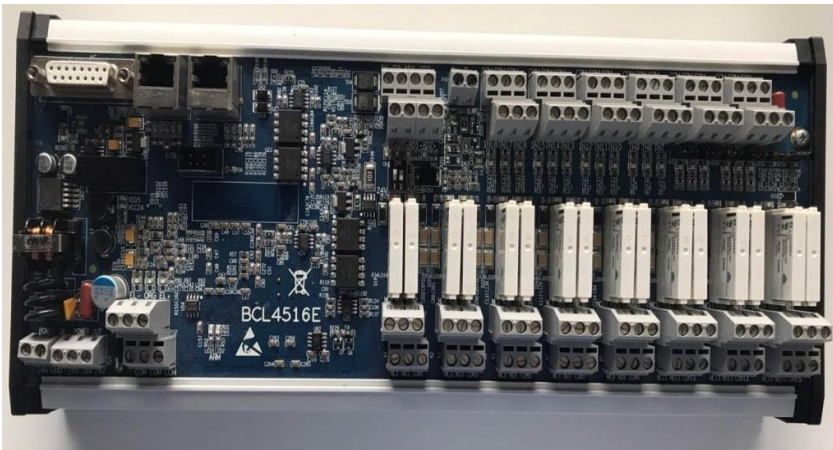




User Manual

BCL4516E Installation Guide





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1. Product Description

1.1 Introduction

BCL4516E is an extension board based on EtherCAT bus technology to provide more I/O resource.

1.2 Hardware resource

Accessories table

Item	Qty.	Description	Notice
Power supply	/	24V DC/1A	
Power output	3	24V DC / 200mA	Provide power supply for sensors
DA	2	0-10V , 12bit , accuracy $\pm 10\text{mV}$	
AD	2	0-10V , 12bit , accuracy $\pm 10\text{mV}$	
PWM	1	5V/ 24V for options, accuracy 5 kHz 0.3%	Highest 50kHz, 1%
Common output	16	Relay output, 24V DC	Provide normal-open, normal-close contact
Pulse direction	1	PUL+/-,DIR+/- differential output, highest output frequency	
Encoder	1	A+/A-,B+/B-,Z+/Z-, highest input frequency 223kHz	
Dedicated input	2	Positive, negative limit input	24V voltage signal Low-level active (<15.8V)
	1	Origin input	

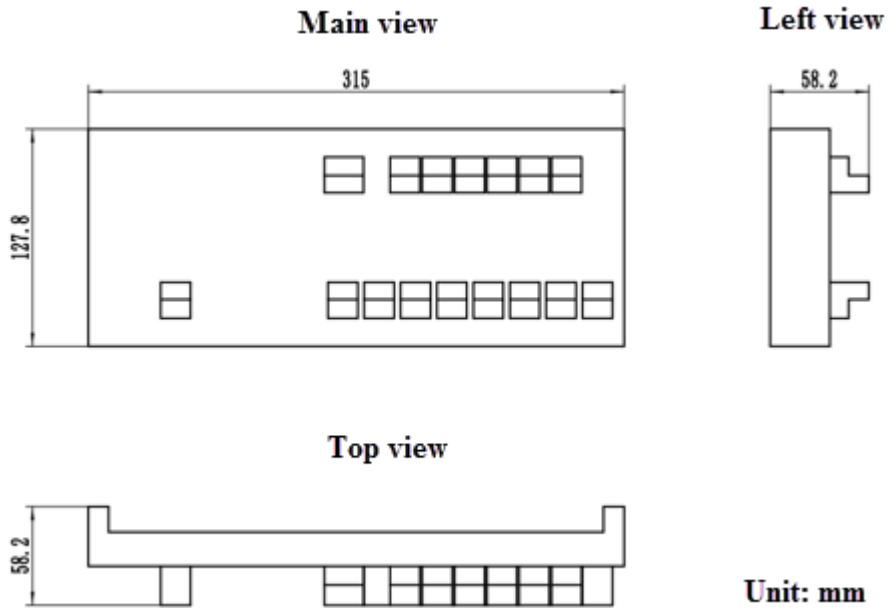


Common input	18	24V level, low-level active(< 15.8v); IN1-IN6 can jump-wire to high-level active (>8.3V)	
Work environment		Temperature: 0~60 °C Humidity: 10%~90% (no condensation)	
Dimension		315×127.8×5 8. 2mm	
Weight		702g	

2. Wiring Instruction

2.1 Installation dimension

BCL4516E dimension shown below:

