Magnescale

SPEED X PRECISION

Magnescale Co., Ltd.

Shinagawa Intercity Front 6F, 2-14-14, Konan, Minato-ku, Tokyo 108-0075, Japan

Headquarters	: 45 Suzukawa, Isehara-shi, Kanagawa 259-1146, Japan	TEL.+81 (0)463 92 1011	FAX.+81 (0)463 92 1012	
International Sales Department	: 45 Suzukawa, Isehara-shi, Kanagawa 259-1146, Japan	TEL.+81 (0)463 92 7971	FAX.+81 (0)463 92 7978	E-mail : info-mgs-eng@magnescale.com
Magnescale Americas Inc.	: 5740 Warland Drive, Cypress, CA 90630, USA	TEL.+1 (562)594 5060	FAX.+1 (562)594 5061	E-mail : info-am@magnescale.com
Magnescale Europe GmbH	: Antoniusstrasse 14, 73249 Wernau, Germany	TEL.+49(0)7153 934 291	FAX.+49(0)7153 934 299	E-mail : info-eu@magnescale.com
Customer Support & Service Department	: 45 Suzukawa, Isehara-shi, Kanagawa 259-1146, Japan	TEL.+81 (0)463 92 2132	FAX.+81 (0)463 92 3090	E-mail : info-css@magnescale.com

http://www.magnescale.com

The contents of this literature are as of Jun. 2014

This catalog is printed with soy ink.

MGS-TS-1406-EN-C

Magnescale

SPEED X PRECISION

Tough Sensor

High Rigidity × High Operability = Tough Sensor

Magnescale Co., Ltd.

Precision Judgment Makes a Difference

Digital Tolerance Indicator
MF10 Series

Tough Sensor

Digital Gauge
DF805S/DF812S Series

Digital Gauge
DF805S/DF812S Series

[Long life]
High durability capable of withstanding up to 60 million strokes.

[Impact resistance]
Use of metal materials realizes impact resistance of 1,000 m/s^2.

[High precision]
High precision measurement with 0.1um maximum resolution

Digital Tolerance Indicator
MF10 Series

[Operability]
Simple settings make operability easy.

[Ultra compact]
DIN rail mounting saves spaces even when using multiple channels

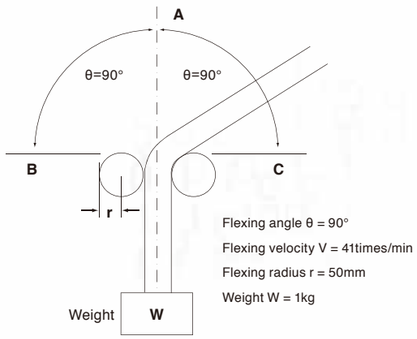
[Versatile]
Multi-limit switch

In addition to Go/NoGo judgment, the digital tolerance indicator can also be used as a stepless limit switch within the measurement range.

Provides High Rigidity, an Ultra-Compact Size, and High Precision

Stability & High Rigidity

- **Magnescale reliable ball spline structure**
  Achieved numbers of strokes: 60 million
- **Magnescale magnetic scale technology**
  Resistant to the effects of condensation
- **Built-in reference point**
  Enables position reproduction
- **Includes a flex-resistant cable**
  Approximately 10 million flex cycles
- **Flange type**
  Easy mounting
- **Slim-type ø8 mm body**
- **IP66**[straight body models], **IP67**[right angle models with hose elbow]

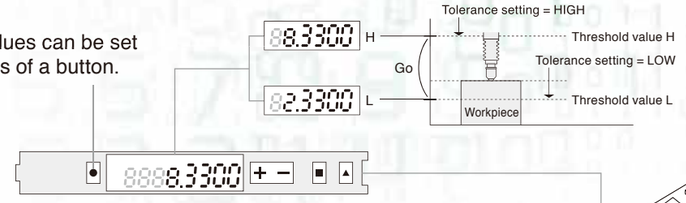


Flexing angle θ = 90°
Flexing velocity V = 41times/min
Flexing radius r = 50mm
Weight W = 1kg

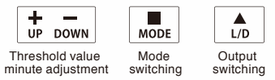
- **High-resolution 0.1 µm**
- **High-precision 1 µm**

Quick and Easy Operation

Threshold values can be set with two clicks of a button.

