Software Reticle Read-Write Station Stand Alone

Technical Reports

Important Note

This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

CAUTION:
Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

1 Hardware Description

At the back side of the Reticle Read/Write Station is one RS232 Sub-D male connector labeled with Barcode Reader. The barcode reader P302FZY has to be connected there. The power supply for this unit has to be connected to the female connector at the back.

Connect the external power supply (24V) to the connector which is labeled with power supply, and the reader starts working. The RF Tag reader needs about 3 seconds for initialization. The antenna is justified and the display will be initiated. After this the reader shows the current software version and it is in operation mode.

2 Software Specification

The Reticle Read/Write Station is used to write the RSP data, which will be read from the barcode labels on the top of the RSP, to the RF tag of the RSP.

Barcode Data:

All bar codes are code 69 labels.
Label one is the product name, the second is the layer / version and the third is the CID.

The information on the labels have to be written to the tag as follows:

Page1:	lower CID	right justified
Page2:	upper CID	right justified
Page3:	first characters of product names	left justified
Page4:	remaining characters of product names	left justified
Page5:	layer / version	left justified

Example:

BC data:

Product Name: 1X30SA
Layer / Version: MT52MB2
CID: 900630

RF tag data:

Byte	1	2	3	4	5	6	7	8
Page1	0	0	9	0	0	6	3	0
Page2	0	0	0	0	0	0	0	0
Page3	1	X	3	0	S	A	0x00	0x00
Page4	0x00	0x00	0x00	0x00	0x00	0x00	0x00	0x00
Page5	M	T	5	2	M	B	2	0x00

Pages 6 .. 17 are filled with the blank byte filler character (see section 4.2).

The product name can be 1-16 characters long. The layer/version can be 1-8 characters long. Any unused bytes on the RF tag are filled with user configurable filler characters (see section 4.2).

Logistical layout of functionality:

1. RSP will be placed on Reticle Read / Write Station.
2. The RF tag will be read automatically and the result will be shown on the display.
3. The operator writes the label data to the tag. Therefore he reads the labels with the bar code reader. If the bar codes were read correctly the operator verifies the data. If everything was OK the operator presses the ‘Write’ button to transmit the data to the RF tag. Not used bytes will be filled with values which are stored as parameters in the software.
4. After a successful writing the pod could be removed from the unit.
5. It is possible to verify the tag data against the bar code labels. Therefore the operator presses the ‘Verify’ button and reads the labels ones more. After that the tag reader gets the information from the RF tag. The software checks the data of both the tag and the bar code and reports any error.
6. If the operator reads a wrong label it is possible to clear the data / memory by pressing the ‘Reset’ button.

3 Hardware

3.1 Bar Code Reader

The barcode works with an ASCII protocol which uses the following settings, COM settings: 38.400,N,8,1 (baud rate, parity, data bits, stop bits).

The bar code reader is configured as follows:

1.Set all defaults:

2. Fujitsu RS-232C

3. Baud rate 38.400

Note: If the BCR is not configured you have to read these labels in the right order.

3.2 Reticle Read / Write Station

The tag reader includes an RF module which is working on the frequency of 134.2 kHz. To display the data, the device has a dot character display module with four lines and 40 signs per line. Additional the unit includes a membrane keyboard with four buttons. The equipment is designed to handle any SEMI-E111 compliant carrier.

4 Software

After the equipment was connected to the power supply, the tag reader tune the antenna automatically. If no RSP is placed on the station, the software version is displayed on the display.

4.1 Functionality of Buttons

Read

The ‘Read’ button starts reading all 17 pages of the tag and displays the main contents (product name, version/layer, CID) on the display. During the reading the first line of the display shows “RF Tag is reading …”.

Write

The ‘Write’ button initiate the data transfer of the read bar codes to the tag. At first the barcode labels have to be read with the BCR gun. The first line of the display shows which label has to be read. When all labels are read, the operator has to verify the bar codes on the display. The message “to write RFID press WRITE button” is shown on the display. Press the ‘Write’ button ones more to write the bar code data to the tag. If the data were written to the tag, the reader reads the data again from the tag to verify a successful writing.
After pressing the ‘Write’ button the following messages are displayed on the first line of the display:

- “writing tag …”
- “RF Tag is verifying …”
- “RFID data written – remove pod”

Otherwise an error message is displayed on the screen.

