

Dedicated boards

Kurokesu SCF4 multi-axis stepper motor controller System On Module (SOM) targets applications where time to market, reliability and small footprint is important. Main control MCU is ST Cortex STM32F103 powerful enough either to run standard or run dedicated standalone firmware. The motor front end is based on ON Semiconductor new and highly specialized driver LC898201.

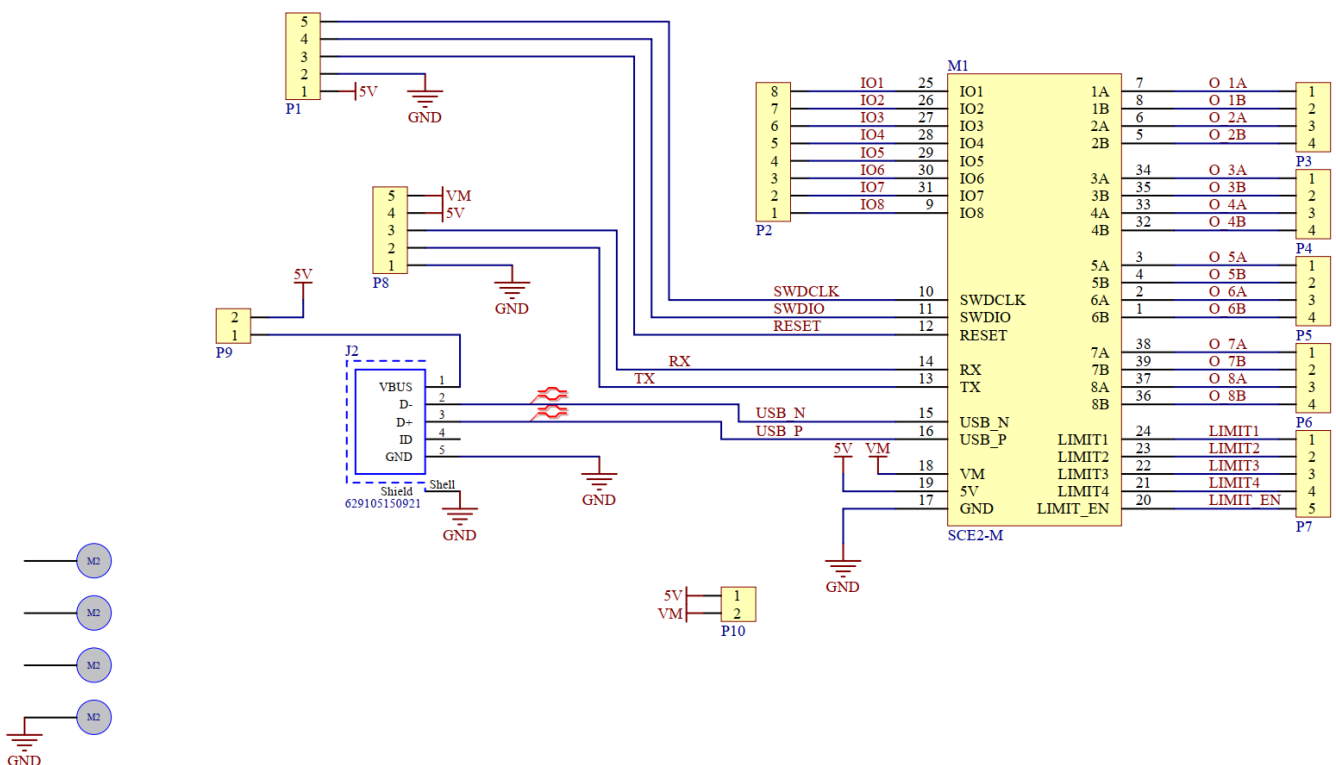
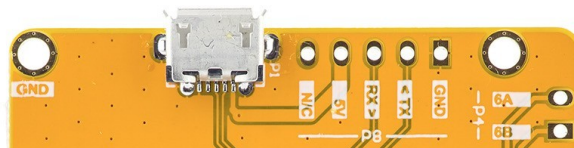
Besides SCF4-M module, some basic boards are offered

