OMNI™
Combined Bar Code
and
Magnetic Stripe Reader

RS-232 Serial Interface
Quickstart Manual

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DATA EDITING

The Omni has a data editing feature incorporated into its firmware. This feature allows the data read from the magnetic stripe or the bar code to be sent to the host in the exact format expected by the host software, eliminating the need for modifications to the application software.

Full data editing instructions are contained in the ID TECH Omni RS-232 User's Manual (P/N: 80028503-004). The manual is available without cost on the ID TECH website (www.idtechproducts.com), or by returning the coupon below:

ID TECH
10721 Walker Street
Cypress, CA 90630

Please send a copy of the following ID TECH manual:

Omni RS-232 User's Manual (P/N: 80028503-004)

Name: _____

Company: _____

Address: _____

City: _____

State: _____

Zip: _____

There is no charge for a single copy. There will be a charge of $10.00 for each additional copy.

MAGNETIC STRIPE DEFAULT SETTINGS TABLE

The reader is shipped from the factory with the following magnetic stripe default settings already programmed:

Magnetic Track Basic Data Format
Track 1: <SS1><T_1 Data><ES><CR>
Track 2: <SS2><T_2 Data><ES><CR>
Track 3: <SS3><T_3 Data><ES><CRLF>

where: SS1(start sentinel track 1) = %
           SS2(start sentinel track 2) = ;
           SS3(start sentinel track 3) = ; for ISO, ! for CDL, % for AAMVA
           ES(end sentinel all tracks) = ?

Start or End Sentinel: Characters in encoding format which come before the first data character (start) and after the last data character (end), indicating the beginning and end, respectively, of data.

Track Separator: A designated character which separates data tracks.

Terminator: A designated character which comes at the end of the last track of data, to separate card reads.

LRC: Check character, following end sentinel.

CDL: Old California Drivers License format.

AGENCY APPROVED

Specifications for subpart B of part 15 of FCC rule for a Class A computing device.

LIMITED WARRANTY

ID TECH warrants this product to be in good working order for a period of one year from the date of purchase. If this product is not in good working order as warranted above, or should this product fail to be in good working order at any time during the warranty period, repair or replacement shall be provided by ID TECH.

This warranty does not cover incidental or consequential damages incurred by consumer misuse, or modification of said product. For limited warranty service during the warranty period, please contact ID TECH to obtain an RMA number and instructions for returning the product.

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SPECIFICATIONS

Power Requirements, Bar Code:	Power +5 VDC +/-10% (35mA maximum). Ground 0 VDC (GND).
Power Requirements, Magnetic:	Power +5 VDC +/-10% (50mV ripple maximum). Ground 0 VDC (GND). Chassis Ground connected to GND and magnetic head case.
Operating Current:	About 65mA for combination magnetic stripe (three tracks) and bar code. About 35mA for magnetic stripe (three tracks) only. About 60mA for bar code only.
Operating Temperature:	32° F to 131° F (0° C to 55° C).
Weatherproof Option:	-31° F to 140° F (-35° C to 60° C) without ice build-up on optic or magnetic head.
Storage Temperature:	-31° F to 158° F (-35° C to 70° C).
Relative Humidity:	Maximum 95% non-condensing.
Magnetic Head Life:	1,000,000 passes minimum.
Rail and Cover Life:	1,000,000 passes minimum.
Magnetic Read Rate:	Less than one error in 100,000 bits on cards conforming to ISO 7811 1-5 (not induced by operator error).
Bar Code Source Light:	Visible red 660 nm or Infrared 930 nm.
Minimum Bar Code PCS:	60%.
Bar Code Centerline:	.49 inches (12.50mm) from bottom of slot to center of reading window.

UPC-A, -E	Enabled, Enabled
Send Number System Digit	Yes
Send Check Digit	Yes
Expand UPC-E	No
Read 2, 5 Digit Addendum	No, No
Addendum required	Yes
Add Addendum Separator	Yes
Send UPC-A as EAN-13	No

EAN-13, -8	Enabled, Enabled
Send Induced Country Code Digit	Yes
Send Check Digit	Yes
Read 2, 5 Digit Addendum	No, No
Addendum Required	Yes
Add Addendum Separator	Yes

Code ID

UPC-A	a
UPC-E	b
EAN-8	c
EAN-13	d
Code 39	e
Interleaved 2 of 5	f
Industrial 2 of 5	g
Code 128	h
MSI/Plessey	i
Codabar	j
Track 1	k
Track 2	l
Track 3	m
Telepen	n

Data Editing

Edit On/Off	Off
Unmatched Input	Do Not Send

Interleaved 2 of 5   Enabled

Interleaved 2 of 5	Enabled
Fixed Length	Off
Check Digit	None
Minimum Length	4
Maximum Length	60

Industrial 2 of 5	Enabled
Fixed Length	Off
Check Digit	None
Minimum Length	1
Maximum Length	60

Code 128	Enabled
Minimum Length	1
Maximum Length	60

Codabar	Enabled
Send Start/Stop	No
Check Digit	None
Minimum Length	2
Maximum Length	60

MSI/Plessy	Enabled
Send Check Digit(s)	No
Check Digits	Modulo 10/Modulo 10
Minimum Length	1
Maximum Length	60

FEBRABAN	Convert

Telepen	Enabled
Numeric Mode	On
Minimum Length	1
Maximum Length	60

Bar Code Resolution:	.006 (6 mil) minimum.
Magnetic Stripe Formats:	ISO 7811, AAMVA, and CA DMV.
Swipe Speed:	Bar Code: 5 to 65 inches per second, bi-directional. Magnetic Stripe: 3 to 60 inches per second, bi-directional.
Card Thickness:	Bar code media .005 to .050 inches. Magnetic stripe media .01 to .050 inches.
Slot Width:	.055 inches (1.37mm)
Dimensions:	Length: 5 inches (127mm). Width: 2.05 inches (52mm). Height: 1.38 inches (35mm).
Weight:	1.4 lb. (including power pack).
Cable Length:	6-foot straight cable.

