EtherCAT IO Slave Module

ES-32O-S2

User Guide

Version: V.1.0

Date: 2020.12

Contents

Chapter 1: Product Introduction

1.1 Digital Output

- 32 digital output channels
- Output voltage: 0 and 3.3V DC
- Output source current: -18 mA
- Output sink current: 17 mA

1.2 Power Requirements

- DC input: DC 24V

1.3 EtherCAT

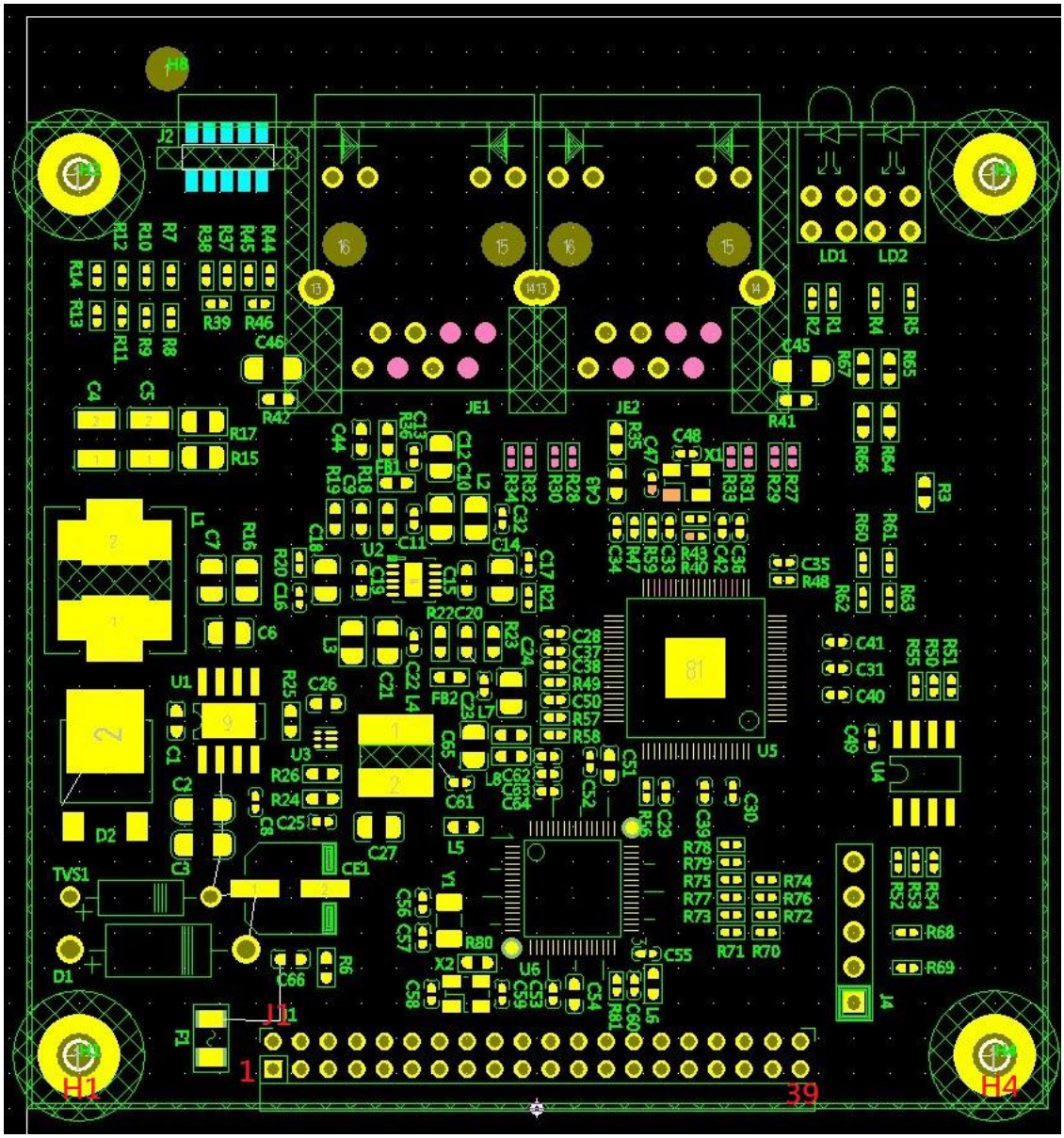
- Data transfer medium: Ethernet cable(CAT5e), shield type: S/STP or S/UTP
- Ethernet interface: 2x RJ-45
- Data transfer rate: 100Mbps, full duplex
- Protocol: EtherCAT

