CORMAN TECHNOLOGIES INC.

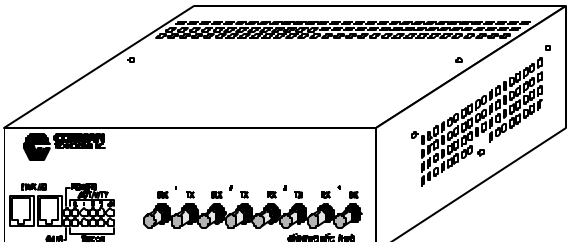
Technical Product Specifications

CT-N920

CorNet ARCNET Diagnostic Hub
4 Port Industrial Temperature Fiber Optic ST 820 nm CE

DESCRIPTION

This is an ARCNET hub with diagnostic LEDs and linking ports. The CT-N900 series of hubs was created to fill a need for an ARCNET hub with additional diagnostic capabilities for tracking down reconfiguration problems without resorting to the complexity and cost of an "Intelligent Hub". These hubs are built to withstand a wide range of industrial temperatures. The hubs maintain full output levels even when running at maximum temperature and data traffic loads. This stability is provided through the use of a switching regulator in the power supply and attention to detail in the output driver section. The switching regulator produces less heat and withstands brownouts better than a linear regulator. Proper thermal design ensures that heat produced in the output drivers is dissipated via convection air currents in any acceptable mounting position.



OPERATING ENVIRONMENT

- Power: 120 VAC +6%/- 10% @ l60 mA; 240 VAC +6%/- 10% @ 80 mA; 50 Hz or 60 Hz
- Operating Temperature: -40°C to +75°C
- Humidity: 0% to 95% (non-condensing)

ARCNET LAN INTERFACE

- Wavelength: 820nm to 850nm
- Connectors: Two ST connectors per port (Transmit [Tx] and Receive [Rx])
- Max. Receiver Input Power: -7.6dBm @ 25°C, -8.2dBm @ 85°C
- Optical Power Budget:

Fiber Type (µm)	Typical Transmitter Power	Minimum Transmitter Power	Typical Receiver Sensitivity	Minimum Receiver Sensitivity	Typical Link Budget	Minimum Link Budget
62.5/125	-12.0 dBm	-15.0 dBm	-27.5 dBm	-24.9 dBm	15.5 dB	9.9 dB
100/140	-6.5 dBm	-9.5 dBm	-27.5 dBm	-24.9 dBm	21.0 dB	15.4 dB

PHYSICAL SPECIFICATIONS

- Height: 2.75 inches
- Width: 8.5 inches
- Depth: 7.5 inches (including connectors)
- Weight: 5 pounds

Included with the hub are two mounting brackets and four bolts for attaching the brackets to the hub. A link cable and one terminator are included for expanding the hub configuration to add more ports or to connect hubs with different types of media. A detachable power cord is also included.

INSTALLATION CONSIDERATIONS

680A Davenport Rd., Waterloo, Ontario, Canada N2V 2C3 Telephone: (519) 884-4430 Fax: (519) 884-0204

Fiber Optic Cable Type

- Dual Fiber
- Graded Index (Multi-Mode)
- 62.5/125µm or 100/140µm
- ST connectors

Cable specifications include a standard connector loss for both ends of a single cable. It is recommended to allow 2dB of loss to allow for dirt and cracks in the connectors for any given link. Each fusion splice typically adds 0.25 dB loss, and barrel connector splices are the sum of the barrel connector and two end connector losses. All these factors result in loss along the line and must be considered.

Maximum Distance per Segment

A segment is the cable between two hubs or a hub and a card on the network. The maximum length of a segment of fiber optic cable is dependent on the quality, size, connectors, splices and rating of the fiber optic cable. The most important fiber optic cable specification is the attenuation per kilometer. In combination with the link budget shown previously, the maximum segment length can be calculated.

For example, consider a fiber optic cable with the following specifications:

- 62.5/125µm
- Maximum attenuation 3.0 dB/Km
- No splices in entire cable length
- ST connectors on both ends
- Grade F, OFNR (UL Listed Riser)
- 850 nm

From the Optical Power Budget chart the recommended Link Budget is 9.9 dB. Allowing the recommended 2 dB margins, the maximum segment length is then:

$$\text{Max. Segment Length} = \frac{\text{(Link budget-connector \& splice losses - 2 dB)}}{\text{Attenuation}} = \frac{\text{(9.9 dB- 0 - 2 dB)}}{\text{3.0 dB/km}} = \text{2.6 km [1.6 miles]}$$

Maximum Network Span

The maximum span defines the longest signal path length between any two nodes in the network. This determines the maximum end to end propagation delay. ARCNET controller chips have several internal timers based on the maximum propagation delay for a particular timeout level. A signal is allowed to pass through up to ten hub delays plus 2000ft [609m] of a coax cable at each segment to determine the standard propagation delay times. This becomes 22,000ft. [6705m] for a coax network. Since the velocity of propagation is lower in fiber optic cable, the network span is reduced. The maximum span for a network connected entirely with fiber optic cable using standard time-outs is approximately 18,500 ft. [5600 meters].

Mounting

- 19" EIA rack mountable
- wall mountable
- stackable (up to 4 hubs)

CONFORMS TO THE FOLLOWING STANDARDS

- ARCNET: ANSI 878.1
- EMC: EN55022:1994 (Emissions)
  CISPR 22 1993-12 Class A
  FCC Part 15 Class A
  EN 50082-1 (Immunity)
  IEC 1000-4-2:1995 (IEC 801-2:1991)
  IEC 1000-4-3:1995
  IEC 1000-4-4:1995

- Safety: EN 60950:1992/A1:1993
  IEC 950:1991+A1:1992+A2:1993
  UL 1950, cUL (CSA 950 accepted equivalent)

- European CE compliance

Before any unit can leave the factory, an intensive elevated temperature burn-in procedure is performed. Our workmanship and quality control is focused on the goal of customer satisfaction.