SCF4-BREAKOUT breakout demo board

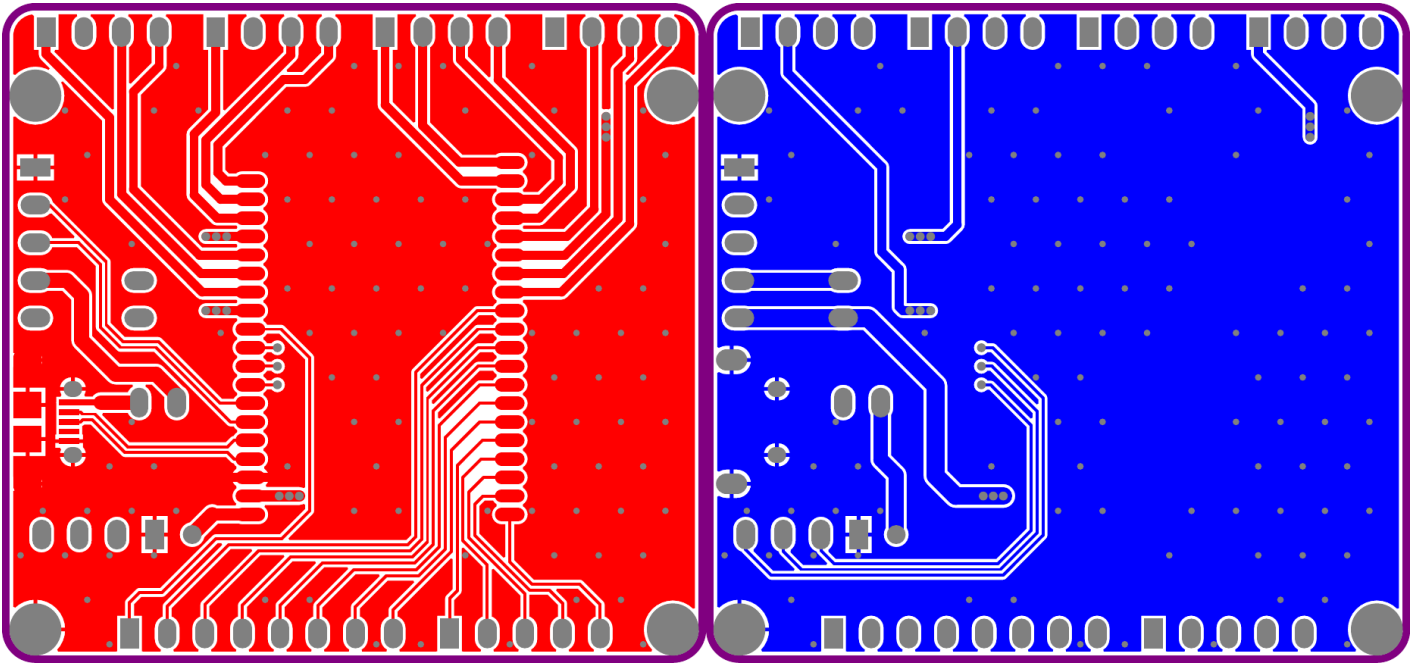
SCF4 BREAKOUT board allows quick evaluation, testing and prototyping.

