



SK8505 FlexMatrix™ Keyboard Control Board

User Programmable USB and HID-over-I2C Dual Interface Keyboard Controller with 1 External PS/2 Port, 1 PWM Backlight, 6 LEDs Control, and Field-Upgradable Bootloader

FEATURES

- USB 2.0/HID-over-I2C keyboard interfaces
- Firmware field-upgradable
- Gold Plated Header Pins
- High EMI/ESD protection
- 8X20 Keyboard Scan
- 3 standard keyboard LEDs
- 6 generic LED drives
- 1 PWM backlight control
- 1 External PS/2 port
- Works with Windows, Linux and MacOS without drivers needed
- Operating voltage: USB 4.0V to 5.5V; HID-over-I2C 2.7V to 5.5V
- Temperature range: -40°C to +85°C
- Custom version is available

DESCRIPTION

The SK8505 FlexMatrix™ keyboard encoder board is a cost-effective, space-saving USB keyboard device deploying a Sprintek FlexMatrix™ SK5301 USB interface keyboard controller or SK5340 HID-over-I2C interface keyboard controller.

The SK8505's PS/2 port can interface a PS/2 keyboard or mouse.

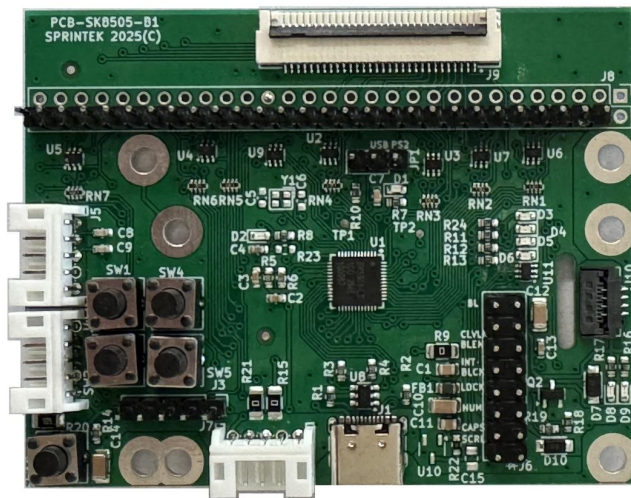
The field-upgradable bootloader makes the design flexible. You can order a board and load it with different Sprintek firmware to meet your various requirements.

APPLICATION

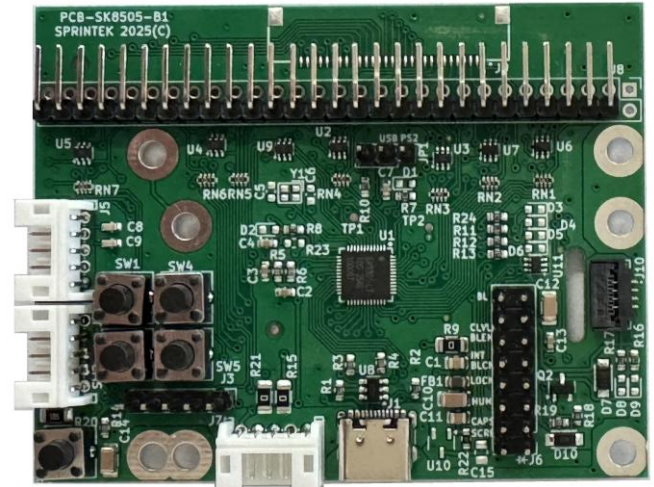
- Instrumentation
- Industrial Equipment