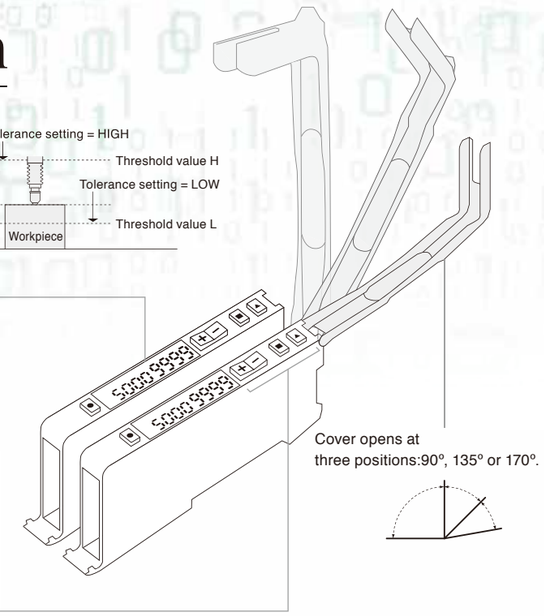


Buttons are easy to remember and operate



Threshold value minute adjustment | Mode switching | Output switching

- Various mode displays (preset, tolerance setting, Go/NoGo indication, output inversion function)
- Two types of tolerance settings and four different setting methods can be selected.
- A preset function enables setting of arbitrary reference points.



Cover opens at three positions:90°, 135° or 170°.

- **Ultra-compact size**
  just 10 mm thick

- **Highly visible white LED**

The digital display improves for Easy-to-read

Digital Gauge

DF805S/DF812S Series

Digital Tolerance Indicator

MF10 Series

Digital Gauge
DF805S/DF812S Series


DF805SR


DF805SLR

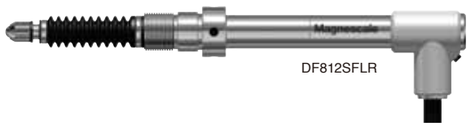

DF812SR


DF812SLR


DF805SFR


DF805SFLR


DF812SFR


DF812SFLR

DF805S□□R
DF812S□□R

No letters: Straight
L: Right angle
F: Flange
FL: Flange & Right angle

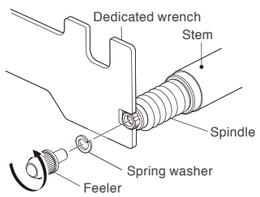
S: Ball spline

05: measurement range 5 mm
12: measurement range 12 mm

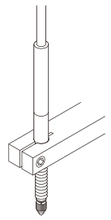
DF800S mounting method and features <standard ø8 mounting>

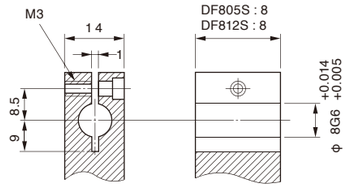
Attaching/removing feeler

[Dedicated wrench included]



Recommended mounting holder dimensions





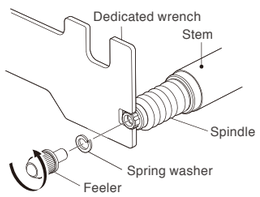
Tightening torque: 0.6 N•m
Material: When SUS303

Unit: mm

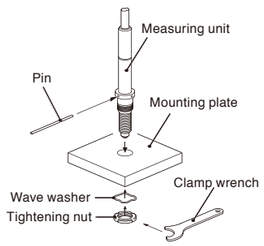
DF800SF mounting method and features <Easy mounting possible without applying excessive force to the bearing>

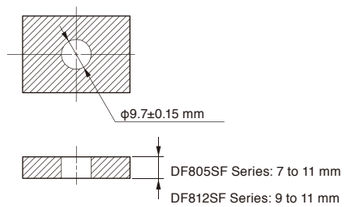
Attaching/removing feeler

[Dedicated wrench included]