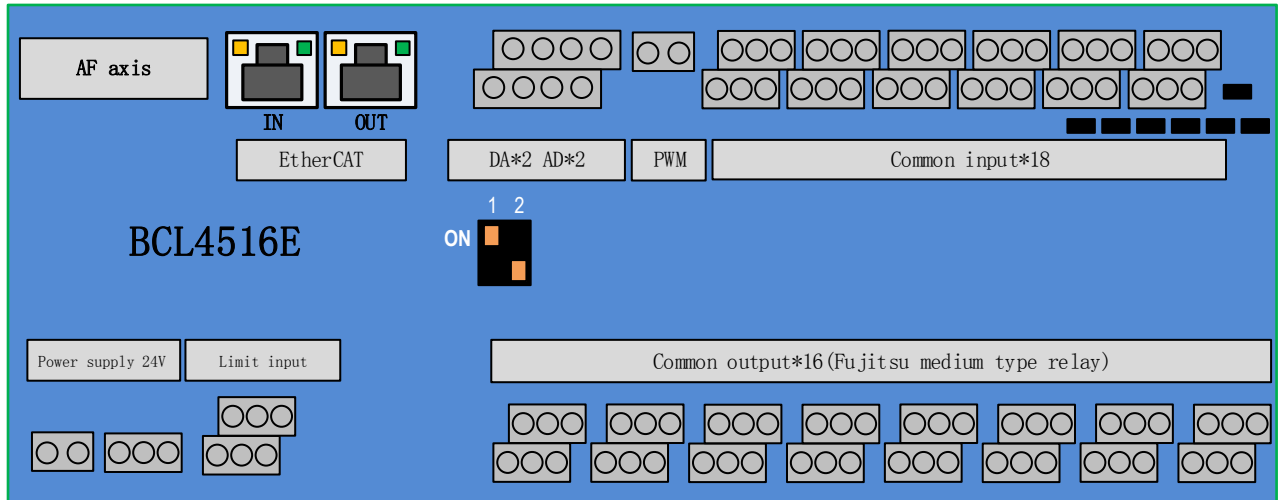




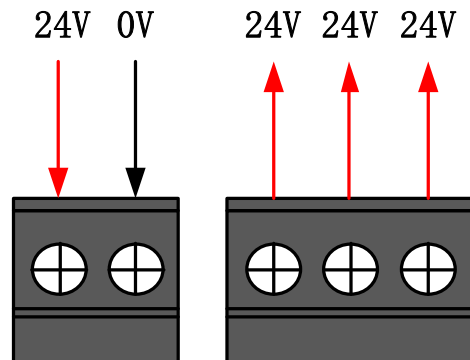
2.2 Interface specification

2.2.1 Interface layout

BCL4516E wiring terminal I/O specification shown below:



2.2.2 Power supply



2-pin terminal is power supply input, connect with 24V DC; 3-pin terminal is power supply output, used to provide power supply to sensor.



2.2.3 Dedicated input

Dedicated output: positive and negative limit input, origin input, common input.

EL-: negative limit input, dedicated input, low-level active;

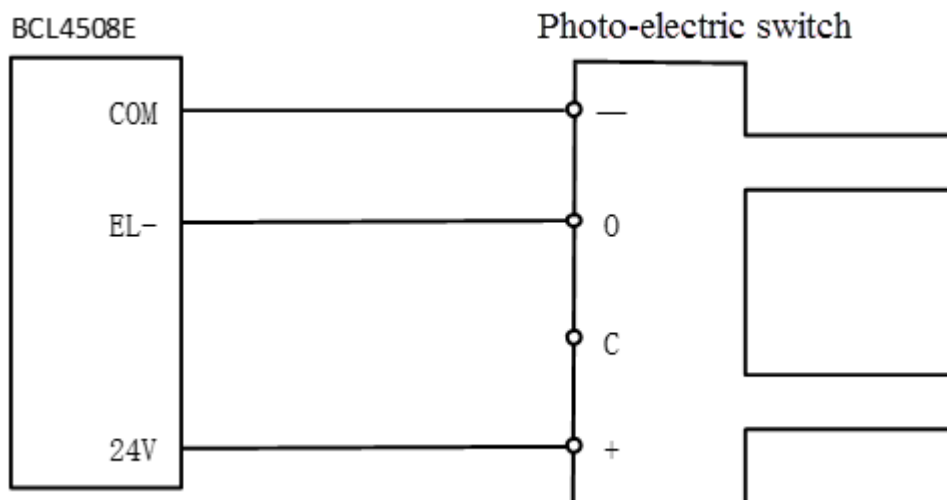
ORG: origin input, dedicated input, low-level active;

EL+: positive limit input, dedicated input, low-level active;

COM: ground, the common end of above three signals.

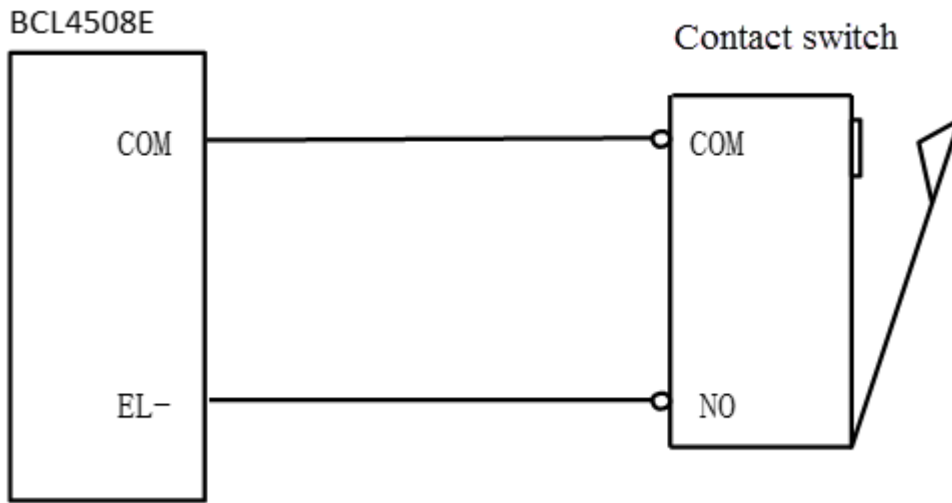
User can set the origin and limit switch as normal-open or normal-close in 'machine config' of FSCUT control software. Select normal-open, input signal pin active when conduct with 0V; Select normal-close, input signal pin active when disconnect with 0V;

