

ENCODER TECHNOLOGY



INTRODUCTION

At Encoder Technology our goal is to produce a wide range of products that link mechanical and electrical systems. We are committed to a total design philosophy beginning with the slit plate - the heart of the encoder - to the complete encoder system. On that basis we design and manufacture a variety of quality products.

In modern industrial equipment, control systems are increasingly required for diversified output and improved reliability. As microprocessor based control is integrated into office and factory automation equipment such as laser printers, facsimile machines, copiers, machine tools and robots, more and more emphasis is placed on accurate feedback of the position of mechanical components.

Against this background, we adhere to strict quality standards in the assembly and performance of our encoders. Our catalogue introduces a new series of encoders developed to meet the ever-changing demands of this market. We believe these products will enhance our existing line of high quality components.

We look forward to working with you on all of your encoder needs.

How to specify when ordering

SES - **10** - ☐
SE ☐ - **17** - ☐
ME ☐ - ☐ - ☐ ☐

Series name

Shaft type *1

Slit plate diameter

Output [Pulses per revolution]

Blank: Voltage, C: Open Collector, E: Line driver output

*1

Single end	Hollow shaft	Double end
S	H	D

*2

Grey	Pure binary	BCD
G	N	B

*3

DC5V	DC12V	DC5~12V	24V
1	2	3	4

MA ☐ - **30** - ☐ ☐ ☐
MA ☐ - **50** - ☐ ☐ ☐

Series name

Shaft type *1

Slit plate diameter

Resolution

Output *2

Supply voltage *3

MLS - ☐ - ☐ - ☐

Series name

Slit plate diameter

Resolution/Minimal reading unit

Measurement range [mm]

Contents

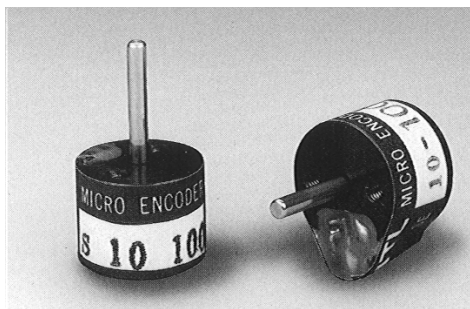
Series	Model	Page	Series	Model	Page
SE series	SES - 10 - □ [A/AB]	3-4	MA series	MA □ - 30 - □ □ □	19-20
	SE □ [2/4] - 17 - [A/AB]			MA □ - 50 - □ □ □	
ME series	ME □ - 9 - □	6	MLS series	MLS - 30 - □ - □	21
	ME □ - 12 - □	7		MLS - 50 - □ - □	22
	ME □ - 17 - □	8		MLS - 80 - □ - □	23
	ME □ - 20 - □	9	MLA series	MLA - □ - □ - □	24-25
	ME □ - 30 - □	10	MC series	MC - □ - □	26
	ME □ - 40 - □	11	MT series	MT - □ - □	27
	ME □ - 50 - □	12	Mounting option	Spring flanges	28-29
	MEH - 60 - □	13			
	MEH - 80 - □	14			
	MEH - 85 - □				
	MEH -130 - □	15			
	MEH -180 - □	16			
MG series	MGH-30- □-E MG-30- □-C	17			
MF series	MF □ - 25 - □	18			

-approx. Sine wave-

SE series (Incremental)

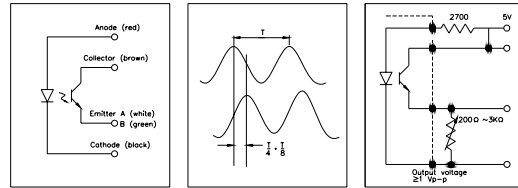
Features

- SE series encoders serve as multi-function sensors for detecting angular deflection and movement in such small systems as office automation equipment, automatic vending machines and card readers.
- Their small size (shaft diameters of 2mm and 4mm) Permits a high degree of design freedom for the OEM engineer.
- The low current consumption (10-12mA) of the SE series, along with their sine wave output allows them to be connected directly to existing circuits.



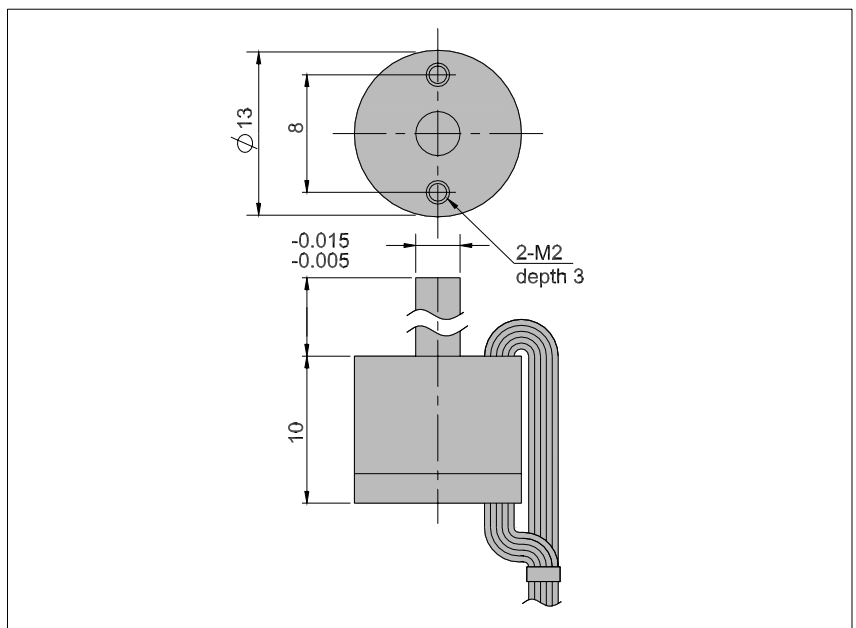
SES - 10 series

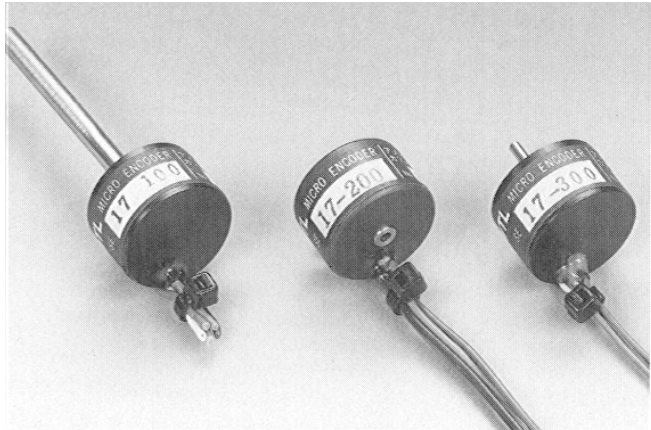
Output circuit Output waveform Connection example



Item	Type	SES-10 □(A/AB)
Supply voltage		DC5V
Current consumption		LED: maximum 20mA
Detection system		Incremental
Output	Pulses/revolution (standard)	100 200
	Output phase	A phase/ A, B phase
	Output type	Appropriate sine wave
	Output capacity	---
	Maximum frequency response	20kHz
	Output phase difference	A/B phase difference 90°±45°
	Waveform rise/fall time	---
Starting torque		<0.3×10 ⁻³ N.m(3gf-cm)
Allowable shaft loading	Radial	1.9N (200g)
	Axial	1.9N (200g)
Maximum allowable revolutions (mechanical)		6,000r/min
Operating range temperature /humidity		0°C ~ 50°C
Storage ambient temperature		-20° ~ 80°C
Vibration resistance		Equivalent to ME series
Impact resistance		Equivalent to ME series
Cable		Vinyl cable 130mm
Weight		10g

Dimensions. mm



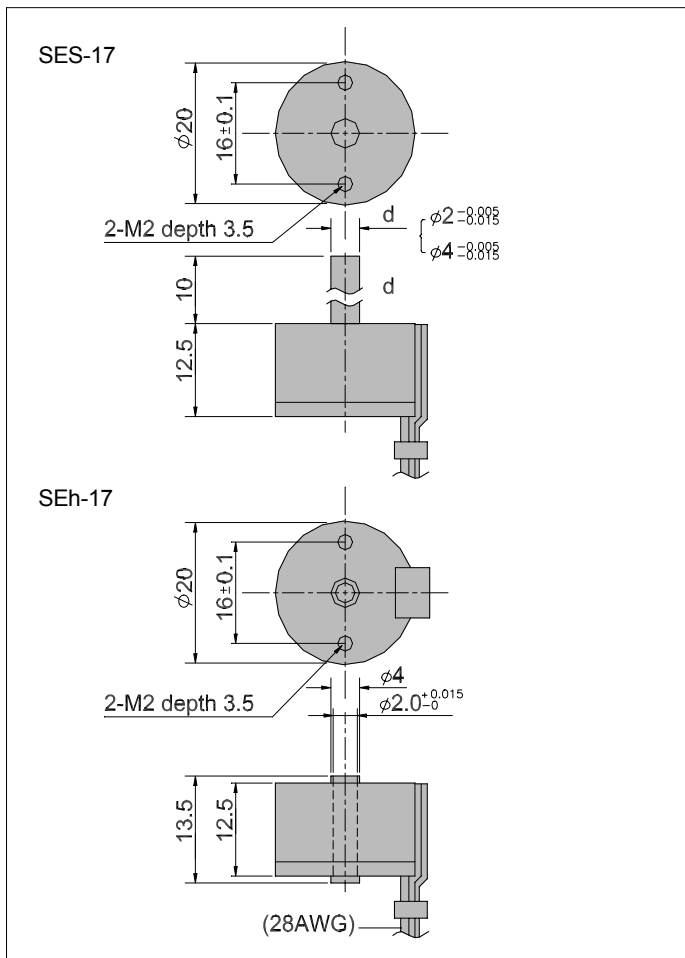


SE-17 series

▪ Typical applications

Printers Money (Bill) counters
Vending machines Card readers
Pen recorders Office products

▪ Dimensions mm



Item	Type	SE □(●2/4)-17-□(A/AB)
Supply voltage		DC5V
Current consumption		LED: maximum 20mA
Detection system		Incremental
Output	Pulses/revolution (standard)	100 200 300
	Output phase	A phase / A, B phase
	Output type	Approximate sine wave
	Output capacity	---
	Maximum frequency response	20kHz
	Output phase difference	A/B phase difference $90^\circ \pm 45^\circ$
	Waveform rise/fall time	---
Starting torque		$<0.3 \times 10^{-3} \text{N.m (3gf-cm)}$
Allowable shaft loading	Radial	1.9N(200g)※4.9N (500g)
	Axial	1.9N(200g)※4.9N (500g)
Maximum allowable revolutions (mechanical)		6,000r/min
Operating range temperature /humidity		$0^\circ\text{C} \sim 50^\circ\text{C}$
Storage ambient temperature		$-20^\circ\text{C} \sim 80^\circ\text{C}$
Vibration resistance		Equivalent to ME series
Impact resistance		Equivalent to ME series
Cable		Vinyl cable 130mm
Weight		23g

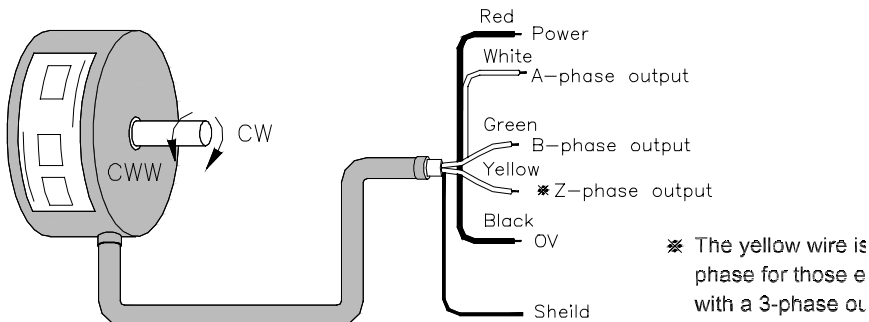
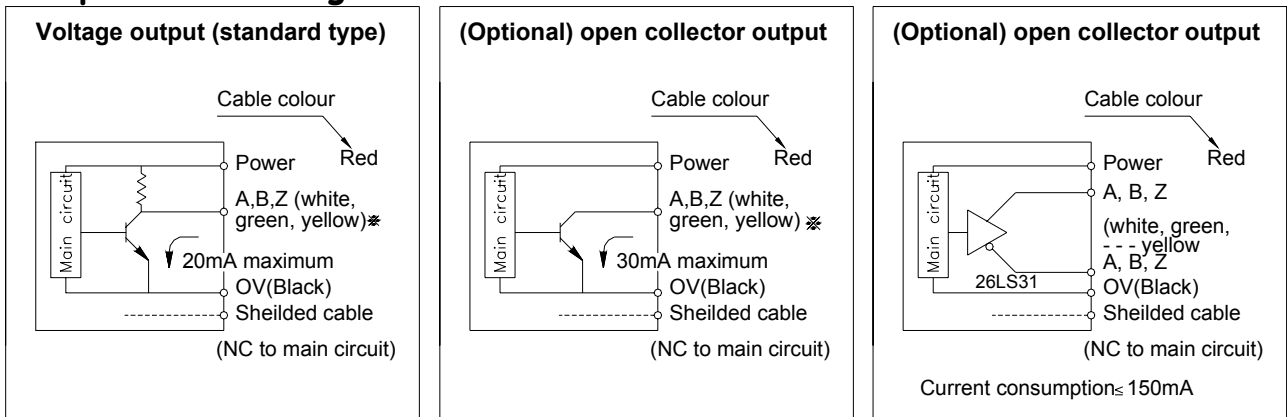
- Square wave -

ME SERIES (Incremental)

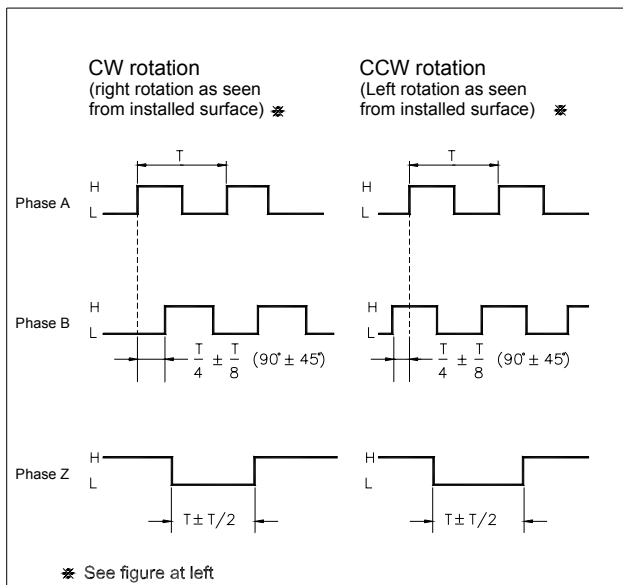
□ Features

- The ME series includes encoders covering a wide range of pulses per revolution. In addition, we can custom fabricate encoders with non-standard pulse counts.
- This series encompasses a range of sizes from very small to large. The specific encoder should be chosen based on the shaft diameter and the number of pulses per revolution.
- All of the encoders have a thin cross section. The hope type is especially suited for installation where space is limited.
- Depending on the application, we can select encoders to optimize such specific characteristics as high signal-to-noise ratio or low power consumption.

