2C20 ControlNet electrical interface module

Overview

Electrical interface modules (EIM) connect the copper signal to digital signal for transmission over fiber via the optical interface module (OIM). The basic modem configuration consists of a power supply, an EIM, and an OIM. Additional modules may be added to configure daisy-chain, star, and self-healing ring (SHR) topologies.

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Technical specification

Feature	Description
Protocols and extra features	ControlNet
Communcations data rate	5.0M Baud
Copper cable connector	BNC
Copper cable end termination	User supplied
Maximum devices and copper cable length supported per module	Per ControlNet specifications
Ambient conditions	-40 to 85°C operational, 0-95% relative humidity non-condensing
Power requirements (bus)	9Vdc @ 200mA maximum per module
Power indicator	Green LED
Communications activity indicator	Amber LED
Certfiications	CE Marked, Class I, Division 2, Groups A, B, C & D (on selected models), US and Canada
Weight	9oz
Accessories	Power supply 2A06, 2A16, 2A08, 2A18
Installation instructions	Shipped with product or available on request

Technical notice: The 2C30 alarm outputs (relays and LED indicators) may indicate that the fiber links are suspect even when the fibers are known to be within normal limits. Issue: The 2C30 Self Healing Ring Module utilizes the data stream itself to indicate the integrity of the fiber links. In most industrial networking protocols, this data stream is fairly continuous with only short “dead times” between packets of data information coming from the various communications nodes of the network. The amount of dead time between data packets is significant to this issue. The 2C30 sets a 540ms timer at the end of the last received data packet coming from each of the two optical modules of the modem stack. If it does not start to receive another new data packet before that timer times out then it sets the alarm (user accessible relay contacts change state and green LED indicator turns red) indicating a fiber failure. With the vast majority of industrial control protocols, this timer never comes close to timing out in normal network operation. However, some protocols, such as RS-232, can be set up with large time differentials between communications events and, therefore, the dead time between the data packets can also vary greatly. If the dead time between communications events is longer than 540ms, this issue becomes a problem. Work around: Always set the network communication update rate such that the dead time between data packets is significantly less than 540ms. 300ms or less is an optimum target value.

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About Ultra Energy

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Part of Ultra Group, a global electronics company, Ultra Energy has worked with nuclear and industrial customers for over 60 years. We support customers across the world from facilities located in the US and UK. Our solutions are embedded in strategic national infrastructure and our people are active partners in customer programs that are focused on delivering advanced future nuclear and industrial capabilities.

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