General view

Schematics



PCB Layers

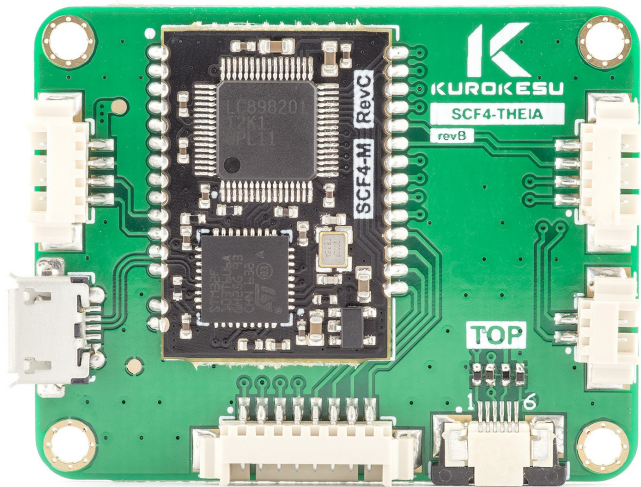


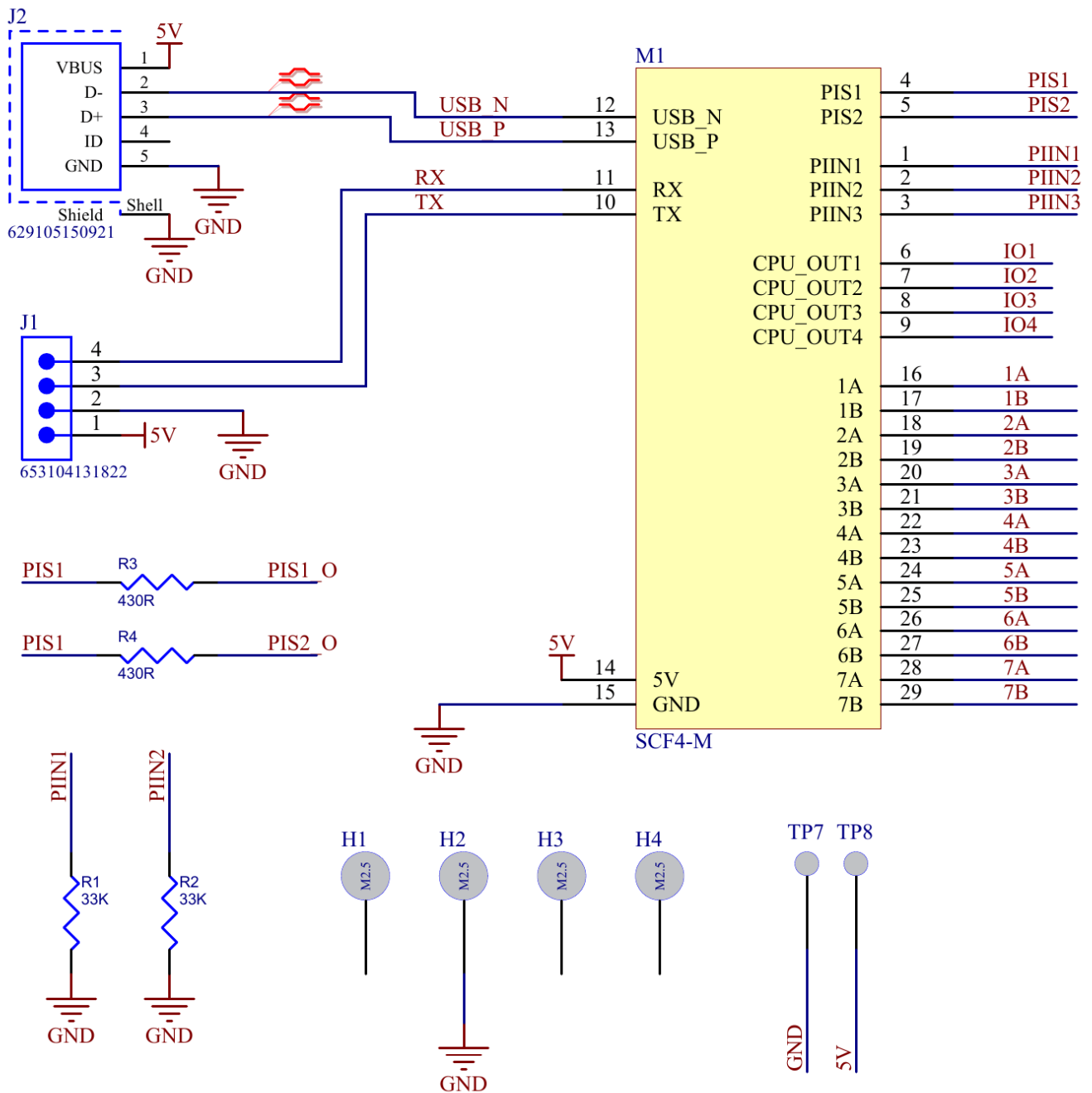
SCF4-THEIA lens controller board

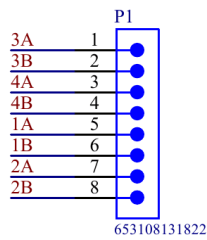
SCF4-THEIA board is designed for THEIA motorized zoom lenses: TL410P R6 and TL1250P R6

