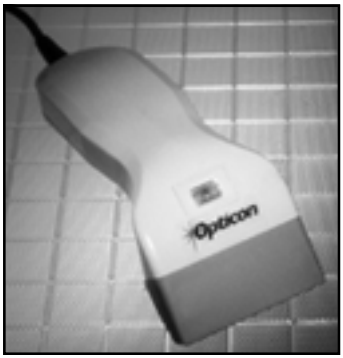
Addendum to
User's Manual



Ranger
Wedge Interface

Part No. 25-WEDGE-06A
Ver. April 1999

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Read Me First

This scanner provides additional functionality beyond those available in a standard wedge-only scanner. Prior to performing any programming to address these features, it is important to understand what these functions are and how to use them. The following will explain the operation and programming of the additional functions.

General Information

The RANGER scanner can operate in either a wedge, wand emulation or SureOne mode using the appropriate cable adapters. It can also be used to operate with a laptop computer with the appropriate adapter cable. A SureOne Kit scanner, although capable of operating in other modes, is terminated in a connector specific to the SureOne terminal and should not be programmed to operate in other than the SureOne or Laptop mode.

In the wedge mode, a RANGER operates like any wedge scanner, namely, it emulates a keyboard input to the device to which it is connected. Some devices, primarily decoder boxes and data collection terminals, are designed to operate with a pen-style (or wand) scanner. A RANGER scanner can be "programmed" to operate as a wand scanner simply by attaching the wand emulation adapter cable. Once in wand emulation mode, the scanner can be programmed for the wand options using the menu on page 20.

The programming menu on page 9 allows programming of the scanner to the default settings for either the wedge or wand emulation mode.

NOTE: Do not set Wedge defaults while in the wand emulation mode or set wand emulation defaults when in the Wedge mode.

Default settings for any option (if applicable) are indicated bya pointing finger ( ).

Additionally, the RANGER scanner (in the wedge mode) can be commanded to ignore the state of the Caps Lock key. Normally (default mode), a scanned character will be transmitted to the computer in agreement with the state of the Caps Lock key, e.g., a lower case character will be sent as an uppercase character (and vice versa) if Caps Lock key is ON. However, if the Caps Lock function is enabled, the scanner will ignore the state of the Caps Lock key and send the character as scanned, e.g., a lowercase character will be sent in lowercase, even if Caps Lock is ON. The programming codes for enabling/disabling this feature can also be found on page 9.

Laptop Operation

A laptop computer contains an integrated keyboard whereas a desktop computer uses an external keyboard. When using a desktop computer with a scanner that is designed to emulate keyboard input, the scanner is "wedged" into the cable that connects the external keyboard to the computer (hence, the term "wedge" scanner). Since a laptop keyboard is internal, there is no cable accessible to use a standard wedge connection for a scanner. However, most laptops make provision for an external keyboard via a separate keyboard connector (or port). Since the scanner connections to the laptop are different from the connections to a desktop computer, the scanner must be programmed specifically to operate as an external keyboard device. This is accomplished by using the programming codes on page 9.

IMPORTANT NOTE: Upon power-up, the laptop checks to see what is connected to its external ports and sets its internal operation accordingly. If the scanner is not connected to the laptop prior to turning on the power, the laptop will not "see" the scanner, even when you subsequently plug it in and program the scanner for laptop operation.

The scanner must be plugged into the laptop prior to turning on the power on or the laptop must be rebooted once the scanner has been connected in order for the laptop to recognize presence of the scanner. This can be done before or after the scanner has been programmed for laptop operation.

SureOne Operation

A SureOne Kit scanner is designed to operate with the IBM SureOne POS terminal and operates similar to the laptop mode of operation. Use the codes on page 9 to set the scanner to the SureOne operation mode.

Understanding Data Transmission

When a decoded bar code scanner "reads" a bar code, it interprets the bar code symbol and sends it in digital form to the receiving device in the form of an ASCII character that the symbol represents. With a wedge scanner, the code is received as if it were typed on a keyboard.

Many applications require or can be simplified by transmitting other "characters" with the decoded bar code data. These additional character command the computer to take some action. Skipping a line (line feed command), adding text to the transmitted data, or taking another brand in its programming sequence are some example of what could be one by adding characters before (prefixes) or after (suffixes) the decoded data. This scanner allows these additions in the wedge mode only. The generalized data transmit format is:

time - - >

PREFIX	CODE ID	DATA	SUFFIX -1	SUFFIX -2

SUFFIX-1 is used for cursor control and can be added independently of the symbology in use whereas the PREFIX and SUFFIX-2 options are programmed per symbology and will only have an effect on the symbology they are programmed for. Therefore, a symbology identifier must be programmed prior to their addition.

For example, if the letter "A" is to be added as a suffix to every transmission of a decoded CODE-39 bar code, the code "R1" located in the Symbologies Suffix Selection table must be scanned prior to scanning the ASCII code for the letter "A" suffix. This procedure is more fully described on page 7.