1.4 Environment

- Operating temperature: 0℃ to 65℃

Chapter 2: Connector Pinout Assignments and Wiring Diagrams

2.1 Mounting Data



- PCB dimension(mm): 73.66(W) x 71.2(L) x 19.05(H)
- Mounting holes distance(mm): 66.04(W) x 63.5(L)
- H1 hole to J1 Pin1 horizontal distance: 14.02mm

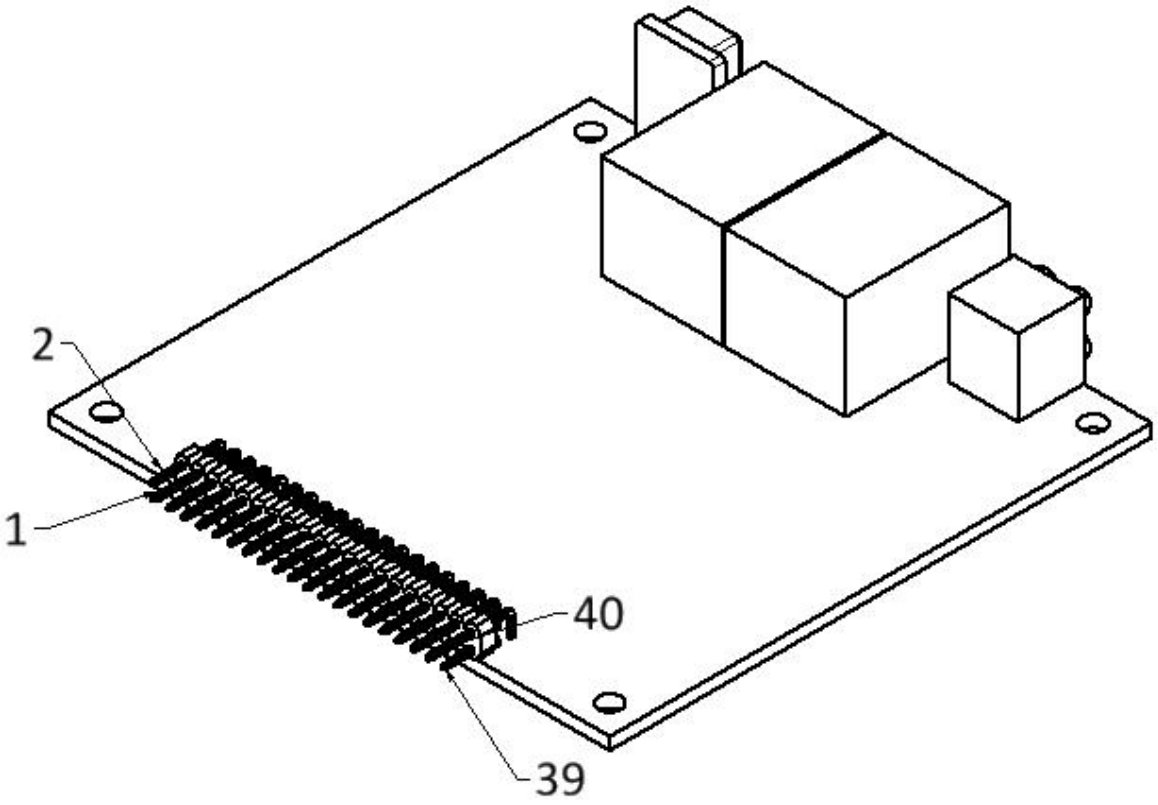


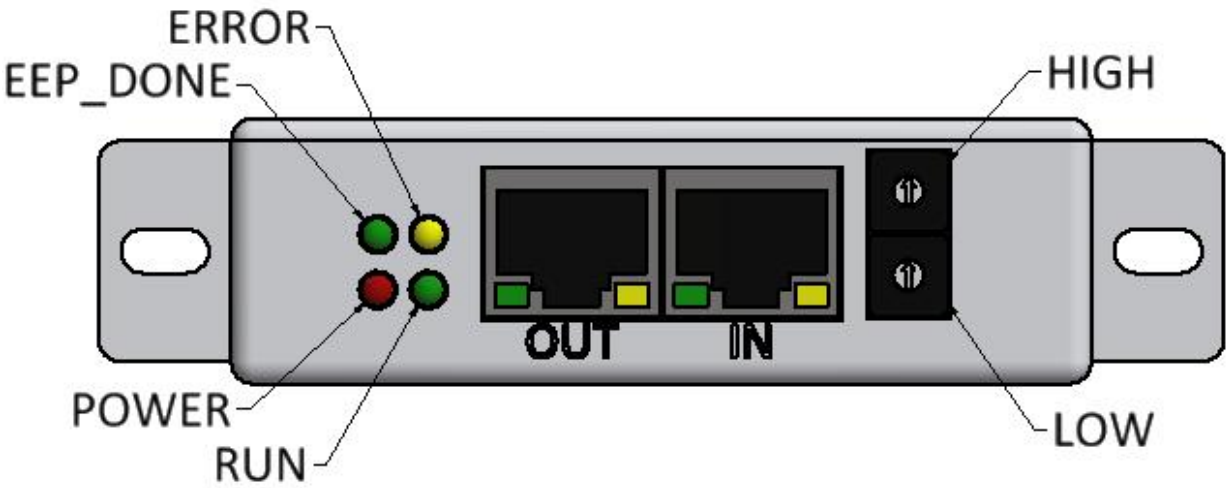
Table.1 Pin Definition

Pin	Name	Type	Pin	Name	Type
1	24VIN	POWER	21	Ground	POWER
2	Ground	POWER	22	Ground	POWER
3	3.3V OUT*	POWER	23	Output 16	OUT
4	Ground	POWER	24	Output 17	OUT
5	Output 0	OUT	25	Output 18	OUT
6	Output 1	OUT	26	Output 19	OUT
7	Output 2	OUT	27	Output 20	OUT
8	Output 3	OUT	28	Output 21	OUT
9	Output 4	OUT	29	Output 22	OUT
10	Output 5	OUT	30	Output 23	OUT

11	Output 6	OUT	31	Output 24	OUT
12	Output 7	OUT	32	Output 25	OUT
13	Output 8	OUT	33	Output 26	OUT
14	Output 9	OUT	34	Output 27	OUT
15	Output 10	OUT	35	Output 28	OUT
16	Output 11	OUT	36	Output 29	OUT
17	Output 12	OUT	37	Output 30	OUT
18	Output 13	OUT	38	Output 31	OUT
19	Output 14	OUT	39	Ground Earth	POWER
20	Output 15	OUT	40	Ground Earth	POWER

*Note: Pin 3 (3.3V output) maximum output current: 1.8A

2.2 LED Indicator & Function



Station alias address

SW1/SW2: station alias address. ESC loads the 8-bit alias address to register 0x12 if reset. SW1 is the higher hex digit; SW2 is the lower one.

POWER (Red)	
ON	Power supply has been connected to 24 VDC
OFF	Power supply is not connected to 24VDC

RUN LED (Green)	
LED Response	FSM State
OFF	1-Init
Flash	4-Safe OP, 1x
Blinking	2-PreOp
