

CDI keyboard Specification

VERSION 0.92

The CDI keyboard has a switch that allows the user to set the keyboard in 2 modes, called the 'K-mode' and the 'T-mode'. In both modes, the keyboard will send the same information to the CDI player, but in different data formats. Also the Identification byte for both modes is different. This document describes the data format for the both modes of the CDI keyboard.

1. The keyboard is set to 'T'-mode.

1.1 Data format

- Baudrate : 1200 Baud
- Data format :
 - 1 start bit
 - 7 data bits (LSB first)
 - 2 stop bits
 - no parity

1.2 Device recognition

To be able to identify the input device that is connected to the CDI player, each input device transmits its own identification (ID) byte on request.

1.3 Device ID sequence

1. Negates RTS : current data transmission to the CDI player is stopped.
2. Assert RTS.
3. The keyboard will send its 1 byte device ID, and clears its buffer.
4. Data transmission to the CDI player can continue. The first byte sent to the CDI player should always be the header byte of the device data packet. (The header byte is the first byte of a data packet with d6=1).

1.4 Device ID code

d6	d5	d4	d3	d2	d1	d0	code
1	0	1	0	1	0	0	'T'

1.5 Device ID timing

See Technical Info Pointing Devices.

1.6 Keyboard data format

- During normal operation (RTS asserted) :

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- Data is send to the CDI player via RXD.
- Every time there is a keyboard button state change, the keyboard will send its current state (last pressed code or release key code and the special key status (Shift, Capslock, Supershift, Control) in a 4 byte data packet to the CDI player.
- If there is no button state change, the keyboard should not send any 4 byte keyboard data to the CDI player.
- If one or more of the special keys only are pressed or released, the keyboard will send the 4 byte data packet with its current special key status, extension bits = 1 and keycode = 00.
- Every time a key is released (except for the function keys F1,...,F8), the keyboard will send the following data :
 - S3-S0 : 0000
 - M1-M0 : 01
 - K7-K0 : 00000000

This gives the following result (see also data format) :

- first byte : \$40
- second byte : \$10
- third byte : \$04
- fourth byte : \$00
- Every time a key one of the function keys (F1,...,F8) is released, the keyboard will send the following data :
 - S3-S0 : 0000
 - M1-M0 : 01
 - K7-K0 : containing the function key code.

Example 1 :Key F1 (key code = 80) is released :

- first byte : \$40
- second byte : \$10
- third byte : \$06
- fourth byte : \$00

Example 2 :Shift key F1 (key code = 88) is released :

- first byte : \$40
- second byte : \$10
- third byte : \$06
- fourth byte : \$08

• Data format

	d6	d5	d4	d3	d2	d1	d0
byte 0	1	0	0	0	0	0	0
byte 1	0	0	1	0	0	S3	S2
byte 2	0	S1	S0	M1	M0	K7	K6
byte 3	0	K5	K4	K3	K2	K1	K0

- S0-S3 : Status of the special keys :
 - S0 : Shift button(s) pressed when set.
 - S1 : CapsLock is on when set.
 - S2 : Supershift button(s) pressed when set.
 - S3 : Control button(s) pressed when set.

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- M0-M1 : Extension bits :
 - 00 : Standard Character set (Green Book)
 - 01 : Character set 1 (if keycode = 00 then only special keys are pressed).
 - 10 : Character set 2 (future use)
 - 11 : Character set 3 (future use)
- K0-K7 : Keycode. According to character set ISO 8859-1.
- Data Range (M&K bits) :
 - \$000 - \$0FF : Standard character set (FFGB VI-3).
 - \$100 : Keycode if key released Keycode for special key(s) status.
 - \$101 - \$1FF : Character set 1.
 - \$200 - \$2FF : Character set 2 (future use)
 - \$300 - \$3FF : Character set 3 (future use).
- Function Capslock :
 - Capslock only affects the alphabetical keys.
 - Capslock = off : normal = lower case (\$61 - \$7A); shifted = upper case (\$41 - \$5A).
 - Capslock = on : normal = upper case (\$41 - \$5A); shifted = lower case (\$61 - \$7A).

