WELCON

Servo Drive

Hardware Manual

WEM-D048/03-FS007D-EC

welcon SYSTEMS

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www.welconsystems.com

Precautions

- Please read this manual carefully before installing and commissioning.
- WELCON SYSTEMS assumes no responsibility whatsoever for any loss or damage arising out of use for any purpose.

Copyright Notice

Product Code for welcon Drive

WE R-D 024 /05-FSxxxx-E

Product Type

WE WELCON Standard
****** User Code (only for customized order)

Drive Shape

R Rectangle Type Board
C Circle Type Board
M Miniature Board

Power

D DC
A AC

Voltage

024 24V(DC)
048 48V(DC)
220 220V(AC)

Current

01 1Arms (Constant, Peak 3Arms)
03 3Arms (Constant, Peak 6Arms)
05 5Arms (Constant, Peak 10Arms)
10 10Arms (Constant, Peak 20Arms)

Feedback Sensor (bit operation)

Bit0	Incremental Encoder	**Bit4**	Sin/Cos Encoder	**Bit8**	Potentiometer
Bit1	Dual Incremental Encoder	**Bit5**	BISS/SSI Interface Encoder	**Bit9 ~ Bit15**	Reserved
Bit2	Separated Digital Hall Sensor	**Bit6**	Analog Hall Sensor		
Bit3	Shared Digital Hall Sensor	**Bit7**	Tamagawa Serial Encoder		

Ex) Incremental Encoder + Shared Digital Hall Sensor + Analog Hall Sensor = 0000 0000 0100 1001 = 0049

Communication

E EtherCAT
C CAN

Document no. WEM-D048/03-FS007D-EC

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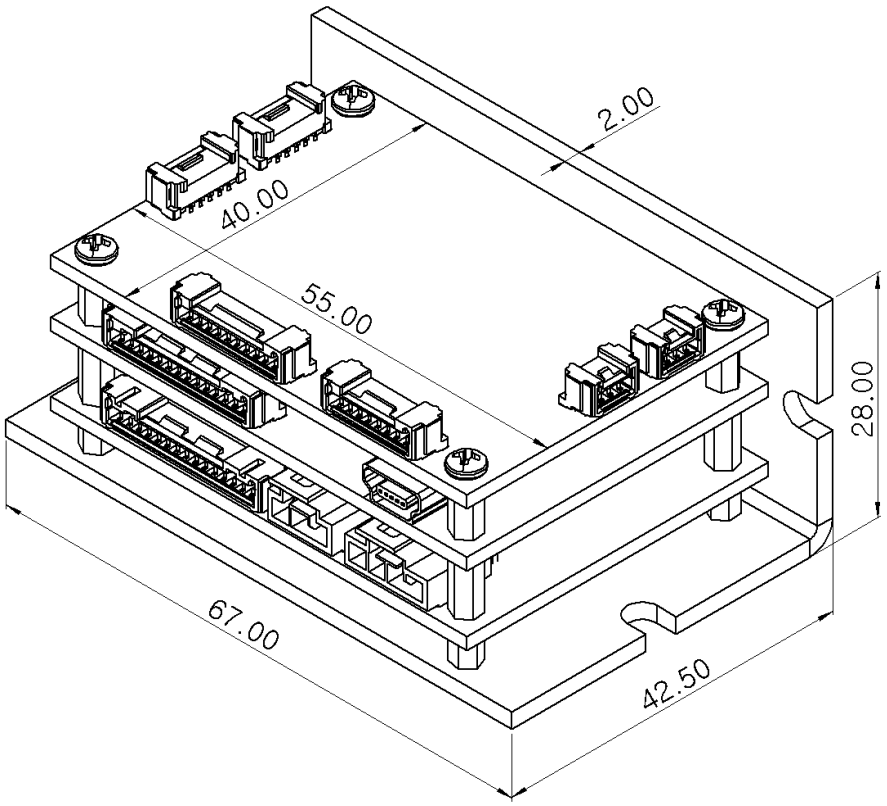
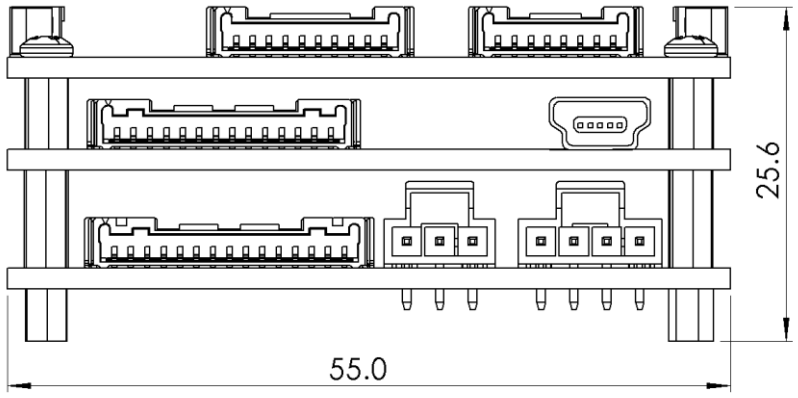
Question : www.welconsystems.com

