

# DM Series



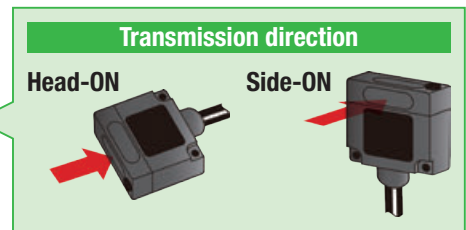
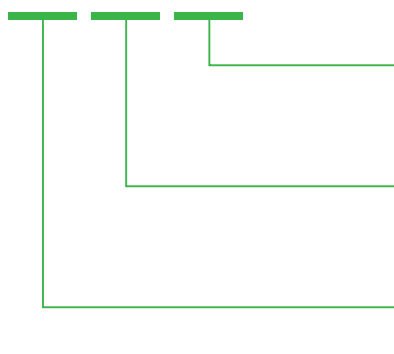
## DMS -V Series (NPN Output)



### At a glance

- NPN output
- Transmission distance : 1m / 3m
- Communication capacity : 4 BITS / 8 BITS
- Transmission direction : Head-ON / Side-ON
- Compact (size : 50x50x20mm, weight : 280g)

## DMS - - V



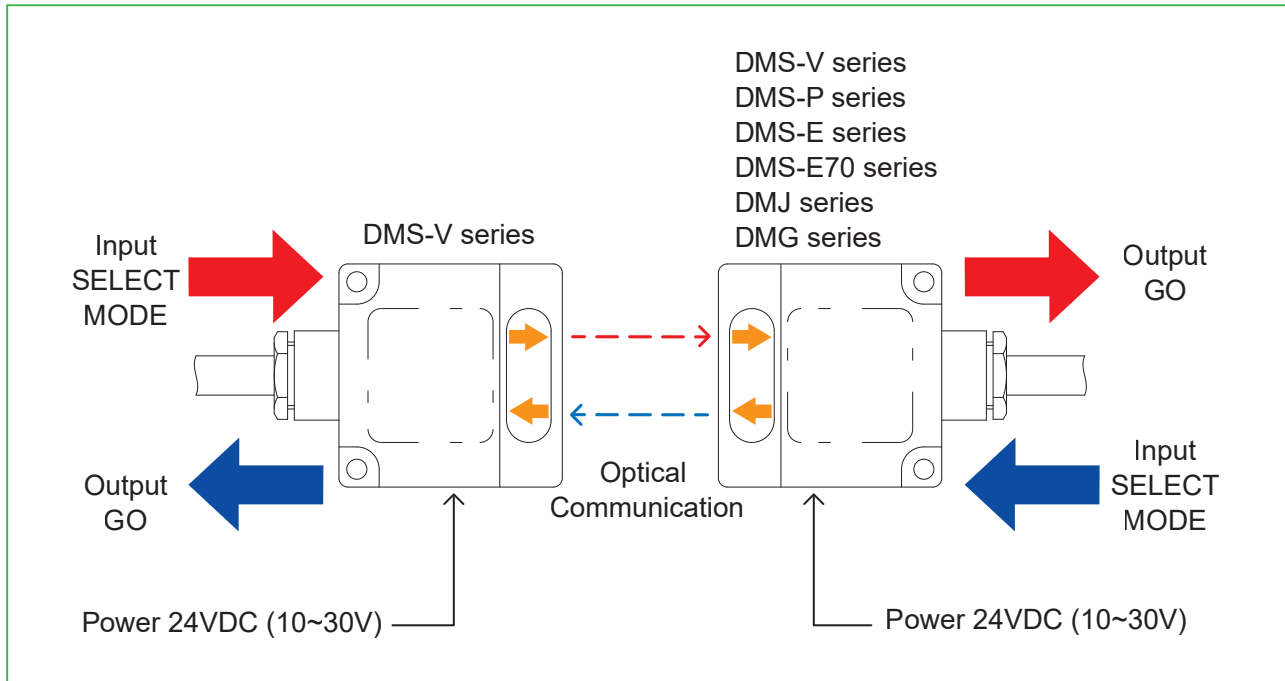
### Product description

- A device that uses LED light to send and receive binary data over short distances.
- Transmission area can be adjusted with the volume.
- Compact. Easy to install on mobile devices and systems, such as AGVs and stations.

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## Composition



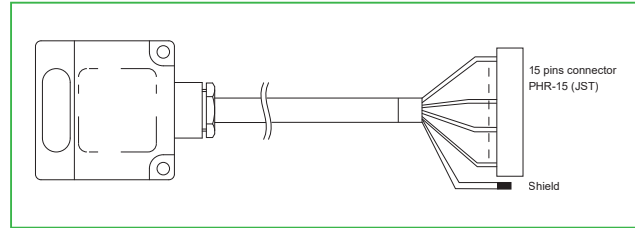
## Specification

Head-ON Side-ON	DMS-GA1-V DMS-HA1-V	DMS-GA2-V DMS-HA2-V	DMS-GB1-V DMS-HB1-V	DMS-GB2-V DMS-HB2-V
<b>Communication capacity</b>	4 BITS		8 BITS	
<b>Transmission distance (0m~)</b>	1m	3m	1m	3m
<b>Directional angle</b>	± 15°	± 5°	± 15°	± 5°
<b>Output type</b>	NPN output			
<b>Supply voltage</b>	24VDC (10 to 30VDC)			
<b>Current consumption</b>	100mA Max.			
<b>Light source</b>	LED (850nm)			
<b>Transmission time</b>	40msec or less			
<b>Input</b>	ON current 2.5mA or more, OFF current 1mA or less, Operating threshold current 1.5 to 2mA			
<b>Output</b>	NPN open-collector (30VDC, 50mA or less, Residual voltage 1.8V or less)			
<b>Ambient illuminance</b>	4,000lx or less (Incandescent lamp)			
<b>Ambient temperature and humidity</b>	-10~50°C, 85%RH or less			
<b>Shock resistance</b>	500m/s <sup>2</sup> , each 10 time in X, Y and Z directions			
<b>IP protection</b>	IP64			
<b>Weight</b>	280g			
<b>Size W x D x H (mm)</b>	50 x 50 x 20			

