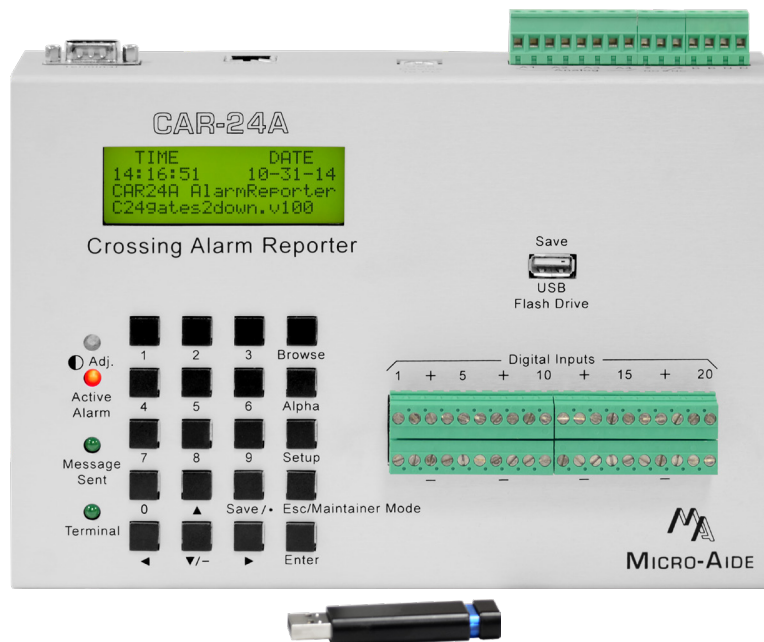# MICRO-AIDE

CAR-24AK
CROSSING ALARM REPORTER

FEATURES & CAPABILITIES

▶ Automatically detects and reports numerous crossing failures

▶ Reports alarms to a server via a VPN (requires external cellular modem) or LAN

▶ 20 different alarms can be defined to report real-time crossing status

▶ Message forms include state of XR, gates, AC power and battery voltages

▶ Automatic IP and server name resolution via DHCP and DNS

▶ Uses SNTP-Unicast method to provide accurate time stamping

▶ Companion product to MICRO-AIDE's CAR-40AK

▶ 20 Digital and 4 Analog Inputs

▶ 8 programmable Virtual Inputs

▶ Includes Event Recorder features from MICRO-AIDE's CWR-24A

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685 Arrow Grand Circle   Covina, CA   91722

SPECIFICATIONS

Physical
Size (with mounting brackets)
L: 9.5″ **H**: 7.7″ **D**: 3.2″ **Weight**: 2.6 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 W

Isolation
Power Terminals, Digital and Analog Inputs, Ethernet Port
Minimum: 3800 Vdc to chassis and any terminal

Alarms
Quantity: 20 total, user-defined

Types: Set, Cleared and periodic Health Check

Definitions
User-assigned inputs, input states and validation times qualify each Alarm

Operating Modes
Automatic: messages sent via VPN or LAN using DNS or fixed IP Addressing

Maintainer Mode: disables Alarm transmission while crossing is being tested or repaired

Inputs
Types
Digital: 20, all opto-isolated

Analog: 4, voltage or current (optional)

Virtual: 8, user-assigned

Timer: 16, user-assigned

Input Impedances
Digital: minimum 10 KOhms

Analog: minimum 10 MOhms

Range
Digital: 9 to 36 Vdc (On), 0 to 1 Vdc (Off)

Analog: 7 scales for Vdc, Vac, Adc, Aac

Analog Inputs
Typical Accuracies: ±.15 V, ±1.5 V or ±.2 A

High and Low Limits: user-defined, varies with selected scale

Alarm and Input Validation Times
Alarm: as defined by Alarm Configuration Table, 0 to 99,999 seconds

