

micnano

Micro to Nano

Brochure

2025



LINEAR MOTION SOLUTIONS



納微傳動光電



Micro Linear Stage

Linear Actuator

Controller

Applications

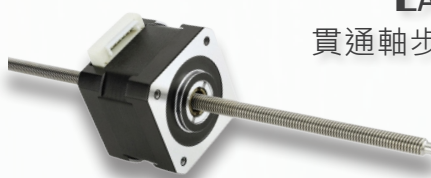
MLA Series

伺服線性致動器



LAST Series

貫通軸步進線性致動器



MBS Series

馬達直結滾珠螺桿



- XYZ 多軸聯動平台
- AOI 自動化與微量進給設備
- 半導體製程 生物醫學儀
- 光學檢測 雷射加工
- 精密複雜的組裝任務



MNLS Series

壓電滑台

- 實驗室自動化
- 檢測設備
- 高穩定性、平滑運動的應用

通訊方式

- Pulse
- I/O



伺服馬達與精密控制模組 提供一系列完整解決方案

- 德國 FAULHABER 微型伺服馬達
- 德國 DUNKERMOTOREN 伺服馬達
- 瑞典 PIEZOMOTOR
- 日製精密滾珠螺桿
- 台製滾珠螺桿
- 美國微型牙桿

高精度、高效率的傳動方式、緊湊體積及精密的位置與運動控制需求
進行客製整合設計 滿足各式精度與成本上的考量

廣泛應用於空間範圍極小之自動化、半導體、生物醫學、光學等領域

PRODUCT INDEX

MNLS Series | Piezo Stage |

MNLS0620PM - R080	6 - 7
MNLS0670PM - R080	8 - 9
MNLS0625PMM - R050	10 - 11
MNLS0640PMM - R050	12 - 13
MNLS0670PMM - R050	14 - 15
MNLS2020PMM - R050	16 - 17
MNLS2040PMM - R050	18 - 19
MNLS2070PMM - R050	20 - 21

MLA Series | Servo Motor Linear Actuators |

MLA2214012BXTH - R4096L - NBG1501xxxY	24 - 25
MLA2214012BXTH - R4096L - TKR1501xxxY	26 - 27
MLA2214012BXTH - R4096L - NBG1502xxxY	28 - 29
MLA2214012BXTH - R4096L - TKR1502xxxY	30 - 31
MLA2214012BXTH - R4096L - NBG2001xxxY	32 - 33
MLA2214012BXTH - R4096L - TKR2001xxxY	34 - 35
MLA2214012BXTH - R4096L - NBG2005xxxY	36 - 37
MLA2214012BXTH - R4096L - TKR2006xxxY	38 - 39
MLA3216012BXTH - R4096L - NBG2001xxxY	40 - 41
MLA3216012BXTH - R4096L - TKR2001xxxY	42 - 43
MLA3216012BXTH - R4096L - NBG2005xxxY	44 - 45
MLA3216012BXTH - R4096L - TKR2006xxxY	46 - 47
MLA3216012BXTH - R4096L - NBG2602xxxY	48 - 49
MLA3216012BXTH - R4096L - TKR2602xxxY	50 - 51
MLA3216012BXTH - R4096L - NBG2605xxxY	52 - 53
MLA3216012BXTH - R4096L - TKR2606xxxY	54 - 55
MLA4221024BXTH - R4096L - NBG2602xxxY	56 - 57
MLA4221024BXTH - R4096L - TKR2602xxxY	58 - 59
MLA4221024BXTH - R4096L - NBG2605xxxY	60 - 61
MLA4221024BXTH - R4096L - TKR2606xxxY	62 - 63

MBS Series | Servo Motor Direct Engaged Ball Screws |

MBS2214012BXTH - R4096L - KSG0601xxxY	66 - 67
MBS2214012BXTH - R4096L - KSG0602xxxY	68 - 69
MBS3216012BXTH - R4096L - KSG0801xxxY	70 - 71
MBS3216012BXTH - R4096L - KSG0802xxxY	72 - 73
MBS4221012BXTH - R4096L - KSG1001xxxY	74 - 75
MBS4221012BXTH - R4096L - KSG1002xxxY	76 - 77

LAST Series | Non-Captive Actuator |

LAST2033□-OR200-LS03.501xxxS	80 - 81
LAST2833□-OR200-LS0502xxxS	82 - 83
LAST2833□-OR200-ALS0505xxxS	84 - 85
LAST3534□-OR200-LS0601xxxS	86 - 87
LAST3534□-OR200-ALS0606xxxS	88 - 89
LAST4233□-OR200-LS0602xxxS	90 - 91
LAST4233□-OR200-ALS0606xxxS	92 - 93

Linear DC-Servomotor

LM 0830 ... 01	96 - 97
LM 1247 ... 11	98 - 99
LM 1483 ... 11	100 - 101
LM 2070 ... 11	102 - 103

Controllers

Piezo LEGS® Controller PMD401	106 - 108
MC 3001 S RS/CO	110 - 113
MC 3001 C RS/CO AEMT	114 - 115
MC 3001 PDIO	116 - 117
MC 3001 C4 RS/CO	118 - 120
MC 3001 OPTIONAL COVER	121
MC 5004 C RS/CO	122 - 123
MC 5004 C RS/CO AEMT	124 - 125
MC 5004 C PDIO	126 - 127
MC 5004 ET	128 - 129
MC 5004 ET AEMT	130 - 131

Options | ◎ : Encoder △ : Brake |

◎ IE3-1024 L	134 - 135
◎ IEF3-4096 L	136 - 138
◎ IER3-10000 L	139 - 140
◎ AEMT-12/16 L	141 - 142
◎ SERIES HE	144 - 145
△ PFB26E-24V	146
△ PFB29E-24V	147
△ PFB35	148
△ PNB32/34	149



Micro to Nano

MNLS Piezo Stage

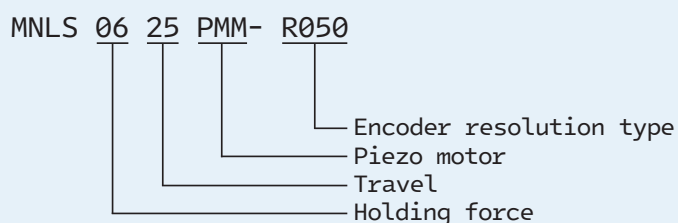
奈米定位壓電滑台系列

- 行程：5 ~ 70 mm
- 承受附載：20 kg
- 推力：3 ~ 10 N
- 移動速度：0 ~ 10 mm/sec
- 解析度：50 nm

緊湊簡約設計，馬達不外露，便於機構空間配置
內置長行程式壓電馬達與光學尺
搭配控制器做速度調整與閉迴路位置控制

標準品最高行程達 70 mm
閉迴路位置控制最高至 50 nm
開迴路控制最小進給量達 0.5 nm

充分發揮壓電馬達特性
具零背隙效果，高響應加減速，斷電煞車作用
另可選配製作更高解析度，更高行程與真空環境版本



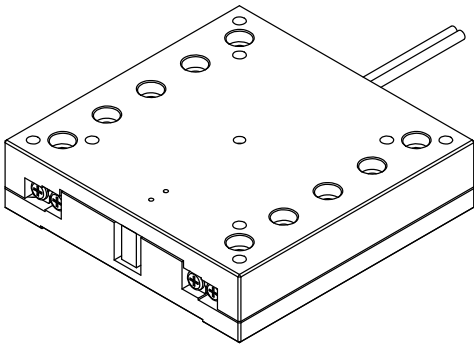
MNLS Series | Piezo Stage |

MNLS0620PM - R080	6 - 7
MNLS0670PM - R080	8 - 9
MNLS0625PMM - R050	10 - 11
MNLS0640PMM - R050	12 - 13
MNLS0670PMM - R050	14 - 15
MNLS2020PMM - R050	16 - 17
MNLS2040PMM - R050	18 - 19
MNLS2070PMM - R050	20 - 21

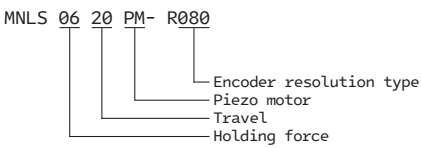
MNLS0620PM-R080

內置超微型光學尺

- 荷重 : 200 N (水平放置)
- 推力 : 3 N
- 剎車力 : 6 N
- 解析度 : 80 nm
- 行程 : 20 mm

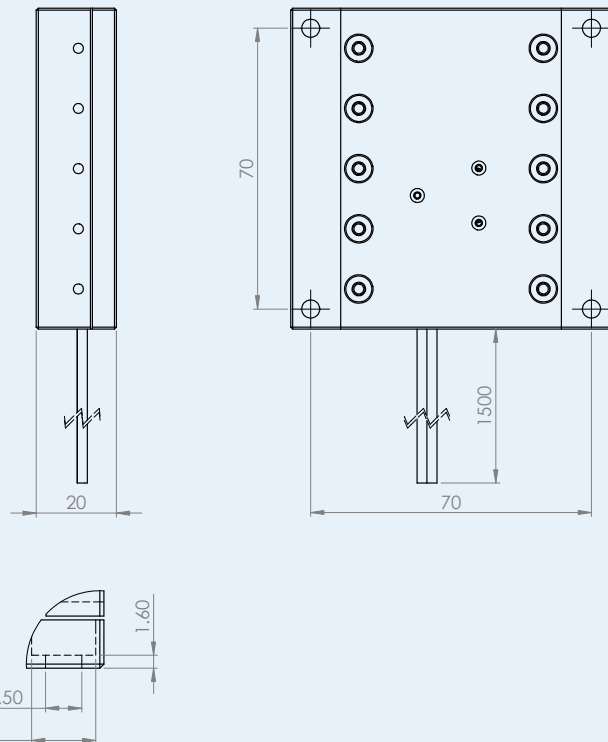


緊湊簡約設計，馬達不外露，便於機構空間配置
搭配控制器做速度調整與閉迴路位置控制
充分發揮壓電馬達特性，具零背隙效果，高響應加減速，斷電煞車作用



Technical Specification		
Size	80*80*20	mm
Travel	20	mm
Holding Force	6	N
Continuous Force	3	N
Loading Force	200	N
Speed	10	mm/sec
Resolution	80	nm
Straightness	±1	µm
Flatness	±1.5	µm
Accuracy	±3	µm
Repeatability	±0.15	µm
Pitch	100	µrad
Yaw	60	µrad
Motor	LL06	
Controller	PMD401	

Technical drawing of the 80x80x50 mm mounting plate. The top view shows a square plate with 8x M4 screws (4 on each long side) and a central Ø 3 hole. Dimensions include 40 mm from the side to the central hole, 50 mm from the side to the outer screws, and 70 mm from the side to the inner screws. The side view shows a profile with a central slot and a circular feature labeled 'A'.

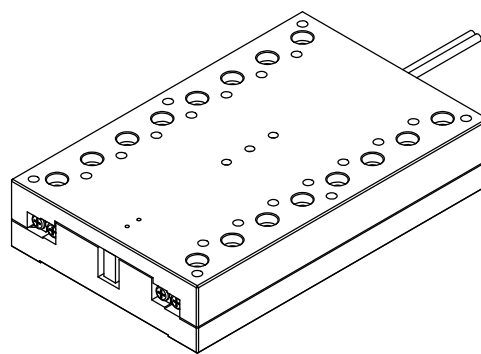


Scale reduced mm

Encoder Pin Assignment (Single-ended)		
Connector Type : JST 06SR-3S		
Pin	Color	Terminal
1 ▲	Black	Quadrature Index I
2	Pink	GND
3	Orange	+5 V (max 200 mA)
4	Green	Quadrature Signal B+
5	Yellow	Quadrature Signal A+
6	Brown	NC

內置超微型光學尺

行程：70 mm

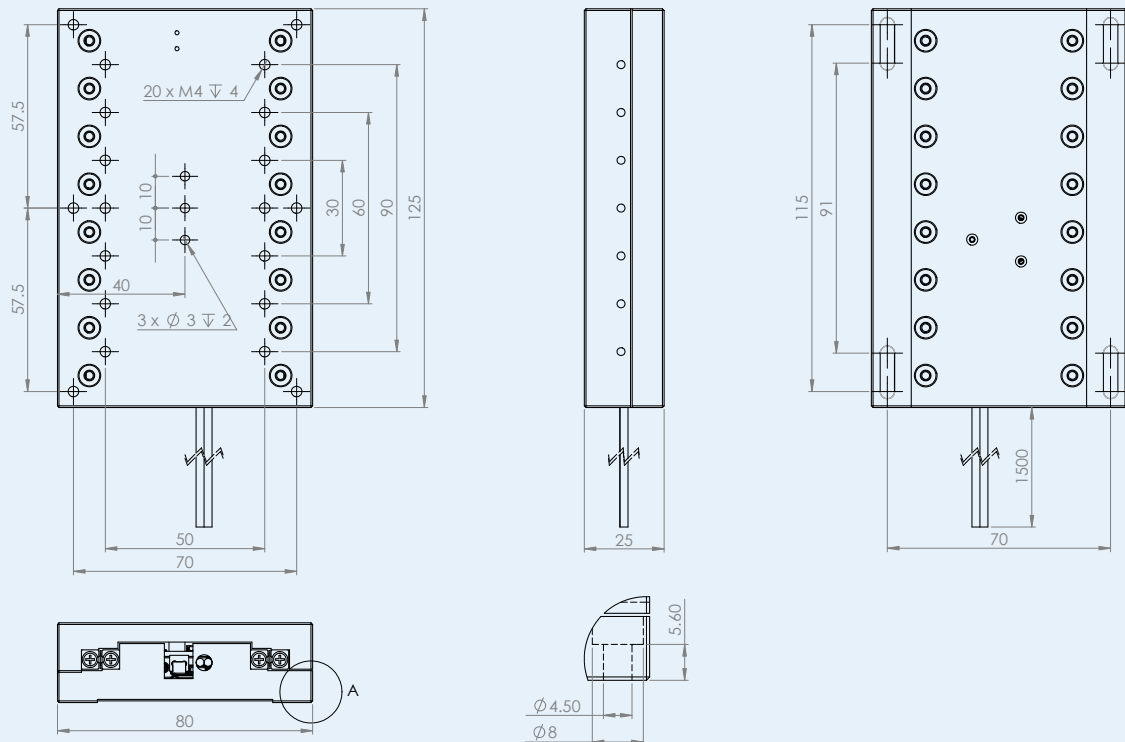


MNLS 06 70 PM- R080

Encoder resolution type
Piezo motor
Travel
Holding force

Size	80*125*25	mm
Travel	70	mm
Holding Force	6	N
Continuous Force	3	N
Loading Force	200	N
Speed	10	mm/sec
Resolution	80	nm
Straightness	±1.5	μm
Flatness	±3	μm
Accuracy	±5	μm
Repeatability	±0.4	μm
Pitch	150	μrad
Yaw	100	μrad
Motor	LL06	
Controller	PMD401	

Dimensional drawing



細部放大圖 A
比例 2:1.1

Scale reduced mm

Motor Pin Assignment

Connector Type : JST 05SR-3S

Pin	Color	Terminal
1 ▲	Black	GND
2	Pink	Phase4
3	Orange	Phase3
4	Green	Phase2
5	Yellow	Phase1

Encoder Pin Assignment (Single-ended)

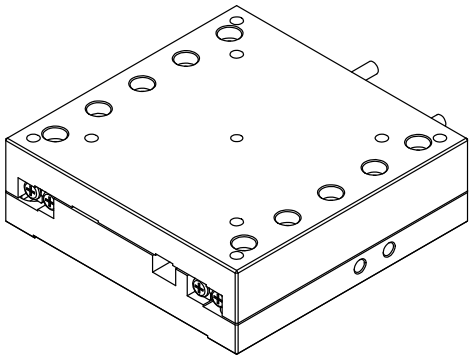
Connector Type : JST 06SR-3S

Pin	Color	Terminal
1 ▲	Black	Quadrature Index I
2	Pink	GND
3	Orange	+5 V (max 200 mA)
4	Green	Quadrature Signal B+
5	Yellow	Quadrature Signal A+
6	Brown	NC

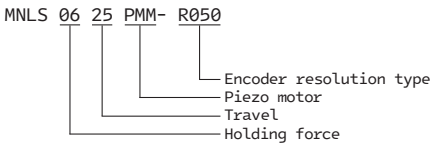
MNLS0625PMM-R050

內置超微型光學尺

- 荷重 : 200 N (水平放置)
- 推力 : 3 N
- 剎車力 : 6 N
- 解析度 : 50 nm
- 行程 : 20 mm



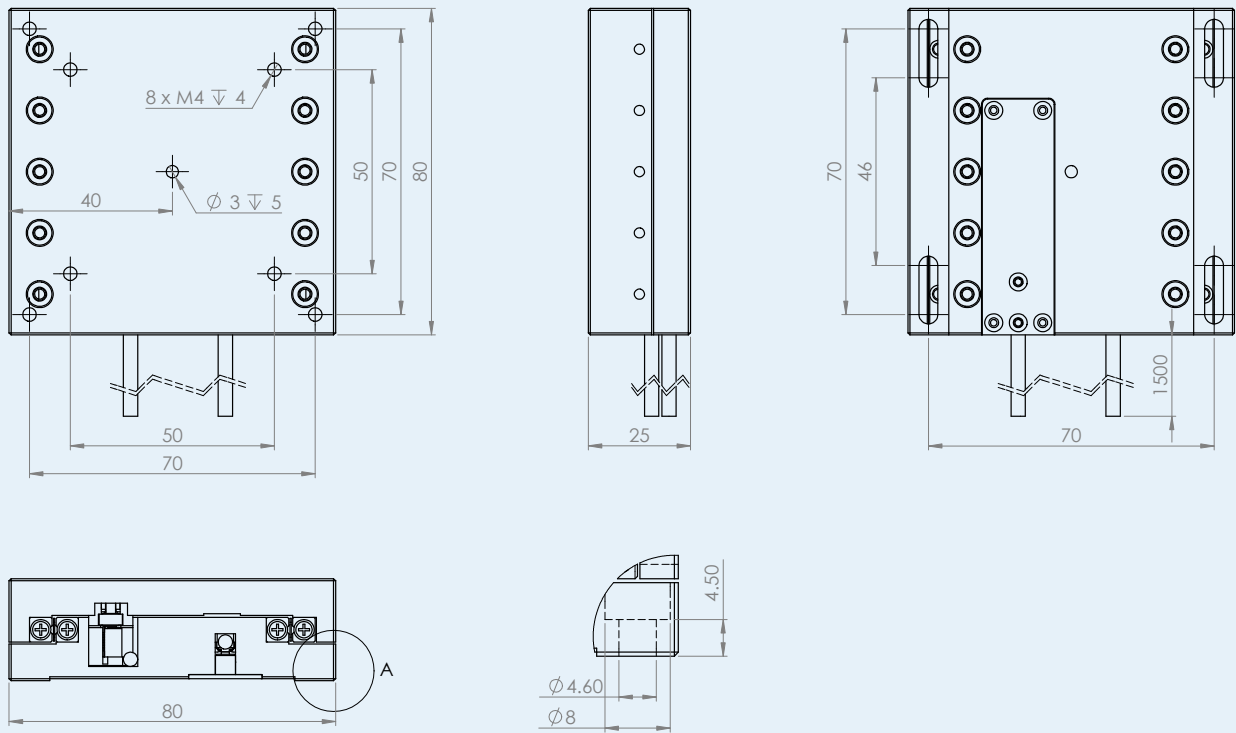
緊湊簡約設計，馬達不外露，便於機構空間配置
搭配控制器做速度調整與閉迴路位置控制
充分發揮壓電馬達特性，具零背隙效果，高響應加減速，斷電煞車作用
另可選配製作更高解析度，更高行程與真空環境版本



Technical Specification		
Size	80*80*25	mm
Travel	25	mm
Holding Force	6	N
Continuous Force	3	N
Loading Force	200	N
Speed	10	mm/sec
Resolution	50	nm
Straightness	±1	µm
Flatness	±1.5	µm
Accuracy	±2	µm
Repeatability	±0.1	µm
Pitch	100	µrad
Yaw	60	µrad
Motor	LL1011A	
Controller	PMD401	

*NOTE : Customized specifications in a vacuum environment is available on request.

Dimensional drawing



細部放大圖 A
比例 2:1

Scale reduced mm

Motor Pin Assignment

Connector Type : JST 05SR-3S

Pin	Color	Terminal
1 ▲	Brown	GND
2	Gray	Phase4
3	White	Phase3
4	Green	Phase2
5	Yellow	Phase1

Encoder Pin Assignment (Single-ended)

Connector Type : JST 06SR-3S

Pin	Color	Terminal
1 ▲	White	Quadrature Index I
2	Brown	GND
3	Red	+5 V (max 200 mA)
4	Blue	Quadrature Signal B+
5	Green	Quadrature Signal A+
6	Gray	NC

Encoder Pin Assignment (Differential)

Connector Type : JST 10SR-3S

Pin	Color	Terminal
1	Pink	Quadrature Signal B-
2	Black or Brown	GND
3		NC
4	Blue	Quadrature Signal B+
5	Grey	Quadrature Index I-
6		NC
7	Yellow	Quadrature Signal A-
8	White	Quadrature Index I+
9	Green	Quadrature Signal A+
10	Red	+5 V (max 200 mA)

Encoder Pin Assignment (RENISHAW)

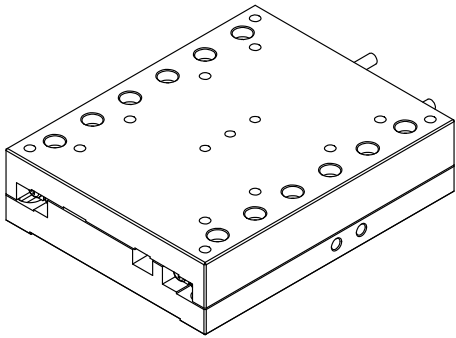
Connector Type : 15-way D-type (D)

Pin	Color	Function	Signal
7.8	Brown	Power	5V
2.9	White	Power	0V
14	Red	Incremental	A+
6	Blue	Incremental	A-
13	Yellow	Incremental	B+
5	Green	Incremental	B-
12	Violet	Reference mark	Z+
4	Grey	Reference mark	Z-
3	Orange	Alarm	E-
1	Clear	Remote CAL	CAL
Case	Screen	Shield	-

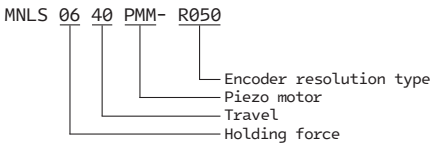
MNLS0640PMM-R050

內置超微型光學尺

- 荷重 : 200 N (水平放置)
- 推力 : 3 N
- 剎車力 : 6 N
- 解析度 : 50 nm
- 行程 : 40 mm



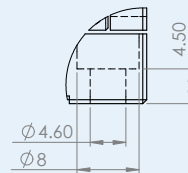
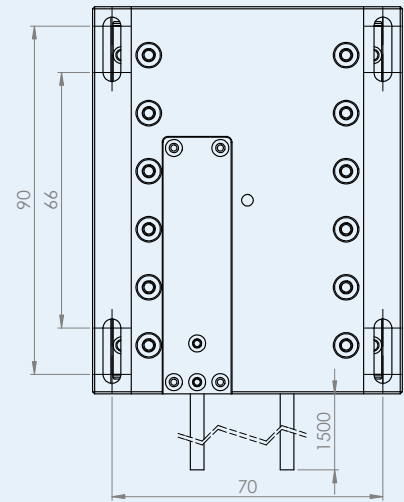
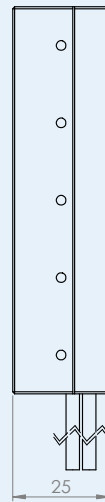
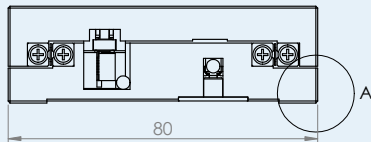
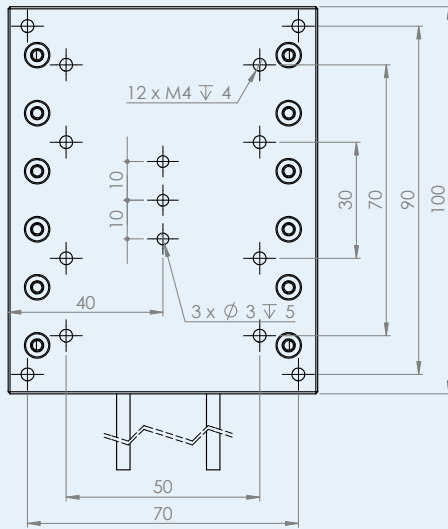
緊湊簡約設計，馬達不外露，便於機構空間配置
搭配控制器做速度調整與閉迴路位置控制
充分發揮壓電馬達特性，具零背隙效果，高響應加減速，斷電煞車作用
另可選配製作更高解析度，更高行程與真空環境版本



Technical Specification		
Size	80*100*25	mm
Travel	40	mm
Holding Force	6	N
Continuous Force	3	N
Loading Force	200	N
Speed	10	mm/sec
Resolution	50	nm
Straightness	±1	μm
Flatness	±2.5	μm
Accuracy	±2.5	μm
Repeatability	±0.1	μm
Pitch	120	μrad
Yaw	80	μrad
Motor	LL1011A	
Controller	PMD401	

*NOTE : Customized specifications in a vacuum environment is available on request.

Dimensional drawing



細部放大圖 A
比例 2:1

Scale reduced mm

Motor Pin Assignment

Connector Type : JST 05SR-3S

Pin	Color	Terminal
1 ▲	Brown	GND
2	Gray	Phase4
3	White	Phase3
4	Green	Phase2
5	Yellow	Phase1

Encoder Pin Assignment (Single-ended)

Connector Type : JST 06SR-3S

Pin	Color	Terminal
1 ▲	White	Quadrature Index I
2	Brown	GND
3	Red	+5 V (max 200 mA)
4	Blue	Quadrature Signal B+
5	Green	Quadrature Signal A+
6	Gray	NC

Encoder Pin Assignment (Differential)

Connector Type : JST 10SR-3S

Pin	Color	Terminal
1	Pink	Quadrature Signal B-
2	Black or Brown	GND
3		NC
4	Blue	Quadrature Signal B+
5	Grey	Quadrature Index I-
6		NC
7	Yellow	Quadrature Signal A-
8	White	Quadrature Index I+
9	Green	Quadrature Signal A+
10	Red	+5 V (max 200 mA)

Encoder Pin Assignment (RENISHAW)

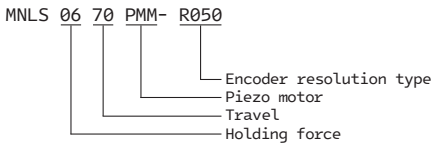
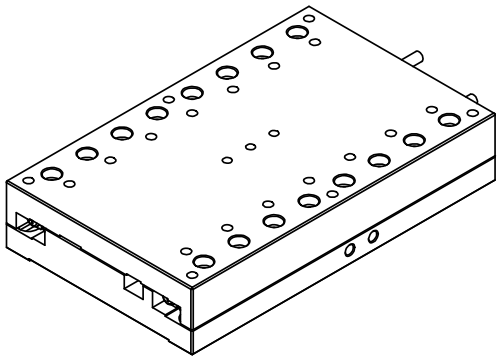
Connector Type : 15-way D-type (D)

Pin	Color	Function	Signal
7.8	Brown	Power	5V
2.9	White	Power	0V
14	Red	Incremental	A+
6	Blue	Incremental	A-
13	Yellow	Incremental	B+
5	Green	Incremental	B-
12	Violet	Reference mark	Z+
4	Grey	Reference mark	Z-
3	Orange	Alarm	E-
1	Clear	Remote CAL	CAL
Case	Screen	Shield	-

MNLS0670PMM-R050

內置超微型光學尺

- 荷重 : 200 N (水平放置)
- 推力 : 3 N
- 剎車力 : 6 N
- 解析度 : 50 nm
- 行程 : 70 mm

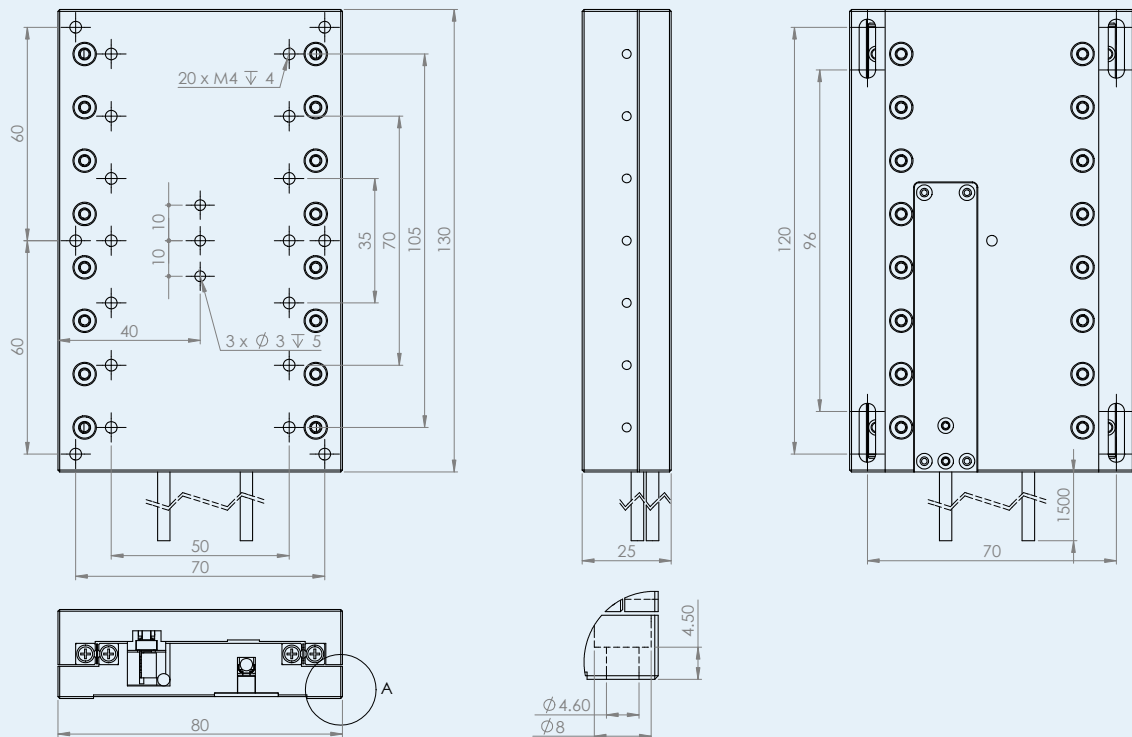


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搭配控制器做速度調整與閉迴路位置控制
充分發揮壓電馬達特性，具零背隙效果，高響應加減速，斷電煞車作用
另可選配製作更高解析度，更高行程與真空環境版本

Technical Specification		
Size	80*130*25	mm
Travel	70	mm
Holding Force	6	N
Continuous Force	3	N
Loading Force	200	N
Speed	10	mm/sec
Resolution	50	nm
Straightness	±1.5	μm
Flatness	±3	μm
Accuracy	±3	μm
Repeatability	±0.15	μm
Pitch	150	μrad
Yaw	100	μrad
Motor	LL1011A	
Controller	PMD401	

*NOTE : Customized specifications in a vacuum environment is available on request.

Dimensional drawing



細部放大圖 A
比例 2 : 1

Scale reduced mm

Motor Pin Assignment

Connector Type : JST 05SR-3S

Pin	Color	Terminal
1 ▲	Brown	GND
2	Gray	Phase4
3	White	Phase3
4	Green	Phase2
5	Yellow	Phase1

Encoder Pin Assignment (Single-ended)

Connector Type : JST 06SR-3S

Pin	Color	Terminal
1 ▲	White	Quadrature Index I
2	Brown	GND
3	Red	+5 V (max 200 mA)
4	Blue	Quadrature Signal B+
5	Green	Quadrature Signal A+
6	Gray	NC

Encoder Pin Assignment (Differential)

Connector Type : JST 10SR-3S

Pin	Color	Terminal
1	Pink	Quadrature Signal B-
2	Black or Brown	GND
3		NC
4	Blue	Quadrature Signal B+
5	Grey	Quadrature Index I-
6		NC
7	Yellow	Quadrature Signal A-
8	White	Quadrature Index I+
9	Green	Quadrature Signal A+
10	Red	+5 V (max 200 mA)

Encoder Pin Assignment (RENISHAW)

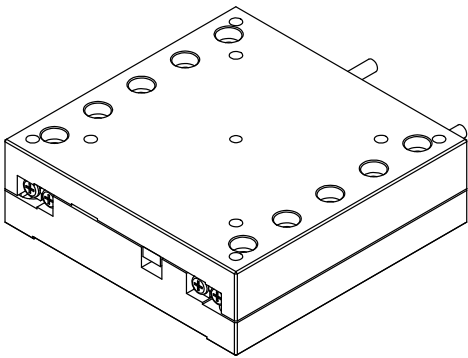
Connector Type : 15-way D-type (D)

Pin	Color	Function	Signal
7.8	Brown	Power	5V
2.9	White	Power	0V
14	Red	Incremental	A+
6	Blue	Incremental	A-
13	Yellow	Incremental	B+
5	Green	Incremental	B-
12	Violet	Reference mark	Z+
4	Grey	Reference mark	Z-
3	Orange	Alarm	E-
1	Clear	Remote CAL	CAL
Case	Screen	Shield	-

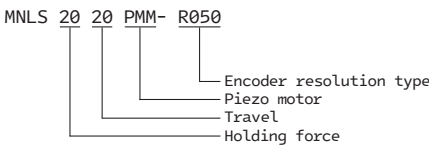
MNLS2020PMM-R050

內置超微型光學尺

- 荷重：200 N (水平放置)
- 推力：10 N
- 剎車力：20 N
- 解析度：50 nm
- 行程：20 mm



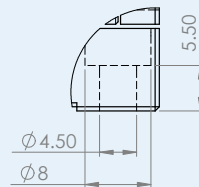
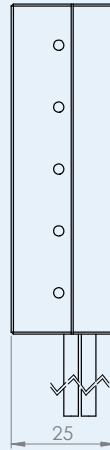
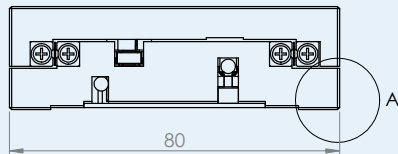
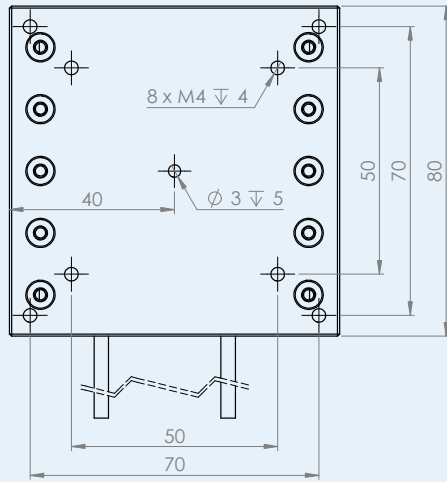
緊湊簡約設計，馬達不外露，便於機構空間配置
搭配控制器做速度調整與閉迴路位置控制
充分發揮壓電馬達特性，具零背隙效果，高響應加減速，斷電煞車作用
另可選配製作更高解析度，更高行程與真空環境版本



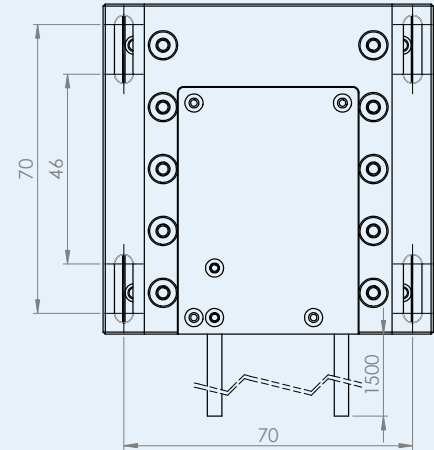
Technical Specification		
Size	80*80*20	mm
Travel	20	mm
Holding Force	22	N
Continuous Force	10	N
Loading Force	200	N
Speed	10	mm/sec
Resolution	50	nm
Straightness	±1	μm
Flatness	±1.5	μm
Accuracy	±2	μm
Repeatability	±0.1	μm
Pitch	100	μrad
Yaw	60	μrad
Motor	LT2020	
Controller	PMD401	

*NOTE : Customized specifications in a vacuum environment is available on request.

Dimensional drawing



細部放大圖 A
比例 2 : 1



Scale reduced mm

Motor Pin Assignment

Connector Type : JST 05SR-3S

Pin	Color	Terminal
1 ▲	Brown	GND
2	Gray	Phase4
3	White	Phase3
4	Green	Phase2
5	Yellow	Phase1

Encoder Pin Assignment (Single-ended)

Connector Type : JST 06SR-3S

Pin	Color	Terminal
1 ▲	White	Quadrature Index I
2	Brown	GND
3	Red	+5 V (max 200 mA)
4	Blue	Quadrature Signal B+
5	Green	Quadrature Signal A+
6	Gray	NC

Encoder Pin Assignment (Differential)

Connector Type : JST 10SR-3S

Pin	Color	Terminal
1	Pink	Quadrature Signal B-
2	Black or Brown	GND
3		NC
4	Blue	Quadrature Signal B+
5	Grey	Quadrature Index I-
6		NC
7	Yellow	Quadrature Signal A-
8	White	Quadrature Index I+
9	Green	Quadrature Signal A+
10	Red	+5 V (max 200 mA)

Encoder Pin Assignment (RENISHAW)

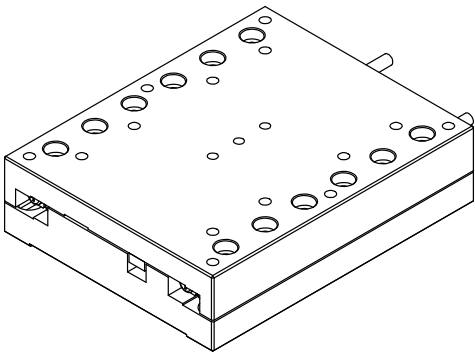
Connector Type : 15-way D-type (D)

Pin	Color	Function	Signal
7.8	Brown	Power	5V
2.9	White	Power	0V
14	Red	Incremental	A+
6	Blue	Incremental	A-
13	Yellow	Incremental	B+
5	Green	Incremental	B-
12	Violet	Reference mark	Z+
4	Grey	Reference mark	Z-
3	Orange	Alarm	E-
1	Clear	Remote CAL	CAL
Case	Screen	Shield	-

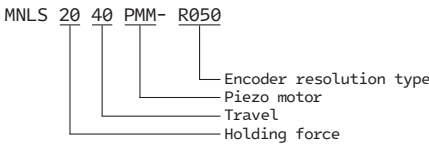
MNLS2040PMM-R050

內置超微型光學尺

- 荷重：200 N (水平放置)
- 推力：10 N
- 剎車力：20 N
- 解析度：50 nm
- 行程：40 mm



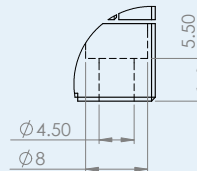
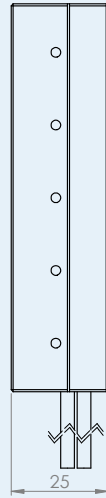
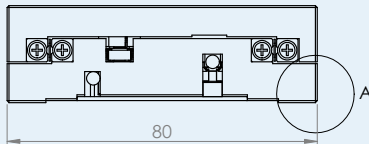
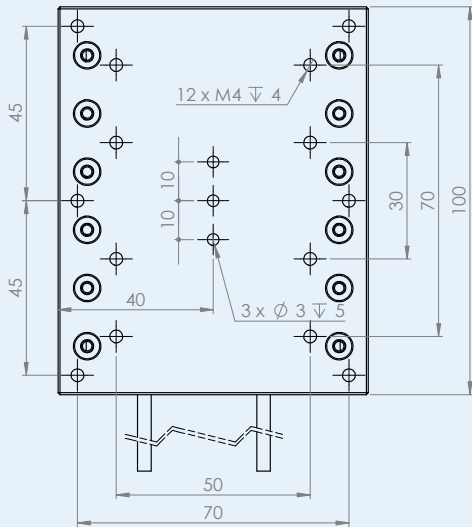
緊湊簡約設計，馬達不外露，便於機構空間配置
搭配控制器做速度調整與閉迴路位置控制
充分發揮壓電馬達特性，具零背隙效果，高響應加減速，斷電煞車作用
另可選配製作更高解析度，更高行程與真空環境版本



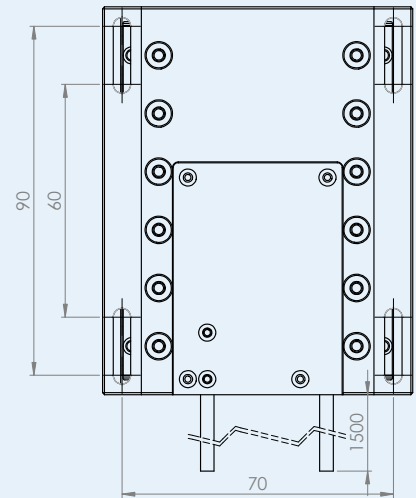
Technical Specification		
Size	80*100*20	mm
Travel	40	mm
Holding Force	22	N
Continuous Force	10	N
Loading Force	200	N
Speed	10	mm/sec
Resolution	50	nm
Straightness	±1	μm
Flatness	±2.5	μm
Accuracy	±2.5	μm
Repeatability	±0.1	μm
Pitch	120	μrad
Yaw	80	μrad
Motor	LT2020	
Controller	PMD401	

*NOTE : Customized specifications in a vacuum environment is available on request.

Dimensional drawing



細部放大圖 A
比例 2:1



Scale reduced mm

Motor Pin Assignment

Connector Type : JST 05SR-3S

Pin	Color	Terminal
1 ▲	Brown	GND
2	Gray	Phase4
3	White	Phase3
4	Green	Phase2
5	Yellow	Phase1

Encoder Pin Assignment (Single-ended)

Connector Type : JST 06SR-3S

Pin	Color	Terminal
1 ▲	White	Quadrature Index I
2	Brown	GND
3	Red	+5 V (max 200 mA)
4	Blue	Quadrature Signal B+
5	Green	Quadrature Signal A+
6	Gray	NC

Encoder Pin Assignment (Differential)

Connector Type : JST 10SR-3S

Pin	Color	Terminal
1	Pink	Quadrature Signal B-
2	Black or Brown	GND
3		NC
4	Blue	Quadrature Signal B+
5	Grey	Quadrature Index I-
6		NC
7	Yellow	Quadrature Signal A-
8	White	Quadrature Index I+
9	Green	Quadrature Signal A+
10	Red	+5 V (max 200 mA)

Encoder Pin Assignment (RENISHAW)

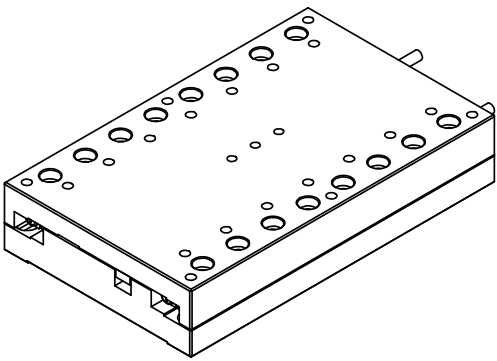
Connector Type : 15-way D-type (D)

Pin	Color	Function	Signal
7.8	Brown	Power	5V
2.9	White	Power	0V
14	Red	Incremental	A+
6	Blue	Incremental	A-
13	Yellow	Incremental	B+
5	Green	Incremental	B-
12	Violet	Reference mark	Z+
4	Grey	Reference mark	Z-
3	Orange	Alarm	E-
1	Clear	Remote CAL	CAL
Case	Screen	Shield	-

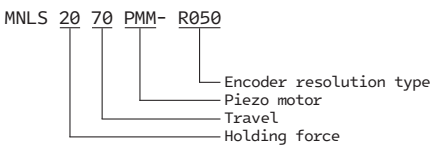
MNLS2070PMM-R050

內置超微型光學尺

- 荷重：200 N (水平放置)
- 推力：10 N
- 剎車力：20 N
- 解析度：50 nm
- 行程：70 mm



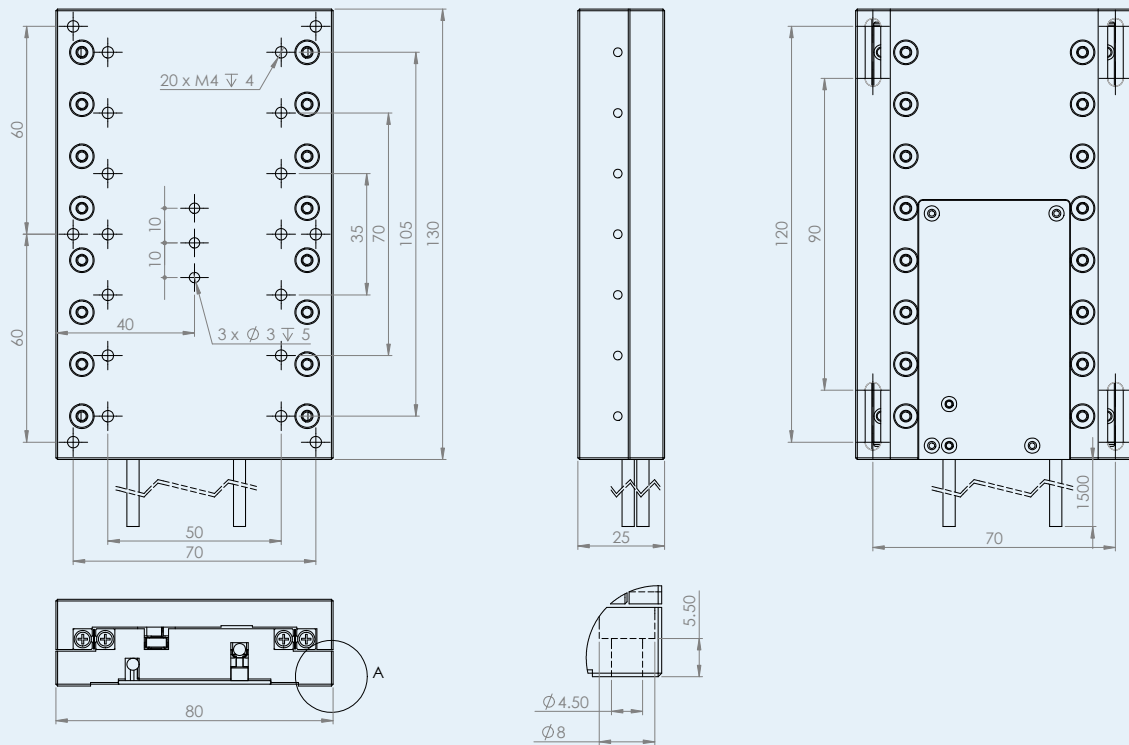
緊湊簡約設計，馬達不外露，便於機構空間配置
搭配控制器做速度調整與閉迴路位置控制
充分發揮壓電馬達特性，具零背隙效果，高響應加減速，斷電煞車作用
另可選配製作更高解析度，更高行程與真空環境版本



Technical Specification		
Size	80*130*25	mm
Travel	70	mm
Holding Force	22	N
Continuous Force	10	N
Loading Force	200	N
Speed	10	mm/sec
Resolution	50	nm
Straightness	±1.5	µm
Flatness	±3	µm
Accuracy	±3	µm
Repeatability	±0.15	µm
Pitch	150	µrad
Yaw	100	µrad
Motor	LT2020	
Controller	PMD401	

*NOTE : Customized specifications in a vacuum environment is available on request.