1. Technical Information

1.1. Mechanical Data





Item	Unit	Description
Product Size (L x W x H)	mm	67 x 42.5 x 28
Drive Size (L x W x H)	mm	55 x 40 x 25.6
Fastener	M2	

*For details, please refer to the 3D Modelling on the homepage.

1.2. Electrical Data

WEM-D048/03-FS007D-EC			
Basic	Motors	DC/BLDC/PMSM/VCM	
	Communication	USB + CANopen + EtherCAT(CoE, FoE)	
	GUI	WELSS, Setting, Drive, Motor, Feedback, I/O, Motion	
	Position Sensor	Incremental Encoder Shared/Separated Hall Sensor Analog Hall Sensor Sin/Cos Encoder SSI/Biss-C Serial Encoder	
Inputs & Outputs	Analog Input	Quantity	1
		Voltage Range	Analog ±10 VDC differential
		Input Resolution	14 bit
	Digital Input	Quantity	6 (with STO)
		Signal	Configurable. Opto-isolated
		Voltage	24V
	Digital Output	Quantity	2
		Signal	Configurable. Opto-isolated. Open collector
		Voltage	24V
		Max. Output Current	50mA
Motor Feedback	General	Supply Voltage	5VDC
	Incremental Encoder	Signal	A-quad-B with or without index, shared digital hall sensor, RS422, Differential
		A-quad-B Max Input Frequency	10MHz (before quadrature)
	Digital Hall Sensor	Signal	Differential-ended
		Type	Separated and shared hall sensor
	Analog Hall Sensor	Signal	0~5V, Single-ended
		Sampling Frequency	24KHz
	Sin/Cos Encoder	Signal	-0.7~+0.7V at 2.5V
		Sampling Frequency	24KHz
	Serial Encoder	Type	SSI, Biss-C
		Bite rate	0.5Mbps, 1Mbps, 2Mbps, 2.5Mbps, 5Mbps

