TECHNICAL DATA

Specifications

Physical

Size
Length: 11.1"

Height: 7.0"

Depth: 3.1"

Weight
3.5lb.

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
Standard: shelf or back board mounting (includes brackets)

Optional: 19" rack mounting brackets available

Construction

Chassis
Fully enclosed, anodized aluminum

Externally accessible keypad, LEDs and connectors

Electrical
All components mounted on conformal coated, internal PCBs

Power

Voltage
Range: 10 to 36Vdc

Consumption
Typical: 6W

Maximum: 7W (with Modem PCB)

Isolation

Power
Minimum: 3800Vdc from B and N terminals to chassis and inputs

Digital Inputs
Minimum: 3800Vdc to any terminal

Analog Inputs
Minimum: 3800Vdc to any terminal

Input to Adjacent Input
Digital: minimum 3800Vdc

Analog: minimum 3200Vdc

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

Capacities

Inputs
Digital: 64, all opto-isolated

Analog: 8 total; 1 internally connected to B and N power terminals, 4 can measure current

Virtual: 16, user assigned

Timer: 32, user assigned

Outputs
Relays: 2, dual form C, rated for 2A at 24Vdc or 1A at 125Vac, maximum switching capacity of 125VA or 60W, service life 1 million electrical (typical)

Event Storage
Standard: 123,040 records, expandable to 246,336 records

Memory Full: 129th day over-writes first day, newest data over-writes oldest data

RS-232 Port
Quantity: 1, for use with a PC

Emulation: ANSI

Baud Rates: 10 settings, 300 to 115,200

Bit Format: N-8-1

Capacities (continued)

Printer Port
Quantity: 1, parallel, for use with inkjet and laserjet printers

Liquid Crystal Display
Characters: 80 total on 2 lines

Character Set: A-Z upper- and lower-case, 0-9, various symbols

Viewing Area: 2.8" by .8"

Front Panel Keypad
Quantity: 20 keys

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

Inputs

Input Impedance
Digital: minimum 10KOhms, opto-isolated

Analog: minimum 10MOhms

Range
Digital Input - On: 5 to 40Vdc

Digital Input - Off: 0 to 2Vdc

Analog DC Voltage: 3 scales, ±25.5, +51.1, ±255

Analog AC Voltage: 2 scales, 25.5, 255

Analog Current: 2 scales (optional), ±25.5Adc, 25.5Aac

Event Validation Times
Digital: .01 to 327.67 seconds, compatible with fixed rate flashing circuits

Analog: fast and slow filter settings

Analog Input Accuracy
Typical Vdc: ±1% full scale

Typical Vac: ±1.5% full scale

Typical Current: ±2% full scale

Analog Limit Values

Voltage
Separate low and high limits, in multiples of .1V or 1V

Current
Separate low and high limits, in multiples of .1A

Internal Temperature
Separate low and high limits, -67°F to 257°F

Virtual Inputs

Quantity
16, user assigned

Definitions
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

Reporting
Creates standard Event Record

Relays can be controlled by each Virtual Input

Modem (optional) can be set up to dial-out Event Record

Timer Inputs

Quantity
32, user assigned

Programming
Any input can be assigned as the trigger or terminating source

On or Off events can be assigned as the trigger or terminating source

Limit Values
Separate low and high limits per assigned Timer Input, 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

Quantity
4 total, separately programmable

Operation
Reports excessive train speed

Logs standard Event Record

Sensors are wired to 2 spare Digital Inputs

Limit Values
5 to 180mph

Distance between Sensors
50' to 5280'

Memory

Type
Non-volatile, Event Records and Setup Database are stored in flash memory chip

Storage Longevity
Infinite with power off

Rated for 1 million write operations

Connectors

Digital and Analog Inputs
Detachable, screw-down, 6 or 8 terminals each, 12 to 22AWG

Terminal Port
DE-9 male, configured as DCE

Printer Port
DB-25 female, standard parallel printer configuration

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

Dual B and N terminals

Alarm Relays
Detachable, screw-down, 6-position, 12 to 22AWG

Dual N.O., N.C. and common

Telephone Line (2)
RJ-11 female, wired in parallel

Current Sensor
DE-9 female, used with CWR-CS

Controls

Keypad
20 keys, located on front panel

LCD Contrast Adjust
Single-turn potentiometer, located on front panel

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-in

Internal Clock

Accuracy
Typical: ±1 minute per month (20ppm)

Sync
Spare Digital Input used to synchronize real-time clock

Resolution
Event Records are time stamped to nearest .01 seconds

Operation
Full calendar, auto-adjusted for leap year

Non-volatile with power off

Y2K compliant

Password Protection

Administrative Level
Access to all functions, limit 8 characters

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

Passcode
Protects against alterations to Setup Database via front panel, limit 8 digits

Internal Modem (optional)

Type
V.34, 33,600 Baud, data compression and error correction

Usage
Remote access via auto-answer operation

Allows dial-out alarm reporting of Virtual Input records

Compliance
Designed to meet FCC part 68 standards

Dial-out Alarms (optional)

Calling Method

Primary and secondary dial numbers, multiple attempts

Tone or pulse dialing

Data

Issues Event Record for enabled Virtual Inputs

Terminal Port Cable
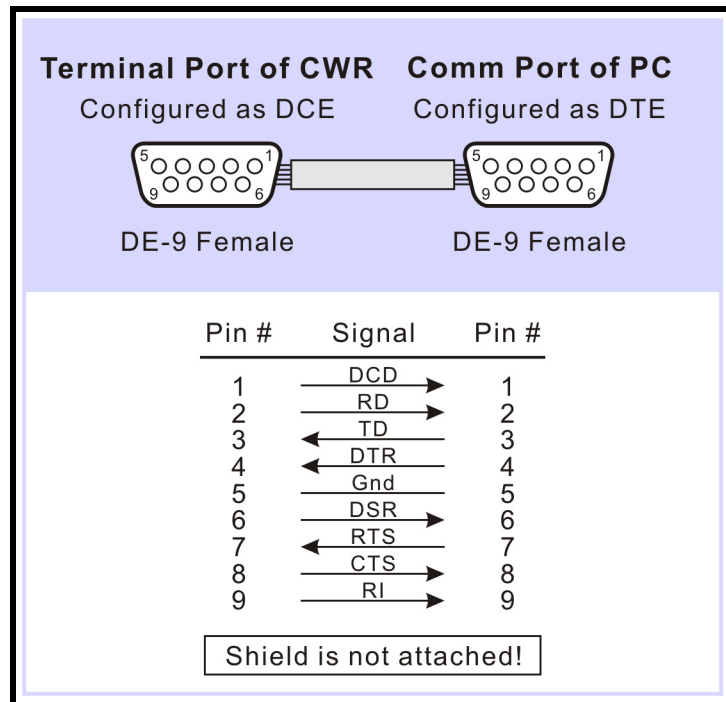
The following cable is included with every CWR-72.

Figure 7 - Terminal Port Cable - Wiring Diagram