

New Mill Wiring Chart 11/15/2021

IO#	7190 Pin / 7147S-P1	Function	7147S P2	7147S P3	7147S P4	Signal	Function	Wire Color
IO 0	P1-1	TX4	P2-1			STEP 0	X-STEP	Yellow
		/TX4	P2-2					
IO 1	P1-3	TX5	P2-4			DIR 0	X-DIR	Red
		/TX5	P2-5					
IO 2	P1-5	TX6	P2-7			STEP 1	Y-STEP	Orange
		/TX6	P2-8					
IO 3	P1-7	TX7	P2-10			DIR 1	Y-DIR	Purple
		/TX7	P2-11					
IO 4	P1-9	RX0			P4-1	ENCO A	MPG-A	Brown
		/RX0			P4-2			
IO 5	P1-11	RX6		P3-1		X-SEL	X-ENA pendant	White 1k Pulldown
		/RX6		P3-2				
IO 6	P1-13	RX1			P4-4	ENCO B	MPG_B	Black
		/RX1			P4-5			
IO 7	P1-15	RX7		P3-4		Y_SEL	Y_ENA pendant	Purple 1k Pulldown
		/RX7		P3-5				
IO 8	P1-17	RX2			P4-7	ENCO I	NC	NC
		/RX2			P4-8		NC	
IO 9	P1-19	RX8		P3-7		Z-SEL	Z-ENA pendant	Blue 1k Pulldown
		/RX8		P3-8				White
IO 10	P1-21	RX3			P4-9	ENC1 A	Spindle A	Blue
		/RX3			P4-10			White
IO 11	P1-23	RX9		P3-9		A-SEL	A-ENA pendant	Green 1K Pulldown
		/RX9		P3-10				
IO 12	P1-25	RX4			P4-12	ENC1 B	Spindle B	White
		/RX4			P4-13			White
IO 13	P1-27	RX10		P3-12				
		/RX10		P3-13				
IO 14	P1-29	RX5			P4-15	ENC1 I	Spindle I	Green
		/RX5			P4-16			White
IO 15	P1-31	RX11		P3-15		E-STOP	(Ext E-STOP)	White
		/RX11		P3-16		NC	Black to Estop +5	
IO 16	P1-33	AUX	P2-15			AUX -	OPTO Out -	GND
			P2-16			AUX + *	OPTO Out +	Brown BK sig
IO 17	P1-35	DIR	P2-17			DIR - *	OPTO Out - DIR	Blue
			P2-18			DIR +	OPTO Out +	+5v Red
IO 18	P1-37	/ENA	P2-19			ENA - **	OPTO Out – ENA (spindle)	GND Black
			P2-20			ENA +	OPTO Out +	White/Blue
			P2-22				Analog Ref -	GND
IO 19	P1-39	PWM	P2-23				Analog Out	Red
			P2-24				Analog Ref +	+10v Red
IO 20	P1-41	TX0			P4-19	STEP 2	Z-STEP	Brown
		/Tx0			P4-20			
IO 21	P1-43	TX1			P4-22	DIR 2	Z-DIR	Green
		/Tx1			P4-23			
IO 22	P1-45	TX2		P3-19		STEP 3	A-STEP	Blue
		/Tx2		P3-20				
IO 23	P1-47	TX3		P3-22		DIR 3	A-DIR	White
		/Tx3		P3-23				

