SK8500 FlexMatrix™ Keyboard Encoder Board

User Programmable USB and HID-over-I2C Dual Interface Keyboard Encoder with 1 External PS/2 Port, 1 PWM Backlight, 7 LEDs Control, and Field-Upgradable Bootloader

FEATURES

- USB 2.0 keyboard encoder to PC
- Additional I2C to embedded controller
- Firmware field-upgradable
- Works with Windows and Linux without drivers needed
- Up to 8X16 Keyboard Scan
- 3 standard keyboard LEDs
- 7 generic LED drives
- 1 PWM backlight control
- Low power consumption. 265uA (suspend), 5.9 mA (operation)
- 4.0V to 5.25V operating voltage
- Temperature range: -40°C to +85°C
- Custom field upgradable firmware is avaliable

APPLICATION

- Instrumentation
- Industrial Equipment

ORDEING INFORMATION

SK8500-01 8X15 Key Scan, No External PS/2, Free Pb, RoHS

SK8500-02 8X15 Key Scan, External PS/2, Free Pb, RoHS
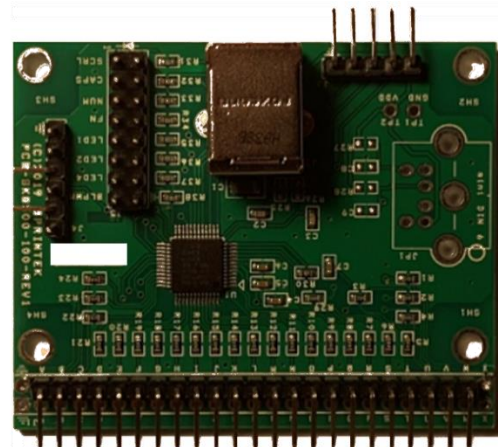
DESCRIPTION

The SK8500 FlexMatrix™ keyboard encoder board is a cost-effective, space-saving USB keyboard device deploying a Sprintek FlexMatrix™ SK5210 USB and I2C dual interface keyboard controller.

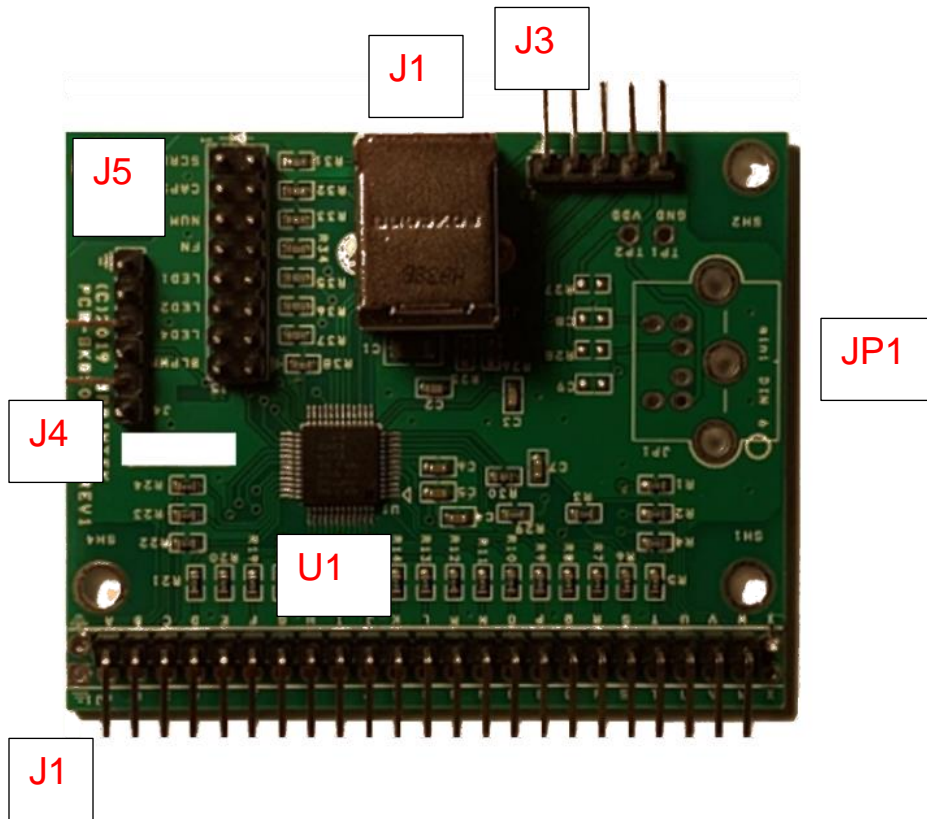The SK8500's PS/2 port can interface a PS/2 keyboard or mouse.

The field-upgradable bootloader makes the design ultra-flexible. You can order now and customize it later.
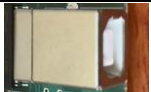
MODULE PICTURES

TOP VIEW

BOARD DESCRIPTION

Connector Reference No	Name	Description
J1	To Keyboard	Pin1 = GND Pin A to H = R0 to R7 Pin I to X = C0 to C15
J2	USB to PC	
J3	I2C to embedded controller	Can be left floating
J4	Sprintek programming port	Sprintek uses this port to load initial firmware.
J5	LED or IO connector	8x2 LED 2,4,6,8,10,12,14 = VDD 16 = GND 1 = SCRL LED 3 = CAPS LED 5 = NUM LED 7 = FN LED 9 = LED1 11 = LED2 13 = LED4 15 = BLPWM
JP1	External PS/2 port	Can be connected to any PS/2 mouse and keyboard

