



HY15P41 Series IDE Hardware User's Manual

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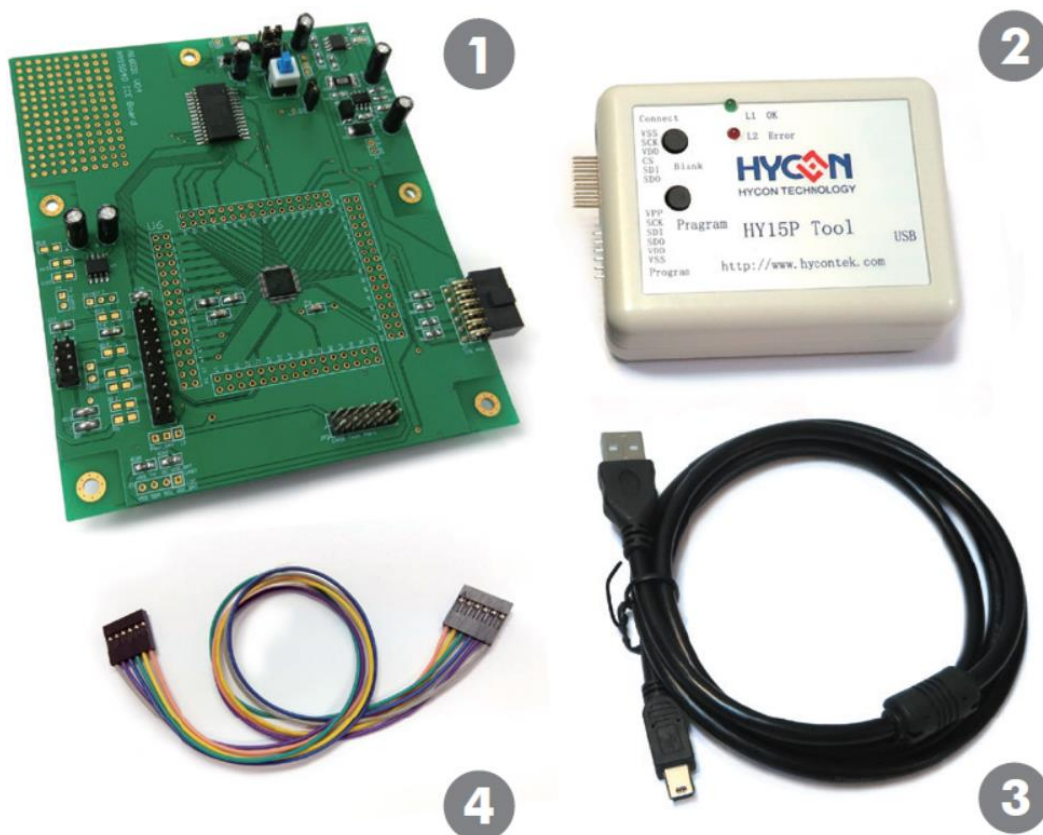
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1. Package Contents

HY15P41 IDE Hardware development kit includes HY15S41-L064 ICE Board and HY15S Control Box(refer to table 1-1).

Integrated Hardware development kit helps to develop MCU application program of HY15P41 Series. Program compiling, hardware debug, IC programming was implemented through NB/PC end connection.



<i>Model No.</i>	<i>Part Name</i>	<i>Description</i>
HY15S41-DK01	1. HY15S41-IM01	HY15S41-L064 ICE Board
	2. HY15000-CM02B	HY15S Control Box
	3. Cable line	USB Type A to Mini. B Cable
	4. Programming line	6pin/2.54 (2.54mm pitch)

Table 1-1

2. Safety Precautions

- Do not place heavy objects on the display panel, in order to avoid damage caused by stress.
- Place the application display boards at steady place, so as to avoid falling damage.
- Do not use this product with the input voltage which is not meeting the electrical specifications, , in order to avoid working abnormally or damage
- Avoid application display boards being touched by liquid, dirt and avoid being exposed to moisture during operation. This application should be kept in a dry environment, so as not to affect the function and performance
- Remove the power supply when not using it.
- When following status occurred, please remove the power supply immediately, and contact our engineer.
 - Power Supply line is worn or damaged.
 - Power source (battery) connected but no any light on while operating.
 - Component off.