Digital: .001 to 32.767 seconds

Analog: fast and slow filter settings

Ports
RS-232
Quantity: 1, for use with a PC, set for ANSI terminal emulation

Baud Rates: 300 to 115,200

Bit Format: 8-N-1

Ethernet
Type: 10 / 100 Base-T, to cell modem or LAN

Protocols: HTTP-Get, TCP/IP, Telnet, SNTP-Unicast, SNTP-Multicast

User Interface: provides remote or local access via TCP/IP connection

Ports (continued)
USB Host
Compatible with FAT-32 flash drives, used to save selected Event Records to flash drive

USB Device
Eliminates need for serial comm port

Indicators
Active Alarm: red, illuminates when Alarm is active

Message Sent: green, illuminates for 5 seconds

Terminal Mode: green, flashes with data

Controls
Keypad: 20 keys, provide for front panel access

Memory
Capacity: 302,084 Event Records std.

Type: non-volatile for Event Record and Setup Database

Internal Clock
Accuracy
Typical: ±8 seconds per month (3 ppm) when not synchronized

Volatility: maintains time for 30 days without power

Sync
SNTP-Unicast: via primary or secondary time servers, once per day at 00:05:00
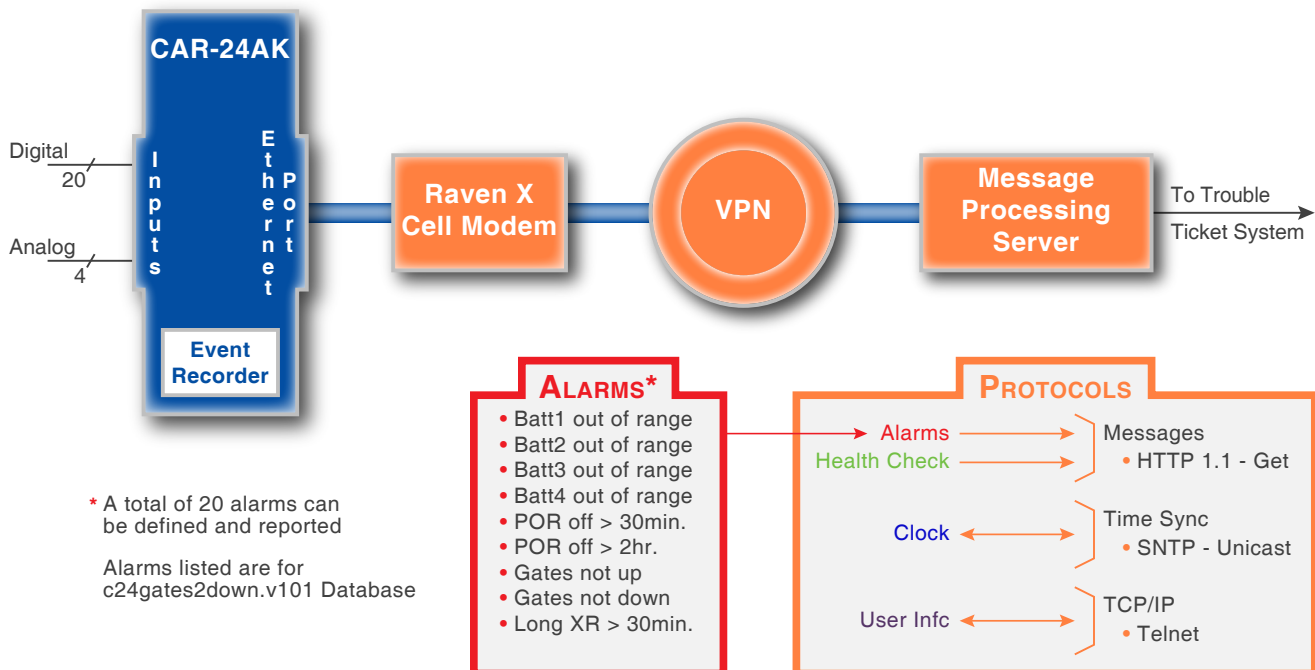
SNTP-Multicast: per time server schedule

