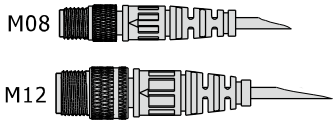
Ordering code for DMS

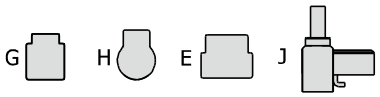


DMS G - □ 020 - □

A05-DMS G - □ 020

A06-DMS G - □ 020

1 2 3 4 5 6



①**Industry code**		Blank: General type A05: Manipulator industry A06: Oil resistance and deflection resistance
②**Model**		DMS: Solid State Sensor
③**Specifications**		G H E J [Noet1]
④**Output type**		Blank: 2 wire N : NPN [Noet2] P : PNP
⑤**Lead wire**	**Direct lead wire**	020: 2m 030: 3m 050: 5m 100: 10m
	Plug connector [Noet3]	M08:0.5m with M8 plug connector M12:0.5m with M12 plug connector M08010:1m with M8 plug connector M12010:1m with M12 plug connector M08020:2m with M8 plug connector M12020:2m with M12 plug connector M08030:3m with M8 plug connector M12030:3m with M12 plug connector
⑥**Additional specification**		Blank: General type W:Waterproof type IP68 [note4]

[Note1]Type J is not available for A06.
[Note2]A05 and A06 have no NPN and PNP option.
[Note3]A05 and A06 have no plug connector option.
[Note4]A05 ,J type and M08, M12 don't have a-w Waterproof option. Standard A06 model already has a waterproof function.
Add:The sockets of M08 and M12 need additional order. Please check on page 537.

DMS Specifications

Item	DMS		
Model	2-wire[Note]	NPN	PNP
Power supply voltage	10V ~ 28V DC	5V ~ 30V DC	
Switching current	2.5mA ~ 100mA	30V/200mA Max.	
Contact capacity	2.8W Max.	6.0W Max.	
Current consumption	3mA Max.	5mA Max.	
Internal voltage drop	3.5V Max.	0.7V Max.	
Leakage current	0.05mA Max.	0.01mA Max.	
Switching frequency	1000Hz		
Impact resistance	30G		
Circuit protection	Reverse polarity protection Surge protection		
Operating Temp.	-10℃ ~ 70℃		
Enclosure	DMS,A05-DMS: IP64 / A06-DMS: IP68		
Standard	CE marking, RoHS		

[Note] A05 \ A06 type has only two-wire type.

Compendium of DMS Series

Three types of sensors

General type(DMS)

General type(Aqua Blue)

Waterproof type(Yellow)

Manipulator industry (A05-DMS)	Oil resistance and deflection resistance (A06-DMS)
Product characteristics: 1. Flexure resistant curve material can be used in manipulator industry, such as multi joint manipulator and tank chain. 2. In case of high temperature, much dust, or water droplets and oil dust, the sensor shall take corresponding dust-proof measures.	Product characteristics: 1. Flexure resistant curve material can be used in manipulator industry, such as multi joint manipulator and tank chain. 2. In case of welding slag, corresponding protective measures shall be taken for the sensor.

High deflection wire

The deflection is increased by about 20% compared with the general type

Oil resistant and flexural curve material

The deflection is increased by about 20% compared with the general type. It can be used in oil dust environment.

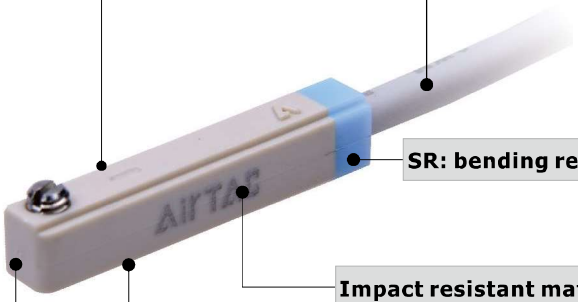
Waterproof design(IP68)

Note: the recommended minimum bending radius of A05-DMS,A06-DMS cables is 19mm.

Four types of cross section

G Type	
H Type	
E Type	
J Type	

Bending resistance

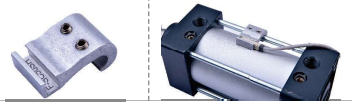


SR: bending resistance

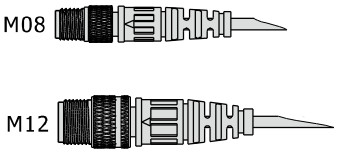
Impact resistant materials

Two kinds of accessories

DMSG can be mounted with 2 accessories, applicable to multi-cylinders.

