

How-to Troubleshoot PICkit 3 programmer

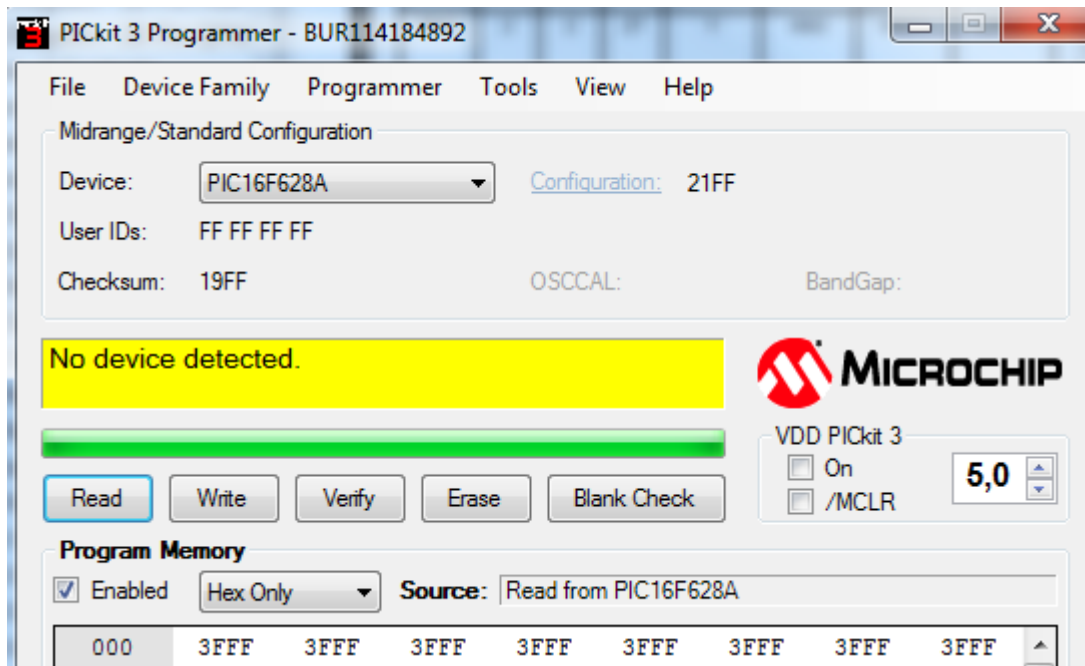
by TRANSMIC.FR

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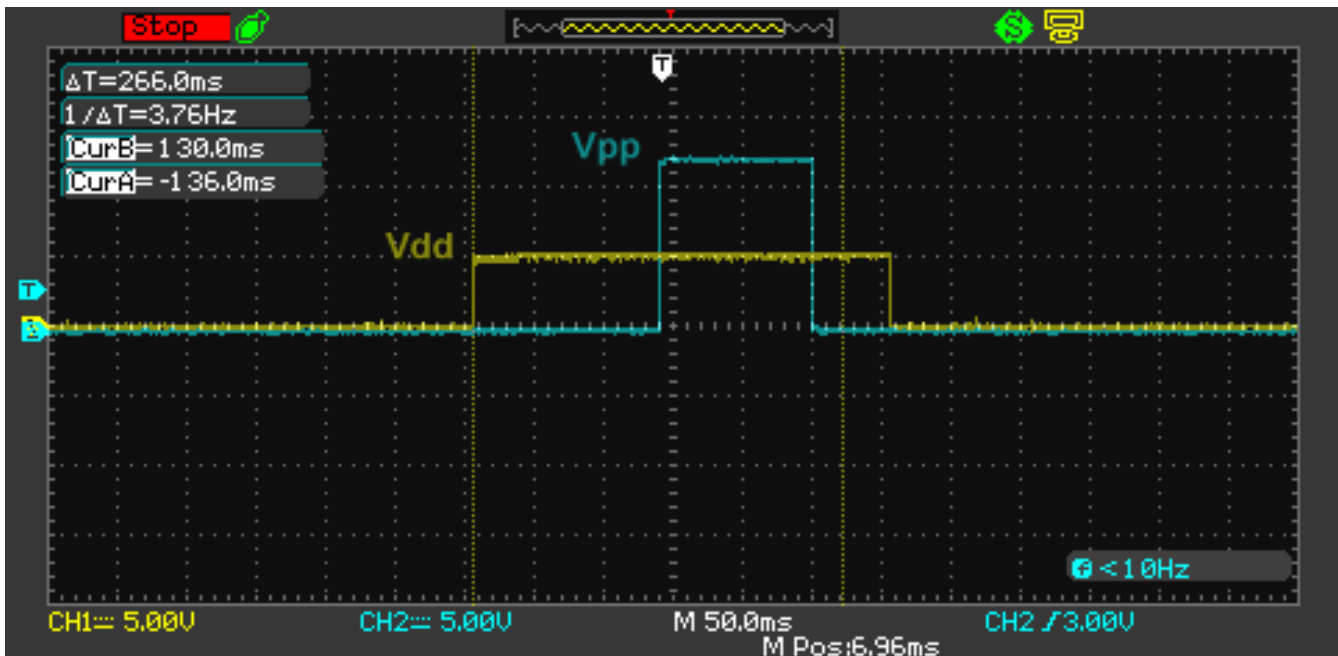
16F628A