Dimensional drawing



細部放大圖 A
比例 2:1

Scale reduced mm

Motor Pin Assignment

Connector Type : JST 05SR-3S

Pin	Color	Terminal
1 ▲	Brown	GND
2	Gray	Phase4
3	White	Phase3
4	Green	Phase2
5	Yellow	Phase1

Encoder Pin Assignment (Single-ended)

Connector Type : JST 06SR-3S

Pin	Color	Terminal
1 ▲	White	Quadrature Index I
2	Brown	GND
3	Red	+5 V (max 200 mA)
4	Blue	Quadrature Signal B+
5	Green	Quadrature Signal A+
6	Gray	NC

Encoder Pin Assignment (Differential)

Connector Type : JST 10SR-3S

Pin	Color	Terminal
1	Pink	Quadrature Signal B-
2	Black or Brown	GND
3		NC
4	Blue	Quadrature Signal B+
5	Grey	Quadrature Index I-
6		NC
7	Yellow	Quadrature Signal A-
8	White	Quadrature Index I+
9	Green	Quadrature Signal A+
10	Red	+5 V (max 200 mA)

Encoder Pin Assignment (RENISHAW)

Connector Type : 15-way D-type (D)

Pin	Color	Function	Signal
7.8	Brown	Power	5V
2.9	White	Power	0V
14	Red	Incremental	A+
6	Blue	Incremental	A-
13	Yellow	Incremental	B+
5	Green	Incremental	B-
12	Violet	Reference mark	Z+
4	Grey	Reference mark	Z-
3	Orange	Alarm	E-
1	Clear	Remote CAL	CAL
Case	Screen	Shield	-



Micro to Nano

M L A Servo Motor Linear Actuators

伺服線性制動器系列

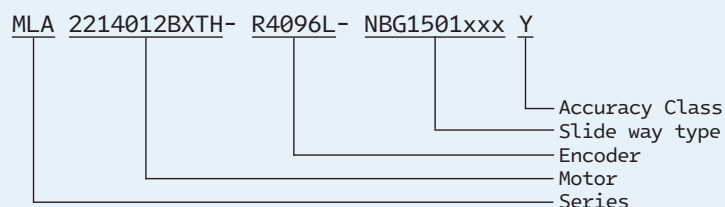
- 行程：~ 200 mm
- 重複定位精度：~ $\pm 1 \mu\text{m}$
- 推力：25 ~ 300 N
- 速度：~ 300 mm/sec

搭配組合 **Faulhaber** 微型直流伺服馬達與高剛性線軌模組
最緊湊體積下充分發揮空心杯馬達特性
完成高加減速，高速，高精度定位

搭配控制器做閉迴路力量，速度與位置控制
同時具備多種通訊界面供選擇

線軌模組主力搭配日本 **Nippon Bearing** 和 **THK**
達高剛性、高穩定性與高重現性之特性

另可選配更高解析度，絕對型編碼器及煞車器

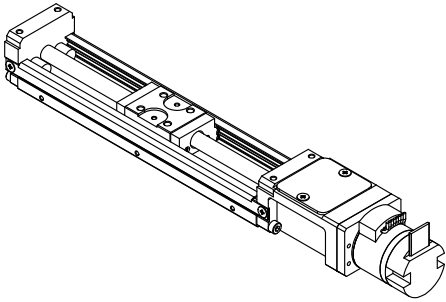


MLA Series | Servo Motor Linear Actuators |

MLA2214012BXTH - R4096L - NBG1501xxxY	24 - 25
MLA2214012BXTH - R4096L - TKR1501xxxY	26 - 27
MLA2214012BXTH - R4096L - NBG1502xxxY	28 - 29
MLA2214012BXTH - R4096L - TKR1502xxxY	30 - 31
MLA2214012BXTH - R4096L - NBG2001xxxY	32 - 33
MLA2214012BXTH - R4096L - TKR2001xxxY	34 - 35
MLA2214012BXTH - R4096L - NBG2005xxxY	36 - 37
MLA2214012BXTH - R4096L - TKR2006xxxY	38 - 39
MLA3216012BXTH - R4096L - NBG2001xxxY	40 - 41
MLA3216012BXTH - R4096L - TKR2001xxxY	42 - 43
MLA3216012BXTH - R4096L - NBG2005xxxY	44 - 45
MLA3216012BXTH - R4096L - TKR2006xxxY	46 - 47
MLA3216012BXTH - R4096L - NBG2602xxxY	48 - 49
MLA3216012BXTH - R4096L - TKR2602xxxY	50 - 51
MLA3216012BXTH - R4096L - NBG2605xxxY	52 - 53
MLA3216012BXTH - R4096L - TKR2606xxxY	54 - 55
MLA4221024BXTH - R4096L - NBG2602xxxY	56 - 57
MLA4221024BXTH - R4096L - TKR2602xxxY	58 - 59
MLA4221024BXTH - R4096L - NBG2605xxxY	60 - 61
MLA4221024BXTH - R4096L - TKR2606xxxY	62 - 63

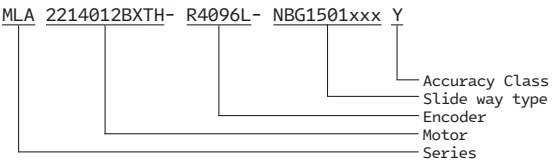
MLA2214012BXTH-R4096L-NBG1501xxxY

推力 : 50 N
瞬間推力 : 300 N
解析度 : 0.244 μm
連續移動速度 : 50 mm/s



搭配組合 Faulhaber 微型直流伺服馬達與高剛性線軌模組
最緊湊體積下充分發揮空心杯馬達特性，完成高加減速，高速，高精度定位
搭配控制器做閉迴路力量，速度與位置控制，同時具備多種通訊界面供選擇

日本 Nippon Bearing 特規線軌模組
達高剛性、高穩定性與高重現性之特性
另可選配更高解析度，保護蓋，煞車器，極限開關

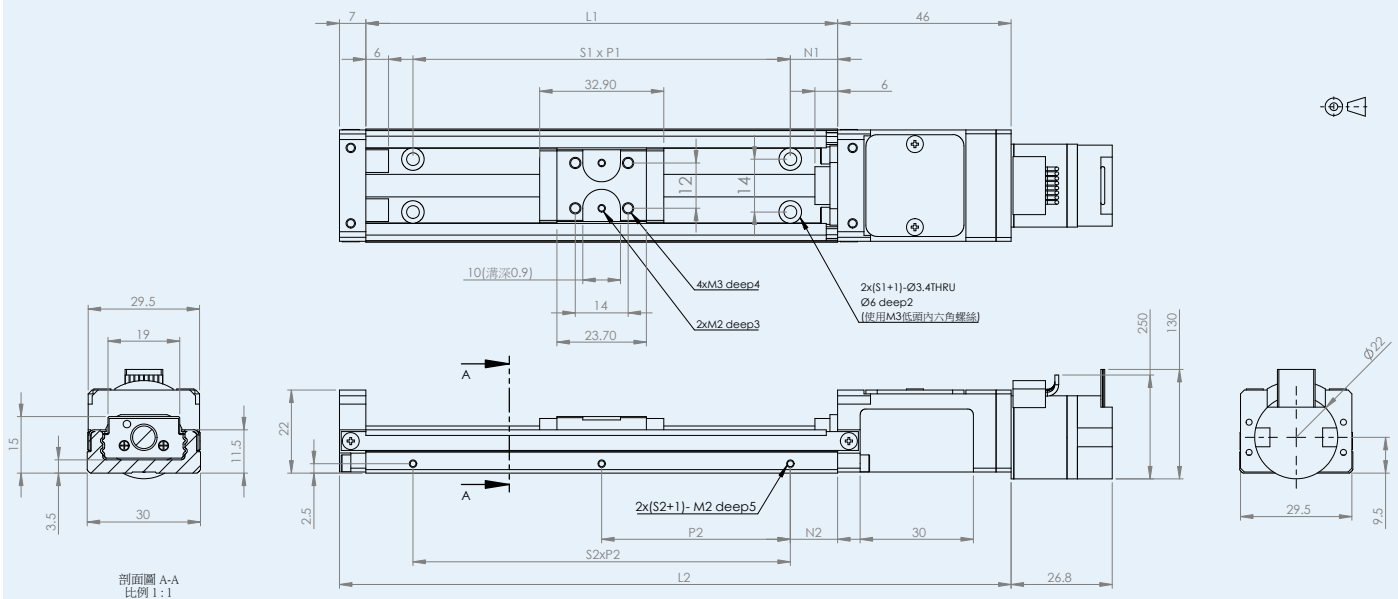


Technical Specification			
Nominal voltage	24		V
Nominal current	0.65		A
Terminal resistance	6.95		Ω
Ballscrew pitch	1		mm
Operation temperature range	-20 ... +80		°C
Continuous force	50		N
Peak force	300		N
Continuous output speed, max	50		mm/s
Encoder resolution	4096		CPR
Linear resolution	0.244		μm
Accuracy class	H	P	
Accuracy	40	20	μm
Repeatability	±3	±1	μm
Slide guide backlash	5	0	μm

Slide way type	Stroke(mm)	L1 (mm)	L2 (mm)	N1 (mm)	S1xP1	N2 (mm)	S2xP2	Mass (kg)
NBG1501030	30	75	128	12.5	1x50	12.5	1x50	0.27
NBG1501050	50	100	153	25	1x50	25	1x50	0.31
NBG1501080	80	125	177	12.5	2x50	12.5	2x50	0.34
NBG1501100	100	150	181	25	2x50	25	2x50	0.36
NBG1501130	130	175	227	12.5	3x50	12.5	3x50	0.42

Dimensional drawing

Scale reduced mm



Motor Pin Assignment

Connector Type : MOLEX 43025-0800

Yellow	Phase C
Orange	Phase B
Brown	Phase A
Black	GND
Red	Um(+5V)
Grey	Hall sensor C
Blue	Hall sensor B
Green	Hall sensor A

Encoder Pin Assignment

Connector Type : DIN-41651

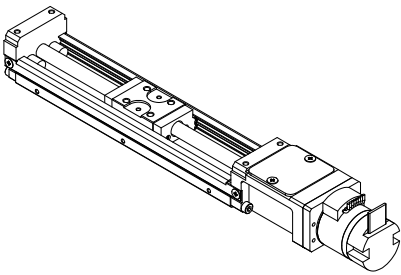
Pin 1	N.C.
Pin 2	UE
Pin 3	GND
Pin 4	N.C.
Pin 5	Ch A-
Pin 6	Ch A+
Pin 7	Ch B-
Pin 8	Ch B+
Pin 9	Ch I-
Pin 10	Ch I+

Option

Controller	Encoder	Brake	Cable
MC 3001 S RS/CO MC 3001 C RS/CO AEMT MC 3001 C PDIO MC 3001 C4 RS/CO MC 5004 C ET MC 5004 C ET AEMT	IE3-1024L IEF3-4096L IER3-10000L AEMT-12/16 L	PFB26E-24V	延長連接線組, 耐繞曲線組 請諮詢服務業務
			Others 保護蓋、雙滑塊、極限開關選配

MLA2214012BXTH-R4096L-TKR1501xxxY

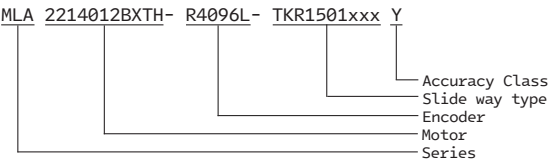
推力 : 50 N
瞬間推力 : 300 N
解析度 : 0.244 μm
連續移動速度 : 50 mm/s



搭配組合 Faulhaber 微型直流伺服馬達與高剛性線軌模組
最緊湊體積下充分發揮空心杯馬達特性，完成高加減速，高速，高精度定位
搭配控制器做閉迴路力量，速度與位置控制，同時具備多種通訊界面供選擇

日本 THK 特規線軌模組
達高剛性、高穩定性與高重現性之特性

另可選配更高解析度，保護蓋，煞車器與極限開關



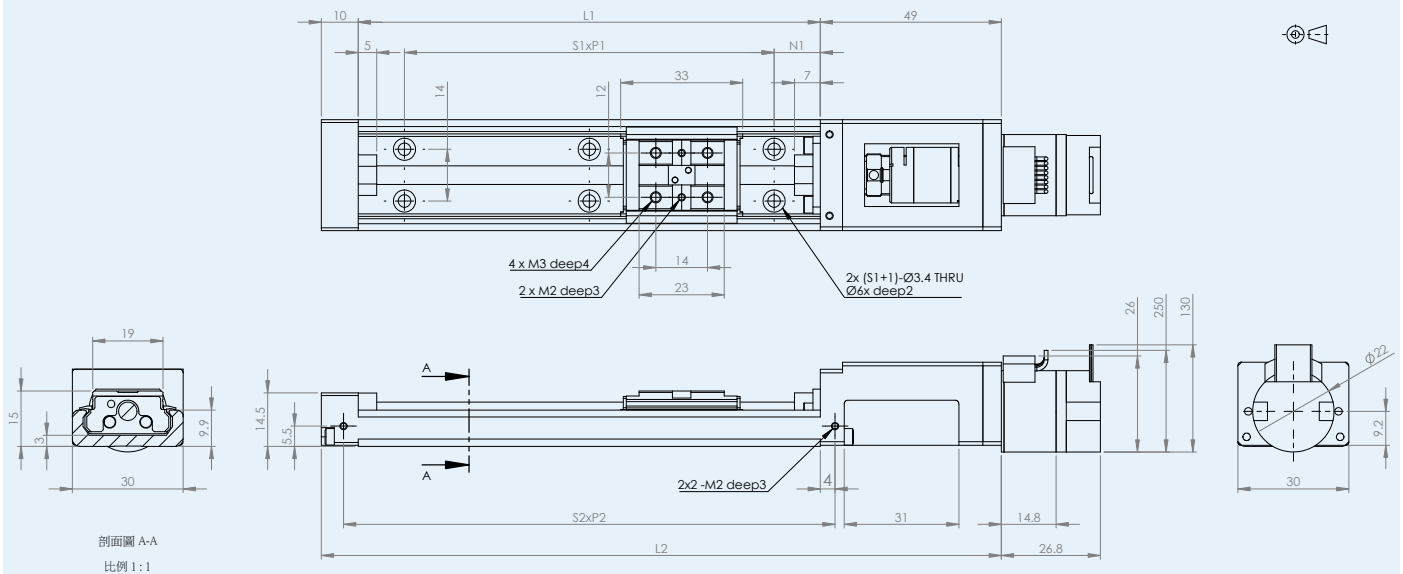
Technical Specification

Nominal voltage	24	V
Nominal current	0.65	A
Terminal resistance	6.95	Ω
Ballscrew pitch	1	mm
Operation temperature range	-20 ... +80	$^{\circ}\text{C}$
Continuous force	50	N
Peak force	300	N
Continuous output speed, max	50	mm/s
Encoder resolution	4096	CPR
Linear resolution	0.244	μm
Accuracy class	H	P
Accuracy	40	20
Repeatability	± 4	± 3
Slide guide backlash	10	2

Slide way type	Stroke(mm)	L1 (mm)	L2 (mm)	N1 (mm)	S1xP1	N2 (mm)	S2xP2	Mass (kg)
TKR1501025	25	75	134	12.5	1x50	-	1x50	0.27
TKR1501050	50	100	159	25	1x50	-	1x50	0.30
TKR1501075	75	125	184	12.5	2x50	-	2x50	0.33
TKR1501100	100	150	209	25	2x50	-	2x50	0.36
TKR1501125	125	175	234	12.5	3x50	-	3x50	0.39
TKR1501150	150	200	259	25	3x50	-	3x50	0.42

Dimensional drawing

Scale reduced mm



Motor Pin Assignment

Connector Type : MOLEX 43025-0800

Yellow	Phase C
Orange	Phase B
Brown	Phase A
Black	GND
Red	Um(+5V)
Grey	Hall sensor C
Blue	Hall sensor B
Green	Hall sensor A

Encoder Pin Assignment

Connector Type : DIN-41651

Pin 1	N.C.
Pin 2	UE
Pin 3	GND
Pin 4	N.C.
Pin 5	Ch A-
Pin 6	Ch A+
Pin 7	Ch B-
Pin 8	Ch B+
Pin 9	Ch I-
Pin 10	Ch I+

Option

Controller

MC 3001 S RS/CO
MC 3001 C RS/CO AEMT
MC 3001 C PDIO
MC 3001 C4 RS/CO
MC 5004 C ET
MC 5004 C ET AEMT

Encoder

IE3-1024L
IEF3-4096L
IER3-10000L
AEMT-12/16 L

Brake

PFB26E-24V

Cable

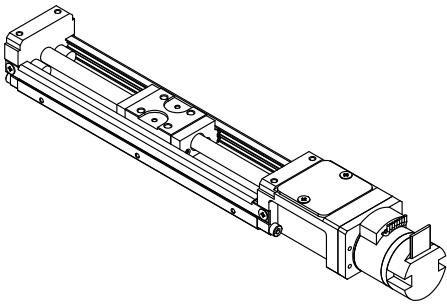
延長連接線組，耐繞曲線組
請諮詢服務業務

Others

保護蓋、雙滑塊、極限開關選配

MLA2214012BXTH-R4096L-NBG1502xxxY

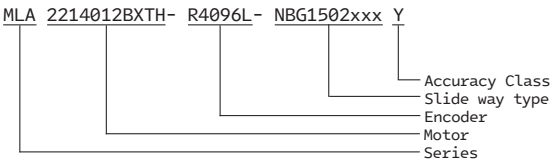
推力 : 25 N
瞬間推力 : 150 N
解析度 : 0.488 μm
連續移動速度 : 100 mm/s



搭配組合 Faulhaber 微型直流伺服馬達與高剛性線軌模組
最緊湊體積下充分發揮空心杯馬達特性，完成高加減速，高速，高精度定位
搭配控制器做閉迴路力量，速度與位置控制，同時具備多種通訊界面供選擇

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達高剛性、高穩定性與高重現性之特性

另可選配更高解析度，保護蓋，煞車器與極限開關

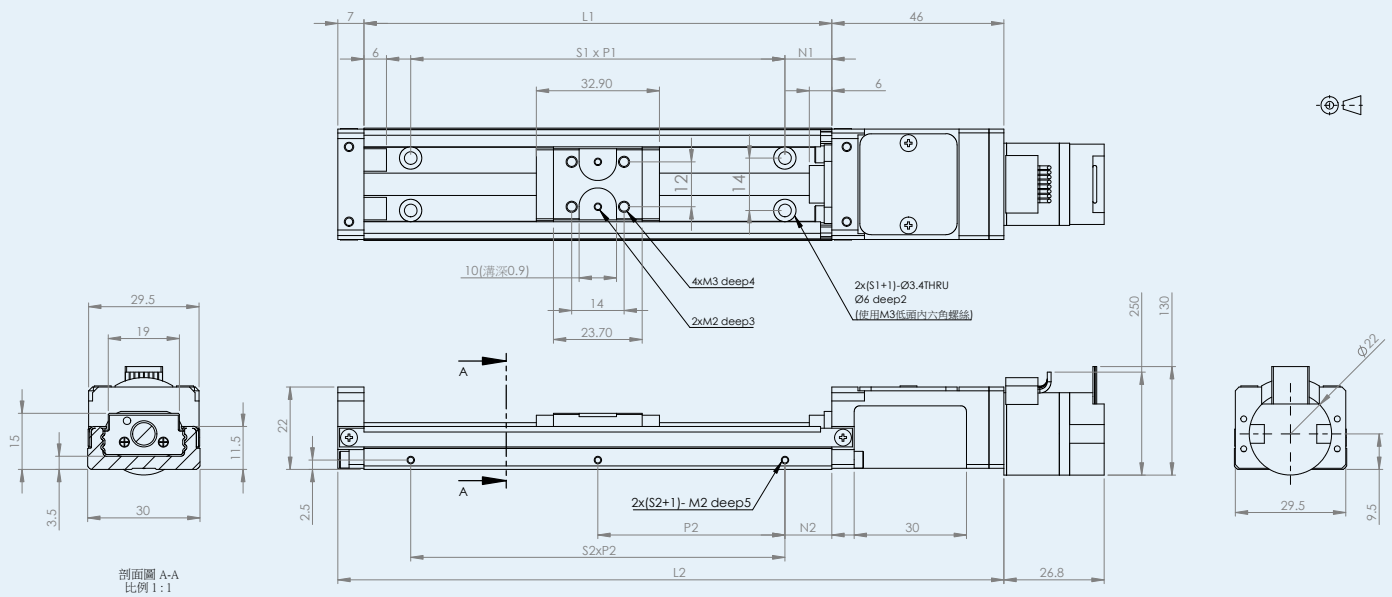


Technical Specification			
Nominal voltage	24		V
Nominal current	0.65		A
Terminal resistance	6.95		Ω
Ballscrew pitch	2		mm
Operation temperature range	-20 ... +80		$^{\circ}\text{C}$
Continuous force	25		N
Peak force	150		N
Continuous output speed, max	100		mm/s
Encoder resolution	4096		CPR
Linear resolution	0.488		μm
Accuracy class	H	P	
Accuracy	40	20	μm
Repeatability	± 3	± 1	μm
Slide guide backlash	5	0	μm

Slide way type	Stroke(mm)	L1 (mm)	L2 (mm)	N1 (mm)	S1xP1	N2 (mm)	S2xP2	Mass (kg)
NBG1502030	30	75	128	12.5	1x50	12.5	1x50	0.27
NBG1502050	50	100	153	25	1x50	25	1x50	0.31
NBG1502080	80	125	177	12.5	2x50	12.5	2x50	0.34
NBG1502100	100	150	181	25	2x50	25	2x50	0.36
NBG1502130	130	175	227	12.5	3x50	12.5	3x50	0.42

Dimensional drawing

Scale reduced mm



Motor Pin Assignment

Connector Type : MOLEX 43025-0800

Yellow	Phase C
Orange	Phase B
Brown	Phase A
Black	GND
Red	Um(+5V)
Grey	Hall sensor C
Blue	Hall sensor B
Green	Hall sensor A

Encoder Pin Assignment

Connector Type : DIN-41651

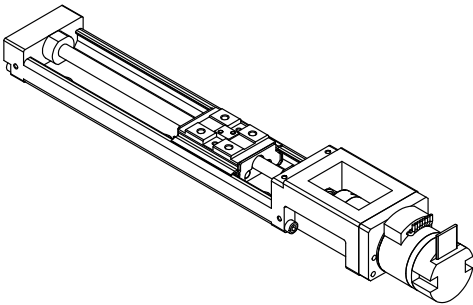
Pin 1	N.C.
Pin 2	UE
Pin 3	GND
Pin 4	N.C.
Pin 5	Ch A-
Pin 6	Ch A+
Pin 7	Ch B-
Pin 8	Ch B+
Pin 9	Ch I-
Pin 10	Ch I+

Option

Controller	Encoder	Brake	Cable
MC 3001 S RS/CO MC 3001 C RS/CO AEMT MC 3001 C PDIO MC 3001 C4 RS/CO MC 5004 C ET MC 5004 C ET AEMT	IE3-1024L IEF3-4096L IER3-10000L AEMT-12/16 L	PFB26E-24V	延長連接線組，耐繞曲線組 請諮詢服務業務
			Others 保護蓋、雙滑塊、極限開關選配

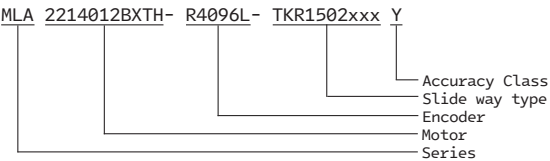
MLA2214012BXTH-R4096L-TKR1502xxxY

- 推力 : 25 N
- 瞬間推力 : 150 N
- 解析度 : 0.488 μm
- 連續移動速度 : 100 mm/s



搭配組合 Faulhaber 微型直流伺服馬達與高剛性線軌模組
最緊湊體積下充分發揮空心杯馬達特性，完成高加減速，高速，高精度定位
搭配控制器做閉迴路力量，速度與位置控制，同時具備多種通訊界面供選擇

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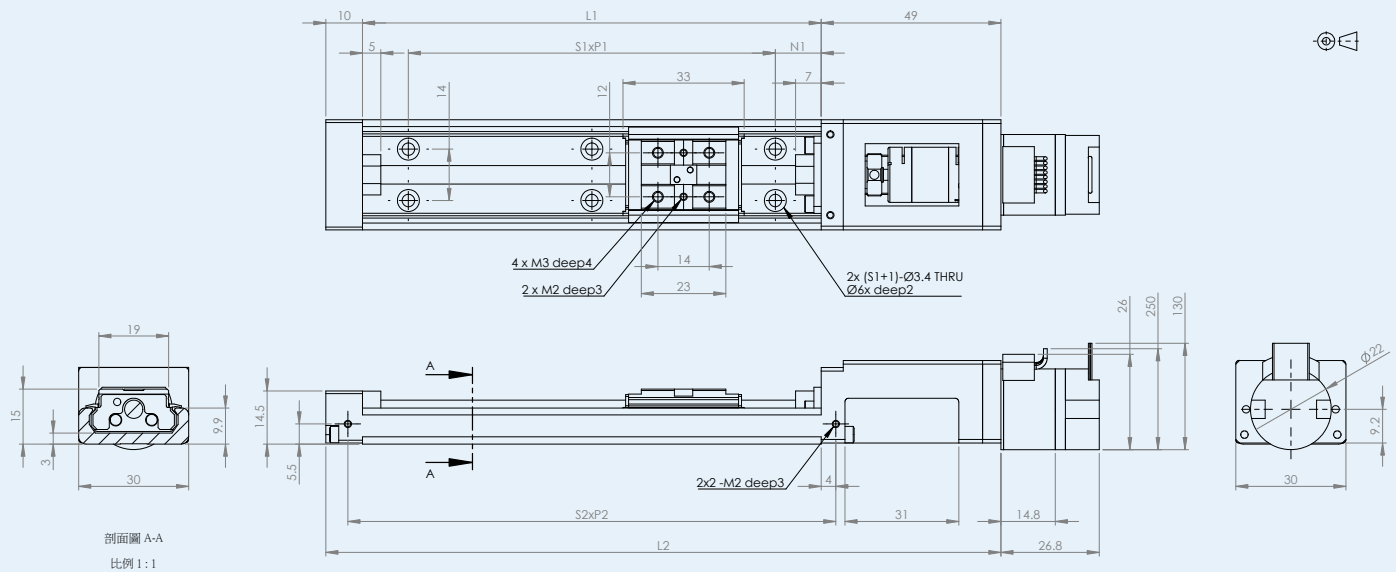


Technical Specification			
Nominal voltage	24		V
Nominal current	0.65		A
Terminal resistance	6.95		Ω
Ballscrew pitch	2		mm
Operation temperature range	-20 ... +80		°C
Continuous force	25		N
Peak force	150		N
Continuous output speed, max	100		mm/s
Encoder resolution	4096		CPR
Linear resolution	0.488		μm
Accuracy class	H	P	
Accuracy	40	20	μm
Repeatability	±4	±3	μm
Slide guide backlash	10	2	μm

Slide way type	Stroke(mm)	L1 (mm)	L2 (mm)	N1 (mm)	S1xP1	N2 (mm)	S2xP2	Mass (kg)
TKR1502025	25	75	134	12.5	1x50	-	1x83	0.27
TKR1502050	50	100	159	25	1x50	-	1x108	0.30
TKR1502075	75	125	184	12.5	2x50	-	1x133	0.33
TKR1502100	100	150	209	25	2x50	-	1x158	0.36
TKR1502125	125	175	234	12.5	3x50	-	1x183	0.39
TKR1502150	150	200	259	25	3x50	-	1x208	0.42

Dimensional drawing

Scale reduced mm



Motor Pin Assignment

Connector Type : MOLEX 43025-0800

Yellow	Phase C
Orange	Phase B
Brown	Phase A
Black	GND
Red	Um(+5V)
Grey	Hall sensor C
Blue	Hall sensor B
Green	Hall sensor A

Encoder Pin Assignment

Connector Type : DIN-41651

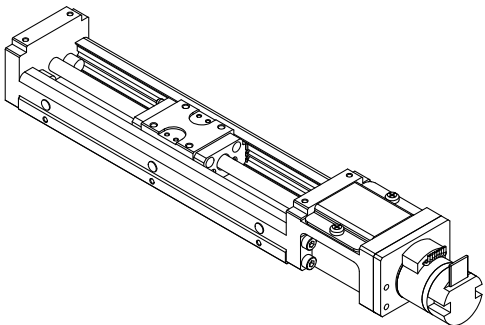
Pin 1	N.C.
Pin 2	UE
Pin 3	GND
Pin 4	N.C.
Pin 5	Ch A-
Pin 6	Ch A+
Pin 7	Ch B-
Pin 8	Ch B+
Pin 9	Ch I-
Pin 10	Ch I+

Option

Controller	Encoder	Brake	Cable
MC 3001 S RS/CO MC 3001 C RS/CO AEMT MC 3001 C PDIO MC 3001 C4 RS/CO MC 5004 C ET MC 5004 C ET AEMT	IE3-1024L IEF3-4096L IER3-10000L AEMT-12/16 L	PFB26E-24V	延長連接線組，耐繞曲線組 請諮詢服務業務
			Others 保護蓋、雙滑塊、極限開關選配

MLA2214012BXTH-R4096L-NBG2001xxxY

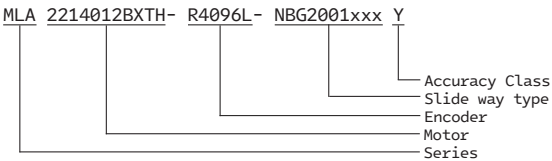
推力 : 50 N
瞬間推力 : 300 N
解析度 : 0.244 μm
連續移動速度 : 50 mm/s



搭配組合 Faulhaber 微型直流伺服馬達與高剛性線軌模組
最緊湊體積下充分發揮空心杯馬達特性，完成高加減速，高速，高精度定位
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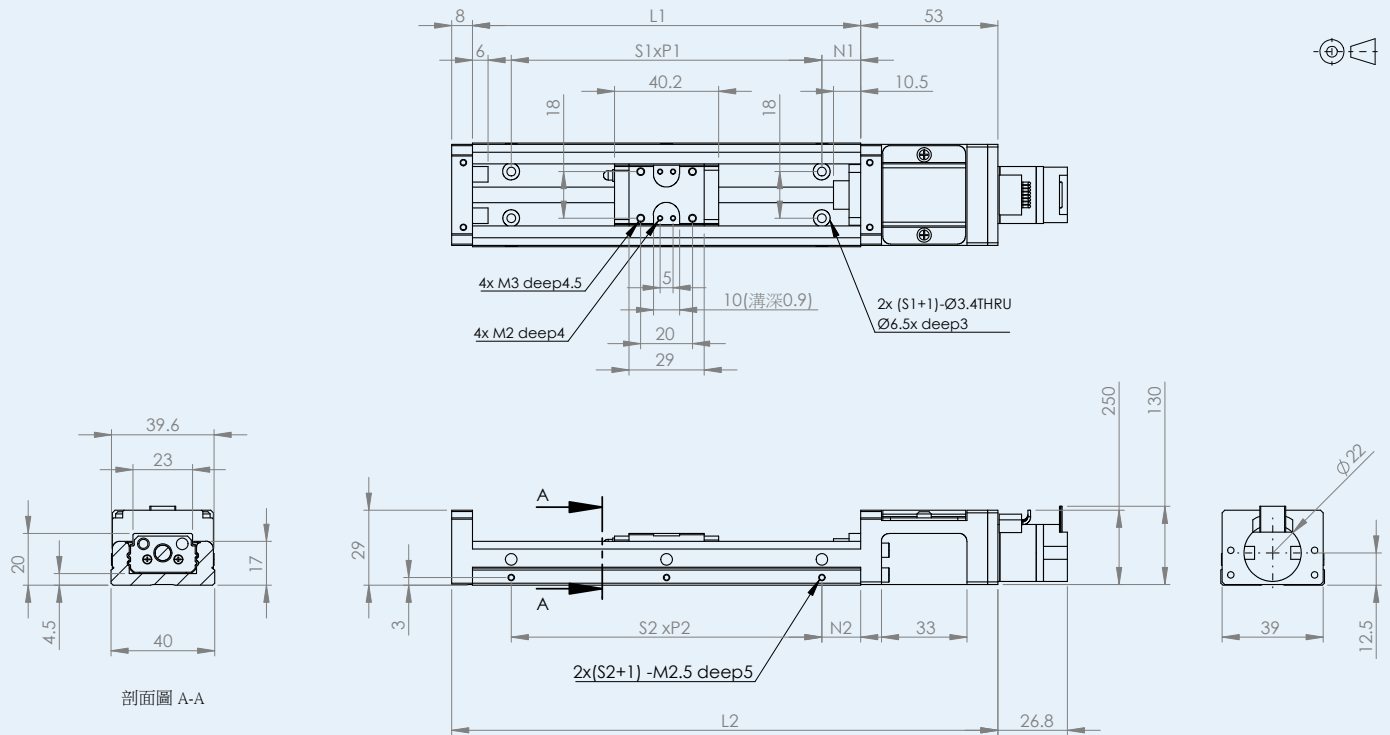
Technical Specification

Nominal voltage	24	V
Nominal current	0.65	A
Terminal resistance	6.95	Ω
Ballscrew pitch	1	mm
Operation temperature range	-20 ... +80	$^{\circ}\text{C}$
Continuous force	50	N
Peak force	300	N
Continuous output speed, max	50	mm/s
Encoder resolution	4096	CPR
Linear resolution	0.244	μm
Accuracy class	H	P
Accuracy	50	20
Repeatability	± 3	± 1
Slide guide backlash	5	0

Slide way type	Stroke(mm)	L1 (mm)	L2 (mm)	N1 (mm)	S1xP1	N2 (mm)	S2xP2	Mass (kg)
NBG2001040	40	100	161	20	1x60	20	1x60	0.52
NBG2001090	90	150	211	15	2x60	15	2x60	0.65
NBG2001140	140	200	261	40	2x60	40	2x60	0.78

Dimensional drawing

Scale reduced mm



Motor Pin Assignment

Connector Type : MOLEX 43025-0800

Yellow	Phase C
Orange	Phase B
Brown	Phase A
Black	GND
Red	Um(+5V)
Grey	Hall sensor C
Blue	Hall sensor B
Green	Hall sensor A

Encoder Pin Assignment

Connector Type : DIN-41651

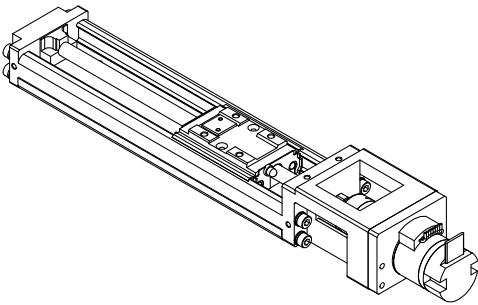
Pin 1	N.C.
Pin 2	UE
Pin 3	GND
Pin 4	N.C.
Pin 5	Ch A-
Pin 6	Ch A+
Pin 7	Ch B-
Pin 8	Ch B+
Pin 9	Ch I-
Pin 10	Ch I+

Option

Controller	Encoder	Brake	Cable
MC 3001 S RS/CO MC 3001 C RS/CO AEMT MC 3001 C PDIO MC 3001 C4 RS/CO MC 5004 C ET MC 5004 C ET AEMT	IE3-1024L IEF3-4096L IER3-10000L AEMT-12/16 L	PFB26E-24V	延長連接線組，耐繞曲線組 請諮詢服務業務
			Others 保護蓋、雙滑塊、極限開關選配

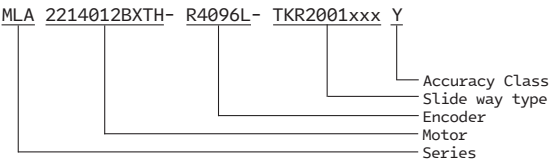
MLA2214012BXTH-R4096L-TKR2001xxxY

- 推力 : 50 N
- 瞬間推力 : 300 N
- 解析度 : 0.244 μm
- 連續移動速度 : 50 mm/s



搭配組合 Faulhaber 微型直流伺服馬達與高剛性線軌模組
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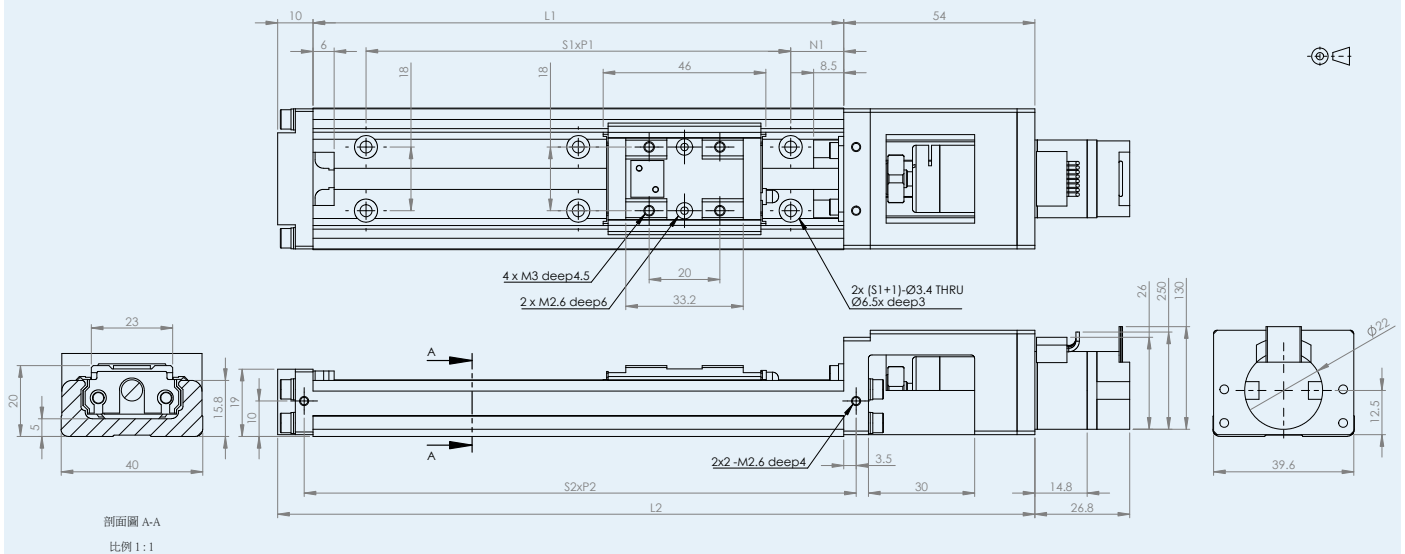


Technical Specification			
Nominal voltage	24		V
Nominal current	0.65		A
Terminal resistance	6.95		Ω
Ballscrew pitch	1		mm
Operation temperature range	-20 ... +80		°C
Continuous force	50		N
Peak force	300		N
Continuous output speed, max	50		mm/s
Encoder resolution	4096		CPR
Linear resolution	0.244		μm
Accuracy class	H	P	
Accuracy	60	20	μm
Repeatability	±5	±3	μm
Slide guide backlash	10	3	μm

Slide way type	Stroke(mm)	L1 (mm)	L2 (mm)	N1 (mm)	S1xP1	N2 (mm)	S2xP2	Mass (kg)
TKR2001030	30	100	164	20	1x60	-	1x106	0.55
TKR2001080	80	150	214	15	2x60	-	1x156	0.68
TKR2001130	130	200	264	40	2x60	-	1x206	0.82

Dimensional drawing

Scale reduced mm



Motor Pin Assignment

Connector Type : MOLEX 43025-0800

Yellow	Phase C
Orange	Phase B
Brown	Phase A
Black	GND
Red	Um(+5V)
Grey	Hall sensor C
Blue	Hall sensor B
Green	Hall sensor A

Encoder Pin Assignment

Connector Type : DIN-41651

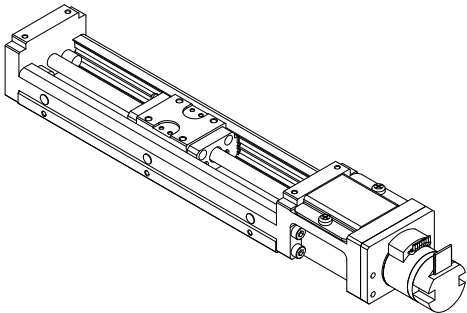
Pin 1	N.C.
Pin 2	UE
Pin 3	GND
Pin 4	N.C.
Pin 5	Ch A-
Pin 6	Ch A+
Pin 7	Ch B-
Pin 8	Ch B+
Pin 9	Ch I-
Pin 10	Ch I+

Option

Controller	Encoder	Brake	Cable
MC 3001 S RS/CO MC 3001 C RS/CO AEMT MC 3001 C PDIO MC 3001 C4 RS/CO MC 5004 C ET MC 5004 C ET AEMT	IE3-1024L IEF3-4096L IER3-10000L AEMT-12/16 L	PFB26E-24V	延長連接線組，耐繞曲線組 請諮詢服務業務
			Others 保護蓋、雙滑塊、極限開關選配

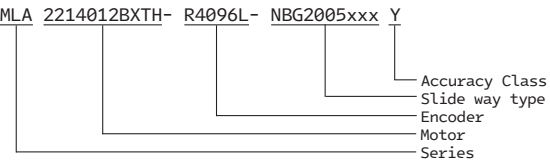
MLA2214012BXTH-R4096L-NBG2005xxxY

推力 : 10 N
瞬間推力 : 50 N
解析度 : 1.22 μm
連續移動速度 : 250 mm/s



搭配組合 Faulhaber 微型直流伺服馬達與高剛性線軌模組
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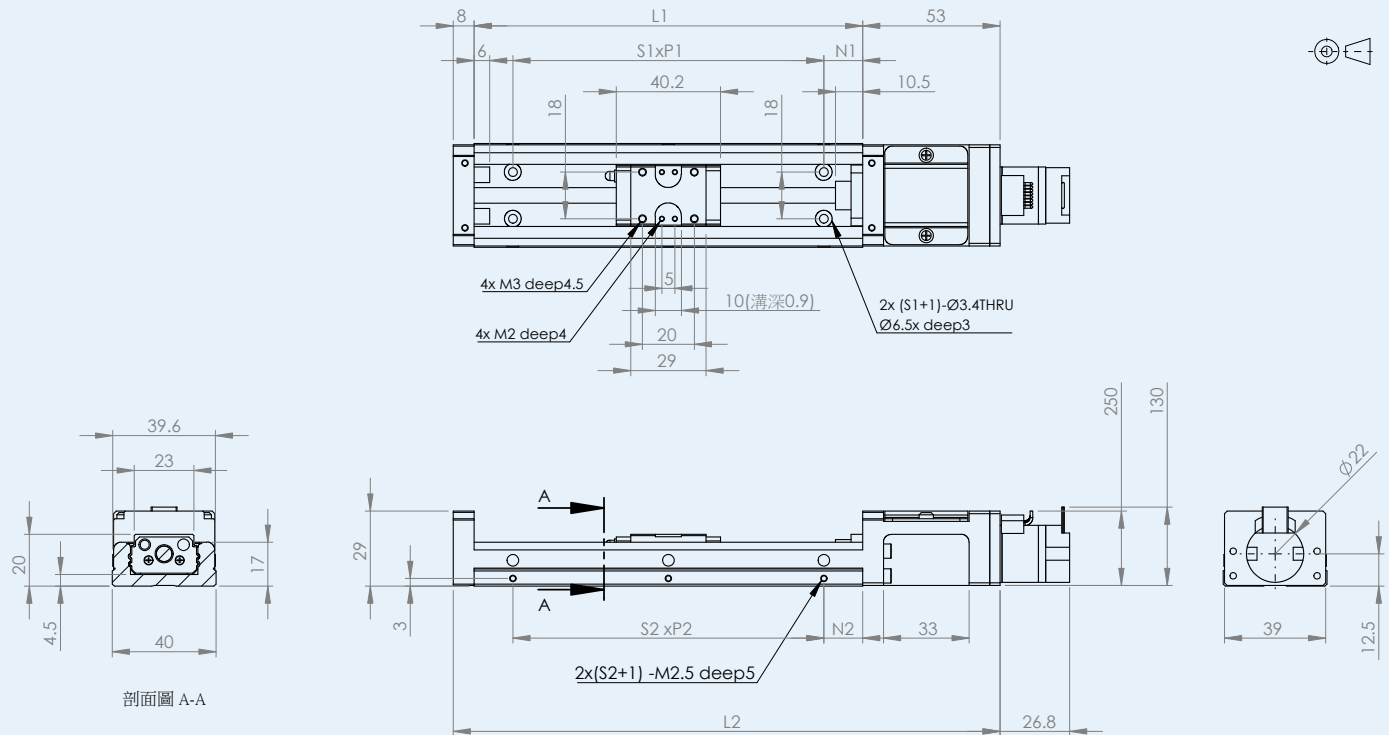


Technical Specification			
Nominal voltage	24		V
Nominal current	0.65		A
Terminal resistance	6.95		Ω
Ballscrew pitch	5		mm
Operation temperature range	-20 ... +80		$^{\circ}\text{C}$
Continuous force	10		N
Peak force	50		N
Continuous output speed, max	250		mm/s
Encoder resolution	4096		CPR
Linear resolution	1.22		μm
Accuracy class	H	P	
Accuracy	50	20	μm
Repeatability	± 3	± 1	μm
Slide guide backlash	5	0	μm

Slide way type	Stroke(mm)	L1 (mm)	L2 (mm)	N1 (mm)	S1xP1	N2 (mm)	S2xP2	Mass (kg)
NBG2005040	40	100	161	20	1x60	20	1x60	0.52
NBG2005090	90	150	211	15	2x60	15	2x60	0.65
NBG2005140	140	200	261	40	2x60	40	2x60	0.78

Dimensional drawing

Scale reduced mm



Motor Pin Assignment

Connector Type : MOLEX 43025-0800

Yellow	Phase C
Orange	Phase B
Brown	Phase A
Black	GND
Red	Um(+5V)
Grey	Hall sensor C
Blue	Hall sensor B
Green	Hall sensor A

Encoder Pin Assignment

Connector Type : DIN-41651

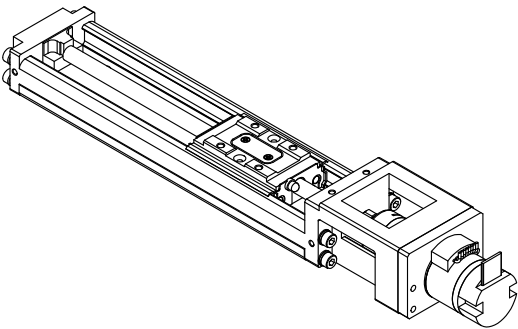
Pin 1	N.C.
Pin 2	UE
Pin 3	GND
Pin 4	N.C.
Pin 5	Ch A-
Pin 6	Ch A+
Pin 7	Ch B-
Pin 8	Ch B+
Pin 9	Ch I-
Pin 10	Ch I+

Option

Controller	Encoder	Brake	Cable
MC 3001 S RS/CO MC 3001 C RS/CO AEMT MC 3001 C PDIO MC 3001 C4 RS/CO MC 5004 C ET MC 5004 C ET AEMT	IE3-1024L IEF3-4096L IER3-10000L AEMT-12/16 L	PFB26E-24V	延長連接線組，耐繞曲線組 請諮詢服務業務
			Others 保護蓋、雙滑塊、極限開關選配

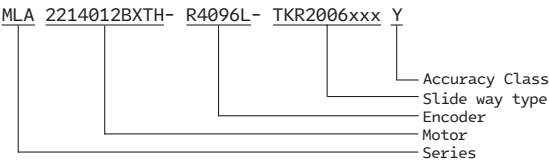
MLA2214012BXTH-R4096L-TKR2006xxxY

推力 : 8 N
瞬間推力 : 48 N
解析度 : 1.464 μm
連續移動速度 : 300 mm/s



搭配組合 Faulhaber 微型直流伺服馬達與高剛性線軌模組
最緊湊體積下充分發揮空心杯馬達特性，完成高加減速，高速，高精度定位
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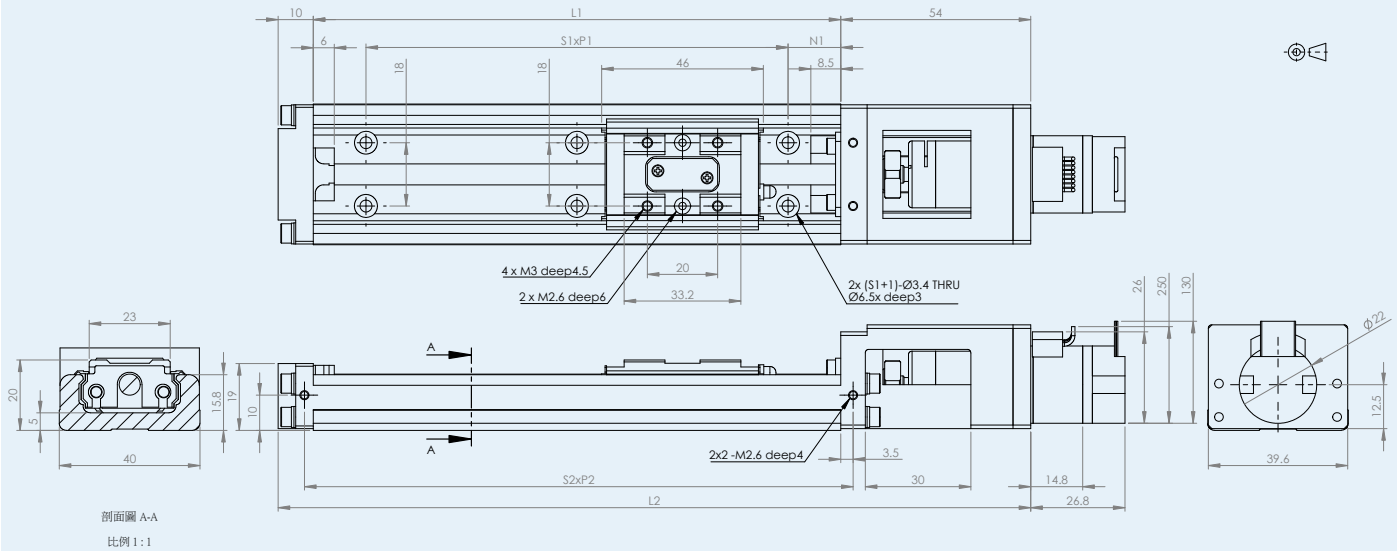
Technical Specification

Nominal voltage	24	V
Nominal current	0.65	A
Terminal resistance	6.95	Ω
Ballscrew pitch	6	mm
Operation temperature range	-20 ... +80	$^{\circ}\text{C}$
Continuous force	8	N
Peak force	48	N
Continuous output speed, max	300	mm/s
Encoder resolution	4096	CPR
Linear resolution	1.464	μm
Accuracy class	H	P
Accuracy	60	20
Repeatability	± 5	± 3
Slide guide backlash	10	3

Slide way type	Stroke(mm)	L1 (mm)	L2 (mm)	N1 (mm)	S1xP1	N2 (mm)	S2xP2	Mass (kg)
TKR2006030	30	100	164	20	1x60	-	1x106	0.55
TKR2006080	80	150	214	15	2x60	-	1x156	0.68
TKR2006130	130	200	264	40	2x60	-	1x206	0.82

Dimensional drawing

Scale reduced mm



Motor Pin Assignment

Connector Type : MOLEX 43025-0800

Yellow	Phase C
Orange	Phase B
Brown	Phase A
Black	GND
Red	Um(+5V)
Grey	Hall sensor C
Blue	Hall sensor B
Green	Hall sensor A

