PSI connected at one device has access to all network-wide devices on an ASD communication bus. Connection of PSI will not disrupt the network communications between the MZII controller and other devices on the bus.

I/A Series Up to 128 MZIIs per Global Control Module. Shared network data includes all physical input/output points plus capability of WINDO and EMS blocks which are program definable.

Accessories

|	
AD-8969-101	10 kΩ shunt resistor kit for high speed count input
AD-8969-202	250 Ω shunt resistor kit for 4 to 20 mA analog input
AD-8969-206	11 kΩ shunt resistor kit for 10 k thermistor sensor (non-850 series)
AD-8961-220	Voltage divider (converts 1 to 11 Vdc signal to 0.5 to 5 Vdc signal)
AE-690	Accessory outboard gear panel 10-7/8" H x 8-1/2" W x 4-1/4" D (276 mm H x 216 mm W x 108 mm D) for direct nipple connection to MZ2-1E and MZ2-1CE
ENCL-MZ800-PAN	Enclosure, panel mount 10-5/8 in. H x 8-1/2 in. W x 4-1/8 in. D (270 mm x 216 mm x 105 mm)
ENCL-MZ800-WAL	Enclosure, wall mount 10-7/8 in. H x 8-1/2 in. W x 4-1/4 in. D (276 mm x 216 mm x 108 mm)
LAPT-80800-PSI	Personal System Interface software (see F-24317)
LAPT-80800-EPS-I	Xtended Personal System Interface software (see F-24317)
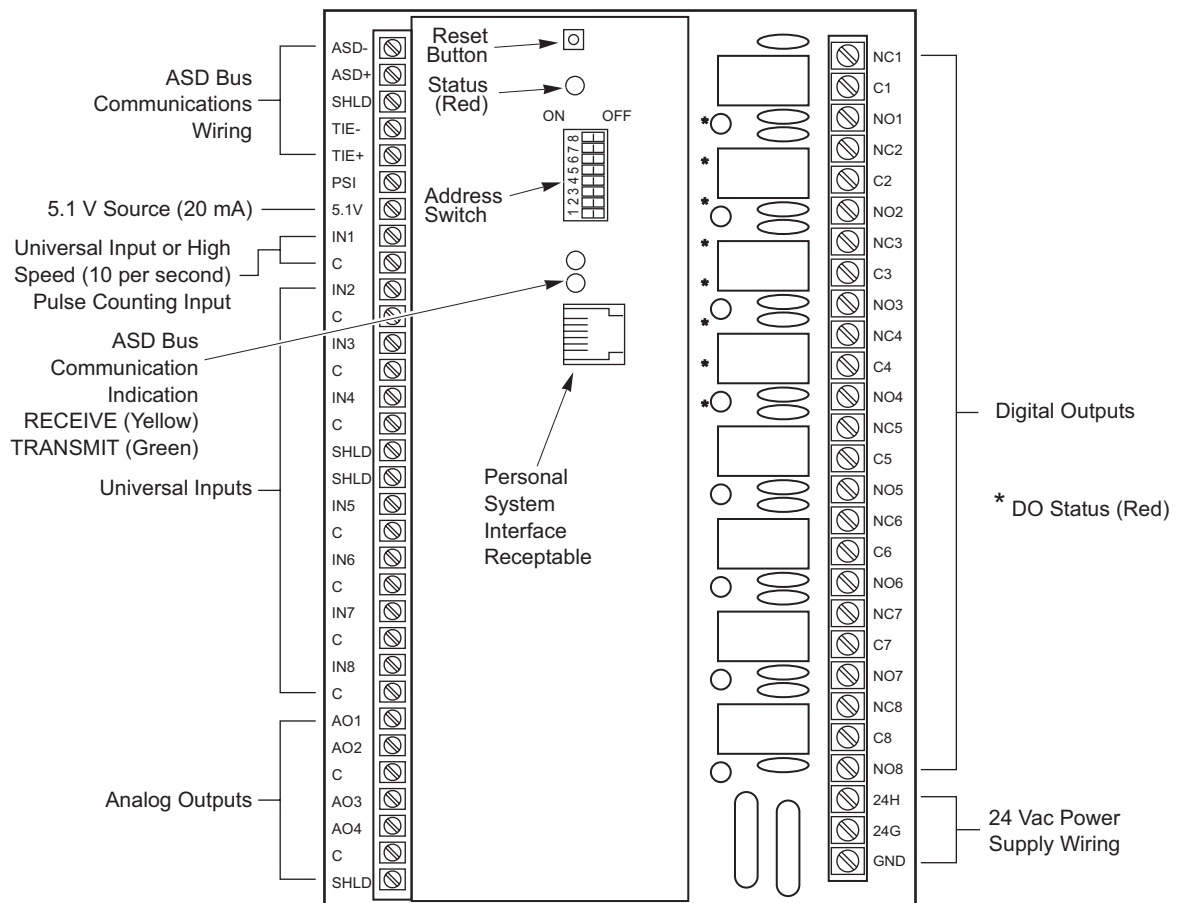
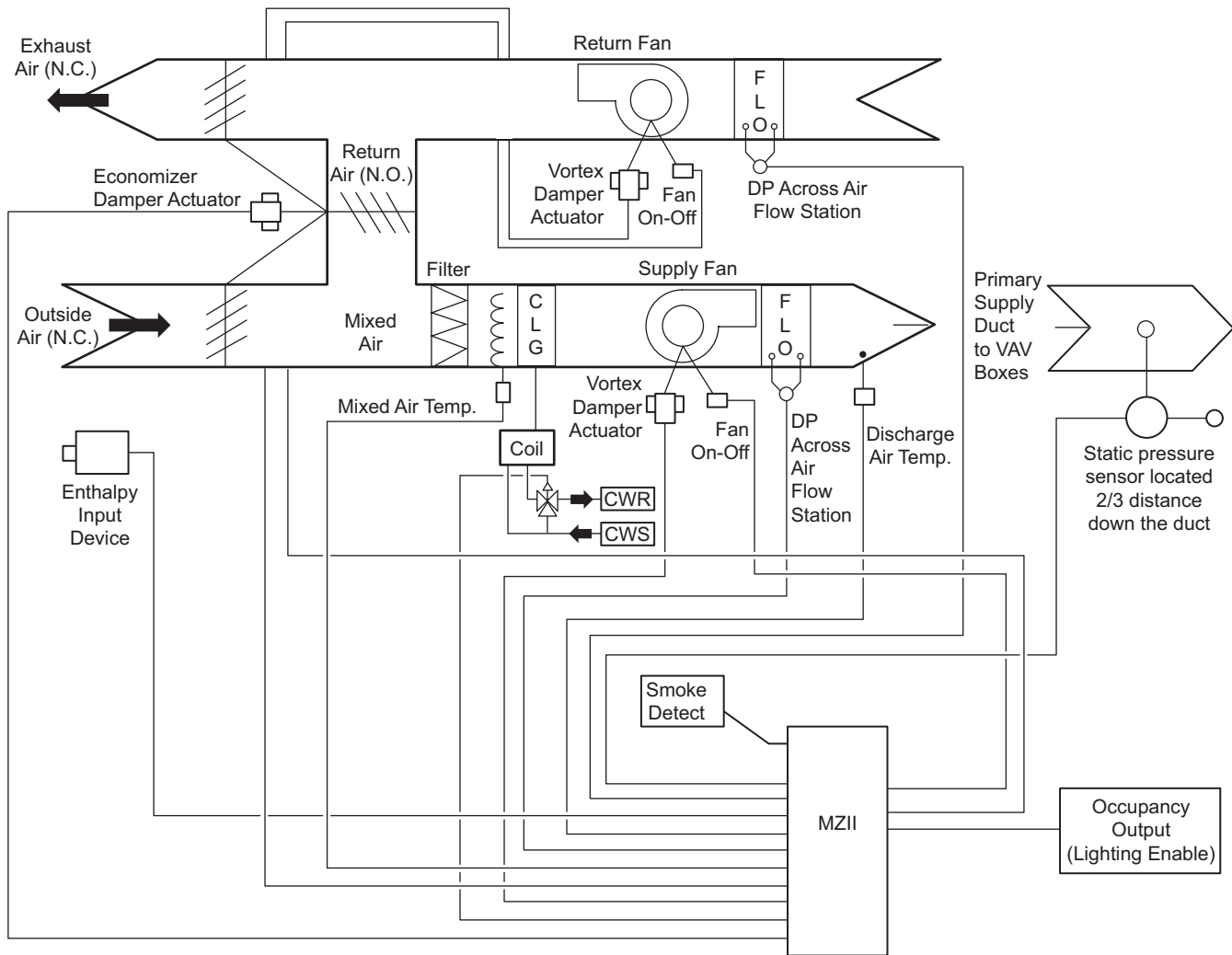Figure-1 Terminal Connections and LED Indicators.

Figure-2 MZII Control Schematic of a Typical Fan Tracking VAV Air Handling System.

Note: All field wiring shall be twisted, shielded pairs.