Total solder points: 274
Difficulty level:
beginner 1 ☐ 2 ☐ 3 ☑ 4 ☐ 5 ☑ *advanced*

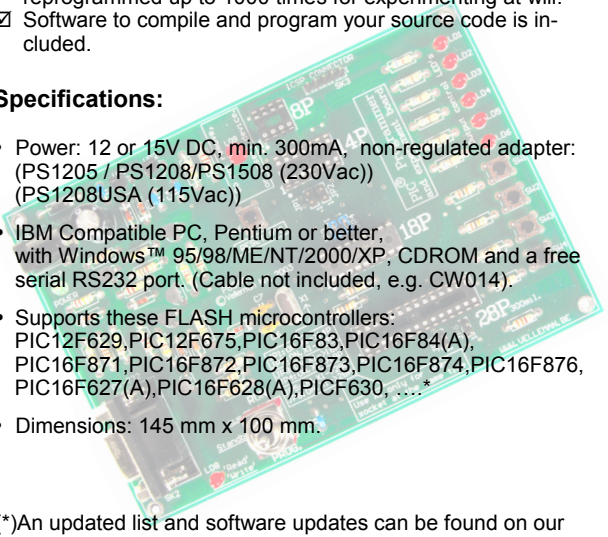
velleman-kit HIGH-Q

PIC® programmer and experiment board

Features:

K8048

- ☑ Suitable for programming Microchip® FLASH PIC(tm) microcontrollers.
- ☑ Supports 4 different 300 mil. PICs: 8p, 14p, 18p and 28p.
- ☑ Test buttons and LED indicators to carry out educational experiments, like with the enclosed programming examples.
- ☑ Easily connectable to a PC through the serial port.
- ☑ Enclosed is a Flash Microcontroller (PIC16F627) that can be reprogrammed up to 1000 times for experimenting at will.
- ☑ Software to compile and program your source code is included.



Specifications:

- Power: 12 or 15V DC, min. 300mA, non-regulated adapter:
  (PS1205 / PS1208/PS1508 (230Vac))
  (PS1208USA (115Vac))
- IBM Compatible PC, Pentium or better,
  with Windows™ 95/98/ME/NT/2000/XP, CDROM and a free serial RS232 port. (Cable not included, e.g. CW014).
- Supports these FLASH microcontrollers:
  PIC12F629,PIC12F675,PIC16F83,PIC16F84(A),
  PIC16F871,PIC16F872,PIC16F873,PIC16F874,PIC16F876,
  PIC16F627(A),PIC16F628(A),PICF630, ….*
- Dimensions: 145 mm x 100 mm.

(*)An updated list and software updates can be found on our website: www.velleman.be

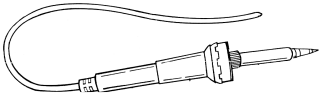
This device complies with Part 15 of the FCC Rules provided the enclosed instructions are followed to the letter. Use of the device is subject to the following conditions: (1) this device must not cause harmful interference and (2) the operation of this device should not be influenced by unwanted interference.

More information about FCC can be look at http://www.fcc.gov

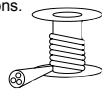
VELLEMAN Components NV
Legen Heirweg 33
9890 Gavere
Belgium Europe
www.velleman.be
www.velleman-kit.com

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.

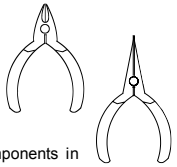
1.1 Make sure you have the right tools:



- 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.

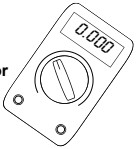


- Thin raisin-core solder. Do not use any flux or grease.



- 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 :

⇒ Make sure the skill level matches your experience, to avoid disappointments.

⇒ Follow the instructions carefully. Read and understand the entire step before you perform each operation.

⇒ Perform the assembly in the correct order as stated in this manual

⇒ Position all parts on the PCB (Printed Circuit Board) as shown on the drawings.

⇒ Values on the circuit diagram are subject to changes.

⇒ Values in this assembly guide are correct*

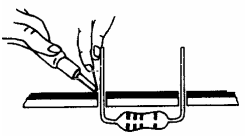
⇒ Use the check-boxes to mark your progress.

⇒ Please read the included information on safety and customer service

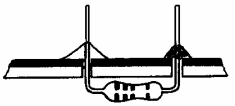
* Typographical inaccuracies excluded. Always look for possible last minute manual updates, indicated as 'NOTE' on a separate leaflet.

