

# MICRO-AIDE



www.micro-aide.com

## CWR-40A EVENT RECORDER



*Annoyed and frustrated with record reports that include inaccurate time stamps?*

*Would you like your maintainers to copy record data directly to a flash drive, while not using a PC?*

*Don't have a PC with an RS-232 port?*

**CWR-40A** ~ the preferred event recording solution for your mid-capacity requirements.

### FEATURES & CAPABILITIES

- ▶ 32 Digital and 8 Analog Inputs
- ▶ 32 Virtual and 32 Timer Inputs, all programmable
- ▶ Dual Relay Outputs, programmable
- ▶ 4 Train Speed Monitors
- ▶ Digitally signed and secure Event Record reports
- ▶ Memory capacity of 234,777 records (expandable to 2,947,289)
- ▶ Records stored for up to 128 days
- ▶ Non-volatile flash memory, no internal batteries required
- ▶ Selectable time zone and automatic Daylight Saving Time adjustment
- ▶ Real-time clock drift of less than  $\pm 8$  sec. per month
- ▶ Zero clock drift with GPS Receiver and Ethernet Port options
- ▶ Precise flash rate reporting and measurement
- ▶ Internal temperature reporting
- ▶ RS-232 and USB Device Ports
- ▶ USB Host Port for copying records directly to a flash drive
- ▶ Front panel control via 20-position keypad and 80-character LCD
- ▶ Detachable connectors
- ▶ Minimum 3800 Vdc and 2000 Vac of isolation
- ▶ Companion product to CWR-24A, CWR-72A and CWR-264A
- ▶ Options include: GPS Receiver, Ethernet Port, internal modem and expanded memory

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## SPECIFICATIONS

### Physical

**Size** (without mounting brackets)  
L: 10.4" H: 7.6" D: 3.4"

**Weight**  
2.7 lb.

**Operating Environment**  
**Temperature:** -40 °C to 72 °C

**Humidity:** 0 to 95 %, non-condensing

### Mounting

Shelf or backboard, includes mounting brackets

### Construction

Fully enclosed, anodized aluminum with externally accessible keypad, LEDs and connectors  
All components mounted on conformal coated, internal PCBs

### Power

**Voltage**  
**Range:** 9 to 36 Vdc

### Consumption

**Maximum:** 3.6 W (with GPS Receiver, Ethernet and Modem options)

### Isolation

**Power Terminals, Digital and Analog Inputs, USB Ports, GPS Rcvr and Ethernet Ports**  
**Minimum:** 3800 Vdc to chassis and any terminal

**Internal Modem (optional)**  
Designed to meet FCC part 68 standards

### Capacities

#### Inputs

**Digital:** 32, all opto-isolated  
**Analog:** 8 total, voltage or current (optional)  
**Virtual:** 32, user assigned  
**Timer:** 32, user assigned

#### Outputs

**Relay:** 2, form C

#### Event Storage

234,777 records, expandable to 2,947,289 records

#### Liquid Crystal Display

**Characters:** 80 total on 4 lines  
**Viewing Area:** 2.8" by .8"

#### Front Panel Keypad

**Quantity:** 20 keys

### Physical Inputs

#### Input Impedance

**Digital:** minimum 10 KOhms, opto-isolated  
**Analog:** minimum 10 MOhms

#### Range

**Digital Input - On:** 9 to 36 Vdc  
**Digital Input - Off:** 0 to 1 Vdc  
**Analog DC Voltage:** 3 scales,  $\pm 25.5$ ,  $+51.1$ ,  $\pm 255$   
**Analog AC Voltage:** 2 scales, 25.5, 255

#### Event Validation Times

**Digital:** .01 to 327.67 seconds, compatible with fixed rate flashing circuits  
**Analog:** fast and slow filter settings

### Analog Limit Values

#### Voltage

**High and Low limits:** in multiples of .1 V or 1 V

#### Internal Temperature

**High and Low Limits:** -67 °F to 257 °F

### Analog Input Accuracy

**Typical Voltage:**  $\pm 15$  V or  $\pm 1.5$  V  
**Typical Current:**  $\pm 2$  A

### Virtual Inputs

Any logical association shared by 1 to 4 variables (i.e., Digital, Analog, Timer or Virtual Inputs)

Assigned by defining the state of the Virtual Input for each combination of variable states

Creates standard Event Records

Relay can be controlled by each Virtual Input

Modem (optional) can be enabled to dial out Event Records

### Timer Inputs

#### Programming

Any input can be assigned as a trigger or terminating source

#### Limit Values

**High and Low limits:** in multiples of .1 seconds  
**Range:** 0.0 to 999.9 seconds

#### Reporting

Measured Time is reported in each Timer Input Event Record  
Violation of Limit Values are also reported

### Train Speed Monitor

#### Usage

**Quantity:** 4, separately programmable

**Reporting:** via standard Event Record

**Sensors:** wired to 2 spare Digital Inputs, 50' to 5280'

#### Limit Values

5 to 180 mph

### Memory

#### Type

Non-volatile, Event Records and Setup Database are stored in flash memory chip, newest data overwrites oldest data, 129th day over-writes first day

#### Storage Longevity

Infinite with power off, rated for 100,000 write operations

### Ports

#### RS-232

**Quantity:** 1, for use with a PC  
**Baud Rates:** 300 to 115,200

#### USB Host

Compatible with FAT-32 flash drives, can create a text file of Event Record data from any time span