## Connection

### 4 BITS type (DMS-□A□-V)

Cable information : Cable length : 2 m  
 Conductor size : 25 AWG  
 Cable outer diameter (OD) : 7.0 mm

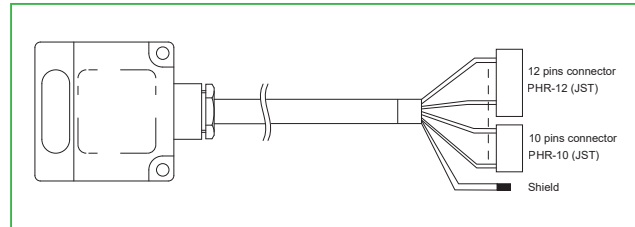


Color	Function
Black	IN 1
Brown	IN 2
Red	IN 3
Orange	IN 4
White / Yellow	MODE *1
Yellow	SELECT *2
White / Blue	Non connection
Green	OUT 1

Color	Function
Blue	OUT 2
Purple	OUT 3
Gray	OUT 4
White	GO *3
Yellow / Green	COM (0V)
Yellow / Red	+VIN
Yellow / Black	-VIN (0V)
Shield	

### 8 BITS type (DMS-□B□-V)

Cable information : Cable length : 2 m  
 Conductor size : 25 AWG  
 Cable outer diameter (OD) : 8.2 mm



Color	Function
Pale blue	COM (0V)
Pink	MODE *1
White	SELECT *2
White / Black	GO *3
Brown	IN 1
Brown / Black	OUT 1
Red	IN 2
Red / Black	OUT 2
Orange	IN 3
Orange / Black	OUT 3
Yellow	IN 4
Yellow / Black	OUT 4

Color	Function
Green	IN 5
Green / Black	OUT 5
Blue	IN 6
Blue / Black	OUT 6
Purple	IN 7
Purple / Black	OUT 7
Gray	IN 8
Gray / Black	OUT 8
Pink / Black	+VIN
Pale blue / Black	-VIN
Shield	

#### \*1 MODE input

This is to choose transmission / reception mode when standing by

\*Transmission stand-by mode by opened between mode and I/O COM

\*Reception stand-by mode by short-circuited between mode and I/O COM

#### \*2 SELECT input

This is to stop transmission / reception optionally by outer signal

\*Operating by opened between select and I/O COM

\*Stopping by short-circuited between select and I/O COM

#### \*3 GO output

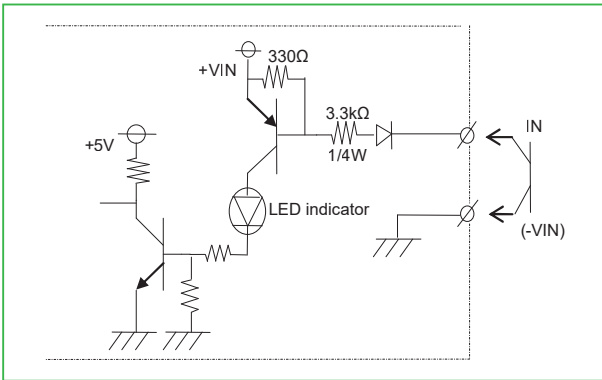
This is to check correct optical signal

\*ON when receiving correct data

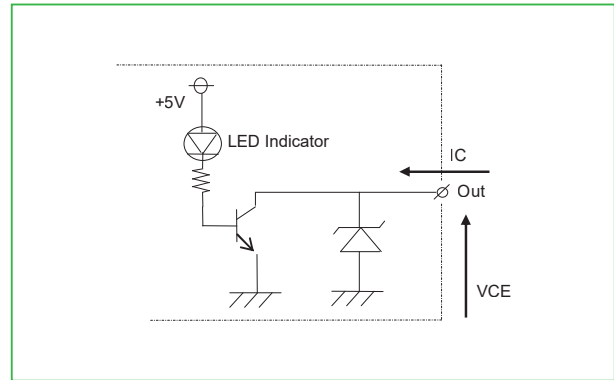
\*OFF when interrupting optical axis (Not-receiving)