Output Circuit Diagram



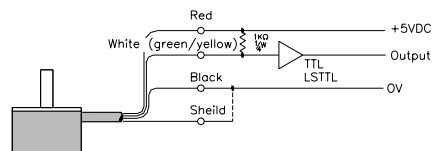
Output waveform



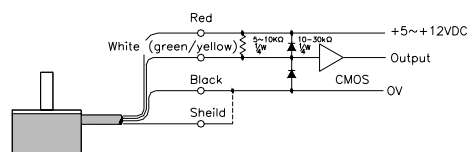
Typical Wiring Diagrams

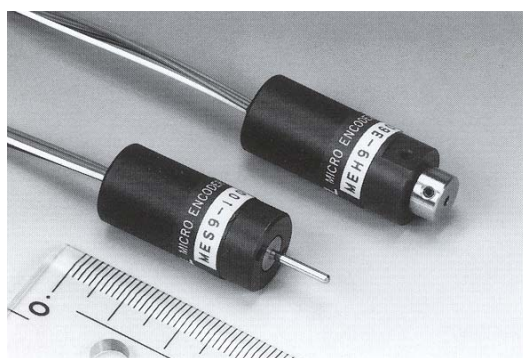
Connection with IC circuit (cable length should be as short as possible)

(1) Connection to TTL/LSTTL



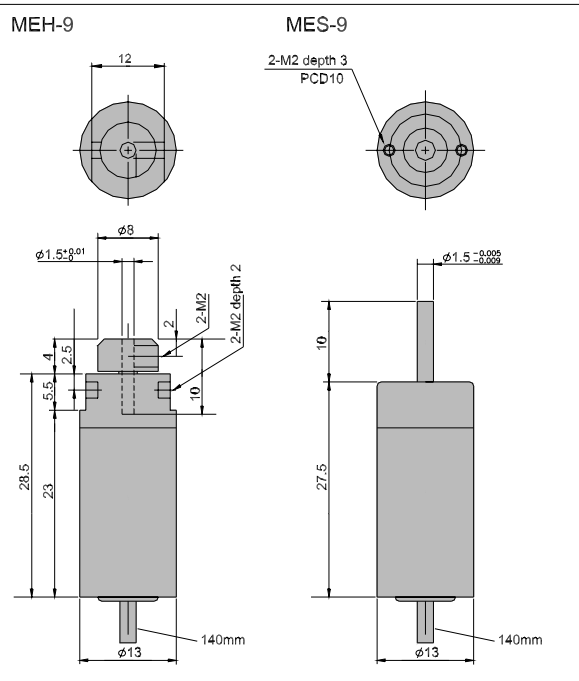
(2) Connection to CMOS





ME-9series

□ Dimensions, mm

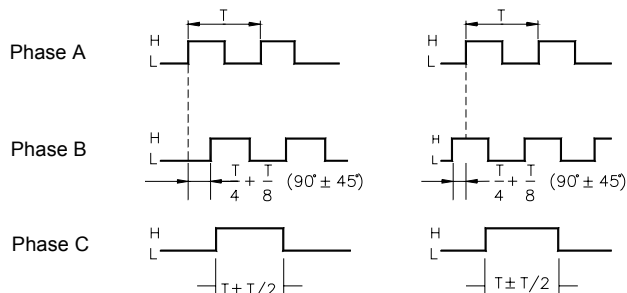


Type		ME - 9 -
Item		
Supply voltage		DC+5V±5%
Current consumption		≥60mA
Detection system		Incremental
Output	Pulses/revolution (standard)	32 100 200 300 360
	Output stage	Output 1C
	Output phase	A, B, Z output (z = "H")
	Output type	Square wave, voltage output, pull-up resistor 2.2KΩ
	Output capacity	Sync current: 8mA max Residual voltage : 0.8V or less (at 5mA)
	Maximum frequency response	50KHz
	Output phase difference	A/B phase difference 90°±45°T/4±T/8 Z phase T±T/2 (see output waveform diagram)
	Waveform rise/fall time	2μ or less (output cable 140mm or less)
Starting torque		<0.3×10 ⁻³ N.m(3gf-cm)
Allowable shaft loading	Radial	1.9N (200g)
	Axial	1.9N (200g)
Maximum allowable revolutions (mechanical)		6000r/min
Operating range temperature/humidity		0°~60°C RH35 to 90% (above the dew point)
Storage ambient		-20°C~80°C
Vibration resistance		Endurance 55Hz double amplitude 1.55mm. 2 hours each in X, Y and Z directions
Impact resistance		Endurance 500m/S ² (about 50G) 3 times each in X, Y & Z directions
Cable		140mm long cable Vinyl cable (AWG 30)
Weight		12g

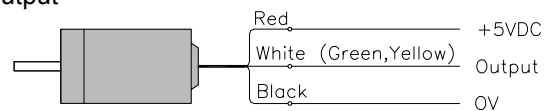
Output forms (ME-9 only)

Typical Wiring Diagrams (ME-9 only)

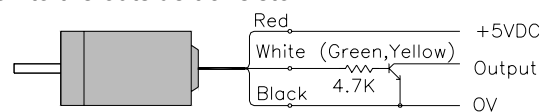
CW rotation (right rotation as seen from installed surface)※ CCW rotation (right rotation as seen from installed surface) ※



① Voltage output



② Connection to the outside transistor

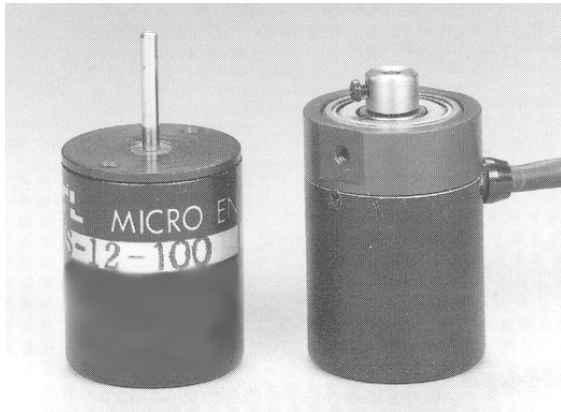


Features

- Smallest, digital output encoder
- Resolution to 900 P/R
- 3 Channels
- Easy to install on miniature motors (Hollow shaft)
- Special P/R can be made upon request

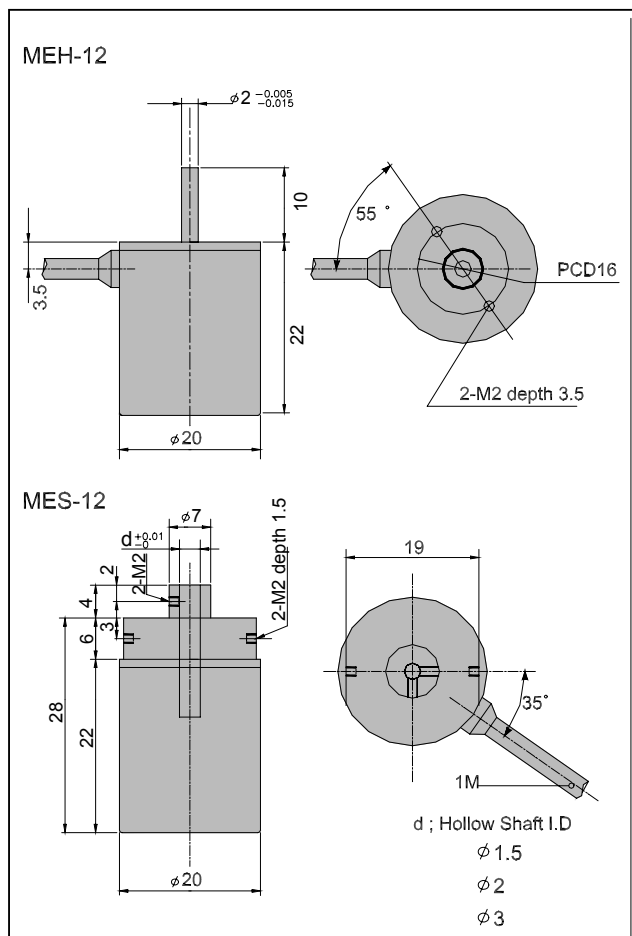
Typical applications

Motor Drives, DC servo motors
X - Y tables
Medical diagnostic equipment
Small robotics
Office products
Welding machines



ME-12 series

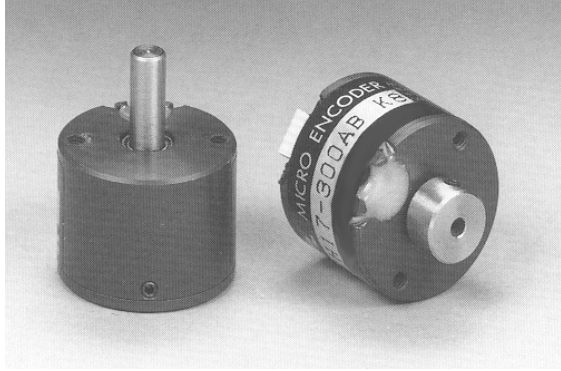
Dimensions, mm



Type		ME ☐ - 12- ☐
Item		
Supply voltage		DC5V $\pm$ 10%
Current consumption		$\geq$ 60mA
Detection system		Incremental
Output	Pulses/revolution (standard)	100 200 256 300 360 500 } Hollow Shaft 900 } Only
	Output phase	A, B, Z phase
	Output type	Square wave
	Output capacity	Sync current: 20mA Residual Voltage: 0.5V or less (at 10mA)
	Maximum frequency response	100kHz
	Output phase difference	A/B phase difference 90 $\pm$ 45 $^{\circ}$ T/4 $\pm$ T/8 Z phase T $\pm$ T/2 (see output waveform diagram)
	Waveform rise/fall time	2 μ or less (output cable 1m or less)
Starting torque		$\leq 1 \times 10^{-3}$ N.m (10gf-cm)
Allowable shaft Loading	Radial	1.9N (200g)
	Axial	1.9N (200g)
Maximum allowable revolutions (mechanical)		6,000 r/min
Operating range temperature/humidity		0 $^{\circ}$ C $\sim$ +60 $^{\circ}$ C RH35 to 90%(above the dew point)
Storage ambient temperature		-20 $^{\circ}$ C $\sim$ 80 $^{\circ}$ C
Vibration resistance		Endurance 55Hz double amplitude 1.5mm. 2 hours each in X, Y and Z directions
Impact resistance		Endurance 500m/S ² (about 50H) 3 times each in X, Y and Z directions
Cable		ϕ 3mm Vinyl cable 5-core 1m long insulated shielded cable
Weight		40g

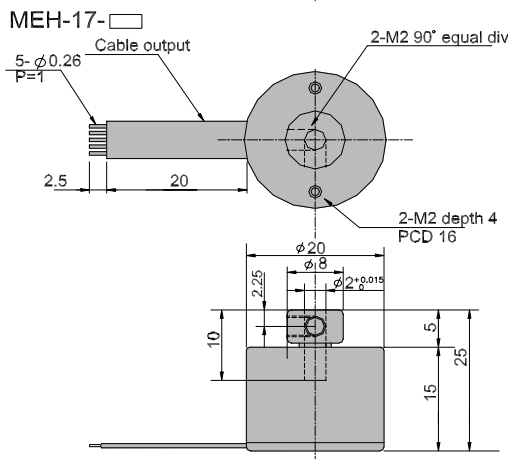
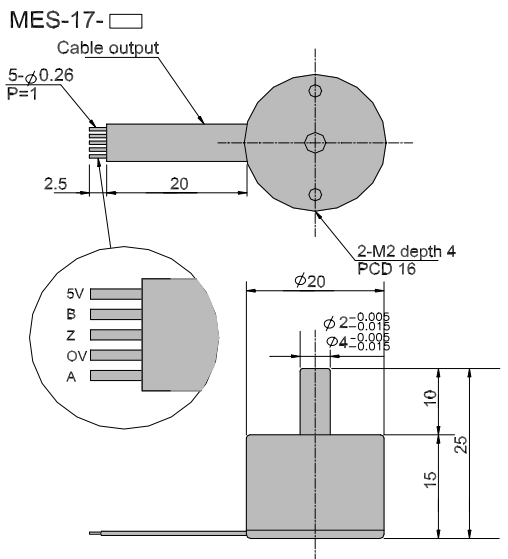
Features