Flickering	3-Bootrap
ON	8-Op

EEP_DONE (Green)	
ON	EEPROM done
OFF	Fail

ERROR LED (Yellow)	
LED Response	Error State
OFF	No Error
Flash 1x-12x	Process Data Watchdog timeout, 2x

Blinking	PDI configuration unstopped type
Flickering	I2C EEPROM loading error
ON	PDI Watchdog timeout

RJ45 LED Yellow	
ON	Data transmitting
OFF	No data transmitting

2.3 Note - Before You Begin

- Ensure you have stable, clean working environment.
- Before working on any components, make sure the power is off.
- Ground yourself before touching any components.
- Static electricity may damage the elections components.

Chapter 3: Objects

3.1 Sync Manager Objects

Sync Manager 2 PDO Assignment

Index	Sub Index	Type	Access	Value	Description
0x1c12	0	USINT	RO	4	Number of RxPDO mappings
0x1c12	1	UINT	RO	0x1600	First RxPDO mappings
0x1c12	2	UINT	RO	0x1601	Second RxPDO mappings
0x1c12	3	UINT	RO	0x1602	Third RxPDO mappings
0x1c12	4	UINT	RO	0x1603	Fourth RxPDO mappings

Sync Manager 3 PDO Assignment

Index	Sub Index	Type	Access	Value	Description
0x1c13	0	USINT	RO	0	Number of TxPDO mappings

3.2 PDO Mapping Objects

RxPDO 0

Index	Sub Index	Type	Access	Value	Description
0x1600	0	USINT	RO	1	Number of PDO entries
0x1600	1	UDINT	RO	0x70000108	First entry of RxPDO 0

RxPDO 1

Index	Sub Index	Type	Access	Value	Description
0x1601	0	USINT	RO	1	Number of PDO entries
0x1601	1	UDINT	RO	0x70000208	First entry of RxPDO 1

RxPDO 2

Index	Sub Index	Type	Access	Value	Description
0x1602	0	USINT	RO	1	Number of PDO entries
0x1602	1	UDINT	RO	0x70000308	First entry of RxPDO 2