Verify

To verify the written tag data, press the ‘Verify’ button. Then the operator has to read the bar codes in the same way as on write procedure. The RF reader starts with the tag reading automatically after the last label was read. An appropriate message will be displayed. The verification is successful if Product Name, Layer/Version and the CID of the POD is exactly the same (depend on length of the barcode labels!) as the data on the tag. If a label includes a string of 8 signs, that string will be checked against the first 8 bytes of the tag area.

Reset

The ‘Reset’ button is used to clear the data in the reader memory or to clear the whole tag. To clear the memory of the reader, only press the ‘Reset’ button. The display shows “Buffer cleared” and blank data. To clear the whole tag, press the ‘Reset’ button for more than 3 seconds and confirm the following question with the ‘Verify’ button. Page 1 to page 17 will be filled with the value 0x00. While writing to the tag the message “Clearing RF tag …” is displayed on the screen. After successful clearing the message “Buffer and RF tag cleared” will be displayed on the screen.

17 page mode

A pod must be placed on the equipment, otherwise you cannot switch to this mode. Press the ‘Verify’ button for more then 3 seconds to enter the ‘17 page mode’. Confirm the following question with the ‘Verify’ button. Then the software asks for the output format of the tag data. The available formats are ASCII or hexadecimal.
In the ASCII mode all not presentable characters will be converted to inverse blanks (out of 0x20 .. 0x7F).
In Hex mode the value is shown as two ASCII hex digits from 00 to FF.
This mode can be leaved either by pressing the ‘Reset’ button or removing the pod.
An ‘L’ is displayed in the right column if the RF tag page is locked.

4.2 Menu Mode

To enter the menu mode, ensure that no pod is placed on the station otherwise the menu mode is not available.
Press both the ‘Verify’ button and the ‘Reset’ button at the same time for more than 3 seconds to enter the menu mode.
For menu structure and navigation see the menu flow chart.

The filler of product data and layer data are shown as hex value from ‘00’ to ‘FF’. The filler bytes will be cut before the data is displayed on the screen.

e.g.: current Product Name filler is 0x21 = ‘!’
Product Name: X!34SA!!!!!!!!!! is displayed as X!34SA
(change filler to 0x23 = ‘#’)
Product Name: X!34SA!!!!!!!!!! displayed as X!34SA!!!!!!!!!!
Product Name: YSY#5023######## displayed as YSY#5023

Same behavior is valid for Layer/Version data.

The CID is defined as an ASCII value. Lowest value is <space> (0x20), up to <DEL> (0x7F). The CID is displayed without of characters which are less than 0x31 hex = ASCII '1' as leading digit.

e.g.:
CID: 0000000000120034 displayed as 120034 (leading ASCII '0')
CID: 0x00..0x00 120034 displayed as 120034 (leading 0x00 hex)
CID: 5555555555120034 displayed as 5555555555120034 (leading ASCII '5')

The sensor delay is the time between the moment the pod is placed on the station and the sensor is switched. The sensor delay time is only valid for placing the pod on the station, not for removing the pod.
Sensor delay is a two digit value for 01 to 99.
(01 = 100ms, 02 = 200ms, … , 99 = 9,9 seconds)

Blank byte is defined to fill not used pages of the tag. It is stored like product and layer filler with identically range. The blank bytes will not checked by verification!