3. Software Installation Requirements

3.1. IDE Software Installation Requirements

Minimum System Requirements of operating HY15P41 IDE:

- (1) PC/NB hardware requirement:
 - IBM PC compatible X86 system CPU
 - 512MB Memory(1GB recommended)
 - 1GB Hard disk

- (2) Supported Products:
 - HY15P41 Series

- (3) Supported Hardware Model No.:
 - HY15S41-DK01 : HY15P41 IDE hardware (development kit).

- (4) Supported software version:
 - HY15P IDE V2.2 above

- (5) Supported Operating system:
 - Windows XP, Windows Vista, Windows 7, Windows 8, Windows 10

- (6) Apply the following interface modes:
 - USB Port with HID-compliant device
 - The HY15S41-DK01's USB Port driver uses the Windows standard HID driver (Figure 3-1), so no It can be used with an additional USB driver.



Figure 3-1

4. Description of the IDE hardware

4.1. Architecture description

The HY15S Control Box is a control device between the HY15S41-IM01 ICE Board and the HY15P IDE software. It can be used as a development tool through the connection between the Debug line and the USB cable. The assembly diagram is as follows:

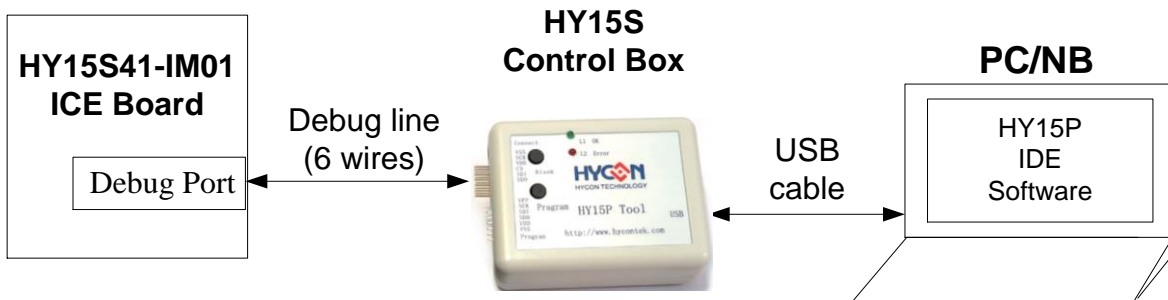


Figure 4-1

4.2. Control Box Introduction

Control Box (Model: HY15000-CM02B) is commonly used in HY15P series products (appearance shown in Figure 4-2).

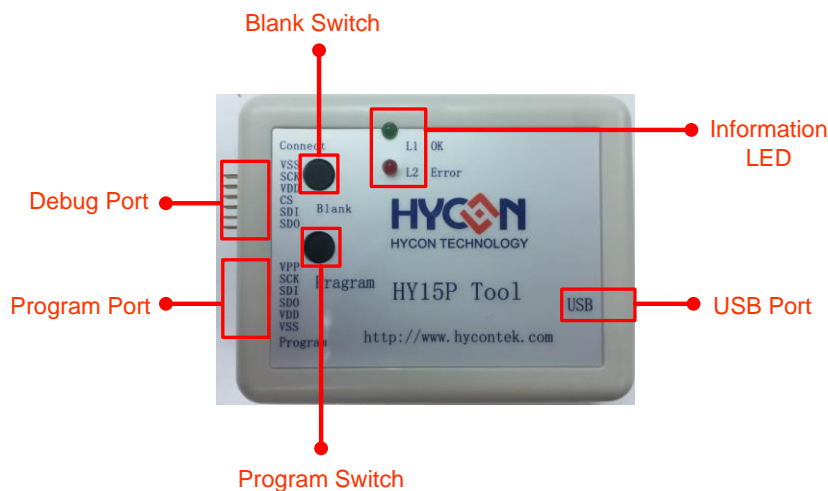


Figure 4-2

(1) Information LED

Future: status Indicator LED

Description: the definition of L1~L2 is as follows

Item	Name	Description
L1	Ok	Green LED, when the USB Port is connected to a computer or an external 5V power supply, the L1 light indicates that the Control Box is powered. -Debug mode: L1 just indicates the Control Box is powered.

