MAGTEK®

Application Note - RS-232 Interface

RS-232 Interface

The most common serial interface used today by computer manufacturers is the RS-232 interface. It was originally issued in 1969 by the EIA (Electronics Industries Association) for a single purpose: to interconnect terminals (Data Terminal Equipment -DTE). When RS-232 is used to interface terminals to modems (Data Communication Equipment -DCE), it is simply connecting respective pins on the two devices (modem and terminal). However, RS-232 is often used to interconnect terminals to terminals or computers to peripheral equipment, and this interface connection requires special considerations.

The RS-232 is a pluggable signal interface located between the Host Device and Mag-Tek product. It consists of a cable (preferably no longer than 50 feet) and a D-shaped 9- or 25-pin connector. There are 25 pins in the specification, but almost all Mag-Tek products employ fewer than nine of these signals. Two signals are required for operation. The others are optional.

All signals in the specification are defined with respect to the DTE. For example, Transmit Data on the DTE connects to Transmit Data on the DCE. Thus when two DTE units are connected together, a null modem cable is required.

The following describes each Signal's function (see RS-232 Connectivity table for its proper connection).

Required Signals

Signal Ground

Signal Ground is basic in all RS-232 interfaces. Signal Ground is the reference for all signals. Signal Ground must be connected between the two devices.

Transmit and Receive Data (TXD / RXD)

Transmitted Data (TXD) is used to transmit data from one device to the other. The data is received by Receive Data (RXD).

Optional Signals

Protective Ground

Protective Ground may not be required in a product that does not contain metal chassis parts.

Request To Send and Clear To Send (RTS / CTS)

The Mag-Tek Device sends a control signal, Request to Send (RTS) to the Host Device, informing the Host Device that it is ready to send data. This signal is received by the Clear To Send (CTS) on the Host Device. In response to the RTS signal, the Host Device sends a CTS from its RTS allowing the Mag-Tek Device to proceed with transmission of data.

Data Terminal Ready and Data Set Ready (DTR / DSR)

The Mag-Tek Device sends Data Terminal Ready (DTR) to indicate that it is ready. The Host Device receives the DTR on Data Set Ready (DSR). Likewise the Host sends the DTR to the Mag-Tek Device, DSR. DTR is frequently used to indicate that power is applied.

Optional Signal Implementation

The following Procedures are described for the user whose devices do not implement DSR / DTR and / or RTS / CTS.

DTR / DSR Not Implemented

When DTR / DSR is not being employed in the Host Device, connect DTR to DSR in the end of the cable that connects to the Mag-Tek Device.

RTS / CTS Not Implemented

When RTS / CTS is not being employed in the Host Device, connect RTS to CTS in the end of the cable that connects to the Mag-Tek Device. Note: When this is done, the data characters will be transmitted the Host Device at full speed. Therefore the Host Device must be able to accept all the characters at the selected communications rate.

RS-232 Connectivity

Mag-Tek Device	DB25	DE9	Host Device	DB25	DE9
Signal GND	7	5	Signal GND	7	5
Protective GND	1			1	
TXD	2	3	RXD	3	2
RXD	3	2	TXD	2	3
RTS	4	7	CTS	5	8
CTS	5	8	RTS	4	7
DSR	20	6	DTR	6	4
DTR	6	4	DSR	20	6

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