DMSG	F-MQ□
	
	F-SC□SH
	

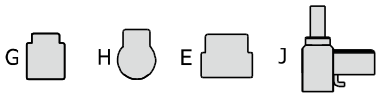
Ordering code for CMS



CMS G - 020 - □

A05-CMS G - 020

① ② ③ ④ ⑤



①**Industry code**		Blank: General type A05: Manipulator industry
②**Model**		CMS: Reed Sensor
③**Specifications**		G H E J
④**Lead wire**	**Direct lead wire**	020: 2m 030: 3m 050: 5m 100: 10m
	Plug connector [Noet1]	M08:0.5m with M8 plug connector M12:0.5m with M12 plug connector M08010:1m with M8 plug connector M12010:1m with M12 plug connector M08020:2m with M8 plug connector M12020:2m with M12 plug connector M08030:3m with M8 plug connector M12030:3m with M12 plug connector
⑤**Additional specification**		Blank: General type H:Heat resistant [note1]

[Note1]A05 has no plug connector option.
[Note2]A05 has no heat resistant option.
Add:The sockets of M08 and M12 need additional order. Please check on page 537.

CMS Specifications

Item	CMS	
Model	General	Heat resistant
Power supply voltage	5V ~ 240V AC/DC	
Switching current	100mA	
Contact capacity	10W Max.	
Current consumption	N/A	
Internal voltage drop	2.5V Max. @100mA DC	N/A
Leakage current	N/A	
Switching frequency	200Hz	
Impact resistance	30G	
Circuit protection	N/A	
Operating Temp.	-10℃ ~ 70℃	-10℃ ~ 125℃
Enclosure	IP64	
Standard	CE marking, RoHS	

Compendium of CMS Series

Two types of sensors

General type(CMS)

General type(blue)

High temperature type (red)

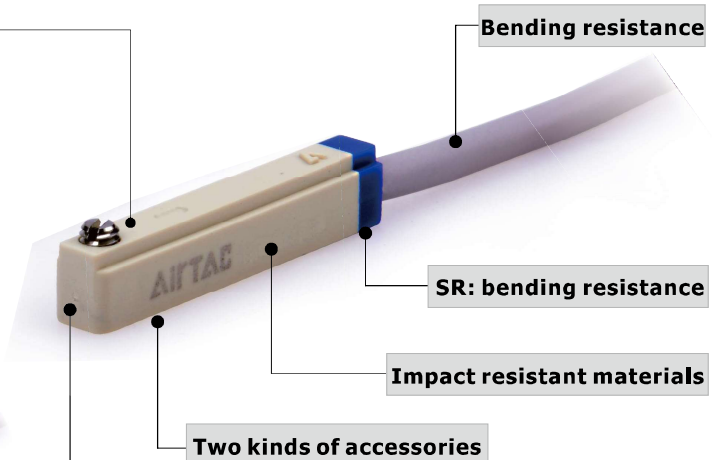
Manipulator industry(A05-CMS)

Product characteristics:
1. Flexure resistant curve material can be used in manipulator industry, such as multi joint manipulator and tank chain.
2. In case of high temperature, much dust, or water droplets and oil dust, the sensor shall take corresponding dust-proof measures.

High deflection wire

The deflection is increased by about 20% compared with the general type

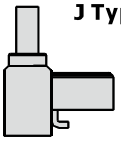
Note: the recommended minimum bending radius of A05-CMS cables is 19mm.



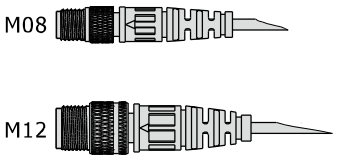
CMSG can be mounted with 2 accessories, applicable to multi-cylinders.

CMSG	F-MQ□
	
	F-SC□SH
	

Four types of cross section

G Type 	
H Type 	
E Type 	
J Type 	

Ordering code for EMS



EMS G - □ 020 - □

A05-EMS G - □ 020

1 2 3 4 5 6

①**Industry code**		Blank: General type A05: Manipulator industry
②**Model**		EMS: Solid State Sensor
③**Specifications**		G H
④**Output type**		Blank: 2 wire
⑤**Lead wire**	**Direct lead wire**	020: 2m 030: 3m 050: 5m 100: 10m
	Plug connector [Noet1]	M08:0.5m with M8 plug connector M12:0.5m with M12 plug connector M08010:1m with M8 plug connector M12010:1m with M12 plug connector M08020:2m with M8 plug connector M12020:2m with M12 plug connector M08030:3m with M8 plug connector M12030:3m with M12 plug connector
⑥**Additional specification**		Blank: General type

[Note1]A05 have no plug connector option.

Add:The sockets of M08 and M12 need additional order. Please check on page 537.