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		-Program mode: when the chip is programmed successfully or blank checking is passed, L1 will turn on.
L2	Error	Red LED, -Debug mode: no use. -Program mode: when the programmed fails or blank checking fails, L2 will turn on.

(2) Debug Port

Future: The Debug port can be connected to the debugging pin of the HY15P41 to emulate the chip.

Description: Pin are defined as follows

Pin	Name	Description
1-2	SDO	SPI Data Output Pin.
3-4	SDI	SPI Data Input Pin (with pull-up 10KΩ)
5-6	CS	SPI Chip Select Pin.
7-8	VDD	Power source output, fixed output 4.5V with 100mA power supply
9-10	SCK	SPI Clock Pin (with pull-up 10KΩ)
11-12	VSS	Power ground Pin

(3) Program Port

Future: The Program port can be connected to the programming pin of the HY15P41 to program the chip.

Description: Pin are defined as follows

Pin	Name	Description
1	VSS	Power ground Pin
2	VDD	Power source output, fixed output 4.5V with 100mA power supply.
3	SDO	SPI Data Output Pin.
4	SDI	SPI Data Input Pin (with pull-up 10KΩ)
5	SCK	SPI Clock Pin (with pull-up 10KΩ)
6	VPP	Power source output for programming, fixed output 8.7V with 100mA power supply

Note: Although the Program port can directly program the HY15P41 chip as a writer, but the stability is not as good as the mass production-specific writer, so we recommend using a dedicated mass-produced writer to program the chip.

(4) USB Port

Future: USB Port.

Description: Connect to your computer via USB Type A to Mini. B Cable.

(5) Program Switch

Future: Off-line switch for chip programming.

Description: when the Control Box does not use as the offline programming tool, avoid pressing this programmed switch.

(6) Blank Switch

Future: Off-line switch for blank checking of chip.

Description: when the Control Box does not use as the offline programming tool, avoid pressing this programmed switch.

4.3. Introduction to ICE Board

The ICE Board (Model: HY15S41-L064) is commonly used in the HY15P41 series (Appearance shown in Figure 4-3). This ICE Board can be used for development projects.

