velleman·kit HIGH-Q

15 Channel IR remote stick

K8051

Sleek designer enclosure with just 2 buttons, yet it provides acces to a stunning 15 channels.

Features:

☑ Slim designer enclosure.
☑ 2-button operation.
☑ Built-in 'all clear' function
☑ 3 addresses with 15 channels each.
☑ Easy channel and address selection.
☑ Compatible with most current and upcoming IR kits.
☑ Low power consumption.

Specifications:

- Power supply : 2 x AAA battery (not included).
- Dimensions : 160x27x23mm / 6,3x1x0,9"
- Range : up to 20m (K8050 / indoors)

1. Assembly (Skipping this can lead to troubles !)
Ok, so we have your attention. These hints will help you to make this project successful. Read them carefully.

1.1 Make sure you have the right tools:

- A good quality soldering iron (25-40W) with a small tip.

- Wipe it often on a wet sponge or cloth, to keep it clean; then apply solder to the tip, to give it a wet look. This is called 'thinning' and will protect the tip, and enables you to make good connections. When solder rolls off the tip, it needs cleaning.

- Thin raisin-core solder. Do not use any flux or grease.

- A diagonal cutter to trim excess wires. To avoid injury when cutting excess leads, hold the lead so they cannot fly towards the eyes.

- Needle nose pliers, for bending leads, or to hold components in place.

- Small blade and Phillips screwdrivers. A basic range is fine.
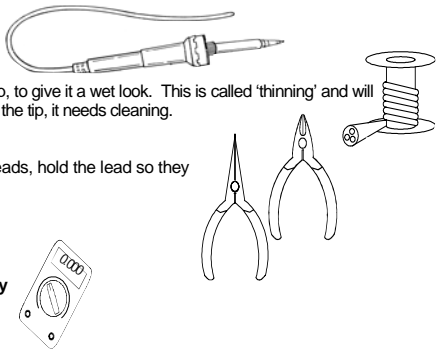
**For some projects, a basic multi-meter is required, or might be handy**

1.2 Assembly Hints :

$\Rightarrow$ Make sure the skill level matches your experience, to avoid disappointments.
$\Rightarrow$ Follow the instructions carefully. Read and understand the entire step before you perform each operation.
$\Rightarrow$ Perform the assembly in the correct order as stated in this manual
$\Rightarrow$ Position all parts on the PCB (Printed Circuit Board) as shown on the drawings.
$\Rightarrow$ Values on the circuit diagram are subject to changes.
$\Rightarrow$ Values in this assembly guide are correct*
$\Rightarrow$ Use the check-boxes to mark your progress.
$\Rightarrow$ Please read the included information on safety and customer service
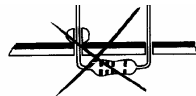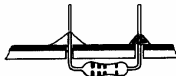
* Typographical inaccuracies excluded. Always look for possible last minute manual updates, indicated as 'NOTE' on a separate leaflet.

1.3 Soldering Hints :

1- Mount the component against the PCB surface and carefully solder the leads
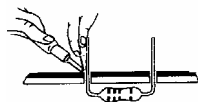
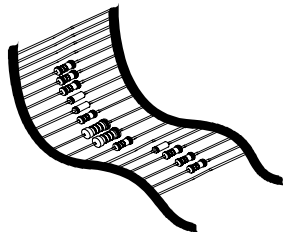**2-** Make sure the solder joints are cone-shaped and shiny

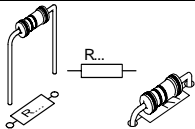**3-** Trim excess leads as close as possible to the solder joint

REMOVE THEM FROM THE TAPE ONE AT A TIME !

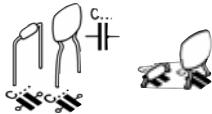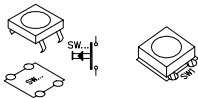> **AXIAL COMPONENTS ARE TAPED IN THE COR-RECT MOUNTING SEQUENCE !**

1. Resistors

- [ ] R1 : 4E7   (4-7-B-B)
- [ ] R2 : 330   (3-3-1-B)
- [ ] R3 : 330   (3-3-1-B)
- [ ] R4 : 330   (3-3-1-B)
- [ ] R5 : 330   (3-3-1-B)
- [ ] R6 : 330   (3-3-1-B)
- [ ] R7 : 330   (3-3-1-B)
- [ ] R8 : 330   (3-3-1-B)
- [ ] R9 : 47K   (4-7-3-B)
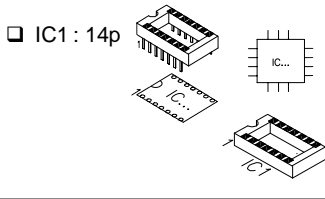- [ ] R10 : 47K   (4-7-3-B)