Device ID: 0x0C60

Without device



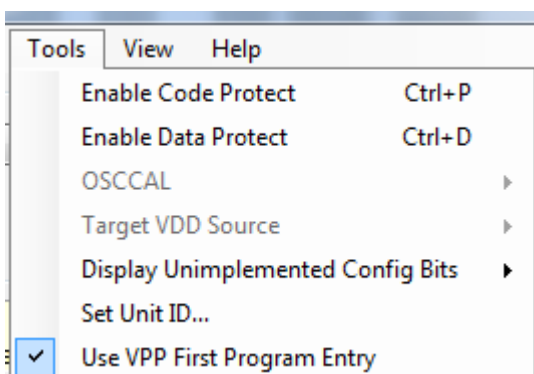
- | | | | | |
|---|----------|----------|--------|----------------------|
| 1 | Vpp | RA5/MCLR | pin4 | (blue trace: +12v) |
| 2 | Vdd | | pin 14 | (yellow trace: + 5v) |
| 3 | Vss | | pin 5 | |
| 4 | icspclk | RB6 | pin12 | programmer to PIC |
| 5 | icspdats | RB7 | pin13 | bidirectional |



Zoom on the first ICSP frame:

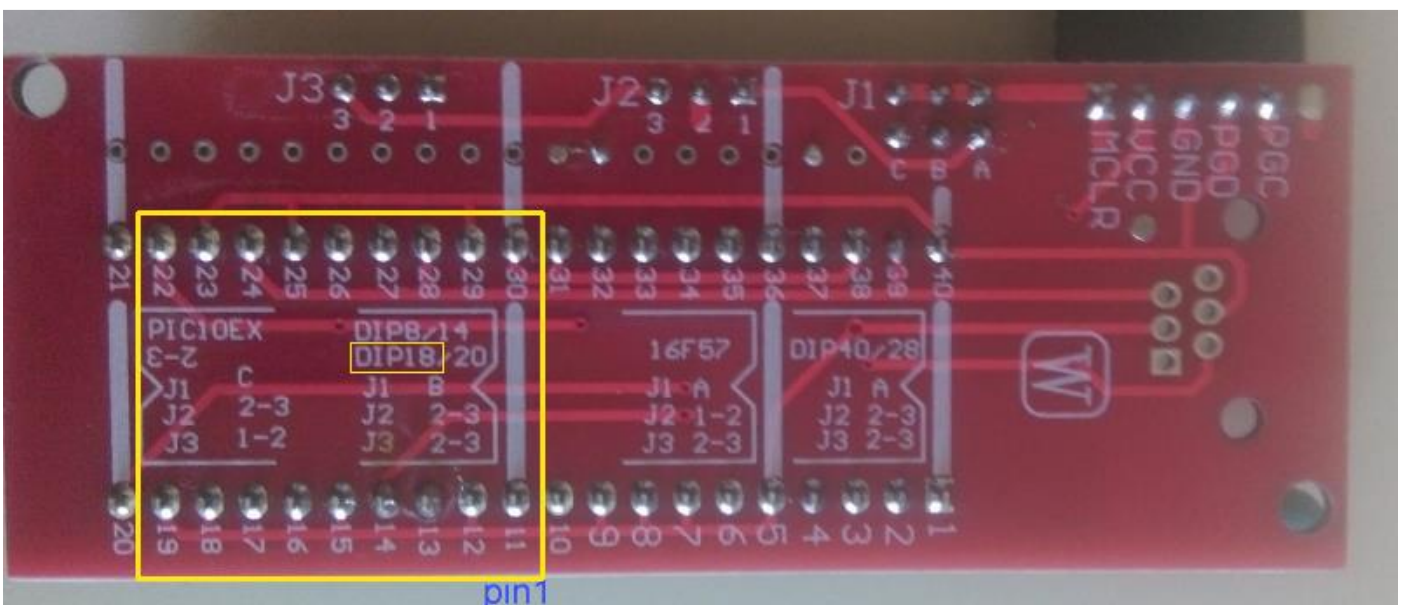
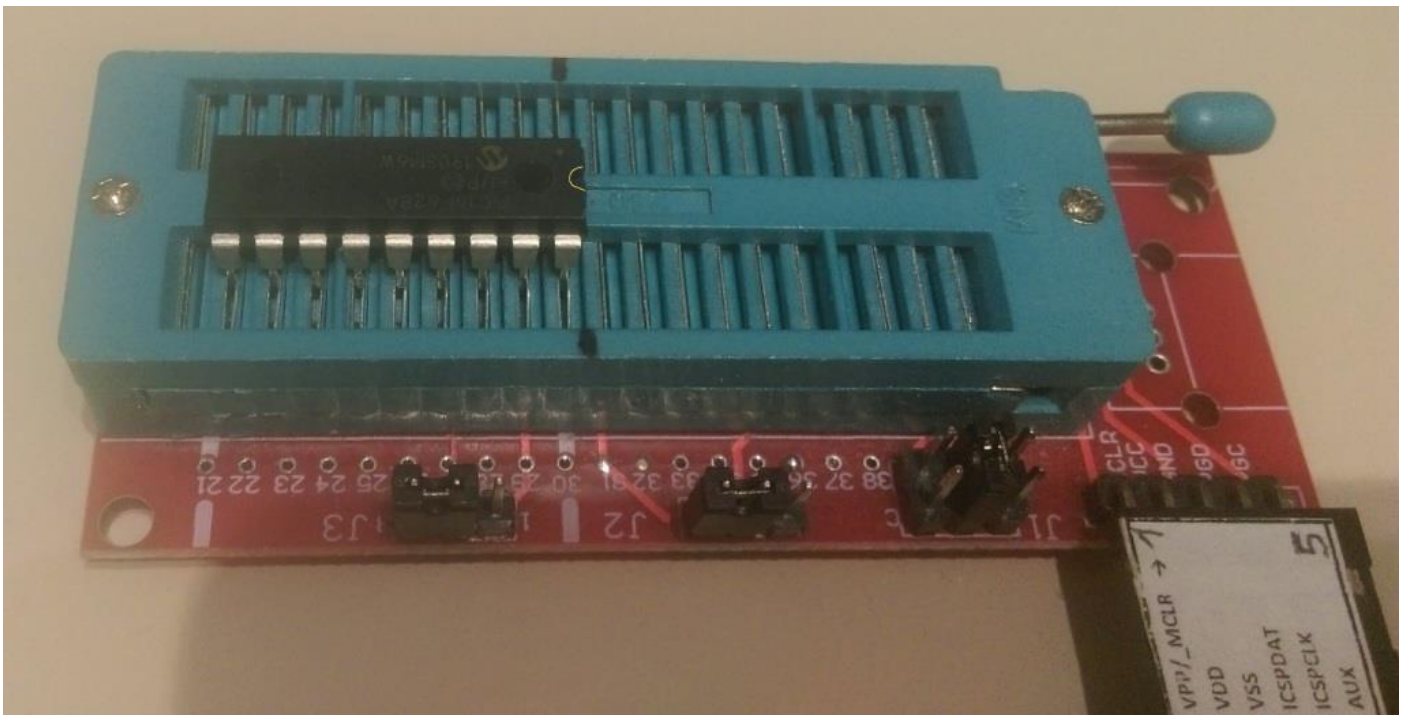