Recommended mounting holder dimensions

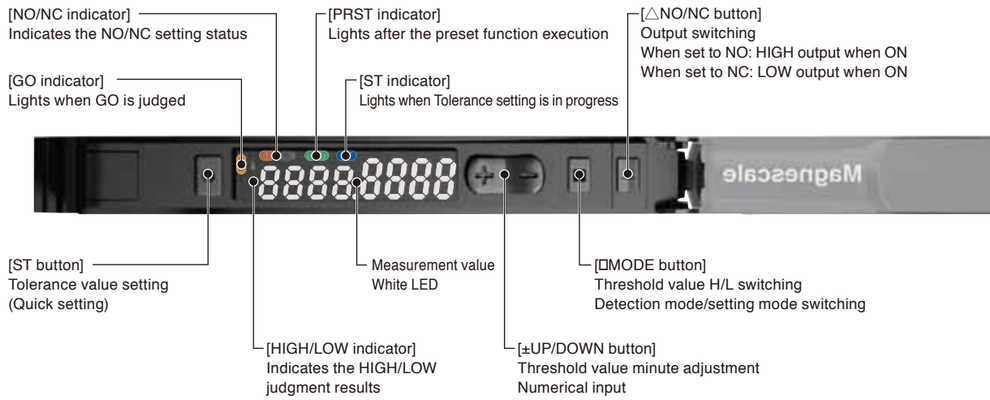




Digital Tolerance Indicator
MF10 Series

<Cover closed>

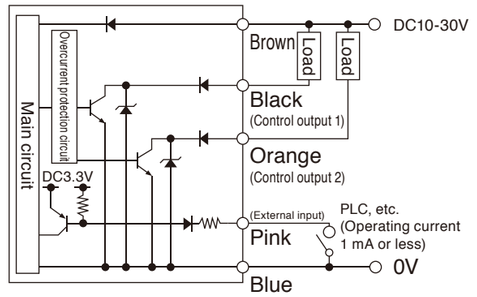
<Cover open>



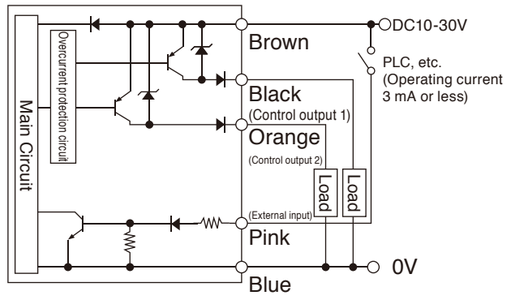
MF10-P1 Current sink (NPN)
MF10-P2 Current source (PNP)

MF10 series Input/Output Circuit Diagram

MF10-P1 (NPN type)



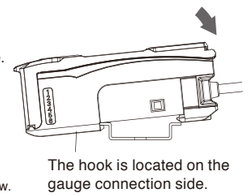
MF10-P2 (PNP type)

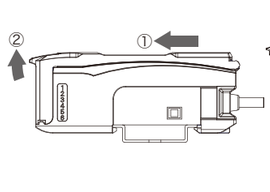


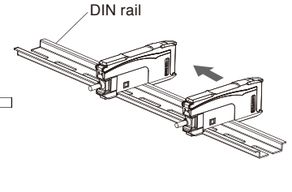
■ Mounting on DIN rail
① Let the hook on the underside of the indicator catch the DIN rail track.
② Push in the unit until the hook clicks into place.

■ Removing from DIN rail
① Push the unit in the direction of arrow 1.
② Lift the unit in the direction of arrow 2 while performing step ①.

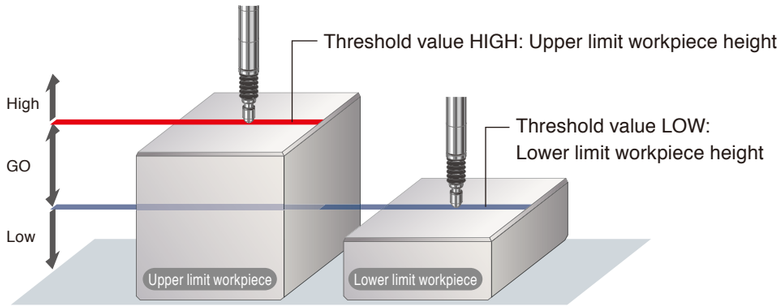
*Up to 30 digital tolerance indicators can be installed in a row.