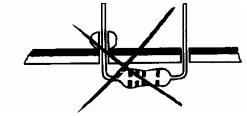
1.3 Soldering Hints :

Mount the component against the PCB surface and carefully solder the leads

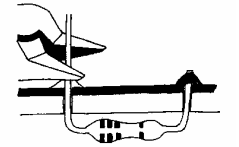


Make sure the solder joints are cone-shaped and shiny

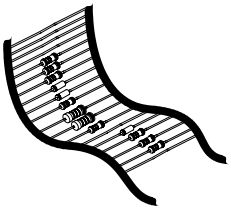




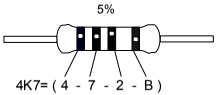
Trim excess leads as close as possible to the solder joint

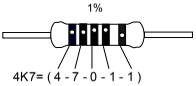


AXIAL COMPONENTS ARE TAPED IN THE CORRECT MOUNTING SEQUENCE !



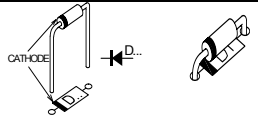
REMOVE THEM FROM THE TAPE ONE AT A TIME !





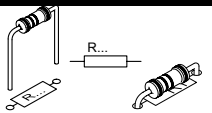
	I	P	E	SF	S	DK	N	D	GB	F	NL	
CODE	*CODICE COLORE*	*CODIGO DE CORES*	*CODIGO DE COLORES*	*VÄRI KOODI*	*FÄRG SCHEMA*	*FARVE-KODE*	*FARGE-KODE*	*FARB KODE*	*COLOUR CODE*	*CODIFICATION DES COULEURS*	*KLEUR KODE*	CODE
0	Nero	Preto	Negro	Musta	Svart	Sort	Sort	Schwarz	Black	Noir	Zwart	0
1	Marrone	Castanho	Marrón	Ruskea	Brun	Brun	Brun	Braun	Brown	Brun	Bruin	1
2	Rosso	Encarnado	Rojo	Punainen	Röd	Rød	Rød	Rot	Red	Rouge	Rood	2
3	Aranciato	Laranja	Naranjado	Oranssi	Orange	Orange	Orange	Orange	Orange	Orange	Oranje	3
4	Giallo	Amarelo	Amarillo	Keltainen	Gul	Gul	Gul	Gelb	Yellow	Jaune	Geel	4
5	Verde	Verde	Verde	Vihreä	Grön	Grøn	Grønn	Grün	Green	Vert	Groen	5
6	Blu	Azul	Azul	Sininen	Blå	Blå	Blå	Blau	Blue	Bleu	Blauw	6
7	Viola	Violeta	Morado	Purppura	Lila	Violet	Violet	Violet	Purple	Violet	Paars	7
8	Grigio	Cinzento	Gris	Harmaa	Grå	Grå	Grå	Grau	Grey	Gris	Grijs	8
9	Bianco	Branco	Blanco	Valkoinen	Vit	Hvid	Hvidt	Weiss	White	Blanc	Wit	9
A	Argento	Prateado	Plata	Hopea	Silver	Sølv	Sølv	Silber	Silver	Argent	Zilver	A
B	Oro	Dourado	Oro	Kulta	Guld	Guld	Guldl	Gold	Gold	Or	Goud	B

1. Diodes, check the polarity !



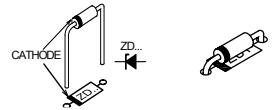
- ❑ D1 : **1N4007**
- ❑ D2 : 1N4148
- ❑ D3 : 1N4148
- ❑ D4 : 1N4148
- ❑ D5 : 1N4148
- ❑ D6 : 1N4148
- ❑ D7 : 1N4148

2. Resistors



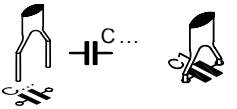
- ❑ R1 : 15K (1 - 5 - 3 - B)
- ❑ R2 : 220K (2 - 2 - 4 - B)
- ❑ R3 : 4K7 (4 - 7 - 2 - B)
- ❑ R4 : 1K (1 - 0 - 2 - B)
- ❑ R5 : 15K (1 - 5 - 3 - B)
- ❑ R6 : 220K (2 - 2 - 4 - B)
- ❑ R7 : 4K7 (4 - 7 - 2 - B)
- ❑ R8 : 1K (1 - 0 - 2 - B)
- ❑ R9 : 4K7 (4 - 7 - 2 - B)
- ❑ R10 : 3K3 (3 - 3 - 2 - B)
- ❑ R11 : 4K7 (4 - 7 - 2 - B)
- ❑ R12 : 330 (3 - 3 - 1 - B)
- ❑ R13 : 15K (1 - 5 - 3 - B)
- ❑ R14 : 3K3 (3 - 3 - 2 - B)
- ❑ R15 : 3K3 (3 - 3 - 2 - B)
- ❑ R16 : 1K (1 - 0 - 2 - B)
- ❑ R17 : 10K (1 - 0 - 3 - B)
- ❑ R18 : 10K (1 - 0 - 3 - B)
- ❑ R19 : 680 (6 - 8 - 1 - B)
- ❑ R20 : 680 (6 - 8 - 1 - B)
- ❑ R21 : 680 (6 - 8 - 1 - B)
- ❑ R22 : 680 (6 - 8 - 1 - B)
- ❑ R23 : 680 (6 - 8 - 1 - B)
- ❑ R24 : 680 (6 - 8 - 1 - B)
- ❑ R25 : 680 (6 - 8 - 1 - B)
- ❑ R26 : 10K (1 - 0 - 3 - B)
- ❑ R27 : 10K (1 - 0 - 3 - B)
- ❑ R28 : 10K (1 - 0 - 3 - B)
- ❑ R29 : 1K (1 - 0 - 2 - B)
- ❑ R30 : 10K (1 - 0 - 3 - B)
- ❑ R31 : 3K3 (3 - 3 - 2 - B)