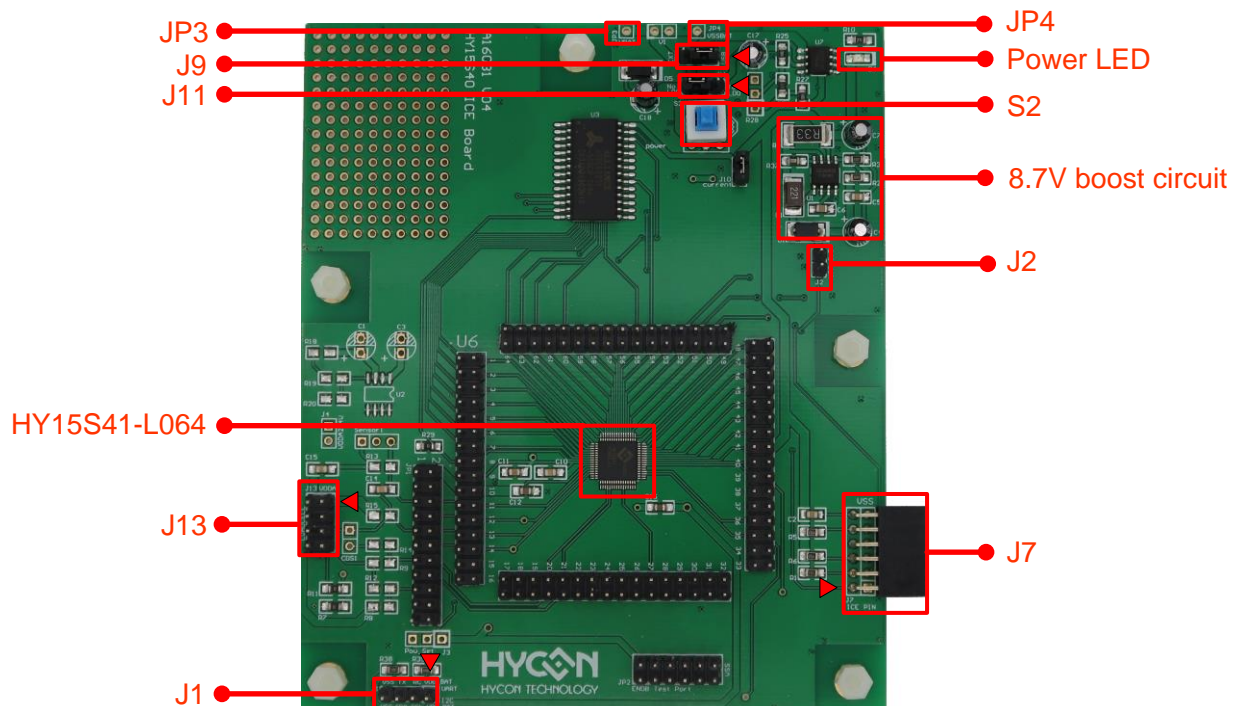


Figure 4-3

(1) HY15S41-L064

Future: Emulation chip for HY15P41 series product.

(2) J1

Future: I2C or UART interface port.

Description: Pin are defined as follows

Pin	Name	Description
1	VDD	HY15S41 chip's power supply pin
2	RC/SCL	I ² C SCL & UART RC pin (with pull-up 1k Ω)
3	TX/SDA	I ² C SDA & UART TX pin (with pull-up 1k Ω)
4	VSS	HY15S41's power ground pin

(3) J13

Future: Bridge Sensor Connector port.

Description: Pin are defined as follows

Pin	Name	Description
1	VDDA	Analog power source output for sensor +E pin.
2	AI3	Analog Input Channel 3(AI3) for sensor +S pin.
3	AI4	Analog Input Channel 4(AI4) for sensor -S pin.
4	AGND	Power ground pin for sensor's -E pin.

(4) J11

Future: VDD power source selection pin.

Description: Pin are defined as follows

Pin	Name	Description
1	3.3V	3.3V/100mA fixed output power supply.
2	VDD_IN	Power supply source of HY15S41 chip's VDD.
3	POW_EXT	External power supply source.

Note: If Pin2 & Pin1, it means that VDD power is 3.3V

If Pin2 & Pin3, it means that VDD power is coming from POW_EXT.

(5) J9

Future: External power supply source (POW_EXT) selection pin.

Description: Pin are defined as follows

Pin	Name	Description
1	POW_J7	Power supply source from J7's Debug port.
2	POW_EXT	External power supply source.
3	POW_BAT	Power supply source from Battery.

Note: If Pin2 & Pin1, it means that POW_EXT power is coming from POW_J7.

If Pin2 & Pin3, it means that POW_EXT power is coming from POW_BAT.

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(6) J3 & J4

Future: External Battery Power source (J3 for +BAT & J4 for -BAT) input connecting pin, It is recommended that the maximum voltage input does not exceed 3.6V.

(7) Power LED

Future: Power status indicator.

-Slightly bright: The J7's Debug Port is connected to the Control Box (but the actual HY15S41 chip is unpowered, so it can't be operated), and the Control Box is also connected to the PC via the USB port.

-Fully bright: On behalf of the ICE Board, the Control Board and computer related devices have been connected (HY15S41 chip is powered normally), the IDE hardware can be used.

(8) S2

Future: ICE Board's power ON/OFF switch.

(9) 8.7V Boost Circuit

Future: 8.7V boost circuit block, this 8.7V can supply HY15S41 VPP's pin external input voltage when BIE is programmed.

(10) J2

Future: HY15S41 VPP pin's 8.7V power source enable/disable selection.

Description: Pin are defined as follows

Pin Status	Description
Pin is shorted	HY15S41 VPP pin has 8.7V power.
Pin is opened	HY15S41 VPP pin has no 8.7V power.

(11) J7

Future: Debug Port.