Encoder Pin Assignment

Connector Type : DIN-41651

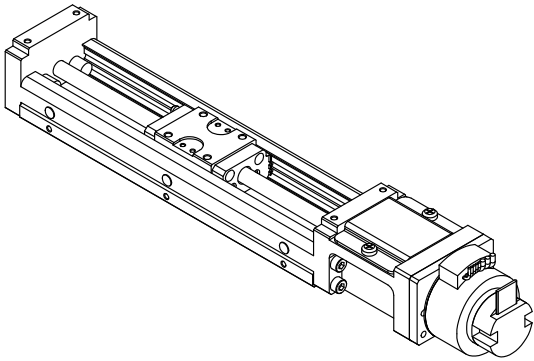
Pin 1	N.C.
Pin 2	UE
Pin 3	GND
Pin 4	N.C.
Pin 5	Ch A-
Pin 6	Ch A+
Pin 7	Ch B-
Pin 8	Ch B+
Pin 9	Ch I-
Pin 10	Ch I+

Option

Controller	Encoder	Brake	Cable
MC 3001 S RS/CO MC 3001 C RS/CO AEMT MC 3001 C PDIO MC 3001 C4 RS/CO MC 5004 C ET MC 5004 C ET AEMT	IE3-1024L IEF3-4096L IER3-10000L AEMT-12/16 L	PFB26E-24V	延長連接線組，耐繞曲線組 請諮詢服務業務
			Others 保護蓋、雙滑塊、極限開關選配

MLA3216012BXTH-R4096L-NBG2001xxxY

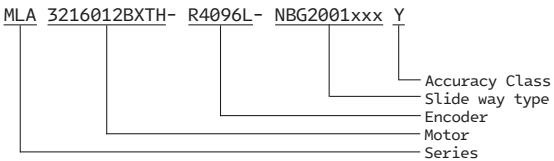
推力 : 200 N
瞬間推力 : 1200 N
解析度 : 0.244 μm
連續移動速度 : 50 mm/s



搭配組合 Faulhaber 微型直流伺服馬達與高剛性線軌模組
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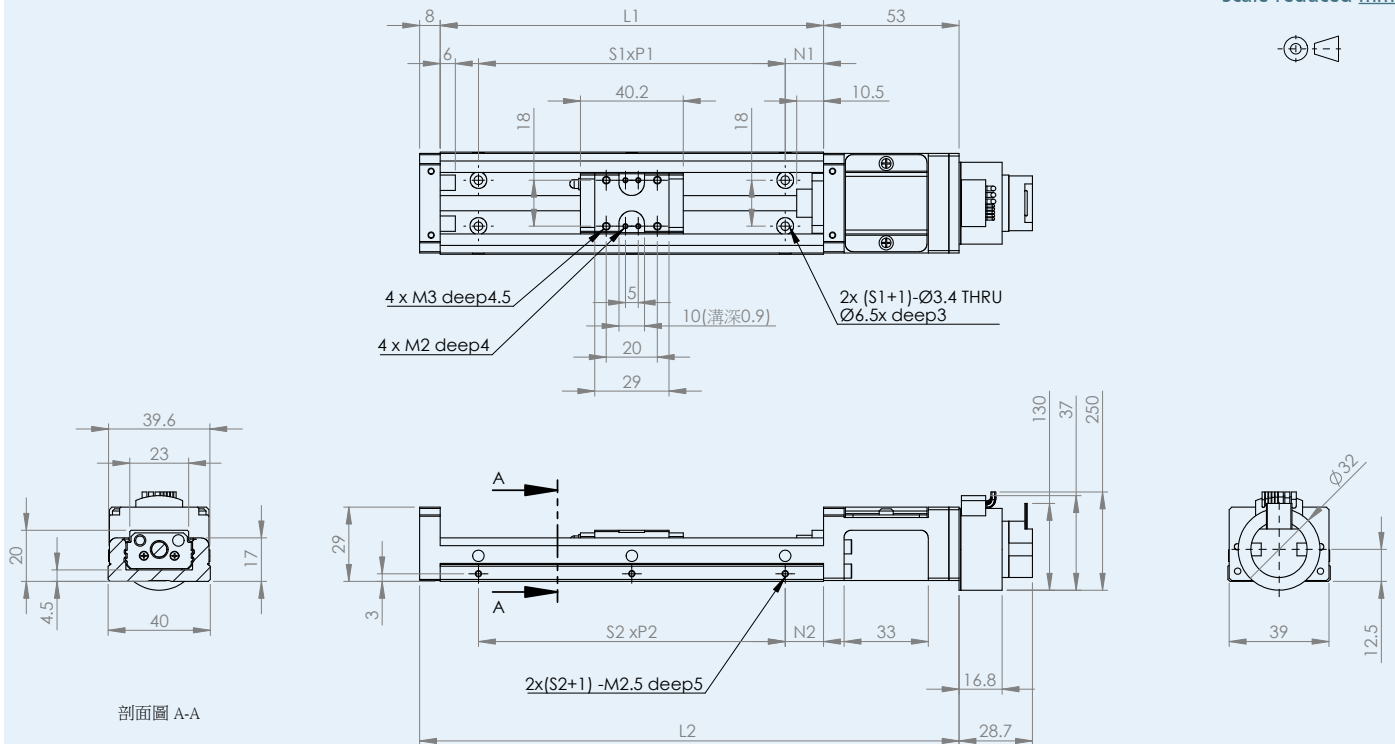


Technical Specification			
Nominal voltage	24		V
Nominal current	2.18		A
Terminal resistance	0.88		Ω
Ballscrew pitch	1		mm
Operation temperature range	-20 ... +80		$^{\circ}\text{C}$
Continuous force	200		N
Peak force	1200		N
Continuous output speed, max	50		mm/s
Encoder resolution	4096		CPR
Linear resolution	0.244		μm
Accuracy class	H	P	
Accuracy	50	20	μm
Repeatability	± 3	± 1	μm
Slide guide backlash	5	0	μm

Slide way type	Stroke(mm)	L1 (mm)	L2 (mm)	N1 (mm)	S1xP1	N2 (mm)	S2xP2	Mass (kg)
NBG2001040	40	100	161	20	1x60	20	1x60	0.56
NBG2001090	90	150	211	15	2x60	15	2x60	0.69
NBG2001140	140	200	261	40	2x60	40	2x60	0.82

Dimensional drawing

Scale reduced mm



Motor Pin Assignment

Connector Type : MOLEX 43025-0800

Yellow	Phase C
Orange	Phase B
Brown	Phase A
Black	GND
Red	Um(+5V)
Grey	Hall sensor C
Blue	Hall sensor B
Green	Hall sensor A

Encoder Pin Assignment

Connector Type : DIN-41651

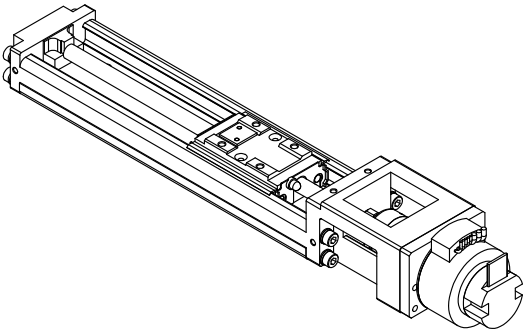
Pin 1	N.C.
Pin 2	UE
Pin 3	GND
Pin 4	N.C.
Pin 5	Ch A-
Pin 6	Ch A+
Pin 7	Ch B-
Pin 8	Ch B+
Pin 9	Ch I-
Pin 10	Ch I+

Option

Controller	Encoder	Brake	Cable
MC 5004 C RS/CO MC 5004 C RS/CO AEMT MC 5004 C PDIO MC 5004 C ET MC 5004 C ET AEMT	IE3-1024L IEF3-4096L IER3-10000L AEMT-12/16 L	PFB26E-24V PFB29E-24V	延長連接線組，耐繞曲線組 請諮詢服務業務
			Others 保護蓋、雙滑塊、極限開關選配

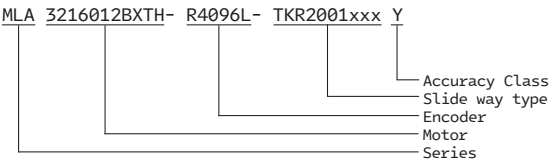
MLA3216012BXTH-R4096L-TKR2001xxxY

推力 : 200 N
瞬間推力 : 1200 N
解析度 : 0.244 μm
連續移動速度 : 50 mm/s



搭配組合 Faulhaber 微型直流伺服馬達與高剛性線軌模組
最緊湊體積下充分發揮空心杯馬達特性，完成高加減速，高速，高精度定位
搭配控制器做閉迴路力量，速度與位置控制，同時具備多種通訊界面供選擇

日本 THK 特規線軌模組
達高剛性、高穩定性與高重現性之特性
另可選配更高解析度，保護蓋，煞車器與極限開關

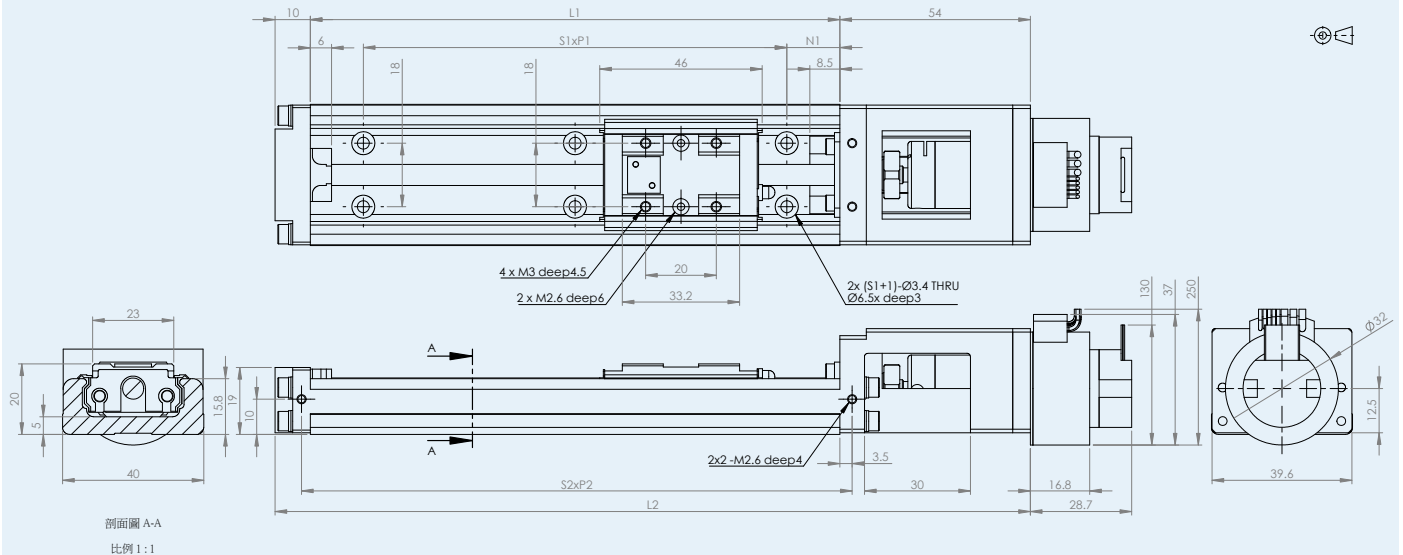


Technical Specification			
Nominal voltage	24		V
Nominal current	2.18		A
Terminal resistance	0.88		Ω
Ballscrew pitch	1		mm
Operation temperature range	-20 ... +80		°C
Continuous force	200		N
Peak force	1200		N
Continuous output speed, max	50		mm/s
Encoder resolution	4096		CPR
Linear resolution	0.244		μm
Accuracy class	H	P	
Accuracy	60	20	μm
Repeatability	±5	±3	μm
Slide guide backlash	10	3	μm

Slide way type	Stroke(mm)	L1 (mm)	L2 (mm)	N1 (mm)	S1xP1	N2 (mm)	S2xP2	Mass (kg)
TKR2001030	30	100	164	20	1x60	-	1x106	0.59
TKR2001080	80	150	214	15	2x60	-	1x156	0.72
TKR2001130	130	200	264	40	2x60	-	1x206	0.86

Dimensional drawing

Scale reduced mm



Motor Pin Assignment

Connector Type : MOLEX 43025-0800

Yellow	Phase C
Orange	Phase B
Brown	Phase A
Black	GND
Red	Um(+5V)
Grey	Hall sensor C
Blue	Hall sensor B
Green	Hall sensor A

Encoder Pin Assignment

Connector Type : DIN-41651

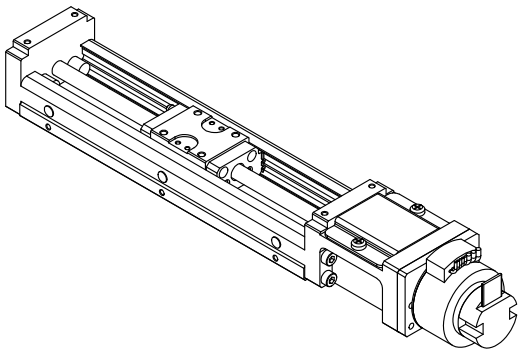
Pin 1	N.C.
Pin 2	UE
Pin 3	GND
Pin 4	N.C.
Pin 5	Ch A-
Pin 6	Ch A+
Pin 7	Ch B-
Pin 8	Ch B+
Pin 9	Ch I-
Pin 10	Ch I+

Option

Controller	Encoder	Brake	Cable
MC 5004 C RS/CO MC 5004 C RS/CO AEMT MC 5004 C PDIO MC 5004 C ET MC 5004 C ET AEMT	IE3-1024L IEF3-4096L IER3-10000L AEMT-12/16 L	PFB26E-24V PFB29E-24V	延長連接線組，耐繞曲線組 請諮詢服務業務
			Others 保護蓋、雙滑塊、極限開關選配

MLA3216012BXTH-R4096L-NBG2005xxxY

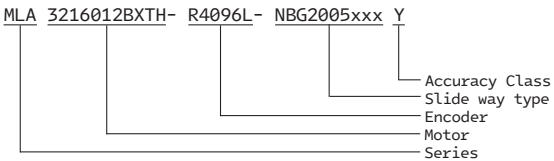
推力 : 40 N
瞬間推力 : 240 N
解析度 : 1.22 μm
連續移動速度 : 250 mm/s



搭配組合 Faulhaber 微型直流伺服馬達與高剛性線軌模組
最緊湊體積下充分發揮空心杯馬達特性，完成高加減速，高速，高精度定位
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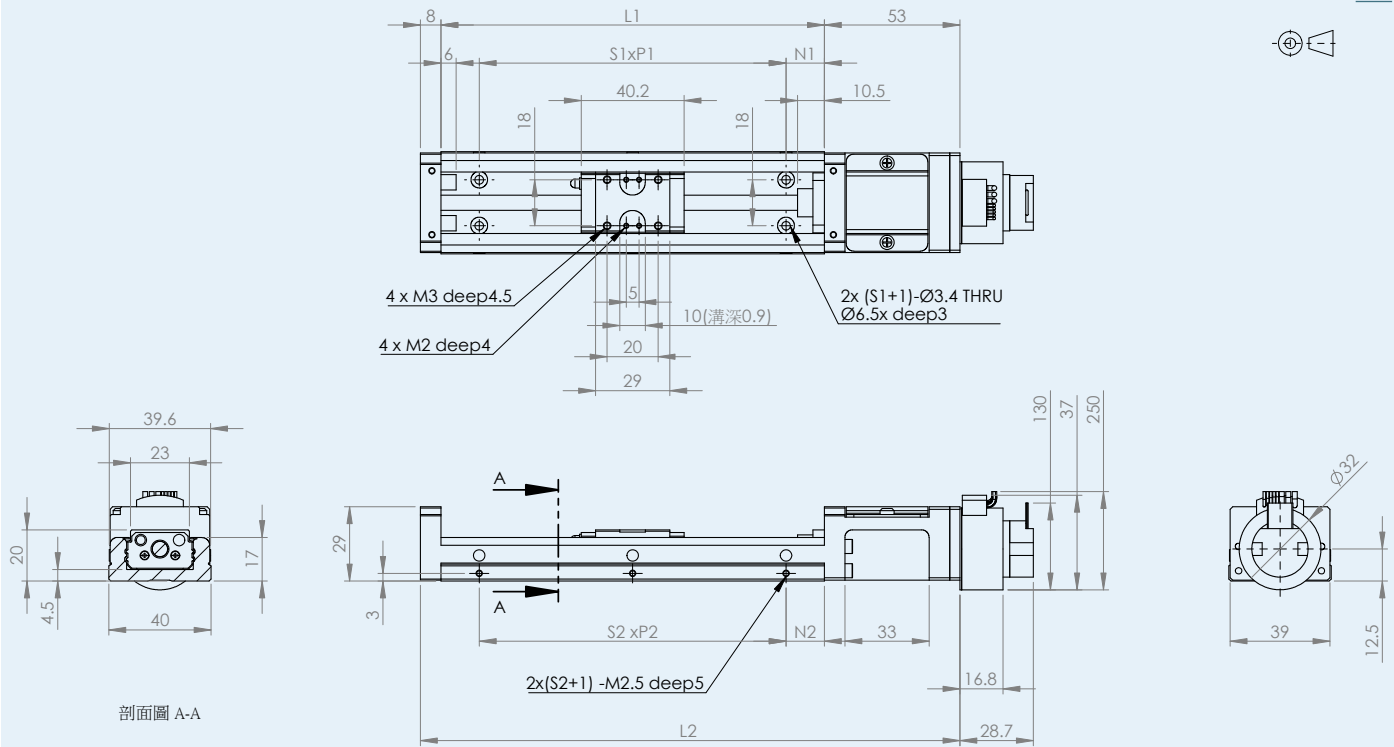


Technical Specification			
Nominal voltage	24		V
Nominal current	2.18		A
Terminal resistance	0.88		Ω
Ballscrew pitch	5		mm
Operation temperature range	-20 ... +80		$^{\circ}\text{C}$
Continuous force	40		N
Peak force	240		N
Continuous output speed, max	250		mm/s
Encoder resolution	4096		CPR
Linear resolution	1.22		μm
Accuracy class	H	P	
Accuracy	50	20	μm
Repeatability	± 3	± 1	μm
Slide guide backlash	5	0	μm

Slide way type	Stroke(mm)	L1 (mm)	L2 (mm)	N1 (mm)	S1xP1	N2 (mm)	S2xP2	Mass (kg)
NBG2005040	40	100	161	20	1x60	20	1x60	0.56
NBG2005090	90	150	211	15	2x60	15	2x60	0.69
NBG2005140	140	200	261	40	2x60	40	2x60	0.82

Dimensional drawing

Scale reduced mm



Motor Pin Assignment

Connector Type : MOLEX 43025-0800

Yellow	Phase C
Orange	Phase B
Brown	Phase A
Black	GND
Red	Um(+5V)
Grey	Hall sensor C
Blue	Hall sensor B
Green	Hall sensor A

Encoder Pin Assignment

Connector Type : DIN-41651

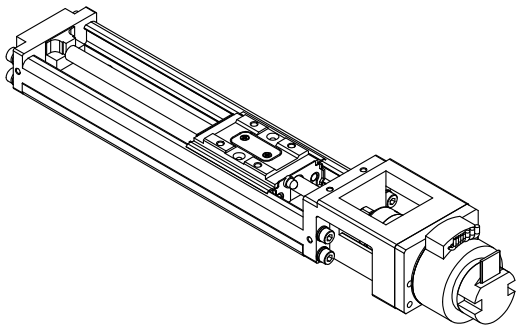
Pin 1	N.C.
Pin 2	UE
Pin 3	GND
Pin 4	N.C.
Pin 5	Ch A-
Pin 6	Ch A+
Pin 7	Ch B-
Pin 8	Ch B+
Pin 9	Ch I-
Pin 10	Ch I+

Option

Controller	Encoder	Brake	Cable
MC 5004 C RS/CO MC 5004 C RS/CO AEMT MC 5004 C PDIO MC 5004 C ET MC 5004 C ET AEMT	IE3-1024L IEF3-4096L IER3-10000L AEMT-12/16 L	PFB26E-24V PFB29E-24V	延長連接線組，耐繞曲線組 請諮詢服務業務
			Others 保護蓋、雙滑塊、極限開關選配

MLA3216012BXTH-R4096L-TKR2006xxxY

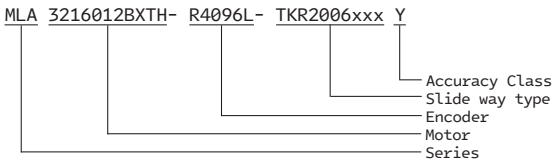
推力 : 30 N
瞬間推力 : 180 N
解析度 : 1.464 μm
連續移動速度 : 300 mm/s



搭配組合 Faulhaber 微型直流伺服馬達與高剛性線軌模組
最緊湊體積下充分發揮空心杯馬達特性，完成高加減速，高速，高精度定位
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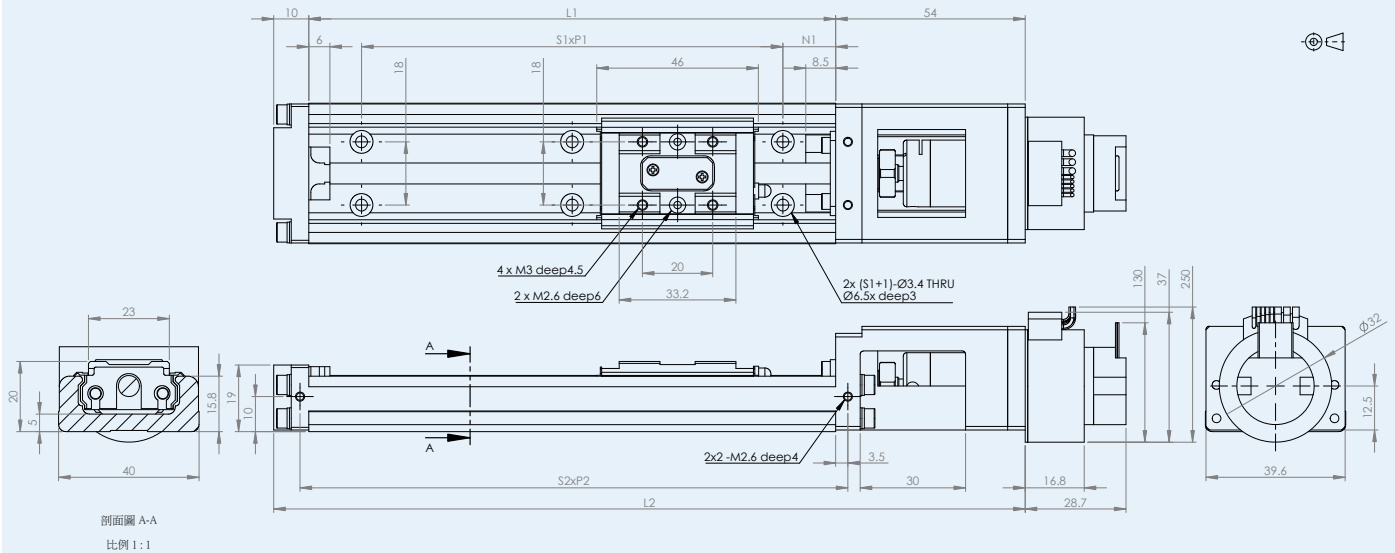


Technical Specification			
Nominal voltage	24		V
Nominal current	2.18		A
Terminal resistance	0.88		Ω
Ballscrew pitch	6		mm
Operation temperature range	-20 ... +80		$^{\circ}\text{C}$
Continuous force	30		N
Peak force	180		N
Continuous output speed, max	300		mm/s
Encoder resolution	4096		CPR
Linear resolution	1.464		μm
Accuracy class	H	P	
Accuracy	60	20	μm
Repeatability	± 5	± 3	μm
Slide guide backlash	10	3	μm

Slide way type	Stroke(mm)	L1 (mm)	L2 (mm)	N1 (mm)	S1xP1	N2 (mm)	S2xP2	Mass (kg)
TKR2006030	30	100	164	20	1x60	-	1x106	0.59
TKR2006080	80	150	214	15	2x60	-	1x156	0.72
TKR2006130	130	200	264	40	2x60	-	1x206	0.86

Dimensional drawing

Scale reduced mm



Motor Pin Assignment

Connector Type : MOLEX 43025-0800

Yellow	Phase C
Orange	Phase B
Brown	Phase A
Black	GND
Red	Um(+5V)
Grey	Hall sensor C
Blue	Hall sensor B
Green	Hall sensor A

Encoder Pin Assignment

Connector Type : DIN-41651

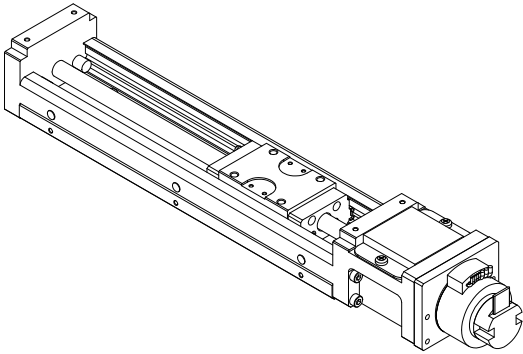
Pin 1	N.C.
Pin 2	UE
Pin 3	GND
Pin 4	N.C.
Pin 5	Ch A-
Pin 6	Ch A+
Pin 7	Ch B-
Pin 8	Ch B+
Pin 9	Ch I-
Pin 10	Ch I+

Option

Controller	Encoder	Brake	Cable
MC 5004 C RS/CO MC 5004 C RS/CO AEMT MC 5004 C PDIO MC 5004 C ET MC 5004 C ET AEMT	IE3-1024L IEF3-4096L IER3-10000L AEMT-12/16 L	PFB26E-24V PFB29E-24V	延長連接線組，耐繞曲線組 請諮詢服務業務
			Others 保護蓋、雙滑塊、極限開關選配

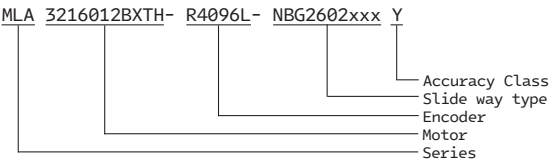
MLA3216012BXTH-R4096L-NBG2602xxxY

推力 : 100 N
瞬間推力 : 600 N
解析度 : 0.488 μm
連續移動速度 : 100 mm/s



搭配組合 Faulhaber 微型直流伺服馬達與高剛性線軌模組
最緊湊體積下充分發揮空心杯馬達特性，完成高加減速，高速，高精度定位
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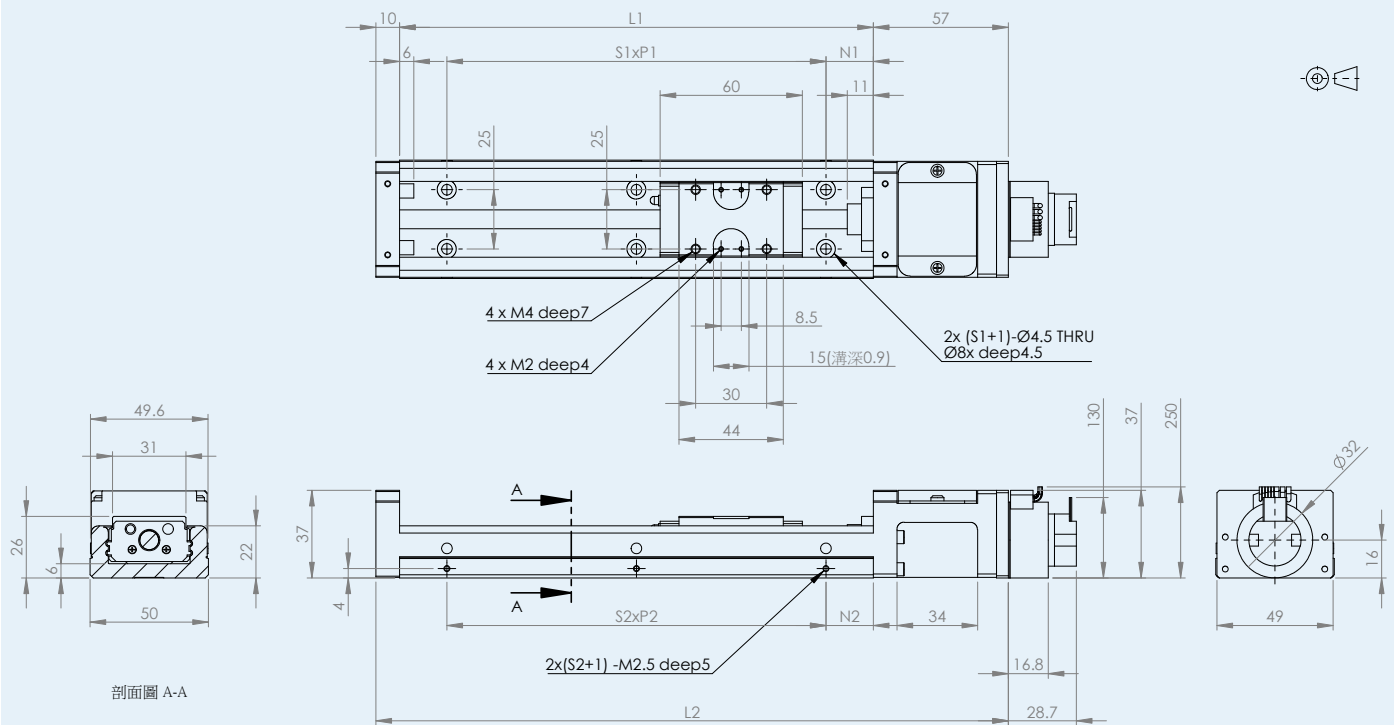


Technical Specification			
Nominal voltage	24		V
Nominal current	2.18		A
Terminal resistance	0.88		Ω
Ballscrew pitch	2		mm
Operation temperature range	-20 ... +80		°C
Continuous force	100		N
Peak force	600		N
Continuous output speed, max	100		mm/s
Encoder resolution	4096		CPR
Linear resolution	0.488		μm
Accuracy class	H	P	
Accuracy	50	20	μm
Repeatability	±3	±1	μm
Slide guide backlash	5	0	μm

Slide way type	Stroke(mm)	L1 (mm)	L2 (mm)	N1 (mm)	S1xP1	N2 (mm)	S2xP2	Mass (kg)
NBG2602070	70	150	217	35	1x80	35	1x80	1.04
NBG2602120	120	200	267	20	2x80	20	2x80	1.25
NBG2602170	170	250	317	45	2x80	45	2x80	1.47
NBG2602220	220	300	367	30	3x80	30	3x80	1.68

Dimensional drawing

Scale reduced mm



Motor Pin Assignment

Connector Type : MOLEX 43025-0800

Yellow	Phase C
Orange	Phase B
Brown	Phase A
Black	GND
Red	Um(+5V)
Grey	Hall sensor C
Blue	Hall sensor B
Green	Hall sensor A

Encoder Pin Assignment

Connector Type : DIN-41651

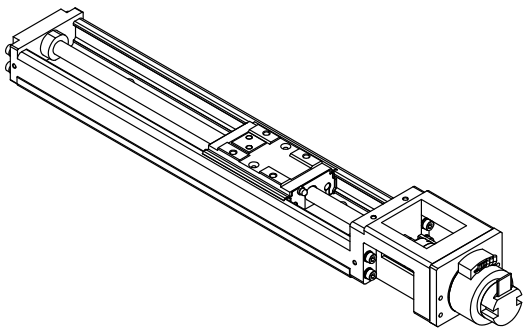
Pin 1	N.C.
Pin 2	UE
Pin 3	GND
Pin 4	N.C.
Pin 5	Ch A-
Pin 6	Ch A+
Pin 7	Ch B-
Pin 8	Ch B+
Pin 9	Ch I-
Pin 10	Ch I+

Option

Controller	Encoder	Brake	Cable
MC 5004 C RS/CO MC 5004 C RS/CO AEMT MC 5004 C PDIO MC 5004 C ET MC 5004 C ET AEMT	IE3-1024L IEF3-4096L IER3-10000L AEMT-12/16 L	PFB26E-24V PFB29E-24V	延長連接線組，耐繞曲線組 請諮詢服務業務
			Others 保護蓋、雙滑塊、極限開關選配

MLA3216012BXTH-R4096L-TKR2602xxxY

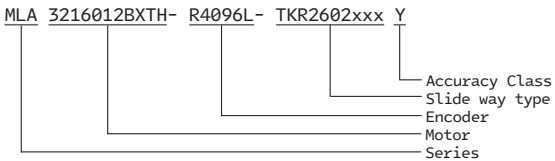
推力 : 100 N
瞬間推力 : 600 N
解析度 : 0.488 μm
連續移動速度 : 100 mm/s



搭配組合 Faulhaber 微型直流伺服馬達與高剛性線軌模組
最緊湊體積下充分發揮空心杯馬達特性，完成高加減速，高速，高精度定位
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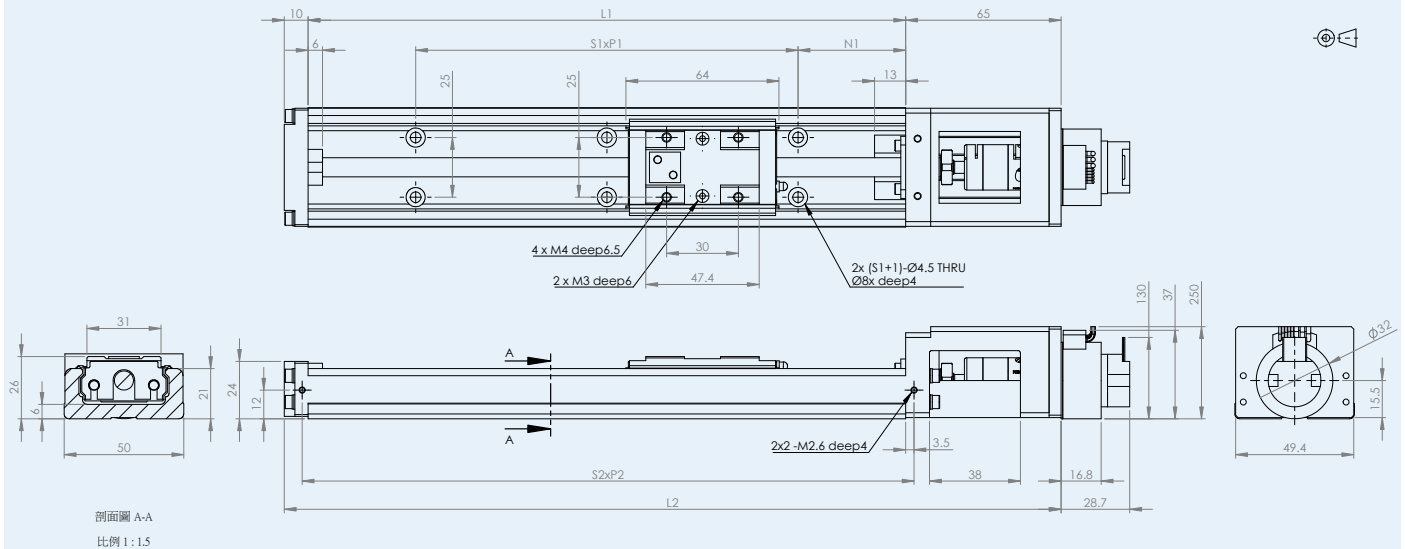
Technical Specification

Nominal voltage	24		V
Nominal current	2.18		A
Terminal resistance	0.88		Ω
Ballscrew pitch	2		mm
Operation temperature range	-20 ... +80		°C
Continuous force	100		N
Peak force	600		N
Continuous output speed, max	100		mm/s
Encoder resolution	4096		CPR
Linear resolution	0.488		μm
Accuracy class	H	P	
Accuracy	60	20	μm
Repeatability	±5	±3	μm
Slide guide backlash	10	3	μm

Slide way type	Stroke(mm)	L1 (mm)	L2 (mm)	N1 (mm)	S1xP1	N2 (mm)	S2xP2	Mass (kg)
TKR2602060	60	150	225	35	1x80	-	1x156	1.15
TKR2602110	110	200	200	20	2x80	-	1x206	1.36
TKR2602160	160	250	250	45	2x80	-	1x256	1.57
TKR2602210	210	300	300	30	3x80	-	1x306	1.78

Dimensional drawing

Scale reduced mm



Motor Pin Assignment

Connector Type : MOLEX 43025-0800

Yellow	Phase C
Orange	Phase B
Brown	Phase A
Black	GND
Red	Um(+5V)
Grey	Hall sensor C
Blue	Hall sensor B
Green	Hall sensor A

Encoder Pin Assignment

Connector Type : DIN-41651

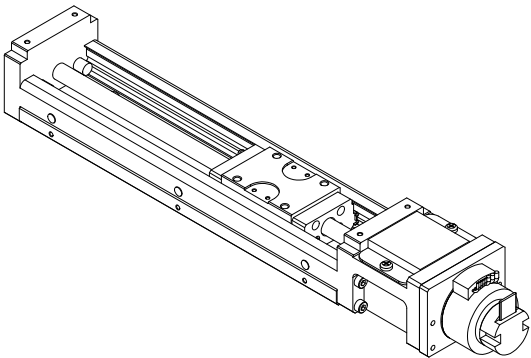
Pin 1	N.C.
Pin 2	UE
Pin 3	GND
Pin 4	N.C.
Pin 5	Ch A-
Pin 6	Ch A+
Pin 7	Ch B-
Pin 8	Ch B+
Pin 9	Ch I-
Pin 10	Ch I+

Option

Controller	Encoder	Brake	Cable
MC 5004 C RS/CO MC 5004 C RS/CO AEMT MC 5004 C PDIO MC 5004 C ET MC 5004 C ET AEMT	IE3-1024L IEF3-4096L IER3-10000L AEMT-12/16 L	PFB26E-24V PFB29E-24V	延長連接線組，耐繞曲線組 請諮詢服務業務
			Others 保護蓋、雙滑塊、極限開關選配

MLA3216012BXTH-R4096L-NBG2605xxxY

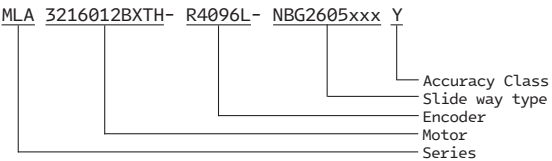
推力 : 40 N
瞬間推力 : 240 N
解析度 : 1.22 μm
連續移動速度 : 250 mm/s



搭配組合 Faulhaber 微型直流伺服馬達與高剛性線軌模組
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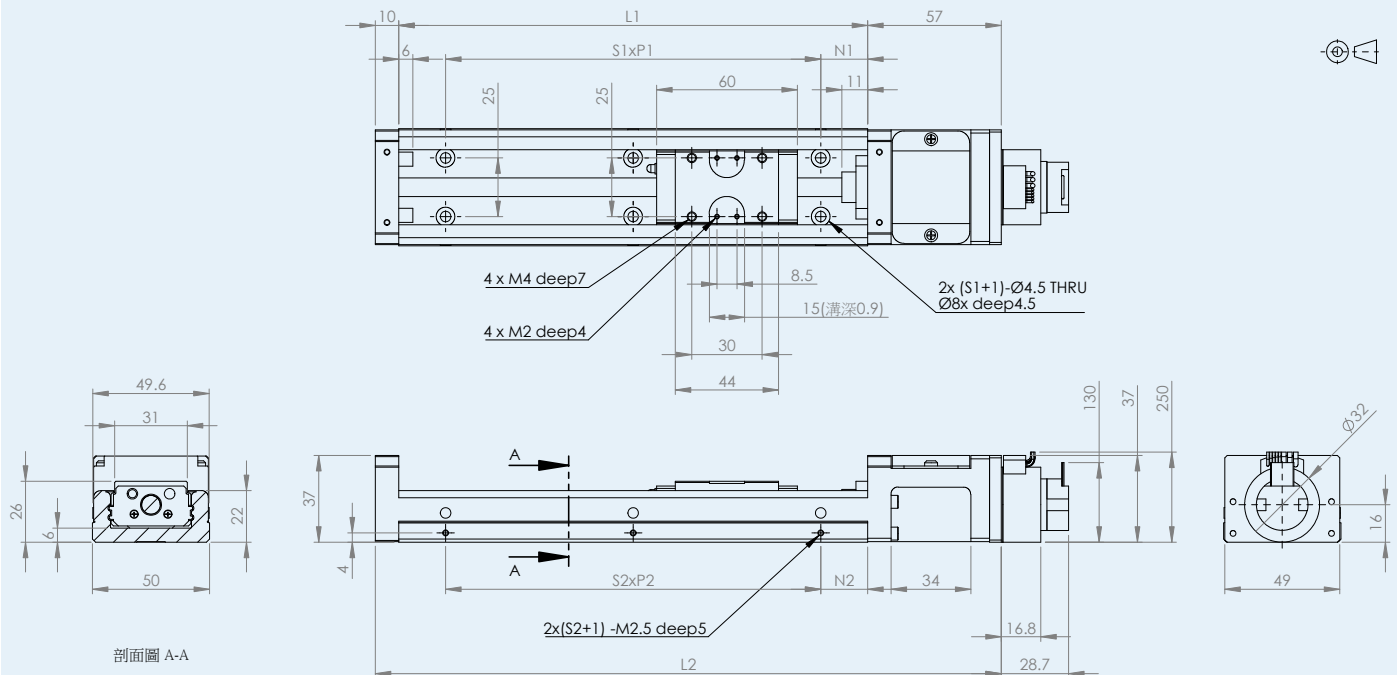


Technical Specification			
Nominal voltage	24		V
Nominal current	2.18		A
Terminal resistance	0.88		Ω
Ballscrew pitch	5		mm
Operation temperature range	-20 ... +80		$^{\circ}\text{C}$
Continuous force	40		N
Peak force	240		N
Continuous output speed, max	250		mm/s
Encoder resolution	4096		CPR
Linear resolution	1.22		μm
Accuracy class	H	P	
Accuracy	50	20	μm
Repeatability	± 3	± 1	μm
Slide guide backlash	5	0	μm

Slide way type	Stroke(mm)	L1 (mm)	L2 (mm)	N1 (mm)	S1xP1	N2 (mm)	S2xP2	Mass (kg)
NBG2605070	70	150	217	35	1x80	35	1x80	1.04
NBG2605120	120	200	267	20	2x80	20	2x80	1.25
NBG2605170	170	250	317	45	2x80	45	2x80	1.47
NBG2605220	220	300	367	30	3x80	30	3x80	1.68

Dimensional drawing

Scale reduced mm



Motor Pin Assignment

Connector Type : MOLEX 43025-0800

Yellow	Phase C
Orange	Phase B
Brown	Phase A
Black	GND
Red	Um(+5V)
Grey	Hall sensor C
Blue	Hall sensor B
Green	Hall sensor A

Encoder Pin Assignment

Connector Type : DIN-41651

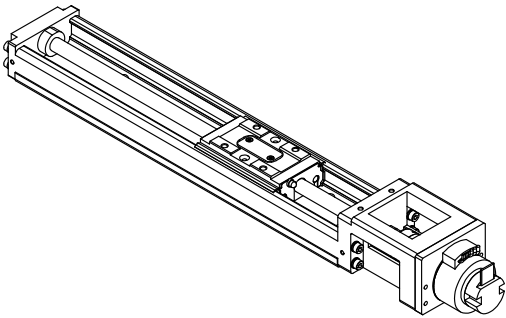
Pin 1	N.C.
Pin 2	UE
Pin 3	GND
Pin 4	N.C.
Pin 5	Ch A-
Pin 6	Ch A+
Pin 7	Ch B-
Pin 8	Ch B+
Pin 9	Ch I-
Pin 10	Ch I+

Option

Controller	Encoder	Brake	Cable
MC 5004 C RS/CO MC 5004 C RS/CO AEMT MC 5004 C PDIO MC 5004 C ET MC 5004 C ET AEMT	IE3-1024L IEF3-4096L IER3-10000L AEMT-12/16 L	PFB26E-24V PFB29E-24V	延長連接線組，耐繞曲線組 請諮詢服務業務
			Others 保護蓋、雙滑塊、極限開關選配

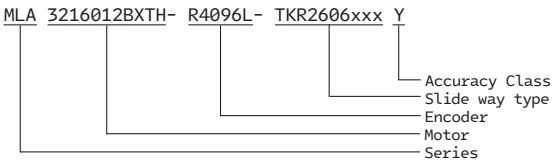
MLA3216012BXTH-R4096L-TKR2606xxxY

- 推力 : 30 N
- 瞬間推力 : 180 N
- 解析度 : 1.464 μm
- 連續移動速度 : 300 mm/s



搭配組合 Faulhaber 微型直流伺服馬達與高剛性線軌模組
最緊湊體積下充分發揮空心杯馬達特性，完成高加減速，高速，高精度定位
搭配控制器做閉迴路力量，速度與位置控制，同時具備多種通訊界面供選擇

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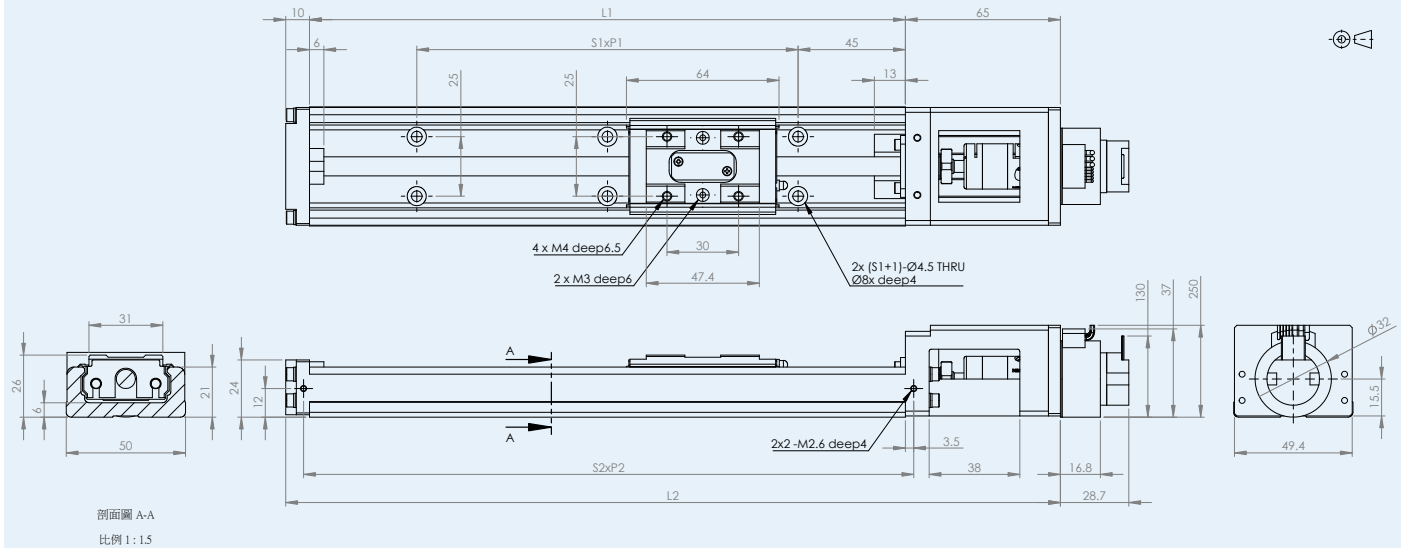
Technical Specification

Nominal voltage	24	V
Nominal current	2.18	A
Terminal resistance	0.88	Ω
Ballscrew pitch	5	mm
Operation temperature range	-20 ... +80	°C
Continuous force	30	N
Peak force	180	N
Continuous output speed, max	300	mm/s
Encoder resolution	4096	CPR
Linear resolution	1.464	μm
Accuracy class	H	P
Accuracy	60	20
Repeatability	±5	±3
Slide guide backlash	10	3

Slide way type	Stroke(mm)	L1 (mm)	L2 (mm)	N1 (mm)	S1xP1	N2 (mm)	S2xP2	Mass (kg)
TKR2606060	60	150	225	35	1x80	-	1x156	1.15
TKR2606110	110	200	275	20	2x80	-	1x206	1.36
TKR2606160	160	250	325	45	2x80	-	1x256	1.57
TKR2606210	210	300	375	30	3x80	-	1x306	1.78

Dimensional drawing

Scale reduced mm



Motor Pin Assignment

Connector Type : MOLEX 43025-0800

Yellow	Phase C
Orange	Phase B
Brown	Phase A
Black	GND
Red	Um(+5V)
Grey	Hall sensor C
Blue	Hall sensor B
Green	Hall sensor A

Encoder Pin Assignment

Connector Type : DIN-41651

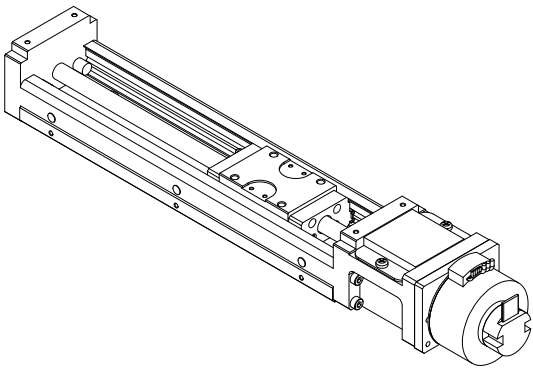
Pin 1	N.C.
Pin 2	UE
Pin 3	GND
Pin 4	N.C.
Pin 5	Ch A-
Pin 6	Ch A+
Pin 7	Ch B-
Pin 8	Ch B+
Pin 9	Ch I-
Pin 10	Ch I+

Option

Controller	Encoder	Brake	Cable
MC 5004 C RS/CO MC 5004 C RS/CO AEMT MC 5004 C PDIO MC 5004 C ET MC 5004 C ET AEMT	IE3-1024L IEF3-4096L IER3-10000L AEMT-12/16 L	PFB26E-24V PFB29E-24V	延長連接線組，耐繞曲線組 請諮詢服務業務
			Others 保護蓋、雙滑塊、極限開關選配