U1	Keyboard controller	
SH1-SH4	Mounting Holes	

BOM

Reference	Description	Manufacturer	Part Picture
J1	Header 23x1 Position 0.1 Inch Pin Spacing Right Angle https://www.digikey.com/product-detail/en/amphenol-icc-fci/77318-131LF/77318-131LF-ND/4413838	GENERIC	
J2	Connector USB Jack Type B Horizon Right Angle https://www.digikey.com/product-detail/en/cui-inc/UJ2-BH-W2-TH/UJ2-BH-W2-TH-ND/6188081	GENERIC	
J3	Header 5x1 Position 0.1 Inch Pin Spacing Right Angle	GENERIC	
J4	Header 6x1 Position 0.1 Inch Pin Spacing https://www.digikey.com/product-detail/en/adam-tech/PH1-06-UA/2057-PH1-06-UA-ND/9830394	GENERIC	
J5	Header 8x2 Position 0.1 Inch Pin Spacing https://www.digikey.com/product-detail/en/amphenol-icc-fci/79425-408HLF/79425-408HLF-ND/5201512	GENERIC	

CONFIGURATION

Part No.	Configuration
SK8500-01-VVV	J1 – Header 23X1, Pin A to W are installed, which are R0 to R7, C0 to C14; JP1 – not installed, which is external PS/2. U1 – SK5210-LP-VVV. VVV is firmware version number.

ELECTRONICS SPECIFICATIOIN

Absolute Maximum Ratings

Symbol	Description	Min	Typ	Max	Units	Notes
TSTG	Storage Temperature	-55	-	+100	ºC	
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	ºC	

DC Electrical Characteristics

Symbol	Description	Min	Typ	Max	Units	Notes
VDD	Supply Voltage	4	-	+5.5	V	
IDD-U50	Supply Current when IC is in USB operation mode		5.9		mA	
ISD-USB	Supply Current when IC is in USB suspend mode		265		uA	
RPU	Pull-up Resistor	10	30	50	kΩ	

MECHANICAL SPECIFICATIOIN
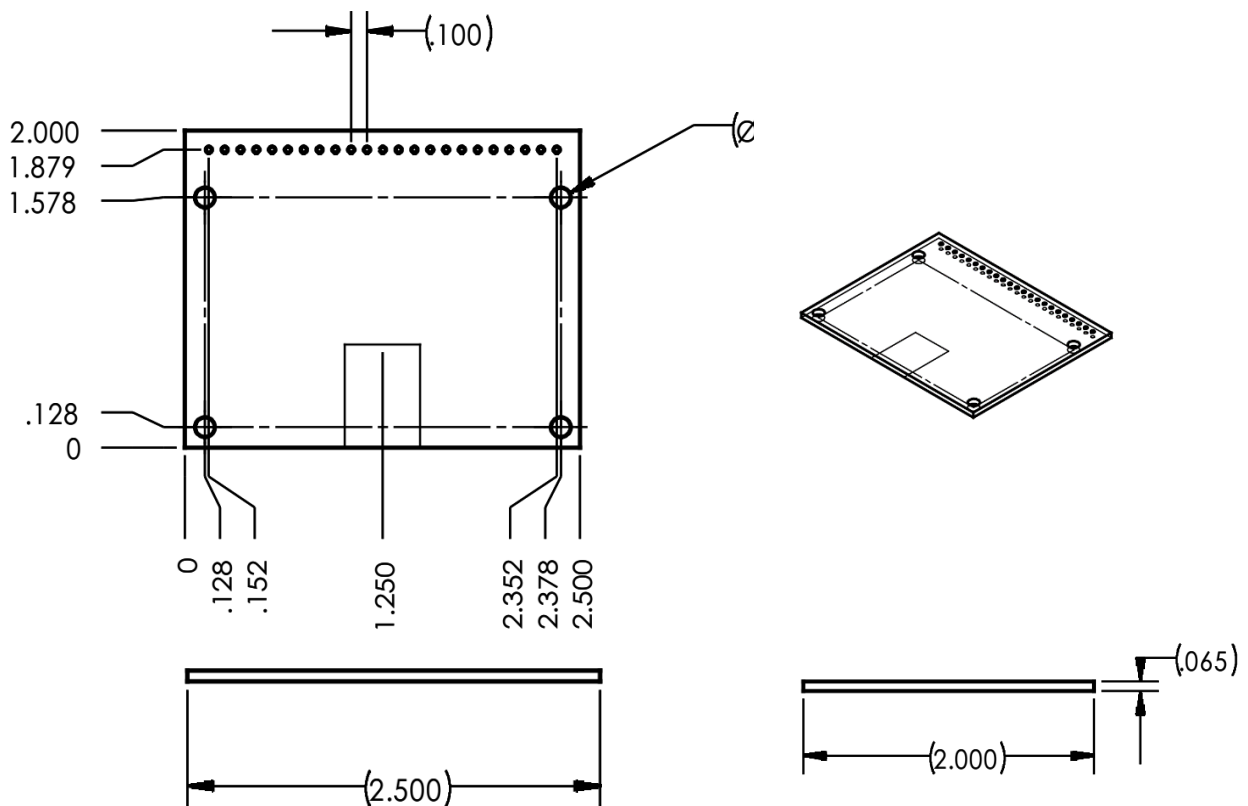
SK8500-XX-VVV Mechanical Drawing (Unit in inch)

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	December 19, 2019	Initial Release
1.01	May 18, 2023	Added SK8500-02 with PS/2 port