General view

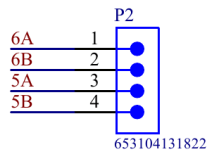
Schematics



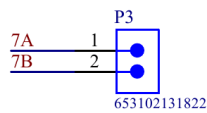




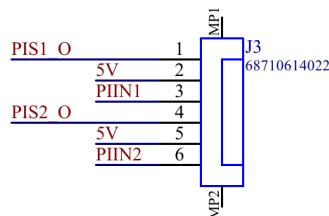
Pin	Color	Function	Motor
1	Brown	A+	Focus
2	Red	A-	Focus
3	Gray	B+	Focus
4	Yellow	B-	Focus
5	Brown	A+	Zoom
6	Red	A-	Zoom
7	Gray	B+	Zoom
8	Yellow	B-	Zoom



Pin	Color	Function
1	Brown	B+
2	Red	B-
3	Yellow	A+
4	Orange	A-



Mode	Pin 1	Pin 2
Day (IR filter)	L	H
Night (clear filter)	H	L
Wire color	Red	Black

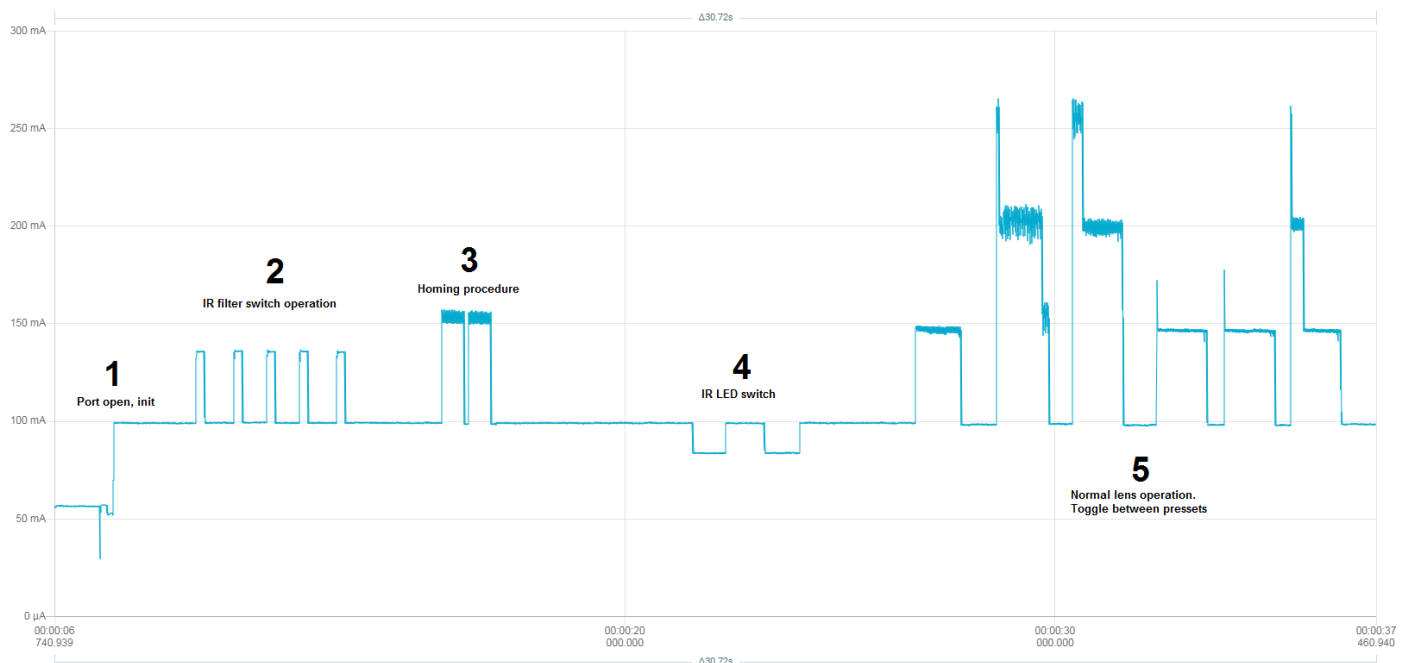


Pin*	Function	Motor
1	Cathode	Zoom
2	Anode/Collector	Zoom
3	Emitter	Zoom
4	Cathode	Focus
5	Anode/Collector	Focus
6	Emitter	Focus