RxPDO 3

Index	Sub Index	Type	Access	Value	Description
0x1603	0	USINT	RO	1	Number of PDO entries
0x1603	1	UDINT	RO	0x70000408	First entry of RxPDO 3

3.3 Digital Output Objects

Index	Sub Index	Type	Access	Value	Description
0x7000	0	USINT	RO	4	Number of digital output object
0x7000	1	USINT	RW	0 to 0xff (default:0)	Digital output byte 0
0x7000	2	USINT	RW	0 to 0xff (default:0)	Digital output byte 1
0x7000	3	USINT	RW	0 to 0xff (default:0)	Digital output byte 2
0x7000	4	USINT	RW	0 to 0xff (default:0)	Digital output byte 3

0x7000:1 Digital output byte 0 is mapping to OUT 0 to OUT 7

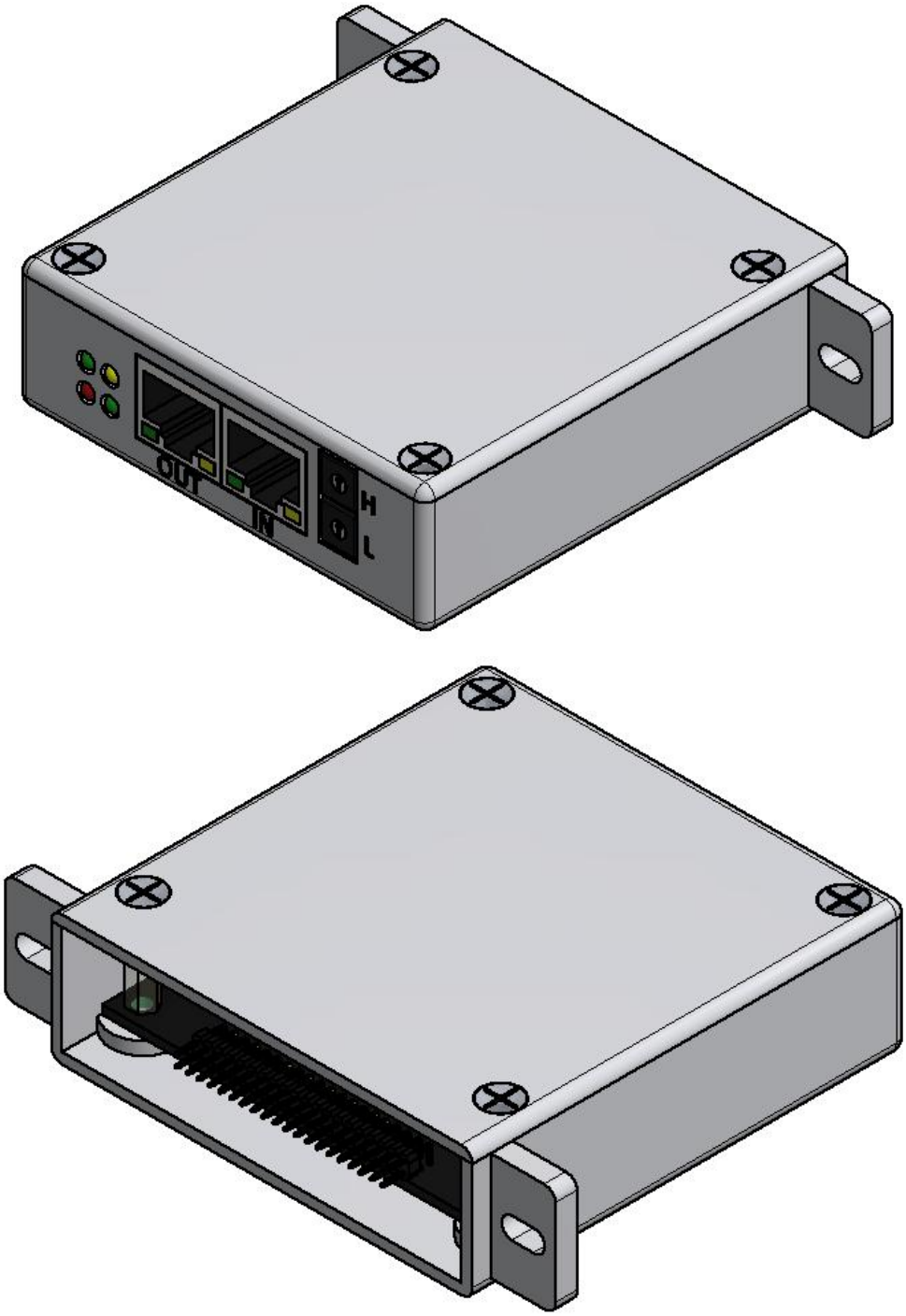
0x7000:2 Digital output byte 1 is mapping to OUT 8 to OUT 15