EMS Specifications

Item	EMS
Model	2-wire
Power supply voltage	10V ~ 28V DC
Switching current	2.5mA ~ 100mA
Contact capacity	2.8W Max.
Current consumption	3mA Max.
Internal voltage drop	3.5V Max.
Leakage current	0.06mA Max.
Switching frequency	1000Hz
Impact resistance	30G
Circuit protection	Reverse polarity protection Surge protection
Operating Temp.	-10℃ ~ 70℃
Enclosure	EMS,A05-EMS: IP64
Standard	CE marking, RoHS
Note	Temperature overheat protection

Compendium of EMS Series

Three types of sensors

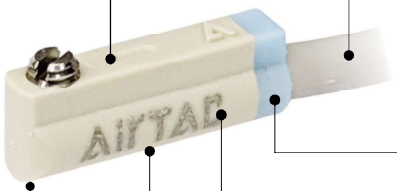
Bending resistance

General type(EMS)

General type(Aqua Blue)

Manipulator industry(A05-EMS)

Product characteristics:
1. Flexure resistant curve material can be used in manipulator industry, such as multi joint manipulator and tank chain.
2. In case of high temperature, much dust, or water droplets and oil dust, the sensor shall take corresponding dust-proof measures.



SR: bending resistance

Impact resistant materials

High deflection wire

The deflection is increased by about 20% compared with the general type

High cylinder installation flexibility

EMSG is the mini type corresponding to DMSG, which can be used for long and short strokes.
EMSH is the mini type corresponding to DMSH, which can be used for long and short strokes.

Note: the recommended minimum bending radius of A05-EMS cables is 19mm.

Two types of cross section

G Type 	General type(Aqua Blue) 
H Type 	General type(Aqua Blue) 

DMS、CMS、EMS Series

Ordering code for Cylinder accessory

F - MQ □

① ② ③

①Category	F:Accessory								
②Model	MQ:Cylinder Accessory								
③Cylinder	Aluminum alloy			Aluminum alloy (Thick type)			Stainless steel		
	Code	For series	For bore size	Code	For series	For bore size	Code	For series	For bore size
	A20: Φ20mm	MCK MBL	Φ20	A32T: Φ32mm	TWG	Φ32	S06: Φ6mm	PB/PBR MI MF MG MA/MAC	Φ6
	A25: Φ25mm		Φ25	A40T: Φ40mm		Φ40	S08: Φ8mm		Φ8
	A32: Φ32mm		Φ32	A50T: Φ50mm		Φ50	S10: Φ10mm		Φ10
	A40: Φ40mm		Φ40				S12: Φ12mm		Φ12
	A50: Φ50mm		Φ50				S16: Φ16mm		Φ16
	A63: Φ63mm		Φ63				S20: Φ20mm		Φ20
	A80: Φ80mm		Φ80				S25: Φ25mm		Φ25
							S32: Φ32mm		Φ32
							S40: Φ40mm		Φ40
							S50: Φ50mm		Φ50
							S63: Φ63mm		Φ63

Ordering code for NPB series Cylinder accessory

F - MQN S5/16

① ② ③

①Category	F:Accessory
②Model	MQN:NPB Series Cylinder Accessory
③Bore size	S5/16: Φ5/16 inch
	S7/16: Φ7/16 inch
	S9/16: Φ9/16 inch
	S3/4: Φ3/4 inch
	S7/8: Φ7/8 inch
	S1-1/16: Φ1-1/16 inch
	S1-1/4: Φ1-1/4 inch
	S1-1/2: Φ1-1/2 inch
	S1-3/4: Φ1-3/4 inch
	S2: Φ2 inch
	S2-1/2: Φ2-1/2 inch

Ordering code for Tie Rod Cylinder accessory

F - SC □ SH

① ② ③ ④

①Category	F : Accessory		
②Model	SC:Tie Rod Cylinder Accessory		
③Cylinder	Code	For series	For bore size
	32	SC SGC	Φ32, Φ40
	50		Φ50
	63		Φ63
	80		Φ80, Φ100
	125		Φ125
	160		Φ160, Φ200
	250		Φ250
④Attached			

DMS、CMS、EMS Series

Ordering code for Socket

F - EC M08 B 020 - □

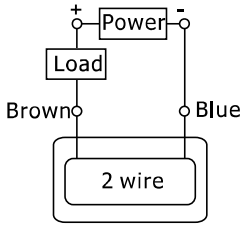
1 2 3 4 5 6

①Catagory code	F: Accessory
②Specification code	EC: Connecting Wire
③Socket type	M08:M8 socket M12:M12 socket
④Wire type	B: 2-wire type C:3-wire type
⑤Wire length	020: 2 meters 030:3meters 050:5meters 100:10meters
⑥Additional specification	Blank: General type

