Seika Notetaker Protocol

V6.2.0

Screen Reader------SR
Seika Notetaker Braille Display-----SBD

NOTE: When the routing key or/and button is pressed, there is no information send from SBD to SR. When all routing key or/and button is released, then the information will be send from SBD to SR

1. Handshake of SR and SBD

SR->SBD: 0xff 0xff 0xa1

If SBD is prepare OK, then SBD will answer the SR handshake request:

SBD->SR: 0xff 0xff 0xa2 N B E R S_1 S_2.......$S_{(N-3)}$

N means the number of the following bytes

B means the number of the buttons in the SBD

E means the number of cells in the SBD

R means the number of the routing switches in the SBD

S_1....$S_{(N-3)}$ means the SBD description，each byte in the S_1....$S_{(N-3)}$ is corresponding to the ASCII character.

For example:

(1)Seika Notetaker 16cell: 0xff 0xff 0xa2 0x11 0x16 0x10 0x10 S1 S2 … S14

(2)Seika Notetaker 40cell: 0xff 0xff 0xa2 0x11 0x16 0x28 0x28 S'1 S'2 … S'14

2. SR will send SSD the braille message:

SR->SBD: 0xff 0xff 0xa3 E C_1 C_2....C_E

E means the number of the following bytes,

C_1… C_E means the braille message which will be displayed on the Seika.

The byte C_1 will be display in the leftmost of SBD, and the byte C_E will be display in the rightmost of BD.

For example::

(1) Seika Notetaker 16cell: 0xff 0xff 0xa3 0x10 C_1……C_{16}

(2) Seika Notetaker 40cell: 0xff 0xff 0xa3 0x28 C_1……C_{40}

The bits in the symbol byte correspond to the dot values of the Braille character to be displayed. The braille dots in a cell are numbered as follows:

1	4
2	5
3	6
7	8

Braille dot 1 corresponds to bit 0, braille dot 2 corresponds to bit 1, and so on. For example, the character "a" is represented by braille dot 1.

Therefore, bit 0 in the symbol byte must be set on and all other bits set off. The binary value for "a" is 00000001, or hexadecimal 01. For the character "d", represented by braille dots 1,4,5, the binary value is 00011001, or hexadecimal 0x19. It is recommended that a table look-up system be used to perform this translation.

3. Routing button

SBD→SR   0xff 0xff 0xa4 G HZ_1 HZ_2 .... HZ_G ,

G means the smallest integral value that is not less than R/8. R means the number of the routing switches in the SBD.

> If a button of cursor routing keys board is released, the below packet of data will be send from SBD to SR, which bit =1 means the key is pressed and released, bit=0 means the key is not pressed:

> HZ_1-HZ_G hold data for the horizontal cursor routing keys on a SBD
>   Ex.: routing key 1 is in bit 0 of HZ_1.
>   routing key 8 is in bit 7 of HZ_1.
>   routing key 9 is in bit 0 of HZ_2.
>   routing key 40 is in bit 7 of HZ_5.

If the cell number is not the 8 times G, then the high bit will be Zero. For example, the 20 routing key, then 0xff 0xff 0xa4 0x03 HZ_1 HZ_2 HZ_3, and the HZ_3= 0000 xxxx, the 17th routing key is HZ_3 bit0, the 20th routing key is HZ_3 bit3.

For example:
(1) Seika Notetaker 16cell: 0xff 0xff 0xa4 0x02 HZ_1 HZ_2
(2) Seika Notetaker 40cell: 0xff 0xff 0xa4 0x05 HZ_1 HZ_2 HZ_3 HZ_4 HZ_5