#### USB Device

Eliminates need for serial comm port, data transfer rates of 4.71 Mbps

#### Ethernet (optional)

**Type:** 10/100 Base-T  
**Protocols:** TCP/IP, Telnet, SNMP-Unicast and -Multicast  
**Usage:** Provides remote or local access via TCP/IP  
Data transfer rates of 4.70 Mbps  
User assignable IP Address, port, sub-net mask, Unicast IP Address

#### GPS Receiver (optional)

Used to provide precise, real-time clock control, latitude and longitude coordinates

#### Modem (optional)

Provides remote access, auto-answer

### Connectors

#### Power, Relay, Digital and Analog Inputs

Detachable, tension clamp, 12 to 22 AWG

#### Terminal Port

DE-9 male, configured as DCE

#### USB Host Port

USB Type A female

#### USB Device Port

USB Type B female

### Connectors (continued)

#### Telephone Line

RJ-11 female

#### GPS Receiver (optional)

MCX female

#### Ethernet Port (optional)

RJ-45 female

### Indicators

#### LCD Panel

Includes LED back lighting for enhanced visibility  
Displays numerous command menus for configuring the recorder and retrieving data

#### LEDs (3)

**Power:** green

**Terminal:** green, flashes with send/rcv data

**Modem:** green, flashes with send/rcv data and ring

### Controls

#### Keypad

Located on front panel, below LCD

**Keys:** 0-9, Browse, Alpha, Setup, Esc, Enter, Save/., left, right, up, down/-

#### LCD Contrast Adjust

Single-turn pot., accessible from front panel

### Internal Clock

#### Accuracy

**Typical:**  $\pm 8$  seconds per month (3 ppm)

#### Resolution

.01 seconds for all Event Records

#### Sync

SNTP-Unicast and -Multicast (with Ethernet option)  
GPS (with GPS Receiver option)

#### Operation

Full calendar, auto-adjusted for leap year, non-volatile for 30 days with loss of power  
Enable or disable of automatic Daylight Saving  
Time adjustment

Non-drift, precise control with SNTP and/or GPS Receiver option

### GPS Receiver (optional)

Includes PCB and external antenna

#### PCB

Plugs into mating connector inside recorder

#### Antenna

**Size:** Dia 1.8" H .6" (not including mounting screw)

**Weight:** 2 oz. (less cable)

**Operating Temperature:** -40 °C to 85 °C

**Mounting:** bulkhead mountable to surface less than 3/8" thick

**Location:** unobstructed skyward orientation, for use outdoors

### Password Protection

#### Administrative Level

Access to all functions, limit 8 characters

#### Restricted Level

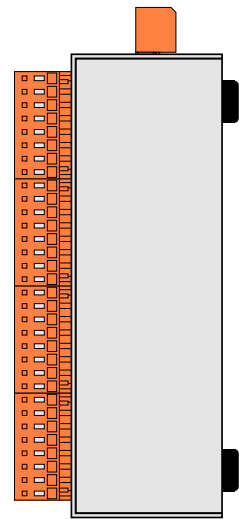
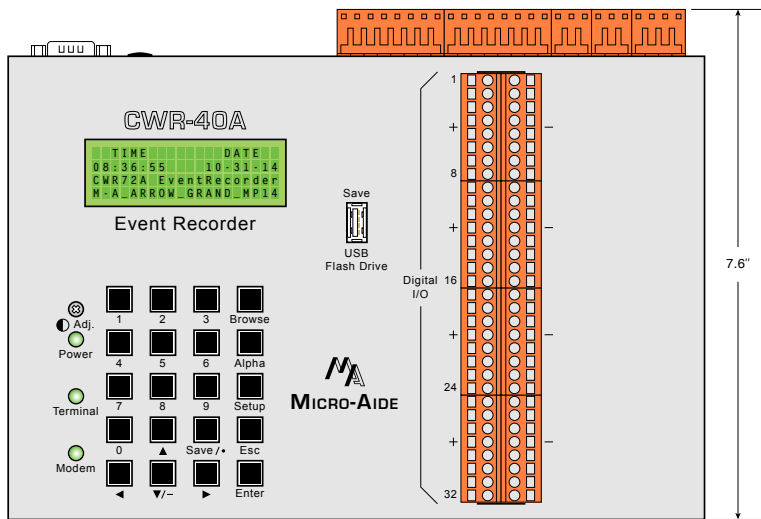
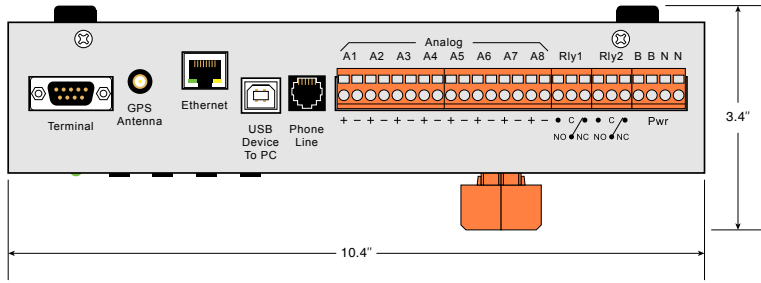
Access to Event Record and Setup Database viewing, limit 8 characters

#### Passcode

Provides limited alterations to Setup Database via front panel, limit 8 digits

*MICRO-AIDE reserves the right to make changes, at its sole discretion, to any specification listed herein.*

## DIMENSIONAL DRAWING



## MOUNTING DIMENSIONS

With mounting brackets installed

