

x4600 - Crown

Version 0

Crown

[0] **GetInfo()** → capabilities, slots, ratchets

[1] **GetMode()** → diverting, ratchet mode, motion timeout, short-long timeout, double-tap speed

[2] **SetMode**(diverting, ratchet mode, motion timeout, ...) → diverting, ratchet mode, ...

[event0] **CrownEvent()** → Rotation state, Relative slot rotation, Relative ratchet rotation, ...

Overview

Functions and Events

[0] **GetInfo()** → capabilities, slots, ratchets

Returns crown info constants

Parameters

none

Returns

Capabilities bitmap

```
bit 0 : Button
bit 1 : Button long press (button states 0x03 and 0x04)
bit 2 : Mechanized ratchet, no manual control
bit 3 : Rot_timeout(Rotation timeout configurable)
bit 4 : sl_timeout(Short-long timeout configurable)
bit 5 : d_tap_speed(Double tap speed configurable)
```

Capabilities bitmap

```
bit 0 : Proximity
bit 1 : Touch
bit 2 : Tap gesture
bit 3 : d_tap gesture(Double tap gesture)
```

nbSlots

Number of slots per revolution (MSB first)

nbRachets

Number of ratchets per revolution (MSB first)

Table 1. *GetInfo()* response packet format

| byte \ bit | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
|------------|---------------------|---|---|---|---|---|---|---|
| 0 | Capabilities bitmap | | | | | | | |
| 1 | Capabilities bitmap | | | | | | | |
| 2..3 | nbSlots | | | | | | | |
| 4..5 | nbRachets | | | | | | | |
| 6..15 | reserved | | | | | | | |

Errors

none

[1] GetMode() → diverting, ratchet mode, motion timeout, short-long timeout, double-tap speed

Parameters

none

Returns

Reporting diverted

0x00 -> No change
0x01 -> HID
0x02 -> Diverted

Ratchet mode

0x01 -> Free Mode
0x02 -> Ratchet Mode

Table 2. *GetMode()* response packet format

| byte \ bit | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
|------------|-----------------------------------|---|---|---|---|---|---|---|
| 0 | Reporting diverted | | | | | | | |
| 1 | Ratchet mode | | | | | | | |
| 2 | Rotation Timeout (by 10ms step) | | | | | | | |
| 3 | Short Long Timeout (by 10ms step) | | | | | | | |
| 4 | Double-tap speed (by 10ms step) | | | | | | | |

| byte \ bit | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
|------------|----------|---|---|---|---|---|---|---|
| 5..15 | reserved | | | | | | | |

Errors

none

[2] SetMode(diverting, ratchet mode, motion timeout, ...) → diverting, ratchet mode, ...

Parameters

Reporting diverted

0x00 -> No change
0x01 -> HID
0x02 -> Diverted

Ratchet mode

0x00 -> No change
0x01 -> Free Mode
0x02 -> Ratchet Mode

Rotation Timeout (by 10ms step)

0x00 -> No Change
0xNN -> Timeout value. Valid values between 0x00 to 0x40. For value > 0x40 FW will clip the value at 0x40.

Short Long Timeout (by 10ms step)

0x00 -> No Change
0xNN -> Timeout value

Double-tap speed (by 10ms step)

0x00 -> No Change
0xNN -> Time value

Table 3. SetMode() request packet format

| byte \ bit | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
|------------|--------------------|---|---|---|---|---|---|---|
| 0 | Reporting diverted | | | | | | | |
| 1 | Ratchet mode | | | | | | | |
| 2 | Rotation Timeout | | | | | | | |
| 3 | Long Timeout | | | | | | | |

| byte \ bit | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
|------------|------------------|---|---|---|---|---|---|---|
| 4 | Double-tap speed | | | | | | | |
| 5..15 | reserved | | | | | | | |

Returns

Echo the parameters

Table 4. SetMode() response packet format

| byte \ bit | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
|------------|--------------------|---|---|---|---|---|---|---|
| 0 | Reporting diverted | | | | | | | |
| 1 | Ratchet mode | | | | | | | |
| 2 | Rotation Timeout | | | | | | | |
| 3 | Long Timeout | | | | | | | |
| 4 | Double-tap speed | | | | | | | |
| 5..15 | reserved | | | | | | | |

Errors

none

[event0] CrownEvent() → Rotation state, Relative slot rotation, Relative ratchet rotation, ...

Rotation state

```
0x00 -> Inactive (or not diverted)
0x01 -> Start
0x02 -> Active
0x03 -> Stop
```

Relative slot rotation

Number of slot rotation between (-127 to 127)

Relative ratchet rotation (-127 to 127)

Number of ratchet rotation between (-127 to 127)

Proximity

```
0x00 -> Inactive
0x01 -> Start
0x02 -> Active
0x03 -> Stop
```

Touch

```
0x00 -> Inactive
0x01 -> Start
0x02 -> Active
0x03 -> Stop
```

Gesture

```
0x00 -> None
0x01 -> Tap
0x02 -> Double Tap
```

Button_1

```
0x00 -> state: Inactive (or not diverted)
0x01 -> event: Press (start)
0x02 -> state: Short press active
0x03 -> event: Long press (reached time threshold)
0x04 -> state: Lg_act (Long press active)
0x05 -> event: Release (stop)
```

future enhancement

future enhancement

speed of crown

16-bit signed value representing the speed of crown in slots/second

Table 5. CrownEvent() packet format

| byte \ bit | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
|------------|---------------------------|---|---|---|---|---|---|---|
| 0 | Rotation state | | | | | | | |
| 1 | Relative slot rotation | | | | | | | |
| 2 | Relative ratchet rotation | | | | | | | |
| 3 | Proximity | | | | | | | |
| 4 | Touch | | | | | | | |
| 5 | Gesture | | | | | | | |
| 6 | Button_1 | | | | | | | |
| 7..13 | future enhancement | | | | | | | |
| 14..15 | speed of crown | | | | | | | |

ChangeLog

- Version 0: Initial version