3. Zenerdiodes



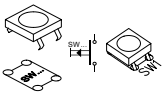
- ❑ ZD1 : 8V2

4. Ceramic Capacitors



- ❑ C2 : 100nF (104, u1)
- ❑ C3 : 100nF (104, u1)
- ❑ C4 : 100nF (104, u1)
- ❑ C6 : 18pF (18)
- ❑ C7 : 18pF (18)
- ❑ C8 : 100nF (104, u1)

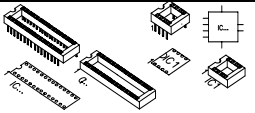
5. Push buttons



- ❑ SW1
- ❑ SW2
- ❑ SW3
- ❑ SW4
- ❑ SW6

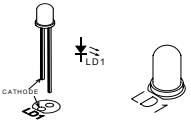
} KRS0611

6. IC sockets. Watch the position of the notch!



- ❑ IC1 : 8p
- ❑ IC2 : 14p
- ❑ IC3 : 18P
- ❑ IC4 : 28P

7. LED. Watch the polarity!

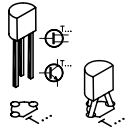


- ❑ LD1
- ❑ LD2
- ❑ LD3
- ❑ LD4
- ❑ LD5
- ❑ LD6
- ❑ LD8

} RED (3mm)

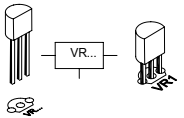
- ❑ LD7 : GREEN (3mm)

8. Transistors



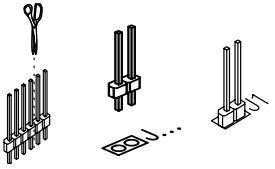
- ❑ T1 : BC547
- ❑ T2 : BC547
- ❑ T3 : **BC557**
- ❑ T4 : BC547
- ❑ T5 : BC547

9. Voltage regulator



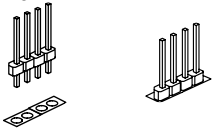
- ❑ VR1 : UA78L12
- ❑ VR2 : UA78L**05**

10. Header



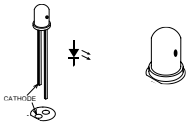
- ❑ JP1 : 2P
- ❑ JP2 : 2P
- ❑ JP3 : 2P
- ❑ JP4 : 2P

❑ JP5 : 2P
❑ JP6 : 2P



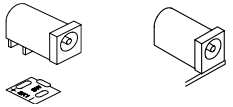
❑ SK3 : 5P

11. Blinking LED. Watch the polarity!



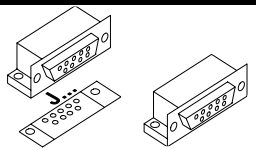
❑ LD9 : Blinking red (5mm)

12. DC - Jack



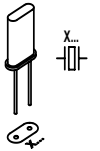
❑ SK1 : 15VDC (Power)

13. Sub D - connector



❑ SK2 : RS232 (9p female)

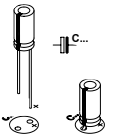
14. Quartz crystal



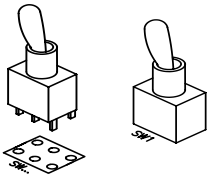
❑ X1 : 4MHz

15. Electrolytic capacitor. Watch the polarity !

❑ C1 : 220µF



16. Switch



❑ SW5 : 3 pos. / 2 pole

ON - OFF - ON
(Run / Standby / Prog)

17. Rubber feet

Mount the rubber feet on the solder side of the PCB, see fig 1.0.