- Smallest & digital output encoder
- Resolution to 500 P/R
- 3 Channels
- Special P/R can be made upon request
- Low Cost
- Short delivery lead time



ME-17 series

Dimensions, mm



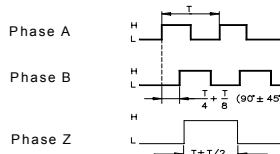
Typical applications

Motor Drives, DC servo motors
X - Y tables
Medical diagnostic equipment
Small robotics
Office products
Welding machines

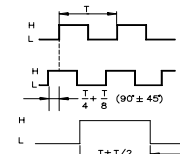
Type		ME □ (2/4)-17-□ - □
Item		
Supply voltage		DC5V±10%
Current consumption		≥30mA
Detection system		Incremental
Output	Pulses/revolution (standard)	100 300 400 200 360 500
	Output phase	A, B, Z phase (Z="H")
	Output type	Square wave, Voltage output only pull-up resistor 2.2KΩ
	Output capacity	Sync current: 2mA Residual Voltage: 0.4V or less
	Maximum frequency response	50kHz
	Output phase difference	A/B phase difference 90°±45°T/4±T/8 Z phase T±T/2 (see output waveform diagram)
	Waveform rise/fall time	2μ or less (output cable 1m or less)
Starting torque		≤1×10 ⁻³ N.m(10gf-cm)
Allowable shaft Loading	Radial	1.9N (200g)
	Axial	1.9N (200g)
Maximum allowable revolutions (mechanical)		6,000 r/min
Operating range temperature/humidity		0°C~50°C RH35 to 90%(above the dew point)
Storage ambient temperature		-20°C~80°C
Vibration resistance		Endurance 55Hz double amplitude 1.5mm. 2 hours each in X, Y and Z directions
Impact resistance		Endurance 500m/S ² (about 50G) 3 times each in X, Y and Z directions
Cable		Flat cable (20mm)
Weight		20g

Output wave forms (ME-17 only)

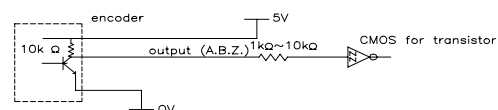
CW rotation (right rotation as seen from installed surface) ※



CCW rotation (right rotation as seen from installed surface) ※



Output wave forms (ME-17 only)

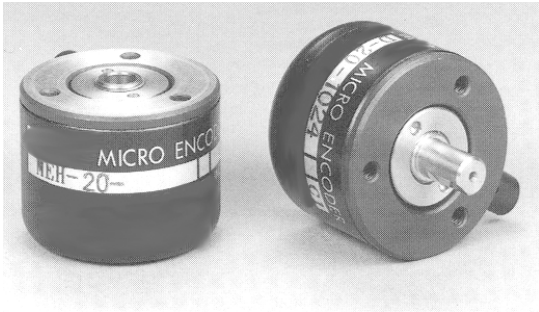


Features

- Resolution to 2000 P/R digital output
- Thin, compact and light weight (Ø32mm diameter, 24mm height)
- Economical
- Single, hollow or double shaft available
- Custom made (Special shaft or P/R etc) available by request
- Short delivery lead time

Typical applications

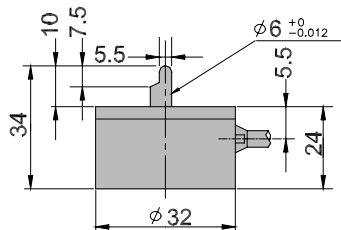
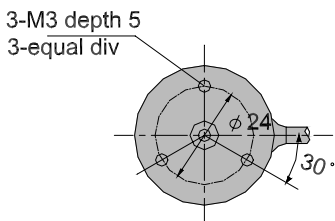
Servo motors	Cutting machines
Robots	IC bonders
NC machines (lathe etc)	Medical equipment
Digital plotters	Valve controls
X - Y tables	Tape speed control
Plotters	Pulse generators
Injection machines	Coil winders
Rotary tables	



ME-20 series

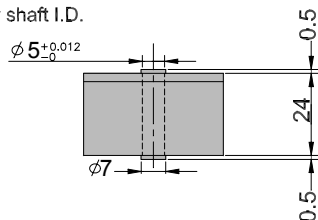
Dimensions, mm

MES-20



MEH-20

Hollow shaft I.D.



Type		ME - 20 -			
Item					
Supply voltage		DC5~12V±10% DC24V±10% (Open collector)			
Current consumption		≥60mA			
Detection system		Incremental			
Output	Pulses/revolution (standard)	40	360	600	1024
		60	400	* 600	*1200
		100	*500	* 720	*1500
		200	500	* 800	*2000
		*200		1000	*3600
		300		*1000	
				(5V only) (Line driver N/A)	
	Output phase	A, B, phase *A,B Z phase			
Output type	Square wave				
Output capacity	Sync current: 20mA Residual Voltage: 0.5V or less (at 10mA)				
Maximum frequency response	50kHz~100kHz				
Output phase difference	A/B phase difference 90°±45°T/4±T/8 Z phase T±T/2 (see output waveform diagram)				
Waveform rise/fall time	2μ or less (output cable 1m or less)				
Starting torque		≥20 x 10 ⁻³ N.m(20gf-cm)			
Allowable shaft Loading	Radial	19.6N (2kg)		14.7N (1.5kg)	
	Axial	9.8 N (1kg)		4.9N (0.5g)	
Maximum allowable revolutions (mechanical)		6,000 r/min			
Operating range temperature/humidity		0°C~+60°C -10°C~60°C (depending on P/RO RH35 to 90%(above the dew point)			
Storage ambient temperature		-20°C~80°C			
Vibration resistance		Endurance 55Hz double amplitude 1.5mm. 2 hours each in X, Y and Z directions			
Impact resistance		Endurance 500m/S ² (about 50H) 3 times each in X, Y and Z directions			
Cable		Ø4.2mm 4-core(5-core) Insulated Shielded vinyl, 1m long			
Weight		70g			

Features

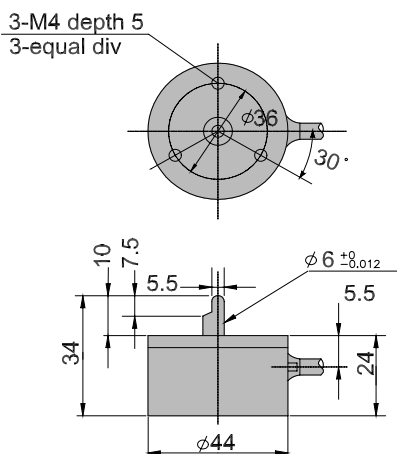
- Resolution to 4500 P/R digital output
- A, B and Z 3 channels
- Thin, compact and light weight (Ø44mm diameter, 24mm height)
- Economical
- Single, hollow or double shaft available
- Custom made (Special shaft or P/R etc) available by request
- Short delivery lead time



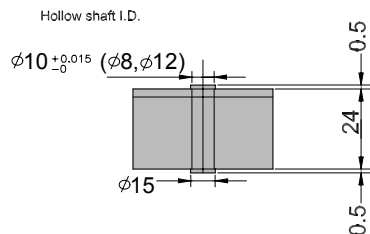
ME-30 series

Dimensions, mm

MES-30



MEH-30



※ 9000 pulses is Ø 8 only

Typical applications

- | | |
|---|-----------------------------|
| Servo motors | Elevators |
| Robots | IC bonders |
| NC machines (lathe etc) | Semiconductor chip mounters |
| X-Y tables | Coil winders |
| Rotary tables | Conveyors |
| Overhead cranes | Cutting Machines |
| Plotters | |
| Automatic storage and retrieval systems | |

Type		ME - 30 -			
Item					
Supply voltage		DC5~12V±10% DC24V±10% (Open collector)			
Current consumption		≥60mA			
Detection system		Incremental			
Output	Pulses/revolution (standard)	40	360	800	2000
		72	400	1000	2048
		100	500	1024	*2500
		180	512	1200	*3600
		200	600	1500	*4500
		250	700	1800	*9000
		300	* DC24V input is not available. Line driver output is not available. 9000 pulses DC 5V only		
	Output phase		A, B, Z phase		
	Output type		Square wave		
Output capacity		Sync current: 20mA Residual Voltage: 0.5V or less (at 10mA)			
Maximum frequency response		50kHz~100kHz			
Output phase difference		A/B phase difference 90°±45°T/4±T/8 Z phase T±T/2 (see output waveform diagram)			
Waveform rise/fall time		2μ or less (output cable 1m or less)			
Starting torque		≥3 x 10 ⁻³ N.m(30gf-cm)			
Allowable shaft Loading	Radial	19.6N (2kg)		9.8N (1kg)	
	Axial	9.8 N (1kg)		4.9N (0.5g)	
Maximum allowable revolutions (mechanical)		6,000 r/min			
Operating range temperature/humidity		0°C~60°C RH35 to 90%(above the dew point)			
Storage ambient temperature		-20°C~80°C			
Vibration resistance		Endurance 55Hz double amplitude 1.5mm. 2 hours each in X, Y and Z directions			
Impact resistance		Endurance 500m/S ² (about 50H) 3 times each in X, Y and Z directions			
Cable		Ø4.2mm 5-core(5-core) Insulated Shielded vinyl, 1m long			
Weight		140g			

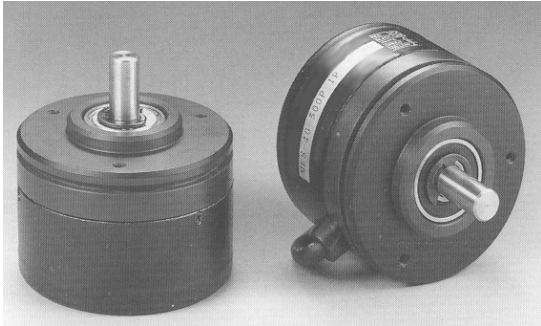
Features

- Resolution to 10000 P/R digital output
- 3 channels
- Heavy-duty type
- Custom made (Special P/R, dropping proof) are available by request
- Short delivery lead time

Typical applications

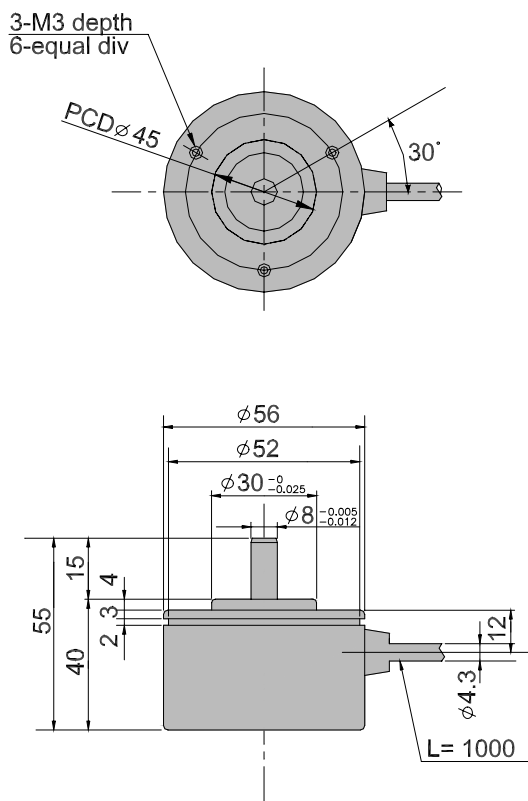
Machine tools
Industrial robots
IC bonders
Rotary tables
Test and measurement equipment
Laboratory use

Elevators
Injection machines
Bending machines
Conveyor systems
X-Y tables
Laboratory use



MES-40 series

Dimensions, mm



Type		ME ☐ - 40 - ☐	
Item			
Supply voltage		DC5~12±10% DC24V±10% (Open collector)	
Current consumption		≥40mA	
Detection system		Incremental	
Output	Pulses/revolution (standard)	100	1000
		200	2000
		360	3600
		500	5000
			10000
	Output phase	A,B Z phase	
	Output type	Square wave	
	Output capacity	Sync current: 20mA Residual Voltage: 0.5V or less (at 10mA)	
	Maximum frequency response	50kHz~100kHz	
	Output phase difference	A/B phase difference 90°±45°T/4±T/8 Z phase T±T/2 (see output waveform diagram)	
	Waveform rise/fall time	2μ or less (output cable 1m or less)	
Starting torque		≥2 × 10 ⁻³ N.m(20gf-cm) ≥5 × 10 ⁻³ N.m(50gf-cm) Dripping proof	
Allowable shaft Loading	Radial	49N (5kg)	
	Axial	29.4N (3kg)	
Maximum allowable revolutions (mechanical)		6,000 r/min	
Operating range temperature/humidity		-10°C~70°C RH35 to 90%(above the dew point)	
Storage ambient temperature		-20°C~80°C	
Vibration resistance		Endurance 55Hz double amplitude 1.5mm. 2 hours each in X, Y and Z directions	
Impact resistance		Endurance 500m/S ² (about 50H) 3 times each in X, Y and Z directions	
Cable		Ø4.2mm 5-core insulated Shielded vinyl, 1m long	
Weight		200g	

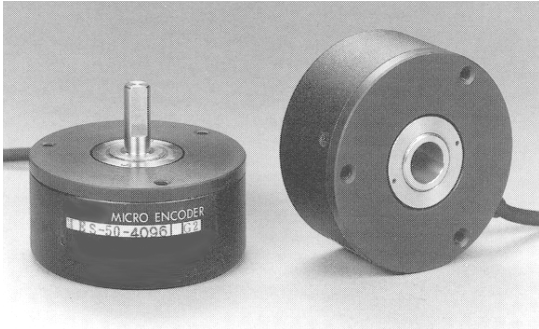
Features

- Resolution to 10800 P/R digital output
- A, B and Z 3 channels
- Thin and compact body (Ø65mm diameter, 30mm height)
- Custom made (Special shaft or P/R) are available by request
- Short delivery lead time