MODULE PICTURES

SK8505-001 / 101



SK8505-002 / 102



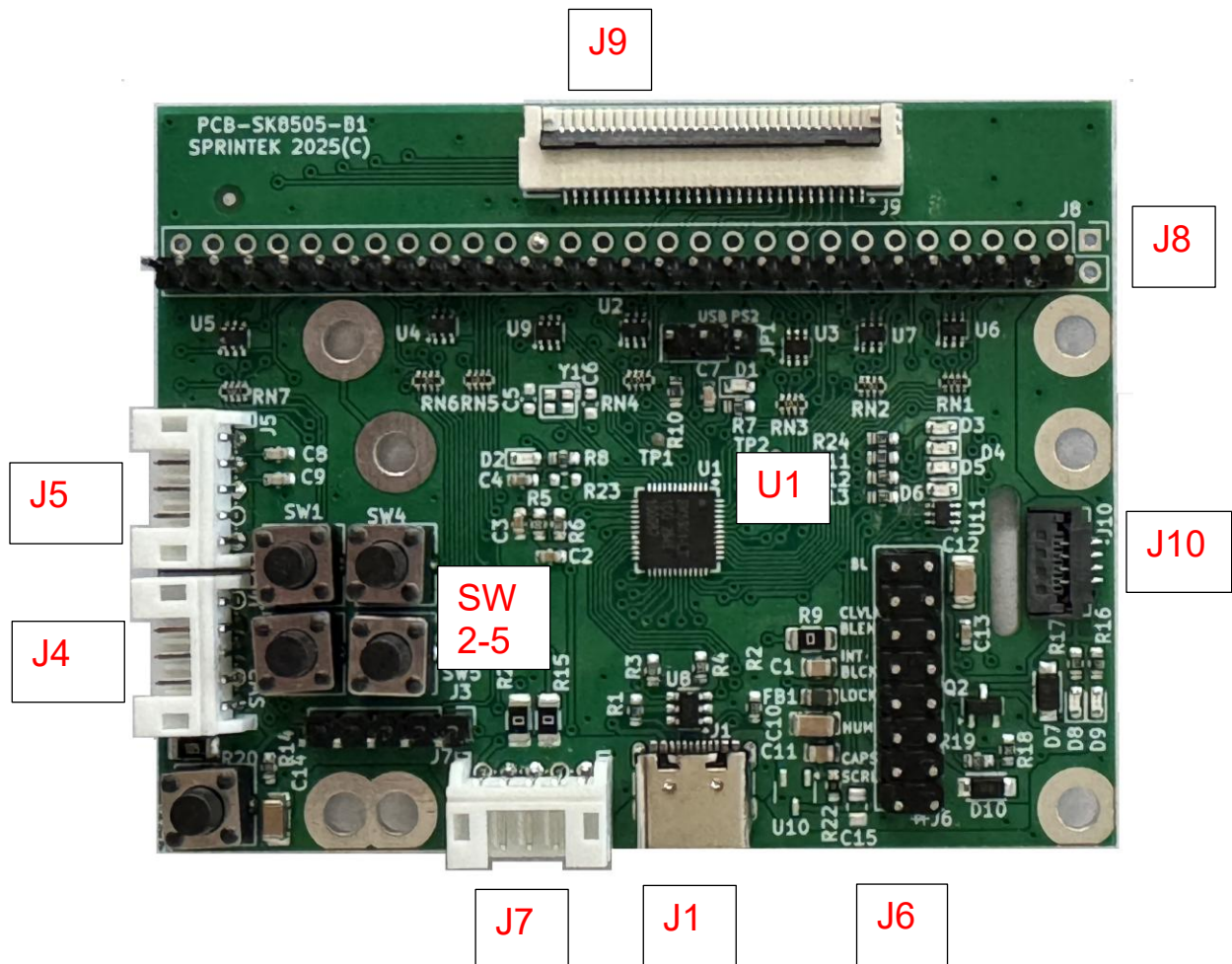
ORDEING INFORMATION

Model#	Interface/IC	Keyboard Scan	Keyboard Connectors	On-board LEDs
SK8505-001	USB SK5301	8X20	Vertical header 28P FPC connector 30P	Yes
SK8505-002	USB SK5301	8X20	Right angle header 28P	No
SK8505-101	HID-over-I2C SK5340	8X20	Vertical header 28P FPC connector 30P	Yes
SK8505-102	HID-over-I2C SK5340	8X20	Right angle header 28P	No

