PoNET kbd48CNC



User's manual



Version: 16/10/2012

SAFETY INFORMATION



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Description

PoNET kbd48CNC is an excellently machined extension keyboard for PoKeys devices in CNC machines. The keyboard has 48 buttons with graphics that equal to most commonly used symbols and functions of a CNC machine. For providing additional feedback functionality, each key is equipped with a red LED backlight, which can indicate various states of the CNC machine. Keyboard can be customized and used as a general purpose matrix keyboard without any additional software. However, applications that are aware of the keyboard (e.g. PoKeys Mach3 plugin) can make a full use of its functionality.

Two LEDs on the keyboard are used to indicate power supply and device status. »Power LED« (red color) switches on immediately after power supply is connected, while »Status LED« (green color) signals the current status of the device:

- Solid On: device is connected and working normally
- Slow blinking: no connection to Pokeys device
- Fast blinking: bootloader operation
- Solid Off: device disabled

The keyboard is also equipped with a light sensor, which can be used to monitor the level of the ambient light and adjust the brightness of the LEDs.



Specifications

Dimensions:	295mm X 105mm X 4mm
Power supply:	5V ±10%
Power consumption:	max 400mA (depending on number and brightness of output diodes)
Number of keys/LEDs:	48 arranged in 3 groups of 4x4
Interface:	PoNET (supported by PoKeys56 devices)

Front panel cutout dimensions



Connecting to PoKeys device and configuration

Connect the PoNET keyboard device to the PoKeys device with the supplied cable. There are two identical connectors on each device that enable parallel connection of multiple devices via PoNET bus.



PoKeys configuration software must be used to initialize the connection between kbd48CNC and PoKeys device. Run PoKeys configuration software, connect to PoKeys device and go to Peripherals > PoNET menu. The following dialog will appear:



Figure 1: PoNet configuration dialog showing a unconfigured device

On the left, all PoNET devices are listed. Unconfigured PoNET devices will be listed as illustrated above. To configure the new device, double click on *Unconfigured device* icon and press any key on the device that you want to add (you have a 10 seconds time window to do that). If configuration process for a device was successful, the green »status LED« will stop to blink and will be constantly lit. The device will also be listed as »configured device« in the dialog.

To change the settings of the device, click on the configured device in the list on the left. If you will be using the kbd48CNC with a PoKeys Mach3 plugin, no additional settings are necessary. Close the dialog and click the button 'Send settings to device', which will save the configuration.

PoNET settings	
PoNET devices: Refresh Re-initialize Configured devices	Selected device Device type: PoNET kb48CNC v1.0 Number of inputs: 48 Number of outputs: 48 Assigned I2C address: 1 Device options: Image: Complex and the symbol Image: Complex and the symbol 1 Device options: Image: Complex and the symbol Image: Complex and the symbol 1 Device options: Image: Complex and the symbol Image: Complex and the symbol 1 Device options: Image: Complex and the symbol Image: Complex and the symbol 10 Image: Complex and the symbol 10 Image: Complex and the symbol 10
Status: Ready	

Figure 2: Settings for a configured device

Standalone operation as a matrix keyboard

If you wish to configure the keyboard manually without the use of the 'kbd48CNC aware' application, check the option *Enable mapping to matrix keyboard* option in the PoNET device settings. Then, close this dialog and click 'Send to device' button and restart the application.

Open the Peripherals > Matrix Keyboard menu, where you can track your keyboard actions and define key mapping options.

Matrix	keybo	ard set	tings						×
Pleas	e selec	et matrix	(keyba	ard size	e		Mat	rix keyb	oard present at Pol2C device
Num	nber of ro	ws: 6	*	Numbe	r of colu	imns: 8		÷	Enable keys with alternate function
	Α	В	С	D	Е	F	G	Н	Fn+ key input pin: 🛛 🗸
1	A1	B1	C1	D1	E1	F1	G1	H1	Selected key settings
2	A2	B2	C2	D2	E2	F2	G2	H2	O Direct key mapping
3	A3	B3	C3	D3	E3	F3	G3	НЗ	Triggered mapping
4	A4	B4	C4	D4	E4	F4	G4	H4	Down key:
5	A5	B5	C5	D5	E5	F5	G5	H5	Modifiers: Ctrl Alt Alt Alt Gr
6	A6	B6	C6	D6	E6	F6	G6	H6	Shift 🗌 Win
									Up key: 💌
									Modifiers: Ctrl Alt Alt Gr
									Shift Win
									 Mapped to macro
									Macro: 💉
									Edi macros
									Close

The following naming scheme is used for buttons on the kbd48CNC

Matrix keyboard key indexing:



Connecting kbd48CNC to the PoKeys56 device and configuring it in Mach3

1. Connect the kbd48CNC to the PoKeys56 device with the provided cable



- 2. Connect the PoKeys56 device to PC
- 3. Open PoKeys configuration software and connect to your device