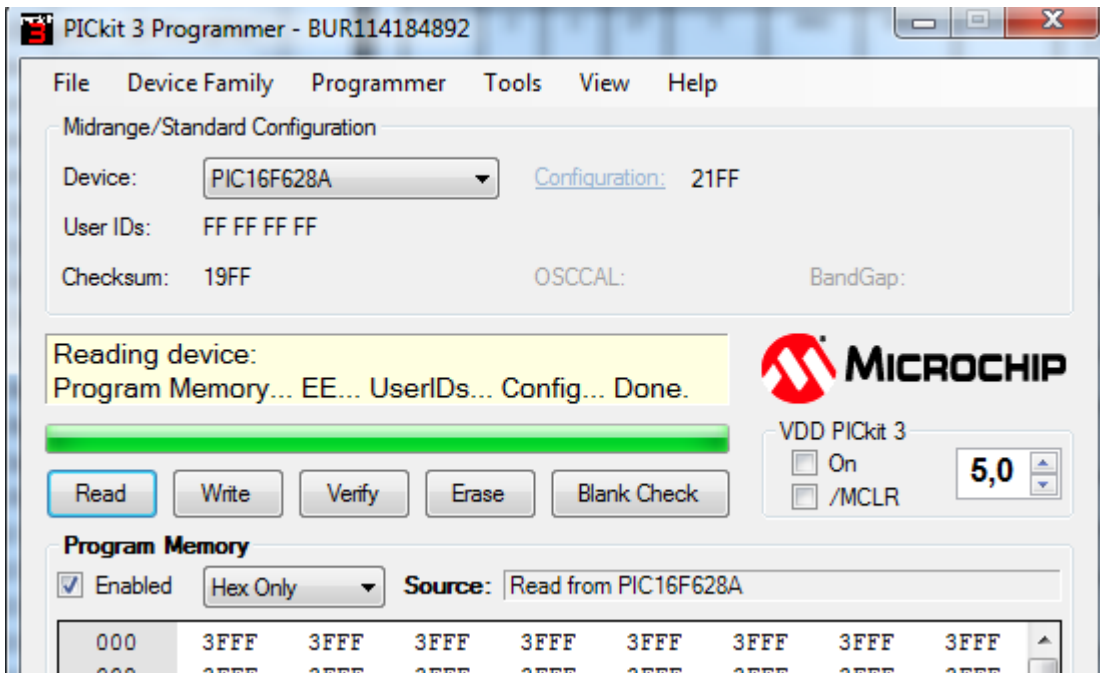
If you get the message: **"No device detected"** check the wiring first then try the option:



