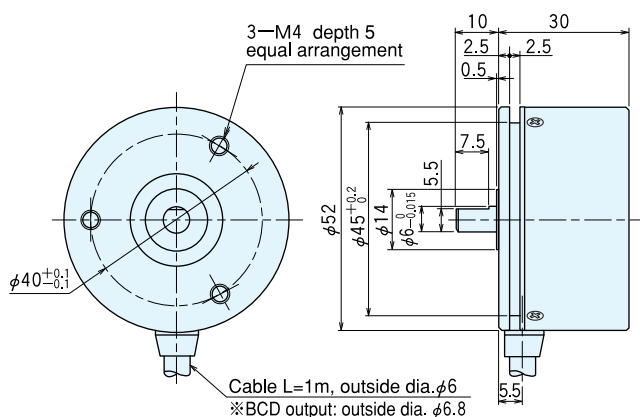


# MA-42 series

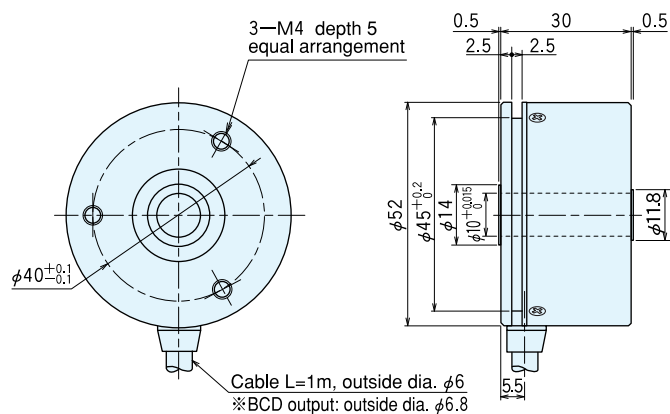
[Absolute]

## Outside dimensions

### MAS-42

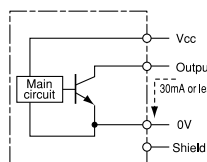


### MAH-42

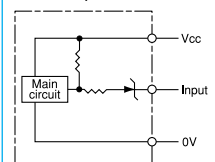


## I/O circuit diagram

### NPN open collector output



### Rotating direction indication input circuit



Note) When input is open, CW increases count.  
When input is 0V short, CCW increases count.



## Specifications

Type name	MA <input type="checkbox"/> -42- <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>		
Item	Shaft shape → Pulse number → Output code → Supply voltage ●S=single shaft ●G=gray code ●1=DC5V ●H=hollow shaft ●N=pure binary code ●5=DC12V~24V ●B=BCD code		
Supply voltage	1:DC5V±10% 5:DC12V-10%~24V+15%		
Current consumption	100mA or less (under no load)		
Output code	G: gray code N: pure binary code	B: BCD code	
Logic	Negative logic (H=0, L=1)		
Resolution	256 512 1,024 4,096 360 720 2,048	1,000 3,600	
Output circuit	NPN open collector		
Output capacity	Sink current each bit 30mA		
Allowable load of shaft (electrical)	Radial	19.6N (2kgf)	
	Thrust	9.8N (1kgf)	
Maximum revolutions (mechanical)	6,000r/min		
Maximum response frequency	10kHz		
Starting torque	10×10 <sup>-3</sup> N·m (100gf·cm) or less (no oil seal)		
Working temperature/humidity	-10°C~70°C/RH95% or less no dewing		
Storage temperature	-25°C~85°C		
Vibration resistance	Durability 55Hz, double amplitude 1.5mm 2 hours each in X, Y, and Z directions		
Impact resistance	Durability 500m/s <sup>2</sup> (about 50G) 3 times each in X, Y, and Z directions		
Cable	Outside diameter (G, N: φ6, 16 cores/B: φ6.8, 19 cores) vinyl wire Insulated shield cable (length 1m)		
Mass	300g or less (excluding cable)		

## Connection

Cable color	Type	Output signal		
		MA42-G	MA42-N	MA42-B
Brown	2 <sup>0</sup>	2 <sup>0</sup>	2 <sup>0</sup>	2 <sup>0</sup>
Brown/black	2 <sup>1</sup>	2 <sup>1</sup>	2 <sup>1</sup>	2 <sup>1</sup>
Orange	2 <sup>2</sup>	2 <sup>2</sup>	2 <sup>2</sup>	2 <sup>2</sup>
Orange/black	2 <sup>3</sup>	2 <sup>3</sup>	2 <sup>3</sup>	2 <sup>3</sup>
Yellow	2 <sup>4</sup>	2 <sup>4</sup>	2 <sup>4</sup>	2 <sup>0</sup> ×10
Yellow/black	2 <sup>5</sup>	2 <sup>5</sup>	2 <sup>5</sup>	2 <sup>1</sup> ×10
Green	2 <sup>6</sup>	2 <sup>6</sup>	2 <sup>6</sup>	2 <sup>2</sup> ×10
Green/black	2 <sup>7</sup>	2 <sup>7</sup>	2 <sup>7</sup>	2 <sup>3</sup> ×10
Blue	2 <sup>8</sup>	2 <sup>8</sup>	2 <sup>8</sup>	2 <sup>0</sup> ×100
Blue/black	2 <sup>9</sup>	2 <sup>9</sup>	2 <sup>9</sup>	2 <sup>1</sup> ×100
Purple	2 <sup>10</sup>	2 <sup>10</sup>	2 <sup>10</sup>	2 <sup>2</sup> ×100
Purple/black	2 <sup>11</sup>	2 <sup>11</sup>	2 <sup>11</sup>	2 <sup>3</sup> ×100
Gray	—	—	—	2 <sup>0</sup> ×1000
Gray/black	—	—	—	2 <sup>1</sup> ×1000
White	—	—	—	Not connected
White/black	—	—	—	Not connected
Red/black	Not connected	Rotating direction indication input		—
Red	Supply power			—
Black	0V (COMMON)			—
Black	0V (COMMON)			—

Note: The shield is in the encoder and not connected. A capacitor (0.1mF) is connected between 0V and FG.

## Resolution and code No.

Resolution	Code No.	Resolution	Code No.
256	0~255	1,024	0~1,023
360	76~435	2,048	0~2,047
512	0~511	3,600	0~3,599
720	152~871	4,096	0~4,095
1,000	0~999		

Description

SE series

ME series

MGH series

MA series

MXS series

MLS series

MLA series

REH series

MT series

DC series

Setting Option/  
Coupling

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