Description: Pin are defined as follows

Pin	Name	Description
1-2	SDO	HY15S41 chip's SPI Data Output Pin.
3-4	SDI	HY15S41 chip's SPI Data Input Pin (with pull-up 47KΩ).
5-6	CS	SPI Chip Select Pin (with pull-up 47KΩ)
7-8	POW_J7	Power supply source from J7's Debug port.
9-10	SCK	HY15S41 chip's SPI Clock Pin (with pull-up 47KΩ).
11-12	VSS	HY15S41 chip's power ground Pin

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4.4. ICE Board Circuit Diagram

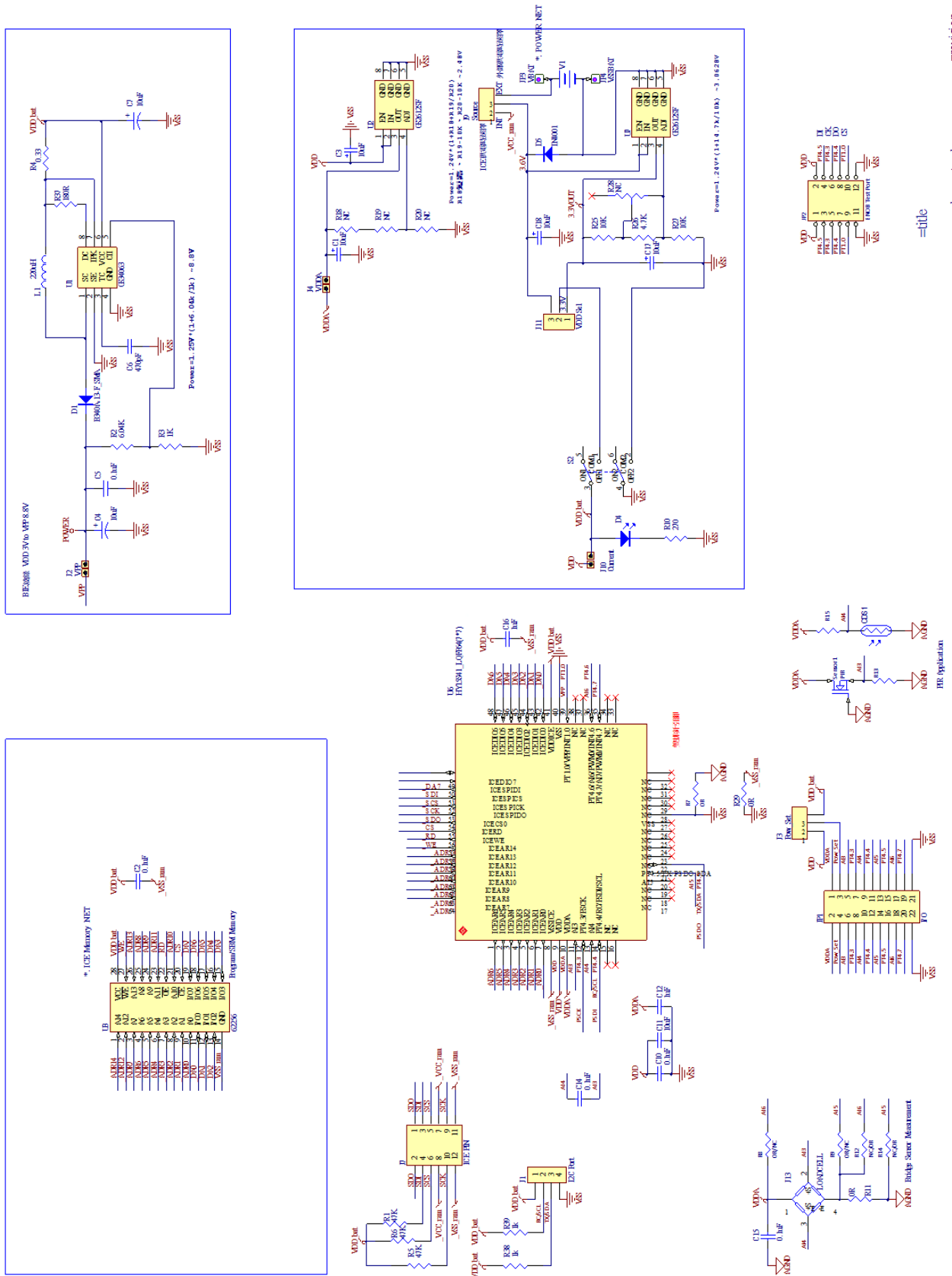


Figure 4-4

4.5. ICE Board and Control Board Connection Steps

- Step1: Make sure that both J9's pin1-2 and J11's pin2-3 are shorted together
