

X-Bows Keyboard Driver and Device Communication Interface

V1.0.0

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Equipment Identification

1.1. USB Enumeration

The driver is identified by the ID attribute of the HID custom device enumerated by the device. Attributes include: VID, PID, UsagePage, Usage.

1.2. Device identification command

1.2.1. Get program information

Driver issued command:

CMD (0)	SUB_CMD (1)	RESERVED (2-5)	CRC (6,7)	RESERVED (8-63)
0x01	0x01	reserved	crc	reserved

Response from device:

CMD (0)	SUB_CMD (1)	ACK (2)	RESERVED (3-5)	CRC (6,7)	FWID (8-11)	FWVER (12-13)	RESERVED (14-63)
0x01	0x01	ack	reserved	crc	FWID	FWVer	reserved

1.2.2. Obtaining the device ID

Driver issued command:

CMD (0)	SUB_CMD (1)	RESERVED (2-5)	CRC (6,7)	RESERVED (8-63)
0x01	0x02	reserved	crc	reserved

Response from device:

CMD (0)	SUB_CMD (1)	ACK (2)	RESERVED (3-5)	CRC (6,7)	DEVICE_ID (8-15)	RESERVED (16-63)
0x01	0x02	ack	reserved	crc	device_id	reserved

1.2.3. Obtaining the model ID

Driver issued command:

CMD (0)	SUB_CMD (1)	RESERVED (2-5)	CRC (6,7)	RESERVED (8-63)
0x01	0x08	reserved	crc	reserved

Response from device:

CMD (0)	SUB_CMD (1)	ACK (2)	RESERVED (3-5)	CRC (6,7)	MODEL_ID (8-15)	RESERVED (16-63)
0x01	0x08	ack	reserved	crc	model_id	reserved

1.2.4. Setting the device ID

Driver issued command:

CMD (0)	SUB_CMD (1)	RESERVED (2-5)	CRC (6,7)	DEVICE_ID (8-15)	RESERVED (16-63)
0x02	0x04	reserved	crc	device_id	reserved

Response from device:

CMD (0)	SUB_CMD (1)	ACK (2)	RESERVED (3-5)	CRC (6,7)	RESERVED (8-63)
0x02	0x04	ack	reserved	crc	reserved

1.2.5. Set the model ID

Driver issued command:

CMD (0)	SUB_CMD (1)	RESERVED (2-5)	CRC (6,7)	MODEL_ID (8-15)	RESERVED (16-63)
0x02	0x05	reserved	crc	model_id	reserved

Response from device:

CMD (0)	SUB_CMD (1)	ACK (2)	RESERVED (3-5)	CRC (6,7)	RESERVED (8-63)
0x02	0x05	ack	reserved	crc	reserved

Equipment Function

2.1. Key Customization

2.1.1. Button function configuration

Driver issued command:

CMD (0)	SUB_CMD (1)	ADDR (2,3)	RESERVED (4)	LENGTH (5)	CRC (6,7)	DATA (8-63)
0x06	0x01	addr	reserved	length	crc	data

Response from device:

CMD (0)	SUB_CMD (1)	ACK (2)	RESERVED (3-5)	CRC (6,7)	RESERVED (8-63)
0x06	0x01	ack	reserved	crc	reserved

2.1.2. Button function configuration save

Driver issued command:

CMD (0)	SUB_CMD (1)	VALUE (2)	RESERVED (3-5)	CRC (6,7)	RESERVED (8-63)
0x09	0x01	0x02	reserved	crc	reserved

Response from device:

CMD (0)	SUB_CMD (1)	ACK (2)	RESERVED (3-5)	CRC (6,7)	RESERVED (8-63)
0x06	0x01	ack	reserved	crc	reserved

2.1.3. Special function keys are reported

Response from device:

CMD (0)	SUB_CMD (1)	LOGICCODE (2)	STATE (3)	RESERVED (4-5)	CRC (6,7)	RESERVED (8-63)
0x08	0x01	logic code	state	reserved	crc	reserved

State: 0x00 key released, 0x01 key pressed

2.1.4. Mouse data

Driver issued command:

CMD (0)	SUB_CMD (1)	RESERVED (2-5)	CRC (6,7)	DATA0 (8)	DATA1 (9)	DATA2 (10)	DATA3 (11)	RESERVED (12-63)
0x05	0x01	reserved	crc	mouse _key	mouse _x	mouse _y	mouse _z	reserved

Response from device:

CMD (0)	SUB_CMD (1)	ACK (2)	RESERVED (3-5)	CRC (6,7)	RESERVED (8-63)
0x05	0x01	ack	reserved	crc	reserved

Note: The command needs to be sent to the PC via the mouse within 5ms

2.1.5. Keyboard data

Driver issued command:

CMD (0)	TYPE (1)	RESERVED (2-5)	CRC (6,7)	DATA0 (8)	DATA1 (9)	DATA2 (10)	DATA3 (11)	DATA4 (12)	RESERVED (13-63)
0x05	0x02	reserved	crc	modifier_key	stdkey _0	stdkey _1	stdkey _2	stdkey _3	reserved

Response from device:

CMD (0)	SUB_CMD (1)	ACK (2)	RESERVED (3-5)	CRC (6,7)	RESERVED (8-63)
0x05	0x01	ack	reserved	crc	reserved

Note: The command needs to be sent to the PC via the keyboard within 5ms

2.2. Lighting effects

2.2.1. Light effect setting

Driver issued command:

CMD (0)	SUB_CMD (1)	RESERVED (2-5)	CRC (6,7)
0x07	0x01	reserved	crc

Response from device:

MODE (8)	SUB_MODE (9)	LIGHTLEVEL (10)	SPEED LEVEL (11)	DIRECTION (12)	R (13)	G (14)	B (15)	ENB (16)	RESERVED (17-63)
mode	sub_mode	light_level	speed_level	direction	r	g	b	enb	reserved