The typical wiring diagram of photo-electric switch shown below, must be NPN type 24V switch.

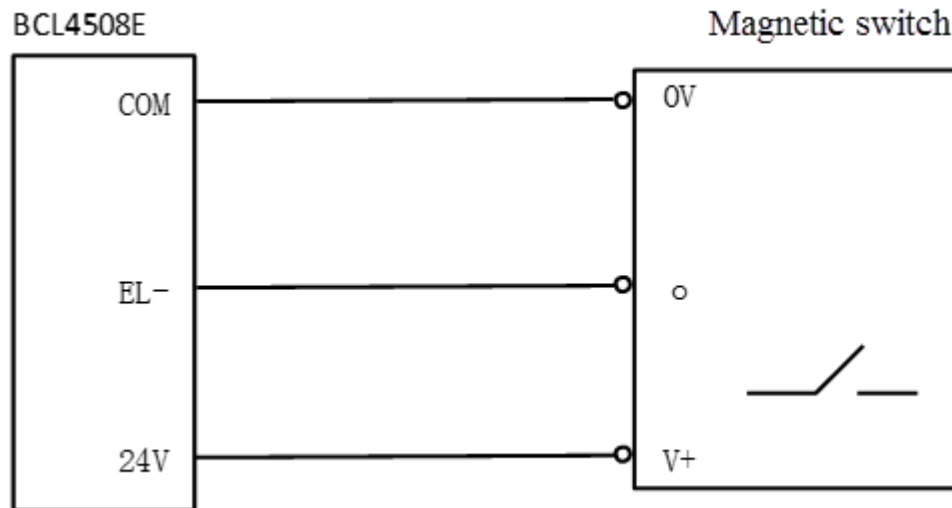




The typical wiring of contact switch shown below.



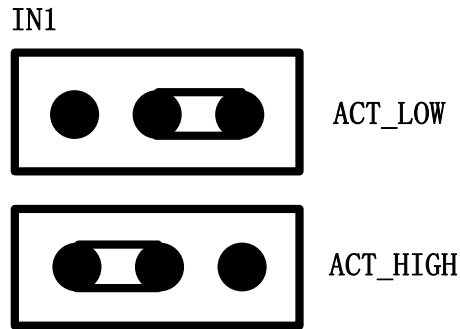
The typical wiring of magnetic switch shown below, must be NPN type 24V switch.



2.2.4 Common input

There are 18 common input(IN1-IN18). User can assign input as customized software button or alarm input in 'machine config' of FSCUT cutting control software.

IN1-IN6 can jump-wire to high-level active:



Jump-wire to ACT_LOW status, signal pin is low-level active(0V active); Jump wire to ACT_HIGH, signal pin is high-level active(24V active); Default is ACT_LOW status.

2.2.5 Common output

OUT1-OUT16 are relay output, support both normal-open and normal-close contact. User can assign 16 output as needed control output in 'machine config'.

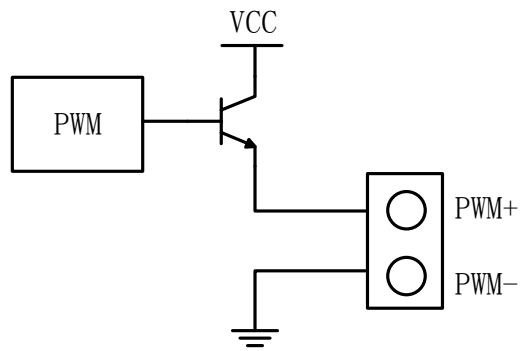
2.2.6 Analog output

There are two analog output of 0-10V voltage. User can assign DA1 or DA2 in 'machine config' for laser peak power or gas proportional valve control.

Output range	0V~+10V
Maximum output load	50mA
Maximum error	+/-10mV
Resolution	2.7mV
Conversion rate	400us

2.2.7 PWM output

BCL4516E has one PWM output for modulating laser average power. There are 24V/5V PWM signal voltage options. The duty cycle is adjustable from 0%~100%, the highest carrier frequency 50 KHz. The signal output shown below:



Suggest connect safety relay with PWM+, PWM- signal pin in case of laser leakage, and config any of two output as PWM enable.

When config laser type as fiber laser in 'machine config', PWM output will activate in laser modulating. For other type laser, there is no signal output from PWM port.



2.3 Wiring Diagram