## I/O circuit

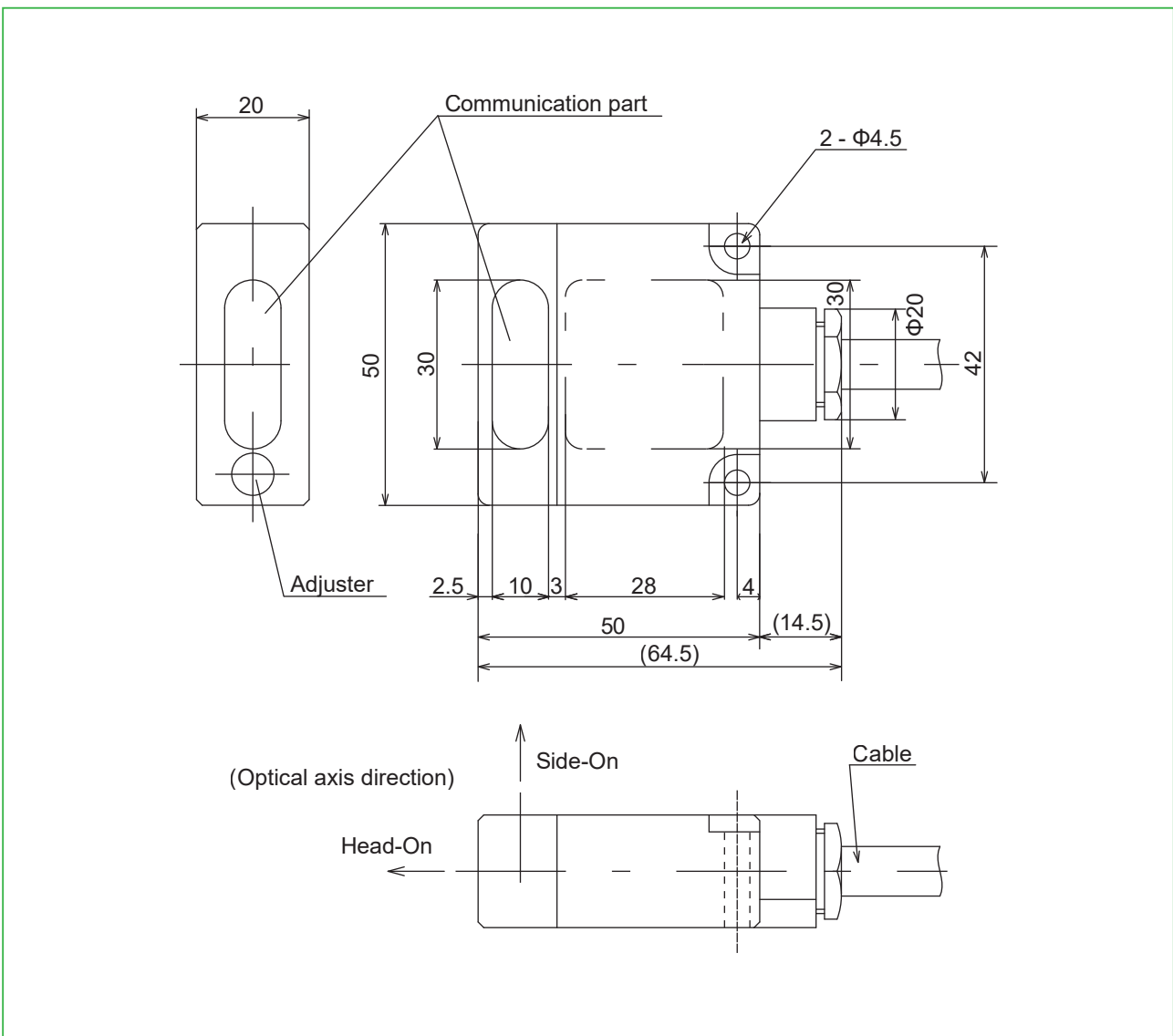
### Input



### Output



## External dimension



# DM Series

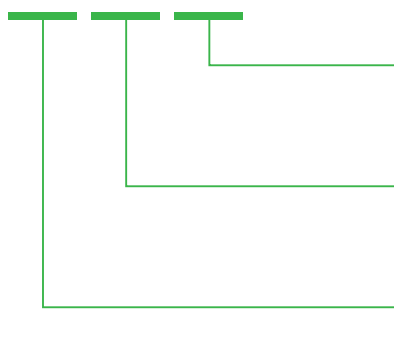
## DMS -P Series (PNP Output)



### At a glance

- PNP output
- Transmission distance : 1m / 3m
- Communication capacity : 4 BITS / 8 BITS
- Transmission direction : Head-ON / Side-ON
- Compact (size : 50x50x20mm, weight : 280g)