4. Button

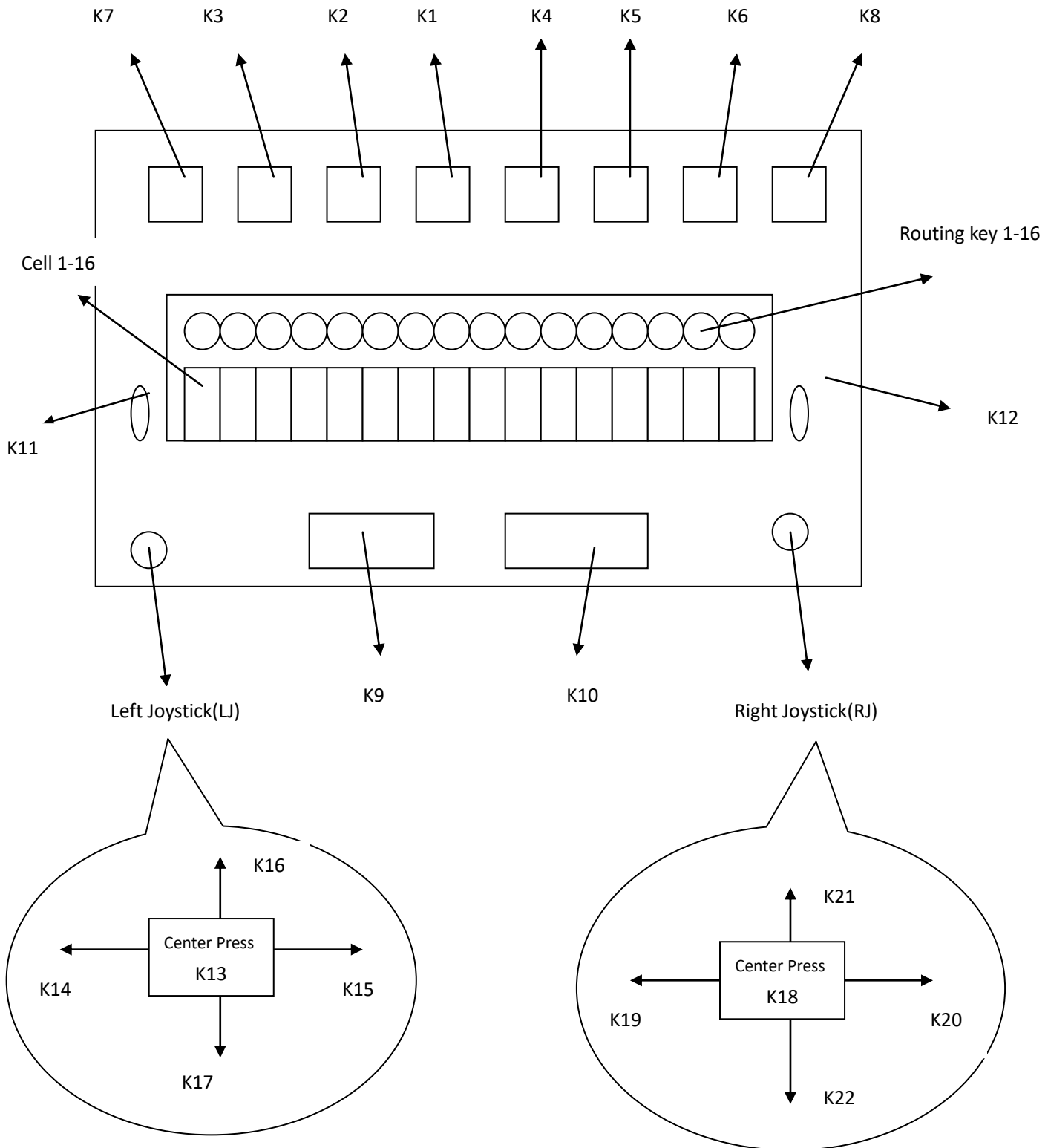SBD→SR, 0xff 0xff 0xa6 M P_1 P_2 ... P_M,

M means the smallest integral value that is not less than B/8. B means the number of the buttons in the SBD.

If a button is released, the below packet of data will be send from SBD to SR, which bit =1 means the key is pressed and released, bit=0 means the key is not pressed, if there are more than one key is pressed, then there will be more than one bit =1:
> P1 P2 P3 hold data for the buttons on a SBD

Ex.: k1 is in bit 0 of P1.
K8 is in bit 7 of P1.
K22 is in bit 5 of P3.

Seika Notetaker key map：

K7   K3   K2   K1   K4   K5   K6   K8

Cell 1-16

Routing key 1-16

K11

K12

K9   K10

Left Joystick(LJ)

Right Joystick(RJ)

K16

Center Press
K13

K14   K15

K17

K21

Center Press
K18

K19   K20

K22

5、button and routing key conbine

SSD→SR   0xff 0xff 0xa8 (M+G) P1 P2 … PM HZ1 HZ2 ….. HZ$_G$

P1 P2 P3 and HZ$_1$….HZ$_G$ are defined as the above section3 and section4

ex：

Seika Notetaker 16cell SSD→SR   0xff 0xff 0xa8 0x05 0x00 0x90 0x00 0x00 0x40 means that: 13th button, 16th button, and 15th routing key are pressed and released.

Seika Notetaker 40cell SSD→SR   0xff 0xff 0xa8 0x08 0x01 0x20 0x00 0x00 0x00 0x02 0x00 0x00   means that: 14th button, 17th button and 18th routing key are pressed and released.