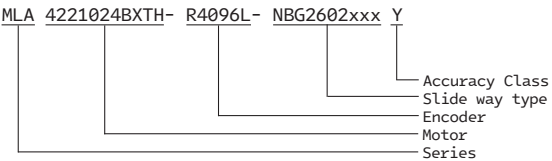
MLA4221024BXTH-R4096L-NBG2602xxxY

推力 : 298 N
瞬間推力 : 1788 N
解析度 : 0.488 μm
連續移動速度 : 100 mm/s



搭配組合 Faulhaber 微型直流伺服馬達與高剛性線軌模組
最緊湊體積下充分發揮空心杯馬達特性，完成高加減速，高速，高精度定位
搭配控制器做閉迴路力量，速度與位置控制，同時具備多種通訊界面供選擇

日本 Nippon Bearing 特規線軌模組
達高剛性、高穩定性與高重現性之特性
另可選配更高解析度，保護蓋，煞車器與極限開關



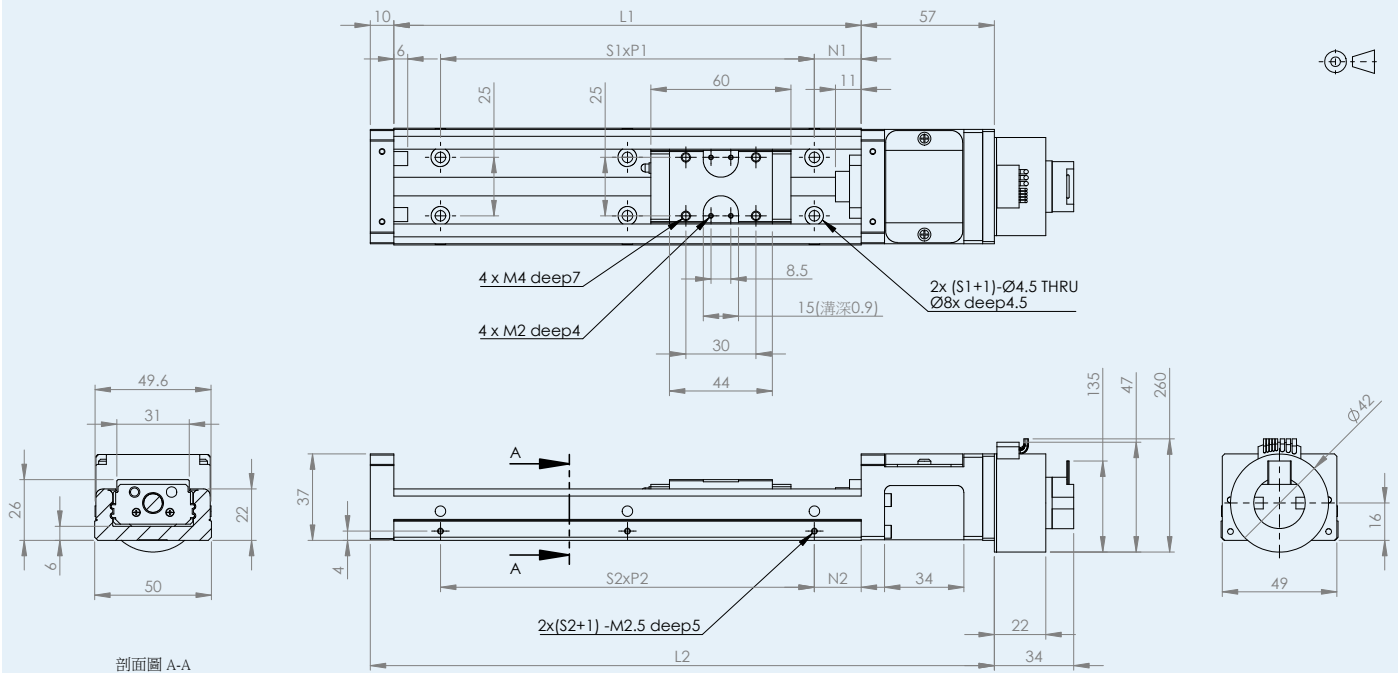
Technical Specification

Nominal voltage	24	V
Nominal current	2.87	A
Terminal resistance	0.74	Ω
Ballscrew pitch	2	mm
Operation temperature range	-20 ... +80	°C
Continuous force	298	N
Peak force	1788	N
Continuous output speed, max	100	mm/s
Encoder resolution	4096	CPR
Linear resolution	0.488	μm
Accuracy class	H	P
Accuracy	50	20
Repeatability	±3	±1
Slide guide backlash	5	0

Slide way type	Stroke(mm)	L1 (mm)	L2 (mm)	N1 (mm)	S1xP1	N2 (mm)	S2xP2	Mass (kg)
NBG2602070	70	150	217	35	1x80	35	1x80	1.12
NBG2602120	120	200	267	20	2x80	20	2x80	1.33
NBG2602170	170	250	317	45	2x80	45	2x80	1.55
NBG2602220	220	300	367	30	3x80	30	3x80	1.76

Dimensional drawing

Scale reduced mm



Motor Pin Assignment

Connector Type : MOLEX 43025-0800

Yellow	Phase C
Orange	Phase B
Brown	Phase A
Black	GND
Red	Um(+5V)
Grey	Hall sensor C
Blue	Hall sensor B
Green	Hall sensor A

Encoder Pin Assignment

Connector Type : DIN-41651

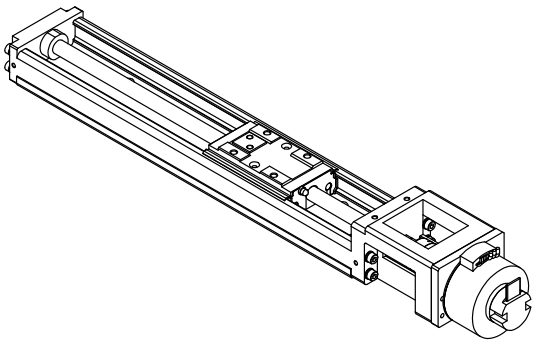
Pin 1	N.C.
Pin 2	UE
Pin 3	GND
Pin 4	N.C.
Pin 5	Ch A-
Pin 6	Ch A+
Pin 7	Ch B-
Pin 8	Ch B+
Pin 9	Ch I-
Pin 10	Ch I+

Option

Controller	Encoder	Brake	Cable
MC 5004 C RS/CO MC 5004 C RS/CO AEMT MC 5004 C PDIO MC 5004 C ET MC 5004 C ET AEMT	IE3-1024L IEF3-4096L IER3-10000L AEMT-12/16 L	PFB29E-24V	延長連接線組，耐繞曲線組 請諮詢服務業務
			Others 保護蓋、雙滑塊、極限開關選配

MLA4221024BXTH-R4096L-TKR2602xxxY

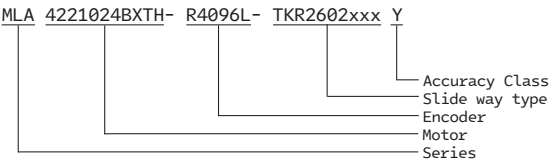
推力 : 298 N
瞬間推力 : 1788 N
解析度 : 0.488 μm
連續移動速度 : 100 mm/s



搭配組合 Faulhaber 微型直流伺服馬達與高剛性線軌模組
最緊湊體積下充分發揮空心杯馬達特性，完成高加減速，高速，高精度定位
搭配控制器做閉迴路力量，速度與位置控制，同時具備多種通訊界面供選擇

日本 THK 特規線軌模組
達高剛性、高穩定性與高重現性之特性

另可選配更高解析度，保護蓋，煞車器與極限開關



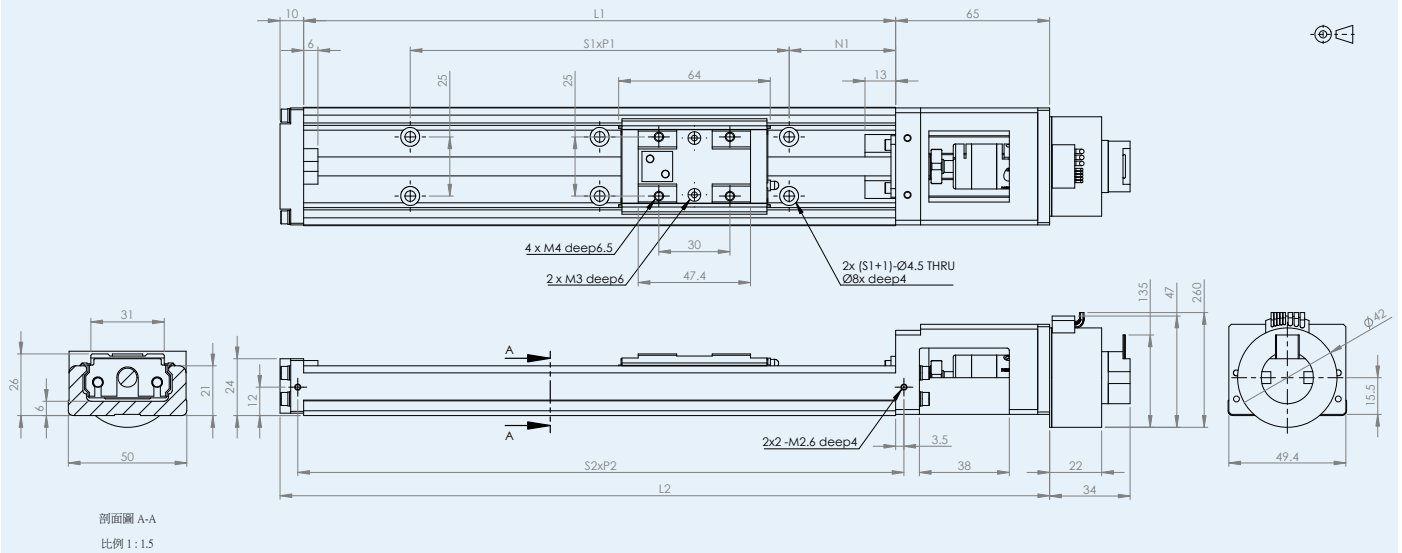
Technical Specification

Nominal voltage	24		V
Nominal current	2.87		A
Terminal resistance	0.74		Ω
Ballscrew pitch	2		mm
Operation temperature range	-20 ... +80		°C
Continuous force	298		N
Peak force	1788		N
Continuous output speed, max	100		mm/s
Encoder resolution	4096		CPR
Linear resolution	0.488		μm
Accuracy class	H	P	
Accuracy	60	20	μm
Repeatability	±5	±3	μm
Slide guide backlash	10	3	μm

Slide way type	Stroke(mm)	L1 (mm)	L2 (mm)	N1 (mm)	S1xP1	N2 (mm)	S2xP2	Mass (kg)
TKR2602060	60	150	225	35	1x80	-	1x156	1.23
TKR2602110	110	200	275	20	2x80	-	1x206	1.44
TKR2602160	160	250	325	45	2x80	-	1x256	1.65
TKR2602210	210	300	375	30	3x80	-	1x306	1.86

Dimensional drawing

Scale reduced mm



Motor Pin Assignment

Connector Type : MOLEX 43025-0800

Yellow	Phase C
Orange	Phase B
Brown	Phase A
Black	GND
Red	Um(+5V)
Grey	Hall sensor C
Blue	Hall sensor B
Green	Hall sensor A

Encoder Pin Assignment

Connector Type : DIN-41651

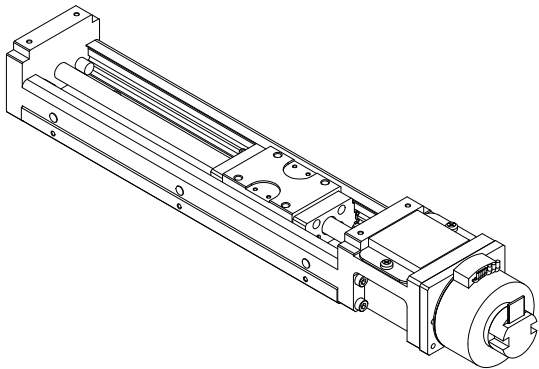
Pin 1	N.C.
Pin 2	UE
Pin 3	GND
Pin 4	N.C.
Pin 5	Ch A-
Pin 6	Ch A+
Pin 7	Ch B-
Pin 8	Ch B+
Pin 9	Ch I-
Pin 10	Ch I+

Option

Controller	Encoder	Brake	Cable
MC 5004 C RS/CO MC 5004 C RS/CO AEMT MC 5004 C PDIO MC 5004 C ET MC 5004 C ET AEMT	IE3-1024L IEF3-4096L IER3-10000L AEMT-12/16 L	PFB29E-24V	延長連接線組，耐繞曲線組 請諮詢服務業務
			Others 保護蓋、雙滑塊、極限開關選配

MLA4221024BXTH-R4096L-NBG2605xxxY

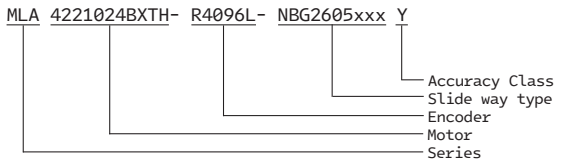
推力 : 119 N
瞬間推力 : 714 N
解析度 : 1.22 μm
連續移動速度 : 250 mm/s



搭配組合 Faulhaber 微型直流伺服馬達與高剛性線軌模組
最緊湊體積下充分發揮空心杯馬達特性，完成高加減速，高速，高精度定位
搭配控制器做閉迴路力量，速度與位置控制，同時具備多種通訊界面供選擇

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達高剛性、高穩定性與高重現性之特性

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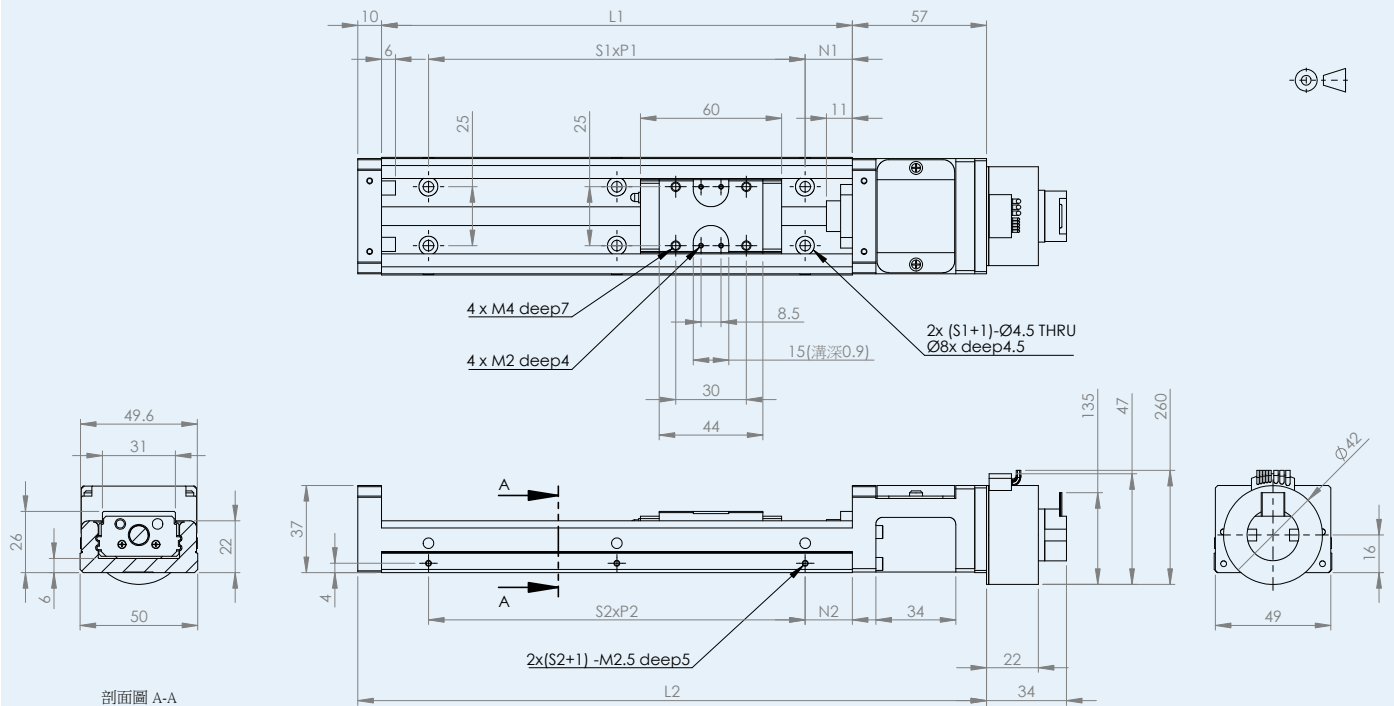
Technical Specification

Nominal voltage	24		V
Nominal current	2.87		A
Terminal resistance	0.74		Ω
Ballscrew pitch	2		mm
Operation temperature range	-20 ... +80		°C
Continuous force	298		N
Peak force	1788		N
Continuous output speed, max	100		mm/s
Encoder resolution	4096		CPR
Linear resolution	0.488		μm
Accuracy class	H	P	
Accuracy	50	20	μm
Repeatability	±3	±1	μm
Slide guide backlash	5	0	μm

Slide way type	Stroke(mm)	L1 (mm)	L2 (mm)	N1 (mm)	S1xP1	N2 (mm)	S2xP2	Mass (kg)
NBG2605070	70	150	217	35	1x80	35	1x80	1.12
NBG2605120	120	200	267	20	2x80	20	2x80	1.33
NBG2605170	170	250	317	45	2x80	45	2x80	1.55
NBG2605220	220	300	367	30	3x80	30	3x80	1.76

Dimensional drawing

Scale reduced mm



Motor Pin Assignment

Connector Type : MOLEX 43025-0800

Yellow	Phase C
Orange	Phase B
Brown	Phase A
Black	GND
Red	Um(+5V)
Grey	Hall sensor C
Blue	Hall sensor B
Green	Hall sensor A

Encoder Pin Assignment

Connector Type : DIN-41651

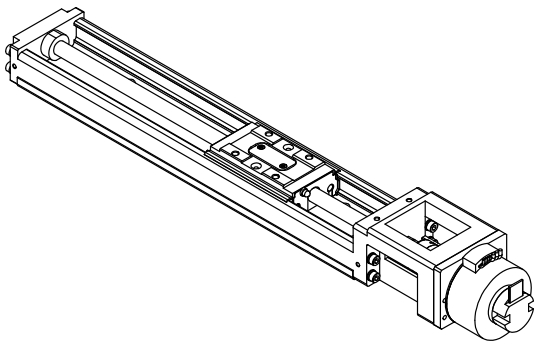
Pin 1	N.C.
Pin 2	UE
Pin 3	GND
Pin 4	N.C.
Pin 5	Ch A-
Pin 6	Ch A+
Pin 7	Ch B-
Pin 8	Ch B+
Pin 9	Ch I-
Pin 10	Ch I+

Option

Controller	Encoder	Brake	Cable
MC 5004 C RS/CO MC 5004 C RS/CO AEMT MC 5004 C PDIO MC 5004 C ET MC 5004 C ET AEMT	IE3-1024L IEF3-4096L IER3-10000L AEMT-12/16 L	PFB29E-24V	延長連接線組，耐繞曲線組 請諮詢服務業務
			Others 保護蓋、雙滑塊、極限開關選配

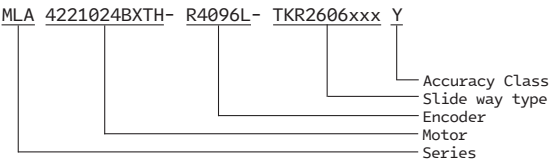
MLA4221024BXTH-R4096L-TKR2606xxxY

推力 : 99 N
瞬間推力 : 594 N
解析度 : 1.464 μm
連續移動速度 : 300 mm/s



搭配組合 Faulhaber 微型直流伺服馬達與高剛性線軌模組
最緊湊體積下充分發揮空心杯馬達特性，完成高加減速，高速，高精度定位
搭配控制器做閉迴路力量，速度與位置控制，同時具備多種通訊界面供選擇

日本 THK 特規線軌模組
達高剛性、高穩定性與高重現性之特性
另可選配更高解析度，保護蓋，煞車器與極限開關

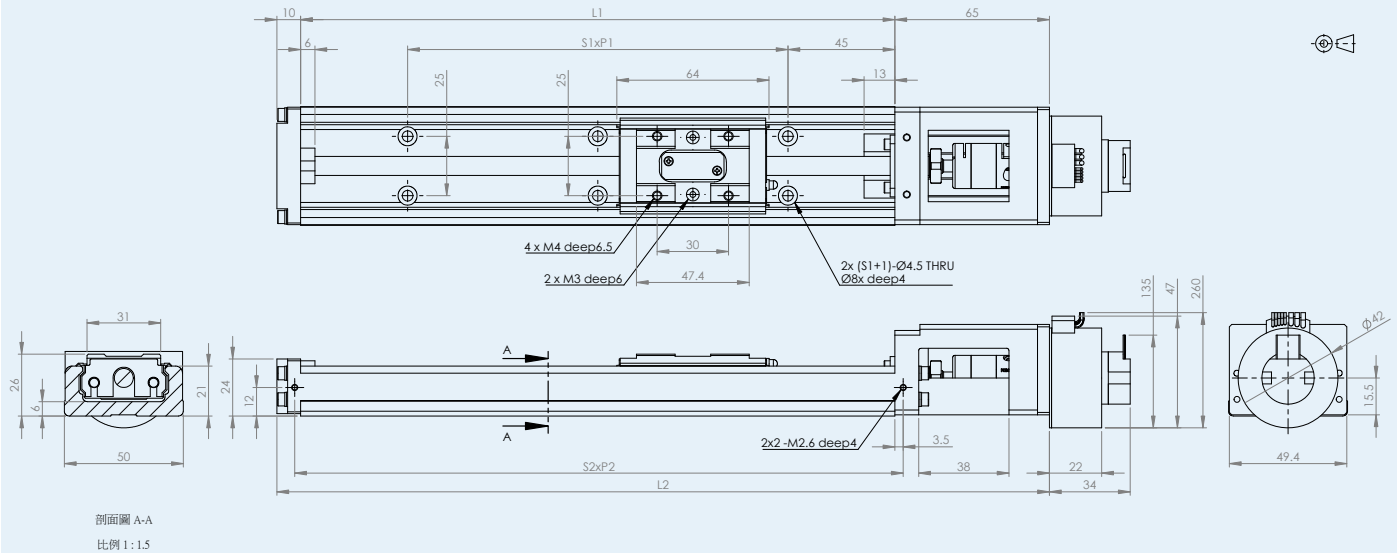


Technical Specification			
Nominal voltage	24		V
Nominal current	2.87		A
Terminal resistance	0.74		Ω
Ballscrew pitch	6		mm
Operation temperature range	-20 ... +80		$^{\circ}\text{C}$
Continuous force	99		N
Peak force	594		N
Continuous output speed, max	300		mm/s
Encoder resolution	4096		CPR
Linear resolution	1.464		μm
Accuracy class	H	P	
Accuracy	60	20	μm
Repeatability	± 5	± 3	μm
Slide guide backlash	10	3	μm

Slide way type	Stroke(mm)	L1 (mm)	L2 (mm)	N1 (mm)	S1xP1	N2 (mm)	S2xP2	Mass (kg)
TKR2606060	60	150	225	35	1x80	-	1x156	1.23
TKR2606110	110	200	275	20	2x80	-	1x206	1.44
TKR2606160	160	250	325	45	2x80	-	1x256	1.65
TKR2606210	210	300	375	30	3x80	-	1x306	1.86

Dimensional drawing

Scale reduced mm



Motor Pin Assignment

Connector Type : MOLEX 43025-0800

Encoder Pin Assignment

Connector Type : DIN-41651

Yellow	Phase C
Orange	Phase B
Brown	Phase A
Black	GND
Red	Um(+5V)
Grey	Hall sensor C
Blue	Hall sensor B
Green	Hall sensor A

Pin 1	N.C.
Pin 2	UE
Pin 3	GND
Pin 4	N.C.
Pin 5	Ch A-
Pin 6	Ch A+
Pin 7	Ch B-
Pin 8	Ch B+
Pin 9	Ch I-
Pin 10	Ch I+

Option

Controller MC 5004 C RS/CO MC 5004 C RS/CO AEMT MC 5004 C PDIO MC 5004 C ET MC 5004 C ET AEMT	Encoder IE3-1024L IEF3-4096L IER3-10000L AEMT-12/16 L	Brake PFB29E-24V	Cable 延長連接線組，耐繞曲線組 請諮詢服務業務
			Others 保護蓋、雙滑塊、極限開關選配



Micro to Nano

M B S Servo Motor Direct Engaged Ball Screws

伺服馬達直結滾珠螺桿系列

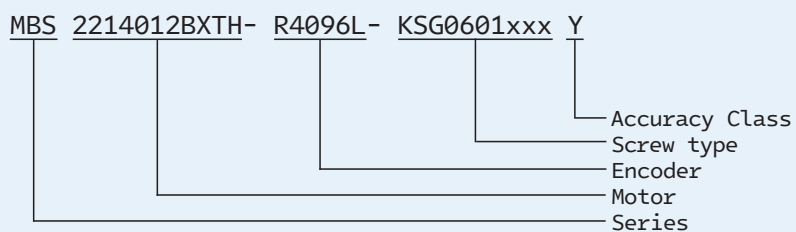
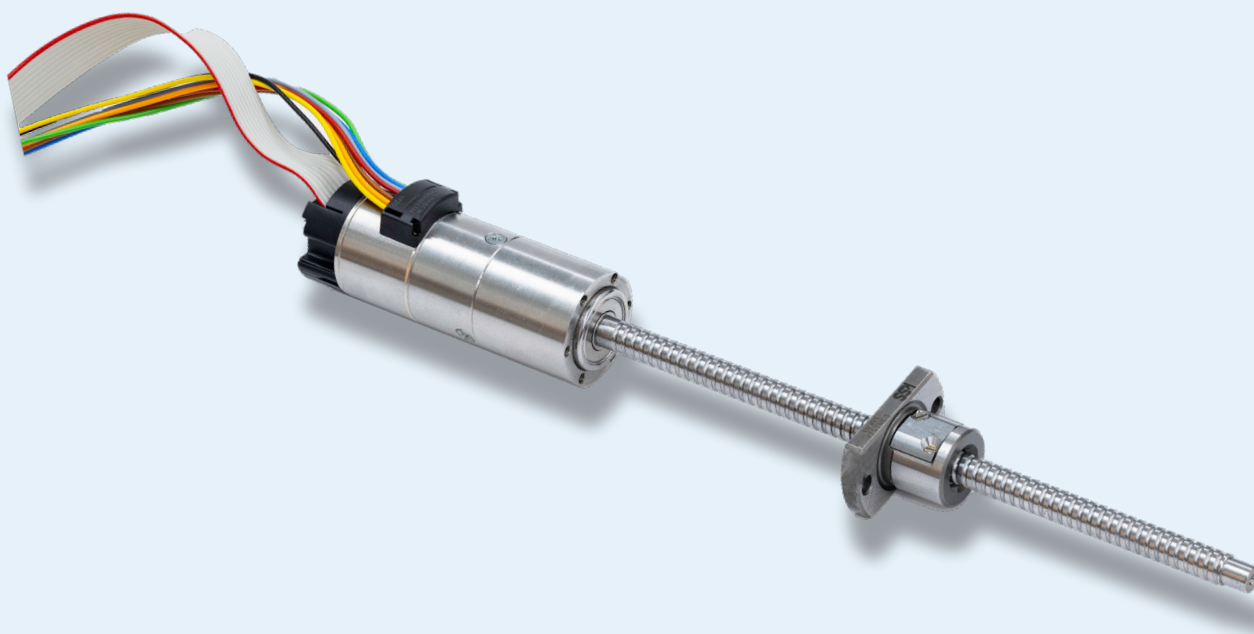
- 行程：~ 200 mm
- 推力：0.5 ~ 40 KG
- 速度：~ 200 mm/sec
- 重複定位精度：~± 1 μ m

搭配組合 **Faulhaber** 微型直流伺服馬達與高精度直結滾珠螺桿
內搭止推結構以增強連結強度
於最緊湊體積下充分發揮空心杯馬達特性
完成高加減速，高速，高精度定位

搭配控制器做閉迴路力量，速度與位置控制
同時具備多種通訊界面供選擇

線軌模組主力搭配日本 **KSS** 達高剛性、高穩定性與高重現性

另可選配更高解析度，絕對型編碼器，煞車器與真空環境版本

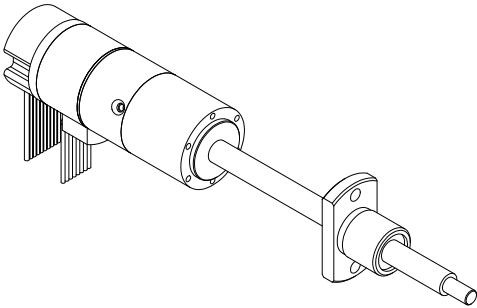


MBS Series | Servo Motor Direct Engaged Ball Screws |

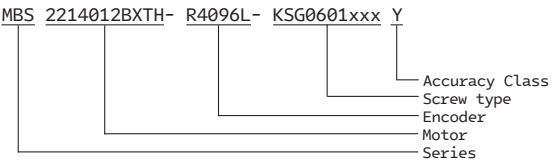
MBS2214012BXTH - R4096L - KSG0601xxxY	66 - 67
MBS2214012BXTH - R4096L - KSG0602xxxY	68 - 69
MBS3216012BXTH - R4096L - KSG0801xxxY	70 - 71
MBS3216012BXTH - R4096L - KSG0802xxxY	72 - 73
MBS4221012BXTH - R4096L - KSG1001xxxY	74 - 75
MBS4221012BXTH - R4096L - KSG1002xxxY	76 - 77

MBS2214012BXTH-R4096L-KSG0601xxxY

推力 : 50 N
瞬間推力 : 150 N
解析度 : 0.244 μm
連續移動速度 : 50 mm/s



搭配組合 Faulhaber 微型直流伺服馬達與高精度直結滾珠螺桿
內搭止推結構以增強連結強度
最緊湊體積下充分發揮空心杯馬達特性，完成高加減速，高速，高精度定位
搭配控制器做閉迴路力量，速度與位置控制，同時具備多種通訊界面供選擇
日本 KSS 特規滾珠螺桿，達高剛性、高穩定性與高重現性
另可選配更高解析度，煞車器與真空環境版本



Technical Specification

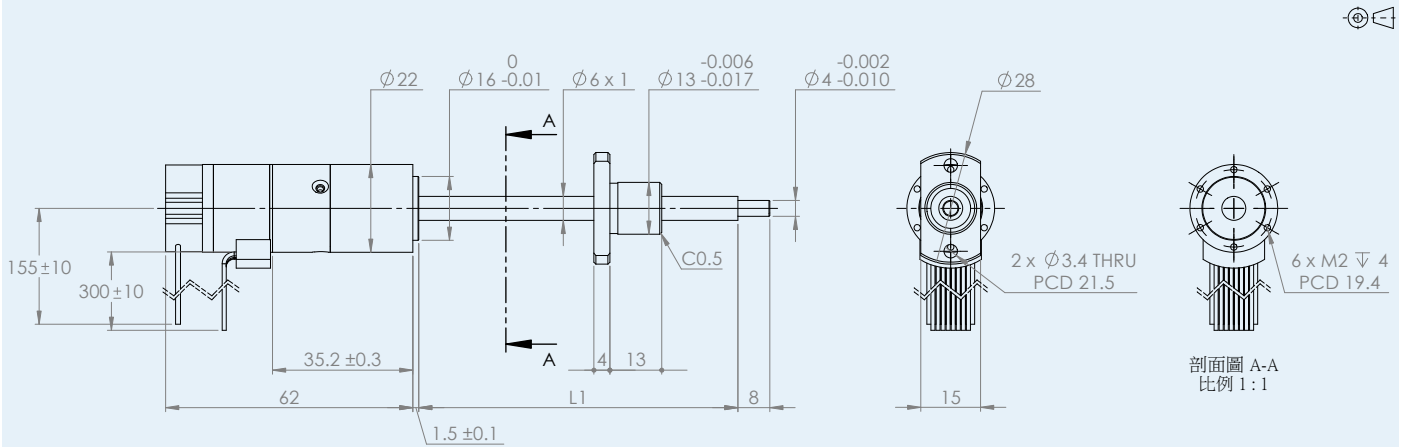
Nominal voltage	24	V
Nominal current	0.65	A
Terminal resistance	6.95	Ω
Ballscrew shaft diameter	6	mm
Ballscrew pitch	1	mm
Operation temperature range	-20 ... +80	°C
Continuous force	50	N
Peak force	150	N
Continuous output speed, max	50	mm/s
Encoder resolution	4096	CPR
Linear resolution	0.244	μm
Accuracy class	H	P
Accuracy*	40	20
Repeatability*	±3	±1
Nut backlash	5	0
Screw material	SCM415H	
Nut material	SCM415H	

* 定位精度和重複定位精度為搭配廠內線性軌道測定數值

Screw type	Stroke(mm)	L1 (mm)	Mass (g)					
KSG0601030	30	80	80					
KSG0601060	60	105	90					
KSG0601100	100	130	100					

Dimensional drawing

Scale reduced mm



Motor Pin Assignment

Connector Type : MOLEX 43025-0800

Yellow	Phase C
Orange	Phase B
Brown	Phase A
Black	GND
Red	Um(+5V)
Grey	Hall sensor C
Blue	Hall sensor B
Green	Hall sensor A

Encoder Pin Assignment

Connector Type : DIN-41651

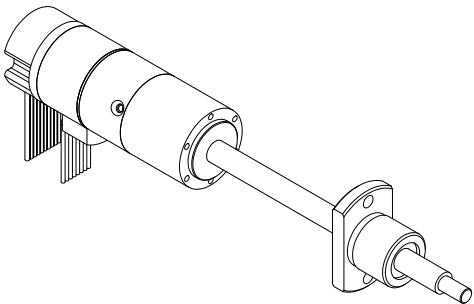
Pin 1	N.C.
Pin 2	UE
Pin 3	GND
Pin 4	N.C.
Pin 5	Ch A-
Pin 6	Ch A+
Pin 7	Ch B-
Pin 8	Ch B+
Pin 9	Ch I-
Pin 10	Ch I+

Option

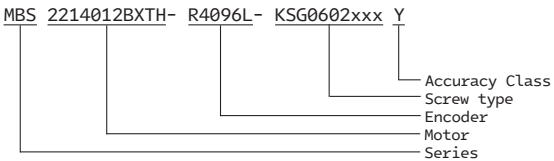
Controller	Encoder	Brake	Cable
MC 3001 S RS/CO MC 3001 C RS/CO AEMT MC 3001 C PDIO MC 3001 C4 RS/CO MC 5004 C ET MC 5004 C ET AEMT	IE3-1024L IEF3-4096L IER3-10000L AEMT-12/16 L	PFB26E-24V	延長連接線組，耐繞曲線組 請諮詢服務業務
			Others

MBS2214012BXTH-R4096L-KSG0602xxxY

推力 : 25 N
 瞬間推力 : 75 N
 解析度 : 0.488 μm
 連續移動速度 : 100 mm/s



搭配組合 Faulhaber 微型直流伺服馬達與高精度直結滾珠螺桿
 內搭止推結構以增強連結強度
 最緊湊體積下充分發揮空心杯馬達特性，完成高加減速，高速，高精度定位
 搭配控制器做閉迴路力量，速度與位置控制，同時具備多種通訊界面供選擇
 日本 KSS 特規滾珠螺桿，達高剛性、高穩定性與高重現性
 另可選配更高解析度，煞車器與真空環境版本



Technical Specification

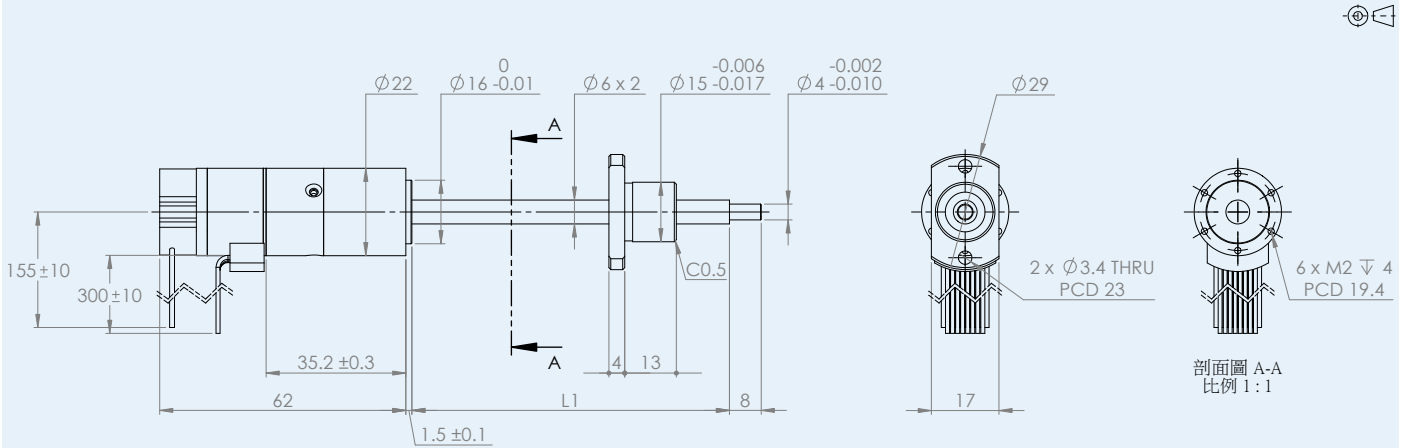
Nominal voltage	24	V
Nominal current	0.65	A
Terminal resistance	6.95	Ω
Ballscrew shaft diameter	6	mm
Ballscrew pitch	2	mm
Operation temperature range	-20 ... +80	°C
Continuous force	25	N
Peak force	75	N
Continuous output speed, max	100	mm/s
Encoder resolution	4096	CPR
Linear resolution	0.488	μm
Accuracy class	H	P
Accuracy*	40	20
Repeatability*	±3	±1
Nut backlash	5	0
Screw material	SCM415H	
Nut material	SCM415H	

* 定位精度和重複定位精度為搭配廠內線性軌道測定數值

Screw type	Stroke(mm)	L1 (mm)	Mass (g)					
KSG0602030	30	80	85					
KSG0602060	60	105	95					
KSG0602100	100	130	105					

Dimensional drawing

Scale reduced mm



Motor Pin Assignment

Connector Type : MOLEX 43025-0800

Yellow	Phase C
Orange	Phase B
Brown	Phase A
Black	GND
Red	Um(+5V)
Grey	Hall sensor C
Blue	Hall sensor B
Green	Hall sensor A

Encoder Pin Assignment

Connector Type : DIN-41651

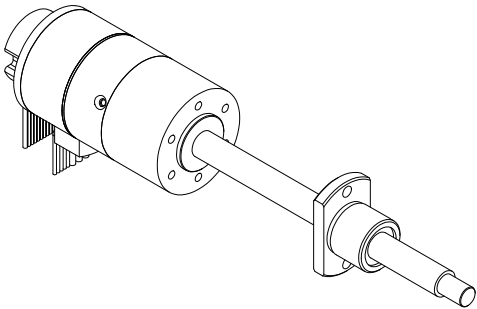
Pin 1	N.C.
Pin 2	UE
Pin 3	GND
Pin 4	N.C.
Pin 5	Ch A-
Pin 6	Ch A+
Pin 7	Ch B-
Pin 8	Ch B+
Pin 9	Ch I-
Pin 10	Ch I+

Option

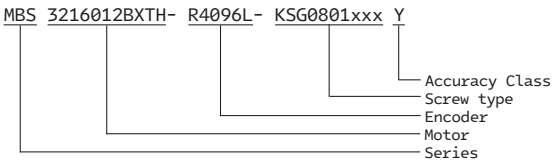
Controller	Encoder	Brake	Cable
MC 3001 S RS/CO MC 3001 C RS/CO AEMT MC 3001 C PDIO MC 3001 C4 RS/CO MC 5004 C ET MC 5004 C ET AEMT	IE3-1024L IEF3-4096L IER3-10000L AEMT-12/16 L	PFB26E-24V	延長連接線組, 耐繞曲線組 請諮詢服務業務
			Others

MBS3216012BXTH-R4096L-KSG0801xxxY

推力 : 200 N
 瞬間推力 : 600 N
 解析度 : 0.244 μm
 連續移動速度 : 50 mm/s



搭配組合 Faulhaber 微型直流伺服馬達與高精度直結滾珠螺桿
 內搭止推結構以增強連結強度
 最緊湊體積下充分發揮空心杯馬達特性，完成高加減速，高速，高精度定位
 搭配控制器做閉迴路力量，速度與位置控制，同時具備多種通訊界面供選擇
 日本 KSS 特規滾珠螺桿，達高剛性、高穩定性與高重現性
 另可選配更高解析度，煞車器與真空環境版本



Technical Specification

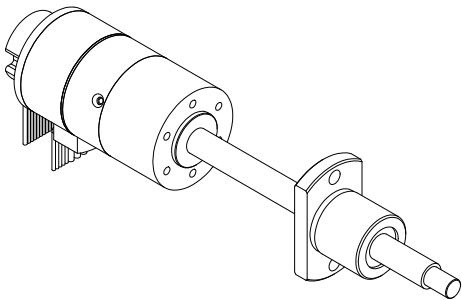
Nominal voltage	24	V
Nominal current	2.18	A
Terminal resistance	0.88	Ω
Ballscrew shaft diameter	8	mm
Ballscrew pitch	1	mm
Operation temperature range	-20 ... +80	°C
Continuous force	200	N
Peak force	600	N
Continuous output speed, max	50	mm/s
Encoder resolution	4096	CPR
Linear resolution	0.244	μm
Accuracy class	H	P
Accuracy*	40	20
Repeatability*	±3	±1
Nut backlash	5	0
Screw material	SCM415H	
Nut material	SCM415H	

* 定位精度和重複定位精度為搭配廠內線性軌道測定數值

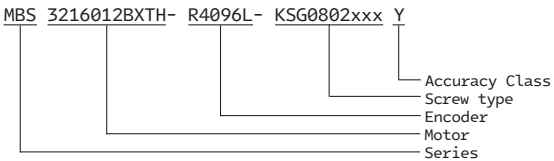
Screw type	Stroke(mm)	L1 (mm)	Mass (g)					
KSG0801040	40	94	170					
KSG0801070	70	124	180					
KSG0801100	100	154	190					
KSG0801150	150	204	210					

MBS3216012BXTH-R4096L-KSG0802xxxY

推力 : 100 N
 瞬間推力 : 300 N
 解析度 : 0.488 μm
 連續移動速度 : 100 mm/s



搭配組合 **Faulhaber** 微型直流伺服馬達與高精度直結滾珠螺桿
 內搭止推結構以增強連結強度
 最緊湊體積下充分發揮空心杯馬達特性，完成高加減速，高速，高精度定位
 搭配控制器做閉迴路力量，速度與位置控制，同時具備多種通訊界面供選擇
 日本 **KSS** 特規滾珠螺桿，達高剛性、高穩定性與高重現性
 另可選配更高解析度，煞車器與真空環境版本



Technical Specification

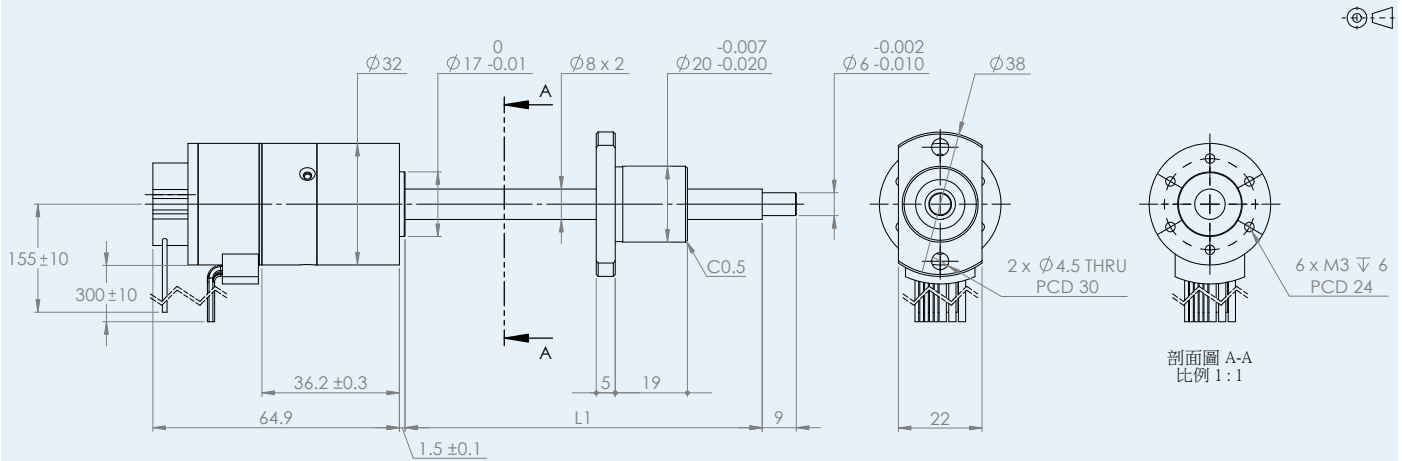
Nominal voltage	24	V
Nominal current	2.18	A
Terminal resistance	0.88	Ω
Ballscrew shaft diameter	8	mm
Ballscrew pitch	2	mm
Operation temperature range	-20 ... +80	$^{\circ}\text{C}$
Continuous force	100	N
Peak force	300	N
Continuous output speed, max	100	mm/s
Encoder resolution	4096	CPR
Linear resolution	0.488	μm
Accuracy class	H	P
Accuracy*	40	20
Repeatability*	± 3	± 1
Nut backlash	5	0
Screw material	SCM415H	
Nut material	SCM415H	

* 定位精度和重複定位精度為搭配廠內線性軌道測定數值

Screw type	Stroke(mm)	L1 (mm)	Mass (g)					
KSG0802040	40	94	175					
KSG0802070	70	124	185					
KSG0802100	100	154	195					
KSG0802150	150	204	215					

Dimensional drawing

Scale reduced mm



Motor Pin Assignment

Connector Type : MOLEX 43025-0800

Yellow	Phase C
Orange	Phase B
Brown	Phase A
Black	GND
Red	Um(+5V)
Grey	Hall sensor C
Blue	Hall sensor B
Green	Hall sensor A

Encoder Pin Assignment

Connector Type : DIN-41651

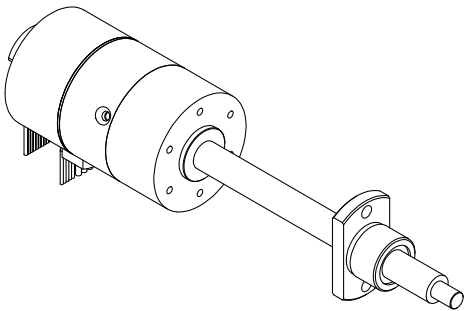
Pin 1	N.C.
Pin 2	UE
Pin 3	GND
Pin 4	N.C.
Pin 5	Ch A-
Pin 6	Ch A+
Pin 7	Ch B-
Pin 8	Ch B+
Pin 9	Ch I-
Pin 10	Ch I+

Option

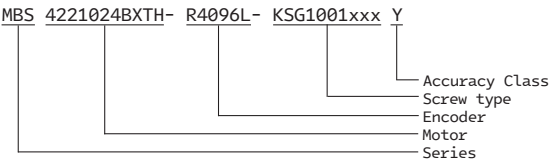
Controller	Encoder	Brake	Cable
MC 5004 C RS/CO MC 5004 C RS/CO AEMT MC 5004 C PDIO MC 5004 C ET MC 5004 C ET AEMT	IE3-1024L IEF3-4096L IER3-10000L AEMT-12/16 L	PFB26E-24V PFB29E-24V	延長連接線組，耐繞曲線組 請諮詢服務業務
			Others

MBS4221024BXTH-R4096L-KSG1001xxxY

推力 : 520 N
瞬間推力 : 1560 N
解析度 : 0.244 μm
連續移動速度 : 50 mm/s



搭配組合 Faulhaber 微型直流伺服馬達與高精度直結滾珠螺桿
內搭止推結構以增強連結強度
最緊湊體積下充分發揮空心杯馬達特性，完成高加減速，高速，高精度定位
搭配控制器做閉迴路力量，速度與位置控制，同時具備多種通訊界面供選擇
日本 KSS 特規滾珠螺桿，達高剛性、高穩定性與高重現性
另可選配更高解析度，煞車器與真空環境版本

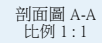


Technical Specification

Nominal voltage	24	V
Nominal current	2.87	A
Terminal resistance	0.74	Ω
Ballscrew shaft diameter	10	mm
Ballscrew pitch	1	mm
Operation temperature range	-20 ... +80	$^{\circ}\text{C}$
Continuous force	298	N
Peak force	520	N
Continuous output speed, max	50	mm/s
Encoder resolution	4096	CPR
Linear resolution	0.244	μm
Accuracy class	H	P
Accuracy*	40	20
Repeatability*	± 3	± 1
Nut backlash	5	0
Screw material	SCM415H	
Nut material	SCM415H	

* 定位精度和重複定位精度為搭配廠內線性軌道測定數值

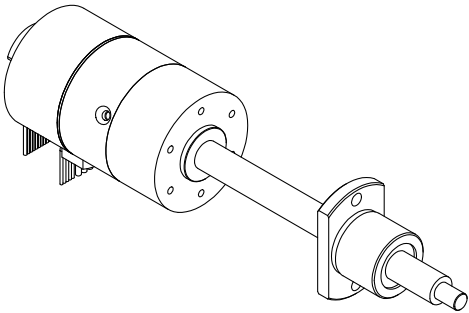
Screw type	Stroke(mm)	L1 (mm)	Mass (g)					
KSG1001060	60	106	360					
KSG1001110	110	156	390					
KSG1001160	160	206	420					
KSG1001210	210	256	450					