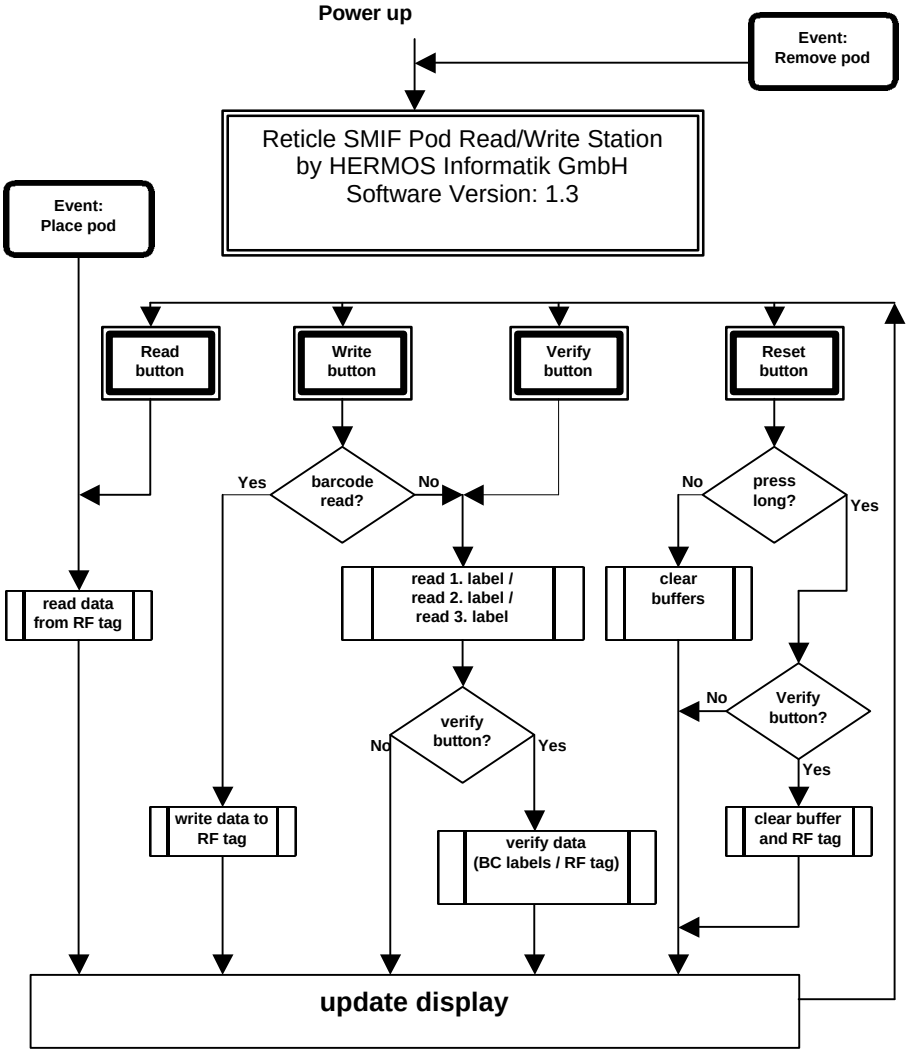
Follow the button description which is shown on the right side of the display.

4.3 Download

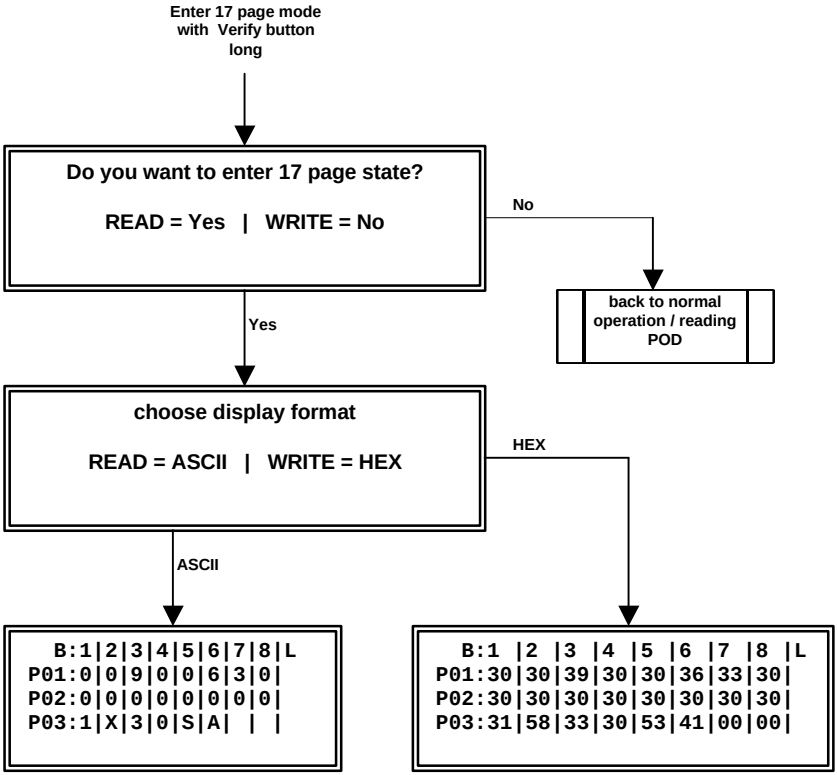
This option is needed to update the software of the equipment.
For this you need a software update tool which you can get from HERMOS. For detailed information read the documentation of this tool.

