APPENDIX A – TECHNICAL DATA

SPECIFICATIONS

Physical
Size
Length: 8.2″
Height: 5.9″
Depth: 2.6″
Weight
1.3 lb.

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: 1.8 W

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, DC voltage only
Virtual: 8, user-assigned
Alarm: 20, user-assigned
Input Impedances
Digital: minimum 10 KOhms
Analog: minimum 10 MOhms
Range
Digital Input-On: 9 to 36 Vdc
Digital Input-Off: 0 to 1 Vdc
Analog Voltage: 1 scale, 0 to +51.1 Vdc
Validation Times
Digital: .001 to 32.767 seconds
Analog: fast filter setting

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 (3 ppm) 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.

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Terminal Port Cable

The following cable is included with every CAR-14A.

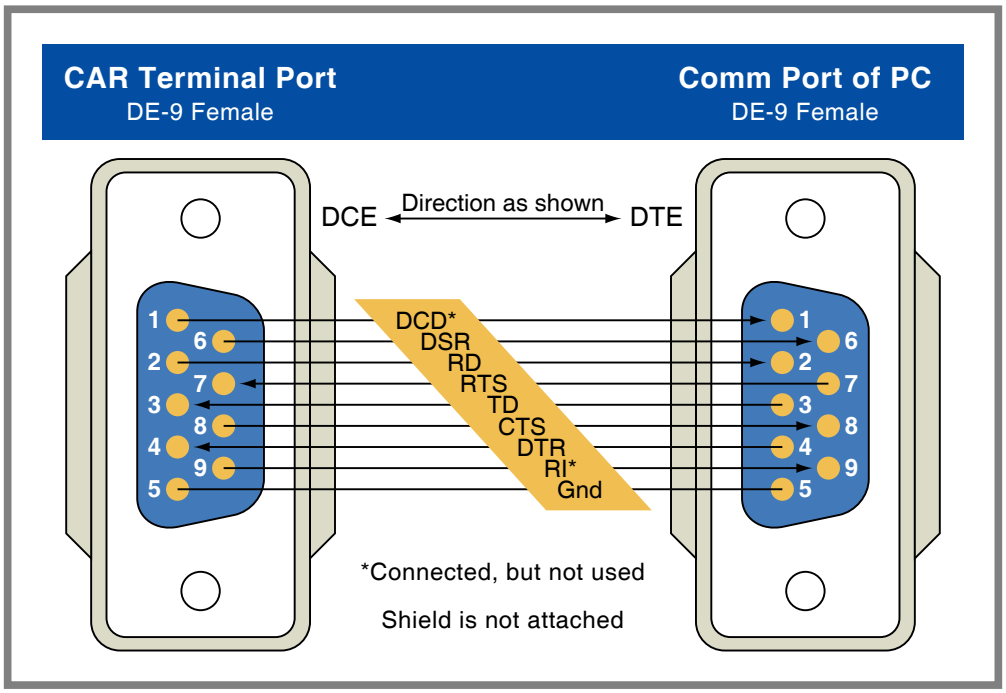

Figure 7: Terminal Port Cable - Wiring Diagram

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