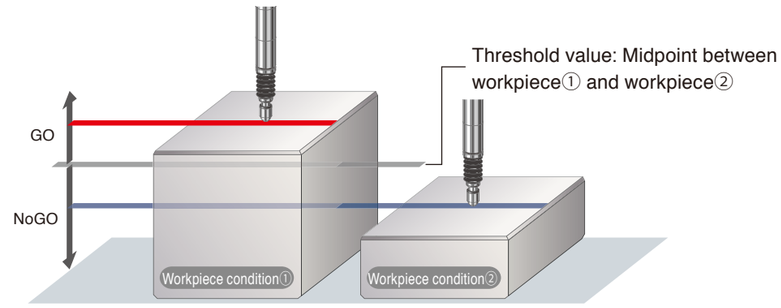




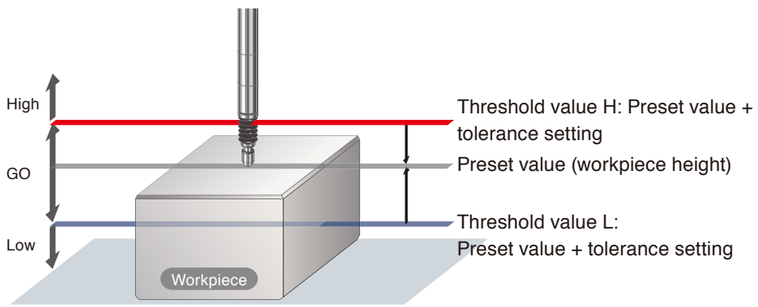
Setting the upper and lower limit range



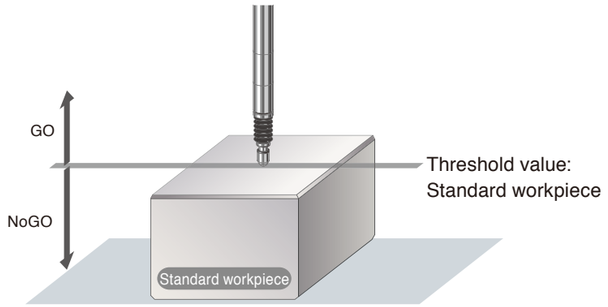
Setting relative to a single reference

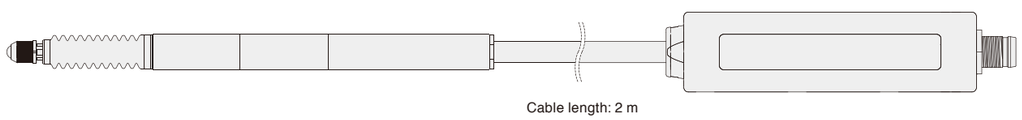


Setting the ± tolerance relative to the work



Setting the standard workpiece as the reference



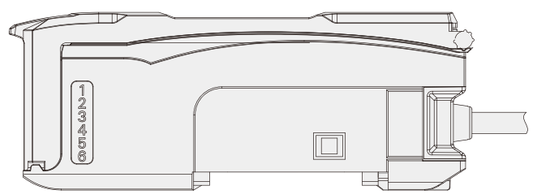


1 Digital gauge

Total 8 models

2 Cable

CE34-005 CE34-02
CE34-05 CE34-10
CE34-15 CE34-20



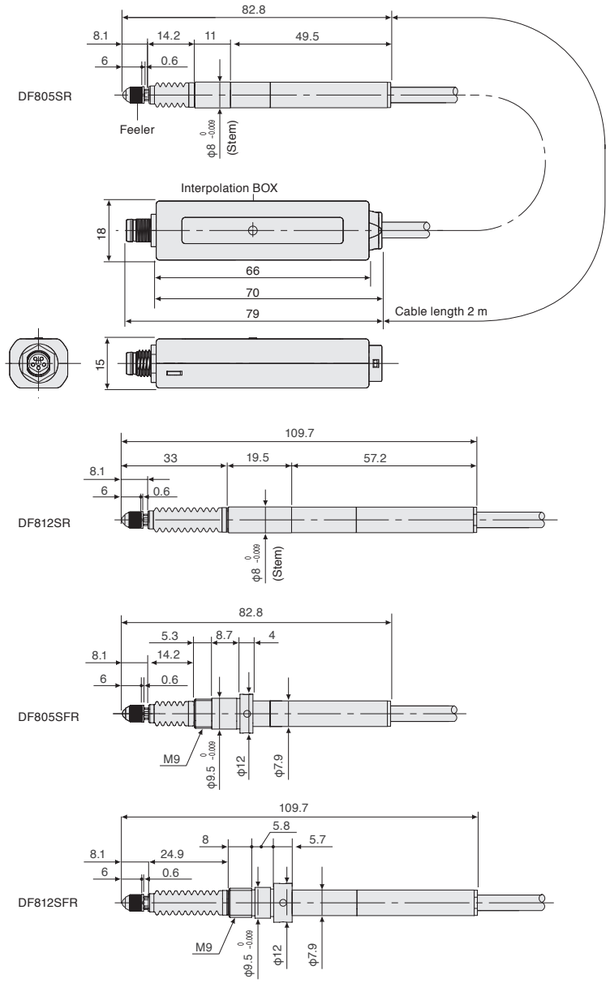
3 Digital Tolerance indicator

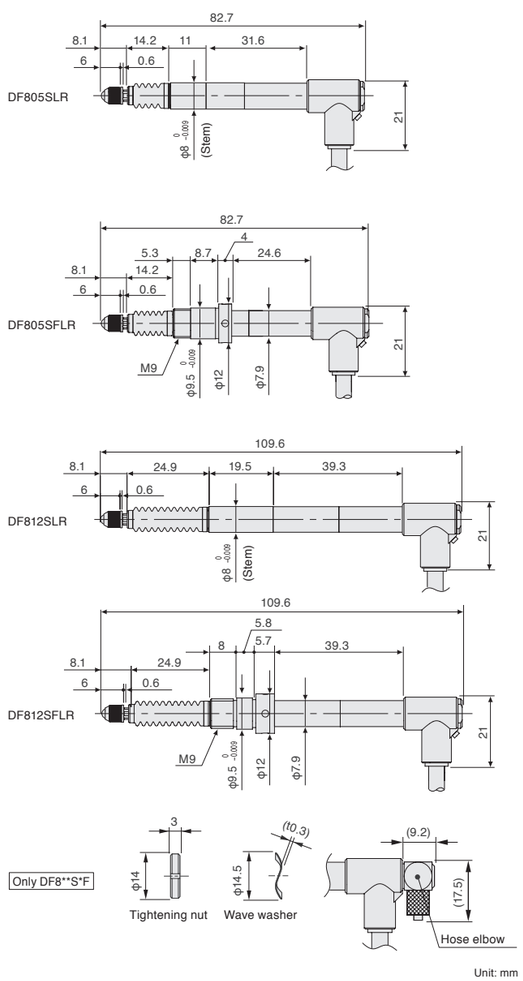
Current sink (NPN)
Current source (PNP)

Digital Gauge

DF805/DF812 Series

Main Specifications								
Model name	DF805SR	DF805SFR	DF805SLR	DF805SFLR	DF812SR	DF812SFR	DF812SLR	DF812SFLR
Measuring range	5mm				12mm			
Resolution	0.1μm							
Accuracy (at 20°C/68°F)	1μm							
Measuring force (at 20°C/68°F)	Upward : 0.35±0.25N Horizontal : 0.40±0.25N Downward : 0.45±0.25N				Upward : 0.4±0.3N Horizontal : 0.5±0.3N Downward : 0.6±0.3N			
Maximum response speed	80m/min							
Reference point	at 1±0.5 mm position of spindle movement							
Reference point response speed	80m/min							
Output	Dedicated serial communication protocol							
Spindle driving	Spring push							
Achieved number of strokes	60 million strokes (under specific test conditions defined by Magnescale Co., Ltd.)							
Protective structure	IP66		IP54 When a ø4 mm tube is connected : IP67		IP66		IP54 When a ø4 mm tube is connected : IP67	
Impact resistance	1000m/s² (11ms)							
Vibration resistance	100m/s² (20-2000HZ)							
Operating temperature	0-55°C							
Storage temperature	-20-60°C							
Power supply voltage	+10 to +30V DC including ripple (p-p) 10%							
Power consumption	1.2 W or less							
Mass	Approx. 30 g (not including cable parts and interpolation box)							
Probe part cable length	2m							
Output cable length	Max. 20 m (Use the optional CE34.)							
Feeler	Provided with a carbide ball tip Mount screw M2.5							
Accessories	Instruction Manual, 1 wrench, 1 hose elbow (only DF8**S*L**) Tightening nut, clamp wrench, wave washer, stop pin (1 each) (only DF8**S*F**)							