2. Capacitor

- [ ] C1 : 100nF (104, u1)

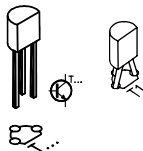## 3. Push button

- [ ] SW1 : Transmit (KRS1243)

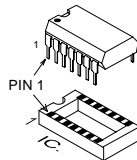## 4. IC socket, Watch the position of the notch!

- [ ] IC1 : 14p

5. Transistor

- [ ] T1 : BC639
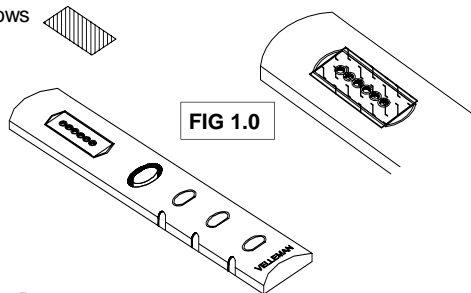

6. IC mounting

Place the IC SVK8051 (Programmed PIC16F630-I/P) into its socket

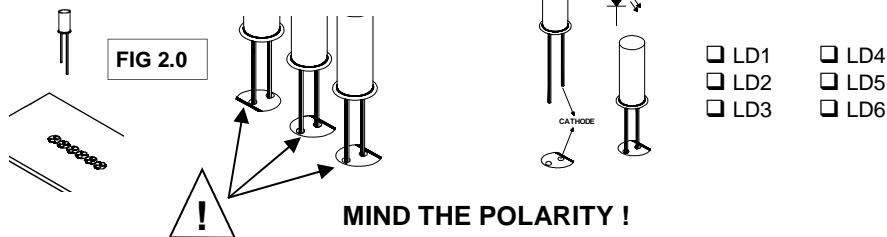✎ Pay attention to the position of the notch!

PIN 1

5

7. Mounting the LED readout

1. Stick a piece of tape over the LED mounting holes. This allows you to level the LEDs before soldering them.(see fig. 1.0).

FIG 1.0

Complete the assembly as follows :

2. Insert the LEDs BUT **DO NOT SOLDER THEM YET**!
   Mind the polarity ! (fig 2.0)

FIG 2.0

CATHODE

❏ LD1   ❏ LD4
❏ LD2   ❏ LD5
❏ LD3   ❏ LD6

!   **MIND THE POLARITY !**

3. Flip the PCB and guide all LEDs trough their holes (fig 3.0).

=> Make sure that all LEDs touch the tape!
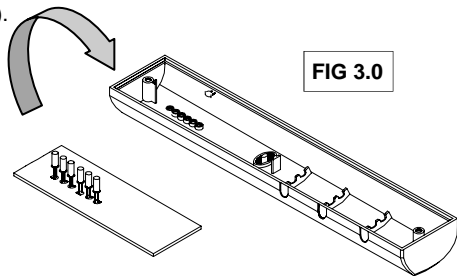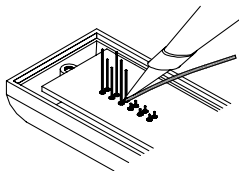
FIG 3.0

4. Solder the connections (fig 4.0).
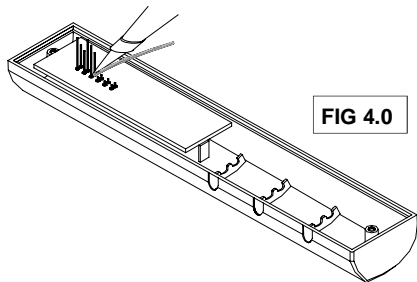
FIG 4.0

5. Remove the tape.

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8. Enclosure preparation

2 Holes must be drilled into the enclosure.

☞ **Follow next steps exactly!**

☞ **Pay attention to the correct diameter.**
   Make sure the holes are free of burrs.

STEP 1

Drawing 5.0 provides a drill pattern for the 'select' button.