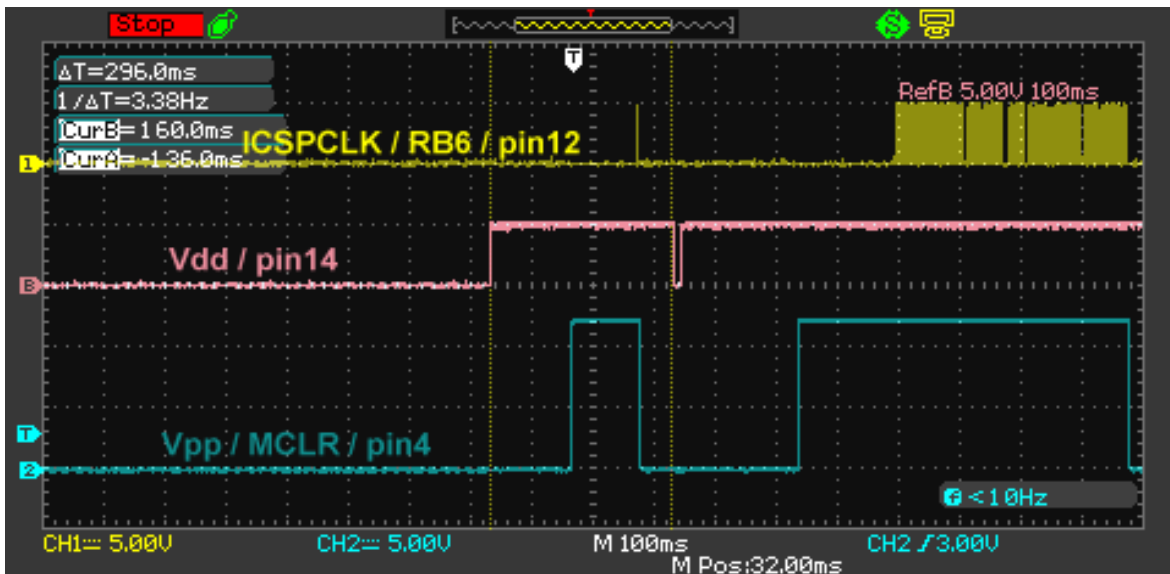
to prevent the firmware inside the PIC to start.