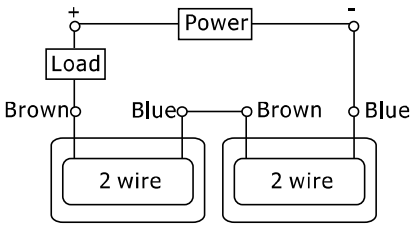
Connection method

2 wire, reed sensor connection

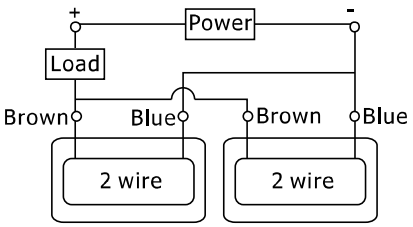
1.General connection



2.Series connection(And)



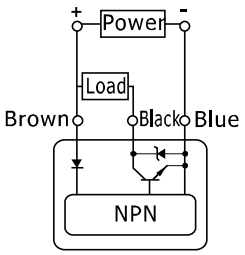
3.Parallel connection(OR)



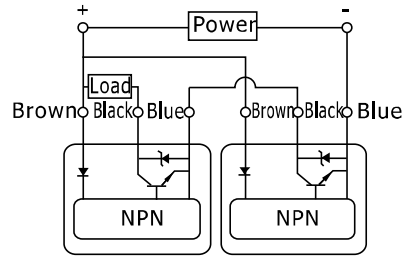
3 wire, solid state NPN connection

Note: The indicator lights will light up when both auto switches are turned NO.

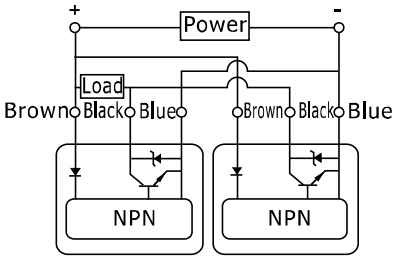
1.General connection



2.Series connection(And)



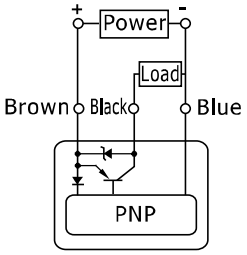
3.Parallel connection(OR)



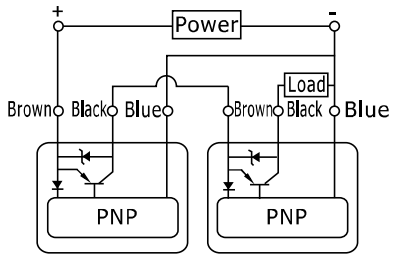
3 wire, solid state PNP connection

Note: The indicator lights will light up when both auto switches are turned NO.

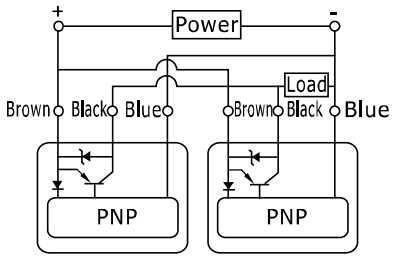
1.General connection



2.Series connection(And)



3.Parallel connection(OR)

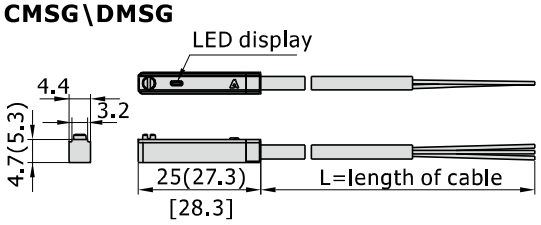


Dimensions

G Type

[Unit: mm]

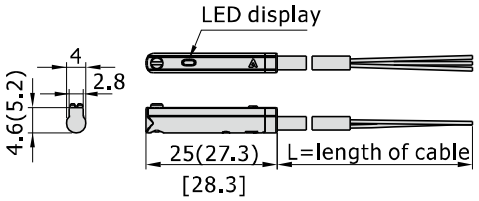
CMSG\DMSG



Note:a number in the '()' is the dimension of CMSG.
a number in the '[]' is the dimension of CMSG(Heat resistant).

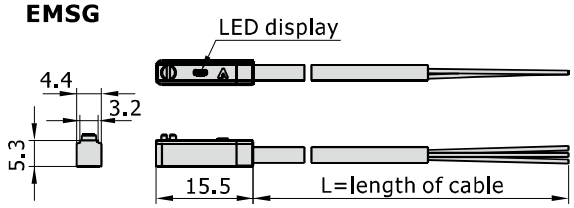
H Type

CMSH\DMSH

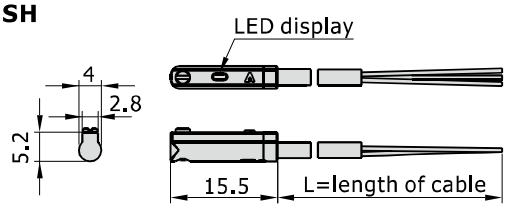


Note:a number in the '()' is the dimension of CMSH.
a number in the '[]' is the dimension of CMSH(Heat resistant).