- Mark the centre of the hole with a pencil.
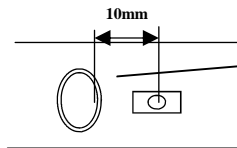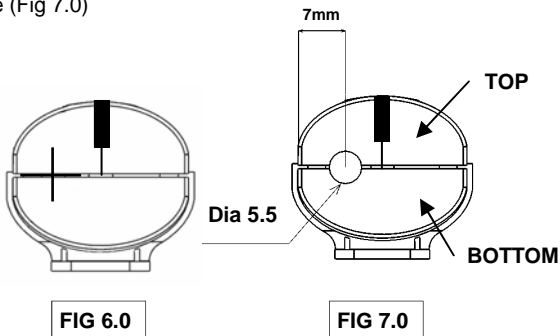- Drill the hole using a 3.5mm drill.
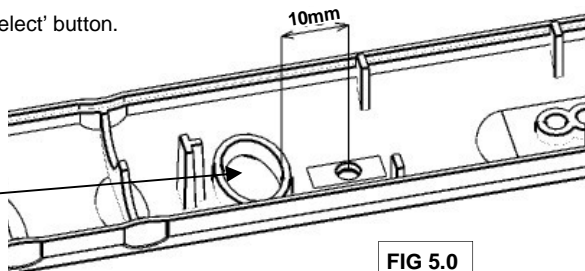
FIG 5.0

STEP 2

Drawing 7.0 provides a drill pattern for the IR-LED.

- Close the enclosure with the 2 supplied screws. Mark the centre of the hole to be drilled on the top of the enclosure (Fig 6.0). Make sure that the centre of the hole is in the middle of the housing and 7mm from the left hand side (Fig 7.0)
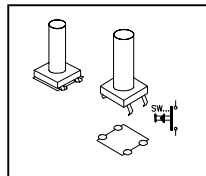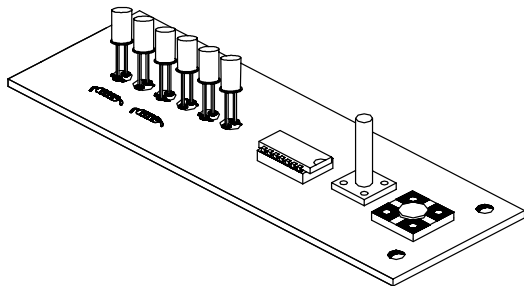
7mm

TOP

Dia 5.5

BOTTOM

FIG 6.0   **FIG 7.0**

- Drill the hole with a 5,5mm drill.

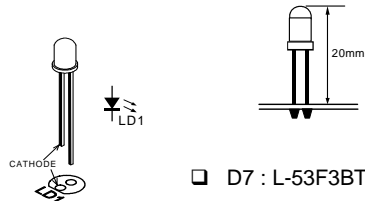 ☞ **Make sure the edges of the holes are completely smooth!**

9. Mounting the PCB

STEP 1

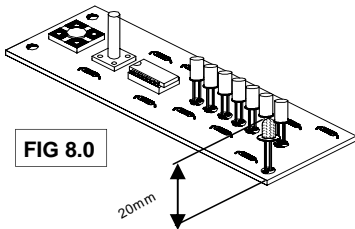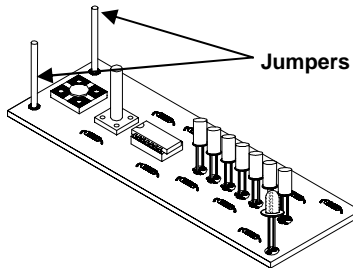Mount the 'select' push button. (SW2)

STEP 2

Mount the infrared LED (mounting height: 20mm) (fig 8.0).