Typical applications

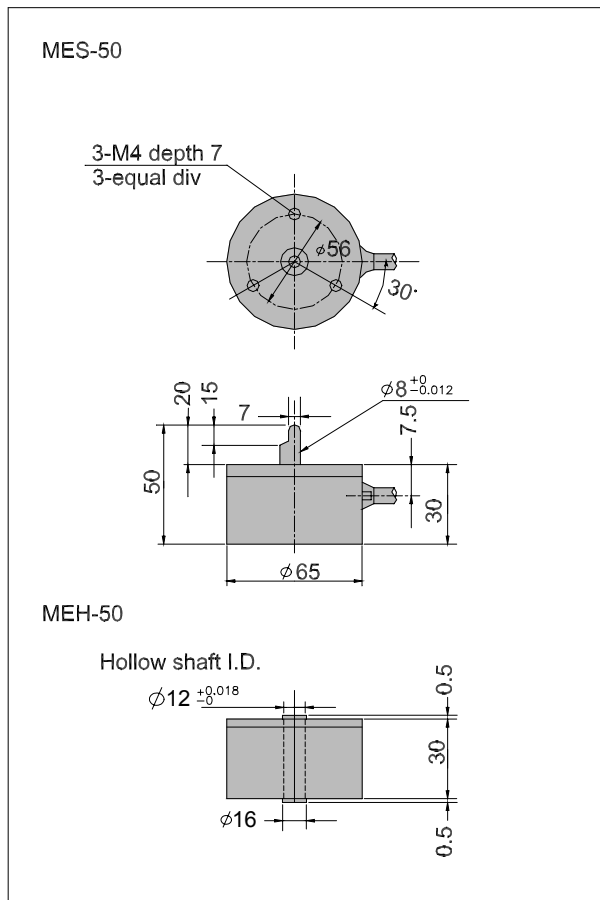
Machine tools
Industrial robots
IC bonders
Rotary tables
Test and measurement equipment
Semiconductor chip mounters

Elevators
Injection machines
Bending machines
Conveyor systems
X-Y tables
Antenna
Laboratory use



ME-50 series

Dimensions, mm



Type		ME - 50 -		
Item				
Supply voltage		DC5~12±10% DC24V±10% (Open collector)		
Current consumption		≥60mA		
Detection system		Incremental		
Output	Pulses/revolution (standard)	500	3000	5000
		1000	3600	5400
		1024	4096	6000
		2000		10000
				10800
	Output phase	A,B Z phase		
	Output type	Square wave		
	Output capacity	Sync current: 20mA Residual Voltage: 0.5V or less (at 10mA)		
Maximum frequency response		100kHz		
Output phase difference		A/B phase difference 90°±45°T/4±T/8 Z phase T±T/2 (see output waveform diagram)		
Waveform rise/fall time		2μ or less (output cable 1m or less)		
Starting torque		≥10 x 10 ⁻³ N.m(100gf-cm)		
Allowable shaft Loading	Radial	19.6N (2kg)		9.8N (1kg)
	Axial	9.8N (1kg)		4.7N (0.5kg)
Maximum allowable revolutions (mechanical)		6,000 r/min		
Operating range temperature/humidity		0°C~60°C RH35 to 90%(above the dew point)		
Storage ambient temperature		-20°C~80°C		
Vibration resistance		Endurance 55Hz double amplitude 1.5mm. 2 hours each in X, Y and Z directions		
Impact resistance		Endurance 500m/S ² (about 50H) 3 times each in X, Y and Z directions		
Cable		Ø4.2mm 5-core insulated Shielded vinyl, 1m long		
Weight		220g		

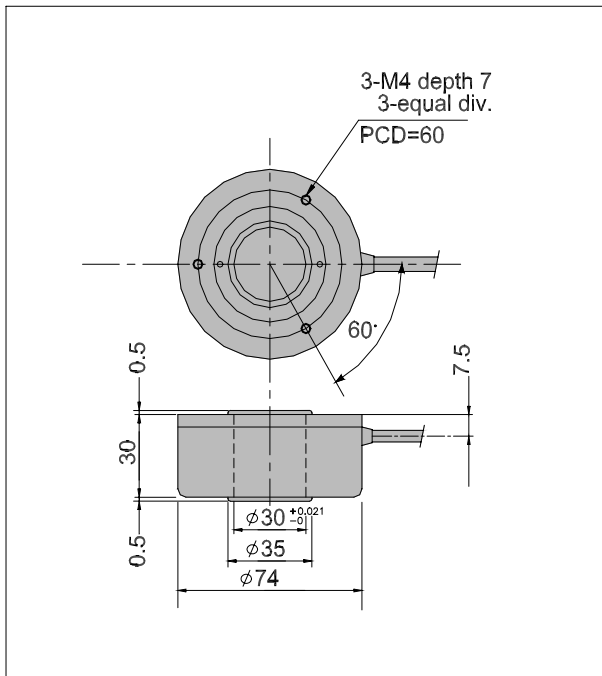
Features

- Resolution to 9000 P/R digital output (possible to 21600 P/R)
- Wide hollow diameter 30mm, thickness 30mm
- Custom made models (Special hollow dia. or P/R) are available by request
- Short delivery lead time



MEH-60 series

Dimensions, mm



Typical applications

Lathes	Semiconductor chip
Index tables	mounters
Wire, die bonders	Balance machines
Steering torque/angle	Telescopes
sensing	Laboratory use
Valve controls	Radar
Robotics	X-Y tables
Testing and measuring systems	

Type		ME ☐ - 60 - ☐	
Item			
Supply voltage		DC5~12±10% DC24V±10% (Open collector)	
Current consumption		≥60mA	
Detection system		Incremental	
Output	Pulses/revolution (standard)	180	1800
		200	2000
		360	4000
		400	5000
		500	5400
			9000
			*21600
	Output phase	A,B Z phase	
	Output type	Square wave	
	Output capacity	Sync current: 20mA Residual Voltage: 0.5V or less (at 10mA)	
	Maximum frequency response	100kHz	
	Output phase difference	A/B phase difference 90°±45°T/4±T/8 Z phase T±T/2 (see output waveform diagram)	
	Waveform rise/fall time	2μ or less (output cable 1m or less)	
Starting torque		≥20 × 10 ⁻³ N.m(200gf·cm)	
Allowable shaft Loading	Radial	19.6N (2kg)	9.8N (1kg)
	Axial	9.8N (1kg)	4.9N (0.5kg)
Maximum allowable revolutions (mechanical)		1000 r/min	
Operating range temperature/humidity		0°C~60°C ※ 0°~50°C RH35 to 90%(above the dew point)	
Storage ambient temperature		-20°C~80°C	
Vibration resistance		Endurance 55Hz double amplitude 1.5mm. 2 hours each in X, Y and Z directions	
Impact resistance		Endurance 500m/S ² (about 50H) 3 times each in X, Y and Z directions	
Cable		Ø4.2mm 5-core insulated Shielded vinyl, 1m long	
Weight		320g	

Features

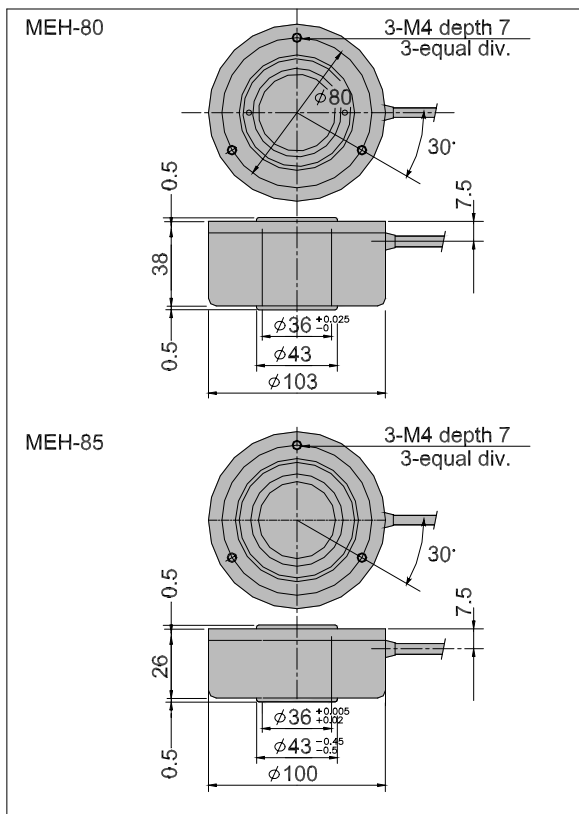
- Resolution to 21600 P/R digital output
- Wide hollow diameter 36mm
- High resolution and accuracy
- Possible to 0.01°, 0.005° or 15 sec reading



MEH-80 series

MEH-85 series

Dimensions, mm



Typical applications

Index tables
Testing equipment
High performance measuring equipment
Laboratory use NC machines
Gyroscopes Robots
Telescopes Precise position controls
Wire, die bonders Radar

Type		MEH-80-□	MEH-85-□
Item			
Supply voltage		DC5~12±10% DC24V±10% (Open collector)	
Current consumption		≥60mA	
Detection system		Incremental	
Output	Pulses/revolution (standard)	1000 18000 *21600	4500 5400 18000 216000
	Output phase	A,B Z phase *A, B phase	
	Output type	Square wave	
	Output capacity	Sync current: 20mA Residual Voltage: 0.5V or less (at 10mA)	
	Maximum frequency response	100kHz	
	Output phase difference	A/B phase difference 90°±45°T/4± T/8 Z phase T±T/2 (see output waveform diagram)	
	Waveform rise/fall time	2μ or less (output cable 1m or less)	
Starting torque		≥40 × 10 ⁻³ N.m(400gf·cm)	
Allowable shaft Loading	Radial	14.7N (1.5kg)	9.8N (1kg)
	Axial	4.7N (0.5kg)	4.7N (0.5kg)
Maximum allowable revolutions (mechanical)		1000 r/min	
Operating range temperature/ humidity		0°C~60°C * 0°~50°C RH35 to 90%(above the dew point)	
Storage ambient temperature		-20°C~80°C	
Vibration resistance		Endurance 55Hz double amplitude 1.5mm. 2 hours each in X, Y and Z directions	
Impact resistance		Endurance 500m/S ² (about 50G) 3 times each in X, Y and Z directions	
Cable		Ø4.2mm 5-core insulated Shielded vinyl, 1m long	
Weight		630g	520g

Features

- Resolution to 32400 P/R digital output
- Wide hollow diameter 60mm or 75mm
- High resolution and accuracy
- The sine wave models work with MT series

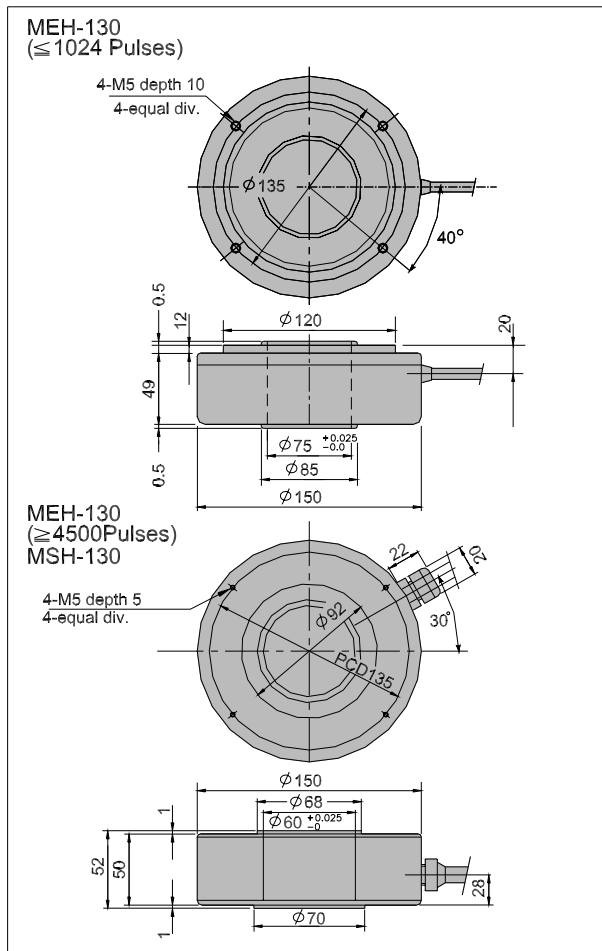
Typical applications

High performance measuring equipment
Testing equipment
Index tables
Precise position controls
Laboratory use
Telescopes



MEH-130 series MSH-130 series

Dimensions, mm



Type		MEH-130-	MSH-130-
Item			
Supply voltage/ Current consumption		DC5V~12V $\pm 10\%$ ※DC24V $\pm 10\%$ (open collector only) 60mA~150mA	3 power supply $\pm DC15V \pm 10\% \leq 0$. 3A+DC5V $\pm 10\%$ / 2% $\leq 0.6A$
Detection system		Incremental	
Output	Pulses/revolution (standard)	360 600 1024 4500 20250 25000 28125	4500 20250 25000 28125 *32400
	Output phase	A,B Z phase *A, B phase	
	Output type	Square wave	Sine wave
	Output capacity	Sync.current: 20mA Residual voltage: 0.5V or less (at 10mA).	10Vp-p $\pm 10mA$
	Maximum frequency response	100kHz	30kHz
	Output phase difference	A/B phase difference $90^\circ \pm 45^\circ T/4 \pm T/8$ Z phase $T \pm T/2$ (see output waveform diagram)	
	Waveform rise/fall time	2 μ or less (output cable 1m or less)	--
Starting torque		$\geq 50 \times 10^{-3} N \cdot m (500gf \cdot cm)$	
Allowable shaft Loading	Radial	19.6N (2kg)	
	Axial	9.8N (1kg)	
Maximum allowable revolutions (mechanical)		1000 r/min	
Operating range temperature/ humidity		0°C~60°C RH35 to 90%(above the dew point)	
Storage ambient temperature		-20°C~80°C	
Vibration resistance		Endurance 55Hz double amplitude 1.5mm. 2 hours each in X, Y and Z directions	
Impact resistance		Endurance 500m/S ² (about 50G) 3 times each in X, Y and Z directions	
Cable		$\varnothing 4.2mm$ 5-core insulated Shielded vinyl, 1m long	$\varnothing 8$ 7-core insulated Shielded vinyl, 1m long
Weight		3kg	