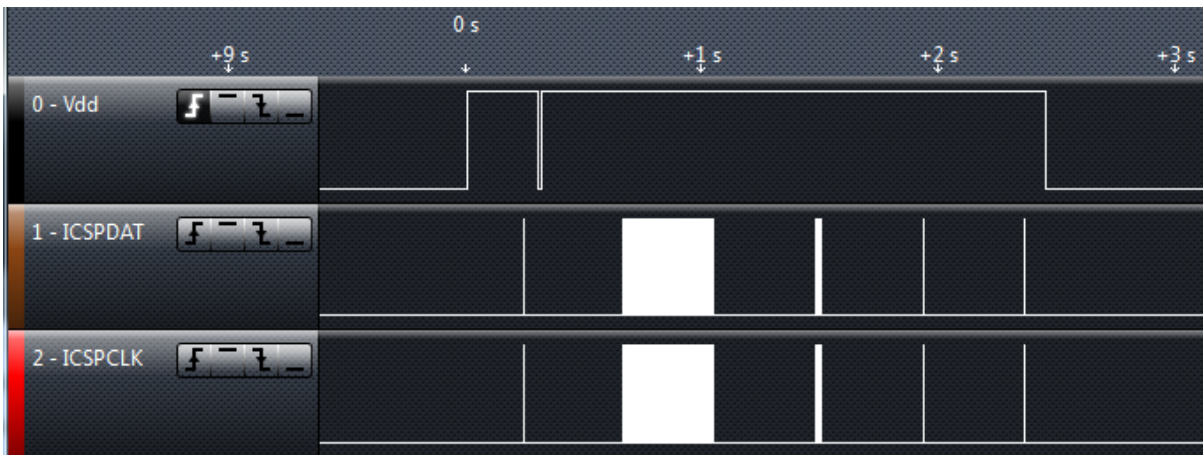
With device



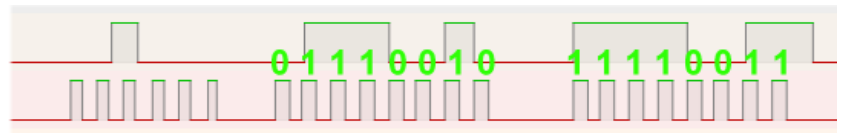
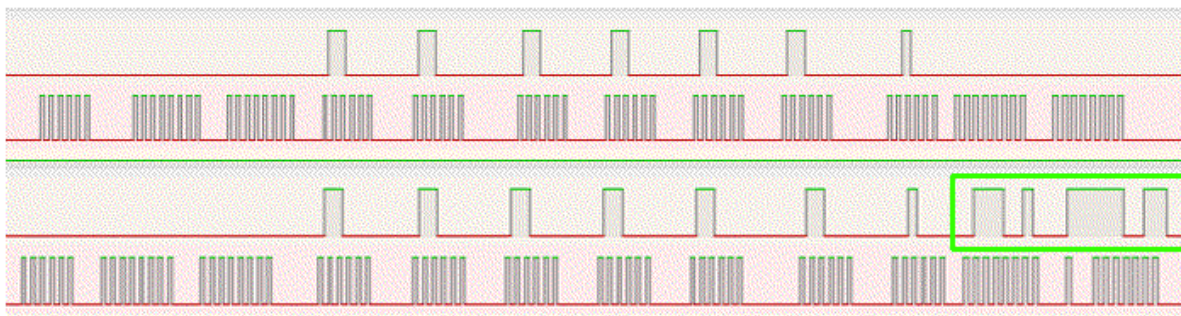


- 1 Vpp RA5/MCLR pin4 (blue trace: +13v)
- 2 Vdd pin14 (pink trace: + 5v)
- 3 Vss pin5
- 4 icspclk RB6 pin12 (yellow trace: +5v)
- 5 icspdat RB7 pin13





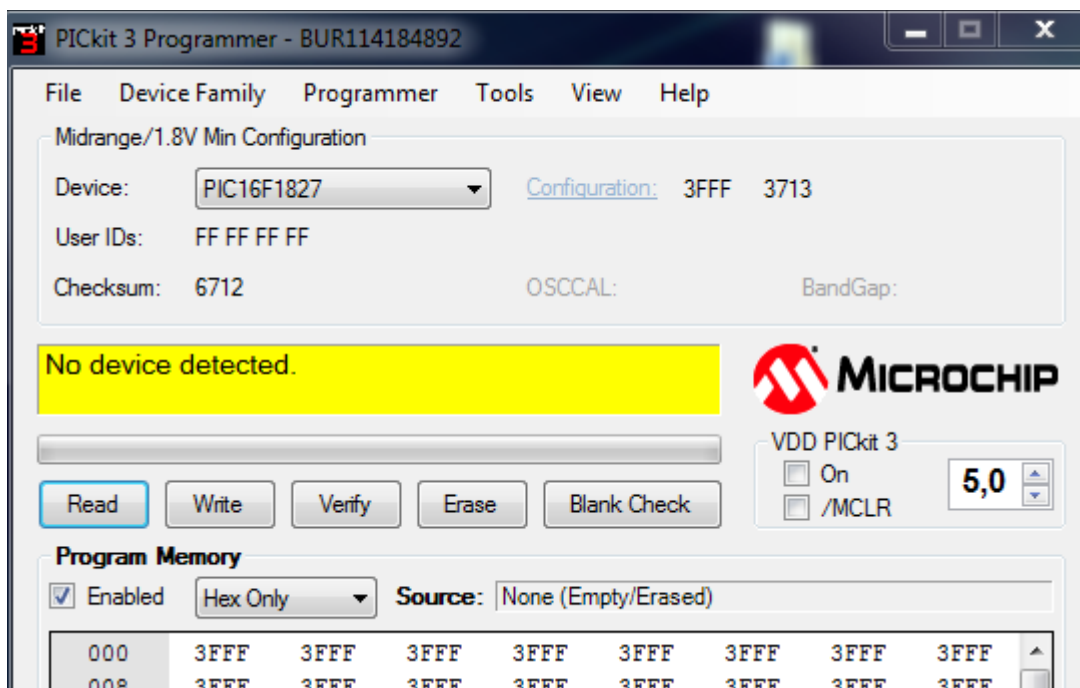
Closer look on the first ICSP frame without (above) and with device.
 (Green data is the PIC answer: 16F1827: 72F3 and 16F628A: 0B04):