EMSG

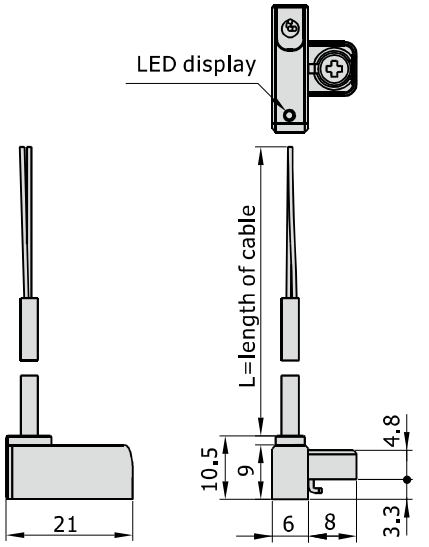


EMSH

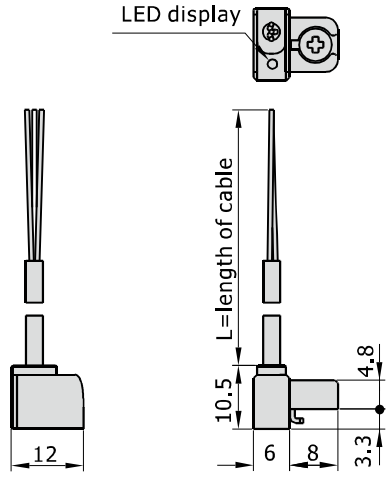


J Type

CMSJ

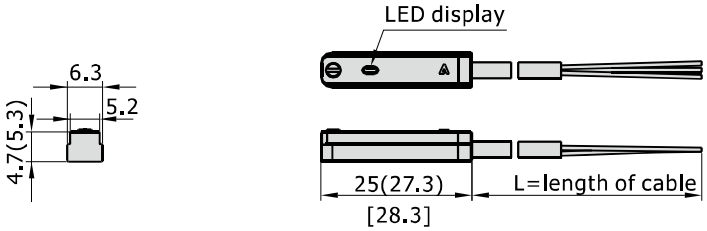


DMSJ



length of cable specification	length of cable(L)
020 Type	2000mm
030 Type	3000mm
050 Type	5000mm

E Type

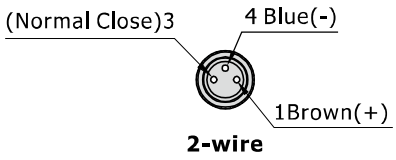


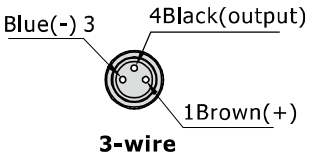
Note:a number in the '()' is the dimension of CMSE.
a number in the '[]' is the dimension of CMSE(Heat resistant).

