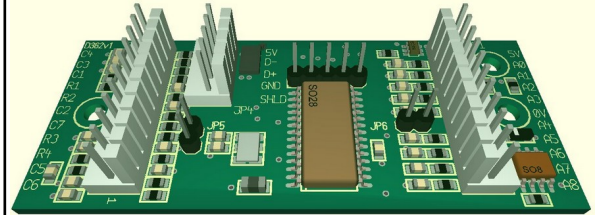


# MCB-487

## HID COMPOSITE INTERFACE FOR ANALOG JOYSTICK



- UP TO 8 AXIS (MOUSE/JOYSTICK MODE)  
9 AXIS (JOYSTICK MODE)
- UP TO 28 PUSH-BUTTONS
- USB INTERFACE
- REPROGRAMMABLE FIRMWARE
- 8 BITS ANALOG ACQUISITION

These controllers allow to connect an analog joystick to a PC computer supporting USB interface Windows (10, 8, ..., Me, 98), Linux and also to a MAC under OS8.6 or greater.

No special driver is necessary.

MCB-487 does the acquisition

- from 1 to 9 axis as analog inputs on 8 bits with central dead zone ( $\pm 1.25\%$ )
- up to 28 push-buttons in matrix 4x7.

MCB-487 can be used as :

### HID composite Mouse/Joystick interface

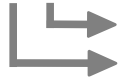
- **Mouse Pointer:** 2 axis+wheel (Y,X,Z)
- **Game controller:** 1 to 8 axis  
JP6 connector switches on the fly between mouse (closed) and joystick (open) and dispatches the first 3 axes X, Y, Z and first 3 buttons to the selected mode. Other axis / buttons pertain only joystick.  
Note: A8 axis is not available.

### Joystick Alone interface

- **Game controller:** 9 axis (A8 input is used as 9th axis).

### Reference

MCB-487 -A -B



B: Buttons quantity from 0 to 28

A: Axis quantity from 1 to 9

To prepare your order, simply add to the MCB-487 reference the axis quantity then the buttons quantity that you want. If axis quantity equals 9, "**Joystick alone**" firmware is programmed; for lower axis quantity, "**Mouse/Joystick**" firmware is used.

### Usually references

- MCB-487-3-5 : 3 axis (X,Y,Z) and 5 buttons Mouse/Joystick
- MCB-487-8-28 : 8 axis and 28 buttons Mouse/Joystick
- MCB-487-9-28 : 9 axis and 28 buttons Joystick alone

### Convention

If the MCB-487 is ordered simultaneously with a joystick and with a request for wiring, the joystick is equipped with connectors and it is wired in order to be compatible with a PC computer with Windows. For example, a TRY10 2 axes 2 switches viewed top side have the cables on the left.

*If this wiring is not suitable for you, contact us.*

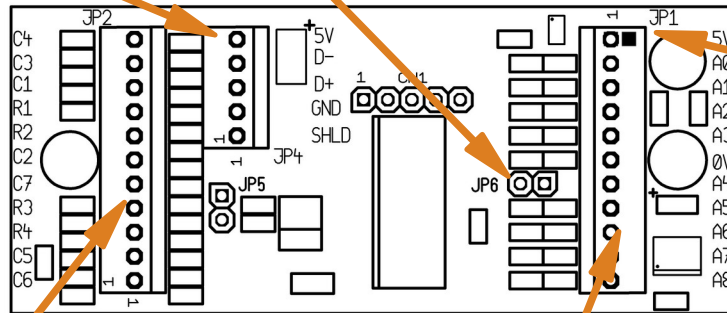
Specifications	
Power supply (V)	DC 5 V (by USB)
Current Working (mA)	~ 30 mA + Sensors
Suspend	< 2 mA
Working temperature	0..70 °C
Size (mm)	77 x 33

## Connection

USB (JP4)	
Pin	Function
5	+5 VDC
4	D-
3	D+
2	GND
1	Shield

Sel Joy/Mouse  
(JP6)

The board is powered directly by the USB.  
All connectors pitch : 2.54 mm.



No Stand-By  
(JP1)

There is a link located near pin1 of JP1, on the solder side. This link must be closed if the MCB-487 is used with a joystick with embedded electronics, like F30 series. It disables the standby mode.