Scale reduced mm

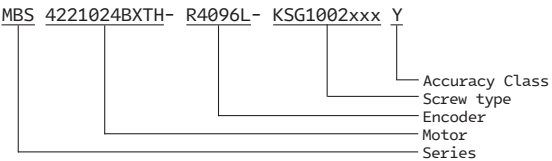
Option			
Controller MC 5004 C RS/CO MC 5004 C RS/CO AEMT MC 5004 C PDIO MC 5004 C ET MC 5004 C ET AEMT	Encoder IE3-1024L IEF3-4096L IER3-10000L AEMT-12/16 L	Brake PFB29E-24V	Cable 延長連接線組，耐繞曲線組 請諮詢服務業務
			Others

MBS4221024BXTH-R4096L-KSG1002xxxY

推力 : 298 N
瞬間推力 : 894 N
解析度 : 0.488 μm
連續移動速度 : 100 mm/s



搭配組合 Faulhaber 微型直流伺服馬達與高精度直結滾珠螺桿
內搭止推結構以增強連結強度
最緊湊體積下充分發揮空心杯馬達特性，完成高加減速，高速，高精度定位
搭配控制器做閉迴路力量，速度與位置控制，同時具備多種通訊界面供選擇
日本 KSS 特規滾珠螺桿，達高剛性、高穩定性與高重現性
另可選配更高解析度，煞車器與真空環境版本



Technical Specification

Nominal voltage	24	V
Nominal current	2.87	A
Terminal resistance	0.74	Ω
Ballscrew shaft diameter	10	mm
Ballscrew pitch	2	mm
Operation temperature range	-20 ... +80	°C
Continuous force	298	N
Peak force	894	N
Continuous output speed, max	100	mm/s
Encoder resolution	4096	CPR
Linear resolution	0.488	μm
Accuracy class	H	P
Accuracy*	40	20
Repeatability*	±3	±1
Nut backlash	5	0
Screw material	SCM415H	
Nut material	SCM415H	

* 定位精度和重複定位精度為搭配廠內線性軌道測定數值

Screw type	Stroke(mm)	L1 (mm)	Mass (g)					
KSG1002060	60	106	370					
KSG1002110	110	156	400					
KSG1002160	160	206	430					
KSG1002210	210	256	460					

MicNano

Micro to Nano

LAST

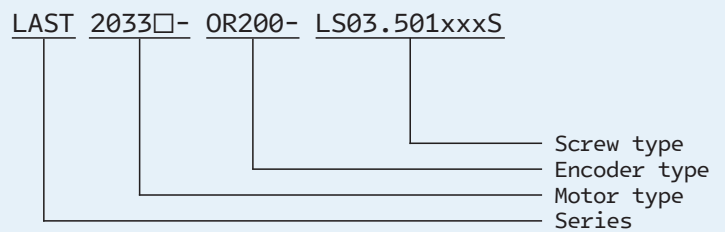
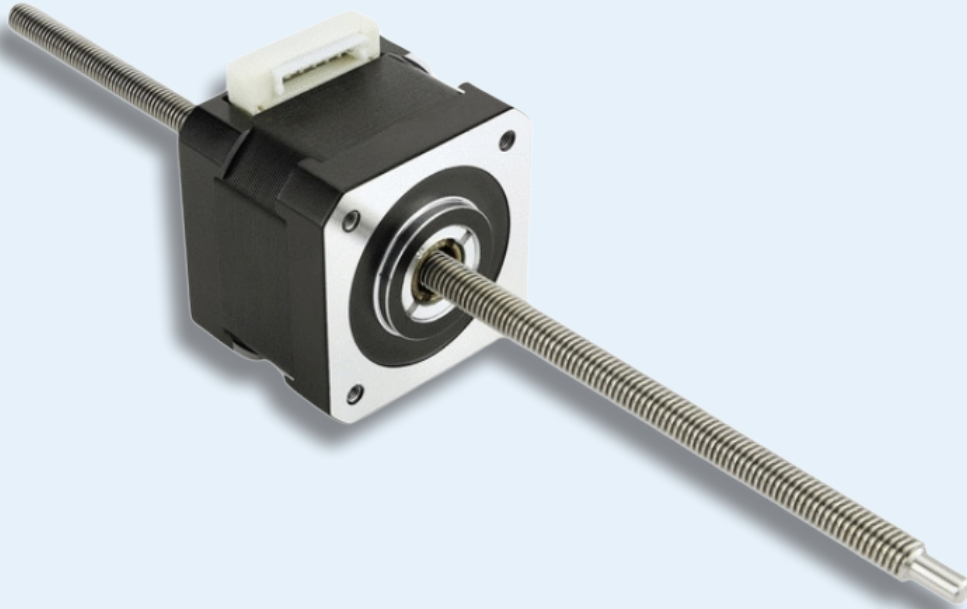
Non-Captive Actuator

貫通軸步進線性致動器

- 行程：~ 500 mm
 - 推力：~ 250 N
 - 速度：~ 100 mm/sec
-

兩相式貫通步進馬達，於其內部結構安裝螺母
搭配螺桿達直驅致動器的效果，安裝結構單純簡單
方便使用，給在極限空間內另一種解決方案

另可選配編碼器

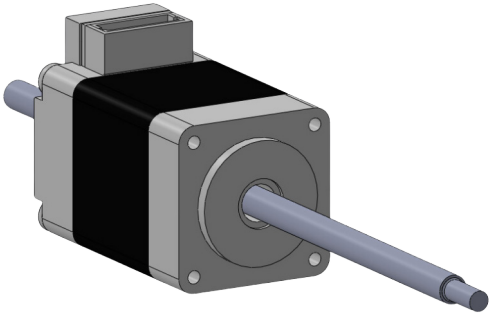


LAST Series | Non-Captive Actuator |

LAST2033□-OR200-LS03.501xxxS	80 - 81
LAST2833□-OR200-LS0502xxxS	82 - 83
LAST2833□-OR200-ALS0505xxxS	84 - 85
LAST3534□-OR200-LS0601xxxS	86 - 87
LAST3534□-OR200-ALS0606xxxS	88 - 89
LAST4233□-OR200-LS0602xxxS	90 - 91
LAST4233□-OR200-ALS0606xxxS	92 - 93

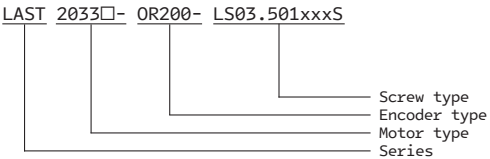
LAST2033□-OR200-LS03.501xxxS

推力 : 46 N
連續移動速度 : 40 mm/s



兩相式貫通步進馬達，於其內部結構安裝螺母
搭配螺桿達直驅致動器的效果，安裝結構單純簡單
方便使用，給在極限空間內另一種解決方案

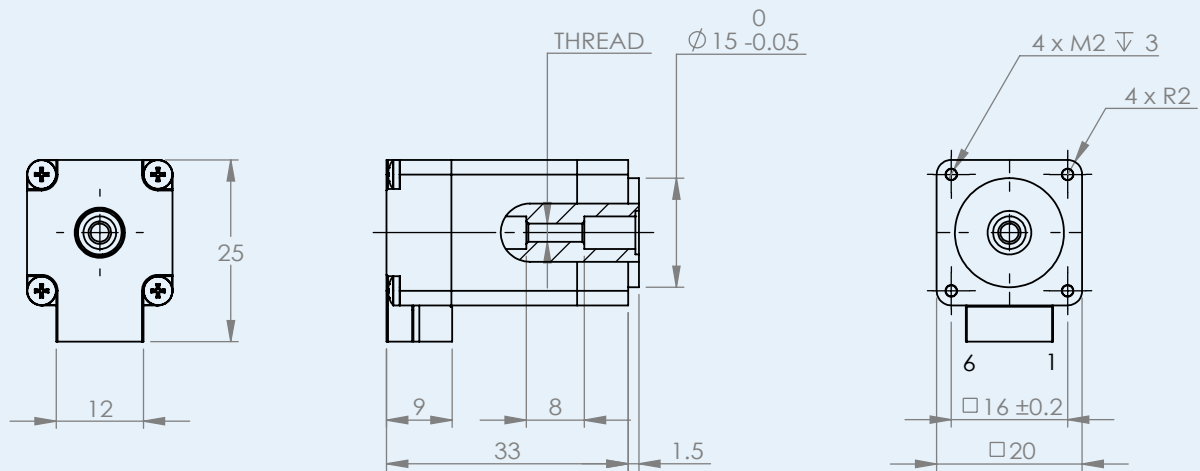
另可選配編碼器



Technical Specification		
Nominal voltage	24	V
Nominal current	0.6	A
Terminal resistance	6.4	Ω
Leadscrew diameter	M3.5	mm
Leadscrew pitch	1	mm
Leadscrew length	customized	mm
Operation temperature range	-20 ... +50	°C
Force	46	N
Continuous output speed, max	40	mm/s
Step angle (full step)	1.8	°
Motor type	two phase stepper motor	

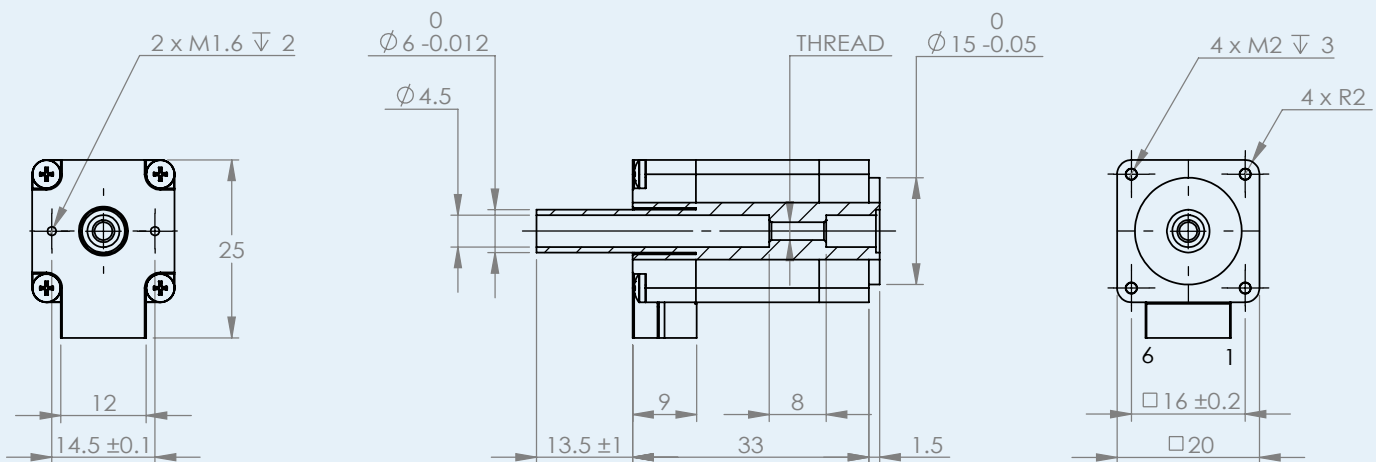
Dimensional drawing (LAST2033A-OR200-LS03.501xxxS)

Scale reduced mm



Dimensional drawing (LAST2033B-OR200-LS03.501xxxS)

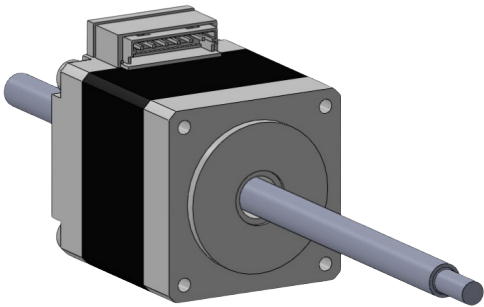
Scale reduced mm



Motor Pin Assignment			Option	
Motor Connector Type : JST B6B-ZR			Encoder	Cable 0.5 m 1.5 m
Wire Connector Types : JST ZH6-6 (AWG26)				
Pin 1	Black	A+		
Pin 2	N.C.	N.C.		
Pin 3	Green	A-		
Pin 4	Red	B+		
Pin 5	N.C.	N.C.		
Pin 6	Blue	B-		

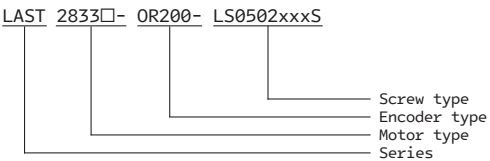
LAST2833□-OR200-LS0502xxxS

推力 : 93 N
連續移動速度 : 35 mm/s



兩相式貫通步進馬達，於其內部結構安裝螺母
搭配螺桿達直驅致動器的效果，安裝結構單純簡單
方便使用，給在極限空間內另一種解決方案

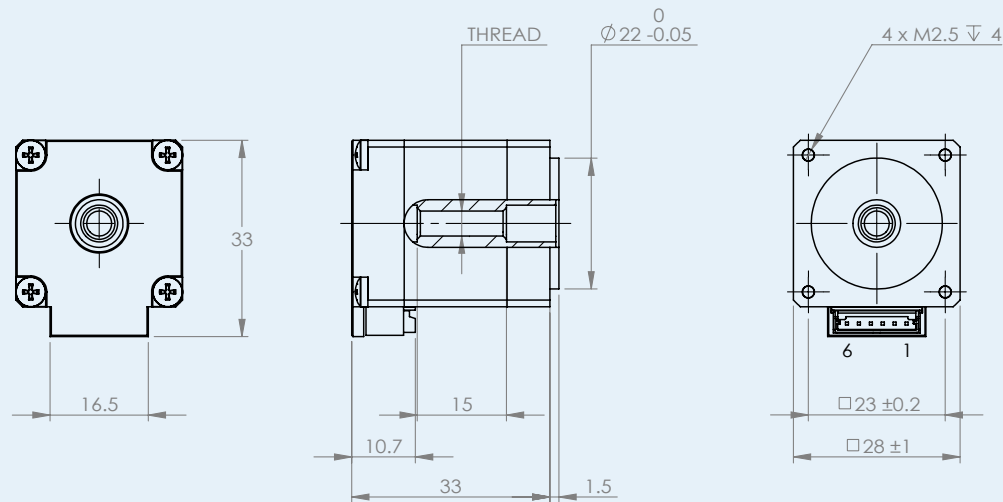
另可選配編碼器



Technical Specification		
Nominal voltage	24	V
Nominal current	1	A
Terminal resistance	2.7	Ω
Leadscrew diameter	M5	mm
Leadscrew pitch	2	mm
Leadscrew length	customized	mm
Operation temperature range	-20 ... +50	°C
Force	93	N
Continuous output speed, max	35	mm/s
Step angle (full step)	1.8	°
Motor type	two phase stepper motor	

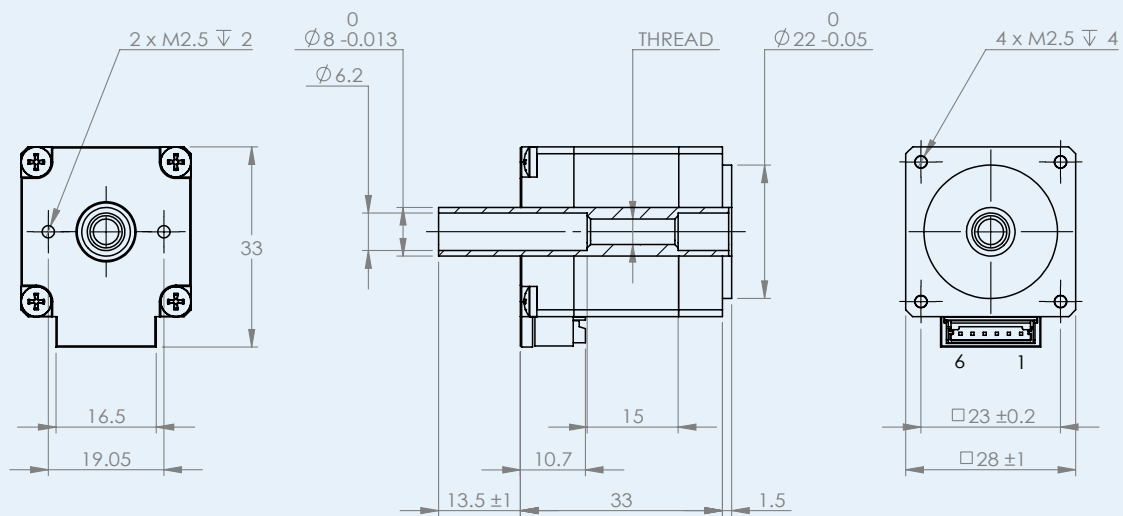
Dimensional drawing (LAST2833A-OR200-LS0502xxxS)

Scale reduced mm



Dimensional drawing (LAST2833B-OR200-LS0502xxxS)

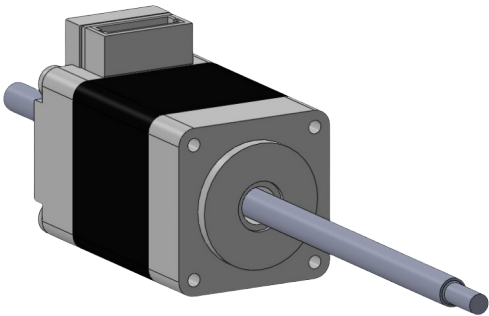
Scale reduced mm



Motor Pin Assignment			Option	
Motor Connector Type : MOLEX 53253 0670			Encoder	Cable 0.5 m 1.5 m
Wire Connector Types : MOLEX 51065 0600 (AWG26)				
Pin 1	Black	A+		
Pin 2	N.C.	N.C.		
Pin 3	Green	A-		
Pin 4	Red	B+		
Pin 5	N.C.	N.C.		
Pin 6	Blue	B-		

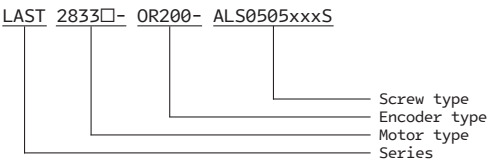
LAST2833□-OR200-ALS0505xxxS

推力 : 50 N
連續移動速度 : 120 mm/s



兩相式貫通步進馬達，於其內部結構安裝螺母
搭配螺桿達直驅致動器的效果，安裝結構單純簡單
方便使用，給在極限空間內另一種解決方案

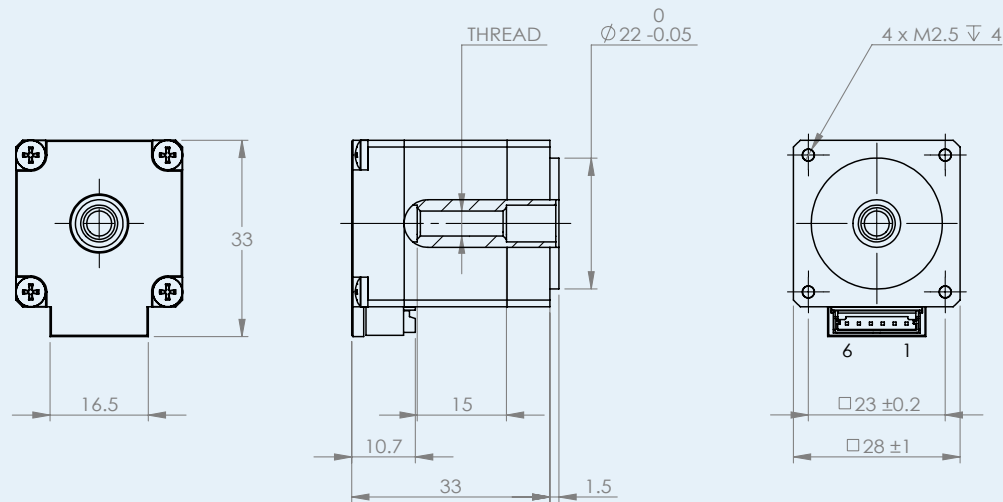
另可選配編碼器



Technical Specification		
Nominal voltage	24	V
Nominal current	1	A
Terminal resistance	2.7	Ω
Leadscrew diameter	M4.76, ACME	mm
Leadscrew pitch	5.08, ACME	mm
Leadscrew length	customized	mm
Operation temperature range	-20 ... +50	°C
Force	50	N
Continuous output speed, max	120	mm/s
Step angle (full step)	1.8	°
Motor type	two phase stepper motor	

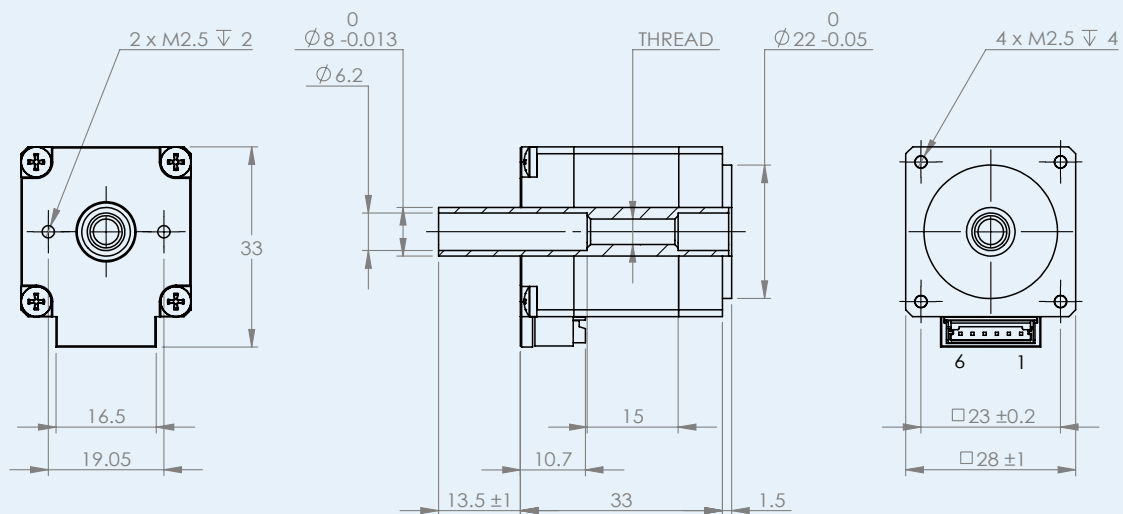
Dimensional drawing (LAST2833A-OR200-ALS0502xxxS)

Scale reduced mm



Dimensional drawing (LAST2833B-OR200-ALS0502xxxS)

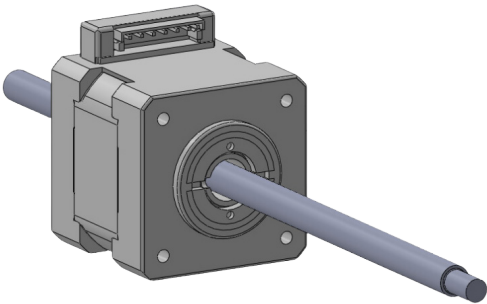
Scale reduced mm



Motor Pin Assignment			Option	
Motor Connector Type : MOLEX 53253 0670			Encoder	Cable
Wire Connector Types : MOLEX 51065 0600 (AWG26)				
Pin 1	Black	A+		
Pin 2	N.C.	N.C.		
Pin 3	Green	A-		
Pin 4	Red	B+		
Pin 5	N.C.	N.C.		
Pin 6	Blue	B-		

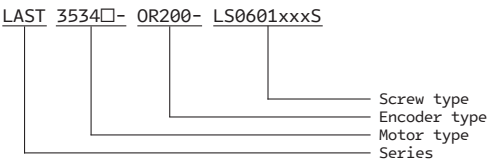
LAST3534□-OR200-LS0601xxxS

推力 : 220 N
連續移動速度 : 24 mm/s



兩相式貫通步進馬達，於其內部結構安裝螺母
搭配螺桿達直驅致動器的效果，安裝結構單純簡單
方便使用，給在極限空間內另一種解決方案

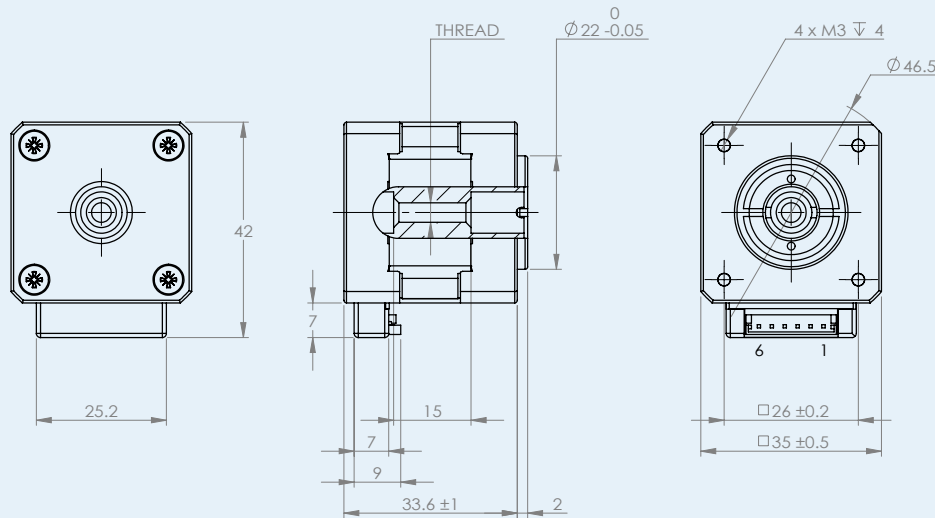
另可選配編碼器



Technical Specification		
Nominal voltage	24	V
Nominal current	1.2	A
Terminal resistance	1.85	Ω
Leadscrew diameter	M6	mm
Leadscrew pitch	1	mm
Leadscrew length	customized	mm
Operation temperature range	-20 ... +50	°C
Force	220	N
Continuous output speed, max	24	mm/s
Step angle (full step)	1.8	°
Motor type	two phase stepper motor	

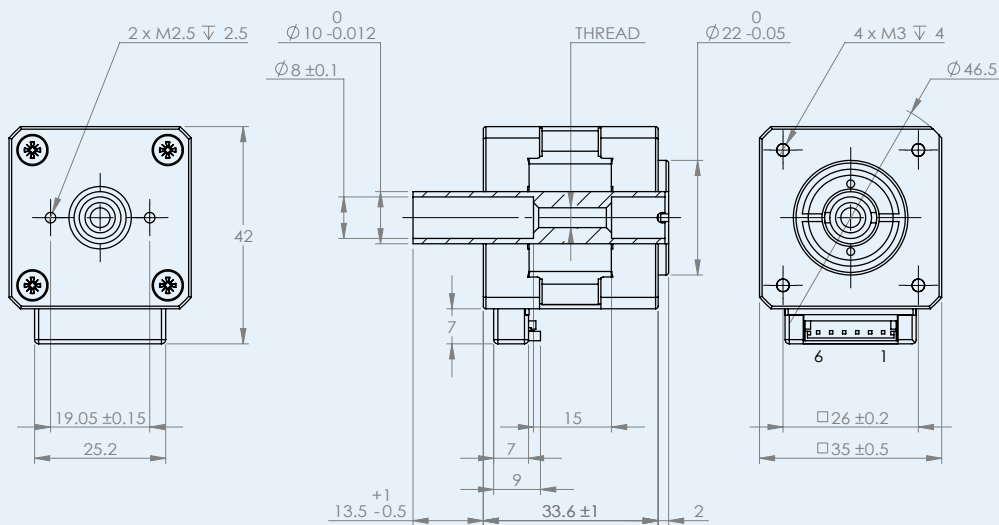
Dimensional drawing (LAST3534A-OR200-LS0601xxxS)

Scale reduced mm



Dimensional drawing (LAST3534B-OR200-LS0601xxxS)

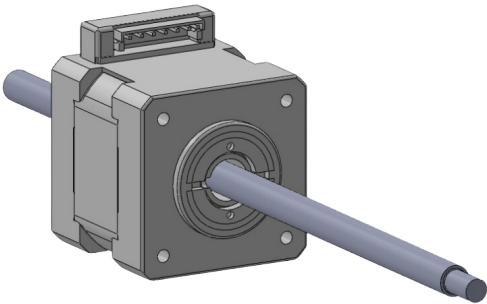
Scale reduced mm



Motor Pin Assignment			Option	
Motor Connector Type : MOLEX 53253 0670			Encoder	Cable 0.5 m 1.5 m
Wire Connector Types : MOLEX 51065 0600 (AWG26)				
Pin 1	N.C.	N.C.		
Pin 2	Black	A+		
Pin 3	Green	A-		
Pin 4	Red	B+		
Pin 5	Blue	B-		
Pin 6	N.C.	N.C.		

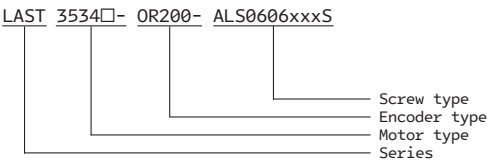
LAST3534□-OR200-ALS0606xxxS

推力 : 70 N
連續移動速度 : 100 mm/s



兩相式貫通步進馬達，於其內部結構安裝螺母
搭配螺桿直驅致動器的效果，安裝結構單純簡單
方便使用，給在極限空間內另一種解決方案

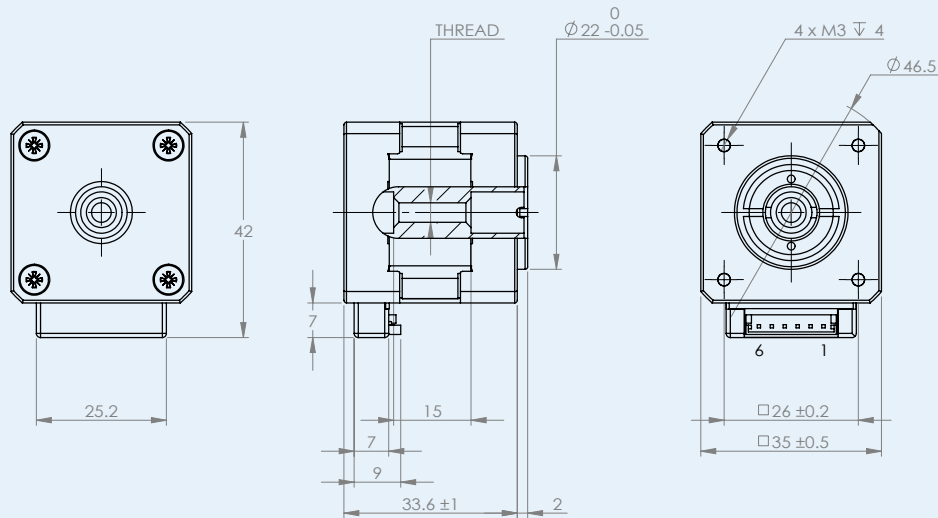
另可選配編碼器



Technical Specification		
Nominal voltage	24	V
Nominal current	1.2	A
Terminal resistance	1.85	Ω
Leadscrew diameter	M6.35	mm
Leadscrew pitch	6.35	mm
Leadscrew length	customized	mm
Operation temperature range	-20 ... +50	°C
Force	70	N
Continuous output speed, max	100	mm/s
Step angle (full step)	1.8	°
Motor type	two phase stepper motor	

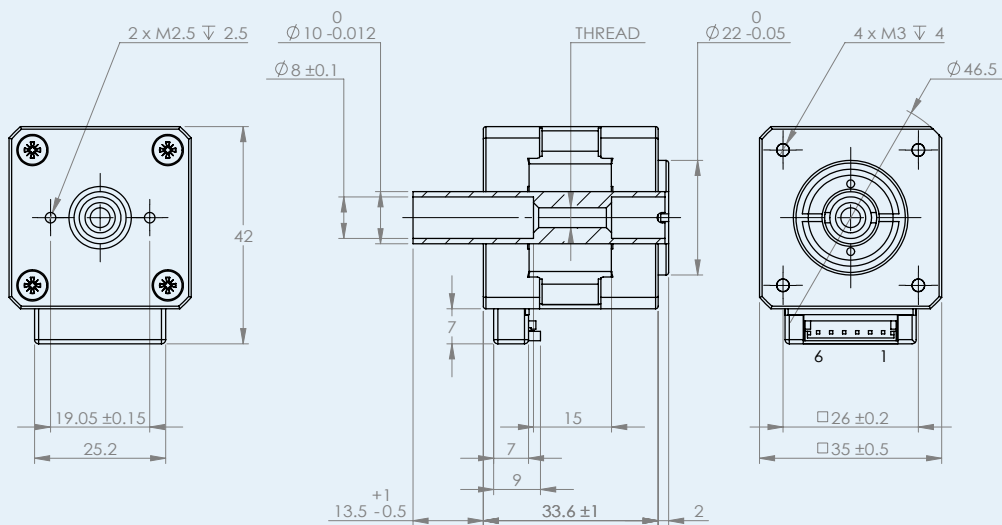
Dimensional drawing (LAST3534A-OR200-ALS0606xxxS)

Scale reduced mm



Dimensional drawing (LAST3534B-OR200-ALS0606xxxS)

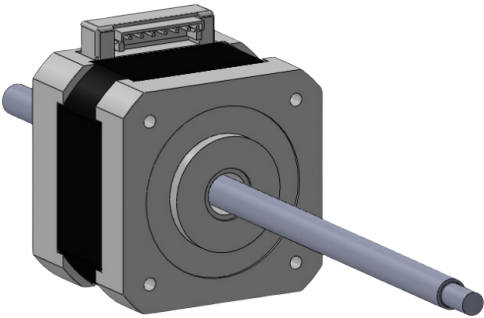
Scale reduced mm



Motor Pin Assignment			Option	
Motor Connector Type : MOLEX 53253 0670			Encoder	Cable
Wire Connector Types : MOLEX 51065 0600 (AWG26)				
Pin 1	N.C.	N.C.		0.5 m
Pin 2	Black	A+		1.5 m
Pin 3	Green	A-		
Pin 4	Red	B+		
Pin 5	Blue	B-		
Pin 6	N.C.	N.C.		

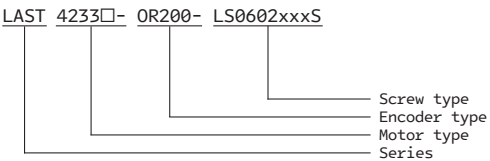
LAST4233□-OR200-LS0602xxxS

推力 : 258 N
連續移動速度 : 55 mm/s



兩相式貫通步進馬達，於其內部結構安裝螺母
搭配螺桿達直驅致動器的效果，安裝結構單純簡單
方便使用，給在極限空間內另一種解決方案

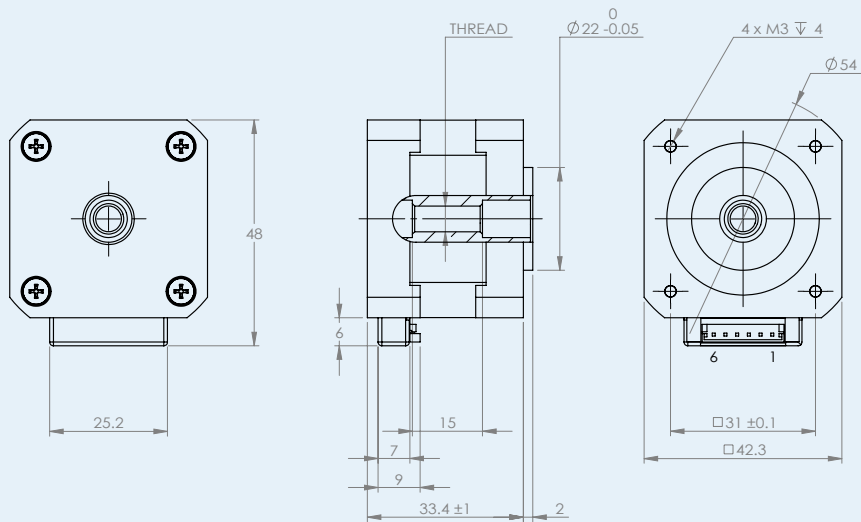
另可選配編碼器



Technical Specification		
Nominal voltage	24	V
Nominal current	0.7	A
Terminal resistance	9.3	Ω
Leadscrew diameter	M6	mm
Leadscrew pitch	2	mm
Leadscrew length	customized	mm
Operation temperature range	-20 ... +50	°C
Force	258	N
Continuous output speed, max	55	mm/s
Step angle (full step)	1.8	°
Motor type	two phase stepper motor	

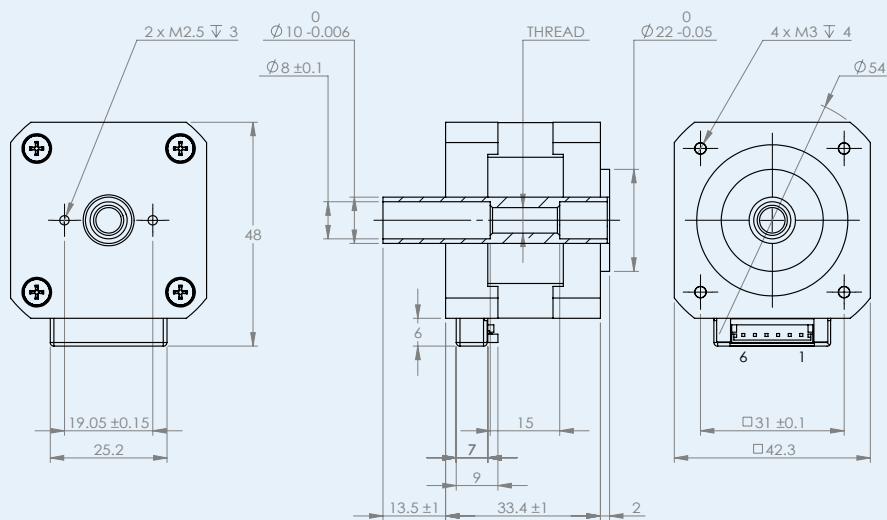
Dimensional drawing (LAST4233A-OR200-LS0602xxxS)

Scale reduced mm



Dimensional drawing (LAST4233B-OR200-LS0602xxxS)

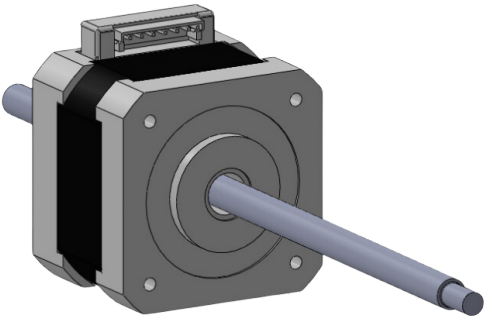
Scale reduced mm



Motor Pin Assignment			Option	
Motor Connector Type : MOLEX 53253 0670			Encoder	Cable 0.5 m 1.5 m
Wire Connector Types : MOLEX 51065 0600 (AWG26)				
Pin 1	N.C.	N.C.		
Pin 2	Black	A+		
Pin 3	Green	A-		
Pin 4	Red	B+		
Pin 5	Blue	B-		
Pin 6	N.C.	N.C.		

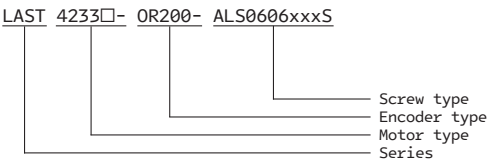
LAST4233□-OR200-ALS0606xxxS

推力 : 150 N
連續移動速度 : 80 mm/s



兩相式貫通步進馬達，於其內部結構安裝螺母
搭配螺桿達直驅致動器的效果，安裝結構單純簡單
方便使用，給在極限空間內另一種解決方案

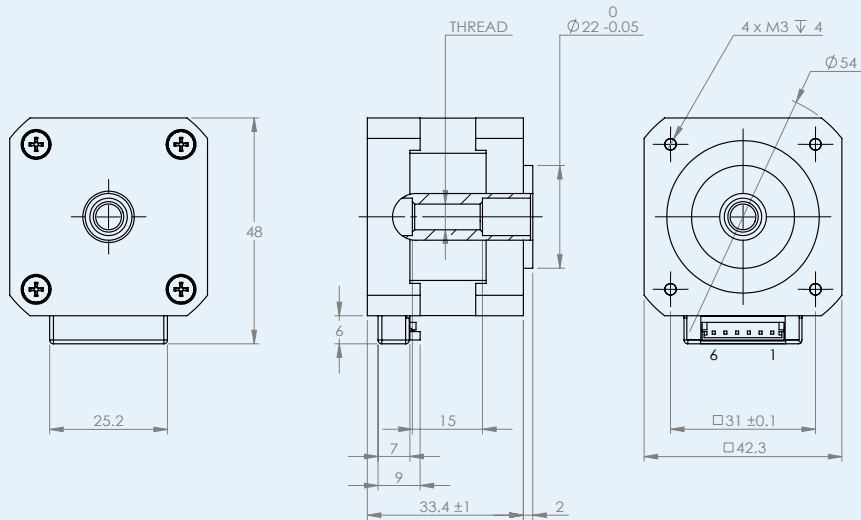
另可選配編碼器



Technical Specification		
Nominal voltage	24	V
Nominal current	0.7	A
Terminal resistance	9.3	Ω
Leadscrew diameter	M6.35	mm
Leadscrew pitch	6.35	mm
Leadscrew length	customized	mm
Operation temperature range	-20 ... +50	°C
Force	150	N
Continuous output speed, max	80	mm/s
Step angle (full step)	1.8	°
Motor type	two phase stepper motor	

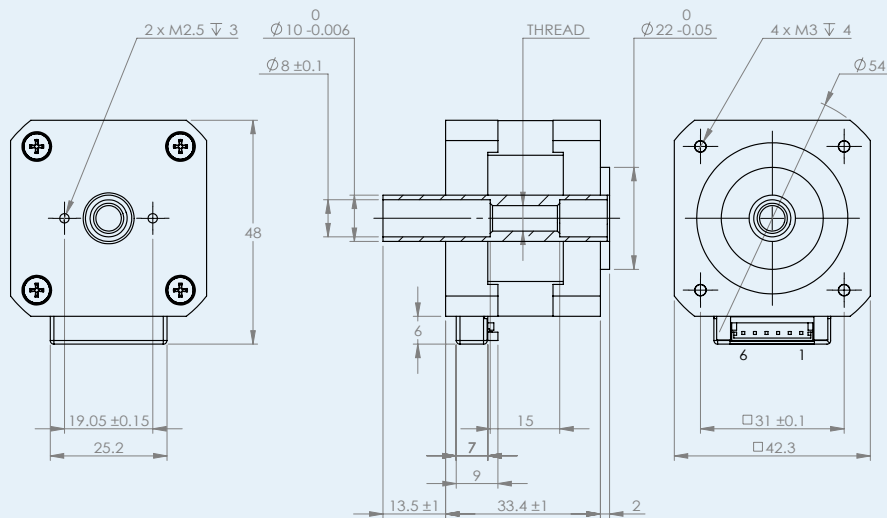
Dimensional drawing (LAST4233A-OR200-ALS0606xxxS)

Scale reduced mm



Dimensional drawing (LAST4233B-OR200-ALS0606xxxS)

Scale reduced mm



Motor Pin Assignment			Option	
Motor Connector Type : MOLEX 53253 0670			Encoder	Cable 0.5 m 1.5 m
Wire Connector Types : MOLEX 51065 0600 (AWG26)				
Pin 1	N.C.	N.C.		
Pin 2	Black	A+		
Pin 3	Green	A-		
Pin 4	Red	B+		
Pin 5	Blue	B-		
Pin 6	N.C.	N.C.		

micnano

Micro to Nano

L

M

Faulhaber Micro
Linear DC-motors

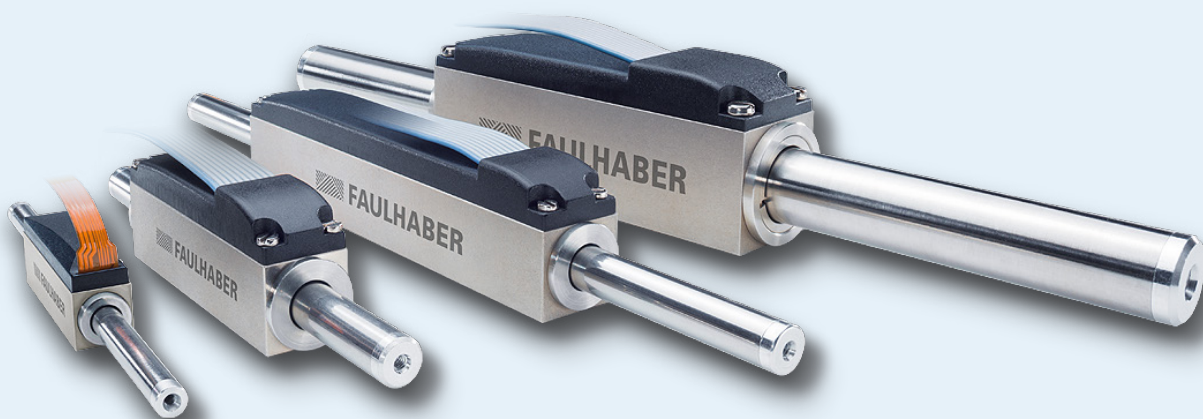
微型線性馬達系列

- 長度：33 ~ 85.5 mm
 - 寬度：8 ~ 20 mm
 - 推力：1.03 ~ 9.2 N
 - 速度：1.8 ~ 3.4 m/s
 - 行程長度：15 ~ 220 mm
-

德國 Faulhaber LM 微型伺服線性馬達
內建 Analog Hall Sensor 做位置回饋

搭配控制器做閉迴路力量，速度與位置控制
同時具備多種通訊界面供選擇

建議搭配光學尺和線軌發揮更佳的定位精度與重現性



LM 0830- XXX-01

└── Travel
└── Motor type

Linear DC-Servomotor

LM 0830 ... 01	96 - 97
LM 1247 ... 11	98 - 99
LM 1483 ... 11	100 - 101
LM 2070 ... 11	102 - 103

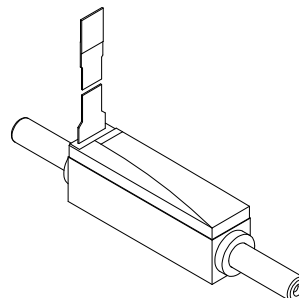
LM 0830...01 with Analog Hall Sensors

推力 : 1.03 N

瞬間推力 : 2.74 N

解析度 : 2.9 μm (使用內建 Analog Hall Sensor)

最高連續移動速度 : 2.4 m/s (依行程不同)



德國 Faulhaber LM 微型伺服線性馬達
內建 Analog Hall Sensor 做位置回饋

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LM 0830- XXX-01
Travel
Motor type

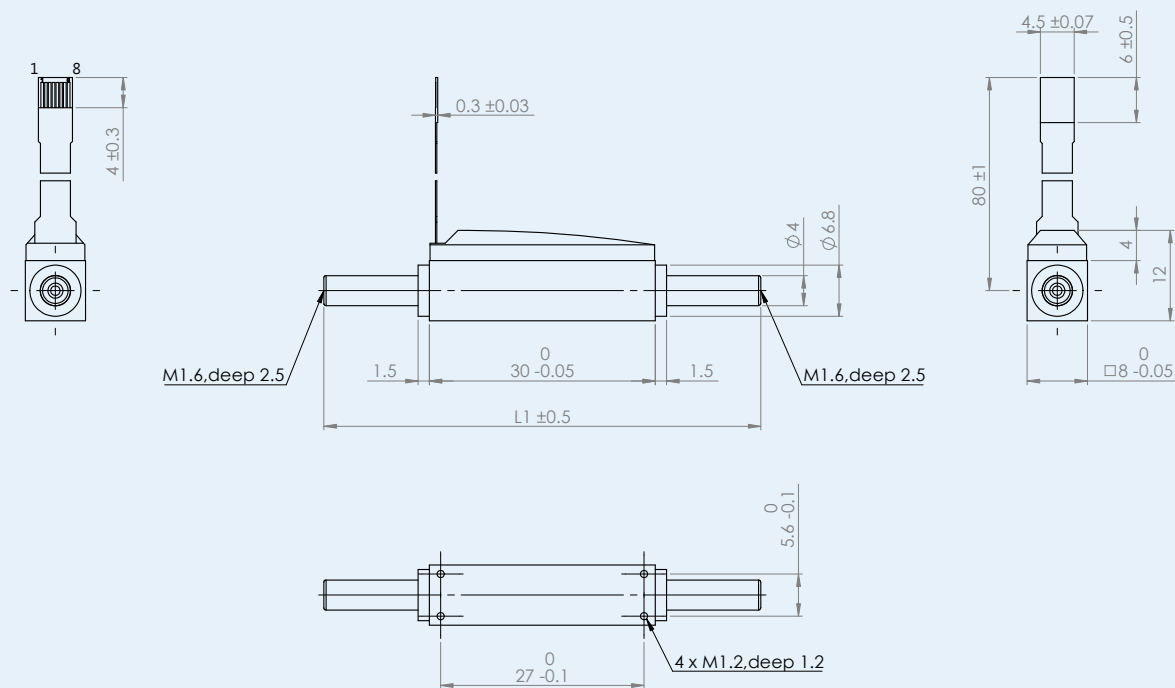
Technical Specification			Values at 22°C
Continuous force	$F_{e \max.}$	1.03	N
Peak force	$F_{p \max.}$	2.74	N
Continuous current	$I_{e \max.}$	0.53	A
Peak current	$I_{p \max.}$	1.41	A
Back-EMF constant	k_E	1.58	V/m/s
Force constant	k_F	1.94	N/A
Terminal resistance, phase-phase	R	7.37	Ω
Terminal inductance, phase-phase	L	117	μH
Terminal resistance	R_{th1}/R_{th2}	6.6 / 37.4	K/W
Terminal time constant	τ_{w1} / τ_{w2}	4 / 291	s
Operation temperature range		-20 ... +125	°C
Magnetic pitch	τ_m	12	mm
Rod bearings		polymer sleeves	
Housing material		metal, non-magnetic	
Direction of movement		electronically reversible	

		015-01	040-01	
Stroke length	$S_{\max}$	15	40	mm
Repeatability	O_r	40	40	μm
Accuracy	O_a	120	140	μm
Acceleration	$a_{e \max.}$	206.9	147.8	m/s^2
Speed	$v_{e \max.}$	1.8	2.4	m/s
Rod length	L_1	58	82	mm
Rod mass	m_m	5	7	g
Total mass	m_t	15	17	g

Note: These motors are for operation with DC-voltage < 50 V DC. The given values are for free standing motors.