(The purpose is to make HY15S41 chip's VDD power comes from control box).
- Step2: Connect the ICE Board and the Control Board's debug port.
- Step3: Connect the Control Board to the computer via USB line.
(At this time, L1 will be Slightly bright).
- Step4: Press the S2 switch to power the HY15S41 chip to start the ICE Board.
(At this time, L1 will be fully bright).
- Step5: After Step 1~4 (as shown in Figure 4-5), the hardware connection is completed.

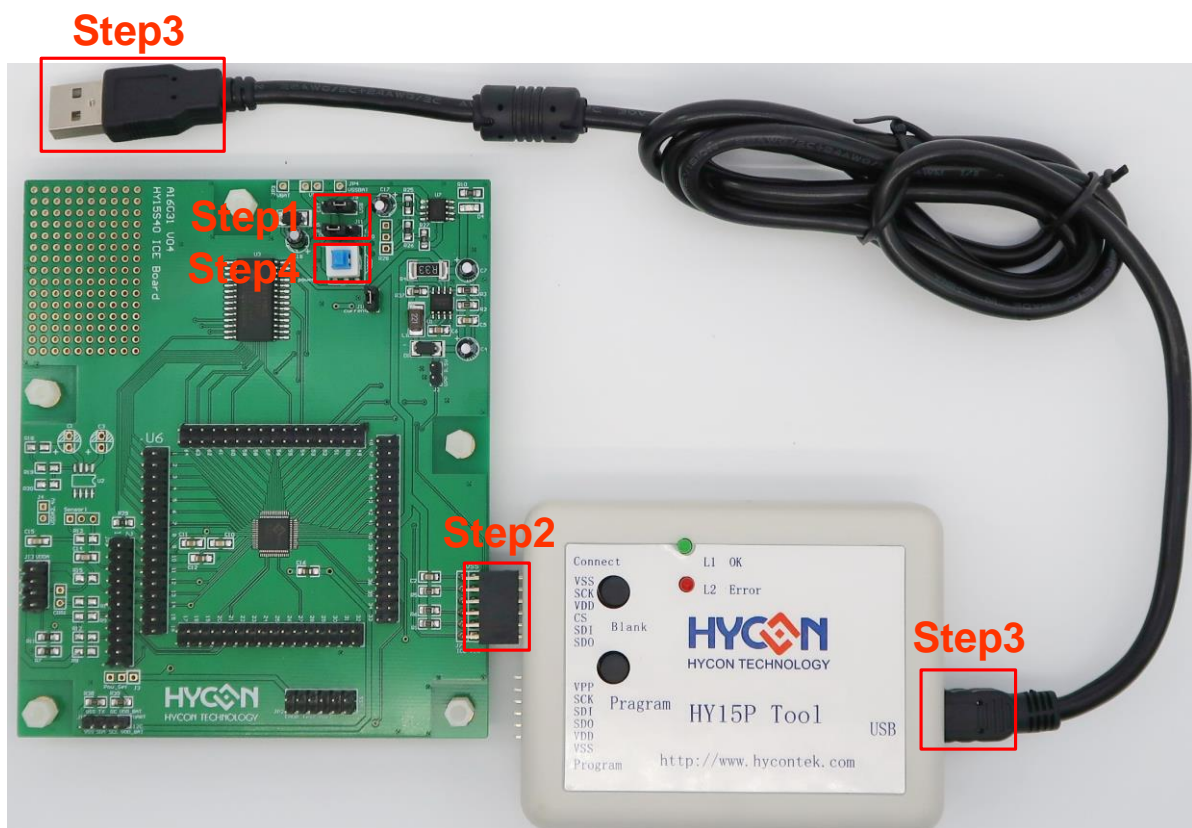


Figure 4-5

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5. Revision Record

Major differences are stated thereafter.

Version	Page	Date	Revision Summary
V01	All	2018/11/01	First edition