

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
Minimum: 3800 Vdc to chassis and any terminal

Alarms

Quantity: 20 total, appropriate for crossing applications, user-defined
Types: Set, Cleared and periodic Health Check

Definitions

User-assigned inputs and input states qualify each Alarm

Validation Time

As defined by Alarm Configuration Table, 0 to 99,999 seconds

Transmission

Sent to Union Pacific message processing server via Union Pacific VPN or LAN

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: 10, all opto-isolated
Analog: 4 total, voltage only
Virtual: 8, user assigned

Input Impedances

Digital: minimum 10KOhms
Analog: minimum 10MOhms

Range

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

Validation Times

Digital: .001 to 32.767 seconds
Analog: as defined by Alarm Configuration Table, 0 to 99,999 seconds

Analog Limit Values

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

Analog Input Accuracy

Typical: ± 15 Vdc

Temperature Sensing

Usage: measures and logs abnormal internal chassis temperatures
High and Low Limits: -67°F to 257°F

Virtual Inputs

Usage
Can be used as Set or Clear Input in Alarm Configuration Table

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

Ports

RS-232
Quantity: 1, for use with a PC
Terminal Emulation: ANSI
Baud Rates: 300 to 115,200
Bit Format: 8-N-1

Ethernet

Type: 10/100 Base-T, typically connected to cellular modem or directly to LAN
Protocols: HTTP-Get, TCP/IP, Telnet, SNTP-Unicast
User interface: provides remote or local access via TCP/IP connection
Settings: user assignable IP Address, port, subnet mask, dual IP Addresses for time server

Indicators and Controls

System Status LEDs (5)
Power, Message Sent, Terminal: green
Alarm: red, illuminates when one or more Alarms are active
Maintainer Mode: yellow

Input Status LEDs (10)

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

Maintainer Mode Pushbutton

Controls Maintainer and Remote Port Modes

Memory

All Setup Database parameters and logged data are completely non-volatile with loss of power

Internal Clock

Accuracy
Typical: ± 8 seconds per month (3ppm) when not synchronized
Volatility: maintains accuracy for minimum of 30 days with loss of power

Sync

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

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: modifications restricted to site-specific parameters of Setup Database, unrestricted viewing of all data and Setup Database parameters
Length: 8 characters

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

TERMINAL PORT CABLE

The following cable is included with every CAR-14.

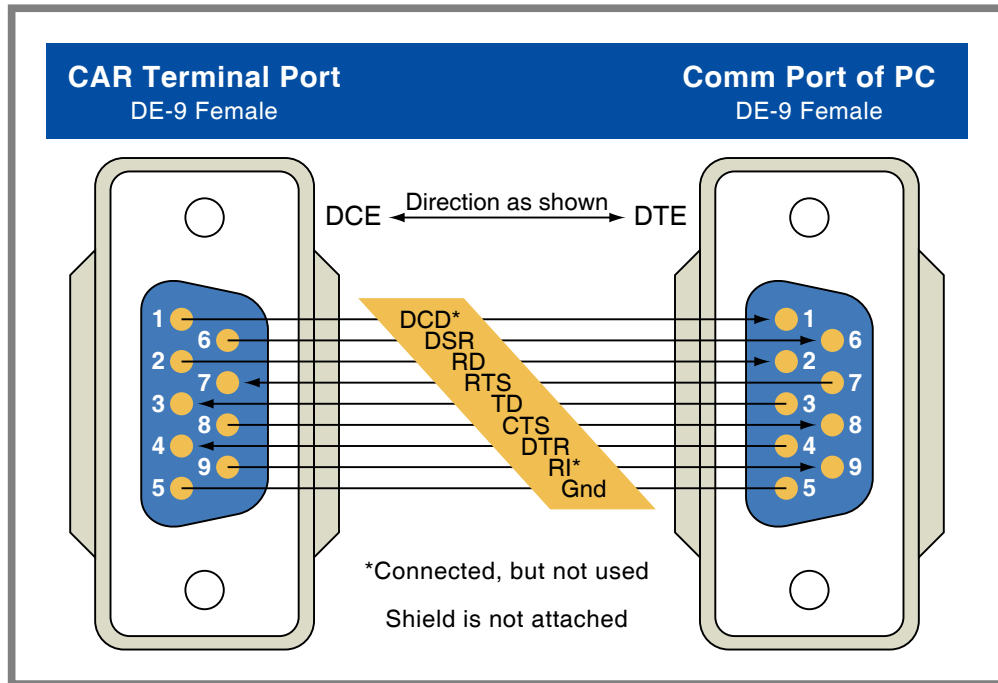


Figure 7: Terminal Port Cable - Wiring Diagram

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