## DMS - □ □ □ - P



1 : Transmission distance 1m

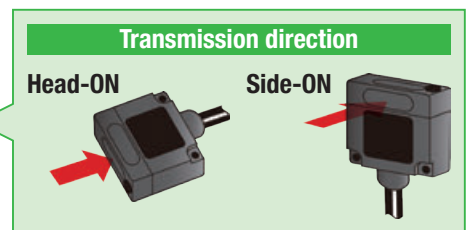
2 : Transmission distance 3m

A : 4 BITS

B : 8 BITS

G : Head-ON

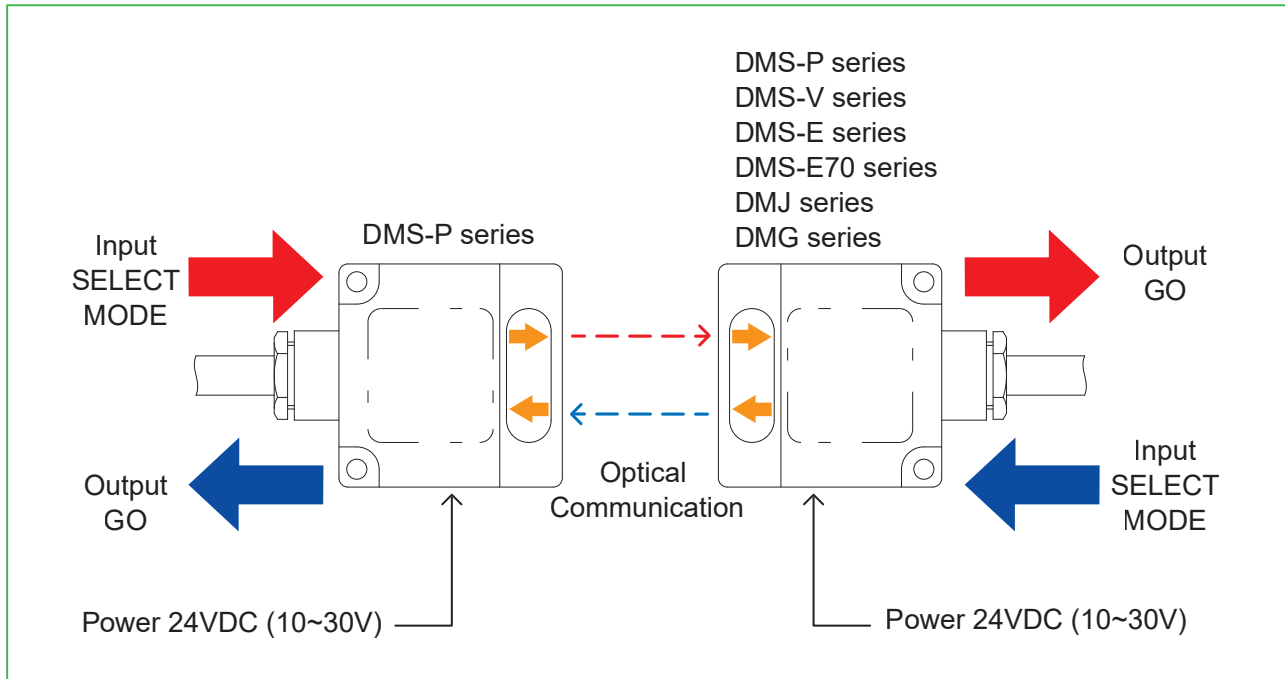
H : Side-ON



### Product description

- A device that uses LED light to send and receive binary data over short distances.
- Transmission area can be adjusted with the volume.
- Compact. Easy to install on mobile devices and systems, such as AGVs and stations.

## Composition



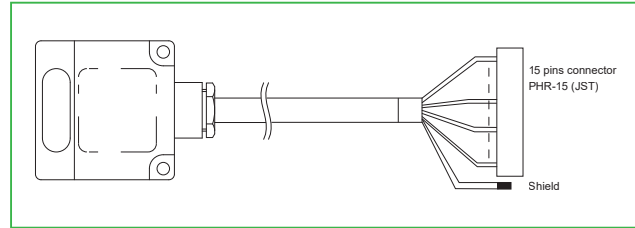
## Specification

Head-ON Side-ON	DMS-GA1-P DMS-HA1-P	DMS-GA2-P DMS-HA2-P	DMS-GB1-P DMS-HB1-P	DMS-GB2-P DMS-HB2-P
<b>Communication capacity</b>	4 BITS		8 BITS	
<b>Transmission distance (0m~)</b>	1m	3m	1m	3m
<b>Directional angle</b>	± 15°	± 5°	± 15°	± 5°
<b>Output type</b>	PNP output			
<b>Supply voltage</b>	24VDC (10 to 30VDC)			
<b>Current consumption</b>	100mA Max.			
<b>Light source</b>	LED (850nm)			
<b>Transmission time</b>	40msec or less			
<b>Input</b>	ON current 2.5mA or more, OFF current 1mA or less, Operating threshold current 1.5 to 2mA			
<b>Output</b>	PNP open-collector (30VDC, 50mA or less, Residual voltage 1.8V or less)			
<b>Ambient illuminance</b>	4,000lx or less (Incandescent lamp)			
<b>Ambient temperature and humidity</b>	-10~50°C, 85%RH or less			
<b>Shock resistance</b>	500m/s <sup>2</sup> , each 10 time in X, Y and Z directions			
<b>IP protection</b>	IP64			
<b>Weight</b>	280g			
<b>Size W x D x H (mm)</b>	50 x 50 x 20			

## Connection

### 4 BITS type (DMS-□A□-P)

Cable information : Cable length : 2 m  
 Conductor size : 25 AWG  
 Cable outer diameter (OD) : 7.0 mm

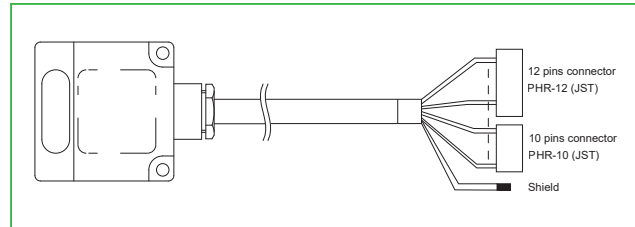


Color	Function
Black	IN 1
Brown	IN 2
Red	IN 3
Orange	IN 4
White / Yellow	MODE *1
Yellow	SELECT *2
White / Blue	Non connection
Green	OUT 1

Color	Function
Blue	OUT 2
Purple	OUT 3
Gray	OUT 4
White	GO *3
Yellow / Green	COM (0V)
Yellow / Red	+VIN
Yellow / Black	-VIN (0V)
Shield	

### 8 BITS type (DMS-□B□-P)

Cable information : Cable length : 2 m  
 Conductor size : 25 AWG  
 Cable outer diameter (OD) : 8.2 mm



Color	Function
Brown	IN 1
Red	IN 2
Orange	IN 3
Yellow	IN 4
Green	IN 5
Blue	IN 6
Purple	IN 7
Gray	IN 8
White	SELECT *2
Pink	MODE *1
Brown / Black	OUT 1
Red / Black	OUT 2

Color	Function
Orange / Black	OUT 3
Yellow / Black	OUT 4
Green / Black	OUT 5
Blue / Black	OUT 6
Purple / Black	OUT 7
Gray / Black	OUT 8
White / Black	GO *3
Pale blue	COM
Pink / Black	+VIN
Pale blue / Black	-VIN
Shield	

#### \*1 MODE input

This is to choose transmission / reception mode when standing by

\*Transmission stand-by mode by opened between mode and +VIN

\*Reception stand-by mode by short-circuited between mode and +VIN

#### \*2 SELECT input

This is to stop transmission / reception optionally by outer signal

\*Operating by opened between select and +VIN

\*Stopping by short-circuited between select and +VIN

#### \*3 GO output

This is to check correct optical signal

\*ON when receiving correct data

\*OFF when interrupting optical axis (Not-receiving)