5 Flowcharts

5.1 Normal Mode



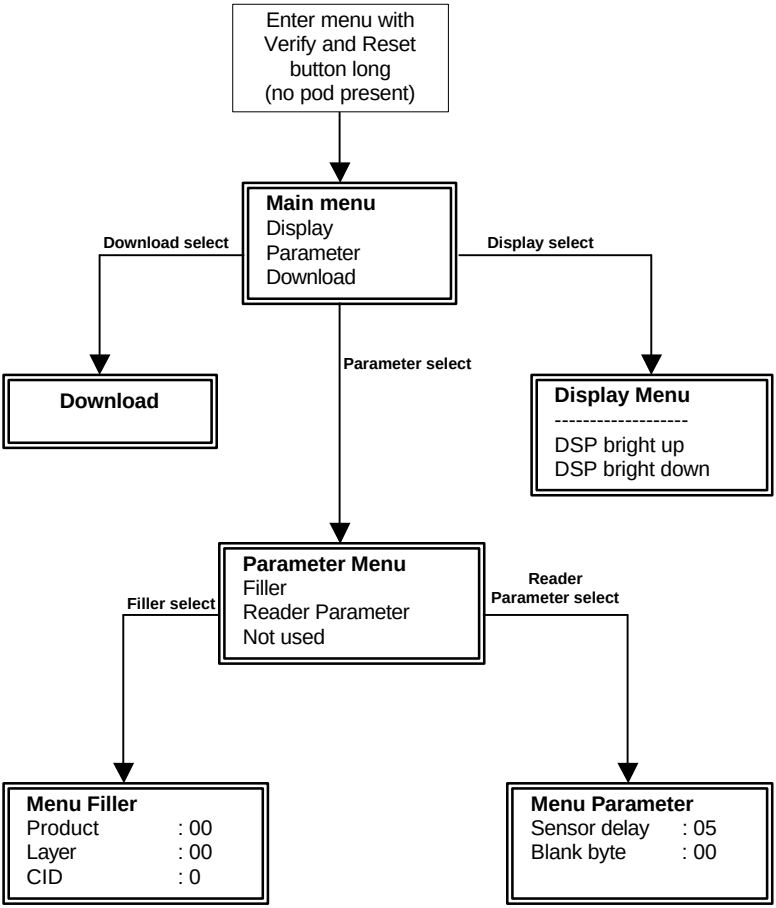
5.2 17 Page Mode



Press the ‘Reset’ button or remove pod to leave this state.

Use the ‘Read’ and ‘Write’ button to scroll the pages (step: 3 pages)