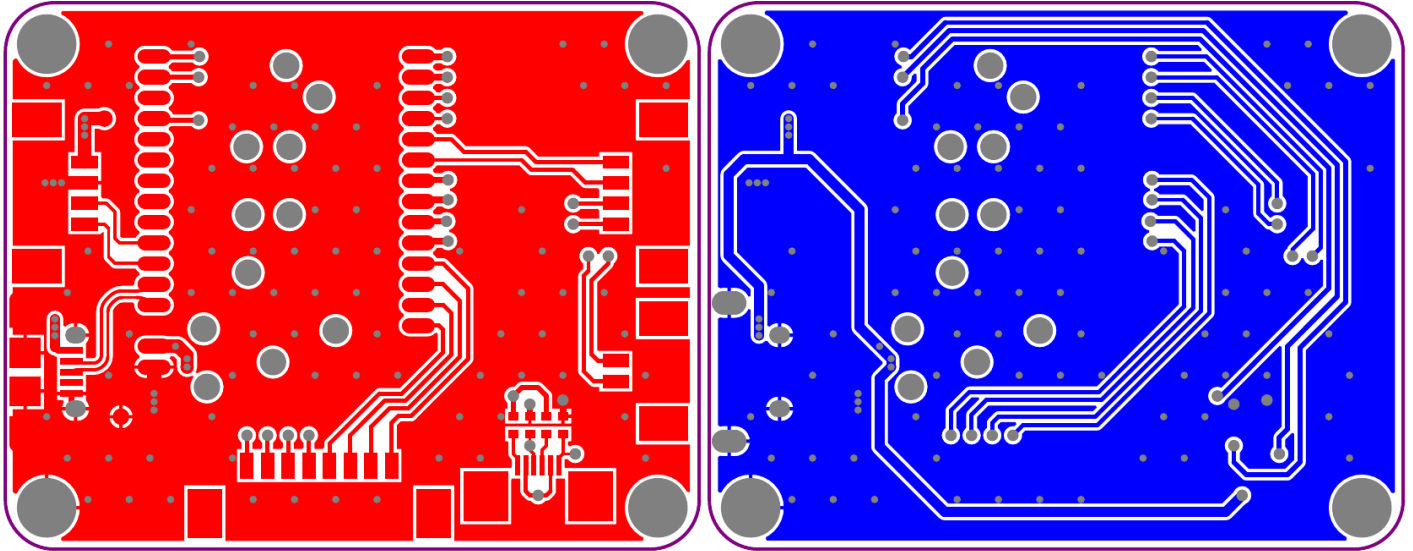


*cable side pin designation matches Molex 52746-0697 connector

Typical power profile



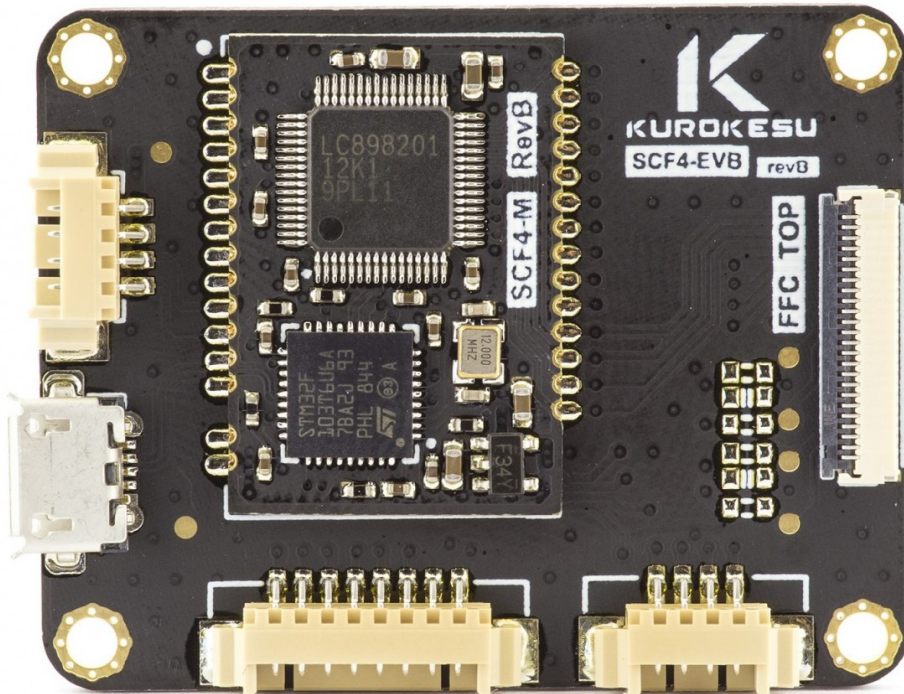
PCB layers



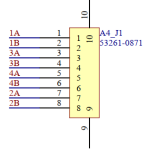
SCF4-EVB D14 motorized zoom lens controller board

Stepper motor controller evaluation board **SCF4-EVB** is designed to demonstrate **SCF4-M** module capabilities. It can drive two different types of Focus/Zoom/P-Iris lenses. Can be used as a complete product, easily redesigned to drive other lens or fit specific needs.

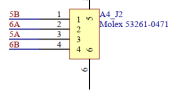
General view



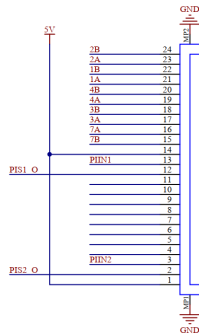
Schematics



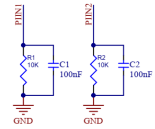
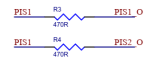
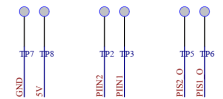
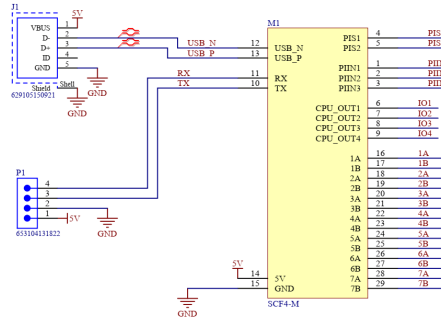
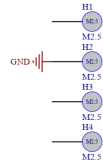
Pin	Color	Function
1	White	Zoom A
2	Green	Zoom A
3	Red	Focus A
4	Orange	Focus A