Free Pb, RoHS

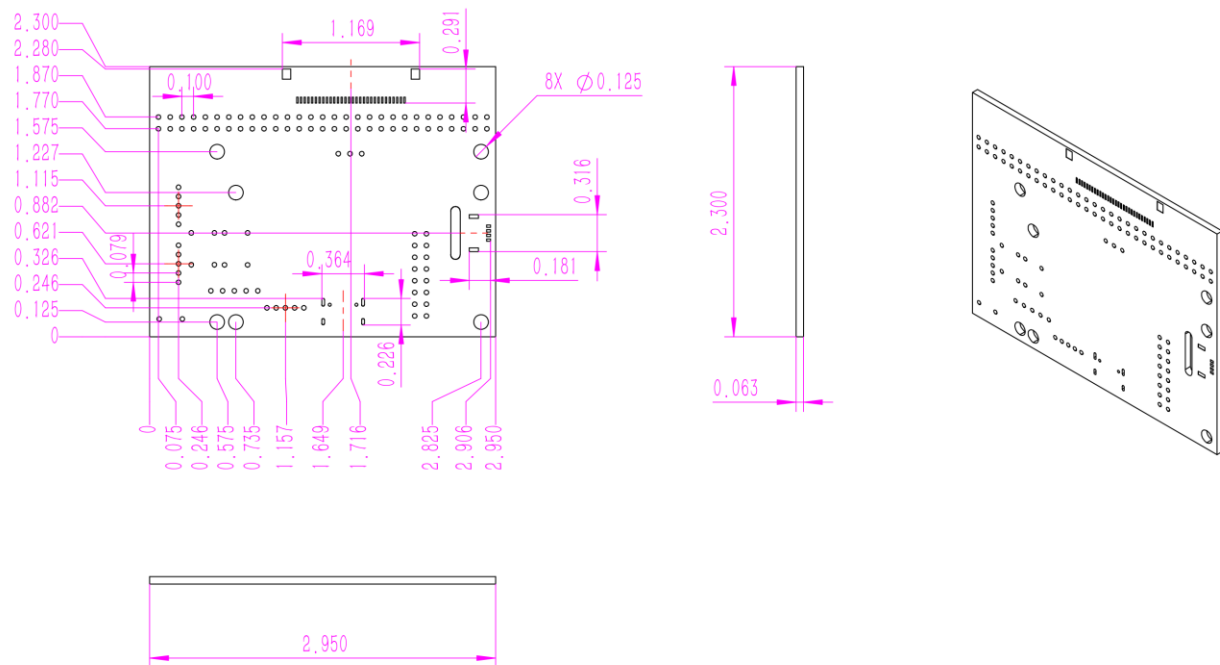
The default SK5301/SK5340 doesn't support the external PS/2 port. You may switch to different Sprintek products or a customized Sprintek products by upgrading.