Features

- Resolution to 54000 P/R digital output
- Wide hollow diameter 90mm
- High resolution and accuracy

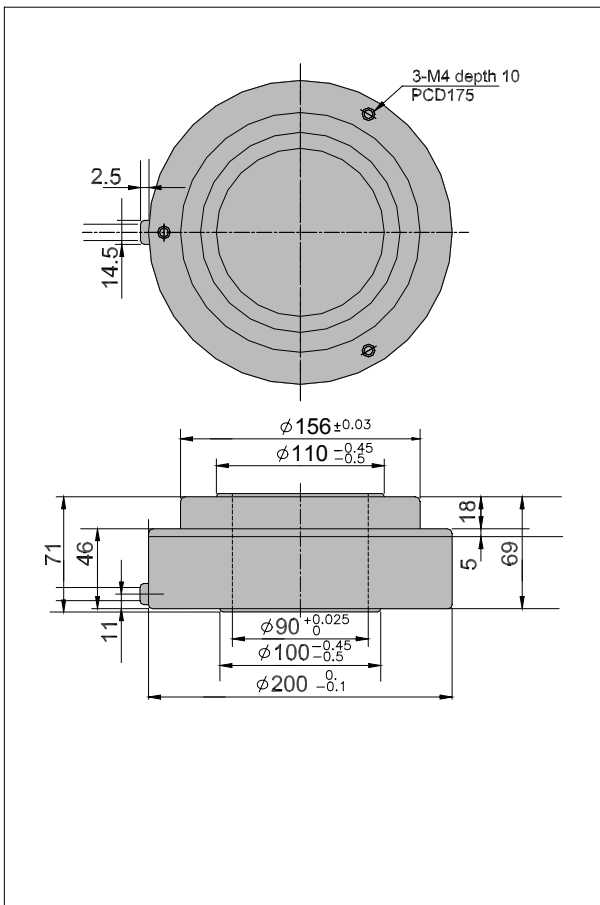
Typical applications

High performance measuring equipment
Testing equipment
Index tables
Precise position controls
Laboratory use
Telescopes
Gyroscopes



MEH-180 series

Dimensions, mm

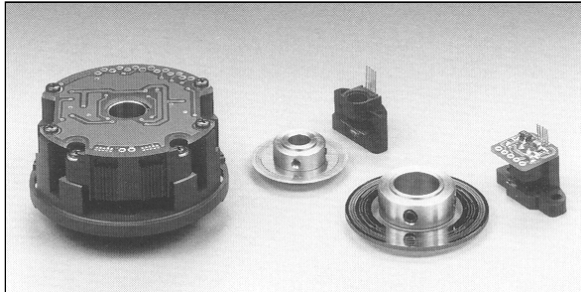


Type		MEH - 180 -
Item		
Supply voltage/ Current consumption	3 power supply DC±15V±10% ≤0.2A DC±5V±10%/-5% ≤0.2A	
Detection system	Incremental	
Output	Pulses/revolution (standard)	36,000 54,000
	Output phase	A,B Z phase
	Output type	Square wave Line driver
	Output capacity	VOL = 0.5V max VOH = 2.5V min I _o = ±20mA
	Maximum frequency response	300kHz
	Output phase difference	A/B phase difference 90°±45°T/4± T/8 Z phase T±T/2 (see output waveform diagram)
	Waveform rise/fall time	0.5μs or less (output cable 1m or less)
Starting torque		≥80 × 10 ⁻³ N.m(800gf-cm)
Allowable shaft Loading	Radial	29.4N (3kg)
	Axial	19.6N (2kg)
Maximum allowable revolutions (mechanical)		300 r/min
Operating range temperature/ humidity		0°C~50°C RH35 to 90%(above the dew point)
Storage ambient temperature		-20°C~80°C
Vibration resistance		Endurance 55Hz double amplitude 1.5mm. 2 hours each in X, Y and Z directions
Impact resistance		Endurance 500m/S ² (about 50G) 3 times each in X, Y and Z directions
Cable		Ø8mm Shielded vinyl, 1m long
Weight		5kg

MG series (Modular type, modular kit)

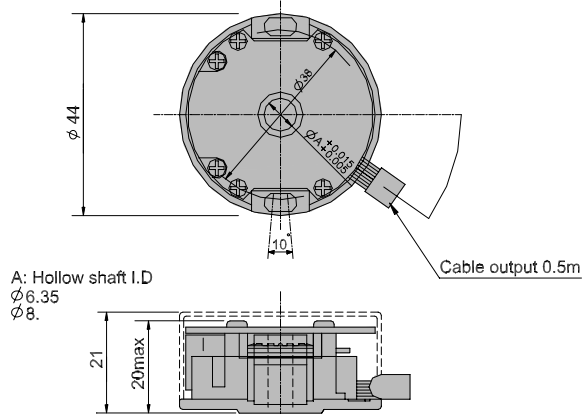
Features

- Resolution to 2000 P/R digital output
- Compact and high performance
- Easy to install on motors
- Commutation tracks available on MGH on 1000, 1024 and 2000 Pulse/rev

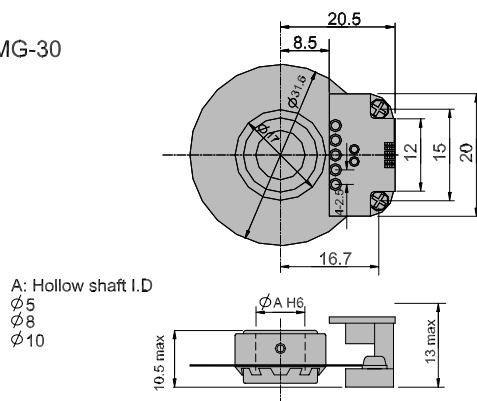


Dimensions, mm

MGH-30-CS



MG-30

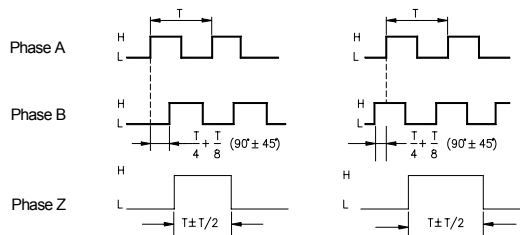


Type		Modular Type	Modular kit
Item		MGH-3- ' -E	MG-30- ' -C
Supply voltage		DC5V±10%	
Current consumption		≤60mA	≤30mA
Detection system		Incremental	
Output	Pulses/revolution (standard)	100 500 *1024 200 600 1200 250 800 1500 300 1000 1800 400*1000 2000 450 1024*2000	100 500 1500 200 600 1800 250 800 2000 300 1000 400 1024 450 1200
	Output phase	A. B. Z. *Commutation signals (U.□.V.□.W.W)	A.B.Z.
	Output type	Square wave line driver	Square wave open collector
	Output capacity	VOL = 0.5V max VOH = 2.5V min I _o = ±20mA	Sync.. current 30mA. Residual voltage: 0.5V or less (at 10mA)
	Maximum frequency response	150kHz	
	Output phase difference	A/B phase diff. 90°±45°T/4±T/8 Z phase T±T/2 [U.V.W. 4 poles 120° phase difference 3 signals]	A/B phase diff. 90°±45°T/4±T/8 Z phase T±T/2 [See output waveform diagram]
Waveform rise/fall time		≤2 μs	
Maximum allowable revolutions (mechanical)		600r/min	10000r/min
Operating range temperature/humidity		-10°C~80°C RH35~90% (above the dew point)	
Storage ambient temperature		-20°C~80°C	
Vibration resistance		Equivalent to ME series	
Impact resistance		Equivalent to ME series	
Cable		Ø6.8mm 19-core insulate shielded vinyl, 0.5m long	--
Weight		100g	20g

Output wave forms (MG-30 only)

CW rotation (right rotation as seen from installed surface)

CWW rotation (right rotation as seen from installed surface)



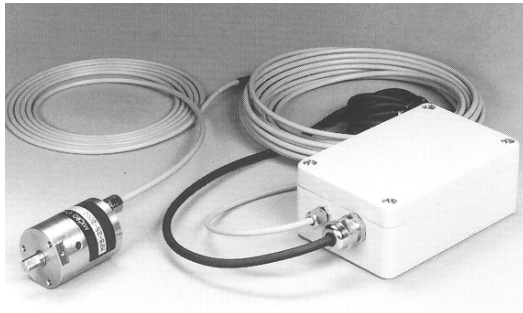
Assembly alignment reference

	Pulses	100~300	400~1024	1200~2000
Allowable eccentricity	Radial	±0.05mm		±0.02mm
	Axial	±0.02mm	±0.01mm	±0.05mm

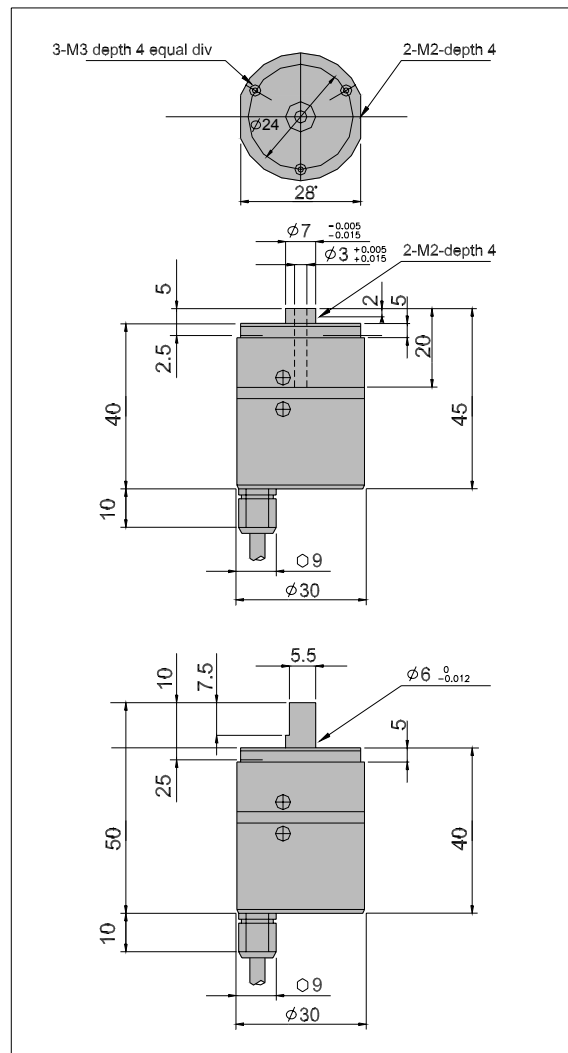
MF series (micro fibre encoder)

Features

- Compact encoder with 8-core fibre cable
- Ø3mm fibre cables connect 'Encoder' and 'Photoelectric transfer'
- The fibre cables are thin and light weight
- Easy to install the micro fibre encoder
- Ø12mm middle connector can easily be attached or removed
- Optical fibre cables are insulation, so they are not influenced by explosion-proof, high voltage and noise
- There are 'Shaft type' and 'Hollow shaft type' models
- Easy to install on miniature motors (Hollow shaft)
- Protection from environment Encoder:IP55, Photoelectric transfer:IP65
- Optical fibre cable extension:70m max
- Special P/R can be made upon request

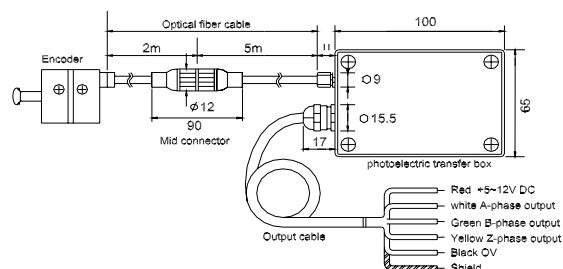


Dimensions, mm



Type		MF - 25 -	
Item		Encoder	Photoelectric Transfer
Supply voltage		--	DC5V~12V±10%
Current consumption		--	≤300mA
Detection system		Incremental	--
Output	Pulses/revolution	100,500,900,1000,2000	--
	Output phase	A,B,Z phase	--
	Output type	--	Square wave
	Output capacity	--	Sync. Current:20mA. Residual voltage: 0.5V or less (at 10mA)
	Max. frequency response	--	100KHz
	Output phase difference	--	A/B phase difference 90°±45°T/4± T/8 Z phase T±T/2
	Waveform rise/fall time	--	2µs or less (output cable 1m or less)
Starting torque		≥3 × 10 ⁻³ N.m(30gf-cm)	--
Allowable Shaft loading	Radial	19.6N (2kg)	--
	Axial	9.8N (1kg)	--
Maximum. allowable revs.		6000r/min	--
Operating range temperature/humidity		-10°~+70°C RH35 to 95%	
Storage ambient temperature		- 20°C~+80°C	
Vibration resistance		Endurance 55Hz double amplitude 1.5mm. 2 hours each in X, Y and Z directions	
Impact resistance		Endurance 500m/s ² (about 50G) 3 times each in X, Y and Z directions	
Fibre cable		Diameter Ø3mm 2m	Diameter Ø3mm 5m
Cable		--	8-core fibre cable jacketed PVC
Weight		145g	345g