Other rod lengths available on request.

Dimensional drawing



Option, cable and connection information

Example product designation: LM0830-015-01

Option	Type	Description

Connection

No	Function
Pin 1	Phase C
Pin 2	Phase B
Pin 3	Phase A
Pin 4	GND
Pin 5	Um(+5V)
Pin 6	Hall sensor C
Pin 7	Hall sensor B
Pin 8	Hall sensor A

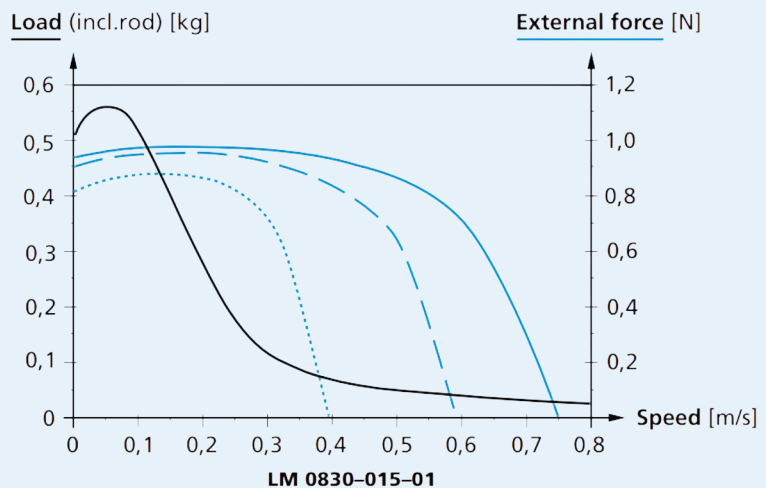
Motor characteristic curves

Trapezoidal motion profile: ($t_1 = t_2 = t_3$)
 Displacement distance: 15 mm
 Friction coefficient: 0,2
 Slope angle: 0°
 Rest time: 0,1 s

Load:
 The max. applicable load (incl. rod) at a given speed with an external force of 0 N.

External force:
 The max. permissible external force at a given speed with a load (incl. rod) of:

- 0,035 kg
- 0,05 kg
- 0,1 kg



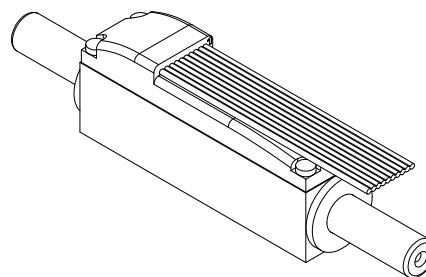
LM 1247...11 with Analog Hall Sensors

推力 : 3.6 N

瞬間推力 : 10.5 N

解析度 : $\sim 4.4 \mu\text{m}$ (使用內建 Analog Hall Sensor)

最高連續移動速度 : 3.1 m/s (依行程不同)



德國 Faulhaber LM 微型伺服線性馬達
內建 Analog Hall Sensor 做位置回饋

搭配控制器做閉迴路力量，速度與位置控制
同時具備多種通訊界面供選擇

建議搭配光學尺和線軌發揮更佳定位精度與重現性

LM 1247- XXX-11
Travel
Motor type

Technical Specification			Values at 22°C
Continuous force	$F_{e \max.}$	3.6	N
Peak force	$F_{p \max.}$	10.5	N
Continuous current	$I_{e \max.}$	0.55	A
Peak current	$I_{p \max.}$	1.64	A
Back-EMF constant	k_E	5.25	V/m/s
Force constant	k_F	6.43	N/A
Terminal resistance, phase-phase	R	13.17	Ω
Terminal inductance, phase-phase	L	820	μH
Terminal resistance	R_{th1}/R_{th2}	3.2 / 20	K/W
Terminal time constant	τ_{w1} / τ_{w2}	11 / 624	s
Operation temperature range		-20 ... +125	°C
Magnetic pitch	τ_m	18	mm
Rod bearings		polymer sleeves	
Housing material		metal, non-magnetic	
Direction of movement		electronically reversible	

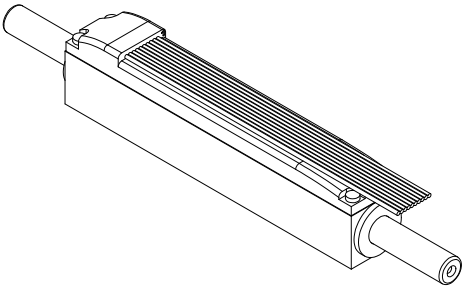
		020-11	040-11	060-11	080-11	100-11	120-11	
Stroke length	$S_{\max}$	20	40	60	80	100	120	mm
Repeatability	O_r	40	40	40	40	40	40	μm
Accuracy	O_a	120	140	160	180	200	220	μm
Acceleration	$a_{e \max.}$	187.6	142.5	122.9	101.8	91.4	81	m/s^2
Speed	$V_{e \max.}$	1.9	2.4	2.7	2.9	3	3.1	m/s
Rod length	L1	82	109	127	154	172	190	mm
Rod mass	m_m	19	25	29	35	39	44	g
Total mass	m_t	58	64	68	74	78	83	g

Note: These motors are for operation with DC-voltage < 75 V DC. The given values are for free standing motors.

Other rod lengths available on request.

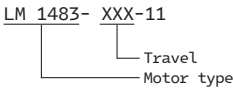
LM 1483...11 with Analog Hall Sensors

- 推力 : 9.2 N
- 瞬間推力 : 27.6 N
- 解析度 : ~ 5.8 μm (使用內建 Analog Hall Sensor)
- 最高連續移動速度 : 2.8 m/s (依行程不同)



德國 Faulhaber LM 微型伺服線性馬達
內建 Analog Hall Sensor 做位置回饋
搭配控制器做閉迴路力量，速度與位置控制
同時具備多種通訊界面供選擇

建議搭配光學尺和線軌發揮更佳的定位精度與重現性

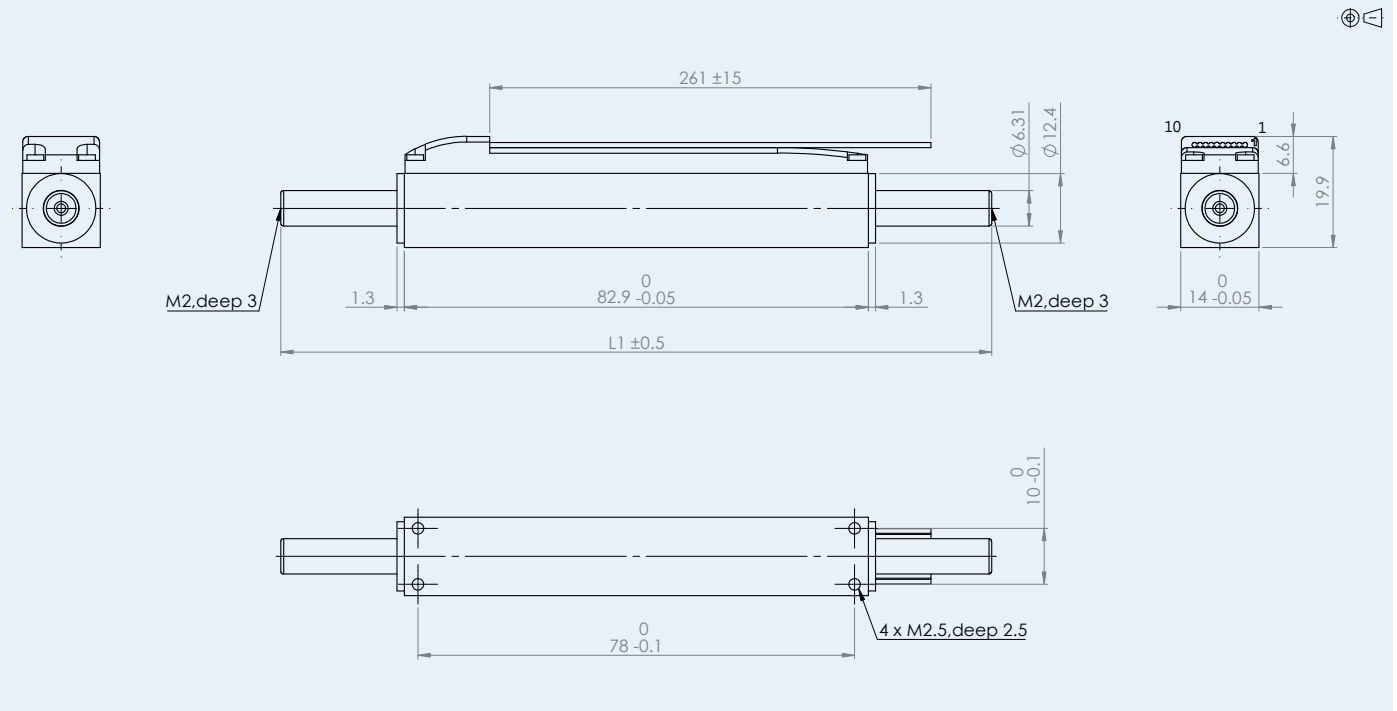


Technical Specification			Values at 22°C
Continuous force	$F_{e\ max.}$	6.2	N
Peak force	$F_{p\ max.}$	18.4	N
Continuous current	$I_{e\ max.}$	0.5	A
Peak current	$I_{p\ max.}$	1.48	A
Back-EMF constant	k_E	10.16	V/m/s
Force constant	k_F	12.44	N/A
Terminal resistance, phase-phase	R	26.3	Ω
Terminal inductance, phase-phase	L	1649	μH
Terminal resistance	R_{th1}/R_{th2}	1.97 / 12.5	K/W
Terminal time constant	τ_{w1} / τ_{w2}	12.2 / 789	s
Operation temperature range		-20 ... +125	°C
Magnetic pitch	τ_m	18	mm
Rod bearings		polymer sleeves	
Housing material		metal, non-magnetic	
Direction of movement		electronically reversible	

		020-11	040-11	060-11	080-11	
Stroke length	S_{max}	20	40	60	80	mm
Repeatability	O_r	40	40	40	40	μm
Accuracy	O_a	120	140	160	180	μm
Acceleration	$a_{e\ max.}$	213.1	176.6	158.5	140.5	m/s ²
Speed	$v_{e\ max.}$	2.1	2.7	3.1	3.4	m/s
Rod length	L1	127	154	172	190	mm
Rod mass	m_m	29	35	39	44	g
Total mass	m_t	117	124	128	132	g

Note: These motors are for operation with DC-voltage < 75 V DC. The given values are for free standing motors.
Other rod lengths available on request.

Dimensional drawing



Option, cable and connection information

Example product designation: LM1483-020-11

Option	Type	Description
-11C	Connector	Material PVC, 10 conductors, AWG28 with connector A05a - TCO, pitch 2 mm

Connection -11/-11c

No	Function
Pin 1	Phase C
Pin 2	Phase B
Pin 3	Phase A
Pin 4	GND
Pin 5	Um(+5V)
Pin 6	Hall sensor C
Pin 7	Hall sensor B
Pin 8	Hall sensor A

Standard cable

Material PVC, 10 conductors, AWG 28, grid 1mm, wires tinned.

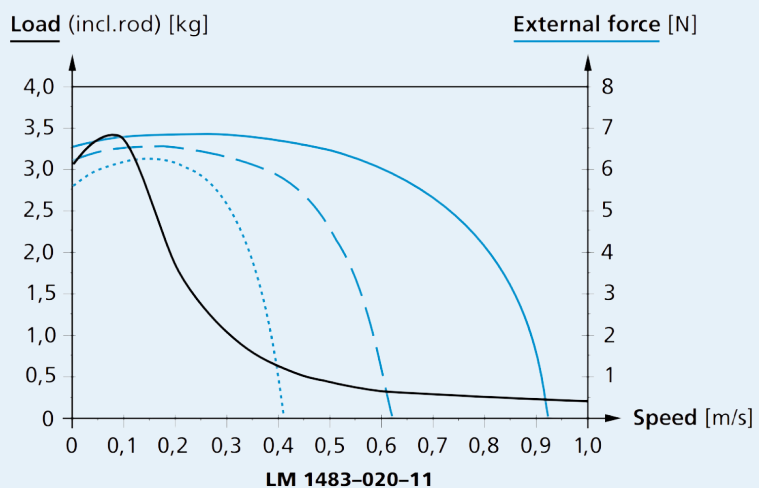
Motor characteristic curves

Trapezoidal motion profile: ($t_1 = t_2 = t_3$)
 Displacement distance: 20 mm
 Friction coefficient: 0,2
 Slope angle: 0°
 Rest time: 0,1 s

Load:
 The max. applicable load (incl. rod) at a given speed with an external force of 0 N.

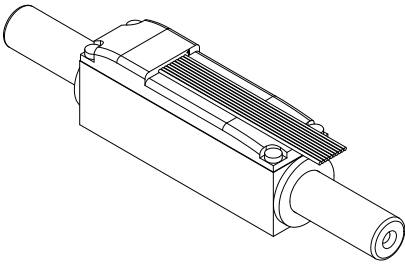
External force:
 The max. permissible external force at a given speed with a load (incl. rod) of:

- 0,15 kg ————
- 0,3 kg - - - - -
- 0,6 kg ·······



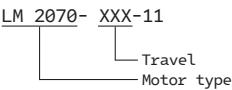
LM 2070...11 with Analog Hall Sensors

- 推力 : 9.2 N
- 瞬間推力 : 27.6 N
- 解析度 : ~ 5.8 μm (使用內建 Analog Hall Sensor)
- 最高連續移動速度 : 2.8 m/s (依行程不同)



德國 Faulhaber LM 微型伺服線性馬達
內建 Analog Hall Sensor 做位置回饋
搭配控制器做閉迴路力量，速度與位置控制
同時具備多種通訊界面供選擇

建議搭配光學尺和線軌發揮更佳的定位精度與重現性

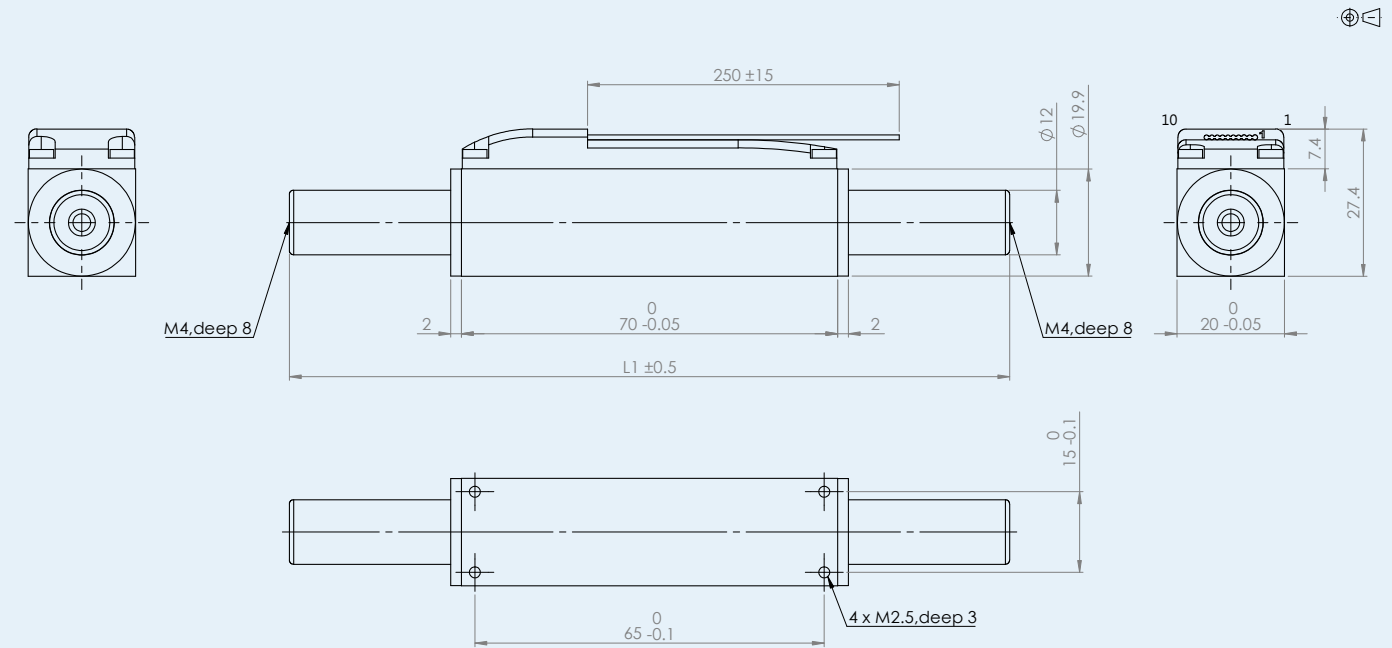


Technical Specification			Values at 22°C
Continuous force	$F_{e \text{ max.}}$	9.2	N
Peak force	$F_{p \text{ max.}}$	27.6	N
Continuous current	$I_{e \text{ max.}}$	0.79	A
Peak current	$I_{p \text{ max.}}$	2.4	A
Back-EMF constant	k_E	9.5	V/m/s
Force constant	k_F	11.64	N/A
Terminal resistance, phase-phase	R	10.83	Ω
Terminal inductance, phase-phase	L	1125	μH
Terminal resistance	R_{th1}/R_{th2}	3.1 / 9.3	K/W
Terminal time constant	τ_{w1} / τ_{w2}	30 / 1200	s
Operation temperature range		-20 ... +125	°C
Magnetic pitch	τ_m	24	mm
Rod bearings		polymer sleeves	
Housing material		metal, non-magnetic	
Direction of movement		electronically reversible	

		040-11	080-11	120-11	160-11	220-11	
Stroke length	S_{max}	40	80	120	160	220	mm
Repeatability	O_r	60	60	60	60	80	μm
Accuracy	O_a	200	300	400	500	600	μm
Acceleration	$a_{e \text{ max.}}$	83.7	61.3	51.1	43.8	35.4	m/s^2
Speed	$v_{e \text{ max.}}$	1.8	2.2	2.6	2.6	2.8	m/s
Rod length	L1	134	182	218	254	314	mm
Rod mass	m_m	110	150	180	210	260	g
Total mass	m_t	248	288	318	348	398	g

Note: These motors are for operation with DC-voltage < 75 V DC. The given values are for free standing motors.
Other rod lengths available on request.

Dimensional drawing



Option, cable and connection information

Example product designation: LM2070-040-11

Option	Type	Description
-11C	Connector	Material PVC, 10 conductors, AWG28 with connector A05a - TCO, pitch 2 mm

Connection -11/-11c

No	Function
Pin 1	Phase C
Pin 2	Phase B
Pin 3	Phase A
Pin 4	GND
Pin 5	Um(+5V)
Pin 6	Hall sensor C
Pin 7	Hall sensor B
Pin 8	Hall sensor A

Standard cable

Material PVC, 10 conductors, AWG 28, grid 1mm, wires tinned.

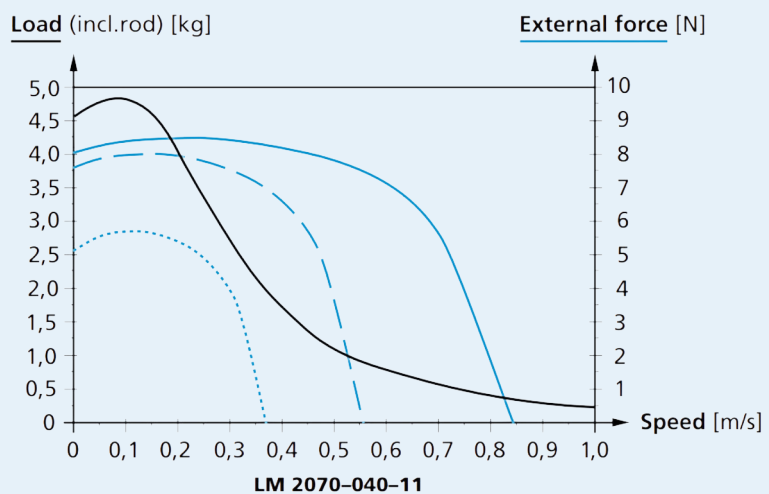
Motor characteristic curves

Trapezoidal motion profile: ($t_1 = t_2 = t_3$)
 Displacement distance: 40 mm
 Friction coefficient: 0,2
 Slope angle: 0°
 Rest time: 0,1 s

Load:
 The max. applicable load (incl. rod) at a given speed with an external force of 0 N.

External force:
 The max. permissible external force at a given speed with a load (incl. rod) of:

- 0,5 kg —————
- 1,0 kg - - - - -
- 2,0 kg (dotted)



MicNano

Micro to Nano

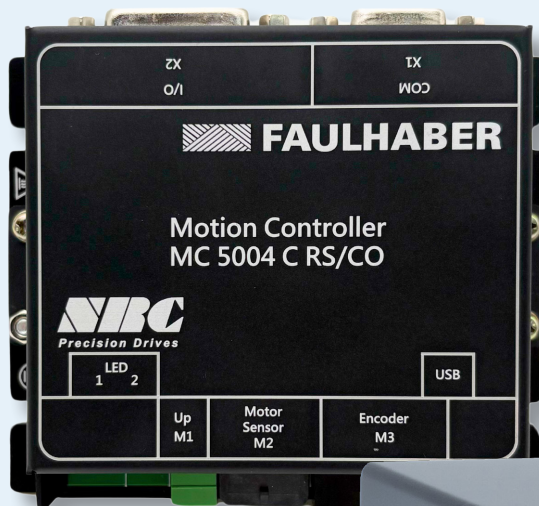
Controllers

運動控制器系列

- 電壓：~ 50 VDC
 - 最大連續輸出電流：4 A
 - 通訊介面：RS 232 / RS 422
Pulse / IO / USB
CANopen
EtherCAT
-

Piezo LEGS® Controller 控制器系列
奈米級解析值，開迴路及閉迴路精密定位

Motion Controllers 運動控制器系列
最緊湊體積下充分發揮無鐵心馬達，無刷馬達，線性馬達特性
支援增量型編碼器，Analog 霍爾感應器或 AES 絕對型編碼器

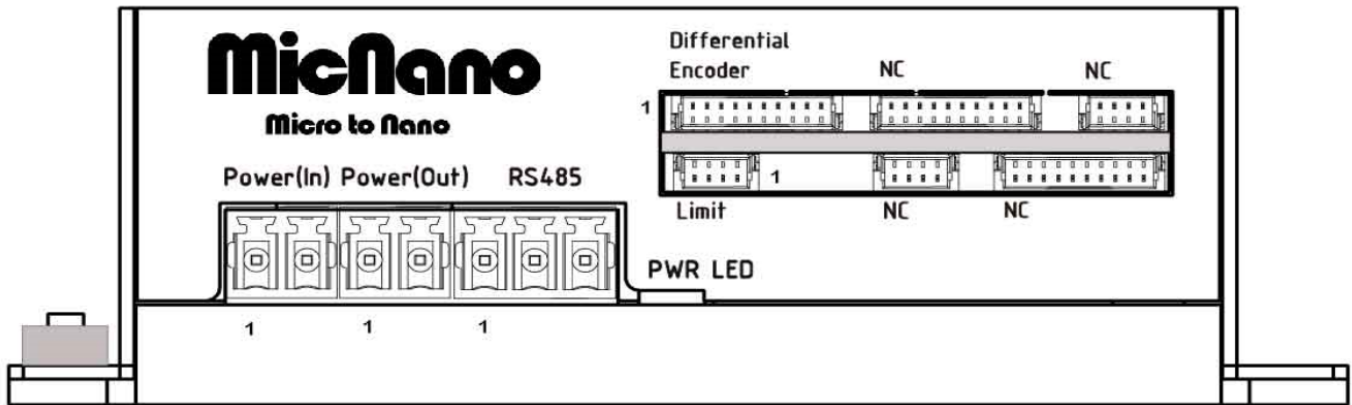


Controllers

Piezo LEGS® Controller PMD401	106 - 108
MC 3001 S RS/CO	110 - 113
MC 3001 C RS/CO AEMT	114 - 115
MC 3001 PDIO	116 - 117
MC 3001 C4 RS/CO	118 - 120
MC 3001 OPTIONAL COVER	121
MC 5004 C RS/CO	122 - 123
MC 5004 C RS/CO AEMT	124 - 125
MC 5004 C PDIO	126 - 127
MC 5004 ET	128 - 129
MC 5004 ET AEMT	130 - 131

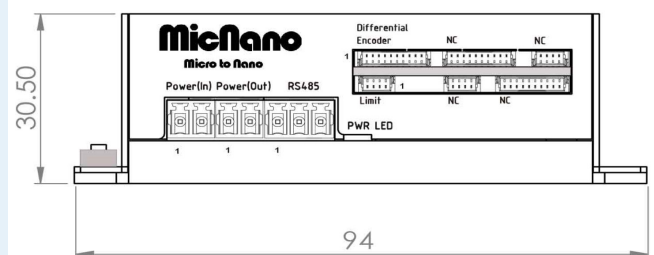
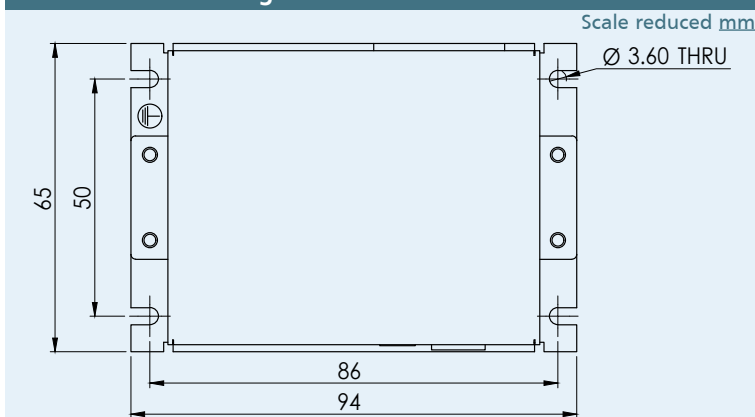
- Nanometer resolution
- Close loop control
- Open loop mode
- Small form factor

[illegible]



Connector	Pin	Function	I/O	Note
Power (in)	1	+VCC(24VDC)	In	Recommended mating connector
	2	GND	Power GND	DINKLE EC350V-02P
Power (out)	1	+VCC(24VDC)	In	The two power connectors are connected in parallel
	2	GND	Power GND	Recommended mating connector
RS485	1	DATA+	In/Out	DINKLE EC350V-03P
	2	DATA-	In/Out	
	3	GND	In	
Differential encoder	1	B-	In	Recommended mating connector
	2	GND	GND	JST 10SR-3S
	3	NC		
	4	B+	In	
	5	I-	In	
	6	NC		
	7	A-	In	
	8	I+	In	
	9	A+	In	
	10	5V Out	Out	
Limit	1	GND	GND	Recommended mating connector
	2	5V Out	Out	JST 04SR-3S
	3	Limit Reverse	In	
	4	Limit Forward	In	

Dimensional drawing



NOTE

MC 3001 S RS/CO

V3.0, 4-Quadrant PWM
with RS232 or CANopen interface

MC 3001 S RS/CO

Values at 22°C		MC 3001 S RS/CO	DC/BL/LM
Power supply	U_P	6 ... 30	V DC
PWM switching frequency	f_{PWM}	100	kHz
Efficiency electronic	η	95	%
Max. continuous output current	I_{cont}	1.4	A
Max. peak output current ¹⁾	I_{max}	5	A
Standby current for electronic (@ $U_P=24V$)	I_{el}	0.04	A
Operating temperature range		-40 ... +85	°C
Mass		45	g

¹⁾ $I_{cont}=2.1A$ @ $U_{mot}=12V$, $I_{cont}=1.3A$ @ $U_{mot}=24V$

²⁾ S2 mode for max. 2s

Interfaces	MC 3001 S RS/CO
Configuration from Motion Manager 6.7	RS232 / CANopen / USB
Fieldbus	RS232 / CANopen

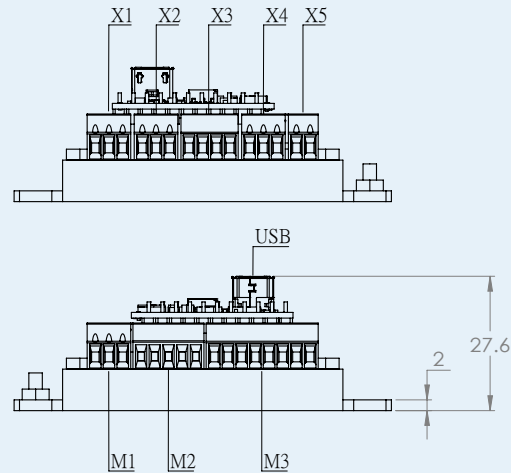
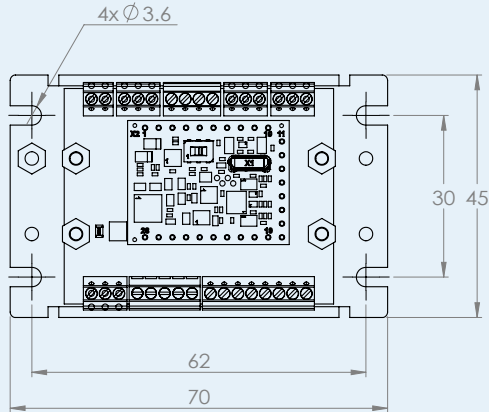
Basic features

- Control of brushless, DC- and linear motors
- Supported sensor systems: absolute encoders, incremental encoders (optical or magnetic), Hall sensors (digital or analog), tachometers
- Positioning resolution when using analog Hall sensors as position encoder: 4096 increments per revolution
- 3 digital inputs, 2 digital outputs, 2 analog inputs, flexible configuration
- Setpoint specification via fieldbus, quadrature signal, pulse and direction or analog inputs
- Optional stand-alone operation via application programs in all interface versions

Range of functions	
Operating modes	PP, PV, PT, CSP, CSV, CST and homing acc. to IEC 61800-7-201 or IEC 61800-7-301 as well as position-, speed- and torque control via analog setpoint or voltage controller
Speed range for brushless motors with number of pole pairs 1	0 min ⁻¹ ... 30 000 min ⁻¹ with sinusoidal commutation (optionally to 60 000 min ⁻¹ with block commutation)
Application programs	Max. 8 application programs (BASIC), one of which is an autostart function
Additional functions	Touch-probe input, connection of a second incremental encoder, control of a holding brake
Indicator	LEDs for displaying the operating state Trace as recorder (scope function) or logger
Motor types	DC, BL - and linear motors

Dimensional drawing (version STD)

Scale reduced mm

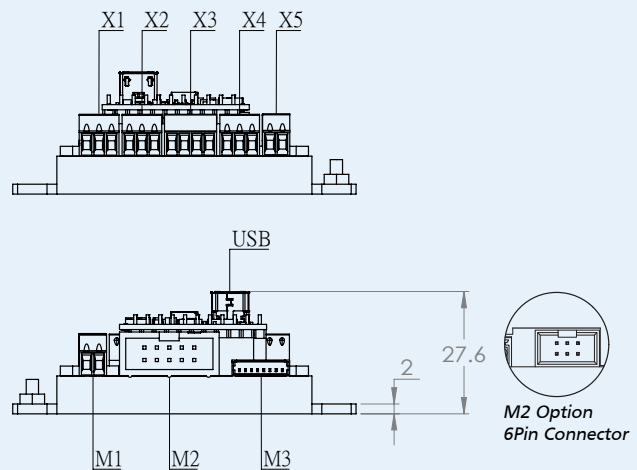
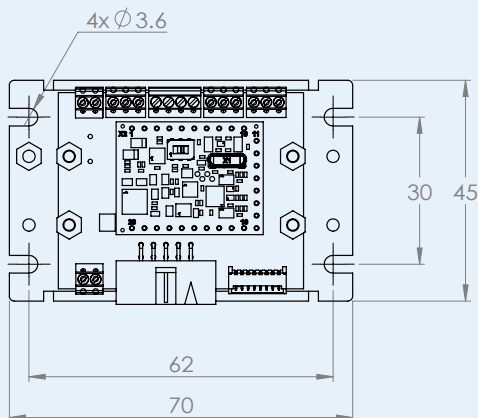


Connection information

Designation	Function
M1(Motor)	Connection of the motor phases
M2(Sensor)	Connection of the Hall sensors
M3(Encoder)	Connection of an incremental encoder with or without line driver Alternatively an absolute encoder can be connected with or without line driver
USB	Connection of the USB communication
X1(COM)	Interface connection RS-232 / CANopen
X2(Analog IN)	Analog inputs for external circuits
X3(Digital IN)	Digital inputs for external circuits
X4(Digital OUT)	Digital outputs for external circuits
X5(U _P)	Power supply

Dimensional drawing (version A1 - DC Brushed Servomotor)

Scale reduced mm

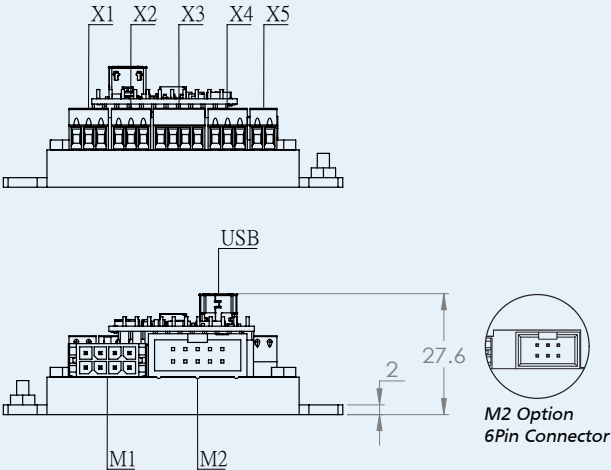
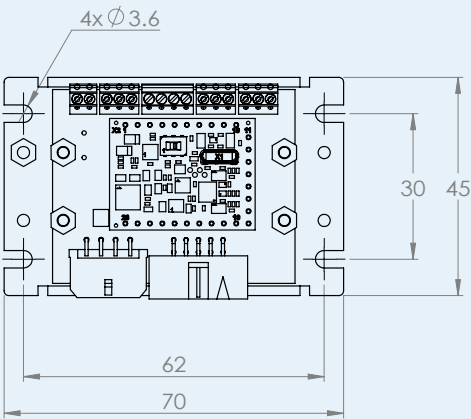


Connection information

Designation	Function
M1(Motor)	Connection of the motor phases
M2(Encoder)	Connection of an encoder IE2/IEH2/IE3/IE3-L/IEH3/IEH3-L/HEM3
M3(Encoder)	Connection of an encoder IEP3
USB	Connection of the USB communication
X1(COM)	Interface connection RS-232 / CANopen
X2(Analog IN)	Analog inputs for external circuits
X3(Digital IN)	Digital inputs for external circuits
X4(Digital OUT)	Digital outputs for external circuits
X5(U _P)	Power supply

Dimensional drawing (version B1 - DC Brushless Servomotor) (Linear DC Servmotor-01)

Scale reduced mm

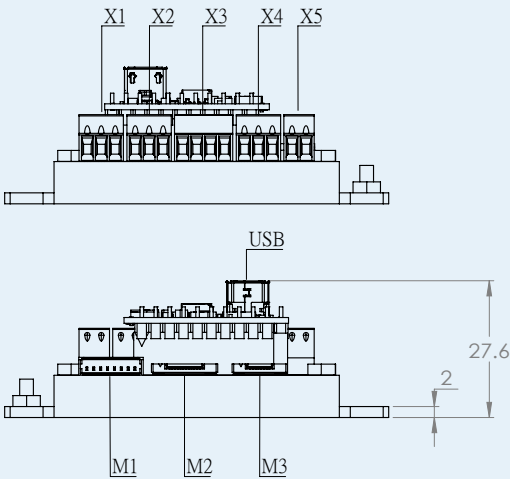
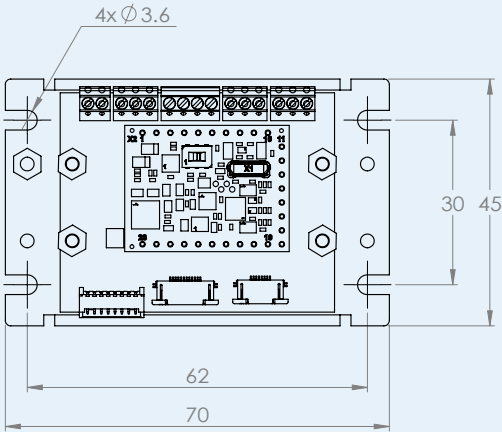


Connection information

Designation	Function
M1(Motor+Sensor)	Connection of the motor phases and Hall sensors 1218/1226/3692/K1155/K1855/LM-01
M2(Motor+Sensor+Encoder)	Connection of an encoder IE3/IE3-L/IEF3/IEF3-L/IER33/IER33-L/IER3/IER3-L/AES-4096L
USB	Connection of the USB communication
X1(COM)	Interface connection RS-232 / CANopen
X2(Analog IN)	Analog inputs for external circuits
X3(Digital IN)	Digital inputs for external circuits
X4(Digital OUT)	Digital outputs for external circuits
X5(U _P)	Power supply

Dimensional drawing (version B2 - DC Brushless Servomotor) (Linear DC Servmotor-01)

Scale reduced mm

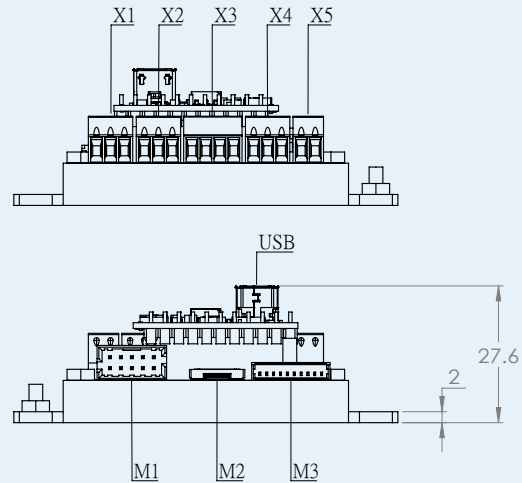
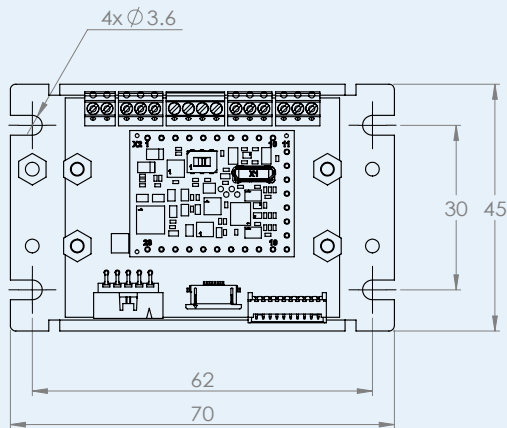


Connection information

Designation	Function
M1(Motor+Sensor)	Connection of the motor phases and Hall sensors 1218/1226/K1855
M2(Motor+Sensor+Encoder)	Connection of the motor phases , the Hall sensors and the encoder IEM3
M3(Motor+AESM)	Connection of the motor phases and the encorder AESM
USB	Connection of the USB communication
X1(COM)	Interface connection RS-232 / CANopen
X2(Analog IN)	Analog inputs for external circuits
X3(Digital IN)	Digital inputs for external circuits
X4(Digital OUT)	Digital outputs for external circuits
X5(U _P)	Power supply

Dimensional drawing (version C - Linear DC Servomotor-11C)

Scale reduced mm



Connection information

Designation	Function
M1(Motor+Sensor)	Connection of the motor phases and Hall sensors LM-11C
M2(Motor+Sensor)	Connection of the motor phases and Hall sensors LM0830-01
M3(Encoder)	Connection of an incremental encoder with or without line driver(second encoder)
USB	Connection of the USB communication
X1(COM)	Interface connection RS-232 / CANopen
X2(Analog IN)	Analog inputs for external circuits
X3(Digital IN)	Digital inputs for external circuits
X4(Digital OUT)	Digital outputs for external circuits
X5(U _P)	Power supply

MC 3001 C RS/CO AEMT

V3.0, 4-Quadrant PWM
with RS232 or CANopen interface
for multi-turn encoder AEMT-12/16 L

MC 3001 C RS/CO AEMT

Values at 22°C		MC 3001 S RS/CO	DC/BL/LM
Power supply	U_P	6 ... 30	V DC
PWM switching frequency	f_{PWM}	100	kHz
Efficiency electronic	η	95	%
Max. continuous output current	I_{cont}	1.4	A
Max. peak output current ¹⁾	I_{max}	5	A
Standby current for electronic (@ $U_P = 24V$)	I_{el}	0.04	A
Operating temperature range		-40 ... +85	°C
Mass		90	g

¹⁾ $I_{cont} = 2.1A$ @ $U_{mot} = 12V$, $I_{cont} = 1.3A$ @ $U_{mot} = 24V$

²⁾ S2 mode for max. 2s

Interfaces	MC 3001 S RS/CO
Configuration from Motion Manager 6.7	RS232 / CANopen / USB
Fieldbus	RS232 / CANopen

Basic features

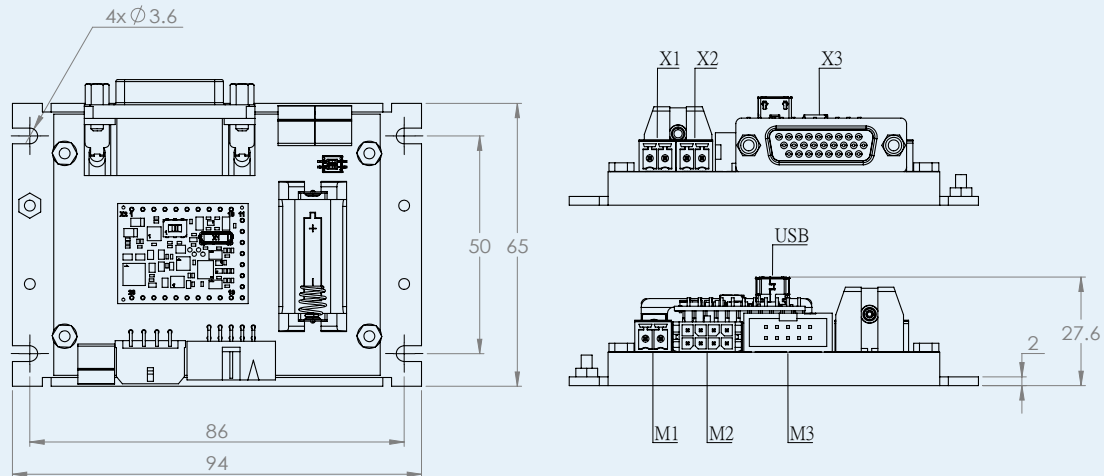
- Control of brushless motors
- Supported sensor systems: Multi-turn absolute encoders, Hall sensors (digital)
- 3 digital inputs, 2 digital outputs, 2 analog inputs, flexible configuration
- Setpoint specification via fieldbus, quadrature signal, pulse and direction or analog inputs
- Optional stand-alone operation via application programs in all interface versions
- If the power supply fails or is switched off, the AEMT-12/16L multi-turn encoder automatically switches to a battery mode with greatly reduced energy consumption.
- In combination with a suitable backup battery board ensures that the multi-turn functionality of the encoder is temporarily maintained.
- In addition to the buffer function, the board also contains a preset connection for resetting the revolution counter when commissioning or during maintenance work.
- For details on the functionality, see the technical manual of the AEMT-12/16 .
- NOTE: The battery is included in the delivery contents of the board. Recommended battery types: SL-350, ER 14259, LS 14250.