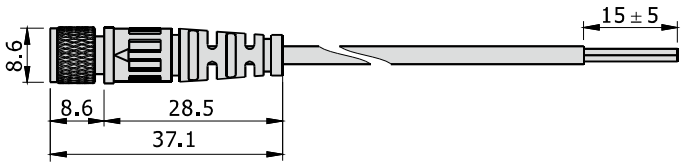
DMS、CMS、EMS Series

Socket

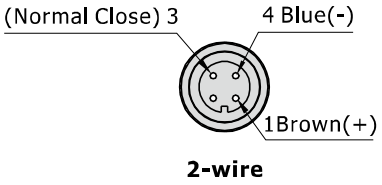
M8 socket

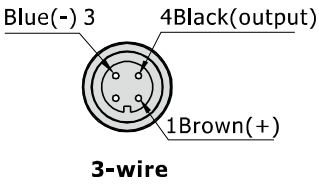


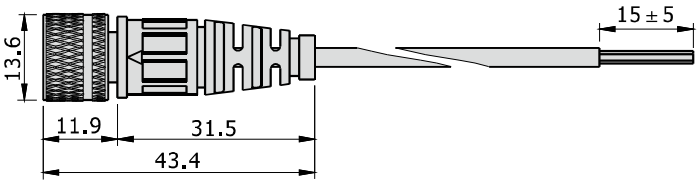




M12 socket







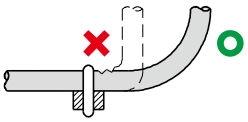
Instruction

1. Sensor shall not fall down or bear great impact when it is installed.
2. The wire of the Sensor shall not move with the action of cylinder.
3. Clamping torque shall be within the allowable scope when the Sensor is installed(0.15~0.2Nm).
4. Sensor shall be installed in the middle position of the action scope.
5. Sensor wiring:
   A. The wire is unable to bear repetitive torsion and tension. Please wire an external load before switch the power on.
   B. No poor insulation in wire.
   C. Do not wire with power line, high voltage line or use one wiring pipe.
   D. Pleas wire the circuit correctly base on the circuit diagram.
6. Execute scheduled maintenance by the following guidelines:
   A. Make sure the sensor is firmly fixed.
   B. Make sure the wire is intact.
   C. Make sure that LED indicate the movement of cylinder correctly.
7. Application of environment:
   A. It is Not allow to use the sensor in the environment with explosive gas.
   B. Magnetic sensor shall not be used in the environment with external magnetism.
   C. Magnetic sensor shall not be used in the environment that is always eroded by water.
   D. Magnetic sensor shall not be used in the environment with oil moisture or chemical substance.
   E. Magnetic sensor shall not be used in the environment with periodically changing temperature.
   F. Magnetic sensor shall not be used in the environment with excessively great impact.
   G. Magnetic sensor shall not be used in the environment with sources of electrical pulse.
   H. Avoid the environment with accumulated iron power and dense magnetic objects.

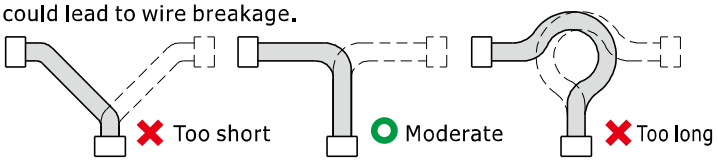
Precautions for wiring

Do not install the wires in the following ways,
as it may result in wire breakage accidents.

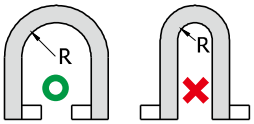
1.Do not excessively bend or tighten the cables at the tie points.



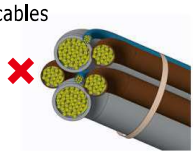
2.Cables should be routed to avoid repeated bending and stretching, as bending stress and tensile force can cause wire breakage. When installing in oscillating conditions, be sure to account for the cable's bending allowance to avoid excessive stretching that could lead to wire breakage.



3.When fixing and laying cables (without considering oscillation), the bending radius (R) of the cables should be as large as possible.



4.Do not bundle multiple cables together (especially cables or pneumatic tubes with different outer diameters) at the bending points.



5.Precautions for Cable Carrier Use:
（1）Bending Radius of the Cable Carrier: The bending radius (R) should be 10 times or greater than the outer diameter of the cable.
（2）Prevent Twisting of Cables during Wiring:
Cables inside the cable carrier should not be twisted.
Place the cables horizontally or suspend them to eliminate any twisting.
（3）Avoid Over-fixing Inside the Cable Carrier: When wiring, ensure that no tension is applied to the cables, and do not fix the cables to movable parts. Secure the cables only at the two fixed ends of the cable carrier.

DMS、CMS、EMS Series

How to selection

DMSG CMSG EMSG	NSU						HFKP					HFKL		
	1-1/2	2	2-1/2	3-1/4	4	5	16	20	25	32	40	16	20	25
	●	●	●	●	●	●	●	●	●	●	●	●	●	●

DMSG CMSG EMSG	NPB										
	5/16	7/16	9/16	3/4	7/8	1-1/16	1-1/4	1-1/2	1-3/4	2	2-1/2
	●	●	●	●	●	●	●	●	●	●	●
	It needs an accessory to mount a sensor on a cylinder										

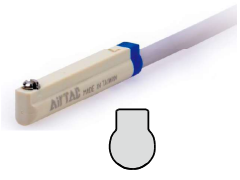
DMSG CMSG EMSG	HFK						TCL\TCM												HFZ							HFY					
	10	16	20	25	32	40	6	10	12	16	20	25	32	40	50	63	80	100	6	10	16	20	25	32	40	6	10	16	20	25	32
	●	●	●	●	●	●			●	●	●	●	●	●	●	●	●	●			●	●	●	●	●		●	●	●	●	●

TR						RMT						RMTL						HFP				
6	10	16	20	25	32	16	20	25	32	40	10	16	20	25	32	40	10	16	20	25	32
●	●	●	●	●	●			●	●	●	●	●		●	●	●	●	●	●	●	●	●

DMSH CMSH EMSH		TC		HFZ							HFY	HFP	HFR					HFC								HFT				
		6	10	6	10	16	20	25	32	40	6	32	10	16	20	25	32	16	20	25	32	40	50	63	10	16	20	25	32
		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