Structure



MA series (Absolute encoders)

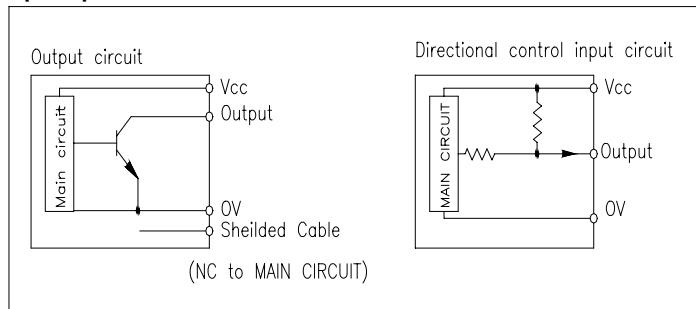
Features

- Compact, thin and space-saving design with 3 different shaft types (single, hollow or double shaft)
- Protection from environment, IP65
- 0.1° reading is possible on MA-50-3600B



MA-36 series

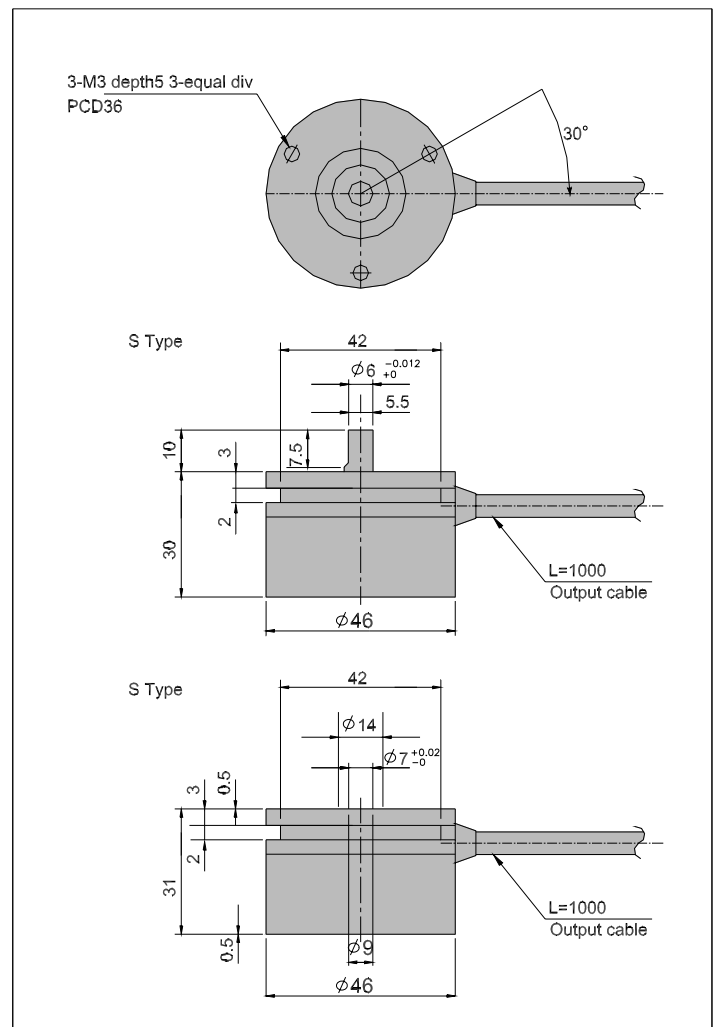
Input/output circuit



Cable assignment

Cables	Type	MA -36-256G	MA -36-256N
Black		OV(COMMON)	
Red		Power supply	
Brown		NC	Dir.Cont
Orange		Output2°	
Orange/Black		Output2 ¹	
Yellow		Output2 ²	
Yellow/Black		Output2 ³	
Green		Output2 ⁴	
Green/Black		Output2 ⁵	
Blue		Output2 ⁶	
Blue/Black		Output2 ⁷	

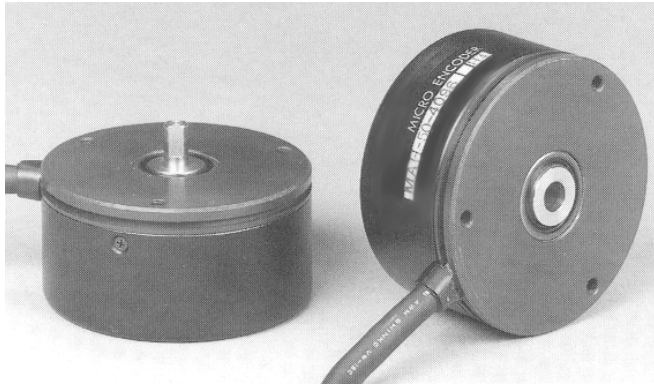
Dimension, mm



Item	Type	MA- -36-
Supply voltage		3 : DC+5~12V±10% 4 : DC+24±10%
Current consumption		Less than 70mA
Output code		G: Grey cod N: Pure binary code
Logic		Negative logic (H=0, L=1)
Resolution		256 (8 bits)
Output circuit		NPN open collector
Allow.shaft loading	Radial	19.6N (2kg)
	Axial	9.8N (1kg)
Allowable shaft rotation		600r/min
Max. frequency response		10kHz
Operating temp.		0°C~+60°C
Storage temp.		-20°C~80°C
Vibration resistance		Endurance 55Hz double amplitude 1.5mm. 2 hrs in X,Y & Z directions
Shock resistance		Endurance 500m/s ² (50G) 3 times each in X, Y & Z directions
Cables		Diameter Ø 6.0m 11-core vinyl shielded 1 meter
Weight		180g

Typical applications of MA series

- Textile machines
- Level control systems
- Radars
- Press controls
- Printing machines
- Robots
- Packaging machines
- Antennas
- Medical equipment
- Dynamic balancing testers
- Testing equipment



MA-50 series

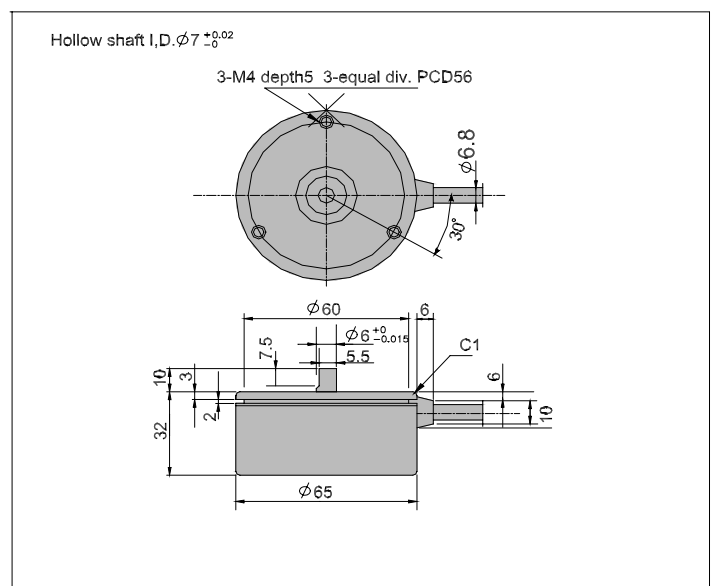
Input/output circuit

Cable assignment

Type	MA□-50-4096G MA□-50-4096N	MA□-50-3600B	MA□-50-1000B
Cable			
Black	OV (COMMON)		
Red	Power supply		
Red/Black	CW or CCW directional control		
Brown	Output 2°		
Brown/Black	Output 2 ¹		
Orange	Output 2 ²		
Orange/Black	Output 2 ³		
Yellow	Output 2 ⁴	Output 2° x 10	
Yellow/Black	Output 2 ⁵	Output 2 ¹ x 10	
Green	Output 2 ⁶	Output 2 ² x 10	
Green/Black	Output 2 ⁷	Output 2 ³ x 10	
Blue	Output 2 ⁸	Output 2° x 100	
Blue/Black	Output 2 ⁹	Output 2 ¹ x 100	
Purple	Output 2 ¹⁰	Output 2 ² x 100	
Purple/Black	Output 2 ¹¹	Output 2 ³ x 100	
Grey	Odd parity	Output 2° x 1000	NC
Grey/Black	NC	Output 2 ¹ x 1000	NC
White	Origin point(2) output		
White/Black	Origin point(1) output		

Item	Type	MA □ -50- □ □ □
Supply voltage		1:DC+5V±10% 2:DC+12V±10% 4:DC+24V±10%
Current consumption		Less than 100mA
Output code		G: Grey code N: Pure binary code B: BCD code
Logic		Negative logic (H=0, L=1)
Resolution		4096 3600, 1000
Output circuit		NPN open collector
Allowable shaft loading	Radial	19.6N (2kg)
	Axial	9.8N (1kg)
Allowable shaft rotation		6000r/min
Max. frequency response		10KHz
Operating temperature		0°C~+60°C
Storage temperature		-20°C~+80°C
Vibration resistance		Endurance 55Hz double amplitude 1.5mm. 2 hours each in X, Y and Z directions
Shock resistance		Endurance 500m/S ² (50G) 3 times each in X, Y and Z directions
Cables		Diameter Ø6.8mm 19-core vinyl shielded 1 meter
Weight		300g

Dimensions, mm



MLS series (micro linear scale)

Features

- The micro linear scale encoder combines a rotary encoder with a wire-reel mechanism and outputs pulses in accordance with the wire movements, suitable to measure a linear motion. This can be read on the display (in mm) when the encoder is configured with the counter DC series.
- Compact, light-weight, high resolution and wide measurement range.
- Wire length of 500 1000 2000 3000 4000 5000 6500~15000mm.
- Minimal reading unit of 0.01, 0.1, 1mm (on the counter).
- Resolution of linear scale encoder. 0.02 Or 0.2mm on the MLS-30. (0.005 or 0.05mm by dividing by 4). 0.4mm for the MLS-50. (0.1mm by dividing by 4). 1mm on the MLS-80.
- Their compactness allows easy installation, operation and versatility.

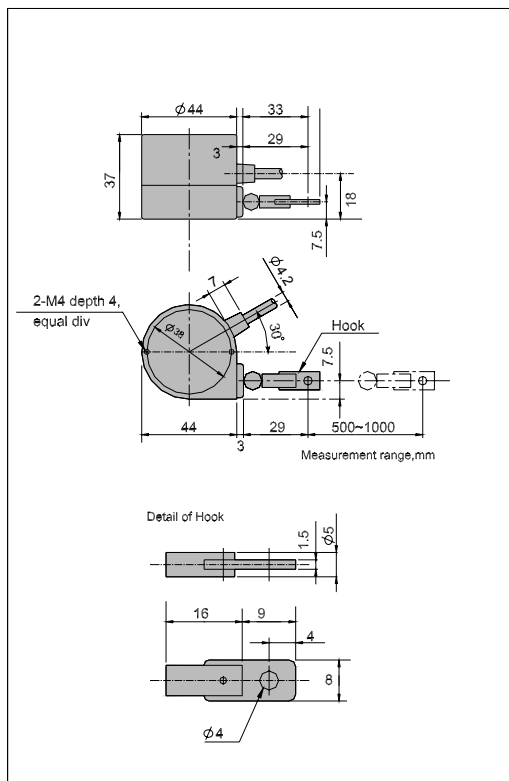
Specifications Micro linear scale (encoder + counter)

Type	MLS 30-01-500	MLS 30-01-1000	MLS 30-001-500	MLS 30-001-1000
Wire length(mm)	500	1000	500	1000
Output pulses/1mm	10	10	100	100
Stroke speed mm/sec.	1000	1000	1000	1000
Counting accuracy (pulses)	±1	±1	±1	±1
Absolute accuracy mm	±0.05/100mm			
Minimal reading unit	0.1	0.1	0.01	0.01
Power	AC100V 50/60kHz 180mA max			
Count-mode	Decimal			
Display	0~±999999.9/0~±99999.99			
Input frequency	500kHz max			
Input signals	Square wave, two-phase(H4.0~5.0V, LO~0.5V)			
Reset	Reset switch provided. * External reset acceptable			
Output	* BCD serial or parallel output			
Operating temperature	0~60 °C			
Weight	700g			
Power cord	2m with a plug			



MLS-30 series

Dimensions, mm



Linear scale encoder

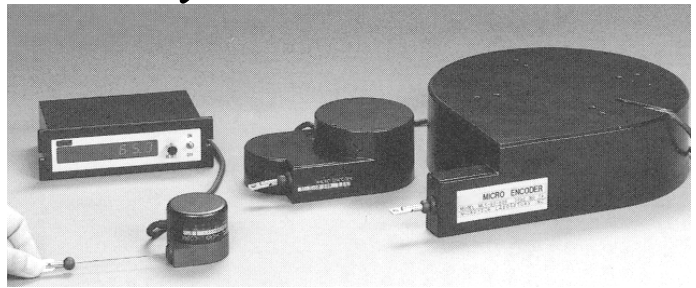
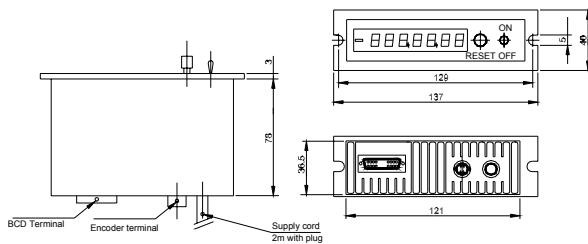
* optional

Type	MLS 30-450-500	MLS 30-450-1000	MLS 30-4500-500	MLS 30-4500-1000
Wire length(mm)	500	1000	500	1000
Output pulses/1mm	5(20)	5(20)	50(200)	50(200)
Stroke speed mm/sec.	1000	1000	1000	1000
Absolute accuracy mm	±0.05/100mm			
Resolution mm	0.2(0.05)	0.2(0.05)	0.02(0.005)	0.02(0.005)
Supply voltage	DC5~12V±10% DC24V±10% (open collector)		DC5~12V±10%	
Current consumption	60mA max			
Output phases	A and B phase			
Output form	Square wave, voltage or open collector output			
Output capacity	Sync. Current: 20mA max Residual voltage: 0.5V or max. (at 10mA)			
Max. frequency response	50KHz		100KHz	
Output phase	AB phase difference 90°±45°			
Output rise/fall time	2μs or less			
Starting torque	1.4N~2.9N (150~300g)			
Operating temp./Humidity	0°C~50°C/RH35%~90%			
Storage temperature	-20°C~80°C			
Vibration resistance	Endurance 10~55Hz double amplitude/ 2 hours in X, Y and Z directions			
Shock resistance	50G			
Cable	Diameter Ø4.2mm 4-core shielded vinyl			
Weight	185g			

() X4 value

MLS series (micro linear scale) (cont.)