Range of functions

Operating modes	PP, PV, PT, CSP, CSV, CST and homing acc. to IEC 61800-7-201 or IEC 61800-7-301 as well as position-, speed- and torque control via analog setpoint or voltage controller
Speed range for brushless motors with number of pole pairs 1	0 min ⁻¹ ... 30 000 min ⁻¹ with sinusoidal commutation (optionally to 60 000 min ⁻¹ with block commutation)
Application programs	Max. 8 application programs (BASIC), one of which is an autostart function
Additional functions	Touch-probe input, connection of a second incremental encoder, control of a holding brake
Indicator	LEDs for displaying the operating state Trace as recorder (scope function) or logger
Motor types	Brushless motors

Dimensional drawing (version B - DC Brushless Servomotor)

Scale reduced mm

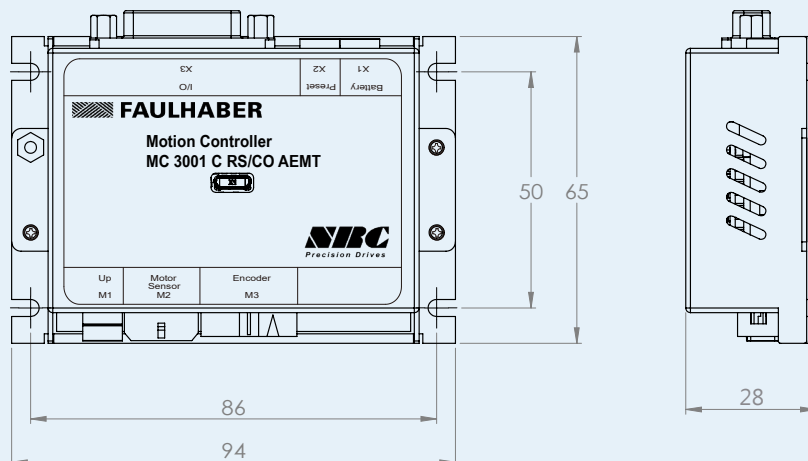


Connection information

Designation	Function
M1(U _p)	Power supply
M2(Motor+Sensor)	Connection of the motor phases and the Hall sensors
M3(Encoder)	Connection of an encoder AEMT-12/16 L
USB	Connection of the USB communication
X1(Battery)	Connection of battery
X2(Preset)	Preset input for external circuits
X3(I/O)	Inputs or outputs for external circuits

Option

Scale reduced mm



MC 3001 C PDIO

V3.0, 4-Quadrant PWM

with connection of a pulse/direction signal at digital input

MC 3001 C PD IO

Values at 22°C		MC 3001 C PD IO	DC/BL/LM
Power supply	U_P	6 ... 30	V DC
PWM switching frequency	f_{PWM}	100	kHz
Efficiency electronic	η	95	%
Max. continuous output current	I_{cont}	1.4	A
Max. peak output current ¹⁾	I_{max}	5	A
Standby current for electronic (@ $U_P = 24V$)	I_{el}	0.06	A
Operating temperature range		-40 ... +85	°C
Mass		75	g

¹⁾ S2 mode for max. 1s

Interfaces	MC 3001 C PD IO
Configuration from Motion Manager 6.7	USB

Basic features

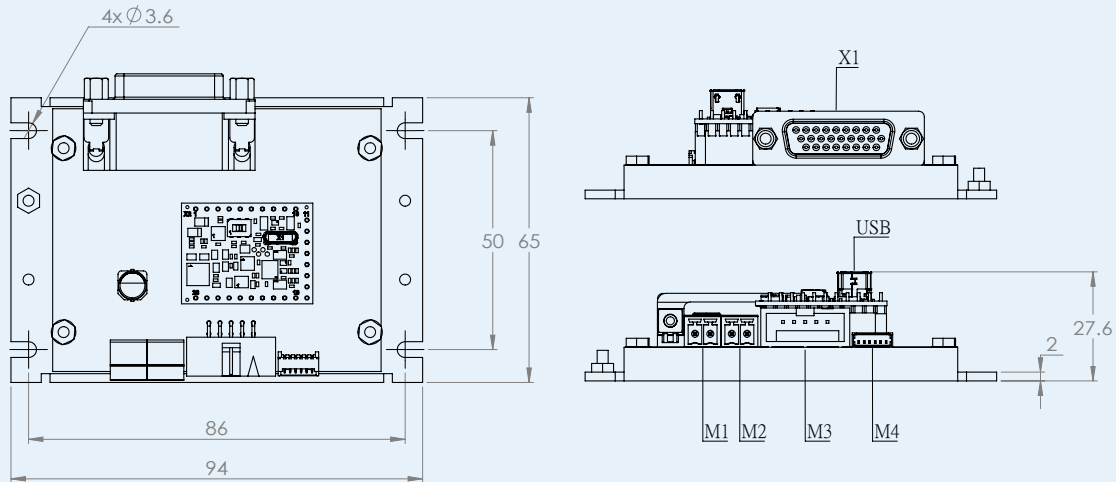
- Control of brushless, DC- and linear motors
- Supported sensor systems: incremental encoders (optical or magnetic), Hall sensors (digital or analog)
- Positioning resolution when using analog Hall sensors as position encoder: 4096 increments per revolution
- Pulse/direction input, 1 digital inputs, 2 digital outputs, 2 analog inputs, flexible configuration
- Setpoint specification via USB, quadrature signal, pulse and direction or analog inputs
- Optional stand-alone operation via application programs in all interface versions

Range of functions

Pulse Input frequency	Up to 500 KHz
Operating modes	PP, PV and homing acc. to IEC 61800-7-201 or IEC 61800-7-301 as well as position-, speed- and torque control via analog setpoint or voltage controller
Speed range for brushless motors with number of pole pairs 1	0 min ⁻¹ ... 30 000 min ⁻¹ with sinusoidal commutation (optionally to 60 000 min ⁻¹ with block commutation)
Application programs	Max. 8 application programs (BASIC), one of which is an autostart function
Additional functions	Touch-probe input, connection of a second incremental encoder, control of a holding brake
Indicator	LEDs for displaying the operating state
Motor types	DC, BL motors and linear motors

Dimensional drawing (version A - DC Brushed Servomotor)

Scale reduced mm

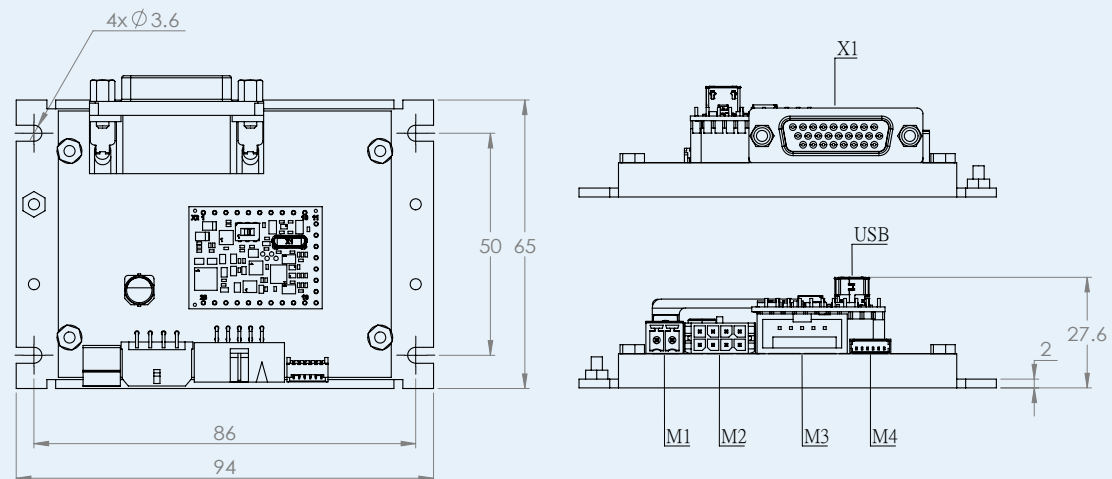


Connection information

Designation	Function
M1(U _p)	Power supply
M2(Motor)	Connection of the motor phases
M3/(M4 Optional)(Encoder)	Connection of an encoder IE2/IEH2/IEH3-L/IE3/IE3-L
USB	Connection of the USB communication
X1(I/O)	Inputs or outputs for external circuits

Dimensional drawing (version B - DC Brushless Servomotor) (Linear DC Servomotor-01)

Scale reduced mm



Connection information

Designation	Function
M1(U _p)	Power supply
M2(Motor+Sensor)	Connection of the motor phases and the Hall sensors (3692/K1155/LM-01)
M3/(M4 Optional)(Encoder)	Connection of an encoder IE3/IE3-L/IEF3/IEF3-L/IER3/IER3-L/IER3/IER3-L
USB	Connection of the USB communication
X1(I/O)	Inputs or outputs for external circuits

MC 3001 C4 RS/CO

V3.0, 4-Quadrant PWM
with RS422 or RS232 or CANopen interface

MC 3001 C4 RS/CO

Values at 22°C		MC 3001 C4 RS/CO	DC/BL/LM
Power supply	U_P	6 ... 30	V DC
PWM switching frequency	f_{PWM}	100	kHz
Efficiency electronic	η	95	%
Max. continuous output current	I_{cont}	1.4	A
Max. peak output current ¹⁾	I_{max}	5	A
Standby current for electronic (@ $U_P=24V$)	I_{el}	0.04	A
Operating temperature range		-40 ... +85	°C
Mass		75	g

¹⁾ $I_{cont}=2.1A$ @ $U_{mot}=12V$, $I_{cont}=1.3A$ @ $U_{mot}=24V$

²⁾ S2 mode for max. 2s

Interfaces	MC 3001 C4 RS/CO
Configuration from Motion Manager 6.7	RS232 / CANopen / USB
Fieldbus	RS422 / RS232 / CANopen

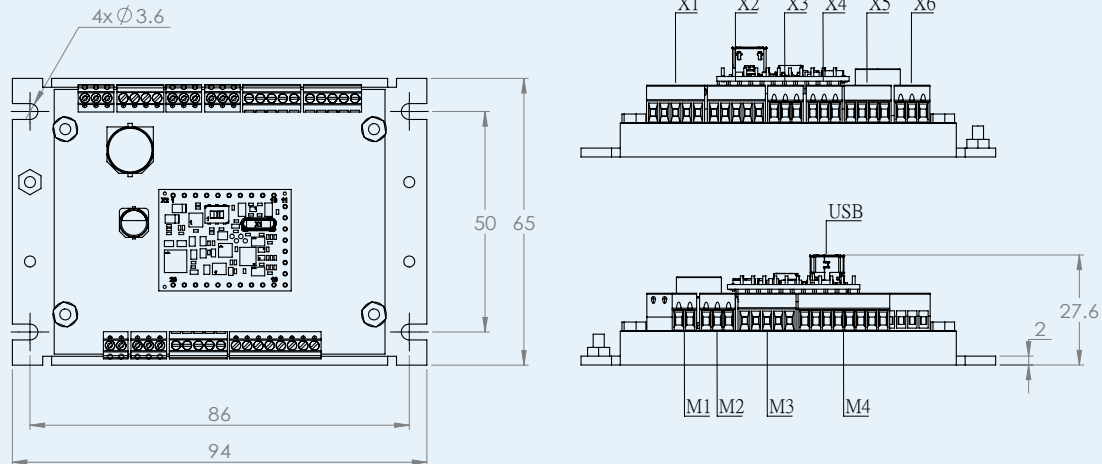
Basic features

- Control of brushless, DC- and linear motors
- Supported sensor systems: absolute encoders, incremental encoders (optical or magnetic), Hall sensors (digital or analog), tachometers
- Positioning resolution when using analog Hall sensors as position encoder: 4096 increments per revolution
- 3 digital inputs, 2 digital outputs, 2 analog inputs, flexible configuration
- Setpoint specification via fieldbus, quadrature signal, pulse and direction or analog inputs
- Optional stand-alone operation via application programs in all interface versions

Range of functions	
Operating modes	PP, PV, PT, CSP, CSV, CST and homing acc. to IEC 61800-7-201 or IEC 61800-7-301 as well as position-, speed- and torque control via analog setpoint or voltage controller
Speed range for brushless motors with number of pole pairs 1	0 min ⁻¹ ... 30 000 min ⁻¹ with sinusoidal commutation (optionally to 60 000 min ⁻¹ with block commutation)
Application programs	Max. 8 application programs (BASIC), one of which is an autostart function
Additional functions	Touch-probe input, connection of a second incremental encoder, control of a holding brake
Indicator	LEDs for displaying the operating state Trace as recorder (scope function) or logger
Motor types	DC, BL - and linear motors

Dimensional drawing (version STD)

Scale reduced mm

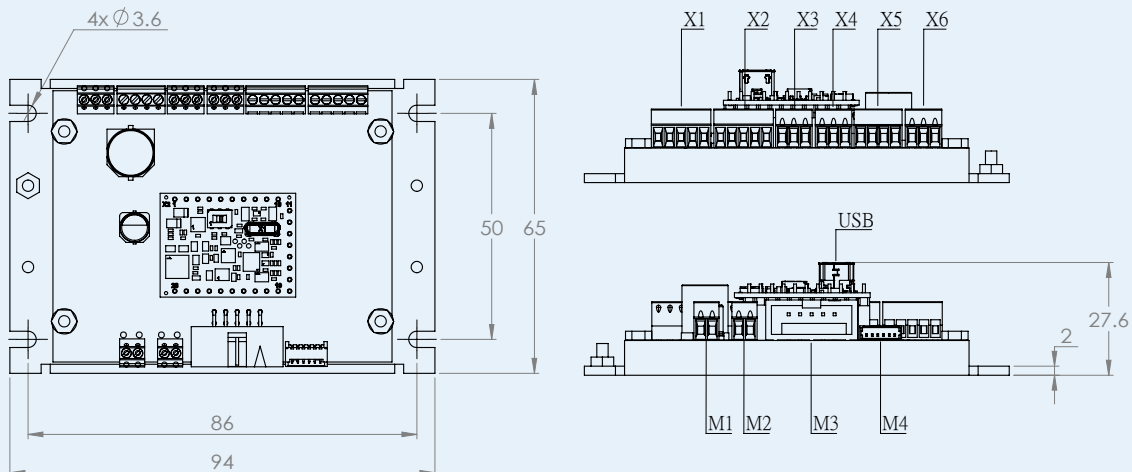


Connection information

Designation	Function
M1(U _P)	Power supply
M2(Motor)	Connection of the motor phases
M3(Sensor)	Connection of the Hall sensors
M4(Encoder)	Connection of an incremental encoder with or without line driver Alternatively an absolute encoder can be connected with or without line driver
USB	Connection of the USB communication
X1/X2	Connection of the RS-422 communication
X3(COM)(Optional)	Interface connection RS-232 / CANopen
X4(Analog IN)	Analog inputs for external circuits
X5(Digital IN)	Digital inputs for external circuits
X6(Digital OUT)	Digital outputs for external circuits

Dimensional drawing (version A - DC Brushed Servomotor)

Scale reduced mm

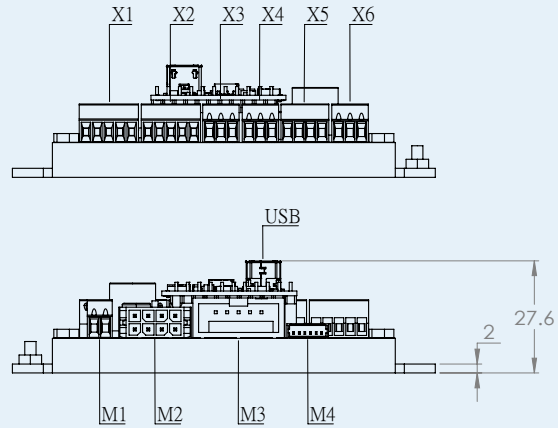
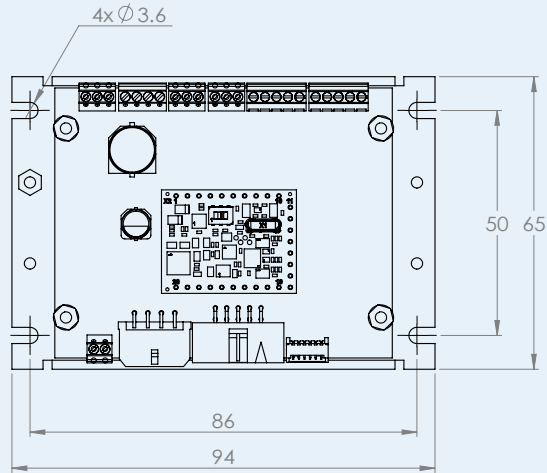


Connection information

Designation	Function
M1(U _P)	Power supply
M2(Motor)	Connection of the motor phases
M3/(M4 Optional)(Encoder)	Connection of an encoder IE2/IEH2/IEH3-L/IE3/IE3-L
USB	Connection of the USB communication
X1/X2	Connection of the RS-422 communication
X3(COM)(Optional)	Interface connection RS-232 / CANopen
X4(Analog IN)	Analog inputs for external circuits
X5(Digital IN)	Digital inputs for external circuits
X6(Digital OUT)	Digital outputs for external circuits

Dimensional drawing (version B1 - DC Brushless Servomotor) (Linear DC Servmotor-01)

Scale reduced mm

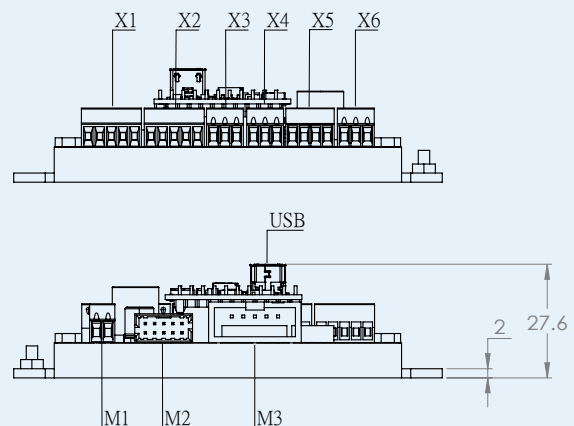
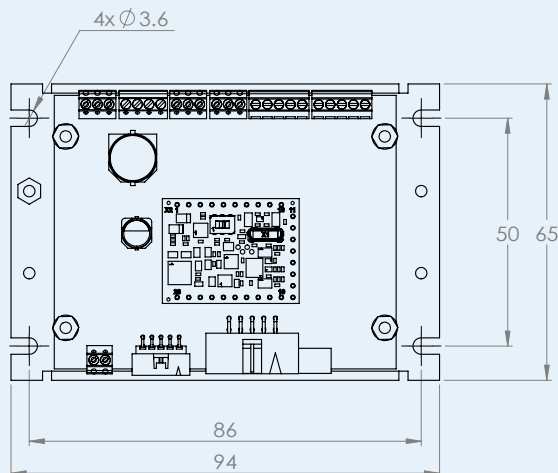


Connection information

Designation	Function
M1(U _P)	Power supply
M2(Motor+Sensor)	Connection of the motor phases and the Hall sensors (3692/K1155/LM-01)
M3/(M4 Optional)(Encoder)	Connection of an encoder IE3/IE3-L/IEF3/IEF3-L/IER3/IER3-L/AES-4096L
USB	Connection of the USB communication
X1/X2	Connection of the RS-422 communication
X3(COM)(Optional)	Interface connection RS-232 / CANopen
X4(Analog IN)	Analog inputs for external circuits
X5(Digital IN)	Digital inputs for external circuits
X6(Digital OUT)	Digital outputs for external circuits

Dimensional drawing (version B2 - DC Brushless Servomotor) (Linear DC Servmotor-01)

Scale reduced mm



Connection information

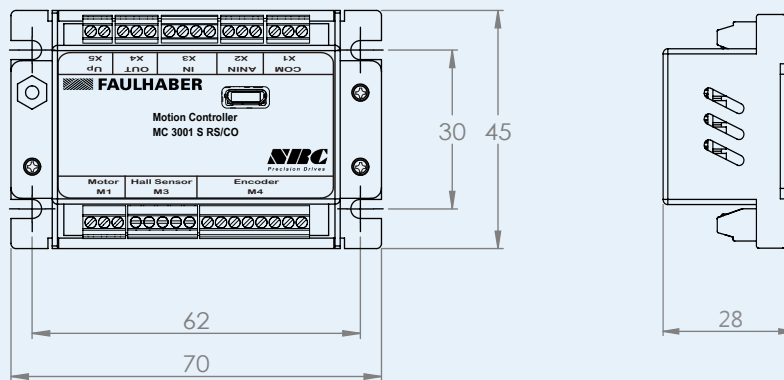
Designation	Function
M1(U _P)	Power supply
M2(Motor+Sensor)	Connection of the motor phases and Hall sensors LM-11C
M3(Encoder)	Connection of an incremental encoder with or without line driver (second encoder)
USB	Connection of the USB communication
X1/X2	Connection of the RS-422 communication
X3(COM)(Optional)	Interface connection RS-232 / CANopen
X4(Analog IN)	Analog inputs for external circuits
X5(Digital IN)	Digital inputs for external circuits
X6(Digital OUT)	Digital outputs for external circuits

MC 3001 OPTIONAL

Optional cover for MC 3001

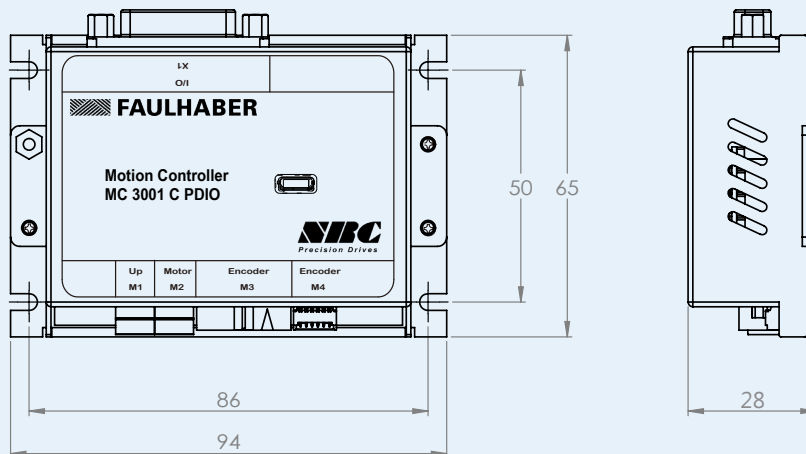
Optional cover

Scale reduced mm



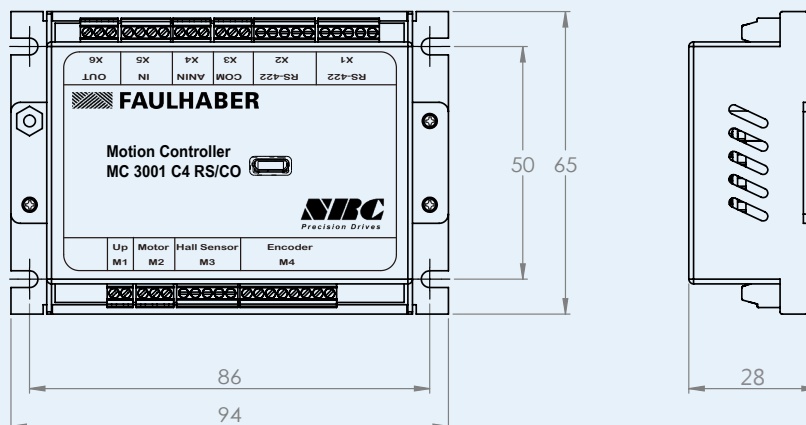
Optional cover

Scale reduced mm



Optional cover

Scale reduced mm



MC 5004 C RS/CO

V3.0, 4-Quadrant PWM
with EtherCAT interface

MC 5004 C RS/CO

Values at 22°C		MC 5004 C RS/CO	DC/BL/LM
Power supply	U_P	12 ... 50	V DC
PWM switching frequency	f_{PWM}	100	kHz
Efficiency electronic	η	95	%
Max. continuous output current	I_{cont}	4	A
Max. peak output current ¹⁾	I_{max}	12	A
Standby current for electronic (@ $U_P = 24V$)	I_{el}	0.06	A
Operating temperature range		-40 ... +85	°C
Mass		155	g

¹⁾ S2 mode for max. 1s

Interfaces	MC 5004 C RS/CO
Configuration from Motion Manager 6.7	RS232 / USB
Fieldbus	RS232 / CANopen

Basic features

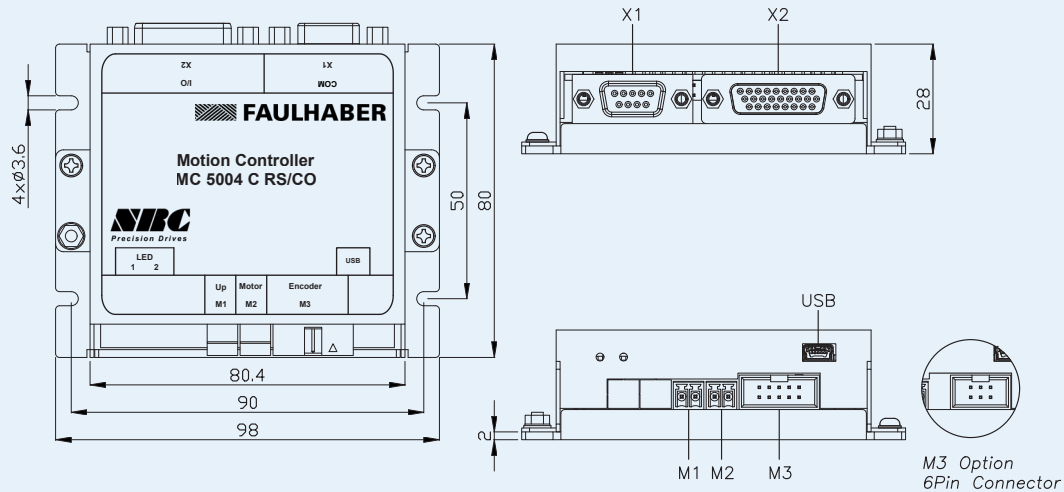
- Control of brushless, DC- and linear motors
- Supported sensor systems: absolute encoders (AES or SSI), incremental encoders (optical or magnetic), Hall sensors (digital or analog), tachometers
- Positioning resolution when using analog Hall sensors as position encoder: 4096 increments per revolution
- 8 digital inputs, 3 digital outputs, 2 analog inputs, flexible configuration
- Setpoint specification via fieldbus, quadrature signal, pulse and direction or analog inputs
- Optional stand-alone operation via application programs in all interface versions

Range of functions

Operating modes	PP, PV, PT, CSP, CSV, CST and homing acc. to IEC 61800-7-201 or IEC 61800-7-301 as well as position-, speed- and torque control via analog setpoint or voltage controller
Speed range for brushless motors with number of pole pairs 1	0 min ⁻¹ ... 30 000 min ⁻¹ with sinusoidal commutation (optionally to 60 000 min ⁻¹ with block commutation)
Application programs	Max. 8 application programs (BASIC), one of which is an autostart function
Additional functions	Touch-probe input, connection of a second incremental encoder, control of a holding brake
Indicator	LEDs for displaying the operating state Trace as recorder (scope function) or logger
Motor types	DC, BL - and linear motors

Dimensional drawing (version A - DC Brushed Servomotor)

Scale reduced mm

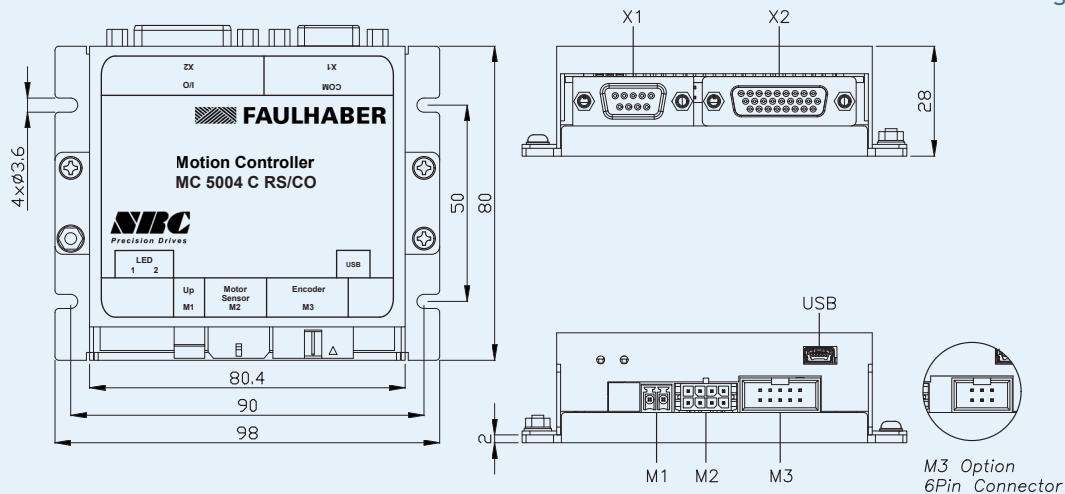


Connection information

Designation	Function
M1(U _P)	Power supply
M2(Motor)	Connection of the motor phases
M3(Encoder)	Connection of an incremental encoder with or without line driver
USB	Connection of the USB communication
X1(COM)	Interface connection RS-232, CANopen
X2(I/O)	Inputs or outputs for external circuits

Dimensional drawing (version B - DC Brushless Servomotor) (Linear DC Servomotor-01)

Scale reduced mm



Connection information

Designation	Function
M1(U _P)	Power supply
M2(Motor+Sensor)	Connection of the motor phases and the Hall sensors
M3(Encoder)	Connection of an incremental encoder with or without line driver. Alternatively an absolute encoder can be connected with or without line driver
USB	Connection of the USB communication
X1(COM)	Interface connection RS-232, CANopen
X2(I/O)	Inputs or outputs for external circuits

MC 5004 C RS/CO AEMT

V3.0, 4-Quadrant PWM
with RS232, CANopen interface
for multi-turn encoder AEMT-12/16 L

MC 5004 C RS/CO AEMT

Values at 22°C		MC 5004 C RS/CO AEMT	BL
Power supply electronic	U_P	12 ... 50	V DC
PWM switching frequency	f_{PWM}	100	kHz
Efficiency electronic	η	95	%
Max. continuous output current	I_{cont}	4	A
Max. peak output current ¹⁾	I_{max}	12	A
Standby current for electronic (@ $U_P = 24V$)	I_{el}	0.06	A
Operating temperature range		-40 ... +85	°C
Mass		140	g

¹⁾S2 mode for max. 2s

Interfaces	MC 5004 C RS/CO AEMT
Configuration from Motion Manager 6.7	RS232 / USB
Fieldbus	RS232 / CANopen

Basic features

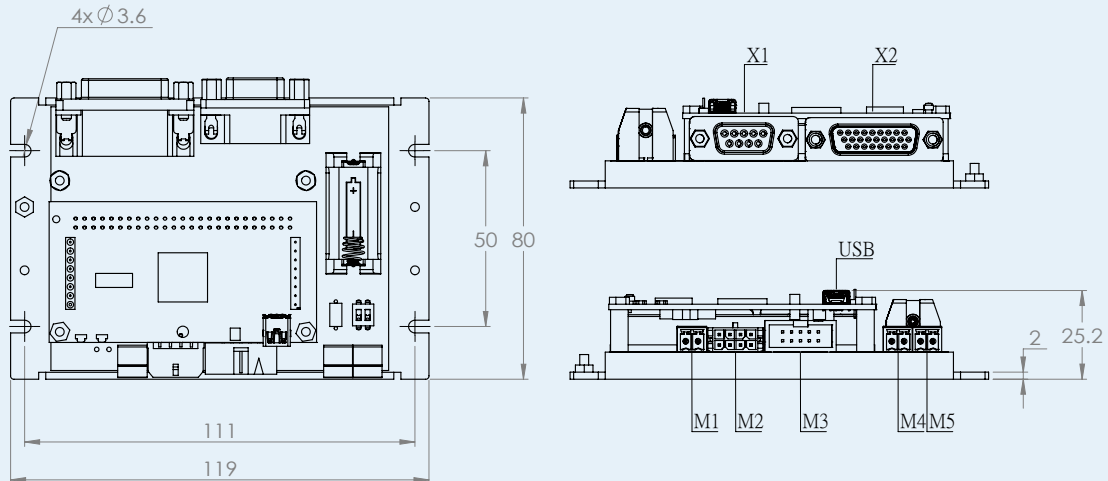
- Control of brushless motors
- Supported sensor systems: Multi-turn absolute encoders, Hall sensors (digital)
- 8 digital inputs, 3 digital outputs, 2 analog inputs, flexible configuration
- Setpoint specification via fieldbus, quadrature signal, pulse and direction or analog inputs
- Optional stand-alone operation via application programs in all interface versions
- If the power supply fails or is switched off, the AEMT-12/16L multi-turn encoder automatically switches to a battery mode with greatly reduced energy consumption.
- In combination with a suitable backup battery board ensures that the multi-turn functionality of the encoder is temporarily maintained.
- In addition to the buffer function, the board also contains a preset connection for resetting the revolution counter when commissioning or during maintenance work.
- For details on the functionality, see the technical manual of the AEMT-12/16 .
- NOTE: The battery is included in the delivery contents of the board. Recommended battery types: SL-350, ER 14259, LS 14250.

Range of functions

Operating modes	PP, PV, PT, CSP, CSV, CST and homing acc. to IEC 61800-7-201 or IEC 61800-7-301 as well as position-, speed- and torque control via analog setpoint or voltage controller
Speed range for brushless motors with number of pole pairs 1	0 min ⁻¹ ... 30 000 min ⁻¹ with sinusoidal commutation (optionally to 60 000 min ⁻¹ with block commutation)
Application programs	Max. 8 application programs (BASIC), one of which is an autostart function
Additional functions	Touch-probe input, connection of a second incremental encoder, control of a holding brake
Indicator	LEDs for displaying the operating state Trace as recorder (scope function) or logger
Motor types	Brushless motors

Dimensional drawing (version B - DC Brushless Servomotor)

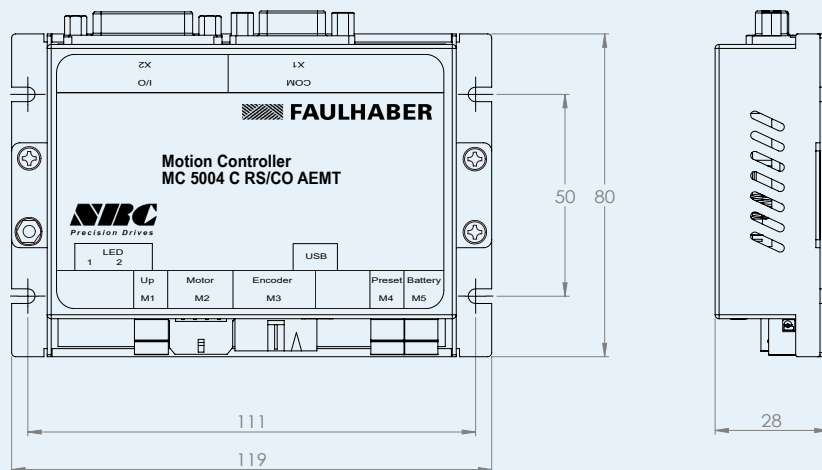
Scale reduced mm



Connection information

Designation	Function
M1(U _P)	Power supply
M2(Motor+Sensor)	Connection of the motor phases and the Hall sensors
M3(Encoder)	Connection of an encoder AEMT-12/16 L
M4(Preset)	Preset input for external circuits
M5(Battery)	Connection of battery
USB	Connection of the USB communication
X1(COM)	Interface connection RS-232, CANopen
X2(I/O)	Inputs or outputs for external circuits

Scale reduced mm



MC 5004 C PDIO

V3.0, 4-Quadrant PWM

with connection of a pulse/direction signal at digital input

MC 5004 C PD IO

Values at 22°C		MC 5004 C PD IO	DC/BL/LM
Power supply	U_P	12 ... 50	V DC
PWM switching frequency	f_{PWM}	100	kHz
Efficiency electronic	η	95	%
Max. continuous output current	I_{cont}	4	A
Max. peak output current ¹⁾	I_{max}	12	A
Standby current for electronic (@ $U_P = 24V$)	I_{el}	0.06	A
Operating temperature range		-40 ... +85	°C
Mass		155	g

¹⁾ S2 mode for max. 1s

Interfaces	MC 5004 C PD IO
Configuration from Motion Manager 6.7	USB

Basic features

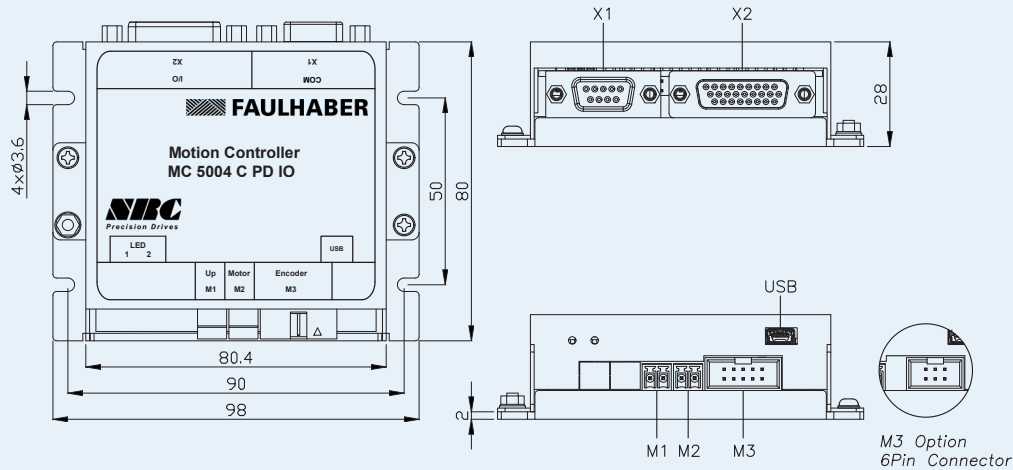
- Control of brushless, DC- and linear motors
- Supported sensor systems: incremental encoders (optical or magnetic), Hall sensors (digital or analog)
- Positioning resolution when using analog Hall sensors as position encoder: 4096 increments per revolution
- Pulse/direction input, 6 digital inputs, 3 digital outputs, 2 analog inputs, flexible configuration
- Setpoint specification via USB, quadrature signal, pulse and direction or analog inputs
- Optional stand-alone operation via application programs in all interface versions

Range of functions

Pulse Input frequency	Up to 500 KHz
Operating modes	PP, PV and homing acc. to IEC 61800-7-201 or IEC 61800-7-301 as well as position-, speed- and torque control via analog setpoint or voltage controller
Speed range for brushless motors with number of pole pairs 1	0 min ⁻¹ ... 30 000 min ⁻¹ with sinusoidal commutation (optionally to 60 000 min ⁻¹ with block commutation)
Application programs	Max. 8 application programs (BASIC), one of which is an autostart function
Additional functions	Touch-probe input, connection of a second incremental encoder, control of a holding brake
Indicator	LEDs for displaying the operating state
Motor types	DC, BL motors and linear motors

Dimensional drawing (version A - DC Brushed Servomotor)

Scale reduced mm

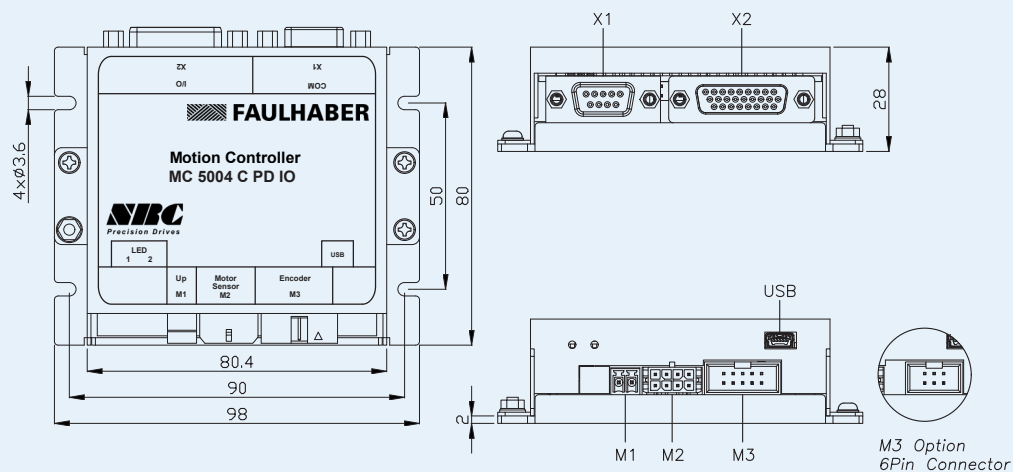


Connection information

Designation	Function
M1(U _p)	Power supply
M2(Motor)	Connection of the motor phases
M3(Encoder)	Connection of an incremental encoder with or without line driver
USB	Connection of the USB communication
X1(COM)	Encoder output
X2(I/O)	Inputs or outputs for external circuits

Dimensional drawing (version B - DC Brushless Servomotor) (Linear DC Servomotor-01)

Scale reduced mm



Connection information

Designation	Function
M1(U _p)	Power supply
M2(Motor+Sensor)	Connection of the motor phases and the Hall sensors
M3(Encoder)	Connection of an incremental encoder with or without line drive
USB	Connection of the USB communication
X1(COM)	Encoder output
X2(I/O)	Inputs or outputs for external circuits

MC 5004 C ET

V3.0, 4-Quadrant PWM
with EtherCAT interface

MC 5004 C ET

Values at 22°C		MC 5004 C ET	DC/BL/LM
Power supply electronic	U_P	12 ... 50	V DC
PWM switching frequency	f_{PWM}	100	kHz
Efficiency electronic	η	95	%
Max. continuous output current	I_{cont}	4	A
Max. peak output current ¹⁾	I_{max}	12	A
Standby current for electronic (@ $U_P = 24V$)	I_{el}	0.07	A
Operating temperature range		-40 ... +85	°C
Mass		200	g

¹⁾ S2 mode for max. 1s

Interfaces	MC 5004 C ET
Configuration from Motion Manager 6.7	RS232 / USB
Fieldbus	EtherCAT

Basic features

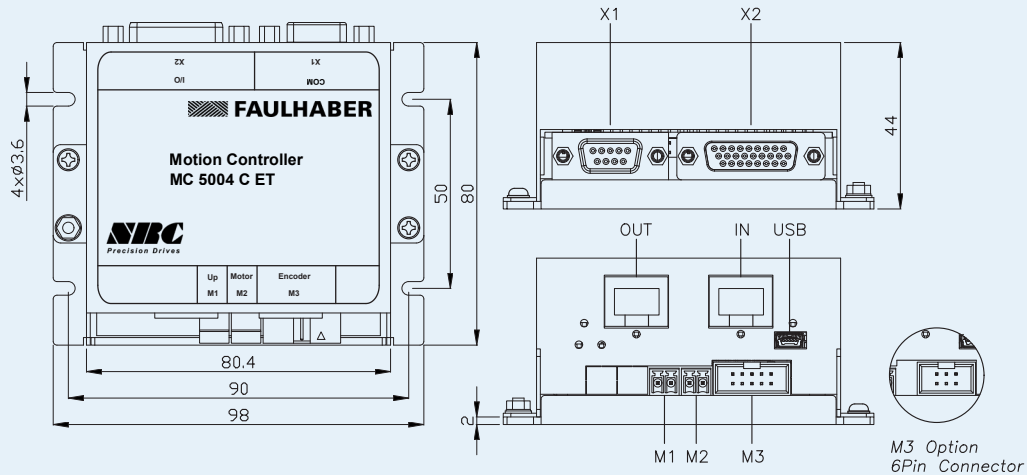
- Control of brushless, DC- and linear motors
- Supported sensor systems: absolute encoders (AES or SSI), incremental encoders (optical or magnetic), Hall sensors (digital or analog), tachometers
- Positioning resolution when using analog Hall sensors as position encoder: 4096 increments per revolution
- 8 digital inputs, 3 digital outputs, 2 analog inputs, flexible configuration
- Setpoint specification via fieldbus, quadrature signal, pulse and direction or analog inputs
- Optional stand-alone operation via application programs in all interface versions

Range of functions

Operating modes	PP, PV, PT, CSP, CSV, CST and homing acc. to IEC 61800-7-201 or IEC 61800-7-301 as well as position-, speed- and torque control via analog setpoint or voltage controller
Speed range for brushless motors with number of pole pairs 1	0 min ⁻¹ ... 30 000 min ⁻¹ with sinusoidal commutation (optionally to 60 000 min ⁻¹ with block commutation)
Application programs	Max. 8 application programs (BASIC), one of which is an autostart function
Additional functions	Touch-probe input, connection of a second incremental encoder, control of a holding brake
Indicator	LEDs for displaying the operating state Trace as recorder (scope function) or logger
Motor types	DC, BL- and linear motors

Dimensional drawing (version A - DC Brushed Servomotor)

Scale reduced mm

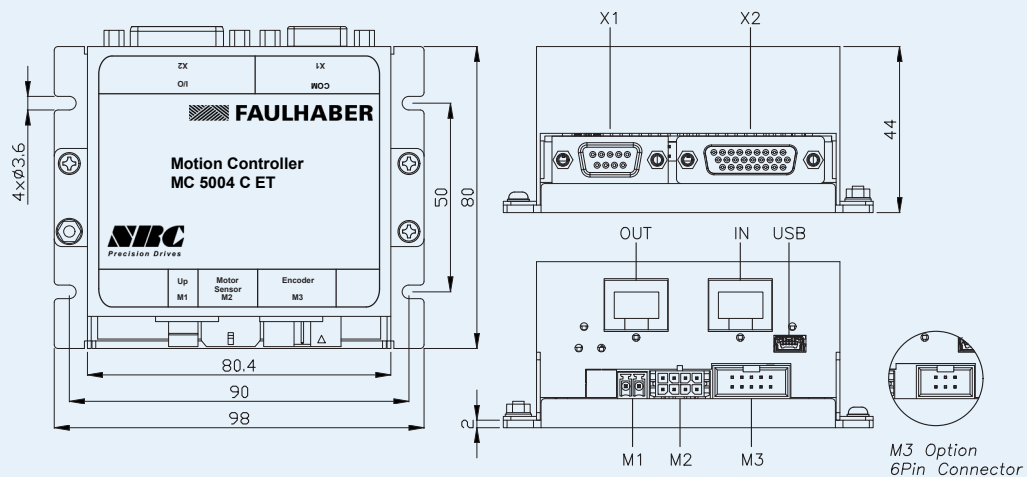


Connection information

Designation	Function
M1(U _P)	Power supply
M2(Motor)	Connection of the motor phases
M3(Encoder)	Connection of an incremental encoder with or without line driver
USB	Connection of the USB communication
X1(COM)	Interface connection RS-232
X2(I/O)	Inputs or outputs for external circuits
IN/OUT	Connection of EtherCAT communication

Dimensional drawing (version B - DC Brushless Servomotor) (version C - Linear DC Servomotor-01)

Scale reduced mm



Connection information

Designation	Function
M1(U _P)	Power supply
M2(Motor+Sensor)	Connection of the motor phases and the Hall sensors
M3(Encoder)	Connection of an incremental encoder with or without line driver
	Alternatively an absolute encoder can be connected with or without line driver
USB	Connection of the USB communication
X1(COM)	Interface connection RS-232
X2(I/O)	Inputs or outputs for external circuits
IN/OUT	Connection of EtherCAT communication

MC 5004 C ET AEMT

V3.0, 4-Quadrant PWM
with EtherCAT interface
for multi-turn encoder AEMT-12/16 L

MC 5004 C ET AEMT

Values at 22°C		MC 5004 C ET AEMT	BL
Power supply electronic	U_P	12 ... 50	V DC
PWM switching frequency	f_{PWM}	100	kHz
Efficiency electronic	η	95	%
Max. continuous output current	I_{cont}	4	A
Max. peak output current ¹⁾	I_{max}	12	A
Standby current for electronic (@ $U_P = 24V$)	I_{el}	0.07	A
Operating temperature range		-40 ... +85	°C
Mass		165	g

¹⁾S2 mode for max. 2s

Interfaces	MC 5004 C ET AEMT
Configuration from Motion Manager 6.7	RS232 / USB
Fieldbus	EtherCAT

Basic features

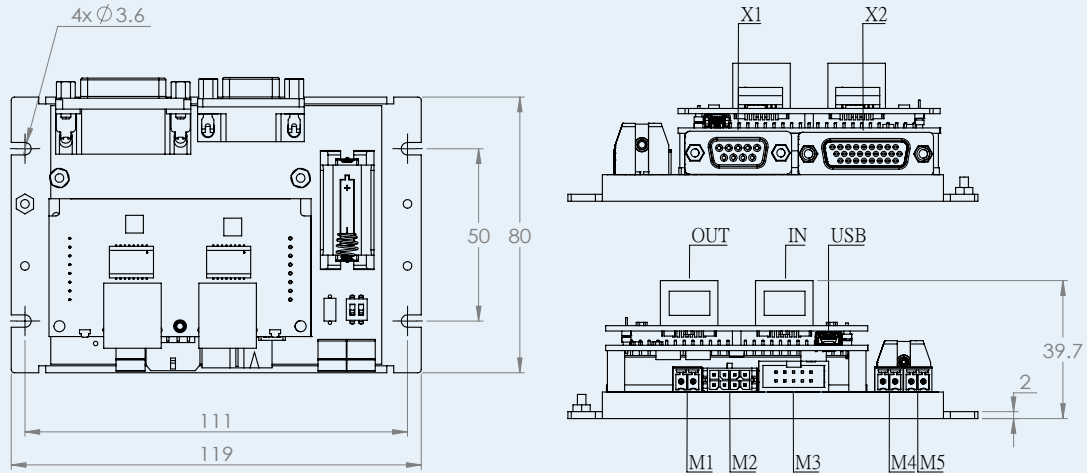
- Control of brushless motors
- Supported sensor systems: Multi-turn absolute encoders, Hall sensors (digital)
- 8 digital inputs, 3 digital outputs, 2 analog inputs, flexible configuration
- Setpoint specification via fieldbus, quadrature signal, pulse and direction or analog inputs
- Optional stand-alone operation via application programs in all interface versions
- If the power supply fails or is switched off, the AEMT-12/16L multi-turn encoder automatically switches to a battery mode with greatly reduced energy consumption.
- In combination with a suitable backup battery board ensures that the multi-turn functionality of the encoder is temporarily maintained.
- In addition to the buffer function, the board also contains a preset connection for resetting the revolution counter when commissioning or during maintenance work.
- For details on the functionality, see the technical manual of the AEMT-12/16 .
- NOTE: The battery is included in the delivery contents of the board. Recommended battery types: SL-350, ER 14259, LS 14250.

Range of functions

Operating modes	PP, PV, PT, CSP, CSV, CST and homing acc. to IEC 61800-7-201 or IEC 61800-7-301 as well as position-, speed- and torque control via analog setpoint or voltage controller
Speed range for brushless motors with number of pole pairs 1	0 min ⁻¹ ... 30 000 min ⁻¹ with sinusoidal commutation (optionally to 60 000 min ⁻¹ with block commutation)
Application programs	Max. 8 application programs (BASIC), one of which is an autostart function
Additional functions	Touch-probe input, connection of a second incremental encoder, control of a holding brake
Indicator	LEDs for displaying the operating state Trace as recorder (scope function) or logger
Motor types	Brushless motors

Dimensional drawing (version B - DC Brushless Servomotor)

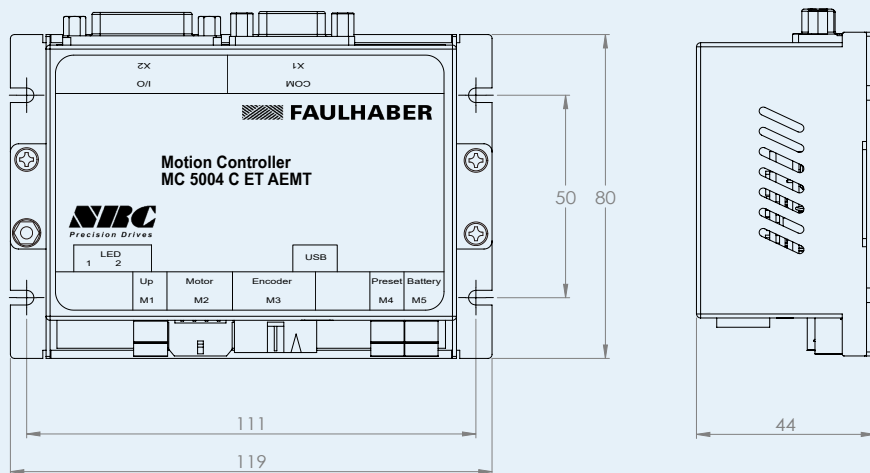
Scale reduced mm



Connection information

Designation	Function
M1(U _P)	Power supply
M2(Motor+Sensor)	Connection of the motor phases and the Hall sensors
M3(Encoder)	Connection of an encoder AEMT-12/16 L
M4(Preset)	Preset input for external circuits
M5(Battery)	Connection of battery
USB	Connection of the USB communication
X1(COM)	Interface connection RS-232
X2(I/O)	Inputs or outputs for external circuits
IN/OUT	Connection of EtherCAT communication

Scale reduced mm



MicNano

Micro to Nano

Option

選 配 組 合 系 列

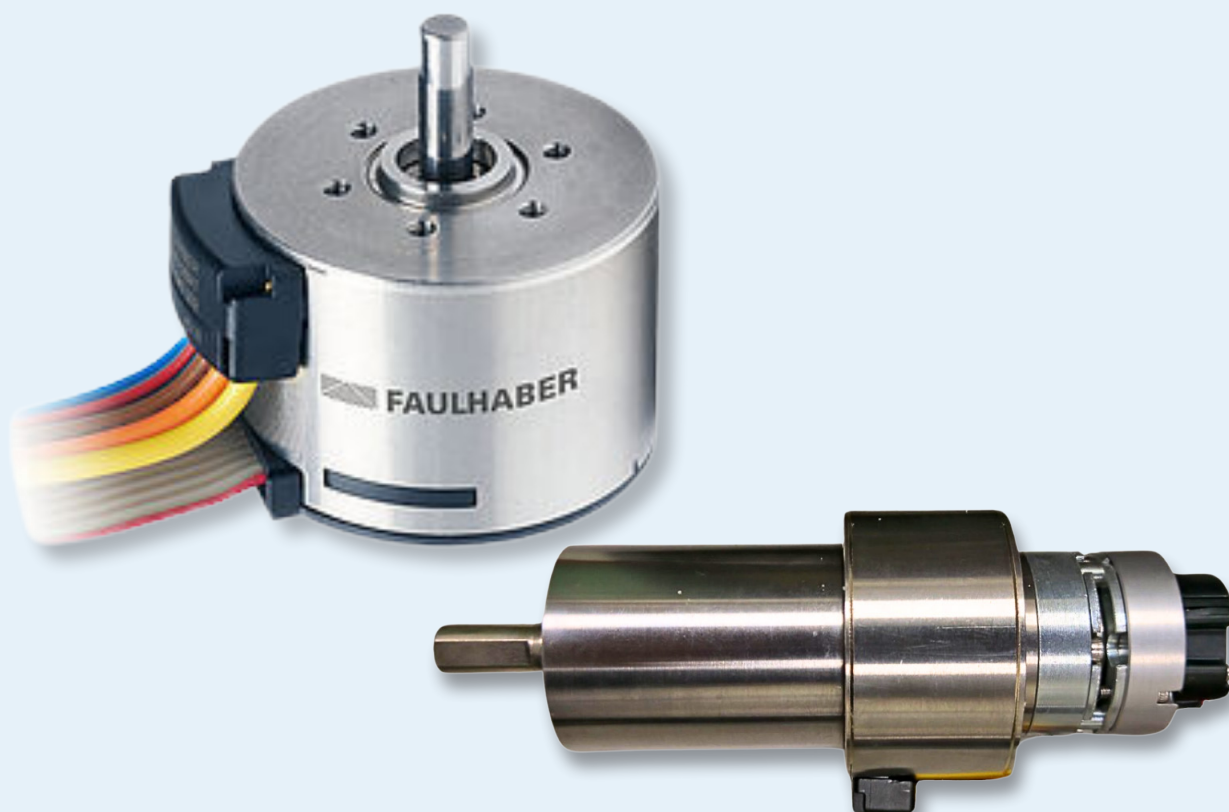
- 選配編碼器，剎車器組合
 - 通電 / 斷電剎車
 - 解析值：1 ~ 10 000
 - 磁性式 / 光學式增量型
 - 磁性式多圈絕對型
 - 差動訊號 Line Driver
-

選配組合編碼器與剎車器系列

選配磁性式 / 光學式增量型編碼器

磁性式多圈絕對型編碼器與通電 / 斷電剎車器

歡迎諮詢服務業務進行客製化選配組合



Options

| ◎ : Encoder △ : Brake |

◎ IE3-1024 L	134 - 135
◎ IEF3-4096 L	136 - 138
◎ IER3-10000 L	139 - 140
◎ AEMT-12/16 L	141 - 142
◎ SERIES HE	144 - 145
△ PFB26E-24V	146
△ PFB29E-24V	147
△ PFB35	148
△ PNB32/34	149

IE3-1024 L

magnetic Encoder, digital outputs, 3 channels,
1 - 1024 lines per revolution, Line Driver

IE3-1024 L

		IE3-32 L	IE3-64 L	IE3-128 L	IE3-256 L	IE3-512 L	IE3-1024 L	
Lines per revolution	<i>N</i>	32	64	128	256	512	1 024	
Frequency range, up to ¹⁾	<i>f</i>	15	30	60	120	240	430	kHz
Signal output, square wave		2+1 Index and complementary outputs						Channels
Supply voltage	<i>U_{DD}</i>	4.5 ... 5.5						V
Current consumption, typical ²⁾	<i>I_{DD}</i>	typ. 20, max. 30						mA
Index Pulse width	<i>P₀</i>	90 ± 45						°e
Phase shift, channel A to B	<i>Φ</i>	90 ± 45						°e
Inertia of sensor magnet	<i>J</i>	0.08						gcm ²
Operating temperature range		-40 ... +100						°C
Accuracy, typ.		0.5						°m
Repeatability, typ.		0.1						°m
Hysteresis		0.17						°m
Edge spacing, min.		421						ns
Mass, typ.		13.5						g

¹⁾ Velocity (min⁻¹) = f(Hz) x 60/N

²⁾ *U_{DD}* = 5 V: with unloaded outputs

³⁾ At 5 000 min⁻¹

Note: The output signals are TIA-422 compatible.