	HLQ\HLQL										HLS\HLSL											HLH								
20	25	32	40	6	8	12	16	20	25		6	8	12	16	20	25	6	8	10	12	16	20	6	10	16	20	6	8	10	12	16
●	●	●	●	●	●	●	●	●	●		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

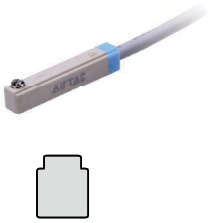
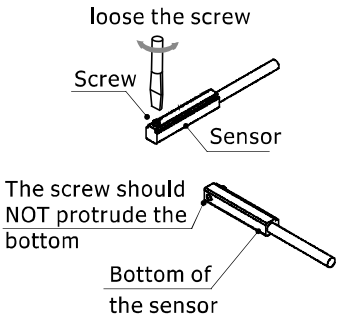
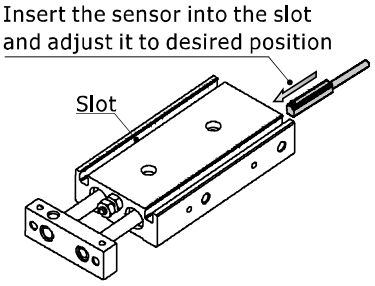
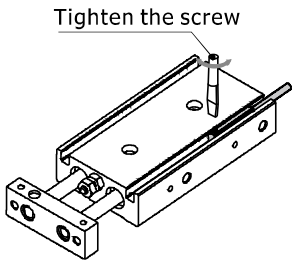
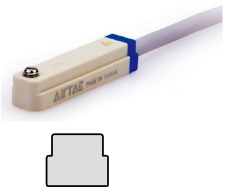
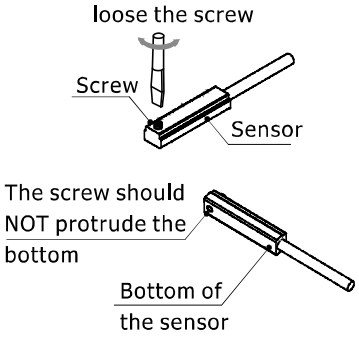
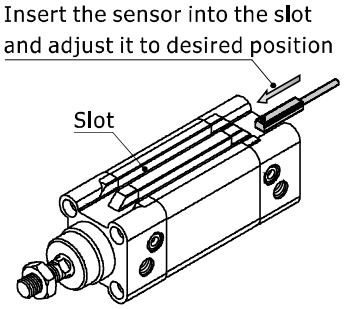
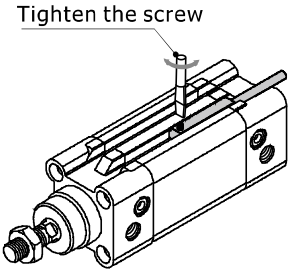
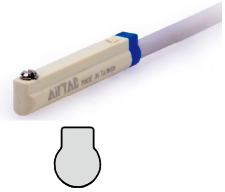
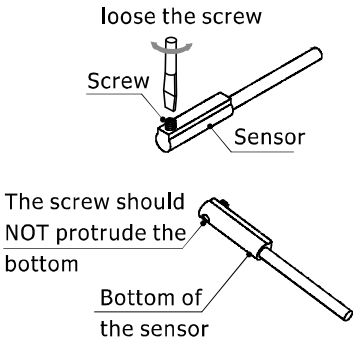
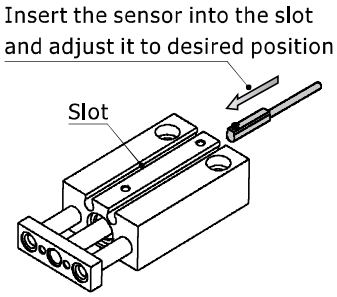
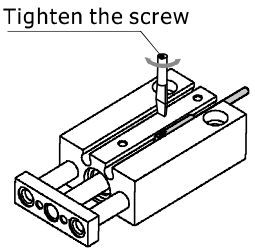
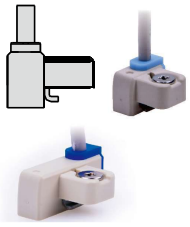
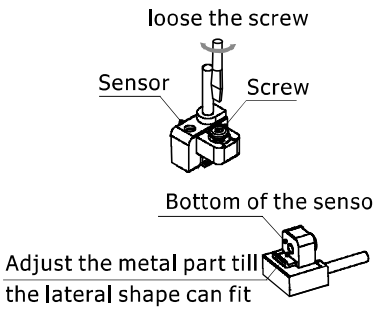
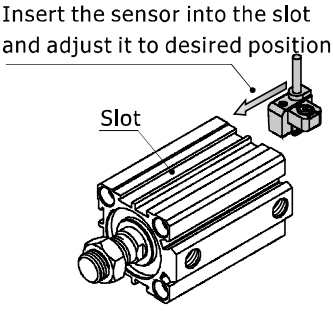
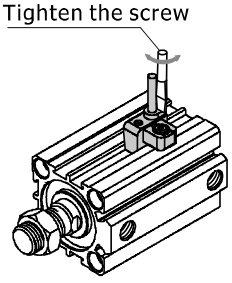
HRQ										HFK						RMH				HRS					Note: HFZ6 can not use CMSH sensors.
2	3	7	10	20	30	50	70	100	200	10	16	20	25	32	40	10	16	20	25	10	15	20	30	40	
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	