\* AUX is BK      \*\* ENA switches with AnalogOut – Set with motion.spindle.on

New Mill Wiring Chart 11/15/2021

7190 P2 Pinout wiring

IO #	7190 Pin P2	Function	Signal	Function	Wire Color
IO 24	P2-1				
IO 25	P2-3				
IO 26	P2-5				
IO 27	P2-7				
IO 28	P2-9				
IO 29	P2-11	Control Enable Relay	E-Stop ENA relay out	Output	White
IO 30	P2-13		MPG Scale	Input	Yellow
IO 31	P2-15				
IO 32	P2-17	Pendant E-stop signal	E_STOP Button	E-Stop	Red
IO 33	P2-19	halui.spindle.start halui.spindle.stop	Spindle On/Off	Input	Brown
IO 34	P2-21	halui.spindle.auto	Program Start	Input	Green
IO 35	P2-23	halui.program. P / R	Pause / Resume	Input	Black
IO 36	P2-25		MPG Scale	Input	Orange
IO 37	P2-27	Dead GPIO Pin			Unused
IO 38	P2-29	hal_manualtoolchange	ToolChange button	input	Brown
IO 39	P2-31			NC	White NC
IO 40	P2-33		A Axis Neg Limit NC	Input	NC
IO 41	P2-35		A Axis Pos Limit NC	Input	NC
IO 42	P2-37		Z Axis Neg Limit NC	Input	NC
IO 43	P2-39		Z Axis Pos Limit	Input	Green
IO 44	P2-41		Y Axis Pos Limit	Input	Blue
IO 45	P2-43		Y Axis Neg Limit	Input	White
IO 46	P2-45		X Axis Pos Limit	Input	Black
IO 47	P2-47		X Axis Neg Limit	Input	Brown

New Mill Wiring Chart 11/15/2021

DB 25 connector to pendant

DB25 Pin	Signal	IO #	7147S Pin	DB25 Wire Color	Control Wire Color	Function
Pin 1	NC	NC		Black	Black	NC
Pin 2	Toolchange	IO 38		Black / White	Brown	Toolchange Button
Pin 3	Pause / Resume	IO 35		Brown	Black	Pause/Resume Button
Pin 4	Spindle On / Off	IO 33		Brown / White	Brown	Spindle On / Off Button
Pin 5	E-STOP	IO 32		Red	Red	E-STOP Button
Pin 6	Scale	IO 36		Red / White	Orange	Scale
Pin 7	Scale	IO 31		Red / Black	Yellow	Scale
Pin 8	A SELECT – Pendant	IO 11	P3-9	Orange	Green	A - Select 1k Pulldown
Pin 9	Z SELECT – Pendant	IO 9	P3-7	Orange / White	Blue	Z - Select 1k Pulldown
Pin 10	Y SELECT – Pendant	IO 7	P3-4	Orange / Black	Purple	Y - Select 1k Pulldown
Pin 11	X SELECT – Pendant	IO 5	P3-1	Pink	White	X - Select 1k Pulldown
Pin 12	MPG B	IO 6	P4-4	Pink / Black	Black	MPG B
Pin 13	MPG A	IO 4	P4-1	Yellow	Brown	MPG A
Pin 14	+5v		P4-6	Yellow / Black	Red	+5v MPG
Pin 15	+5v		P4-14	Green		+5 to xyz rotary switch
Pin 16	+5v		P4-17	Green / White		+5 to res rotary switch
Pin 17	NC			Green / Black	Orange	NC
Pin 18	NC			Light Green	Yellow	NC
Pin 19	Program Start	IO 34		Blue	Green	Program Start Button
Pin 20		NC		Blue / White		
Pin 21	Y-DIR	IO 3	P2-10		Purple	low during Y+ move
Pin 22	Int VCC				Purple / White	+5v for external use
Pin 23	OPT VCC	VCC			Grey	Tie to +5v (not yet)
Pin 24	Int GND	GND	P2-3		Grey / Black	Tie to GND
Pin 25		GND	P2-9		White	Tie to GND

Conflict on DB25 Pin 9 IO 31 & 36 unverified on pendant wiring IO 37 – dead pin

Gecko 203V Stepper Drive Wiring

Pin	Function	X AXIS	Y AXIS	Z AXIS	A AXIS
1	Power GND	Black	Black	Black	Black
2	18-80VDC	Red	Red	Red	Red
3	Winding A	Black	Black	Black	Black
4	Winding /A	Green	Green	Green	Green
5	Winding B	Red	Red	Red	Red
6	Winding /B	White	White	White	White
7	Disable	Red??	Red??	Red??	Red??
8	Direction	Red	Purple	Green	White
9	Step	Yellow	Orange	Brown	Blue
10	Common	Black	Black	Black	Black
11	Current Set	47 Ω 3.5A	47 Ω 3.5A	47 Ω 3.5A	47 Ω 3.5A
12	Current Set	47 Ω 3.5A	47 Ω 3.5A	47 Ω 3.5A	47 Ω 3.5A

