ST/8 Cross Slide Board - Cable E

J8 - CPC connector at board to rectangular AMP connector (same pin numbering)

Pin	Wire Color	Function
1	Brown	X axis home
2	White	X axis +limit
3	Green	X axis -limit
4	Tan	Z axis home
5	Pink	Z axis +limit
6	Purple	Z axis -limit
7	Blue	Encoder A
8	Gray	Encoder B
9	Black	Ground
10	Red	+5v power input
11	Yellow	+12v power input
12	Orange	-12v power input

Notes: This board serves as a common connection point for the limit switches and Z axis encoder. All switch outputs are active high. Outputs will be 0v when inactive and +5v when triggered. It also has a line driver that converts the encoder outputs to approximately +/- 5v waveform. The +5v supply powers the optical switches, comparator ICs, and the encoder. The +/-12v supply powers the line driver IC for the encoder.

ST/8 Carriage-Spindle Board - Cable D

J4 - rectangular AMP connector on both ends

Pin	Wire Color	Function
1	Pink	Z axis encoder A
2	Purple	Z axis encoder B
3	Blue	Spindle encoder A
4	Gray	Spindle encoder B
5	White	Spindle encoder I
6	Brown	J1-1 range switch
7	Tan	J1-2 range switch
8	Black	Ground
9	Green	Ground
10	Red	+5v power input
11	Yellow	+12v power input
12	Orange	-12v power input

Notes: This board serves as a common connection point for the Z axis encoder, spindle encoder, and range switch. It uses line drivers to convert the encoder outputs to +/-5v. The range switch signal is simply passed through to the I/O board. Pin 6 or 7 are

connected to ground when H or L range is selected. The switch is open in M range (no pins grounded).The switch position has no effect on the function of this board.

ST/8 Tool Turret Board - Cable EE

CPC connector at board to rectangular AMP connector (same pin numbering)

Pin	Wire Color	Function
1	Green	Lock cylinder retracted (released)
2	Pink	Lock cylinder extended (locked)
3	Blue	Ratchet cylinder retracted (idle state)
4	Tan	Ratchet cylinder extended (advance)
5	Brown	Not used
6	Orange	Not Used
7	Gray	BCD 1 (least significant bit)
8	Purple	BCD 2
9	White	BCD 3 (most significant bit)
10	Black	Ground
11	Red	+5v
12	Yellow	+12v

Notes: All output signals from this board are active low. Outputs will be +5v when inactive and 0v when triggered. The controller uses 3 bit BCD (inverted) to determine the current position of the turret.

BCD 321	Tool position
111	1
110	2
101	3
100	4
011	5
010	6
001	7
000	8

Axis Encoders HEDS-5500 - 500 CPR Incremental

Pin	Function	
1	Ground	(red wire)
2	N/C	
3	Channel A	
4	+5v	
5	Channel B	

Spindle Encoder HEDS-5310 - 400 CPR Incremental

10 pin IDC connector

Pin	Function
1	Channel A
2	+5v
3	Ground
4	N/C
5	N/C
6	Ground
7	+5v
8	Channel B
9	+5v
10	Channel I

Note: reverse insertion of the connector will permanently damage the detector IC!

Air Solenoid Valve Terminal Block - Cable CC

Pin	Wire Color	Function
1	Black	Unlock turret (connect to -12v to activate)
2	Red	Rotate turret (connect to +12v to activate)
3	White	N/C
4	Blue	N/C
5	Brown	N/C
6	Green	Pneumatic chuck (connect to +12v to activate)
7	Yellow	+12v
8	Orange	-12v
9	N/A	N/C

Note: Solenoid coils are 24VDC.