Push-Buttons (JP2)		
Function	Signal	Pin
Column output 4	C4	11
Column output 3	C3	10
Column output 1	C1	9
Row input 1	R1	8
Row input 2	R2	7
Column output 2	C2	6
Column output 7	C7	5
Row input 3	R3	4
Row input 4	R4	3
Column output 5	C5	2
Column output 6	C6	1

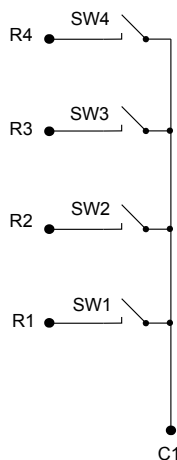
Analog inputs (JP1)		
Pin	Signal	Function
1	VCC	+5 VDC
2	A0	X Axis
3	A1	Y Axis
4	A2	Z Axis
5	A3	Rx Axis
6	GND	Ground
7	A4	Ry Axis
8	A5	Rz Axis
9	A6	Slider Axis
10	A7	Dial Axis
11	A8	POV Axis (Joystick alone)

## Push-Buttons matrix

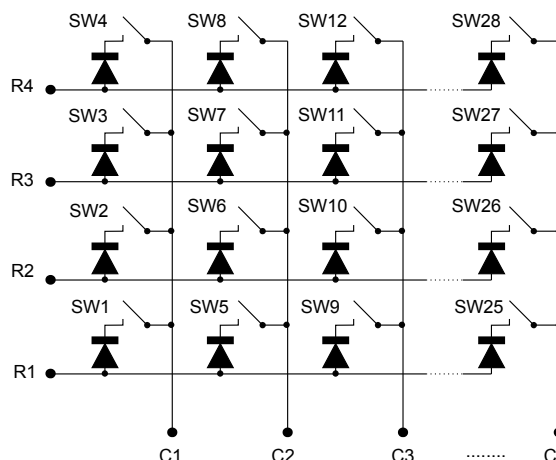
Push-buttons are organized in matrix (7 Columns **C** x 4 Rows **R**) in order to reduce cables and connectors quantity. The push-buttons are to be connected in the order : SW1 : C1-R1, SW2 : C1-R2, SW3 : C1-R3, SW4 : C1-R4, SW5 : C2-R1, SW6 : C2-R2 etc... until SW28 : C7-R4.

Push-buttons are connected to JP2 accordingly to the following drawings.

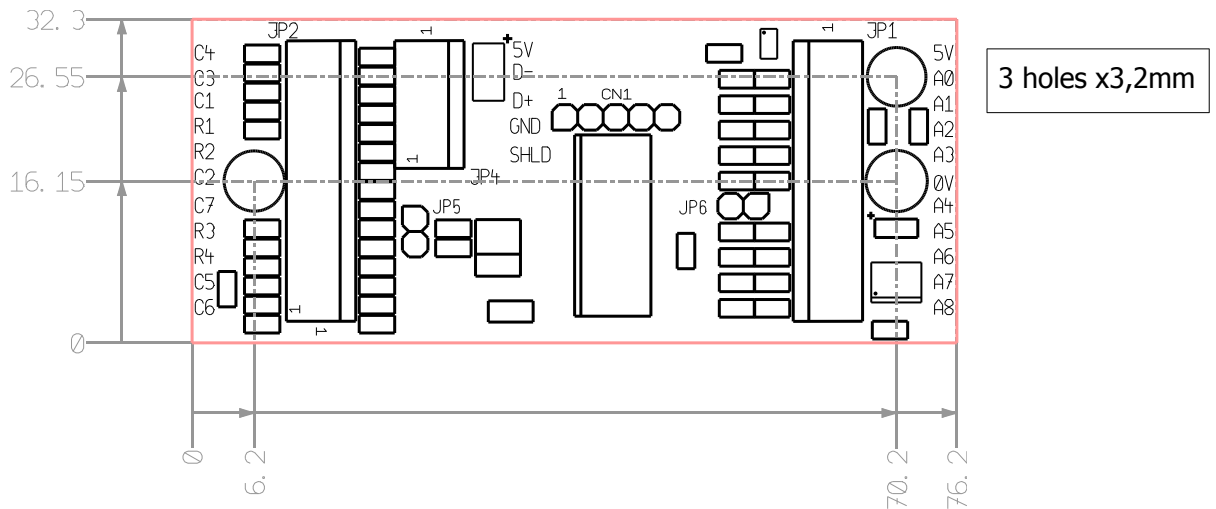
From 1 to 4 buttons,  
a direct connexion is possible :



If more than 4 buttons are connected, it is necessary  
to add a diode in series with each button :



## Size



## Identifying your interface

Andig's USB devices use VID: 25C7

Depending on the firmware used, the PID can be 0103, 0104 or 0114

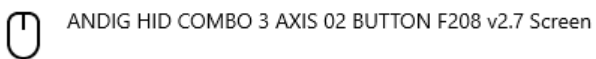
The product identification is also readable in clear with the name of the manufacturer, the function then the number of axes and buttons. From version 2.7, the name of the firmware and its version have been added followed by the type of axis settings (Direct, Screen, SP ###).