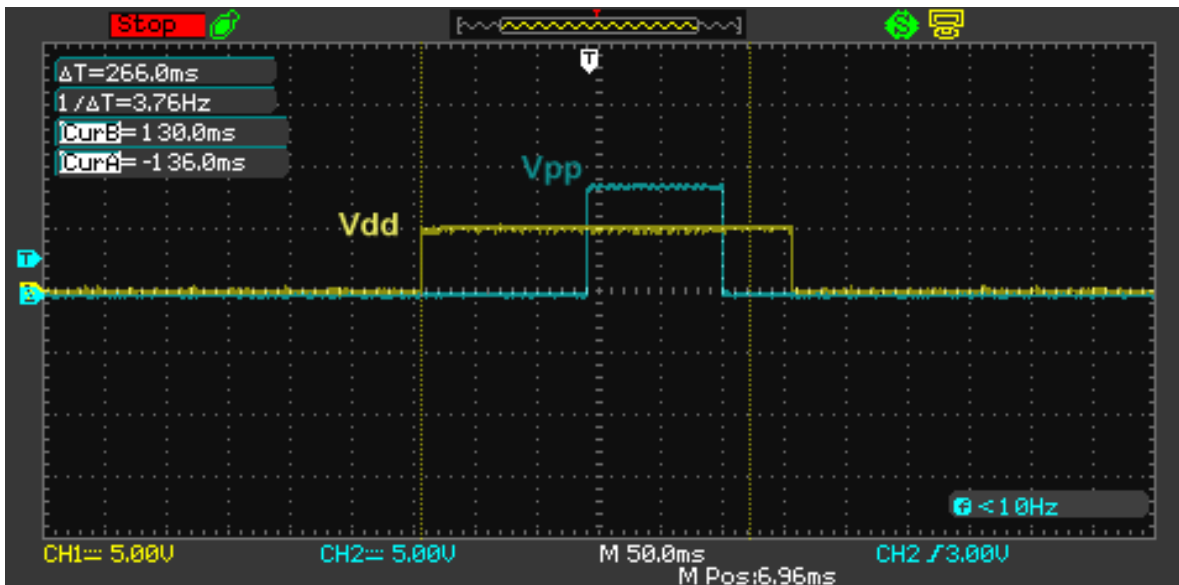
16F1827

Device ID: 0x27A0

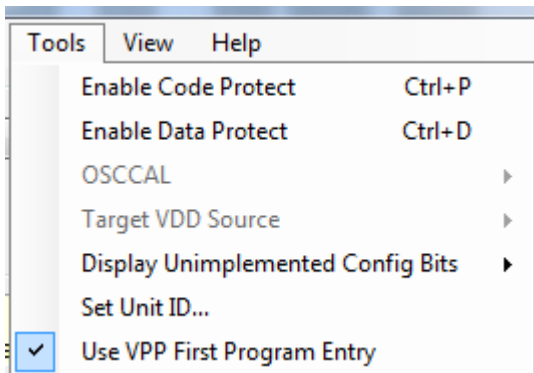
Without device



- 1 Vpp RA5/MCLR pin4 (blue trace: +9v)
- 2 Vdd pin14 (pink trace: + 5v)
- 3 Vss pin5
- 4 icspclk RB6 pin12 (yellow trace: +5v)
- 5 icspdats RB7 pin13



If you get the message: **"No device detected"** even though a PIC is inserted, try the option:



to prevent the firmware inside the PIC to start.

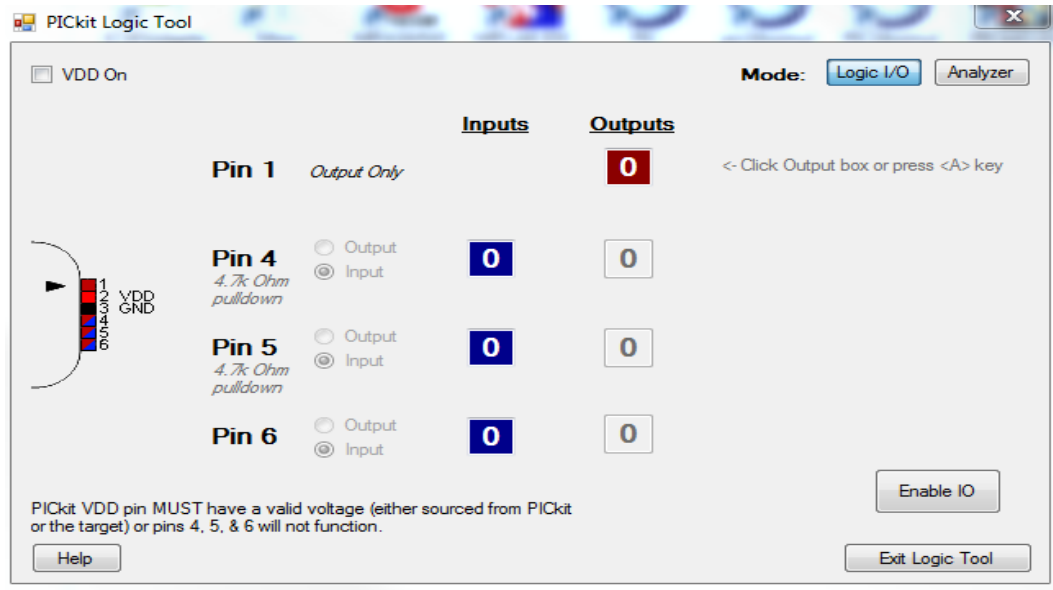
Other resources

[PIC Assembly Language Update: #1.2 - PICKIT3 Issues](#)

