

APPENDIX A – TECHNICAL DATA

SPECIFICATIONS

Physical

Size
Length: 8.2"
Height: 5.9"
Depth: 2.6"

Weight
1.3lb.

Environmental

Storage
Temperature: -50 °C to 85 °C
Humidity: 0 to 95%, non-condensing

Operating
Temperature: -40 °C to 72 °C
Humidity: 0 to 95%, non-condensing

Mounting

Shelf or backboard

Construction

Chassis
Fully enclosed, anodized aluminum
Externally accessible LEDs and connectors

Electrical

All components mounted on conformal coated, internal PCB

Power

Voltage
Range: 9 to 36 Vdc

Consumption
Maximum: 2W

Isolation

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

Capacities

Inputs
Digital: 10, all optically isolated
Analog: 4 total
Virtual: 8, user assigned
Timer: 8, user assigned
Alarm: 20, user assigned

Event Storage

Standard: 307,123 records
Maximum: 1,274,611 records

Physical Inputs

Input Impedance
Digital: minimum 10KOhms, optically isolated
Analog: minimum 10MOhms

Physical Inputs (continued)

Range
Digital Input-On: 9 to 36 Vdc
Digital Input-Off: 0 to 2 Vdc
Analog Voltage: 1 scale, 0 to +51.1 Vdc

Event Validation Times

Digital: .001 to 32.767 seconds, compatible with fixed rate flashing circuits
Analog: fast and slow filter settings

Analog Limit Values

High and Low Limits: 0 to 51.1 Vdc, in multiples of .1 Vdc

Analog Input Accuracy

Typical Vdc: ±.15 Vdc

Virtual Inputs

Definitions
Any logical association shared by 1 to 4 variables (i.e., Digital, Analog or other Virtual Inputs)
Assigned by defining the state of the Virtual Input for each combination of variable states

Reporting

Creates standard Event Records

Timer Inputs

Programming
Any input can be assigned as a trigger or terminating source
On or Off events 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

Alarm Inputs

Usage
On/Off state changes create Event Records that are logged to memory
Designed for a broad range of crossing and signal monitoring applications

Definitions

User-assigned inputs and input states qualify each Alarm
User-assigned time durations validate each Alarm
All definitions are included in a single Alarm Configuration Table

Validation Times

0 to 99,999 seconds

Temperature Sensing

Usage: measures and reports internal temperature of recorder
High and Low Limits: -67 °F to 257 °F

Memory

Type
Non-volatile, Event Records and Setup Database are stored in flash memory chip
Newest data over-writes 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
Terminal Emulation: ANSI
Baud Rates: 300, 600, 1200, 2400, 4800, 9600, 19,200, 38,400, 57,600, 115,200
Bit Format: 8-N-1

Ethernet (optional)

Type: 10/100 Base-T
Protocols: TCP/IP, Telnet, SNMP-Multicast
Concurrent Sessions: Telnet (1)
Provides remote or local access via TCP/IP Telnet connection
Data transfer rates of 850 Kbps
User assignable IP Address, Telnet port, sub-net mask

Indicators and Controls

System Status LEDs (5)

Power: green
Active Alarm: red, illuminates when one of more Alarm Inputs are On
Running: green, flashes once per second to indicate processor is running
Terminal: green, flashes with send and receive data
Maintainer Mode/Event Storage: yellow, on when Maintainer Mode is active; blinks momentarily when an Event Record is logged to memory

Input Status LEDs (10)

Digital Inputs 1-10: green, illuminates when input is On

Ethernet Port LEDs (2 optional)

Green: link established
Yellow: data activity

Maintainer Mode Pushbutton

Enables and disables Maintainer Mode

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Connectors

Power

Detachable, screw-down, 4-position, 12 to 22 AWG

Dual B and N terminals

Digital Inputs

Detachable, screw-down, 10-position, 12 to 22 AWG

Analog Inputs

Detachable, screw-down, 8-position, 12 to 22 AWG

Terminal Port

DE-9 male, configured as modified DCE

Ethernet Port (optional)

RJ-45 female

Internal Clock

Accuracy

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

Volatility: maintains accuracy for minimum of 30 days with loss of power

Resolution: .001 seconds for all Event Records

Sync Interval

SNTP-Multicast: per time server schedule (requires Ethernet Port option)

Operation

Time Zones: selectable from 7 different North American settings

Daylight Saving Time: enable or disable automatic adjustment

Leap Year: automatically adjusted

Password Protection

Administrative Level

Access: unrestricted to all functions

Length: 8 characters

Restricted Level

Access: Event Record and Setup Database viewing only

Length: 8 characters

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

TRANSFER RATES

The following table lists typical bit transfer rates for both of the CRD-14's user-accessible ports. In each case the same 20,000 Event Records with no-detail formatting were either dumped to a PC file or saved directly to a flash drive. The times listed are normalized relative to 1,000 Event Records. If speed is a concern, using the optional Ethernet Port is highly recommended.

Port	Time to transfer 1,000 Event Records (sec)	Actual transfer rate (bps)	Relative speed compared to 38,400
Terminal Port (38,400)	18.78	38,352	Used as reference
Ethernet Port	.84	853,851	22.3 times faster

Table 10: Bit Transfer Rates by Port

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TERMINAL PORT CABLE

The following cable is included with every CRD-14.

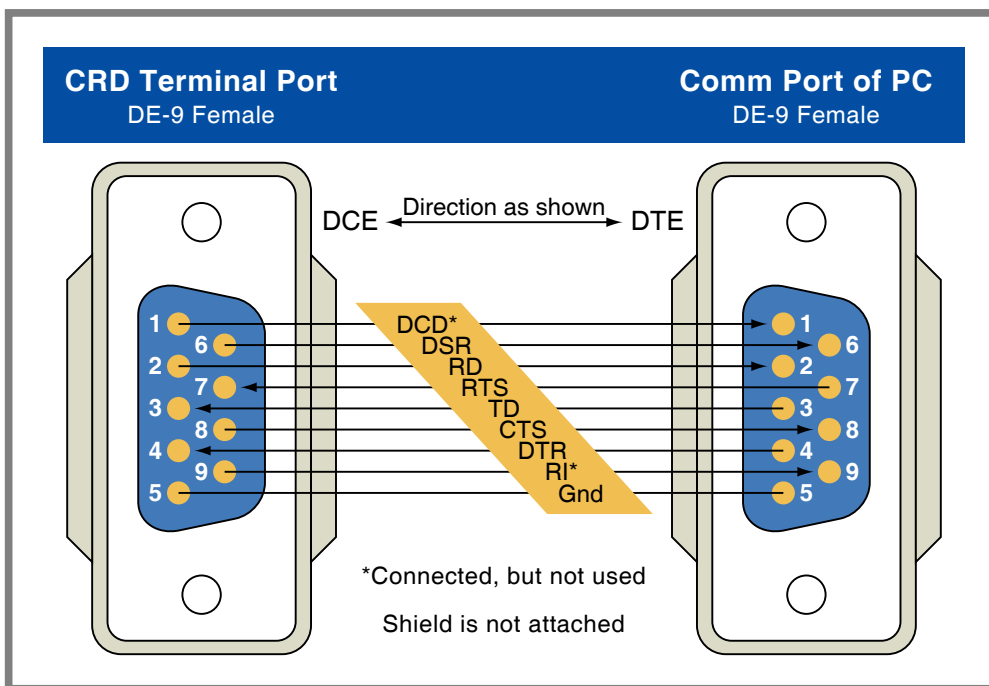


Figure 7: Terminal Port Cable - Wiring Diagram