5	Brown	Focus B
6	Yellow	Focus B
7	Blue	Zoom B
8	Black	Zoom B



Pin	Color	Function
1	White	A
2	Black	B
3	Red	A
4	Green	B



NO.	Function
1	ZOOM MOTOR XB
2	ZOOM MOTOR B
3	ZOOM MOTOR XA
4	ZOOM MOTOR A
5	FOCUS MOTOR XB
6	FOCUS MOTOR B
7	FOCUS MOTOR XA
8	FOCUS MOTOR A
9	IR Drive +
10	IR Drive -
11	FOCUS Pi(Anode, Collector)
12	FOCUS Pi(Emitter)
13	FOCUS Pi(Cathode)
14	
15	
16	
17	
18	
19	
20	
21	
22	ZOOM Pi(Emitter)
23	ZOOM Pi(Cathode)
24	ZOOM Pi(Anode, Collector)



Features

- Small footprint 42 x 33 x 4.6 mm [1.65 x 1.3 x 0.18 in]
- Supports two kinds of lenses
- 3x stepper motor controller with up to 1/1024 micro stepping support for each motor (1/64 set by default)
- 1x H-bridge for coil control (day/night filter switch)
- 2x limit switch processing for precise lens homing/referencing (3x supported by module)
- Direct Full-speed micro USB 2.0
- Optional USART connectivity / GPIO

Revision #19

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