[ICSP Guide DS30277d](#)

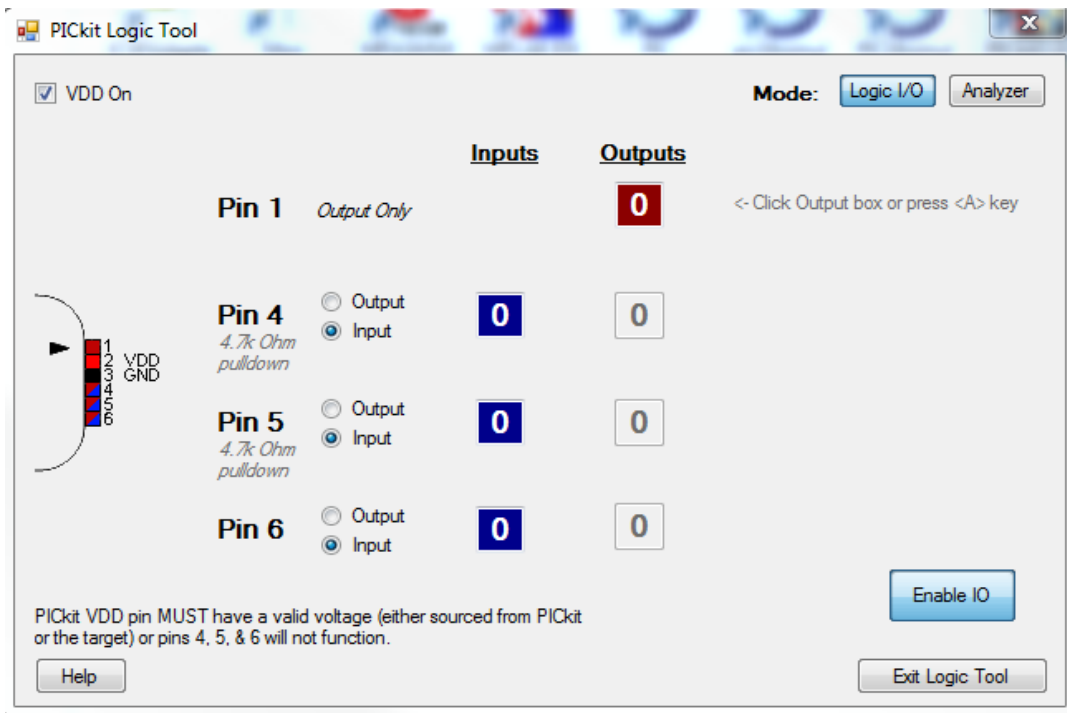
Logic Tool

Go to **Tools > Logic Tool...**



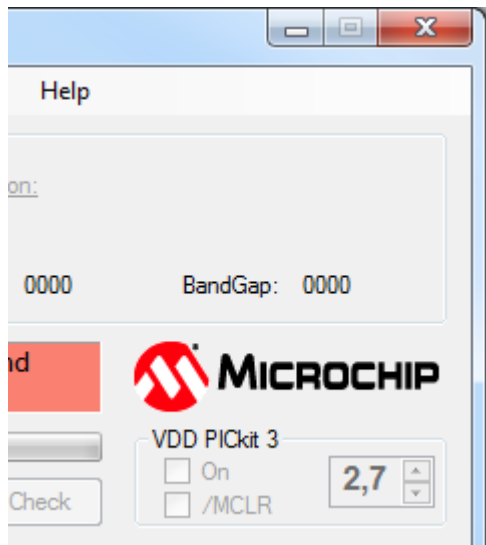
Measure between **Vss pin3** and **Vdd pin2**: You should have **0v**

Check "Vdd On"



Measure between **Vss pin3** and **Vdd pin2**: You should have **3.3v** (I have +3.13v)