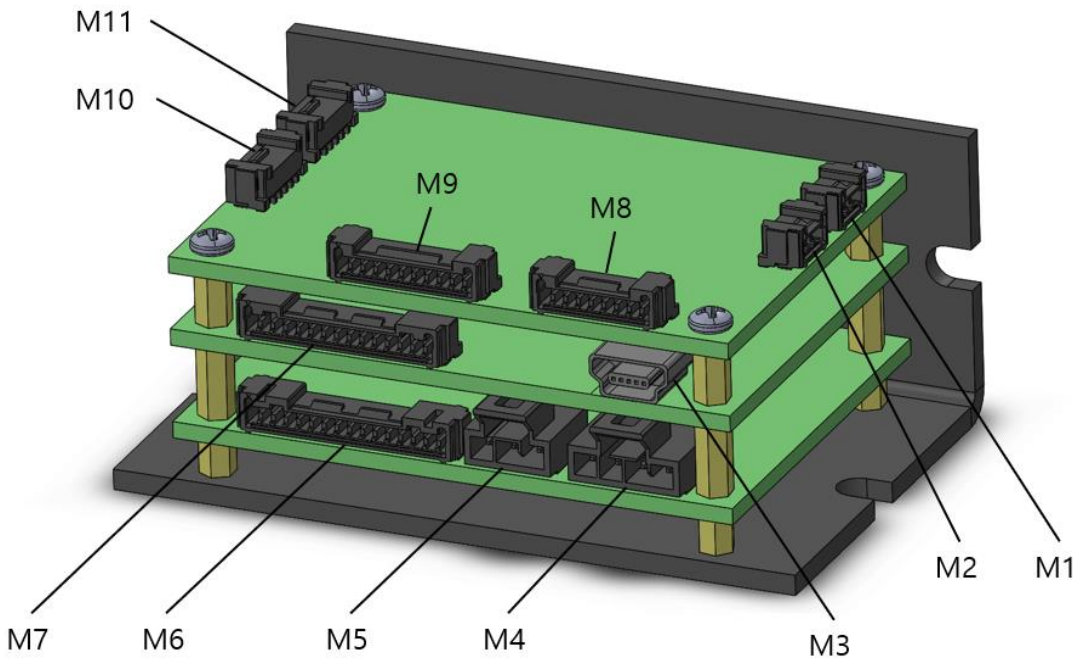
*For details, please refer to the specification on the homepage.

2. Wiring

2.1. Tools

Tool	Manufacturer	Part Number
Hand crimp Tool	MOLEX	638275600
Hand crimp Tool	MOLEX	2002180300