# DM Series



## DMS -E Series

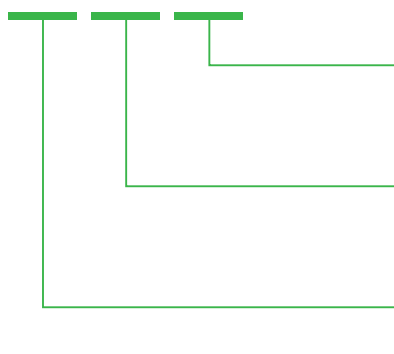
(NPN Output / High-frequency noise resistance)



### At a glance

- NPN output
- High-frequency noise resistance
- Transmission distance : 1m / 3m
- Communication capacity : 4 BITS / 8 BITS
- Transmission direction : Head-ON / Side-ON
- Compact (size : 50x50x20mm, weight : 280g)

## DMS - □ □ □ - E



1 : Transmission distance 1m

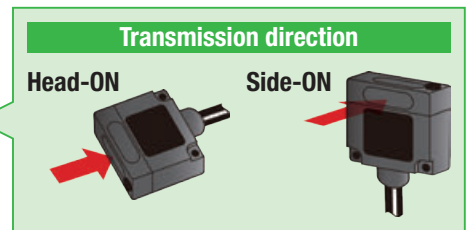
2 : Transmission distance 3m

A : 4 BITS

B : 8 BITS

G : Head-ON

H : Side-ON



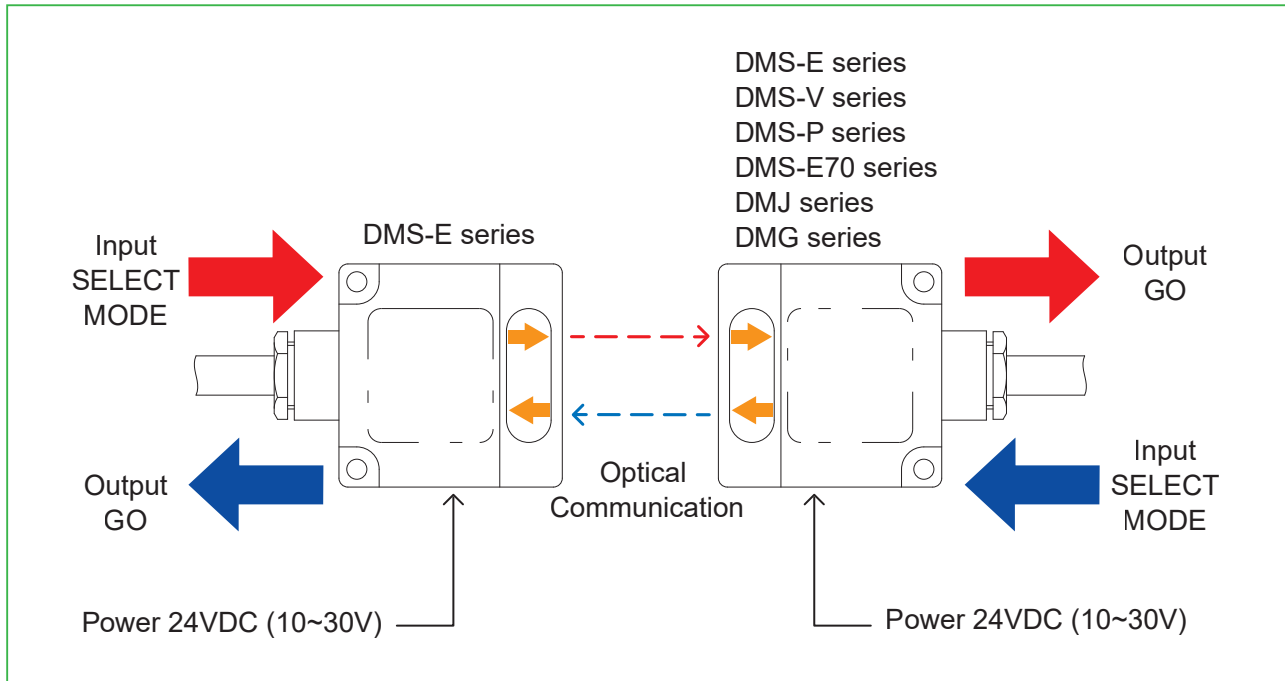
### Product description

- A device that uses LED light to send and receive binary data over short distances.
- Noise immunity and ambient light interference resistance are improved.
- Transmission area can be adjusted with the volume.
- Compact. Easy to install on mobile devices and systems, such as AGVs and stations.

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## Composition



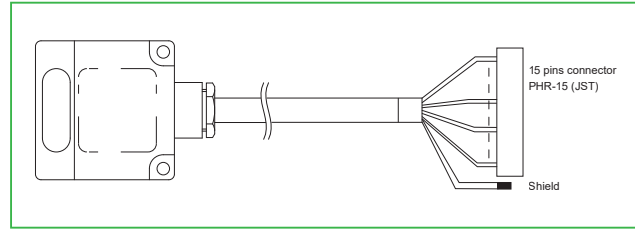
## Specification

Head-ON Side-ON	DMS-GA1-E DMS-HA1-E	DMS-GB1-E DMS-HB1-E	DMS-GB2-E DMS-HB2-E
<b>Communication capacity</b>	4 BITS	8 BITS	
<b>Transmission distance (0m~)</b>	1m	1m	3m
<b>Transmission distance (0m~) against -V, -P, -Z series</b>	0.6m	0.6m	1.8m
<b>Directional angle</b>	± 10°	± 10°	± 5°
<b>Output type</b>	NPN output		
<b>Supply voltage</b>	24VDC (10 to 30VDC)		
<b>Current consumption</b>	100mA Max.		
<b>Light source</b>	LED (850nm)		
<b>Transmission time</b>	40msec or less		
<b>Input</b>	ON current 2.5mA or more, OFF current 1mA or less, Operating threshold current 1.5 to 2mA		
<b>Output</b>	NPN open-collector (30VDC, 50mA or less, Residual voltage 1.8V or less)		
<b>Ambient illuminance</b>	4,000lx or less (Incandescent lamp)		
<b>Ambient temperature and humidity</b>	-10~50°C, 85%RH or less		
<b>Shock resistance</b>	500m/s <sup>2</sup> , each 10 time in X, Y and Z directions		
<b>IP protection</b>	IP64		
<b>Weight</b>	280g		
<b>Size W x D x H (mm)</b>	50 x 50 x 20		