AIM Code ID

In addition to adding prefixes and suffixes, "AIM Code ID" may also be added to the transmitted data in the format above ("AIM" is an acronym for Automatic Identification Manufacturers Association). It is an optional industry standard code that, when transmitted, may be used by the application software as a shortcut method of describing some facets of a scanner's operating mode.

All symbologies will transmit an AIM Code ID simply by enabling the AIM Code ID function with the exception of UCC/EAN-128, which requires a separate symbology enabling/disabling programming code in addition to the AIM Code ID. The table on page 12 show the various output combinations possible for the UCC/EAN-128 symbology.

Programming a Prefix or Suffix Option

After scanning the **START/END** code on page 10 or 11, select the desired symbology to add a prefix or suffix by scanning the appropriate code under the Symbologies Suffix Selection table (Note: All prefixes or suffixes previously assigned to this symbology will be erased).

Each prefix or suffix character is assigned a two digit (ASCII) code identifier. Look up the code for the character(s) desired as either a prefix or suffix in the ASCII-HEX Character Chart located on pages 17-19. Using the alphanumeric bar codes on pages 15 and 16, scan the two digit identifier for the first character of the prefix/suffix. Repeat scanning additional two digit identifiers for up to 4 characters maximum. The Back Space and Clear All bar codes can used to correct any errors in scanning. Back Space clears the previous alpha-numeric code or the previous character. Clear All erases all previously scanned characters.

Repeat the above (starting with selecting a new symbology) for any other symbologies or end the procedure by scanning the **START/END** code.

Laptop & SureOne Models

To place a RANGER or SureOne Kit scanner into Laptop or SureOne operation mode, scan the codes in the table below, beginning with the **START/END** code and ending the **START/END** code.

Z9	**START /END**	
KC	Enter Laptop & SureOne mode	

* Restart computer – see Note on Page 4.

Default & Caps Lock Selection

To reset defaults or to activate or de-activate the Caps Lock (CL) feature, scan the appropriate code below after scanning the **START/END** code. End the procedure by scanning the **START/END** Code.

Z9	**START /END**	
U4	Reset Wand Emulation Defaults	
U1	Reset Wedge Defaults	
KD	Enable CL*	
KE	Disable CL	

* If Caps Lock key is ON when this programming code is scanned, Caps Lock key must be pressed at least once thereafter for this feature to operate.

Symbologies Prefix Selection

Z9	**START /END**	
P0	Code UPC & Variants	
P1	Code 39	
P2	Codabar	
P3	D 2 of 5	
P4	Code 93	
P5	Code 128	
P6	MSI/Plessey	
P7	Code 4 & 5	

Symbologies Suffix Selection

Z9	**START /END**	
R0	Code UPC & variants	
R1	Code 39	
R2	Codabar	
R3	D 2 of 5	
R4	Code 93	
R5	Code 128	
R6	MSI/Plessey	
R7	Code 4 & 5	

UCC-128 & AIM Code ID Options

UPC-E Expansion & UPC-A Transmit as EAN-13 must be ON in order to output AIM Code ID for UPC-A and UPC-E.

Z9	**START /END**	
J6	UCC/EAN-128 OFF	
J7	UCC/EAN-128 ON	
J8	AIM Code ID OFF	
J9	AIM Code ID * ON	

UPC/EAN-128 OUTPUT FORMAT

UCC/ EAN-128	AIM ID	FORMAT
Disable	Disable	FNC1ABCFNC1D => ABCD (Default)
Disable	Enable	FNC1ABCFNC1D =>]C1ABCD
Enable	Disable	FNC1ABCFNC1D => ABC29D *
Enable	Enable	FNC1ABCFNC1D =>]C1ABC29D *

* 29 = ASCII character 29 (decimal) or ASCII character 1D (Hex). This is sometimes referred to as the "GS" code.

Suffix-1 Options

Z9	**START /END**	
O0	No suffix	
O1	Carriage return	
O2	Line feed	
O3	Carriage return and line feed	
O4	Tab	
O5	Shift tab	
OA	Arrow down	
OB	Tab and Space	

AIM Code ID Interpretation

The following table lists the various AIM Code ID symbols transmitted when AIM Code ID is enabled. Each symbology has its own unique code ID symbols (CD = Check Digit).

SYMBOLOGY	AIM ID	MEANING
Code 39	JA0	No CD and NO full ASCII
	JA1	CD validated before transmit
	JA3	CD validated/stripped before transmit
	JA4	Full ASCII conversion
	JA5	CD validated & full ASCII
	JA7	CD validated/stripped, full ASCII
Code 128	JC0	No FNC1 in 1st or 2nd symbol position
	JC1	FNC1 in 1st symbol position
	JC2	FNC1 in 2nd symbol position
Codabar	JF0	
Code 93	JG0	
MSI/Plessey	JM0	Single CD validated before transmit
	JM1	Single CD stripped before transmit
D 2 of 5	JI0	No CD
	JI1	CD validated before transmit
	JI3	CD validated/stripped before transmit
I 2 of 5	JS0	
UPC/EAN	JE0	Standard UPC-A, UPC-E (13 digits)
	JE3	With add-on code
	JE4	EAN-8 data packet

Alpha-Numeric Characters Table

0	
1	
2	
3	
4	
5	
6	
7	
8	

CONTINUED ON NEXT PAGE...