Eil-	Deripherals	Settings	Device	Pulse engine						
File	Periprierais	settings	Device	Not conne	cted					
Mode		Assigment		101 001110			Assigment		Mode	
	1	_		Send to de	vice			- 55		
	2	-	Pin settin					- 54		
	3	_	 Inactive 	Analog inn	ut 🔿 Diaita	linnut		- 53		
	4			-in () Applog aut	iout () Digite	a napos		= 5Z		
	5	_	inven	Trianared input	Digita	n olanal		- 50		
	- 7	_			Direction	in signal		- 49		
/	8	_	Enable	e Counter 🔲 Fusir	ng Direction b			- 48		
Salact davisa	-	-								
Select device								_		C
M						Seri	al number		25000	
Refresh list				Configure	onnect	Seri Lock Netv	al number status: vork addre urity statu	:: ess: s:	25000 unlocked 192.168 Full acce	l .8.1(:ss
Refresh list	19	_			onnect	Seri Lock Netw Sect	al number status: vork addre urity statu	: ess: s: - 37	25000 unlocked 192.168 Full acce	l .8.10 :ss
Refresh list Network settings	· 19 - 20	_	Key repe		onnect	Seri Lock Netw Sect	al number status: vork addre urity statu: 	= s: - 37 - 36	25000 unlocked 192.168 Full acce	l .8.1(:ss
Refresh list Network settings	19 — 20 —	- -	- Key repe	Configure	onnect	Seri Lock Netw Sect	al number s status: vork addre urity statu:	= 37 = 36 = 35	25000 unlocked 192.168 Full acce	l .8.10 :ss
Refresh list Network settings	· 19		Key repe Rep for m	Configure	m m	Seri Lock Netwo Secc	al number < status: vork addre urity statu: 	: s: - 37 - 36 - 35 - 34 - 32	25000 unlocked 192.168 Full acce	l .8.1(:ss
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4. Go to Peripherals > PoNET settings...

NET devices: Refresh Re-initialize	Selected device
Unconfigured device	Device type: (device type)
Unconfigured device - double click to add	Number of inputs: (inputs) Number of outputs: (outputs) Assigned I2C address: (i2c address)
	Device options: Enable mapping to matrix keyboard
	PoNET Keyboard device test: LED test mode LED test mode 2 (random) Backlight test LED intensity: Light sensor test

If 'Unconfigured device' display is not present, please check the cable connections and click 'Refresh' button.

 Double click on the 'Unconfigured device – double click to add' entry and press any key on the kbd48CNC within 10 seconds. If device was recognized, the following will appear and the green LED on the kbd48CNC will stop blinking

PoNET devices:	Refresh Re-initialize	Selected device	
Configured devices PoNET kbd48CNC (v4) at 1		Device type: PoNET kbd48CNC v1.0 Number of inputs: 48 Number of outputs: 48 Assigned I2C address: 1 Device options: 1 Image:	
		PoNET Keyboard device test: LED test mode LED test mode 2 (random) Backlight test LED intensity: 10 Light sensor test (light)	

- 6. Check the 'Assigned I2C address' display. If it does not display 1, click the 'Re-initialize' button and repeat step 5.
- 7. When using kbd48CNC, 'Enable mapping to matrix keyboard' should not be checked. In the bottom part of the dialog, various test modes are available to test the keyboard (these will function only when the 'PoNET settings' dialog is open).
 - a. LED test mode: any key press will start a wave like pattern radiating from the key that was pressed
 - b. LED test mode 2 (random): LEDs will be randomly blinked
 - c. Backlight test: ambient light sensor is used to set the LED brightness
 - d. Light sensor test: (light) displays the amount of ambient light detected
- 8. Close PoNET settings dialog and click 'Send to device' button to save the settings. Then close the PoKeys application.

9. Open Mach3 (it Mach3 PoKeys plugin is not yet installed, follow the steps in 'PoKeys Mach3 plugin manual' to install it.



10. Go to Config -> Config plugins... and click yellow 'CONFIG' button for the PoKeys plugin

Config Function Cfg's View Wizards Operato	or PlugIn Control Help			
gram Run (Alt-1) MDI (Alt-2) Tool Path (Alt-4) Offsets (Alt-5)	Settings (Alt-6) Diagnosti	cs (Alt-7) Mill->G15 G80 G17 G40	G21 G90 G94 G54 G49 G99 G64 G97
	PlugIn Control and Activat	R Zero A Zero Zero ion	+58.0100 +10 +41.4891 scale +1.0 Scale Scale	000 Tool: 0
Le: No File Loaded. Vele Start ALE.R> Edit G-Code Recent File Close G-Code Load G-Code Load G-Code Load G-Code Load G-Code Load G-Code Load G-Code Load G-Code Close G-Code Load G-Code Close G-Code Load G-Code Close G-Code Close G-Code Close G-Code Load G-Code Close G-Code C	Enabled Plugin Flash-1 Z Joyšti Pokey Z Printel TurnD Video-	I Name FlashScreen-SWF-PlugIn-A.Fenerty- k: JoyStick-PlugIn-Art-Fenerty-Ver s-PoLabs-v0.01 Scope-Port-Scope-1.00.046 iags-Turn-Diags-1.00.1 B.Barker-Ver-1.0	Config -BBarker CONFIG -1.0a CONFIG C	Regen. Display Jo Toolpath Mode Foll Spindle Speed Spindle CW F5 Sto Spindle CW F5 Sto RPM 0 S-ov 0
Reset de Active G-Codes M-Co	On/Off Z Inhibit +0.000	Elapsed 00:00	Units/Min 0.00 Units/Rev 0.00	Spindle Speed
tory Clear Status: ReConfiguration E	stop.		Profile: Mach3Mill	

