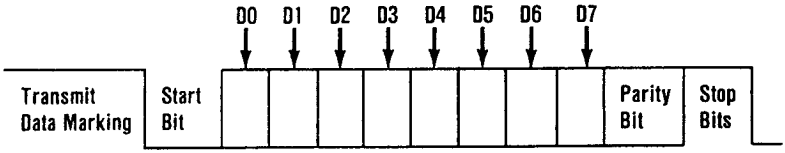
Interrupts

One interrupt line is provided to the system. This interrupt is IRQ4 for a primary adapter or IRQ3 for an alternate adapter, and is positive active. To allow the communications card to send interrupts to the system, bit 3 of the modem control register must be set to 1 (high). At this point, any interrupts allowed by the interrupt enable register will cause an interrupt.

The data format will be as follows:



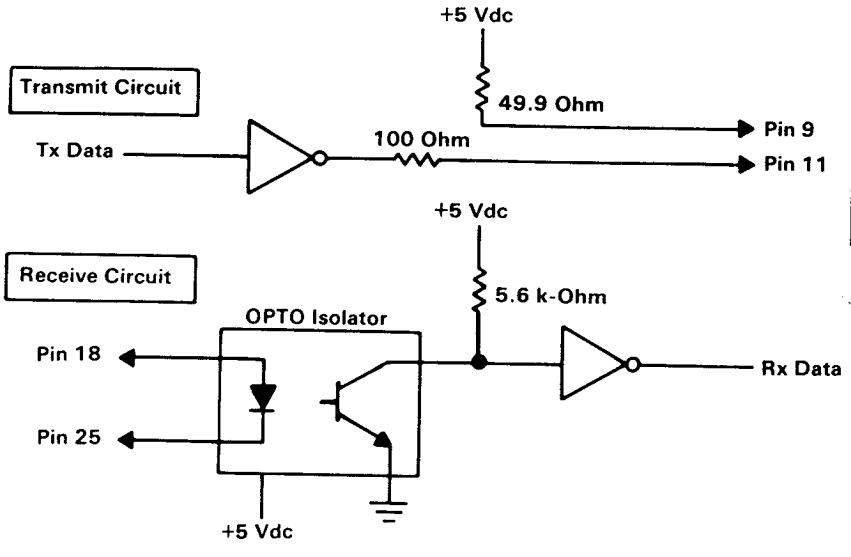
Data bit 0 is the first bit to be transmitted or received. The adapter automatically inserts the start bit, the correct parity bit if programmed to do so, and the stop bit (1, 1-1/2, or 2 depending on the command in the line-control register).

Interface Description

The communications adapter provides an EIA RS-232C-like interface. One 25-pin D-shell, male type connector is provided to attach various peripheral devices. In addition, a current loop interface is also located in this same connector. A jumper block is provided to manually select either the voltage interface, or the current loop interface.

The current loop interface is provided to attach certain printers provided by IBM that use this particular type of interface.

Pin 18 + receive current loop data
Pin 25 − receive current loop return
Pin 9 + transmit current loop return
Pin 11 − transmit current loop data



Current Loop Interface

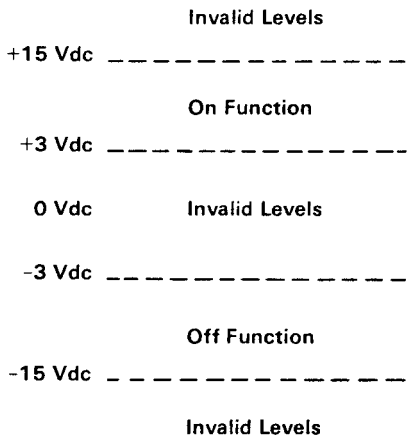
The voltage interface is a serial interface. It supports certain data and control signals, as listed below.

Pin 2	Transmitted Data
Pin 3	Received Data
Pin 4	Request to Send
Pin 5	Clear to Send
Pin 6	Data Set Ready
Pin 7	Signal Ground
Pin 8	Carrier Detect
Pin 20	Data Terminal Ready
Pin 22	Ring Indicator

The adapter converts these signals to/from TTL levels to EIA voltage levels. These signals are sampled or generated by the communications control chip. These signals can then be sensed by the system software to determine the state of the interface or peripheral device.

Voltage Interchange Information

Interchange Voltage	Binary State	Signal Condition	Interface Control Function
Positive Voltage =	Binary (0)	= Spacing	=On
Negative Voltage =	Binary (1)	= Marking	=Off



The signal will be considered in the "marking" condition when the voltage on the interchange circuit, measured at the interface point, is more negative than −3 Vdc with respect to signal ground. The signal will be considered in the "spacing" condition when the voltage is more positive than +3 Vdc with respect to signal ground. The region between +3 Vdc and −3 Vdc is defined as the transition region, and considered an invalid level. The voltage that is more negative than −15 Vdc or more positive than +15 Vdc will also be considered an invalid level.

During the transmission of data, the "marking" condition will be used to denote the binary state "1" and "spacing" condition will be used to denote the binary state "0."

For interface control circuits, the function is "on" when the voltage is more positive than +3 Vdc with respect to signal ground and is "off" when the voltage is more negative than −3 Vdc with respect to signal ground.

PROTOCOL SELECTION

There are 5 different user selectable communication protocols available on the COM-422 board. These are controlled by the Protocol Sel DIP switch on the board. The available protocols are described below. The switch settings to select each of these are shown in the figures to the right.

1. RS-232 with all standard IBM PC/XT/AT compatible bus control signals (e.g. request to send, data terminal ready, clear to send).
2. RS-232 without bus control signals (only data inputs and outputs).
3. Current loop.
4. RS-422 with request to send and clear to send control signals.
5. RS-422 without RTS and CTS control signals.