Alpha-Numeric Characters Table

9	
A	
B	
C	
D	
E	
F	
Back Space	
Clear All	

ASCII-HEX Character Chart

Code	Char	ID
NUL	^@	00
SOH	^A	01
STX	^B	02
ETX	^C	03
EOT	^D	04
ENQ	^E	05
ACK	^F	06
BEL	^G	07
BS	^H	08
HT	^I	09
LF	^J	0A
VT	^K	0B
FF	^L	0C
CR	^M	0D
SO	^N	0E
SI	^O	0F

Code	Char	ID
DLE	^P	10
DC1	^Q	11
DC2	^R	12
DC3	^S	13
DC4	^T	14
NAK	^U	15
SYN	^V	16
ETB	^W	17
CAN	^X	18
EM	^Y	19
SUB	^Z	1A
ESC	^[	1B
FS	^\	1C
GS	^]	1D
RS	^^	1E
US	^_	1F

CONTINUED ON NEXT PAGE...

ASCII-HEX Character Chart

Sp	20
!	21
"	22
#	23
$	24
%	25
&	26
'	27
(	28
)	29
>	3E
?	3F
@	40
A	41
B	42
C	43
D	44
E	45
F	46
G	47
H	48
I	49
J	4A
K	4B
L	4C
M	4D
N	4E

*	2A
+	2B
,	2C
-	2D
.	2E
/	2F
0	30
1	31
2	32
3	33
Z	5A
[	5B
\	5C
]	5D
^	5E
_	5F
`	60
a	61
b	62
c	63
d	64
e	65
f	66
g	67
h	68
i	69
j	6A

4	34
5	35
6	36
7	37
8	38
9	39
:	3A
;	3B
<	3C
=	3D
v	76
w	77
x	78
y	79
z	7A
{	7B
|	7C
}	7D
~	7E
Delete	7F
Tab ->	80
TAB <-	81
F1	82
F2	83
F3	84
F4	85
F5	86

CONTINUED ON NEXT PAGE...

ASCII-HEX Character Chart

Char	ID
O	4F
P	50
Q	51
R	52
S	53
T	54
U	55
V	56
W	57
X	58
Y	59

Char	ID
k	6B
l	6C
m	6D
n	6E
o	6F
p	70
q	71
r	72
s	73
t	74
u	75

Char	ID
F6	87
F7	88
F8	89
F9	8A
F10	8B
F11	8C
F12	8D
PgUp	8E
PgDn	8F

Char	ID
Home	90
End	91
Up Arrow	92
Dn Arrow	93
Lft Arrow	94
Rgt Arrow	95
Enter/CR	96
Home (KP)	97
Up Arrow (KP)	98
Dn Arrow (KP)	99
Rgt Arrow (KP)	9A
Lft Arrow (KP)	9B
PgUp (KP)	9C

Char	ID
PgDn (KP)	9D
Delete (KP)	9E
Insert (KP)	9F
End (KP)	A0
Enter (KP)	A1
Esc	A2
Insert	A3
Alt-ON	A4
Alt-OFF	A5
Ctrl-ON	A6
Ctrl-OFF	A7
Shift-ON	A8
Shift-OFF	A9

Linker (Wand) Output Functions

Z9	**START /END**	
S0	Output 1 to 1	
S1	Output in Code 39	
S2	Output speed = high	
S3	Output speed = low	
S4	Output bar = low	
S5	Output bar = high	
S6	Output with margin	
S7	Output w/o margin	

This Addendum to the Wedge manual contains programming codes for operating a handheld CCD scanner designed with any of the following model names:

RANGER®
SureOne Kit™
Wedge Linker Interface

and offers the following features:

Laptop Operation
Wand Emulation
UCC-128 Symbology
Extended Prefixes & Suffixes

NOTE: All programming codes in the Wedge Manual (25-WEDGE-06) apply to the Wedge operating mode ONLY with the exception of the following, which apply to both Wedge AND Linker (WAND) operation: Symbology Selection; Symbology Addition, Code 39 (C0 & C1, D2, D3, D4, D5); Codabar (E0, E1, E4, E5, F5, F6); 2 of 5 (G0, G1, G6, G7); Code 128 (C6 through J5); Bar Code Length Options; Trigger Options; Beeper Settings (except W1 & W5); and Read Mode.

Also, located on page 30 of 25-WEDGE-06, D1 is Default (Not D0); page 31, E4 is Default (Not E5); and page 24, A0 reads all codes except MSI/ Plessey, Code 4 or Code 5.