2.2. Connections



M1, M2 → CAN

M3 → USB

M4 → Motor Power

M5 → Main Power

M6 → Digital Encoder

M7 → Analog Encoder

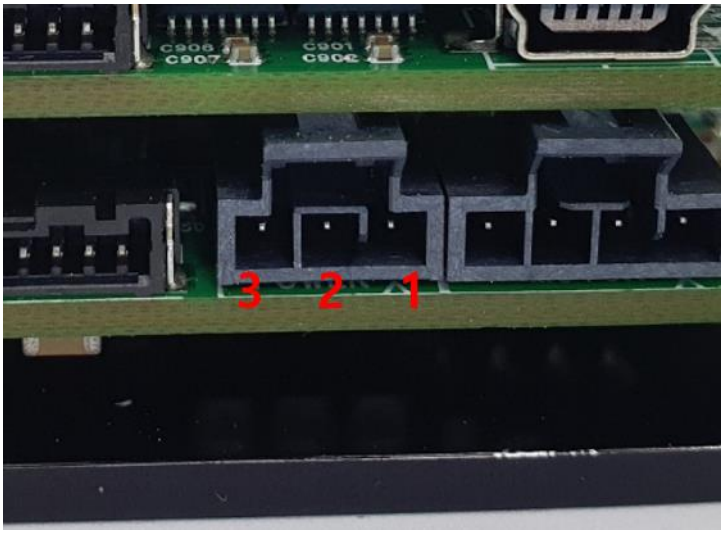
M8 → Serial Encoder

M9 → Digital I/O

M10 →EtherCAT Output

M11 →EtherCAT Input

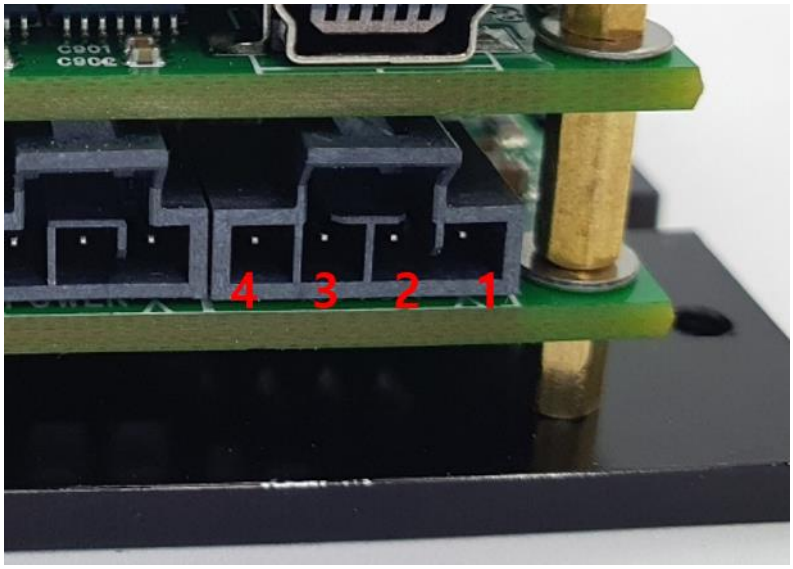
2.3. Main Power



Molex_105307-1203 **Molex 1053002100**

MOLEX 105313-1103	J1
Pin	**Signal**
1	VCC
2	GND
3	FG

2.4. UVW

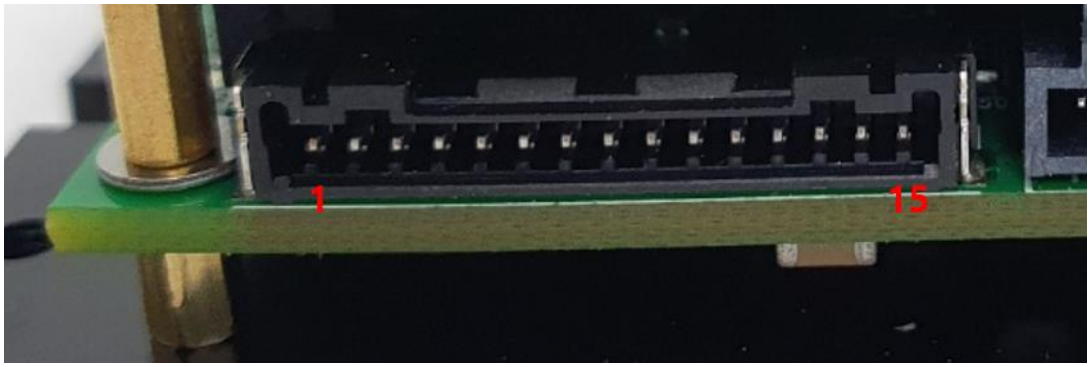


Molex_105307-1204

Molex 1053002100

Molex 105313-1104	J101
Pin	**Signal**
1	U
2	V
3	W
4	FG

2.5. Digital Encoder

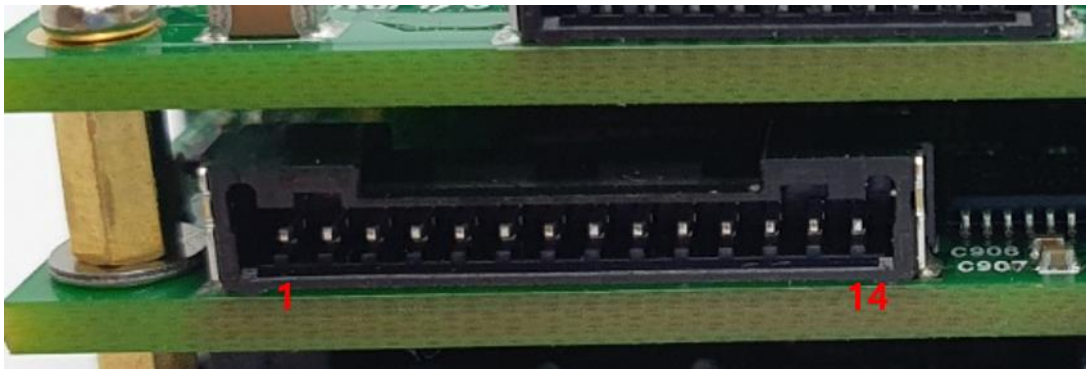


Molex_505565_1501

Molex 5054311000

Molex 505567-1571	J201
Pin	**Signal**
1	5V
2	GND
3	Encoder A+
4	Encoder A-
5	Encoder B+
6	Encoder B-
7	Encoder I+
8	Encoder I-
9	HALL U+
10	HALL U-
11	HALL V+
12	HALL V-
13	HALL W+
14	HALL W-
15	FG