## Connection

### 4 BITS type (DMS-□A□-E)

Cable information : Cable length : 2 m  
 Conductor size : 25 AWG  
 Cable outer diameter (OD) : 7.0 mm

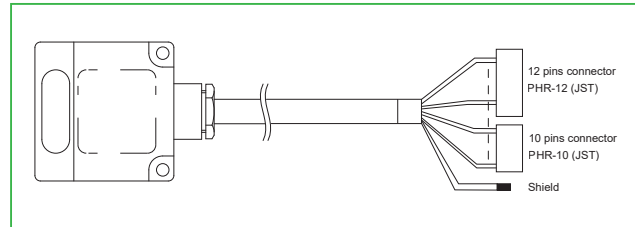


Color	Function
Black	IN 1
Brown	IN 2
Red	IN 3
Orange	IN 4
White / Yellow	MODE *1
Yellow	SELECT *2
White / Blue	Non connection
Green	OUT 1

Color	Function
Blue	OUT 2
Purple	OUT 3
Gray	OUT 4
White	GO *3
Yellow / Green	COM (0V)
Yellow / Red	+VIN
Yellow / Black	-VIN (0V)
Shield	

### 8 BITS type (DMS-□B□-E)

Cable information : Cable length : 2 m  
 Conductor size : 25 AWG  
 Cable outer diameter (OD) : 8.2 mm



Color	Function
Pale blue	COM (0V)
Pink	MODE *1
White	SELECT *2
White / Black	GO *3
Brown	IN 1
Brown / Black	OUT 1
Red	IN 2
Red / Black	OUT 2
Orange	IN 3
Orange / Black	OUT 3
Yellow	IN 4
Yellow / Black	OUT 4

Color	Function
Green	IN 5
Green / Black	OUT 5
Blue	IN 6
Blue / Black	OUT 6
Purple	IN 7
Purple / Black	OUT 7
Gray	IN 8
Gray / Black	OUT 8
Pink / Black	+VIN
Pale blue / Black	-VIN
Shield	

#### \*1 MODE input

This is to choose transmission / reception mode when standing by

\*Transmission stand-by mode by opened between mode and I/O COM

\*Reception stand-by mode by short-circuited between mode and I/O COM

#### \*2 SELECT input

This is to stop transmission / reception optionally by outer signal

\*Operating by opened between select and I/O COM

\*Stopping by short-circuited between select and I/O COM

#### \*3 GO output

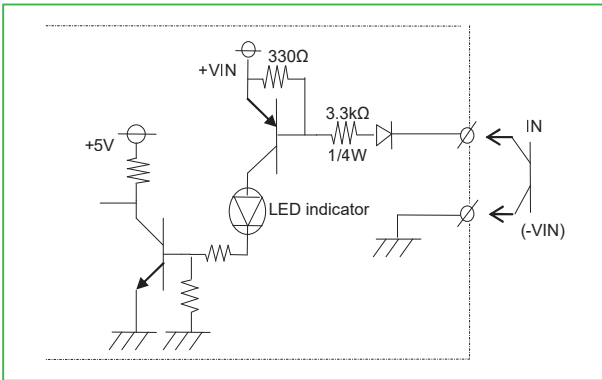
This is to check correct optical signal

\*ON when receiving correct data

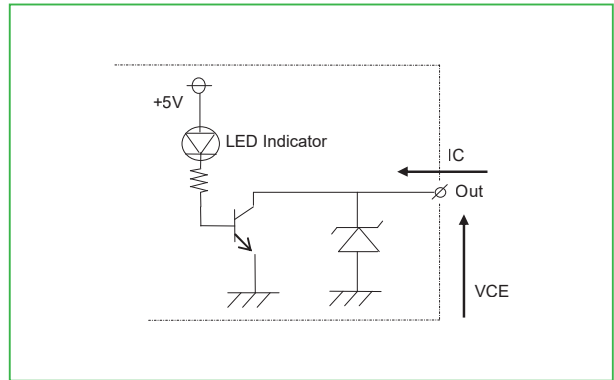
\*OFF when interrupting optical axis (Not-receiving)