Counter Dimensions, mm



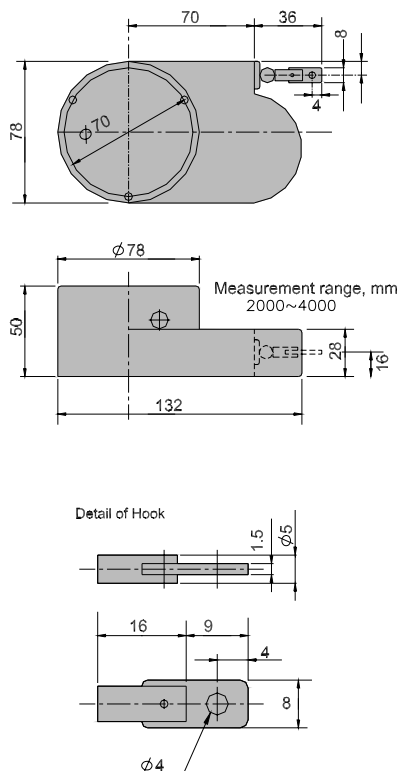
Specifications Micro linear scale (encoder + counter)

Type	MLS 50-01-2000	MLS 50-01-4000
Wire length (mm)	2000	4000
Output pulses/1mm	10	10
Stroke speed mm/sec	1000	1000
Counting accuracy(pulses)	±1	±1
Absolute accuracy mm	±0.1/1000mm	
Minimal reading unit	0.1	0.1
Power	AC100V 50/60kHz 180mA max	
Count-mode	Decimal	
Display	0~999999.9	
Input frequency	500kHz max	
Input signals	Square wave, two-phase (H4.0~5.0V, LO~0.5V)	
Reset	Reset switch provided ※ *External reset acceptable	
Output	*BCD serial or parallel output	
Operating temperature	0~60°C	
Weight	1350g	
Power cord	2m with a plug	

*optional

MLS-50 series

Dimensions mm



Linear scale encoder

Type	MLS 50-540-2000	MLS 50-540-4000
Wire length (mm)	2000	4000
Output pulses/1mm	2.5(10)	2.5(10)
Stroke speed mm/sec	1000	1000
Absolute accuracy mm	±0.1/1000mm	
Resolution (mm)	0.4(0.1)	0.4(0.1)
Supply voltage	DC5~12V±10%, DC24V±10% 9open collector only)	
Current consumption	60mA max	
Output phases	A and B phase	
Output form	Square wave, voltage or ※ open collector output	
Output capacity	Sync. Current: 20mA max. Residual voltage: 0.5V or max (at 10mA)	
Max. frequency response	100kHz	
Output phase	AB phase difference 90°±45°	
Output rise/fall time	2μs or less	
Starting torque	3.9N~6.8N (400~700g)	
Operating temp./Humidity	0°C~50°C/RH35%~90%	
Storage temperature	-20°C~80°C	
Vibration resistance	Endurance 10~55Hz double amplitude/ 2 hours in X, Y and Z directions	
Shock resistance	50G	
Cable	Diameter Ø4.2mm 4-core shielded vinyl	
Weight	850g	

MLS series applications

- Press controls
- Packaging equipment
- X - Y Tables
- Oil/Air pressure cylinders
- Suspension stroke sensing

Wood cutting machine

Picking machines

Construction machinery

Testing and measuring equipment

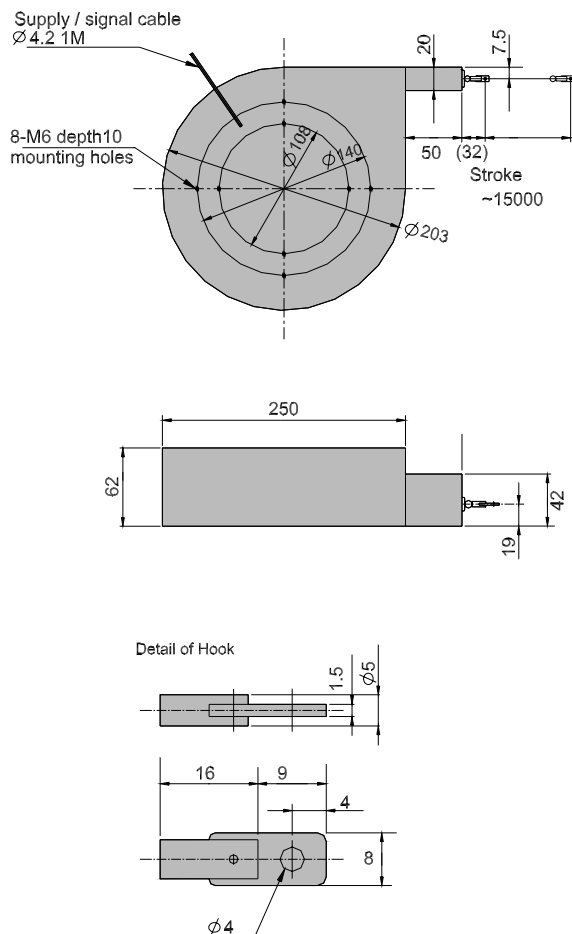
Specifications Micro linear scale (encoder + counter)

Type	MLS-80-10
Wire length (mm)	~15000
Output pulses/1mm	1
Stroke speed mm/sec	1000
Counting accuracy(pulses)	±1
Absolute accuracy mm	±1/1000
Minimal reading unit	1
Power	AC100V 50/60kHz 180mA max
Count-mode	Decimal
Display	0~±9999999
Input frequency	500kHz max
Input signals	Square wave, two-phase (H4.0~5.0V, LO~0.5V)
Reset	Reset switch provided *External reset acceptable
Output	*BCD serial or parallel output
Operating temperature	0~60°C
Weight	6kg
Power cord	2m with a plug

* optional

MLS-80 series

Dimensions, mm



Linear scale encoder

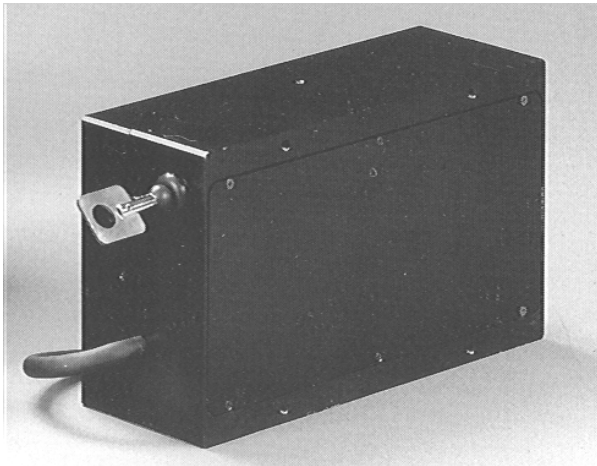
Type	MLS-80-600-Y
Wire length (mm)	~15000
Output pulses/1mm	1
Stroke speed mm/sec	1000
Absolute accuracy mm	±1/1000
Revolution (mm)	1
Supply voltage	DC5~12V±10%
Current consumption	60mA max
Output phases	A and B phase
Output form	Square wave, voltage output
Output capacity	Sync. Current: 20mA max. Residual voltage: 0.5V or max (at 10mA)
Max. frequency response	100kHz
Output phase	AB phase difference 90°±45°
Output rise/fall time	2μs or less
Starting torque	14.7N~19.6N (1500~2000g)
Operating temp./Humidity	0°C~50°C/RH35%~90%
Storage temperature	-20°C~80°C
Vibration resistance	Endurance 10~55Hz double amplitude/ 2 hours in X, Y and Z directions
Shock resistance	50G
Cable	Diameter Ø4.2mm 4-core shielded vinyl
Weight	5.5g

() X4 value

MLA series (Absolute linear scale)

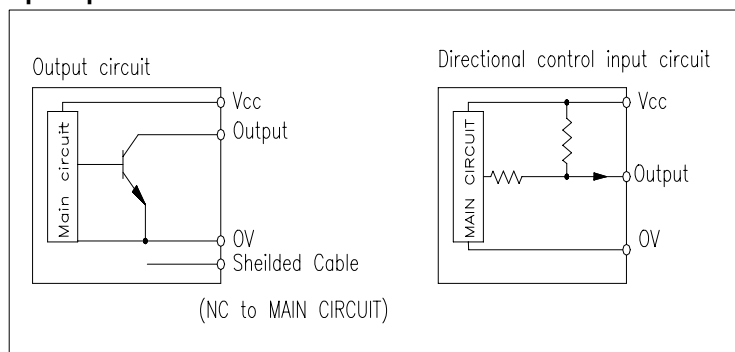
Features

- Absolute position detection system.
- Resolution and wire length, resolution 0.01mm : wire length 40mm, 0.1mm : 400mm, 0.25mm : 1000mm, 0.5mm : 2000mm, 1mm : 4000mm.
- Grooved pulley prevents the wire from slipping.
- High quality wire (SUS 304, 0.9mm Diameter, 70Kg maximum wire endurance).
- Housing material : die cast aluminum.
- Housing installation with M6 screws.
- Dustproofing device (Additional Option).
- Absolute Linear Scale encoder is compatible with MA series encoders.
- Compactness.

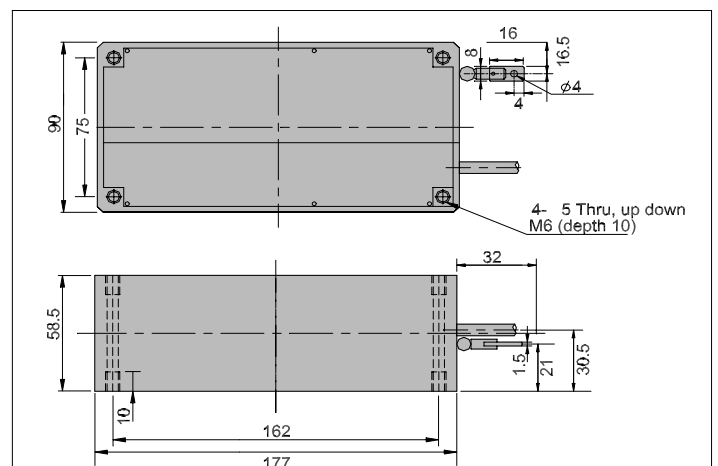


Type	MLA-30-256	MLA-50-4096
Item		
Supply Voltage	3 : DC5V $\pm$ 10% 4 : DC24V $\pm$ 10%	1 : DC5V $\pm$ 10% 2 : DC12V $\pm$ 10% 4 : DC24V $\pm$ 10%
Current	$\leq$ 70mA	$\leq$ 100mA
Output	G : Grey code, N : Pure binary code	
Logic	Negative logic (H=0, L=1)	
Output	NPN open collector	
Max. frequency	10KHz	
Operating	0°C $\sim$ +60°C	
Storage	-20°C $\sim$ +80°C	
Vibration	Endurance 55Hz double amplitude 1.5mm 2 hours each in X, Y and Z directions	
Shock	Endurance 500m/s ² (about 50G) 3 times each in X, Y and Z directions	
Cable	$\varnothing$ 6.0mm Vinyl cable 11-core 1m long insulated shielded cable	$\varnothing$ 6.8mm Vinyl cable 17-core 1m long insulated shielded cable

Input/output circuit



Dimensions, mm



MLA series (Absolute linear scale) (cont.)

Cable assignment

Type	MLA-50-4096G MLA-50-4095N
Cables	
Black	OV (COMMON)
Red	Power Supply
Red/Black	Dir.Cont
Brown	Output ⁰
Brown/Black	Output ¹
Orange	Output ²
Orange/Black	Output ³
Yellow	Output ⁴
Yellow/Black	Output ⁵
Green	Output ⁶
Green/Black	Output ⁷
Blue	Output ⁸
Blue/Black	Output ⁹
Purple	Output ¹⁰
Purple/Black	Output ¹¹
Gray	NC
Gray/Black	NC

Type	MLA-30-256G	MLA-30-256N
Cable		
Black	OV (COMMON)	
Red	Power supply	
Brown	NC	Dir. Cont
Orange	Output ⁰	
Orange/Black	Output ¹	
Yellow	Output ²	
Yellow/Black	Output ³	
Green	Output ⁴	
Green/Black	Output ⁵	
Blue	Output ⁶	
Blue/Black	Output ⁷	

Absolute linear scale

Type	MLA 30-256-90	MLA 50-4096-216	MLA 50-4096-200	MLA 50-4096-400	MLA 50-4096-1000	MLA 50-4096-2000	MLA 50-4096-4000
Wire length(mm)	90	216	200	400	1000	2000	4000
Output pulses/mm	256/90	4096/216	20	10	4	2	1
Stroke speed mm/sec	500	500	500	1000	1000	1000	1000
Accuracy, mm	±0.1/100mm						
Minimum resolution	0.35	0.053	0.5	0.1	0.25	0.5	1
Wire diameter, mm	0.6	0.6	0.9	0.9	0.9	0.9	0.8
Maximum wire	7	7	70	70	70	70	60
Quality of wire	SUS 304						
Starting torque	14N~2.9N(150g~300g)		3.9N~6.8N (400g~700g)				
Quality of spring	Spring steel						
Origin adjustment	--	--	Adjustable				
Quality of pulley	SUS 303 Automatic return						
Forms	MLS30	MLS50	See dimensions				

MC series

Features

- By combining a micro-encoder with an optional MC series counter, angle, distance or number of revolutions can be displayed.
- When configured as a counter, the decimal point position of the display is determined by the resolution specified in the table below.
- The counter is encased in a compact, rugged aluminum die cast housing ready for panel mounting.