2.6. Analog Encoder



Molex_505565_1401

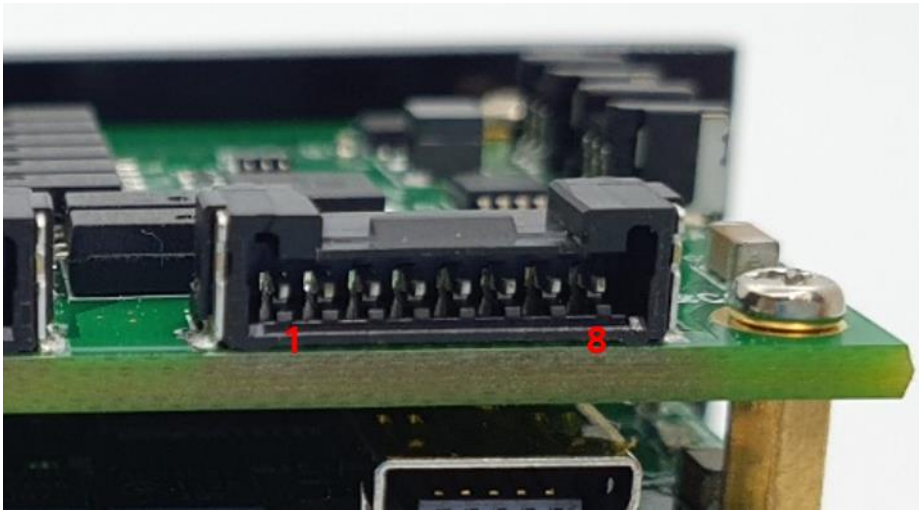
Molex 5054311000

Molex 505567-1471	J901
Pin	**Signal**
1	SIN+
2	SIN-
3	COS+
4	COS-
5	REF+
6	REF-
7	5V
8	GND
9	FG
10	AHALL_U
11	AHALL_V
12	AHALL_W
13	AIN+
14	AIN-

2.7. USB

USB-Mini Type B (Keystone Model:937)	J101
Pin	**Signal**
1	VBUS
2	DM
3	DP
4	ID
5	GND
6	SHIELD