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2. The keyboard is set to 'K'-mode.

This is the same format as the current CDI keyboard.

2.1 Data format

- Baudrate : 1200 Baud
- Data format :
 - 1 start bit
 - 8 data bits (LSB first)
 - 1 stop bit
 - no parity

1.2 Device recognition

To be able to identify the input device that is connected to the CDI player, each input device transmits its own identification (ID) byte on request.

1.3 Device ID sequence

1. Negates RTS : current data transmission to the CDI player is stopped.
2. Assert RTS.
3. The keyboard will send its 1 byte device ID, and clears its buffer.
4. Data transmission to the CDI player can continue. The first byte sent to the CDI player should always be the header byte of the device data packet. (The header byte is the first byte of a data packet with d7=1).

1.4 Device ID code

d7	d6	d5	d4	d3	d2	d1	d0	code
1	1	0	0	1	0	1	1	'K'

1.5 Device ID timing

See Technical Info Pointing Devices.

1.6 Keyboard data format

- During normal operation (RTS asserted) :
 - Data is send to the CDI player via RXD.
 - Every time there is a keyboard button state change, the keyboard will send its current state (last pressed code or release key code and the special key status (Shift, Capslock, Supershift, Control) in a 2 byte data packet to the CDI player.
 - If there is no button state change, the keyboard should not send any 2 byte keyboard data to the CDI player.
 - If one or more of the special keys only are pressed or released, the keyboard will send the 2 byte data packet with its current special key status, extension bits = 1 and keycode = 00.

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- Every time a key is released (no buttons pressed), the keyboard will send the following data :

- S3-S0 : 0000
- M1-M0 : 01
- K7-K0 : 00000000

This gives the following result : (see also data format)

- first byte \$82
- second byte \$00.

- Data format

	d7	d6	d5	d4	d3	d2	d1	d0
byte 0	1	S3	S2	S1	S0	M1	M0	K7
byte 1	0	K6	K5	K4	K3	K2	K1	K0

- S0-S3 : Status of the special keys :
 - S0 : Shift button(s) pressed when set.
 - S1 : CapsLock is on when set.
 - S2 : Supershift button(s) pressed when set.
 - S3 : Control button(s) pressed when set.
- M0-M1 : Extension bits :
 - 00 : Standard Character set (Green Book)
 - 01 : Character set 1 (if keycode = 00 then only special keys are pressed).
 - 10 : Character set 2 (future use)
 - 11 : Character set 3 (future use)
- K0-K7 : Keycode. According to character set ISO 8859-1.
- Data Range (M&K bits) :
 - \$000 - \$0FF : Standard character set (FFGB VI-3).
 - \$100 : Keycode if key released Keycode for special key(s) status.
 - \$101 - \$1FF : Character set 1.
 - \$200 - \$2FF : Character set 2 (future use)
 - \$300 - \$3FF : Character set 3 (future use).
- Function Capslock :
 - Capslock only affects the alphabetical keys.
 - Capslock = off : normal = lower case (\$61 - \$7A); shifted = upper case (\$41 - \$5A).
 - Capslock = on : normal = upper case (\$41 - \$5A); shifted = lower case (\$61 - \$7A).

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Keyboard Character code table USA English version

Keyboard state : Capslock = off, so normal = lower case.