Overview of two different operating systems :

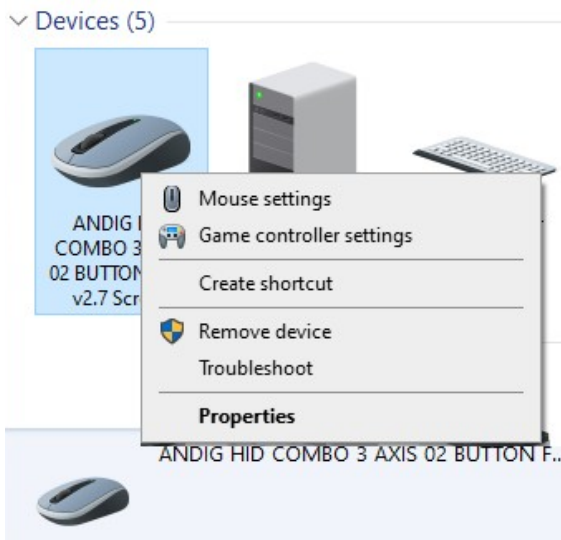
### Windows 10

With Bluetooth & other devices

Mouse, keyboard & pen

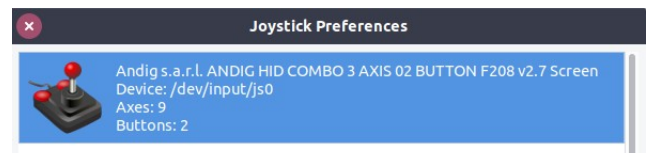


With Devices and Printers



### Linux

With jstest-gtk



With lsusb

```
user@pcname:~$ lsusb
Bus 00# Device 00#: ID 25c7:0103 Andig
s.a.r.l. ANDIG HID COMBO 3 AXIS 02
BUTTON F208 v2.7 Screen

user@pcname:~$ lsusb -v -d 25c7:0103
...
idVendor          0x25c7
idProduct         0x0103
bcdDevice         8.27
iManufacturer     1 Andig s.a.r.l.
iProduct          2 ANDIG HID COMBO
3 AXIS 02 BUTTON F208 v2.7 Screen
...
```

## Axis settings

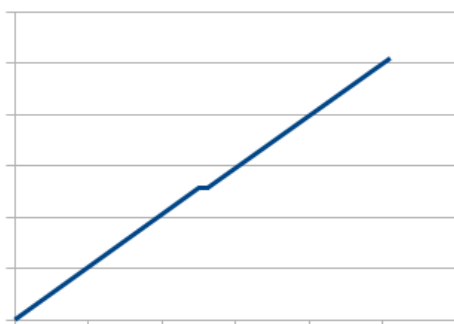
The default axis setting is either Direct mode or Screen mode.

- **Direct** : the values of the axes are scaled with a standard neutral central zone
- $\pm 1,25\%$  and the Y axis is not flipped.
- **Screen** : the values of the axes are scaled with a standard neutral central zone
- $\pm 1,25\%$  and the Y axis is flipped to match a PC screen.

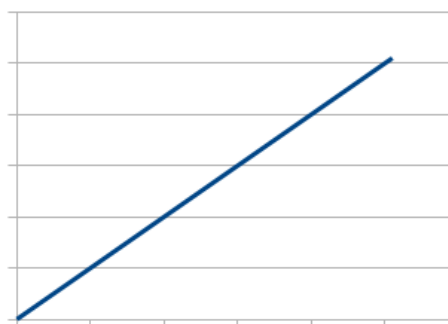
A special definition is possible at an additional development cost :

- **SP###** : Special definition of axes. ### is a unique number assigned to a customer specification. For each axis, we can define :
  - the minimum value
  - the maximum value
  - the central value
  - the width of the neutral central zone which will be symmetrical with respect to the central value
    - by default  $\pm 1,25\%$ ;
    - all possible values from 0 to  $\pm 50\%$   
example :  $\pm 5\%$ ,  $\pm 0\%$  (the output is then linear)
  - whether or not the output is turned

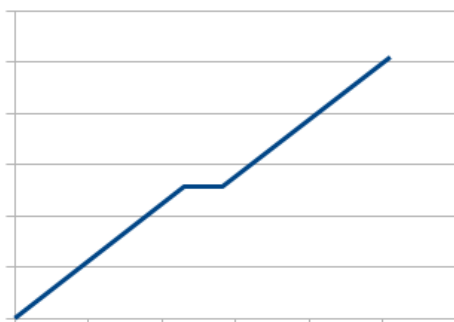
Examples of Output obtained with a linear input :



Standard neutral zone  $\pm 1,25\%$



Linear



Enlarged neutral zone  $\pm 5\%$



SP### very special :  
minimum & maximum values,  
center offset, output reversed  
enlarged neutral zone  $\pm 5\%$

## Special versions

Firmware is uploadable with the USB link with the "HID bootloader" software.

Special versions can be developed by us and reprogrammed in-situ by the end user.