Examples of Line Driver Receivers: ST26C32AB (STM), AM26C32 (TI).

For combination with Motor

Dimensional drawing A	<L1 [mm]
2214 ... BXT H	26.8
3216 ... BXT H	28.7
4221 ... BXT H	34

Characteristics

These incremental encoders with 3 output channels, in combination with the FAULHABER Motors, are used for the indication and control of both shaft velocity and direction of rotation as well as for positioning.

A permanent magnet on the shaft creates a moving magnetic field which is captured using an angular sensor and further processed. At the encoder outputs, two 90° phase-shifted square wave signals are available with up to 1 024 impulses and an index impulse per motor revolution.

The Line Driver version has differential signal outputs (TIA-422). Differential signals reduce ambient interference and are suitable for applications with high ambient interference.

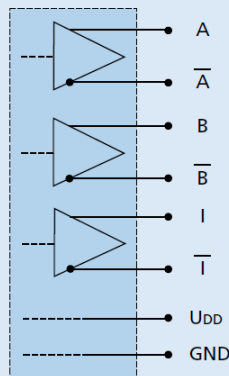
The Line Driver amplifies the encoder signal which means that long cables can be used without signal degradation. Differential signal outputs must be decoded by the appropriate receiver module. In addition, a suitable line termination resistance (100 ohm) is possibly useful.

The encoder is available in a variety of different resolutions. The encoder is connected with a ribbon cable.

To view our large range of accessory parts, please refer to the "Accessories" chapter.

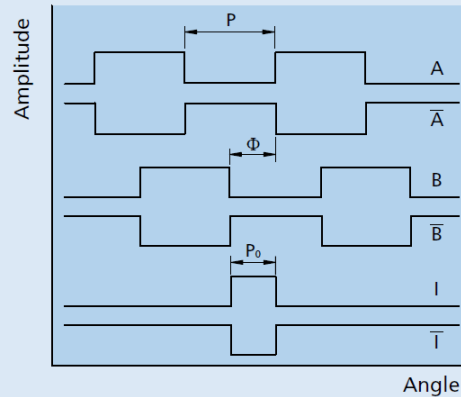
Circuit diagram / Output signals

Output circuit



Output signals

with clockwise rotation as seen from the shaft end



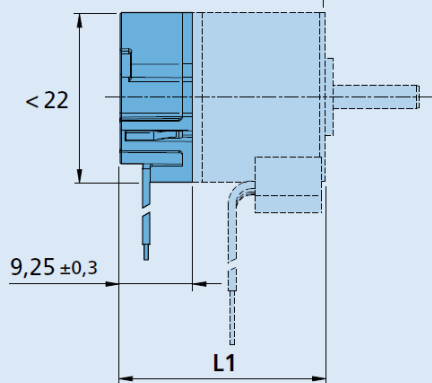
Connector information / Variants

Example product designation: **2444S024B-K1838 IE3-1024L**

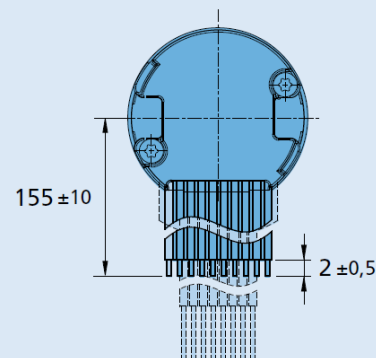
Option	Type	Description	Connection Encoder																						
3806	Connector	for combination with DC-Motors series CR, CXR and with Brushless DC-Motor series B(S), BP4 and BXT H. Connector variants AWG 28 / PVC ribbon cable with connector EN 60603-13 / DIN-41651.	<table><tr><th>No.</th><th>Function</th></tr><tr><td>1</td><td>N.C.</td></tr><tr><td>2</td><td>U_{DD}</td></tr><tr><td>3</td><td>GND</td></tr><tr><td>4</td><td>N.C.</td></tr><tr><td>5</td><td>Channel $\bar{A}$</td></tr><tr><td>6</td><td>Channel A</td></tr><tr><td>7</td><td>Channel $\bar{B}$</td></tr><tr><td>8</td><td>Channel B</td></tr><tr><td>9</td><td>Channel $\bar{I}$</td></tr><tr><td>10</td><td>Channel I</td></tr></table>	No.	Function	1	N.C.	2	U _{DD}	3	GND	4	N.C.	5	Channel $\bar{A}$	6	Channel A	7	Channel $\bar{B}$	8	Channel B	9	Channel $\bar{I}$	10	Channel I
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9	Channel $\bar{I}$																								
10	Channel I																								
3589	Connector	for combination with Brushless DC-Motors series BX4. Connector variants AWG 28 / PVC ribbon cable with connector EN 60603-13 / DIN-41651.	<table><tr><th>No.</th><th>Function</th></tr><tr><td>1</td><td>N.C.</td></tr><tr><td>2</td><td>U_{DD}</td></tr><tr><td>3</td><td>GND</td></tr><tr><td>4</td><td>N.C.</td></tr><tr><td>5</td><td>Channel $\bar{A}$</td></tr><tr><td>6</td><td>Channel A</td></tr><tr><td>7</td><td>Channel $\bar{B}$</td></tr><tr><td>8</td><td>Channel B</td></tr><tr><td>9</td><td>Channel $\bar{I}$</td></tr><tr><td>10</td><td>Channel I</td></tr></table>	No.	Function	1	N.C.	2	U _{DD}	3	GND	4	N.C.	5	Channel $\bar{A}$	6	Channel A	7	Channel $\bar{B}$	8	Channel B	9	Channel $\bar{I}$	10	Channel I
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8	Channel B																								
9	Channel $\bar{I}$																								
10	Channel I																								
	Resolutions	Resolutions from 1 - 1024 lines per revolution are available by request.	Standard cable PVC-ribbon cable, 10-AWG 28, 1,27 mm Caution: Incorrect lead connection will damage the motor electronics! In combination with the BX4 brushless DC-servomotors with digital Hall sensors, the sensor supply connections of encoder and motor are connected to each other.																						

Dimensional drawing A

Example of combination with 2214...BXT H

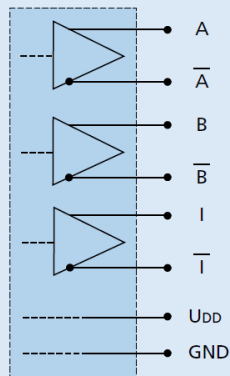


IE3-1024 L



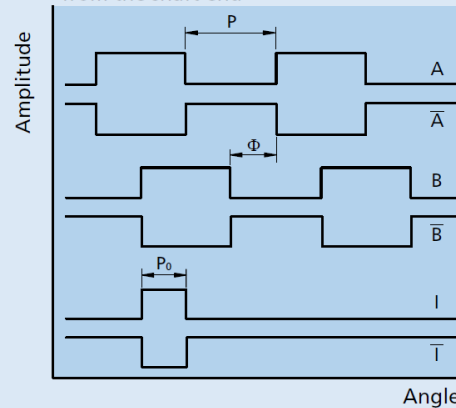
Circuit diagram / Output signals

Output circuit



Output signals

with clockwise rotation as seen from the shaft end



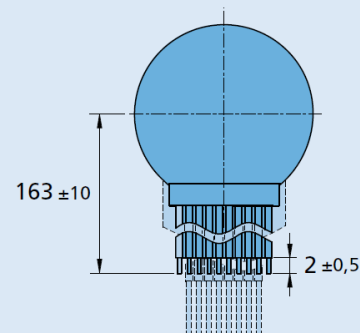
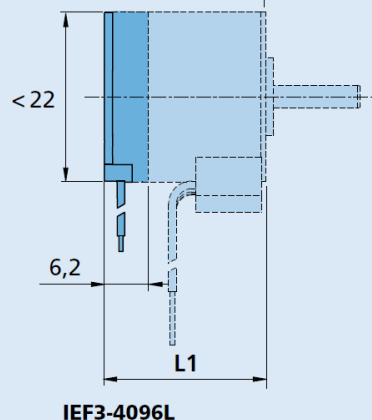
Connector information / Variants

Example product designation: 2214S012BXT H IEF3-4096L

Option	Type	Description	Connection Encoder																						
3806	Connector	for combination with DC-Motors series CR, CXR and with Brushless DC-Motor series B(S), BP4 and BXT H. Connector variants AWG 28 / PVC ribbon cable with connector EN 60603-13 / DIN-41651.	<table><tr><th>No.</th><th>Function</th></tr><tr><td>1</td><td>N.C.</td></tr><tr><td>2</td><td>U_{DD}</td></tr><tr><td>3</td><td>GND</td></tr><tr><td>4</td><td>N.C.</td></tr><tr><td>5</td><td>Channel $\bar{A}$</td></tr><tr><td>6</td><td>Channel A</td></tr><tr><td>7</td><td>Channel $\bar{B}$</td></tr><tr><td>8</td><td>Channel B</td></tr><tr><td>9</td><td>Channel $\bar{I}$</td></tr><tr><td>10</td><td>Channel I</td></tr></table>	No.	Function	1	N.C.	2	U _{DD}	3	GND	4	N.C.	5	Channel $\bar{A}$	6	Channel A	7	Channel $\bar{B}$	8	Channel B	9	Channel $\bar{I}$	10	Channel I
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3589	Connector	for combination with Brushless DC-Motors series BX4. Connector variants AWG 28 / PVC ribbon cable with connector EN 60603-13 / DIN-41651.	<table><tr><th>No.</th><th>Function</th></tr><tr><td>1</td><td>N.C.</td></tr><tr><td>2</td><td>U_{DD}</td></tr><tr><td>3</td><td>GND</td></tr><tr><td>4</td><td>N.C.</td></tr><tr><td>5</td><td>Channel $\bar{A}$</td></tr><tr><td>6</td><td>Channel A</td></tr><tr><td>7</td><td>Channel $\bar{B}$</td></tr><tr><td>8</td><td>Channel B</td></tr><tr><td>9</td><td>Channel $\bar{I}$</td></tr><tr><td>10</td><td>Channel I</td></tr></table>	No.	Function	1	N.C.	2	U _{DD}	3	GND	4	N.C.	5	Channel $\bar{A}$	6	Channel A	7	Channel $\bar{B}$	8	Channel B	9	Channel $\bar{I}$	10	Channel I
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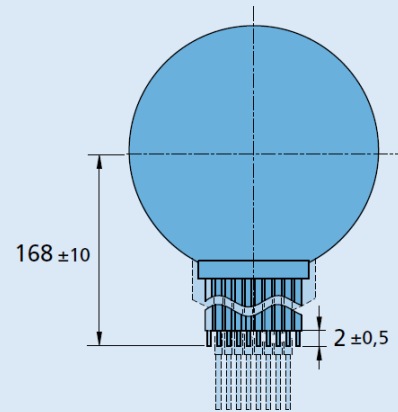
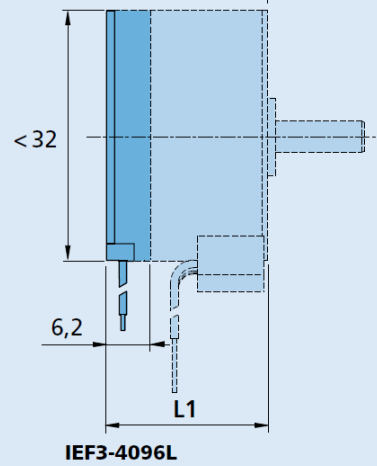
Dimensional drawing A

Example of combination with 2214...BXT H



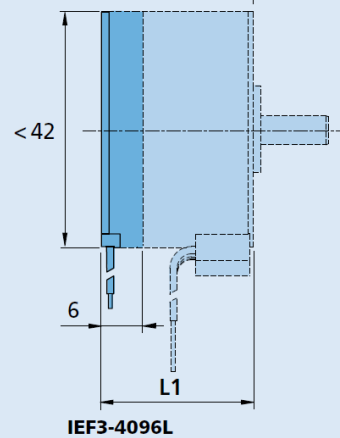
Dimensional drawing B

Example of combination with 3216...BXTH

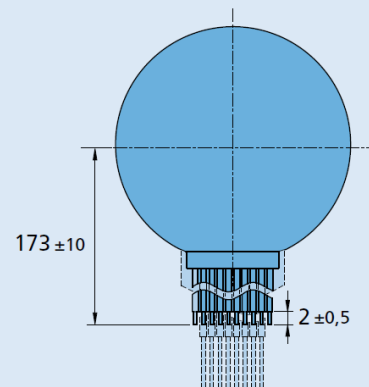


Dimensional drawing C

Example of combination with 4221...BXTH



Scale reduced



IER3-10000 L

optical Encoder, digital outputs, 3 channels,
1000 - 10000 lines per revolution, Line Driver

IER3-10000 L

	IER3	-1000	-2000	-4000	-1024	-2048	-4096	-1700	-3400	-6800	-2500	-5000	-10000	L	
Lines per revolution	<i>N</i>	1000	2000	4000	1024	2048	4096	1700	3400	6800	2500	5000	10000		
Frequency range, up to ¹⁾	<i>f</i>	250	500	1000	250	500	1000	250	500	1000	250	500	1000	kHz	
Signal output, square wave		2+1 Index and complementary outputs												Channels	
Supply voltage	<i>U_{DD}</i>	4.5 ... 5.5												V	
Current consumption, typical ²⁾	<i>I_{DD}</i>	typ. 27, max. 50												mA	
Index Pulse width	<i>P₀</i>	90 ± 15												°e	
Phase shift, channel A to B	<i>Φ</i>	90 ± 20												°e	
Inertia of sensor magnet	<i>J</i>	0.14												gcm ²	
Operating temperature range		-20 ... +85												°C	
Accuracy, typ.		0.3			0.3			0.2			0.1			°m	
Repeatability, typ.		0.05													°m
Hysteresis		< 0.05													°m
Edge spacing, min.		125													ns
Mass, typ.		13.5													g

¹⁾ Velocity (min⁻¹) = f(Hz) x 60/N

²⁾ *U_{DD}* = 5 V: with unloaded outputs

³⁾ Operating temperature range -40 ...+85 °C available on request

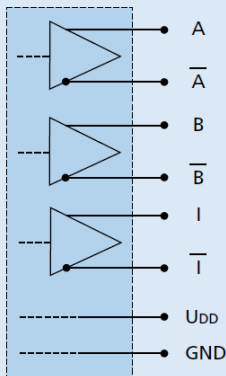
Note: The output signals are TIA-422 compatible.

Examples of Line Driver Receivers: ST26C32AB (STM), AM26C32 (TI).

Product combination	IER3	-1000 -2000 -4000	-1024 -2048 -4096	-1700 -3400 -6800	-2500 -5000 -10000	L
Series		Motor, <L1 [mm]	Motor, <L1 [mm]	Motor, <L1 [mm]	Motor, <L1 [mm]	Drawing
2214 ... BXT H		26.8	26.8	-	-	A
3216 ... BXT H		28.7	28.7	-	-	A
4221 ... BXT H		34	34	-	-	A

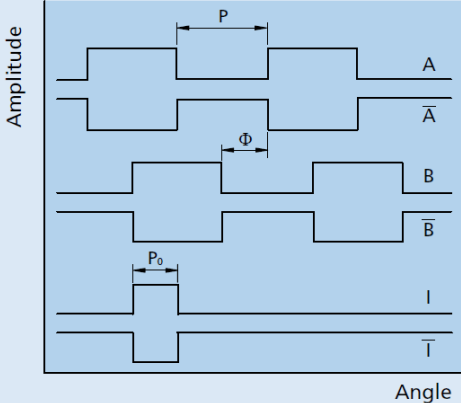
Circuit diagram / Output signals

Output circuit



Output signals

with clockwise rotation as seen from the shaft end



Connector information / Variants

Example product designation: 2232S024BX4 IER3-6800L 3589

Option	Type	Description																							
3806	Connector	for combination with DC-Motors series CR, CXR and with Brushless DC-Motor series B(S), BP4 and BXT H. Connector variants AWG 28 / PVC ribbon cable with connector EN 60603-13 / DIN-41651.	<table><tr><th>No.</th><th>Function</th></tr><tr><td>1</td><td>N.C.</td></tr><tr><td>2</td><td>U_{DD}</td></tr><tr><td>3</td><td>GND</td></tr><tr><td>4</td><td>N.C.</td></tr><tr><td>5</td><td>Channel $\bar{A}$</td></tr><tr><td>6</td><td>Channel A</td></tr><tr><td>7</td><td>Channel $\bar{B}$</td></tr><tr><td>8</td><td>Channel B</td></tr><tr><td>9</td><td>Channel $\bar{I}$</td></tr><tr><td>10</td><td>Channel I</td></tr></table>	No.	Function	1	N.C.	2	U _{DD}	3	GND	4	N.C.	5	Channel $\bar{A}$	6	Channel A	7	Channel $\bar{B}$	8	Channel B	9	Channel $\bar{I}$	10	Channel I
No.	Function																								
1	N.C.																								
2	U _{DD}																								
3	GND																								
4	N.C.																								
5	Channel $\bar{A}$																								
6	Channel A																								
7	Channel $\bar{B}$																								
8	Channel B																								
9	Channel $\bar{I}$																								
10	Channel I																								
3589	Connector	for combination with Brushless DC-Motors series BX4. Connector variants AWG 28 / PVC ribbon cable with connector EN 60603-13 / DIN-41651.	<table><tr><td></td><td></td></tr></table> Inclusive motor connector 3830																						
																									
			Standard cable PVC-ribbon cable, 10-AWG 28, 1,27 mm Caution: Incorrect lead connection will damage the motor electronics!																						

Standard cable

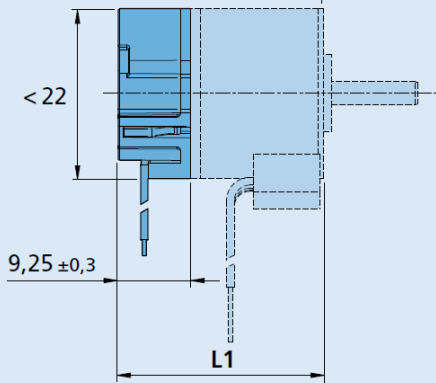
PVC-ribbon cable, 10-AWG 28, 1,27 mm

Caution:

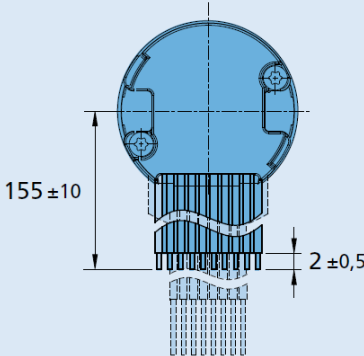
Incorrect lead connection will damage the motor electronics!

Dimensional drawing A

Example of combination with 2214...BXT H



IER3-1000...4096 L



magnetic multi-turn absolute Encoder,
SSI Interface with BISS-C Protocol,
4096 steps per revolution, Line Driver

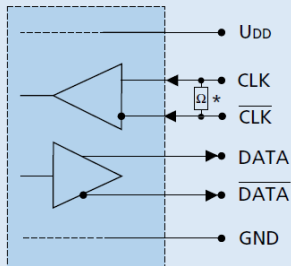
Steps per revolution		4 096	
Single-turn resolution		12 Bit	
Multi-turn resolution		16 Bit	
Signal output		SSI Interface with BISS-C Protocol	
Supply voltage	U_{DD}	4,5 ... 5	V
Current consumption, typical ¹⁾	I_{DD}	typ. 25, max. 35	mA
Battery voltage ²⁾		3 ... 5.5	V
Clock Frequency, max. (CLK and $\overline{\text{CLK}}$)		2	MHz
Input low level (CLK and $\overline{\text{CLK}}$)		0 ... 0.8	V
Input high level (CLK and $\overline{\text{CLK}}$)		2 ... 5	V
Setup time after power on, max.	t_{setup}	20	ms
Timeout, typ.	t_{timeout}	20	μs
Inertia of sensor magnet	J	0.08	gcm ²
Operating temperature range		-40 ... +100	°C
Hysteresis		0.17	°m
Mass, typ.		13.5	g

²⁾ Battery adapter available as accessory (article no. 6501.00368)

[illegible]

Circuit diagram / Output signals

Output circuit

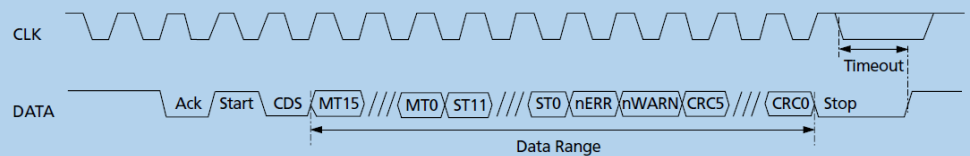


*Terminating resistor 120 Ω

Note: $\overline{\text{Data}}$ and $\overline{\text{Clock}}$ run inverted to the displayed signals Data and Clock.

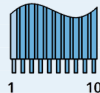
Interface Protocol BISS-C

Angle position values are ascending for clockwise rotation.
Clockwise rotation as seen from the shaft end.

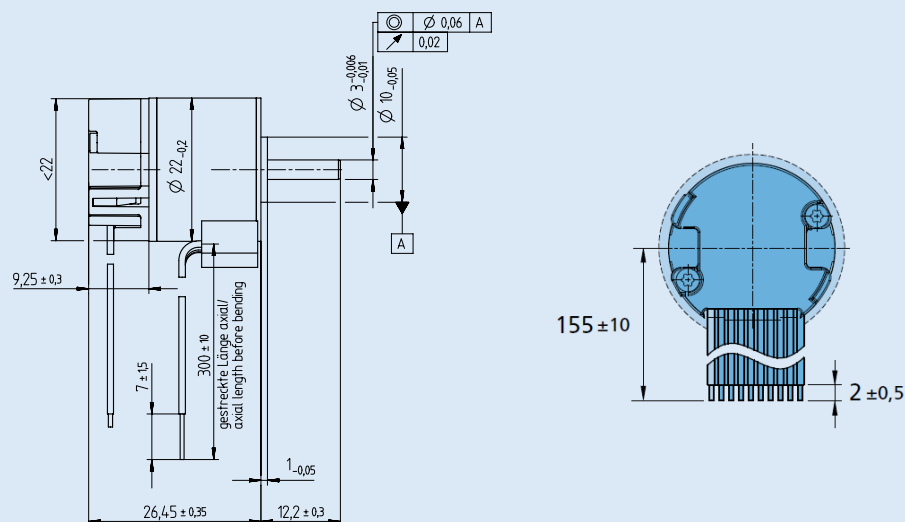


Connector information / Variants

Example product designation: **3242G024BX4 AEMT-12/16 L**

Option	Type	Description	Connection Encoder																						
5418	Connector	for combination with Brushless DC-Motor series B(S) BP4, and BXT H. Connector variants AWG 28 / PVC ribbon cable with connector Molex Picoblade, 51021-1000, recommended mating connector Picoblade 53047-1010.	<table><tr><th>No.</th><th>Function</th></tr><tr><td>1</td><td>Preset</td></tr><tr><td>2</td><td>U_{DD}</td></tr><tr><td>3</td><td>GND</td></tr><tr><td>4</td><td>U_{BAT}</td></tr><tr><td>5</td><td>Reserved</td></tr><tr><td>6</td><td>Reserved</td></tr><tr><td>7</td><td>DATA</td></tr><tr><td>8</td><td>DATA</td></tr><tr><td>9</td><td>CLK</td></tr><tr><td>10</td><td>CLK</td></tr></table> 	No.	Function	1	Preset	2	U _{DD}	3	GND	4	U _{BAT}	5	Reserved	6	Reserved	7	DATA	8	DATA	9	CLK	10	CLK
No.	Function																								
1	Preset																								
2	U _{DD}																								
3	GND																								
4	U _{BAT}																								
5	Reserved																								
6	Reserved																								
7	DATA																								
8	DATA																								
9	CLK																								
10	CLK																								
5419	Connector	for combination with Brushless DC-Motors series BX4. Connector variants AWG 28 / PVC ribbon cable with connector Molex Picoblade, 51021-1000, recommended mating connector Picoblade 53047-1010.	 Inclusive motor connector 3830																						
			Standard cable PVC-ribbon cable, 10-AWG 28, 1,27 mm Note: Motors with AEMT-12/16 L are commutated via the encoder and, by default, do not have any Hall sensors. Caution: incorrect lead connection will damage the motor electronics!																						

Dimensional drawing A



NOTE

Encoder

Optical Encoder, digital outputs,
2 channel, 100 / 500 lines per revolution
3 channel, 500 / 1000 lines per revolution, Line Driver

Series HE

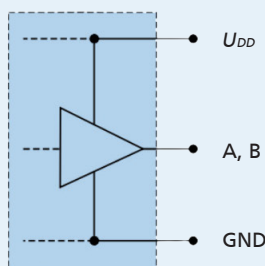
	HE	100-2	200-2	500-2	500-3L	1000-3L	
Compatible with		HEDS 5500			HEDL 5540		
Lines per revolution	N	100	200	500	500	1000	
Frequency range, up to ¹⁾	f	100					kHz
Signal output, square wave					2+1 Index and complementary outputs		Channels
Supply voltage	U_{DD}	4.5 ... 5.5					V
Current consumption, typical ²⁾	I_{DD}	17			57		mA
Pulse width	P	180 ± 45			180 ± 35		°e
Index Pulse width	P_0	-			90 ± 35		°e
Phase shift, channels A to B	Φ	90 ± 20			90 ± 15		°e
Logic state width	S	90 ± 45			90 ± 35		°e
Cycle	C	360 ± 5.5					°e
Signal rise/fall time, max. ($C_{LOAD} = pF$)	t_r/t_f	0.25 / 0.25					µs
Interia of code disc	J	0.6					gcm ²
Operating temperature range		-40 ... +100					°C

¹⁾ Velocity (min⁻¹) = $f(\text{Hz}) \times 60/N$

²⁾ $U_{DD} = 5V$: with unloaded outputs

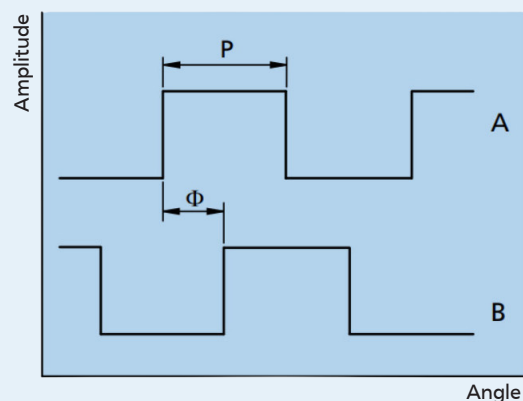
HE100-2 / 200-2 / 500-2 Circuit diagram / Output signals

Output Circuit



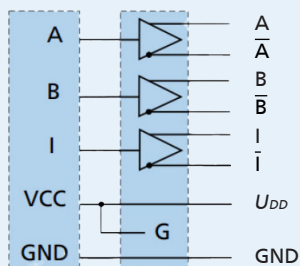
Output signals

with clockwise rotation as seen from the shaft end



HE500-3L / 1000-3L Circuit diagram / Output signals

Output Circuit



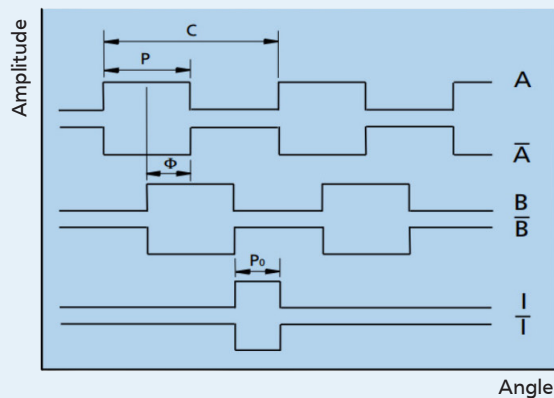
Recommendation:

Suggested Line Receivers:

AM26LS32, SN75175, MC3486

Output signals

with clockwise rotation as seen from the shaft end



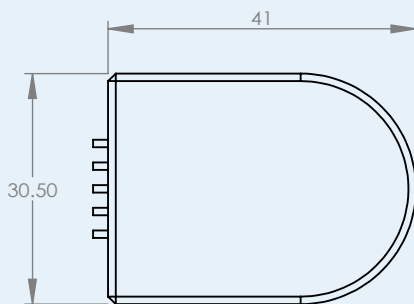
Characteristics

These incremental shaft encoders in combination with the DC-Motors are designed for the indication and control of both shaft velocity and direction of rotation as well as for positioning.

A LED source and lens system transmits collimated light through a low inertia metal disc to give two channels with 90° phase shift. The index pulse is synchronized with the channel $\bar{B}$. Each encoder channel provides complementary output signals. The single 5 volt supply and the digital output signals are interfaced with a connector.

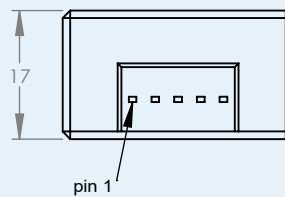
The Line Driver offers enhanced performance when the encoder is used in noisy environments, or when it is required to drive long distances.

Dimensions / Pin-out Description - HE100-2 / 200-2 / 500-2



Connector

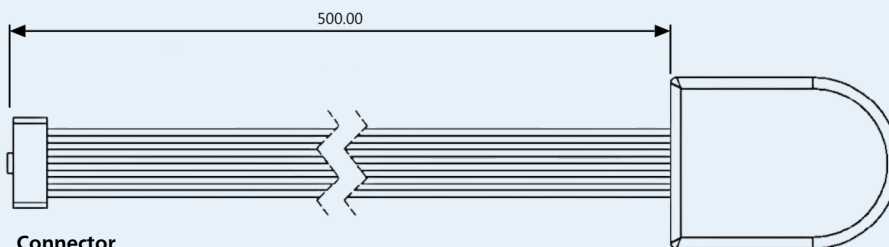
AMP 103686-4/640442-5,
Molex 2695/2759
FCI 65039-032/4825X-000



Voltage (5 pin)		
PIN	Color	Description
1	black	Ground
2	yellow	Index
3	white	Channel A
4	red	DC +5V
5	green	Channel B

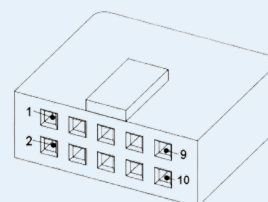
Dimensions / Pin-out Description - HE500-3L / HE1000-3L Line driver

Scale reduced (mm)



Connector

EN 60603-13 / DIN-41651,
gird 2.54 mm

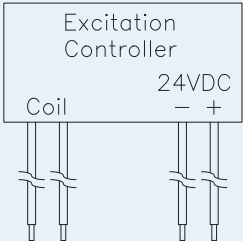


Line driver (10 pin)	
PIN	Description
1	N.C.
2	DC +5V
3	Ground
4	N.C.
5	Channel $\bar{A}$
6	Channel A
7	Channel $\bar{B}$
8	Channel B
9	Index $\bar{I}$
10	Index I

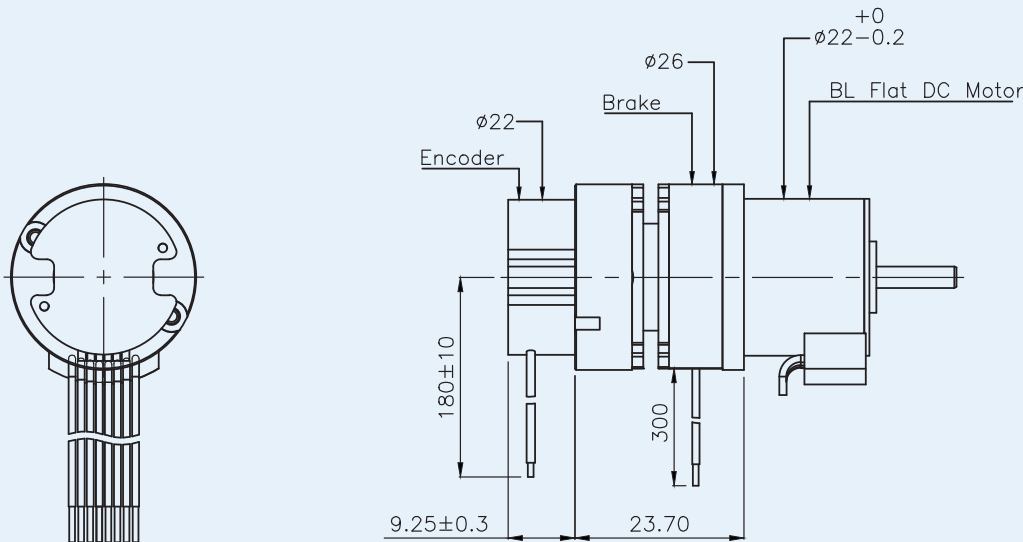
Brake + Encoders

power-off holding brake

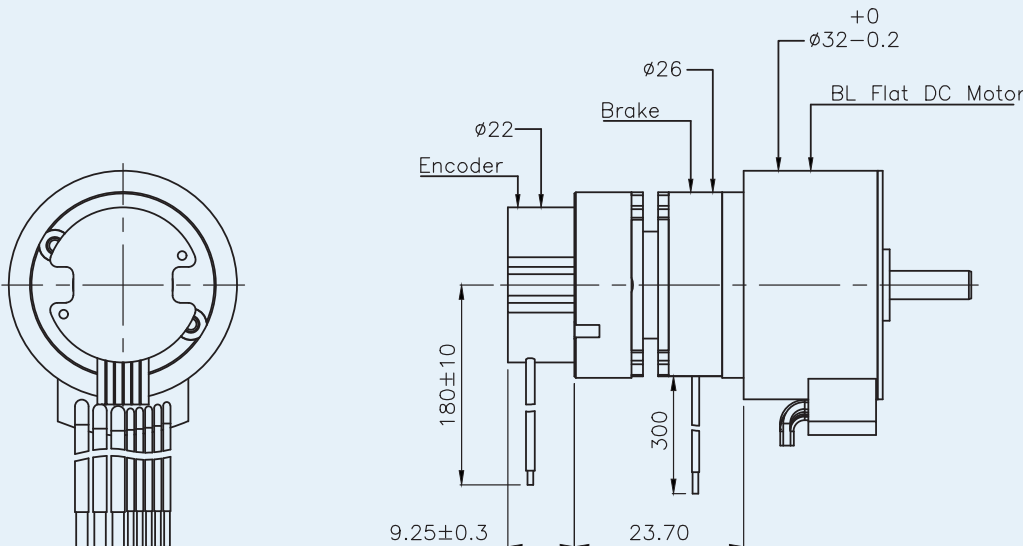
PFB26E-24V

Brake		PFB26E-24V	Connection
Function		Power-off holding brake	
Rated Voltage	VDC	24	
Rated Static torque	mNm	60	
Rated current	A	0.6	
Rated power	W	14.5	
Moment of inertia	gcm ²	10	
Allowable speed	rpm	5000	
Weight	g	31	

Dimensional drawing A - 2214SXXXBXTH+PFB26E-24V+IE3-1024



Dimensional drawing B - 3216WXXXBXTH+PFB26E-24V+IE3-1024



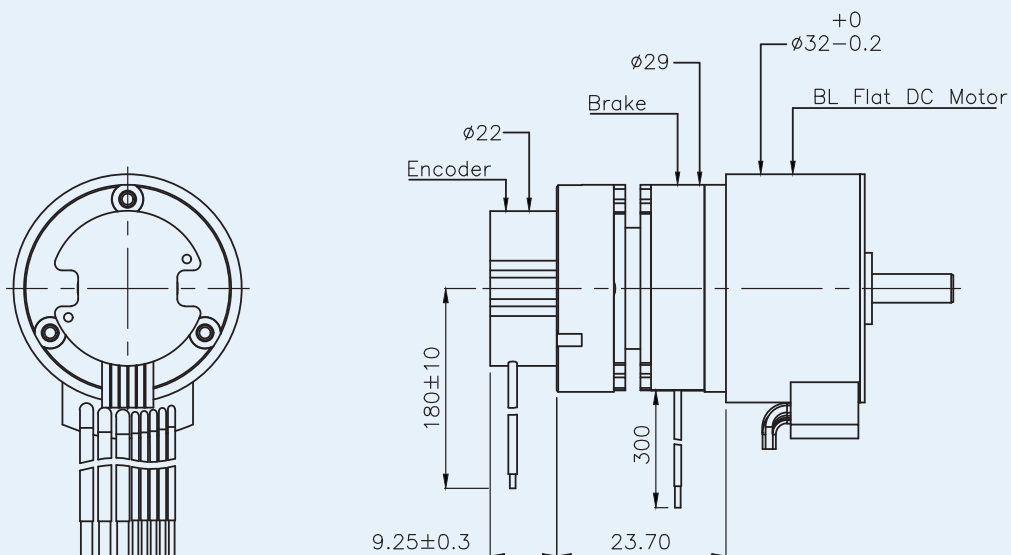
Brake + Encoders

power-off holding brake

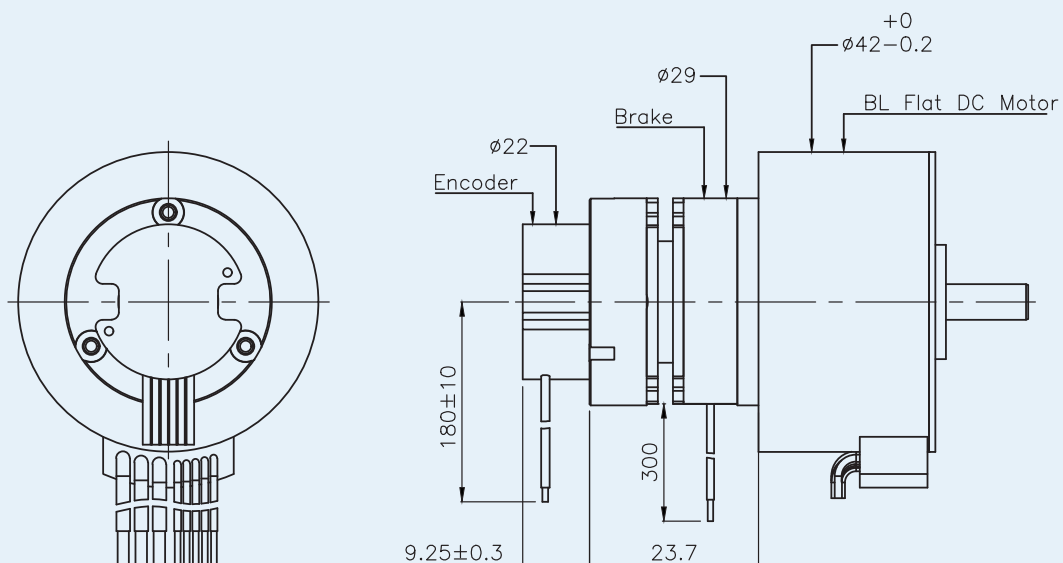
PFB29E-24V

Brake		PFB29E-24V	Connection
Function		Power-off holding brake	
Rated Voltage	VDC	24	
Rated Static torque	mNm	160	
Rated current	A	0.42	
Rated power	W	10	
Moment of inertia	gcm ²	12	
Allowable speed	rpm	5000	
Weight	g	36	

Dimensional drawing A - 3216WXXXBXTH+PFB29E-24V+IE3-1024



Dimensional drawing B - 4221GXXXBXTH+PFB29E-24V+IE3-1024



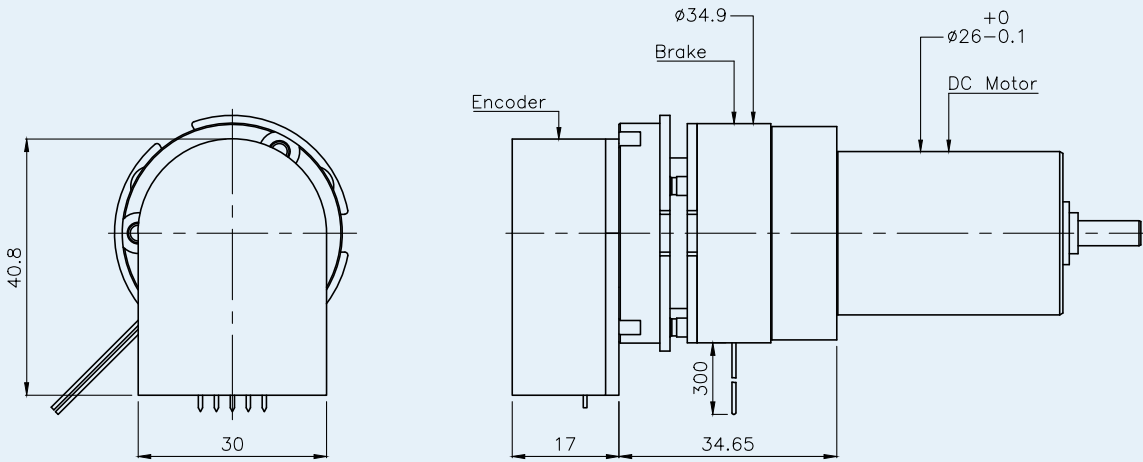
Brake + Encoders

power-off holding brake

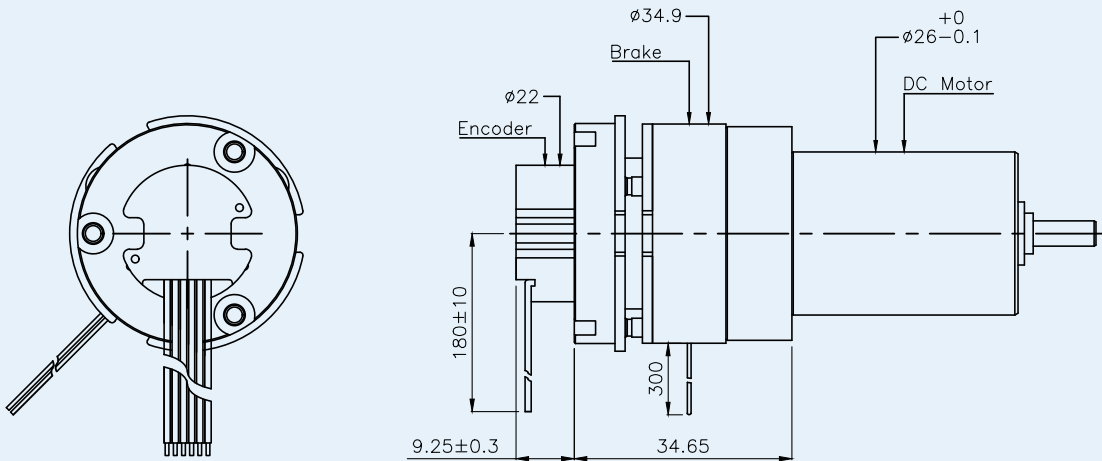
PFB35

Brake		PFB35A-24V	PFB35B-24V
Function		Power-off holding brake	
Rated Voltage	VDC	24	24
Rated Static torque	mNm	120	360
Rated current	A	0.16	0.25
Rated power	W	3.9	6
Moment of inertia	gcm ²	12	15
Allowable speed	rpm	5 000	5 000
Weight	g	75	90
Length with mounting adaptor (L)	mm	35	41

Dimensional drawing A - 2642W024CR+PFB35-24V+HE500-2 / HE1000-3L



Dimensional drawing B - 2642W024CR+PFB35-24V+IE3-1024



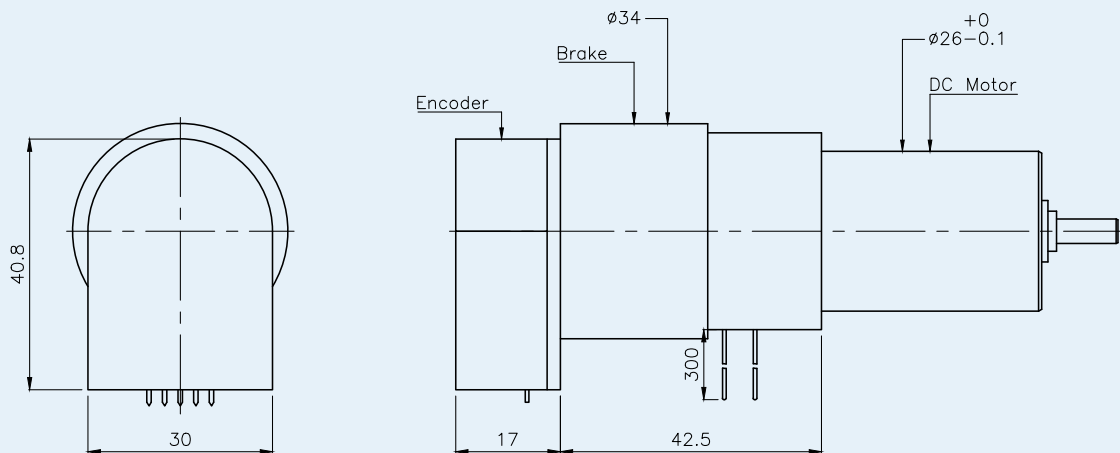
Brake + Encoders

power-on holding brake

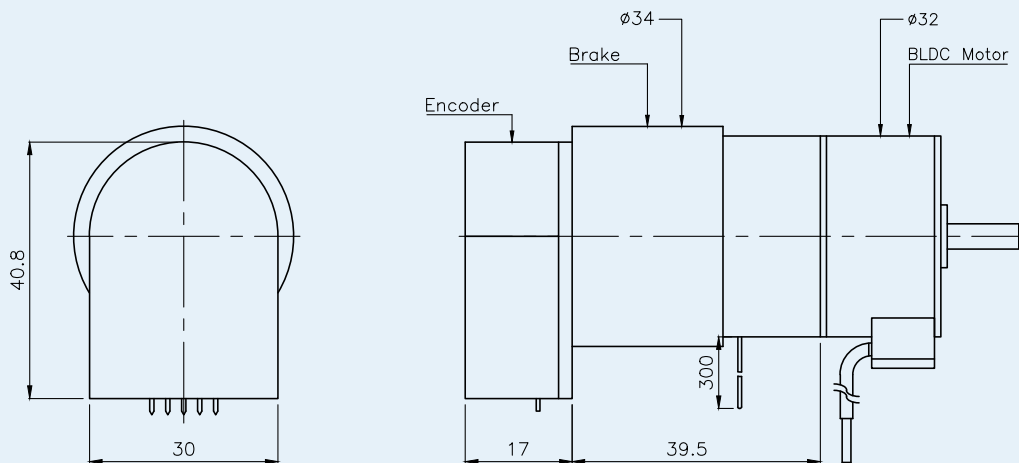
PNB32 / 34

Brake		PNB32-24V	PNB34-12V
Function		Power-on holding brake	
Rated Voltage	VDC	24	12
Rated Static torque	mNm	600	
Rated current	A	0.26	10.55
Rated power	W	6.2	
Moment of inertia	gcm ²	12	
Allowable speed	rpm	5000	
Weight	g	80	

Dimensional drawing A - 2642W024CR+PNB32-24V+HE 500-2 / HE 1000-3L



Dimensional drawing B - 3216W024BXT H+PNB32-24V+HE 500-2 / HE 1000-3L



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