NR	Normal Char	word	Shift Char	word	Shift word	Ctrl word	SS+Ctrl word	S+SS word
1	[]	60	[]	7E	E0	60	E0	FE
2	[1]	31	[1]	21	B1	31	B1	A1
3	[2]	32	[@]	40	B2	00	80	C0
4	[3]	33	[#]	23	B3	33	B3	A3
5	[4]	34	[\$]	24	B4	34	B4	A4
6	[5]	35	[%]	25	B5	35	B5	A5
7	[6]	36	[^]	5E	B6	1E	9E	DE
8	[7]	37	[&]	26	B7	37	B7	A6
9	[8]	38	[*]	2A	B8	38	B8	AA
10	[9]	39	[(]	28	B9	39	B9	A8
11	[0]	30	[)]	29	B0	30	B0	A9
12	[-]	2D	[_]	5F	AD	1F	9F	DF
13	[=]	3D	[+]	2B	BD	3D	BD	AB
14	[N]	5C	[]	7C	DC	5C	DC	FC
15	delete	7F		0F	0F	1F	0F	0F
16	tab	08		19	19	19	19	19
17	[q]	71	[Q]	51	F1	11	91	D1
18	[w]	77	[W]	57	F7	17	97	D7
19	[e]	65	[E]	45	E5	05	85	C5
20	[r]	72	[R]	52	F2	12	92	D2
21	[t]	74	[T]	54	F4	14	94	D4
22	[y]	79	[Y]	59	F9	19	99	D9
23	[u]	75	[U]	55	F5	15	95	D5
24	[i]	69	[I]	49	E9	09	89	C9
25	[o]	6F	[O]	4F	EF	0F	8F	CF
26	[p]	70	[P]	50	F0	10	90	D0
27	[]	5B	[]	7B	DB	5B	DB	FB
28	[]	5D	[]	7D	DD	5D	DD	FD
30	ctrl	00		00	00	00	00	00
31	[a]	61	[A]	41	E1	01	81	C1
32	[s]	73	[S]	53	F3	13	93	D3
33	[d]	64	[D]	44	E4	04	84	C4
34	[f]	66	[F]	46	E6	06	86	C6
35	[g]	67	[G]	47	E7	07	87	C7
36	[h]	68	[H]	48	E8	08	88	C8
37	[j]	6A	[J]	4A	EA	0A	8A	CA
38	[k]	6B	[K]	4B	EB	0B	8B	CB
39	[l]	6C	[L]	4C	EC	0C	8C	CC
40	[;]	3B	[:]	3A	BB	3B	BB	BA
41	[']	27	["]	22	A7	27	A7	A2
43	return	0D		0D	0D	0D	0D	0D
44	shift	00		00	00	00	00	00

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46	[z]	7A	[Z]	5A	FA	1A	9A	DA
47	[x]	78	[X]	58	F8	18	98	D8
48	[c]	63	[C]	43	E3	03	83	C3
49	[v]	76	[V]	56	F6	16	96	D6
50	[b]	62	[B]	42	E2	02	82	C2
51	[n]	6E	[N]	4E	EE	0E	8E	CE
52	[m]	6D	[M]	4D	ED	0D	8D	CD
53	[.]	2C	[<]	3C	AC	2C	AC	BC
54	[.]	2E	[>]	3E	AE	2E	AE	BE
55	[/]	2F	[?]	3F	AF	2F	AF	BF
57	shift	00		00	00	00	00	00
58	supersh.	00		00	00	00	00	00
61	space	20		20	A0	20	A0	A0
64	capsl.	00		00	00	00	00	00
65	F2	81		89	91	99	91	91
66	F4	83		8B	93	9B	93	93
67	F6	85		8D	95	9D	95	95
68	F8	87		8F	97	9F	97	97
69	help	1C		1C	1C	1C	1C	1C
70	F1	80		88	90	98	90	90
71	F3	82		8A	92	9A	92	92
72	F5	84		8C	94	9C	94	94
73	F7	86		8E	96	9E	96	96
74	menu	1D		1D	1D	1D	1D	1D
90	ESC	1B		1B	1B	1B	1B	1B
91	[7]	37		37	B7	37	B7	B7
92	[4]	34		34	B4	34	B4	B4
93	[1]	31		31	B1	31	B1	B1
95	home	1E		1E	1E	1E	1E	1E
96	[8]	38		38	B8	38	B8	B8
97	[5]	35		35	B5	35	B5	B5
98	[2]	32		32	B2	32	B2	B2
99	[0]	30		30	B0	30	B0	B0
100	culeft	08		11	15	02	15	15
101	[9]	39		39	B9	39	B9	B9
102	[6]	36		36	B6	36	B6	B6
103	[3]	33		33	B3	33	B3	B3
104	[.]	2E		2E	AE	2E	AE	AE
105	curight	0C		14	18	05	18	18
106	cuup	0B		13	17	04	17	17
107	cudown	0A		12	16	03	16	16
108	return	0D		0D	0D	0D	0D	0D

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