2.8. Serial Encoder

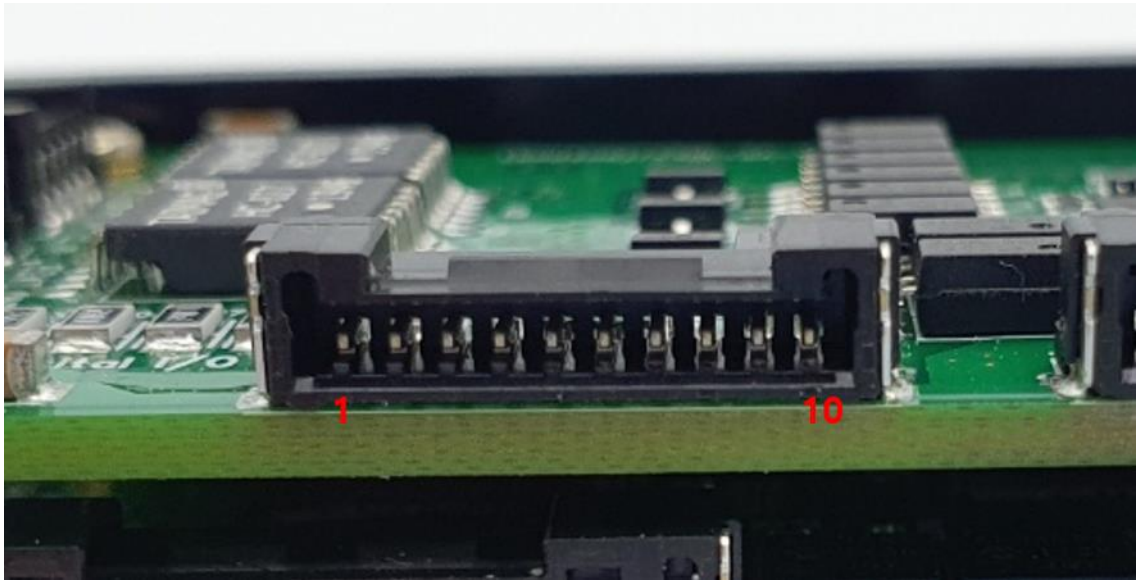


Molex_505565_0801

Molex 5054311000

Molex 505567-0871	J801
Pin	**Signal**
1	BISS_DATA+
2	BISS_DATA-
3	BISS_CLK+
4	BISS_CLK-
5	5V
6	GND
7	RS485_RTX+
8	RS485_RTX-

2.9. Digital I/O

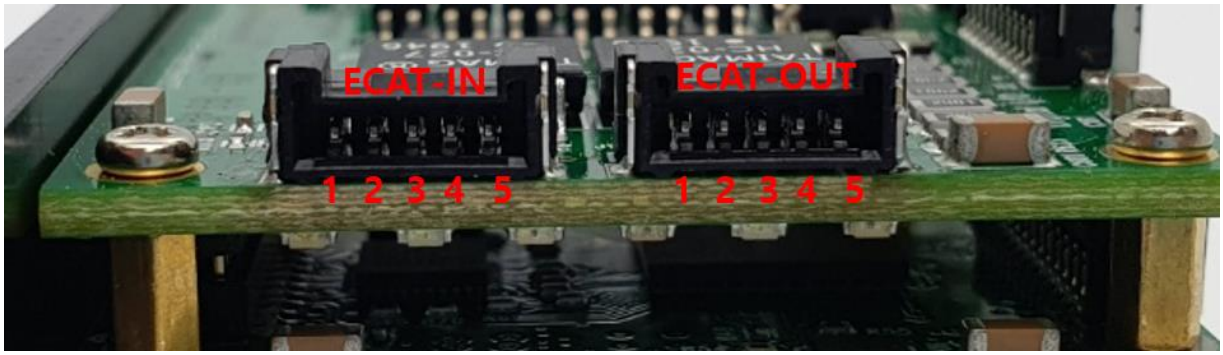


Molex_505565_1001

Molex 5054311000

Molex 505567-1071	J13
Pin	**Signal**
1	STO
2	NEGATIVE_LIMIT
3	POSITIVE_LIMIT
4	HOME
5	GPI 0
6	GPI 1
7	GPI_COMMON
8	GPO 0
9	GPO 1
10	GPO_COMMON

2.10. EtherCAT

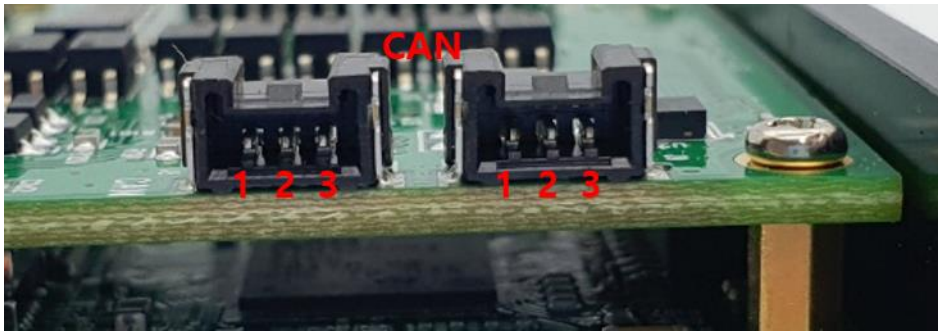


Molex_505565_0501

Molex 5054311000

MOLEX 505567-0571	J10, J11
Pin	**Signal**
1	EtherCAT Tx+
2	EtherCAT Tx-
3	EtherCAT Rx+
4	EtherCAT Rx-
5	NCs

2.11. CAN



Molex_505565_0301

Molex 5054311000

MOLEX 505567-0371	J8, J9
Pin	**Signal**
1	HIGH
2	LOW
3	GND

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