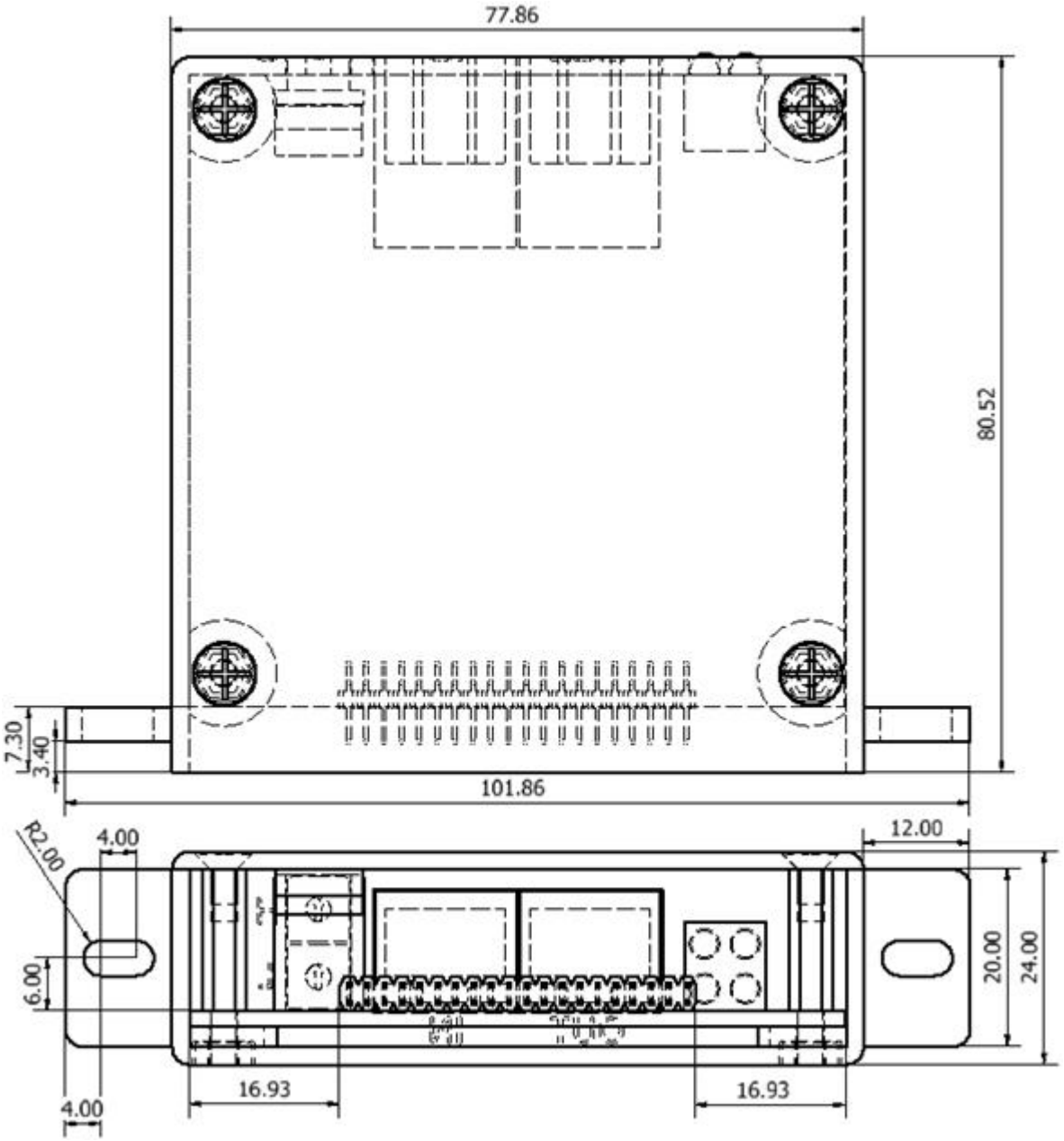
0x7000:3 Digital output byte 2 is mapping to OUT 16 to OUT 23

0x7000:4 Digital output byte 3 is mapping to OUT 24 to OUT 31

Chapter 4: PCB Enclosure Shells

4.1 Plastic Shell Diagrams





Unit: mm

Tolerance: 0 ~ +0.2 mm