LD1

CATHODE

20mm

❑ D7 : L-53F3BT (blue)
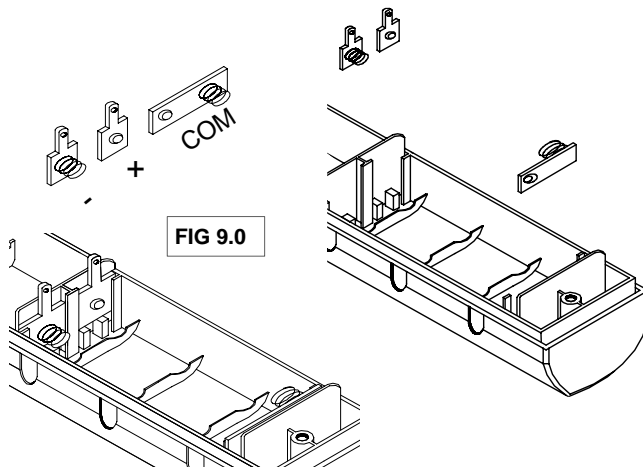
FIG 8.0

20mm

Jumpers

STEP 3

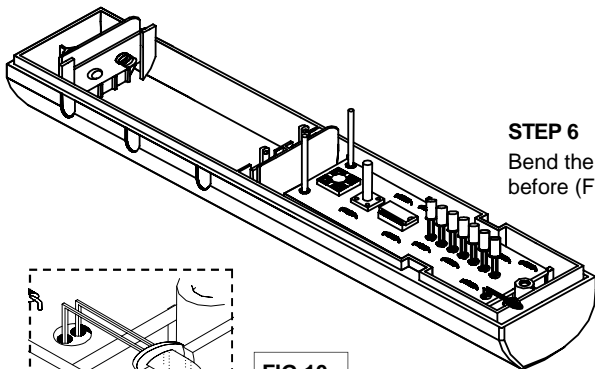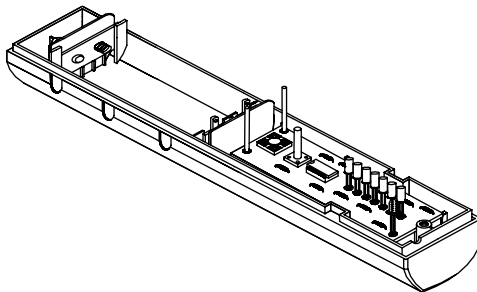Solder two jumperwires (- & +).

STEP 4

Place the battery contacts. Pay attention to the polarity ! (Fig 9.0)

FIG 9.0

STEP 5

Place the PCB into the housing.

STEP 6

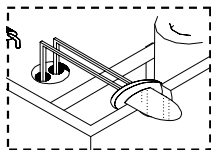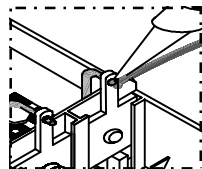Bend the IR LED so that it fits the hole you've drilled before (Fig10).

FIG 10

STEP 7

Solder the jumperwires to the matching battery connector.

STEP 8

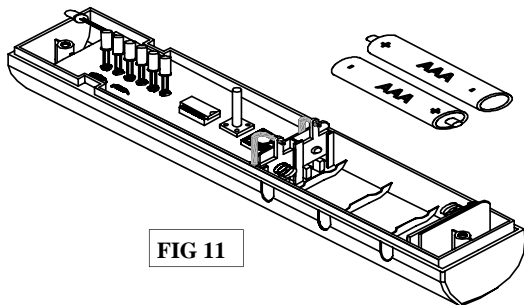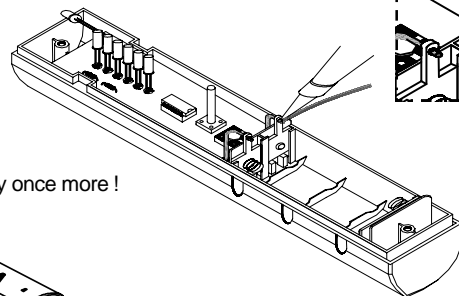Before continuing, inspect your complete assembly once more !

FIG 11

Place two AAA-batteries in their support. (Fig 11).
If the batteries have been inserted correctly and no
assembly mistakes have been made, the LEDs will
show a brief animation, hereby indicating that the
unit is ready for use.

10. Final assembly

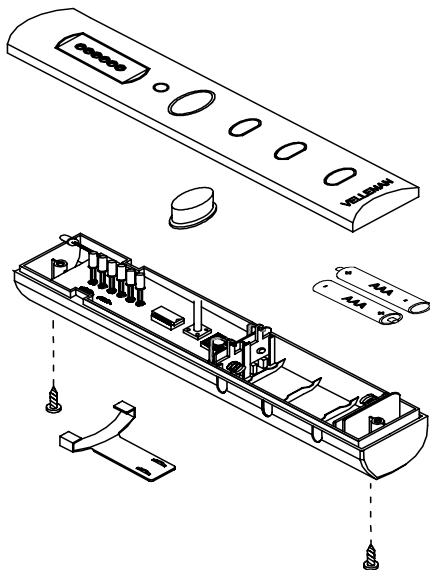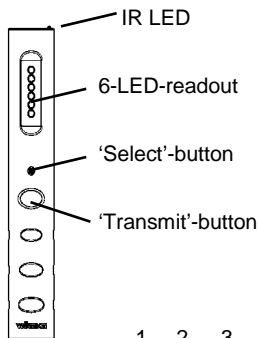Now you can close the enclosure using the two supplied screws. Do not forget the pushbutton ! (Fig. 12).