## I/O circuit

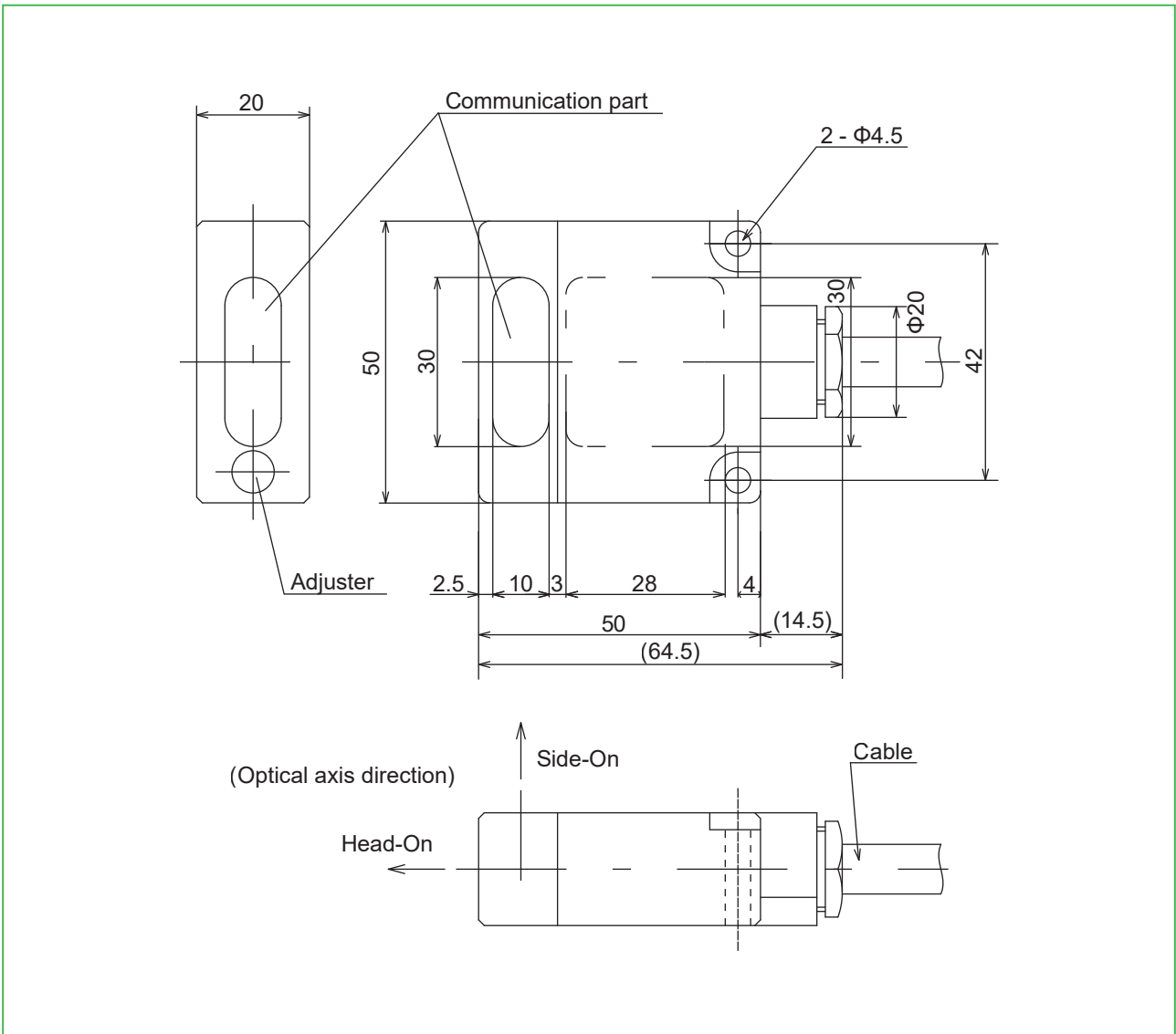
### Input



### Output



## External dimension



# DM Series



## DMS -E70 Series

(PNP Output / High-frequency noise resistance)



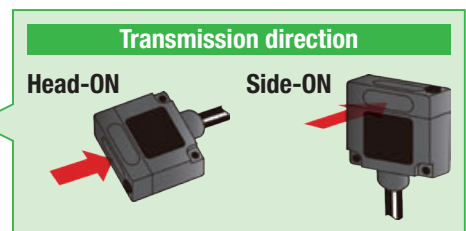
### At a glance

- PNP output
- High-frequency noise resistance
- Transmission distance : 1m / 3m
- Communication capacity : 8 BITS
- Transmission direction : Head-ON / Side-ON
- Compact (size : 50x50x20mm, weight : 280g)

