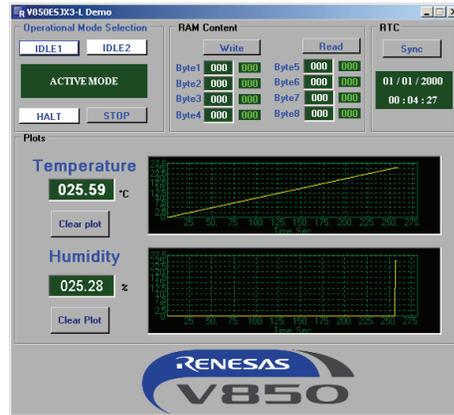


10) Now the demo should be running. The V850ES Jx3-L is in RUN mode and 12mA should appear on the amp-meter.

11) You can click on HALT, IDLE1, IDLE2 and STOP to evaluate the current consumption. After entering in these modes, you can click on "Release" to return to Run mode.



Power Mode	Current Consumption*												
		CPU (20MHz)	5MHz OSC CKT	32KHz OSC CKT	220KHz OSC	PLL (x4)	Serial Interface	Timer	Real Time Counter	Low Voltage Indicator	Flash	RAM	
RUN	12mA	On	On	On	On	On	On	On	On	On	On	On	
HALT	6mA	Off	On	On	On	On	On	On	On	On	On	On	
IDLE1	1.9mA	Off	Off	On	On	Off	Off	Off	On	On	On	On	
IDLE2	230uA	Off	Off	On	On	Off	Off	Off	On	On	Off	On	
STOP	4.7uA**	Off	Off	On	Off	Off	Off	Off	On	Off	Off	On	

* Actual numbers might vary. Please refer to the user manual.

** Although the serial interface circuit is turned off, the corresponding IO buffers remained turned on because these pins are dual used in the system. If these IOs are not dual used, the IO buffers can be turned off and the resulting current in STOP mode with RTC should be around 3.5uA. STOP mode without RTC and 32kHz OSC circuit would be 1.5uA

12) In Run mode, you can enter some values in the White Number Box and click on "Write" to write to memory. Then you can go through different power modes. When you return to Run mode, you can click on "Read" and see that the values in RAM, as shown in the green number box, are retained.

13) In Run mode, you can click on "Sync" to synchronize the internal RTC with the PC clock. Then you can go through different power modes. When you return to Run mode, you can see that the time is maintained.

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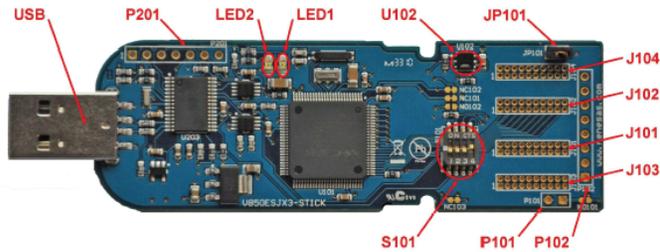
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QUICK-START GUIDE

V850ES Jx3-L Stick 32-bit Microcontroller

V850ES Jx3-L UPD70F3793 UPD70F3092

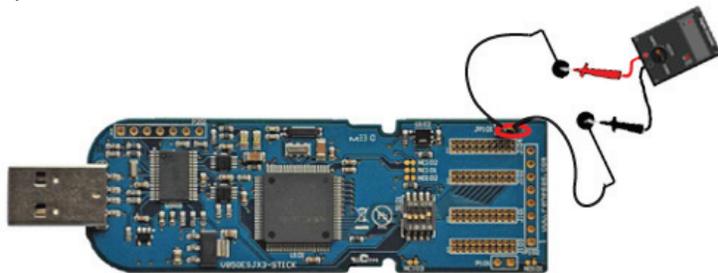
This Quick-Start Guide is for the V850ES Jx3-L Stick. The V850ES Jx3-L is a low-power, high-performance 32-bit microcontroller. The V850ES Jx3-L Stick is preprogrammed with software that demonstrates current measurement, real time tracking and memory retention through different power modes, and sensor measurement of temperature and humidity. The following steps highlight how to measure current different power modes current and show how memory and time in the Real-Time Clock are retained through the different power modes. For more information, please read the user manual in the document directory.



1) Ensure S101 is set as follows. This setting is for the demonstration.

S101	Configuration
S101.1	Off
S101.2	Off
S101.3	Off
S101.4	On

2) The JP101 is used for current measurement. Remove and connect to an amp-meter.



Caution

- > Make sure there is no short between the terminals.
- > Make sure the amp-meter is set to measure current.

3) Set the amp-meter to measure mA.

Caution

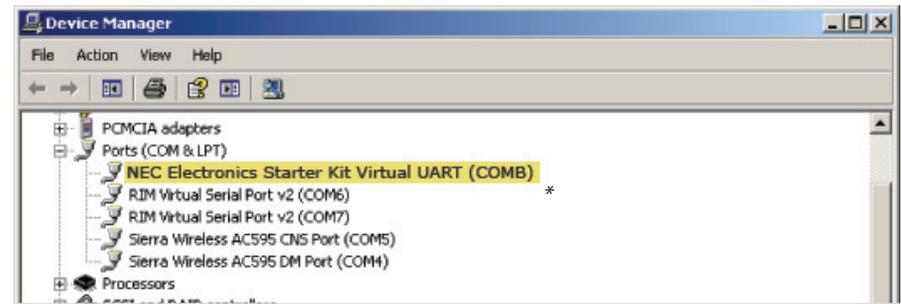
In the demonstration, you will measure current from a few mA to a few uA. You will use the GUI SW to change the power mode. Some amp-meters disconnect when you switch from mA to uA and vice versa. This will disconnect the voltage supply to the MCU, resulting in unusual behavior. If your amp-meter is known to disconnect, a possible workaround is to first remove the V850ES Jx3-L Stick from the USB. Then set the amp-meter to uA. Reconnect the V850ES Jx3-L Stick to the USB interface. The meter should max out. However, when you use the GUI to set to a lower power mode, the correct reading should appear.

- 4) Plug the V850ES Jx3-L Stick in to a PC. LED2 should turn on. LED2 indicates that there is power to the V850ES Jx3-L Stick. You should see LED1 blinking. LED1 is tied to a timer of the V850ES Jx3-L MCU.
- 5) Insert DVD, exit the installer and browse for the USB Driver under the 'Driver' directory, as Windows prompts you.

Caution

Make sure you have installed the virtual UART because the V850ES Jx3-L uses it to communicate with a PC.

- 6) Go to the Windows Device Manager, look for the virtual UART, and mark down the port number.



* Because a legacy Virtual UART driver is being used, you would see NEC Starter Kit Virtual UART. The name will be changed in a future version.

- 7) Insert DVD. An installer should appear and install the V850ES/Jx3-L LPD GUI SW. If installer doesn't appear, run AutoRun.exe and install V850ES/Jx3-L LPD GUI SW.



- 8) Launch the GUI SW. It should be on the desktop.
- 9) The GUI SW will ask for the port connecting to the V850ES Jx3-L Stick. Please enter the appropriate port number.

Caution

After entering the port number, it is saved. If the same port is used, the GUI SW will not ask for a port number. However, if you plug the V850ES Jx3-L Stick to another port, or if there is any compatibility issue, the GUI might ask for the port number again. It is important to ensure that the virtual UART is working properly by checking the Windows Device Manager – no question mark should be displayed on the virtual UART.