FIG 12

11. Operation

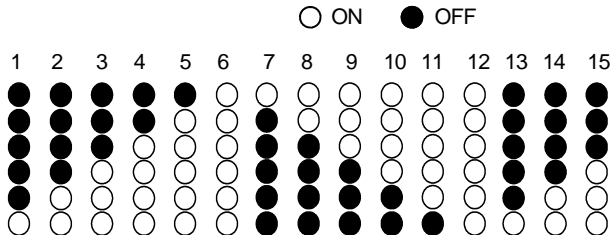IR LED

6-LED-readout

'Select'-button

'Transmit'-button

To operate a channel :
Press the 'Transmit'- button.
The LED-readout will flash a # of LEDs in a bar-style according to the selected channel as long as the button is pressed.

To change the current channel :
Press the 'Select'- button repeatedly till the LED-display indicates the desired channel :

○ ON ● OFF

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

The LED-display will turn off automatically if the unit has been left idle for a couple of seconds.

To clear all channels :
Press and hold the 'Select'- button. The LED-readout will flash the upper and lower LED during the 'clear'-transmission.
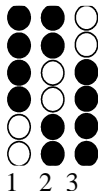
To change the address :
Some Velleman IR kits feature address selection (such as the K8050 15 channel receiver), to increase the # of available channels or to allow independent operation of different receivers in the same room.
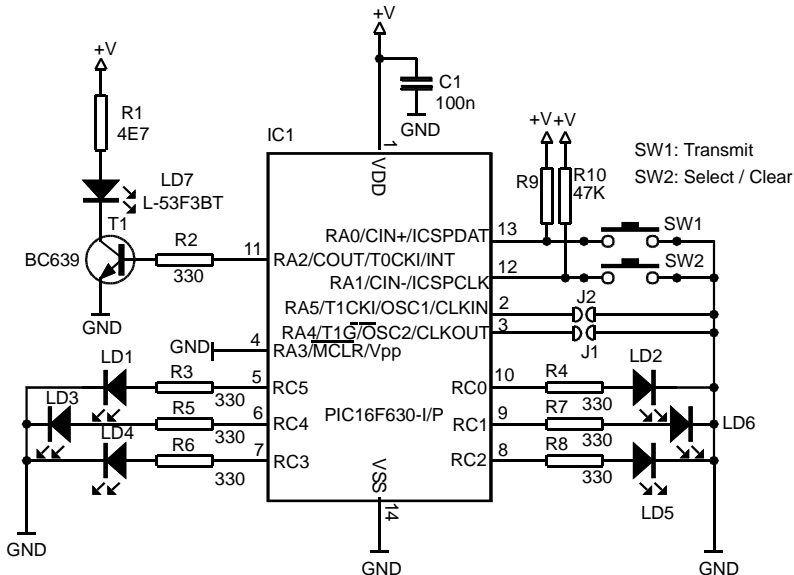
- Press and hold the 'Transmit'-button.
- Briefly press the 'Select'-button.

The LED-display will indicate the selected channel by turning on the lower LEDs (adress 1), the middle LEDs (adress 2) or the upper LEDs (adress 3).
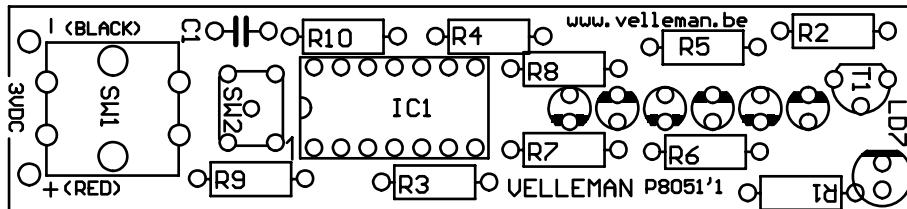
- Press the 'Select'-button repeatedly while holding the 'Transmit'-button to change the channel.
- Release both buttons to return to idle mode

12. Schematic diagram.

13. PCB

VELLEMAN Components NV
Legen Heirweg 33
9890 Gavere
Belgium Europe
www.velleman.be
www.velleman-kit.com