11. Select your PoKeys device and click Configure

PlugIn Contr	rol and Activation	04.00	
Enabled	PoKeys plugin settings PoKeys devices: PoKeys <u>20023</u> not detected PoKeys56E [25000] PoKeys [25002] not detected	Add new Configure OK Cancel	nfig NFIG NFIG NFIG NFIG NFIG NFIG NFIG NFIG
	On/Off	00:00	.00

If no device is displayed, follow the steps in the 'PoKeys Mach3 plugin manual' to add it.

12. Go to 'Import/Export tab' and select kbd48CNC mapping. Then click Import and select the kbd48CNC.xml file that is available as a download '<u>kbd48CNC Mach3 plugin setup</u>' from poscope.com (please download the file and use WinZip or similar program to extract the contents of the file).

	Device settings	То
	PoKeys mapping Encoders settings Matrix keyboard settings Pulse engine settings Import/Export settings	
з.	PoKeys pin mapping	
	Encoders settings and mapping	
	Matrix keyboard settings and mapping	
	PoExtBus mapping	
	kbd48CNC mapping	
	Pulse engine settings	
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	OK Cancel Apply	E
Coning	juration estop.	

13. The previous step will load the default configuration for the keyboard. To change the default setup, go to 'PoKeys mapping' tab and find kbd48CNC. This section is used to setup the buttons in all three sections of the keyboard. Function of a button is simply changed by selecting a different LED or button mapping from the list of available OEM LEDs or buttons.

■ PoKeys pins ■ ■ ■	- 11
Image: Matrix keyboard Image: Matrix keyboard Image: Matrix keyboard Image: Matriter keyboard Image: Matriter k	- =
Image: PoExtBus Image: PoExtBus	=
→ b Cycle Start Key none ▼ Button 1000: Cycle start ▼ → b Feed Hold Key none ▼ Button 1001: Pause (Feed Hol ▼ → b Stop Key none ▼ Button 1001: Stop ▼	=
→ Cycle Start Key none ▼ Button 1000: Cycle start ▼ → ▷ Feed Hold Key none ▼ Button 1001: Pause (Feed Hol ▼ → ▷ Stop Key none ▼ Button 1003: Stop ▼	=
▶ Cycle Start Key none ▼ Button 1000: Cycle start ▼ ▶ ▶ Feed Hold Key none ▼ Button 1001: Pause (Feed Hol ▼ ▶ ▶ Stop Key none ▼ Button 1003: Stop ▼	
▶ Feed Hold Key none ▼ Button 1001: Pause (Feed Hol ▼ ▶ Stop Key none ▼ Button 1003: Stop ▼	-
► D Stop Key none ▼ Button 1003: Stop ▼	-
	-
	-
→ ▷ Single Step Key none ▼ Button 1004: Single ▼	-
→ D Reverse Key none - Button 279: Run reverse -	-
→ ▷ Optional Key none 💌 Button 177: Optional Stop "s 💌	-
└── ▷ Edit Key none ▼ Button 115: Edit G-code ▼	-
└── ▷ Load Key none ▼ Button 216: Load G-code ▼	-
└── ▷ Close Key none ▼ Button 169: Close current file ▼	-
Recent Key none Rutton 214: Show recent G-c	

14. To setup the keyboard LEDs under the keys, go to 'kbd48CNC LED' section.

	Function	LED	Button	
E PoKeys nins				
H Matrix keyboard				
	-			=
Cycle Start	Key LED	LED 804: Start LED	•	
Feed Hold	Key LED	LED 805: Pause LED	•	
→ ▷ Stop	Key LED	none	•	
⊢ ▷ Reset	Key LED	LED 800: Reset LED	•	
→ ▷ Single Step	Key LED	LED 82: Single Step mode Active L	•	
→ ▷ Reverse	Key LED	LED 97: Running in reverse (dupli	-	
→ ▷ Optional	Key LED	LED 65: Optional Stop On LED	•	
Edit	Key LED	none	•	
└── ▷ Load	Key LED	none	•	
Close	Kev I FD	none	•	*
				•

15. To save the settings, click OK.

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