Pendant Rotary Switch:

Mouser: 105-SR2612F-12-21RN

Alpha: SR2612F-0112-21R0B-D8-N

New Mill Wiring Chart 11/15/2021

Stepper Wiring and Pinout (KL23H2100-50-4BM)

Stepper wire color	Harness wire color	Harness Pin No.	Stepper phase
Black	Black	1	A+
Green	Green	2	A-
Red	Red	3	B+
Blue	White	4	B-

VFD Wiring and Pinout

	HV CN		CN2		CN1
Black	L1		+5v	Black	HGND
White	L2	Blue	SV	Yellow	HA
	L3	Black	COM	Green	HB
	P	Green *	F/R	Blue	HC
	B1	White **	EN	Red	HVCC
	B2	Brown	BK		
Yellow	U		ALM		
Green	V		PG		
Blue	W	Bare	Frame	GND	
Y/G - G	GND	Red	NC		

- \* Red at DIR Relay
- \*\* Yellow at ENA Relay

USE: SVST2\_4\_7147S\_MILL\_A\_72.BIT

IN: C:\cnc\_info\linuxcnc\configs\New\_mill2.8.2\Bitfiles\7190\7190\_A\_bitfile

New Mill VFD Settings Chart 11/15/2021

VFD Parameter Setup						
Function Name	No.	Value Range	Factory Value	Vendor Value	Current Value	Function Specification
Display Option	P1-0	0-9	0	0	0	0. Display Real Speed 1. Display DC Voltage of Main Circuit 2. Display External Analog Input 3. Display Motor Current 4. Display Internal Program Speed 5. U Phase Current 6. V Phase Current 7. W Phase Current 8. Duty Ratio 9. Preserve
Internal Running Speed	P1-1	0-9999	2000	1000	1000	When Internal Speed, data will decide motor speed (see P1-2)
Signal Source Of speed	P1-2	0-2	1	1	1	0: Internal instruct speed (P1[0] is internal speed, when motor is running. MUP to increase, MDOWN to decrease. 1: External terminal analog input, using SV signal of pin 7 of CN 2 as motor speed. 2: Communication order control.
Dirction Setting	P1-3	0-1	0	0	0	0: CW 1: CCW
Signal Source Of Start-Stop	P1-4	0-2	1	1	1	0: button by hand control (ENT) is start stop, SET is reverse, +/- is increase decrease speed. 1: External terminal control using Pin4 of CN2 to start/stop motor 2: Communication order control.
Pole Pairs Of Motor	P1-5	0-99	2	2	2	Attention: pole pairs = pole/2
Driver Location	P1-6	0-255	0	0	0	The driver location when using communication control.
Speed Scale Factor	P1-7	0-99999	1520	300	<b>870</b>	Scale Factor for PID (KP)
Speed Integrating Factor	P1-8	0-99999	320	100	<b>100</b>	Integrating factor for PID (KI)
Acceleration Speed	P1-9	1-60000	6000	6000	<b>20000</b>	Parameter directly proportional to accelerated speed. Real accelerated speed is based on load of motor.
Deceleration Speed	P1-10	1-60000	6000	6000	6000	
Rated Speed Setting	P1-11	0-99999	3000	12000	<b>5934</b>	Speed corresponding to maximum analog input (unit: RPM)
Analog Input Dead Band	P1-12	0-3300	100	0	0	The function is used to set input voltage when motor speed is 0 ((Unit: mV)
Manual Operation To Adjust Speed Equivalent	P1-13	1-999	1	2	2	Use bottom to change the speed equivalent under intrnal speed type (speed change per press)
Recover Default Parameters	P1-14	0-1	0	0	0	Set up 1 then quit setting. Power cycle and parameters will recover to factory default values.