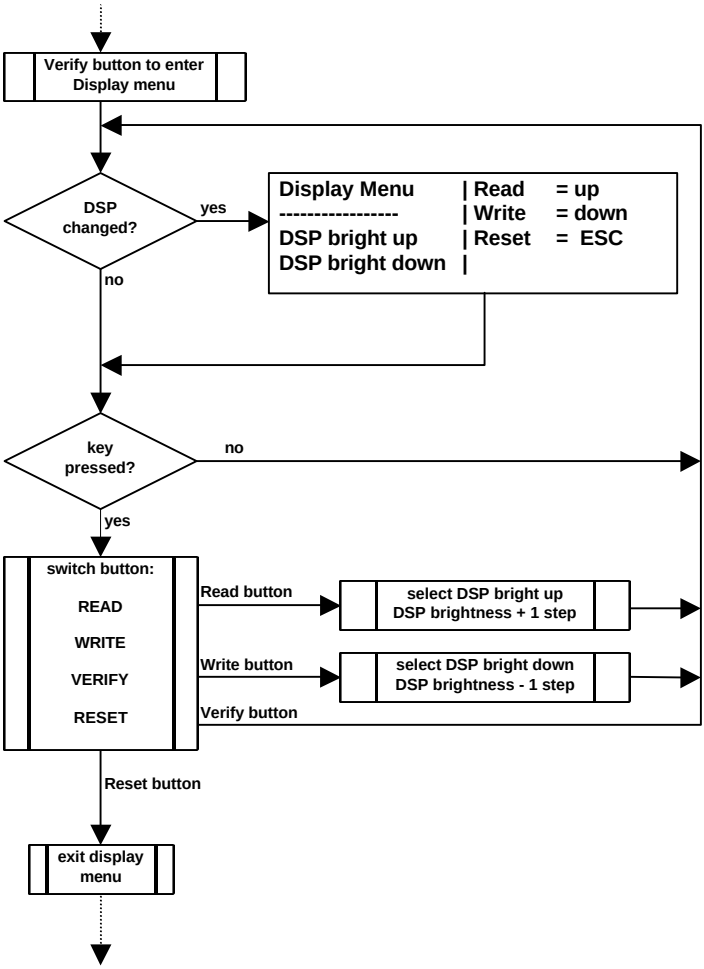
5.3 Menu Mode



Press the 'Verify' button for more than 3 seconds to save the parameters!

Press the 'Reset' button to leave the current menu level and return to the parent menu level or to leave the menu.

5.4 Brightness Mode



6 ASCII table

Dec	Hex	Ctrl	Code
0	00	^@	NUL
1	01	^Â	SOH
2	02	^B	STX
3	03	^C	ETX
4	04	^D	EOT
5	05	^E	ENQ
6	06	^F	ACK
7	07	^G	BEL
8	08	^H	BS
9	09	^I	HT
10	0A	^J	LF
11	0B	^K	VT
12	0C	^L	FF
13	0D	^M	CR
14	0E	^N	SO
15	0F	^O	SI
16	10	^P	DLE
17	11	^Q	DC1
18	12	^R	DC2
19	13	^S	DC3
20	14	^T	DC4
21	15	^U	NAK
22	16	^V	SYN
23	17	^W	ETB
24	18	^X	CAN
25	19	^Y	EM
26	1A	^Z	SUB
27	1B	^[	ESC
28	1C	^\	FS
29	1D	^]	GS
30	1E	^^	RS
31	1F	^_	US

Dec	Hex	Char
32	20	
33	21	!
34	22	“
35	23	#
36	24	$
37	25	%
38	26	&
39	27	‘
40	28	(
41	29	)
42	2A	*
43	2B	+
44	2C	,
45	2D	-
46	2E	.
47	2F	/
48	30	0
49	31	1
50	32	2
51	33	3
52	34	4
53	35	5
54	36	6
55	37	7
56	38	8
57	39	9
58	3A	:
59	3B	;
60	3C	<
61	3D	=
62	3E	>
63	3F	?

Dec	Hex	Char
64	40	@
65	41	A
66	42	B
67	43	C
68	44	D
69	45	E
70	46	F
71	47	G
72	48	H
73	49	I
74	4A	J
75	4B	K
76	4C	L
77	4D	M
78	4E	N
79	4F	O
80	50	P
81	51	Q
82	52	R
83	53	S
84	54	T
85	55	U
86	56	V
87	57	W
88	58	X
89	59	Y
90	5A	Z
91	5B	[
92	5C	\
93	5D	]
94	5E	^
95	5F	_

Dec	Hex	Char
96	60	`
97	61	a
98	62	b
99	63	c
100	64	d
101	65	e
102	66	f
103	67	g
104	68	h
105	69	I
106	6A	j
107	6B	k
108	6C	l
109	6D	m
110	6E	n
111	6F	o
112	70	p
113	71	q
114	72	r
115	73	s
116	74	t
117	75	u
118	76	v
119	77	w
120	78	x
121	79	y
122	7A	z
123	7B	{
124	7C	|
125	7D	}
126	7E	~
127	7F	DEL

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