BOARD DESCRIPTION

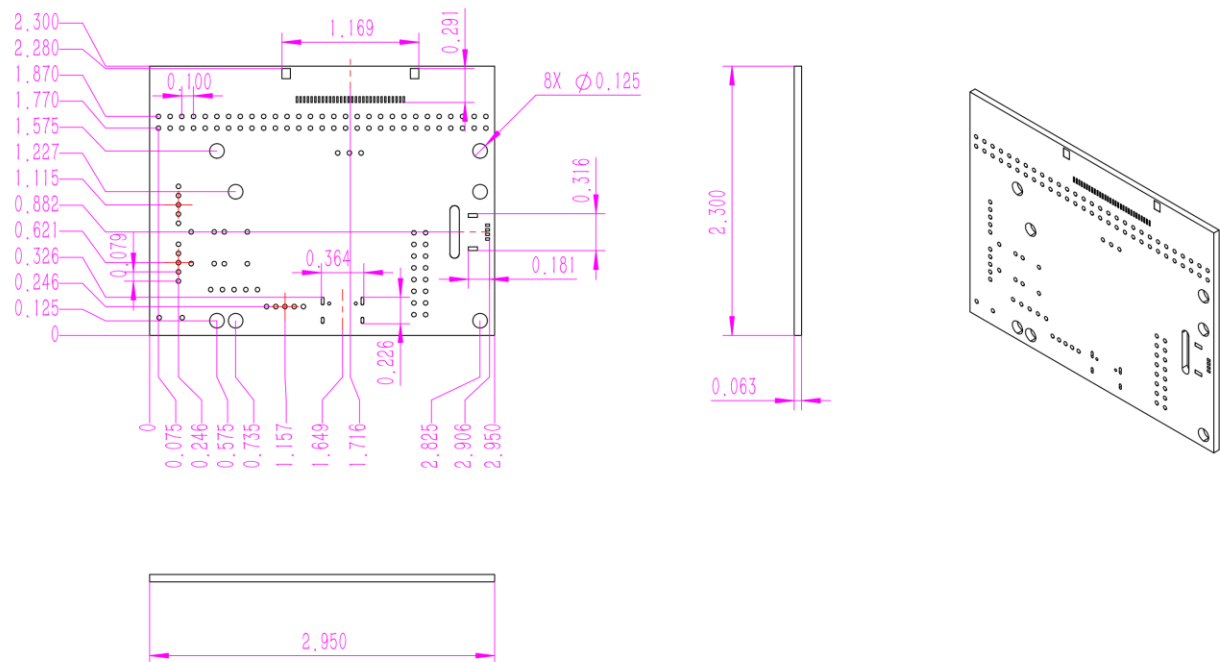


U1	Keyboard controller SK5301 (SK8505-001 / 002) or Keyboard controller SK5340 (SK8505-101 / 102)	
H1-H8	Mounting Holes	
J1	USB to PC USB type C connector (SK8505-001 / 002)	
J7	USB to PC A2001WR-5P PH Connector 1x5P, Pitch 2mm, Vertical Right	1 = VCC 2 = D- 3 = D+ 4 = GND 5 = Shield
J4	I2C to PC A2001WR-5P PH Connector 1x5P, Pitch 2mm, Vertical Right (SK8505-101 / 102)	1 = GND 2 = SDA 3 = SCL 4 = INT 5 = VCC
J8	Header to Keyboard Header 28P 2.54mm Vertical (SK8505-001 / 101) Header 28P 2.54mm Right Angle (SK8505-002 / 102)	1 = GND (no header) 2 – 9 = R0 to R7 10 – 29 = C0 to C20
J9	FPC Connector to Keyboard FPC connector 30P, SMD, 0.8mm, Bottom contact (SK8505-001 / 101 only)	1 = GND 2 = Scroll Lock LED 3 = Num Lock LED 4 = Caps Lock LED 5 – 21 = C0 to C16 22 – 29 = R0 to R7 30 = GND
J5	External PS/2 Port A2001WR-5P PH Connector 1x5P, Pitch 2mm, Vertical Right	1 = VCC 2 = PS/2 CLK 3 = PS/2 DATA 4 = GND 5 = Shield
J6	LED or IO connector Header 8X2, 2.54mm Pitch	1,3,5,7,9,11 = GND 13,14 = NC 2 = SCRL LED 4 = CAPS LED 6 = NUM LED 8 = LOCK LED 10 = LED1 12 = LED2 15 = BL_VCC 16 = BL_OUT
J10	Backlight FPC Connector	1, 2 = BL_OUT 3, 4 = BL_VCC
SW2 – SW5	Test Switches	SW2 = (R0, C0) SW3 = (R1, C0) SW4 = (R0, C1) SW5 = (R1, C1)

MECHANICAL SPECIFICATION



SK8505 Mechanical Drawing (Unit in mm)

**SK8505 Mechanical Drawing (Unit in inch)**

ELECTRONICS SPECIFICATION

Absolute Maximum Ratings

Symbol	Description	Min	Typ	Max	Units	Notes
TSTG	Storage Temperature	-55	-	+100	°C	
VDD	Supply Voltage on Relative to VSS	-0.5	-	+6.0	V	

Operating Temperature

Symbol	Description	Min	Typ	Max	Units	Notes
TOP	Operating Temperature	-40	-	+85	°C	

DC Electrical Characteristics

Symbol	Description	Min	Typ	Max	Units	Notes
VDD	Supply Voltage	3	-	+5.5	V	
RPU	Pull-up Resistor	10	30	50	kΩ	Keyboard Pullup



SALE AND SERVICE INFORMATION

To obtain information about Sprintek Corporation or pointing stick product sales and technical support, reference the following information.

Sprintek Corporation

4969 Corral Street

Simi Valley, CA 93063, USA

Phone: 805.405.8787

Web Site: <http://www.sprintek.com>

REVISION HISTORY

Revision	Issue Date	Description
1.00	June 25, 2026	Initial Release