Unit: mm

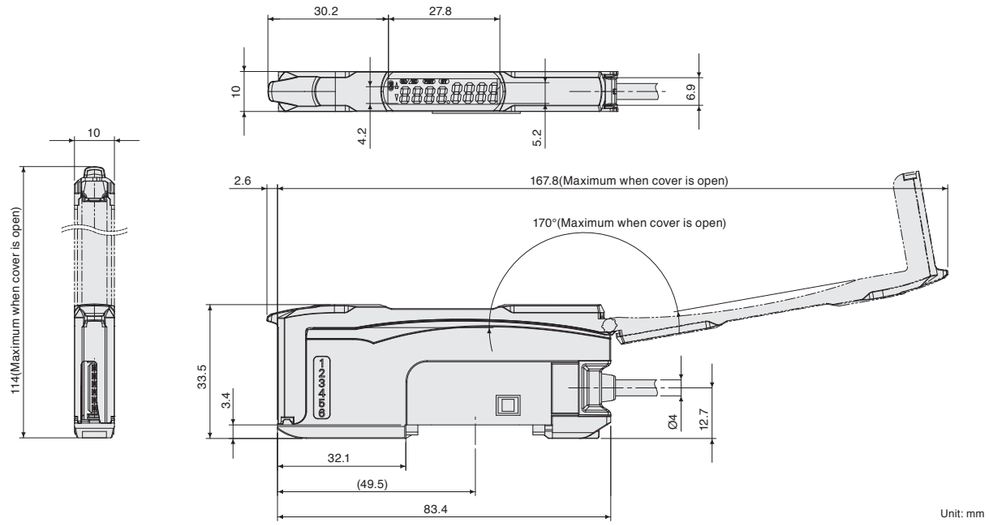
Digital Tolerance Indicator

MF10 Series

Main Specifications			
Model name		MF10-P1	MF10-P2
Type	I/O circuit	NPN output (current sink)	PNP output (current source)
I/O	Number of Go/NoGo judgment outputs	2	
	Number of external inputs*4	1	
Minimum display unit		0.1μm	
Power supply voltage		+10 to +30V DC including ripple (p-p) 10%	
Power consumption*1		Power supply voltage 24 V normal mode: 2040 mW or less (Power consumption 85 mA or less) Power-saving ECO mode: 1920 mW or less(Current consumption 80 mA or less)	
Go/NoGo judgment output*2		Load voltage: DC 30 V or less, open collector output type Load current: the total of the two outputs must be 100 mA or less (Residual voltage and load current less than 10 mA: 1 V or less Load current 10 mA to 100 mA: 2 V or less) Off-state current: 0.1 mA or less	
Protection circuit		Power supply reverse connection protection, output short-circuit protection and output reverse connection protection	
Number of banks		4 (Can be set 4 kinds of judgment value)	
Ambient temperature range*3		Operating: When lining up 1 or 2 digital tolerance indicators: 0°C to +55°C Storage: -10°C to +60°C (with no icing or condensation)	
Ambient humidity range		Operating and storage: 35% to 85% RH (with no condensation)	
Mass (main unit)		Approx. 75 g	
Cable length		2m	

*1. At a power supply voltage of 10 to 30 V, Normal mode: 2250 mW or less (power supply voltage 30 V: power consumption 75 mA or less / power supply voltage 10 V: power consumption 155 mA or less), power-saving ECO mode: 2100 mW or less (power supply voltage 30 V: power consumption 70 mA or less / power supply voltage 10 V: power consumption 135 mA or less) *2. When lining up 4 or more digital tolerance indicators, the 2 output total is 20 mA or less. *3 When used in a row, the operating ambient temperature range is 0°C to +50°C for 3 to 10 units, 0°C to +45°C for 11 to 16 units, and 0°C to +40°C for 17 to 30 units. *4. The input details are as follows.

	Contact input (relay or switch)	Non-contact input (transistor)	Input time
NPN Type	ON: Connection to 0 V (Outflow current: 1 mA or less) OFF: Open or short-circuited to Vcc	ON: 1.5 V or less (Outflow current: 1 mA or less) OFF: Vcc-1.5V to Vcc (Leakage current: 0.1 mA or less)	ON: 9ms or more OFF: 9ms or more
PNP Type	ON: Connection to Vcc (Sink current: 3 mA or less) OFF: Open or short-circuited to 0V	ON: Vcc-1.5V to Vcc (Sink current: 3 mA or less) OFF: 1.5V or less (Leakage current: 0.1 mA or less)	



Unit: mm

Cable

CE34-

Main Specifications						
Model Name	CE34-005	CE34-02	CE34-05	CE34-10	CE34-15	CE34-20
Cable length	0.5m	2.0m	5.0m	10m	15m	20m