## DMS - B - E70

- 1 : Transmission distance 1m
- 2 : Transmission distance 3m

- G : Head-ON
- H : Side-ON



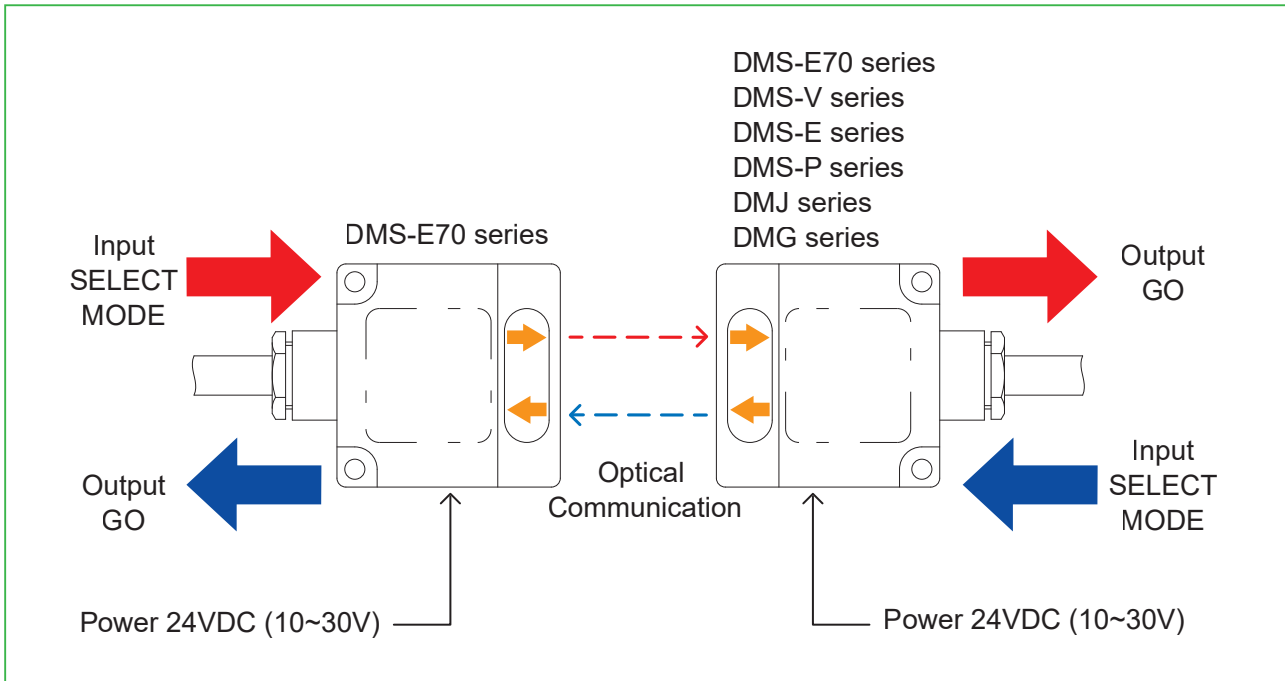
### Product description

- A device that uses LED light to send and receive binary data over short distances.
- Noise immunity and ambient light interference resistance are improved.
- Transmission area can be adjusted with the volume.
- Compact. Easy to install on mobile devices and systems, such as AGVs and stations.

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## Composition



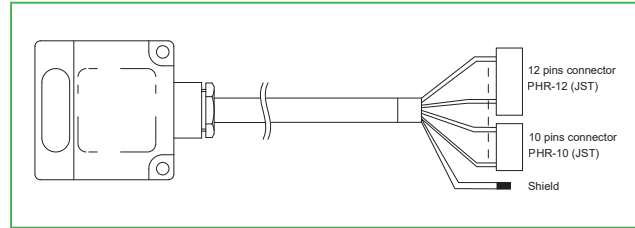
## Specification

	DMS-GB1-E70	DMS-HB1-E70	DMS-GB2-E70	DMS-HB2-E70
	Head-ON	Side-ON	Head-ON	Side-ON
Transmission distance (0m~)	1m		3m	
Transmission distance (0m~) against -V, -P, -Z series	0.6m		1.8m	
Directional angle	$\pm 10^\circ$		$\pm 5^\circ$	
Output type	PNP output			
Communication capacity	8 BITS			
Supply voltage	24VDC (10 to 30VDC)			
Current consumption	100mA Max.			
Light source	LED (850nm)			
Transmission time	40msec or less			
Input	ON current 2.5mA or more, OFF current 1mA or less, Operating threshold current 1.5 to 2mA			
Output	PNP open-collector (30VDC, 50mA or less, Residual voltage 1.8V or less)			
Ambient illuminance	4,000lx or less (Incandescent lamp)			
Ambient temperature and humidity	-10~50°C, 85%RH or less			
Shock resistance	500m/s <sup>2</sup> , each 10 time in X, Y and Z directions			
IP protection	IP64			
Weight	280g			
Size W x D x H (mm)	50 x 50 x 20			

## Connection

### 8 BITS type (DMS-□B□-E70)

Cable information : Cable length : 2 m  
 Conductor size : 25 AWG  
 Cable outer diameter (OD) : 8.2 mm



Color	Function
Brown	IN 1
Red	IN 2
Orange	IN 3
Yellow	IN 4
Green	IN 5
Blue	IN 6
Purple	IN 7
Gray	IN 8
White	SELECT <sup>*2</sup>
Pink	MODE <sup>*1</sup>
Brown / Black	OUT 1
Red / Black	OUT 2

Color	Function
Orange / Black	OUT 3
Yellow / Black	OUT 4
Green / Black	OUT 5
Blue / Black	OUT 6
Purple / Black	OUT 7
Gray / Black	OUT 8
White / Black	GO <sup>*3</sup>
Pale blue	COM
Pink / Black	+VIN
Pale blue / Black	-VIN
Shield	

#### \*1 MODE input

This is to choose transmission / reception mode when standing by

\*Transmission stand-by mode by opened between mode and +VIN

\*Reception stand-by mode by short-circuited between mode and +VIN

#### \*2 SELECT input

This is to stop transmission / reception optionally by outer signal

\*Operating by opened between select and +VIN

\*Stopping by short-circuited between select and +VIN

#### \*3 GO output

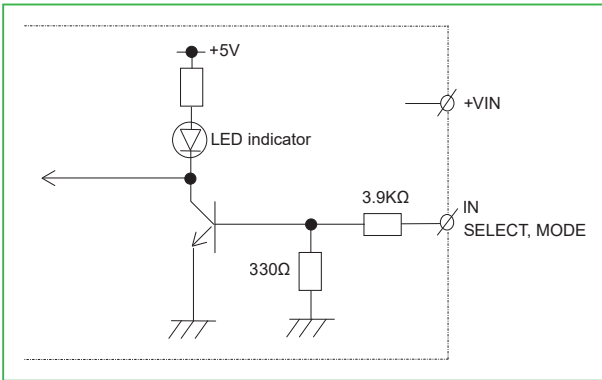
This is to check correct optical signal

\*ON when receiving correct data

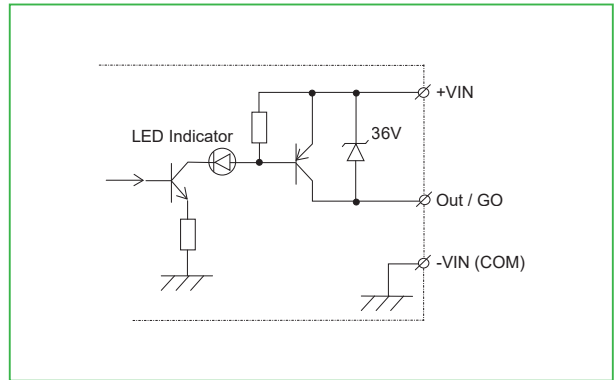
\*OFF when interrupting optical axis (Not-receiving)

## I/O circuit

### Input



### Output



## External dimension