If not, try to force "VDD PICKit 3" On at 3,3 or 5,0v



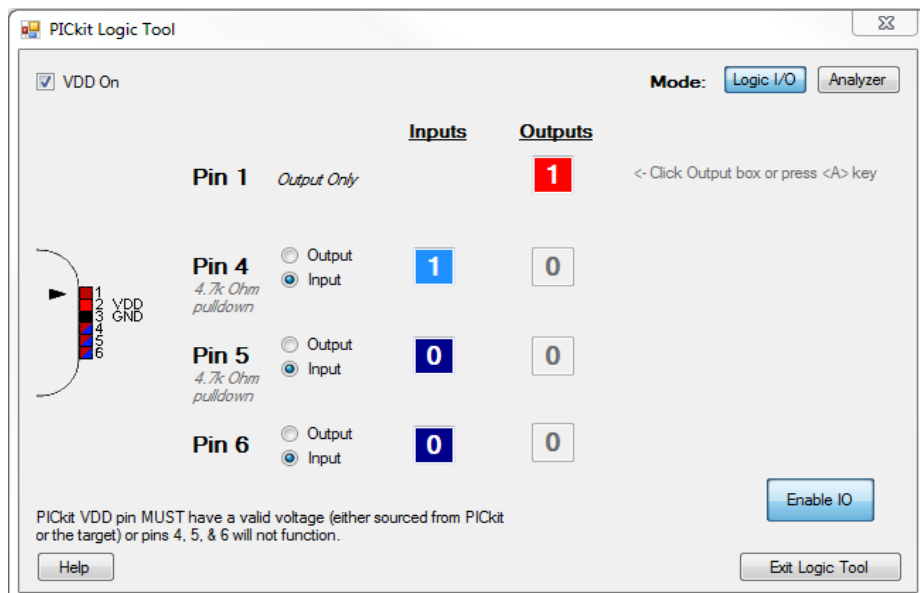
Push "Enable IO"

Short Vpp pin1 to pin4



Click on Output box Pin1 to turn it to 1.

Pin4 Input should goes from 0 to 1:



Then test the other pin5 and pin6.

Measure between Vss pin3 and Vpp pin1: You should have 3.3v (I have +2.90v) when Output box=1

Analyzer

Push the "Analyzer" button

Check **Vdd On**

Trigger on **Ch 1 = /**

Connect **Vdd pin2 to pin4**

PICkit Logic Tool

VDD On

Mode: Logic I/O **Analyzer**

50 us / Div Cursors X = 0 us Y = 0 us Y-X = 0 us

Ch.1
Ch.2
Ch.3

Zoom: 0.5x, 1x, 2x, 4x

Save

NOTE: Ch 1 & Ch 2 inputs have 4.7k Ohm pull-down resistors.

PICkit VDD MUST connect to circuit VDD.
Set VDD Voltage value in main form.

Help

Trigger

Trigger when

Ch 1 = / *- Don't Care
and 1 - Logic High

Ch 2 = * 0 - Logic Low
and / - Rising Edge

Ch 3 = * \ - Falling Edge

occurs 1 times.
(1 - 256)

Aquisition

Sample Rate: 1 MHz - 1 ms Window

NOTE: Signals greater than 500 kHz will alias.

Trigger Position:

Start of Data Delay 1 Window
 Center of Data Delay 2 Windows
 End of Data Delay 3 Windows
1 Window = 1000 samples.

RUN

Exit Logic Tool

Trigger on **Ch 2 = /**

turn back **Ch 1 = ***

Connect **Vdd pin2 to pin5**

PICkit Logic Tool

VDD On

Mode: Logic I/O **Analyzer**

50 us / Div Cursors X = 0 us Y = 0 us Y-X = 0 us

Ch.1
Ch.2
Ch.3

Zoom: 0.5x, 1x, 2x, 4x

Save

NOTE: Ch 1 & Ch 2 inputs have 4.7k Ohm pull-down resistors.

PICkit VDD MUST connect to circuit VDD.
Set VDD Voltage value in main form.

Help

Trigger

Trigger when

Ch 1 = * *- Don't Care
and 1 - Logic High

Ch 2 = / 0 - Logic Low
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Ch 3 = * \ - Falling Edge

occurs 1 times.
(1 - 256)

Aquisition

Sample Rate: 1 MHz - 1 ms Window

NOTE: Signals greater than 500 kHz will alias.

Trigger Position:

Start of Data Delay 1 Window
 Center of Data Delay 2 Windows
 End of Data Delay 3 Windows
1 Window = 1000 samples.

RUN

Exit Logic Tool

then same with pin6

PicKit3 issues

Well... if you still have problem to burn a PIC here are some thoughts:

- Restart the PC (*software issue*)
- Unplug/plug in the USB to PicKit3 (*software issue*)
- Use genuine PICkit2 PICkit3 programmers. (*Some clones work but others suck*)
- Remove any USB Hub and connect directly to a USB output. (*USB power is crucial*)
- Change the USB connector, front and back of the PC (*USB power is crucial*)
- Use the shortest USB cable (*rising time of signal is vital*)
- Use the shortest ICSP wires (*to avoid noise*)
- Double check connections and ground
- Remove any capacitors at ICSP pins
- Program the PIC throughout ZIF socket (*to avoid side effect of onboard components*)
- Try to program the PIC throughout ICSP connector on the PCB
- Try [Tools > Use VPP First Program Entry](#)
- Check/Uncheck [VDD PICkit 3](#) voltage (*PICkit supply the voltage to the PIC*)
- Change [VDD PICkit 3](#) voltage from 5v to 4.87v (*some PK3 clones need that*)
- Provide the PIC with an external +5v
- Erase the PIC first
- Try with another PIC