DESCRIPTION

This slot reader can scan and decode most popular bar codes, as well as read 1, 2, or 3 tracks of magnetic stripe information. It also has full data editing capabilities.

It can be connected to a single-ended serial device, such as a cash register, PC, or terminal, through an RS-232 serial port. This unit is fully programmable through a serial utility program, such as Hyper Terminal (in Windows). The data can be formatted with preamble/postamble and terminator characters to match the format expected by the host.

Power is obtained from a separate power supply module when the unit is configured as an RS-232 device.

Terminal Selection Type	RS-232 (serial)
General Selection	
Beep Volume	High
Intercharacter Delay	5 milliseconds
Interblock Delay	0 milliseconds
Language	United States
Code ID	Off
Scan Verification	Off
Function Code	Off
Message Formatting	
Terminator Character	<CRLF>
Preamble	None
Postamble	None
RS-232 Port Settings	
Baud Rate	9600
Data Bits	8
Parity	None
Handshaking	X-On/X-Off
Stop Bit(s)	1
X-On	DC1 (\11)
X-Off	DC3 (\13)
Magnetic Stripe Selections	
Track Selection	Any Track
Start/Stop Sentinel	Send
Track 2 Send Account	
Number Only	Not Limited to Account No.
Track Separator	<CR>
Code 39	Enabled
Full ASCII	On
Check Digit	Off
Send Check Digit	No
Send Start/Stop	No
Minimum Length	1
Maximum Length	60

TROUBLESHOOTING

The Omni reader is easy to install and use. Most problems encountered can be attributed to:

• Incorrect Interface Cabling
• Incorrect Configuration Setup
• Bad Magnetic Stripe or Bar Code Quality
• Application RS-232 Parameter Setting Error

GENERAL PROCEDURES

The troubleshooting process can be simplified by following these simple diagnostic procedures.

1. The unit should emit two beeps when power is first applied. If it does not, then the unit is not receiving power.

2. Once it has been confirmed that the unit is correctly powered, try swiping a credit card. The LED will glow amber to indicate a "good read," or red to indicate a "bad read."

3. Once the unit has indicated a "good read," then proceed to check the interface cabling connections.

4. Check the RS-232 parameter setting.

DEFAULT SETTINGS TABLE

The Omni reader is shipped from the factory with the following bar code default settings already programmed:

HOST CONNECTIONS

The reader is connected to the host's RS-232 communications port. The cable has a DB-9 connector at one end, and is connected to the reader at the other end. (An adapter can be used to connect to a DB-25 RS-232 port.)

Data is transmitted to the host in an ASCII data format. The reader's output can be formatted with terminating characters and special preamble and/or postamble character strings to match the data format expected by the terminal.

The terminal must be configured to accept the data and to perform the appropriate processing. Care must be taken to ensure that the RS-232 parameters (baud rate, data bits, Start/Stop characters, parity, and handshaking method) match those expected by the terminal. Just transmitting the data to the serial port does not necessarily mean it will appear on the screen as if it were entered manually.

If the host is programmable (such as a PC running in terminal mode), a communication program, such as Procomm or Hyperterminal, can be used to display the data. In this way, data from the serial port appears to the host as if it has been entered manually via the keyboard.

There is insufficient power available on a standard RS-232 serial port to power the reader, so an external wall-mounted power module must be used. Connect the power cable from this unit to the power receptacle located on the DB-9 connector. Care must be taken to ensure the power module operates within +5 VDC $^+$10%.

CONFIGURATION

The reader may be configured to your specific application. Configuration settings enable the reader to work with the host system. These settings are programmed into the reader by sending Setup Commands from the host application to the reader. Once programmed, these configuration settings are stored in the reader's non-volatile memory (so they are not affected by the cycling of power).

The reader is shipped from the factory with the default settings already programmed. For a table of default settings, see the Default Settings Tables.

Note: If you want to send setup commands to the reader, you must make sure the communication baud rate matches the baud rate in the reader. (The default baud rate is 9600.) Before you make any settings, or try to get data to the host, check the connection cable, port, power, and communication parameters.

OPERATION

The reader is easy to operate. Just follow these simple steps:

1. Make sure the reader is properly cabled and is receiving sufficient power. (See Troubleshooting if there is a cabling or power problem.)

2. To read a card, slide the card, in either direction, through the reader slot, with the bar code facing the optical head (LED side) or the magnetic stripe facing the magnetic head (opposite side).

3. In idle states, the LED will glow green to indicate the unit is ready to read.

4. Once the magnetic stripe or bar code has been read successfully, the LED indicator will turn amber for 1-2 seconds to signal a "good read." If a good read is not obtained, the LED indicator will turn red for 1-2 seconds.

5. A beep will also sound to indicate a good read on the bar code or each magnetic track, as appropriate. If all three tracks have been read successfully, the reader will beep three times.