Operation
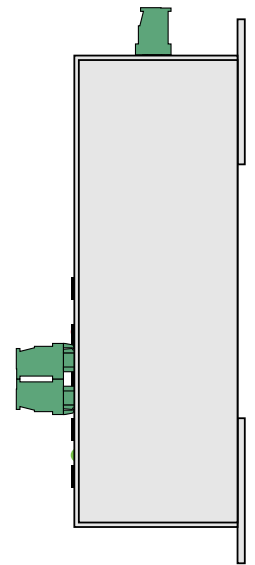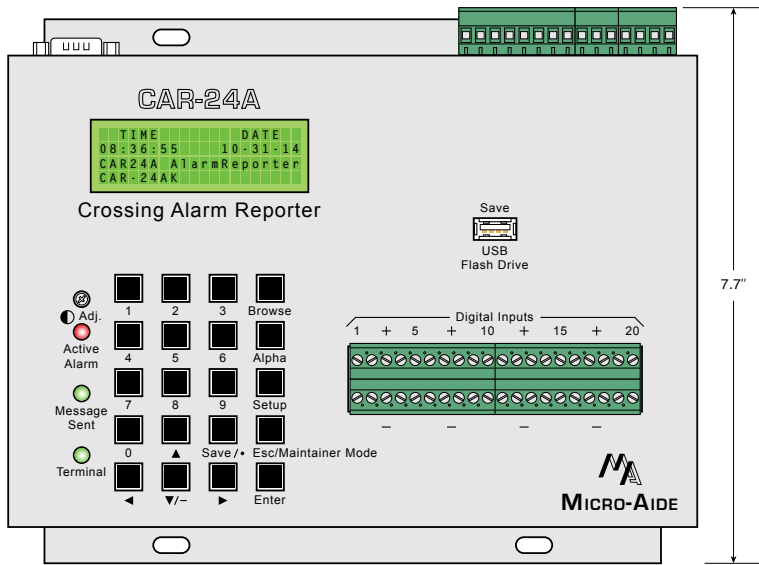**Time Zones**: 7 different North American settings

Automatic Adjustments: Daylight Saving Time and leap year

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

MESSAGE HANDLING

Digital 20 / Analog 4 / → **CAR-24AK** (Inputs, Ethernet Port, Event Recorder) → **Raven X Cell Modem** → **VPN** → **Message Processing Server** → To Trouble Ticket System

* A total of 20 alarms can be defined and reported

Alarms listed are for c24gates2down.v101 Database

ALARMS*
- Batt1 out of range
- Batt2 out of range
- Batt3 out of range
- Batt4 out of range
- POR off > 30min.
- POR off > 2hr.
- Gates not up
- Gates not down
- Long XR > 30min.

PROTOCOLS
- Alarms → Messages
- Health Check → • HTTP 1.1 - Get
- Clock ↔ Time Sync • SNTP - Unicast
- User Info ↔ TCP/IP • Telnet

3.2"

Terminal

Ethernet

USB
Device
To PC

+ – + – + – + –   Rly   Power

A1 A2 A3 A4   C   B B N N
└──── Analog ────┘ NO NC

9.5"

MICRO-AIDE

CAR-24AK
CROSSING ALARM REPORTER

CAR-24A

```
TIME            DATE
08:36:55   10-31-14
CAR24A AlarmReporter
CAR-24AK
```

Crossing Alarm Reporter

Save

USB
Flash Drive

Adj.

Active
Alarm

Message
Sent

Terminal

1   2   3   Browse

4   5   6   Alpha

7   8   9   Setup

0   ▲   Save / •   Esc/Maintainer Mode

◄   ▼/–   ►   Enter

Digital Inputs
1   +   5   +   10   +   15   +   20

—   —   —   —

MICRO-AIDE

7.7"

5.0"

.5" x .219", 4 places

7.0"   7.5"