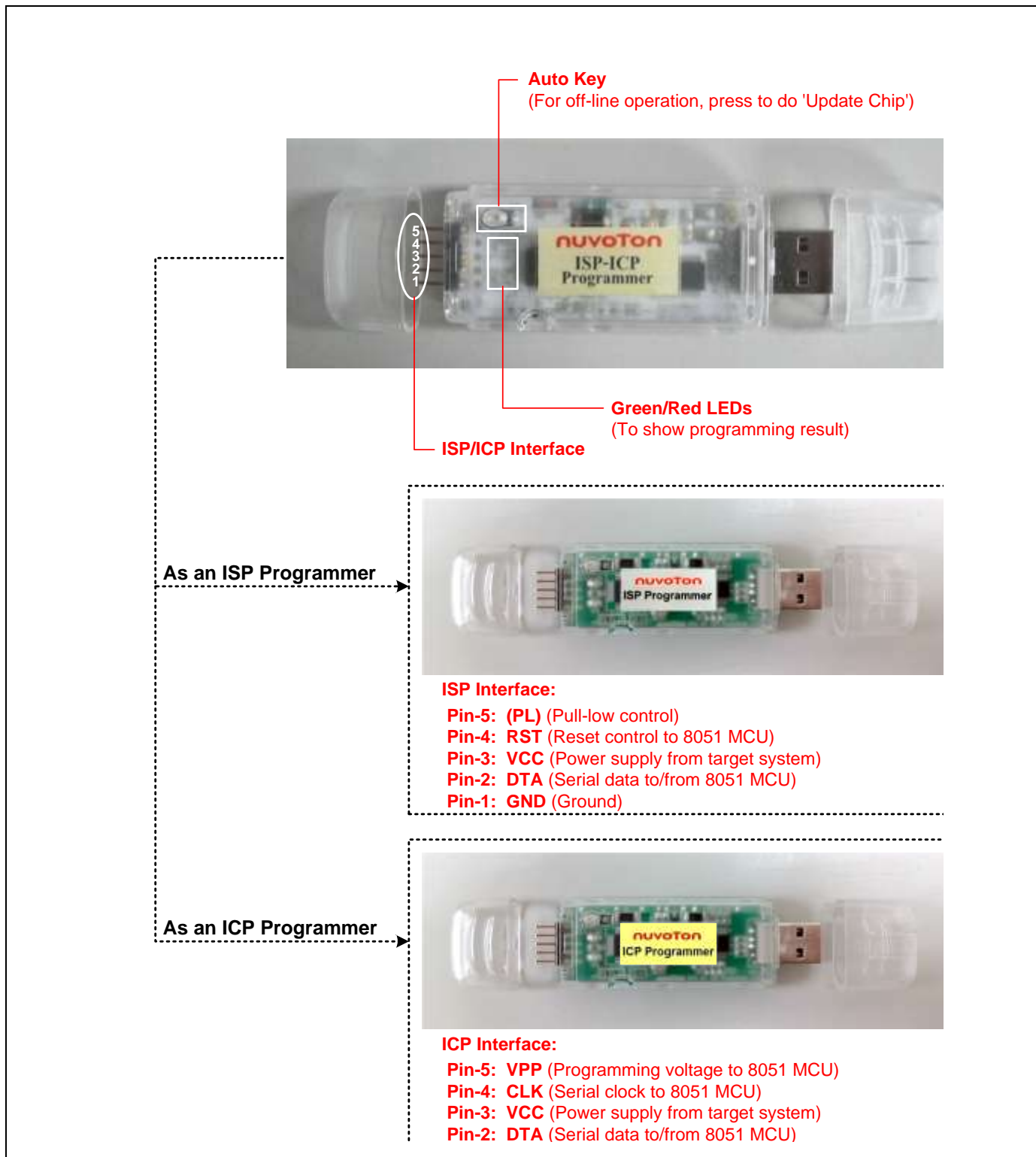## Brief Introduction

The "*ISP/ICP 2-in-1 Programmer*", as shown in the following picture, can function as an *ISP Programmer* or an *ICP Programmer*. For detailed information of the ISP Programmer and the ICP Programmer, please refer to their respective user manuals.

Auto Key
(For off-line operation, press to do 'Update Chip')

Green/Red LEDs
(To show programming result)

ISP/ICP Interface

As an ISP Programmer

ISP Interface:

Pin-5: **(PL)** (Pull-low control)
Pin-4: **RST** (Reset control to 8051 MCU)
Pin-3: **VCC** (Power supply from target system)
Pin-2: **DTA** (Serial data to/from 8051 MCU)
Pin-1: **GND** (Ground)

As an ICP Programmer

ICP Interface:

Pin-5: **VPP** (Programming voltage to 8051 MCU)
Pin-4: **CLK** (Serial clock to 8051 MCU)
Pin-3: **VCC** (Power supply from target system)
Pin-2: **DTA** (Serial data to/from 8051 MCU)

The 2nd Version of "ISP/ICP 2-in-1 Programmer"

The 2nd version of the "*ISP/ICP 2-in-1 Programmer*", as shown in the following picture, has the following differences compared with the first version:

(1) The 2nd version has a blue label on its plastic case.

(2) The 2nd version has the VCC pin, the 3rd pin of the ISP/ICP interface, designed as *bi-directional* power input and output. When the programmer is connected to PC (for on-line operation), the VCC pin can output power to the target chip for ISP/ICP programming. In off-line operation, the VCC pin should be powered from the target system for the programmer to operate.

The 3rd Version of "ISP/ICP 2-in-1 Programmer"

The 3rd version of the "*ISP/ICP 2-in-1 Programmer*", as shown in the following picture, has better noise immunity compared with the 2nd version.