Counter Specifications

Type	DC-7(Angle)	DC-6(Decimal)
Number of digits	7	6
Indicating function	With (-) indication reversible	
Indicating range	±359.5945	±9999.99
Indicating unit	15,30sec. or 1min	0.01 0.1 0.01 1
Display	Red LED	
Input signal	90° phase difference square wave - 2 signals (high level 4.0~5.0, low level 0~0.5)	
Maximum response frequency	250kHz	
Divide by	$\frac{1}{4}$, 2 or 4 (as specified)	
Power Consumption	DC 5V 120mA	
Power	AC 100V±10%, 50/60Hz, 175mA or less	
Power Code	2m with plug	
Weight	500g	
Working temperature	0°C~60°C	
Applicable detector	Rotary encoder/linear scale	
Detector power supply	DC5V 55mA or less	

MC Series Specifications

Type	Measurement	Resolution
MC	Angle	15 sec.
		30 sec
		60 sec
		0.1°
		0.01°
	Distance	0.001mm
		0.005mm
		0.010mm

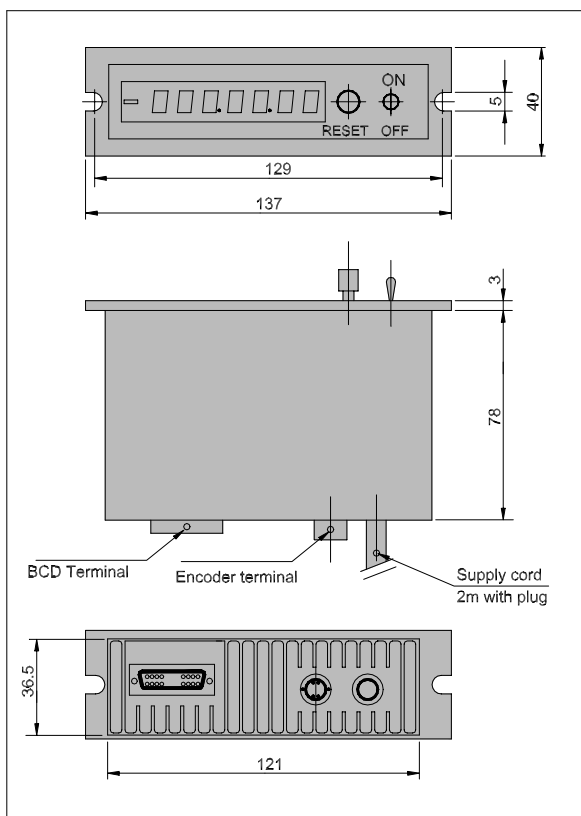
How to specify model.
number when ordering:
(Example)

MC - 50 - 060

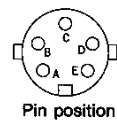
060 sec resolution
Nominal encoder type
MC series counter

To be used with encoder
ME □ - 50 For example
to obtain a 60 sec. reading.

Dimensions, mm

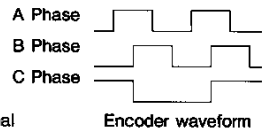


Connector (Tajimi: R05-R5M) Cable: R05-RB5F



A : 5V
B : A Phase
C : B Phase
D : GND
E : Z Phase
RESET

Optional

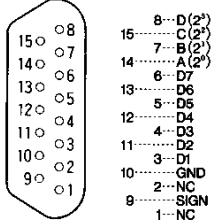


• BCD parallel output (Buffer IC 74HC244)

Pin No.	Signals	Pin No.	Signals
1	2 ¹ (A) × 10 ⁰	20	2 ¹ (B) × 10 ⁰
2	2 ² (C) × 10 ⁰	21	2 ² (D) × 10 ⁰
3	2 ² (A) × 10 ¹	22	2 ² (B) × 10 ¹
4	2 ² (C) × 10 ¹	23	2 ² (D) × 10 ¹
5	2 ² (A) × 10 ²	24	2 ² (B) × 10 ²
6	2 ² (C) × 10 ²	25	2 ² (D) × 10 ²
7	2 ² (A) × 10 ³	26	2 ² (B) × 10 ³
8	2 ² (C) × 10 ³	27	2 ² (D) × 10 ³
9	2 ² (A) × 10 ⁴	28	2 ² (B) × 10 ⁴
10	2 ² (C) × 10 ⁴	29	2 ² (D) × 10 ⁴
11	2 ² (A) × 10 ⁵	30	2 ² (B) × 10 ⁵
12	2 ² (C) × 10 ⁵	31	2 ² (D) × 10 ⁵
13	2 ² (A) × 10 ⁶	32	2 ² (B) × 10 ⁶
14	2 ² (C) × 10 ⁶	33	2 ² (D) × 10 ⁶
15	NC	34	NC
16	NC	35	IH signal
17	Latch input	36	SIGN
18	Reset input	37	GND
19	GND		

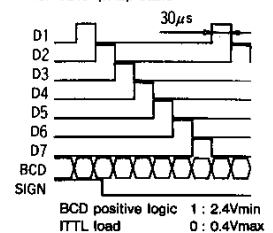
Output signal connector DC-37SAF-N(JAE)
DASP-JP37P(JAE) also provided

• BCD serial output

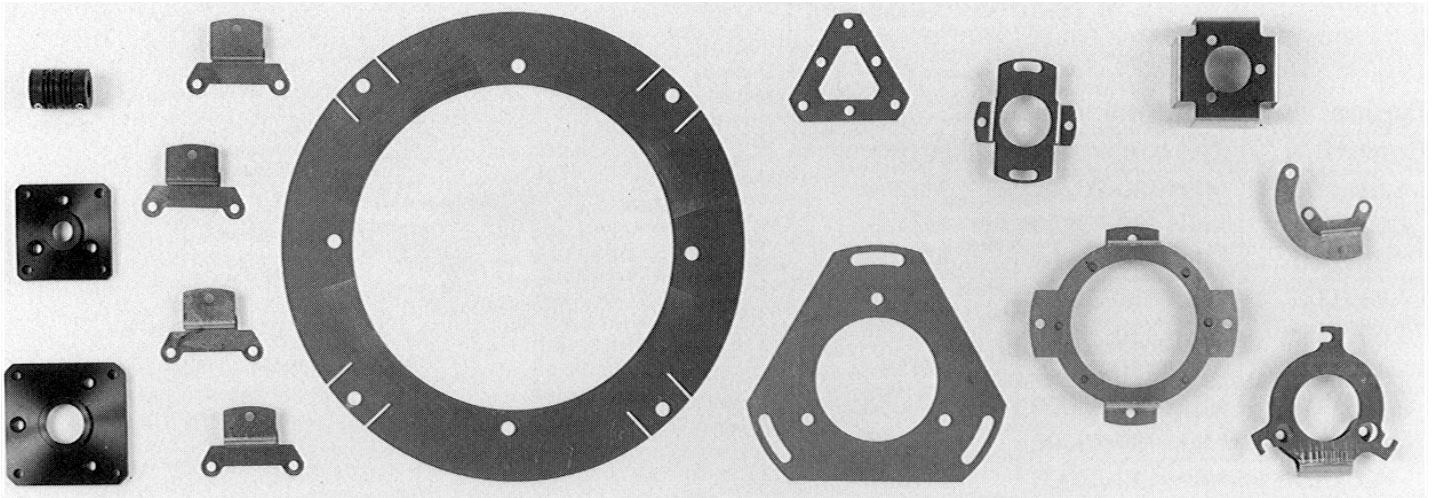


• BCD serial output

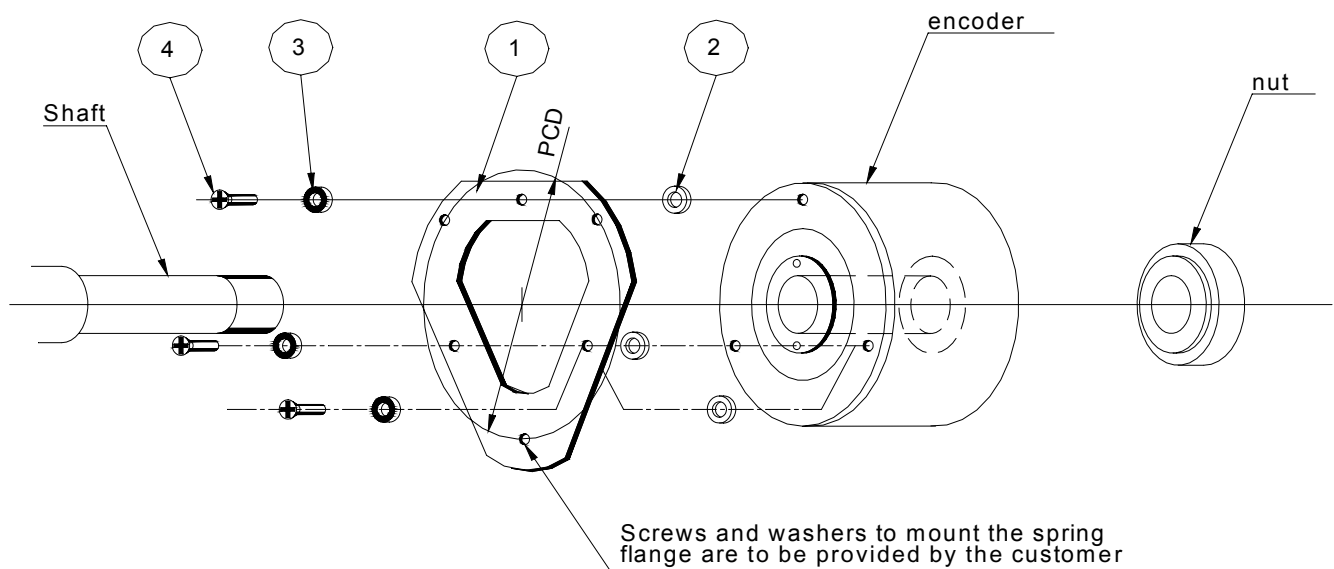
DASP-JB15S(JAE): counter
DASP-JB15P(JAE): cable



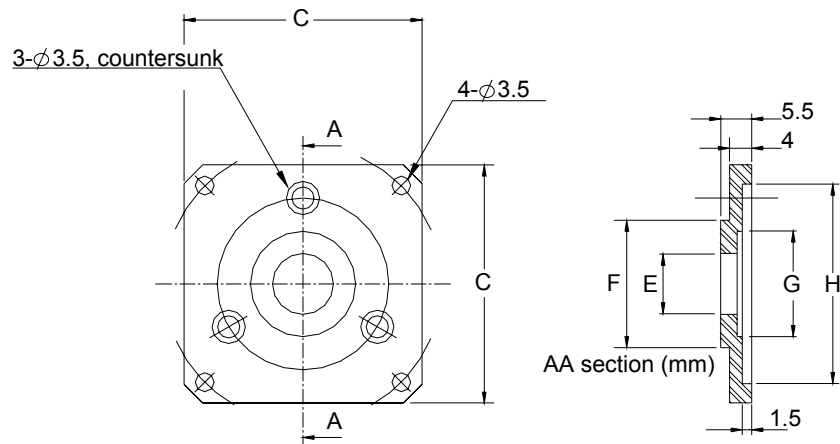
Optional mounting parts



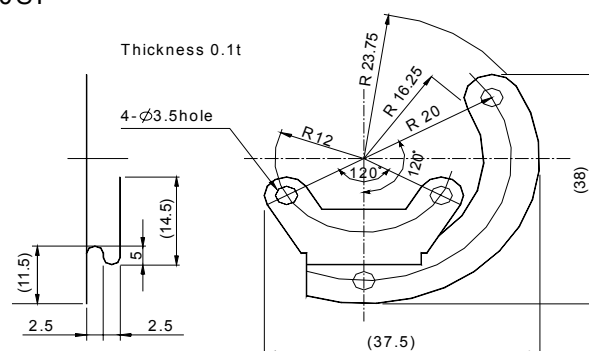
Spring flange (for MEH-20,30,50,60,80)
Example of hollow shaft encoder installation



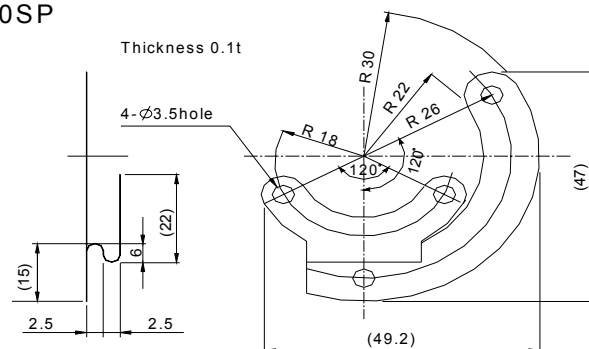
Flange MEF-20 (ME -20)
 MEF-30 (ME -30)



Special spring range
 MEH-20SP



MEH-30SP



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