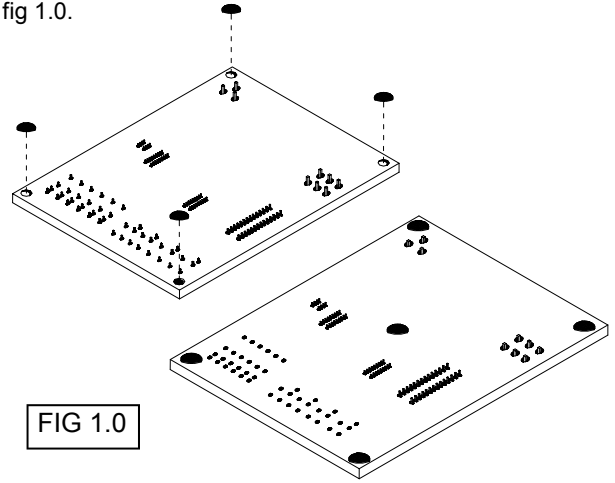
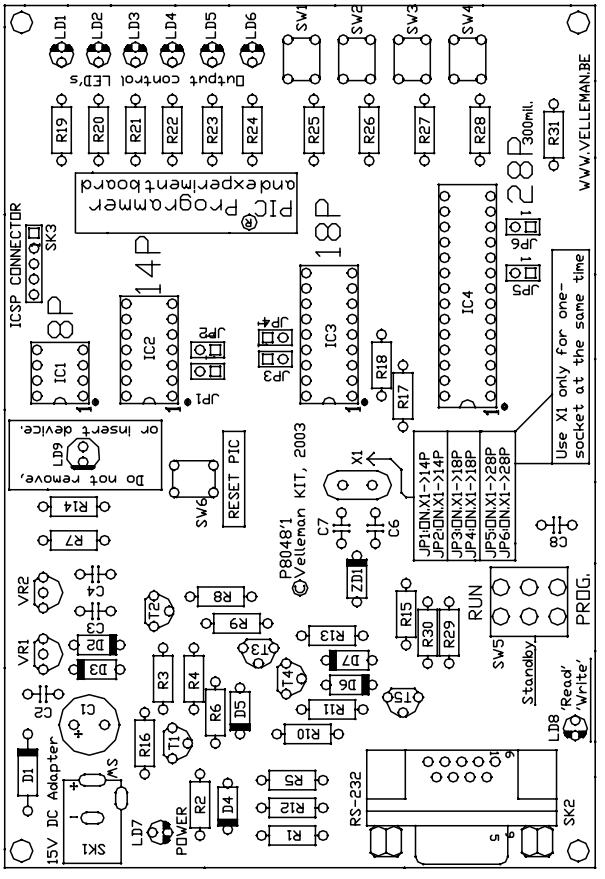


FIG 1.0

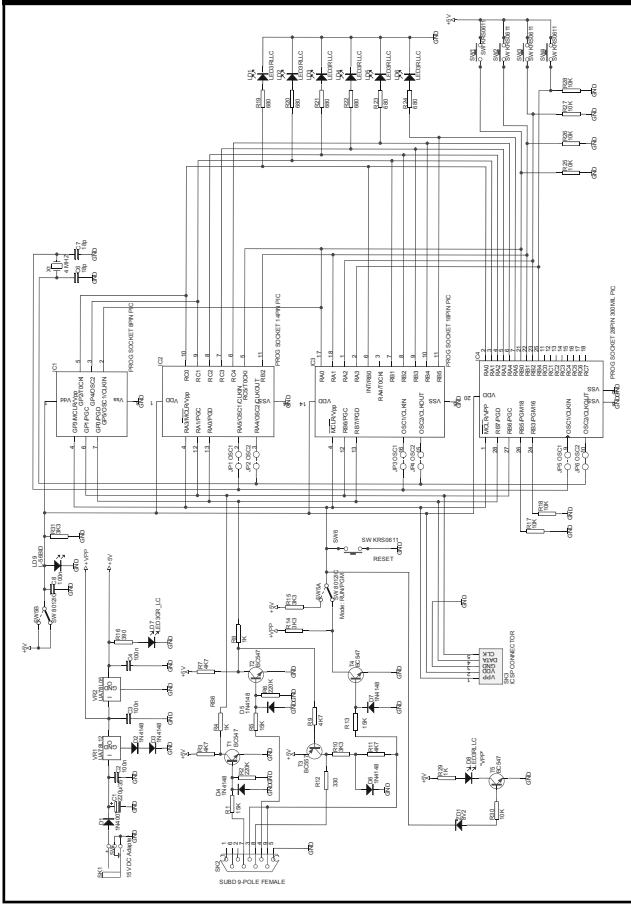
18. Software installation

- Place the Velleman® software CD in your CD-ROM player.
- Select 'Browse through this CD for other Velleman software' (this message will not be displayed on your screen if 'AUTORUN' is not activated.
- Select the right folder on the CD with Windows Explorer).
- Select the 'Velleman Kits' folder. Select the 'K8048' folder.
- Run the 'INSTALL_K8048.EXE' program in the '\Velleman kits\K8048\' folder.
- Follow the indications on the screen until all files are installed.

19. PCB layout.



20. Schematic diagram.



H8048IP - 2003 - ED1