DMSH CMSH EMSH	NACF								NACQ									
	9/16	3/4	1-1/16	1-1/2	2	2-1/2	3	4	12	16	20	25	32	40	50	63	80	100
	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

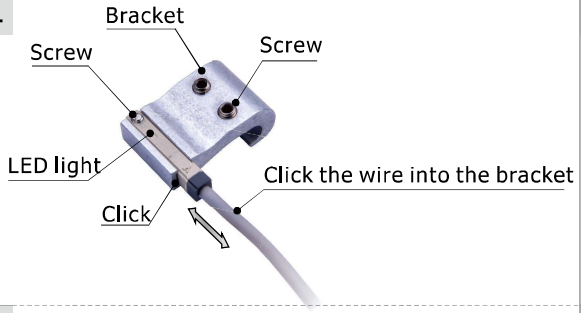
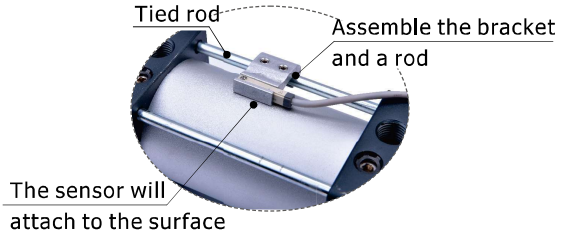
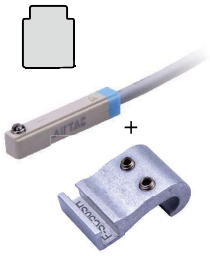
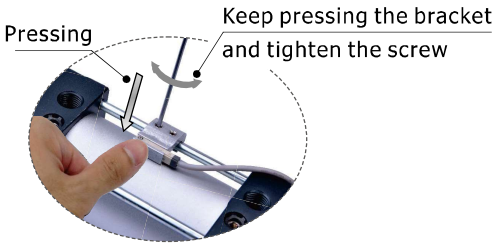
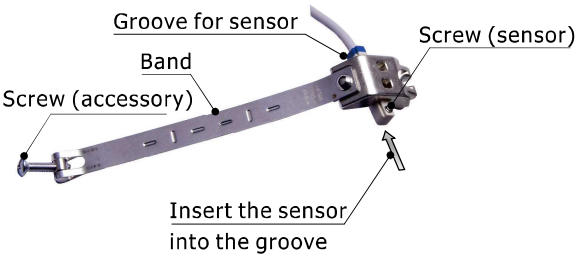
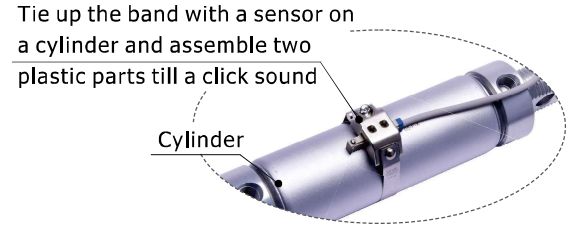
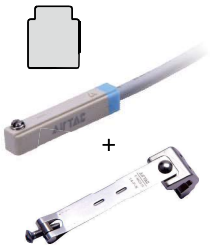
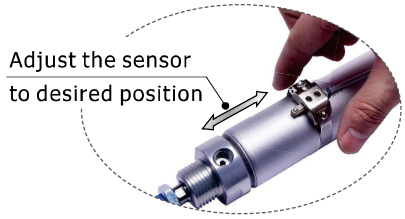
HFD					HFKP			HFCQ							
8	12	16	20	25	10	16	20	25	32	40	16	20	25	32	40	50	63
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

HFKL				HGS			
10	16	20	25	6	8	10	12
●	●	●	●	●	●	●	●

How to mounting

Sensor model	Procedure		
DMSG/CMSG	1	2	3
			
DMSE/CMSE	1	2	3
			
DMSH/CMSH	1	2	3
			
DMSJ/CMSJ	1	2	3
			

How to mounting

Sensor model	Procedure	
DMSG+(F-SC□SH) CMSG+(F-SC□SH)	1 	2 
	3 	4 
DMSG+(F-MQ□) CMSG+(F-MQ□)	1 	2 
	3 	4