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- Based on COM20019 Rev. B Industrial Network Controller
- Supports both standard and backplane signaling schemes
- COAX and UTP support for standard ARCNET signaling in both bus and star topologies
- Isolated and direct RS485 interfaces
- All media interfaces are jumper selectable
- Data rates from 19 Kbps to 312 Kbps
- 8 bit, I/O mapped bus interface, I/O address is switch selectable
- Programmable DMA channel
- On-board node ID switch
- Capable of receiving all packets
- Includes demo software
  - Sample driver, network monitor and mapping routes

## **APPLICATIONS:**

Test equipment, network development and debug,  
network management/monitoring, network evaluation,  
performance analysis

## USER'S MANUAL FOR EVB-20019 INDUSTRIAL ARCNET ADAPTER CARD

### **I/O Address Selection**

The EVB-20019 is an 8 bit I/O mapped card. The I/O address is selected via DIP switch S1. The switch positions correspond to address bits A9 – A3. The switch is factory set for address 2E0h. If you encounter problems accessing the card then you must change the value of the address. To set the address simply set the switch according to the binary representation of that address. For example, address 2E0h would be 1011100. The network controller uses addresses XX0 – XX7 and address XX8 selects the Node ID switch (S2).

### **Node ID Selection**

The EVB-20019 is equipped with an on-board Node ID switch mapped at address XX8. The COM20019 network controller requires a software programmable ID, therefore the switch does not automatically provide a Node ID to the COM20019. The switch only provides a value to be programmed by the software.

### **Media Interfaces (Transceivers)**

The EVB-20019 supports three types of media interfaces: direct coupled RS-485, and isolated RS-485 (twisted pair) ports and twisted pair TMCAC RS-485 line interfaces.

#### **Direct Coupled RS-485**

The Direct Coupled RS-485 interface uses a RJ-11 connector with Phase A on pin 2 and Phase B on pin 3. Recommended cable is 24AWG unshielded twisted pair such as Belden #9562. Biasing resistors are provided (470 ohms) for squelching of reflections. A 75ALS176B transceiver is used. Short stubs or drops of less than one foot can be accommodated but are not recommended. Data rates from 19 Kbps to 312 Kbps are allowed. Note that the Direct Coupled RS-485 interface is not compatible with either the isolated RS-485 or the standard ARCNET twisted pair interface.

#### **Isolated RS-485**

The Isolated RS-485 interface employs transformer coupling to electrically isolate the data lines and make the connections insensitive to polarity. Isolation is provided up to 2KV. Data rates from 19 Kbps to 312 Kbps are accommodated. Connections are made via pin 2 and 3 of the RJ-11 connectors. Note that the isolated 485 transceiver utilizes a different modulation technique than the direct coupled scheme and should not be mixed with direct coupled interfaces or with the standard ARCNET twisted pair interface.

#### **TMC AC RS-485**

The AC power RS-485 is an optional transceiver interface.

### **Jumpers**

There are three sets of jumper blocks on the EVB-20019 board. JP1-4 selects the clock speed of the network controller. JP1 and JP2 MUST BE INSTALLED for proper operation. JP3 and JP4 are for future use and should be left unconnected. JP9, JP10, JP11 and JP19 select the source of data for the network controller's receiver. JP15-17 are used to choose the media type. Refer to the following table for the correct jumper settings:

| MEDIA TYPE      | CONNECT JUMPERS  |
|-----------------|------------------|
| Direct RS-485   | JP9, JP12, JP13  |
| Isolated RS-485 | JP10, JP14, JP15 |
| TMC AC RS-485   | JP19, JP22, JP23 |

### **Interrupts**

If your software is to be interrupt driven, the priority of the interrupt is selected through JP5-JP8 (IRQ3-6).