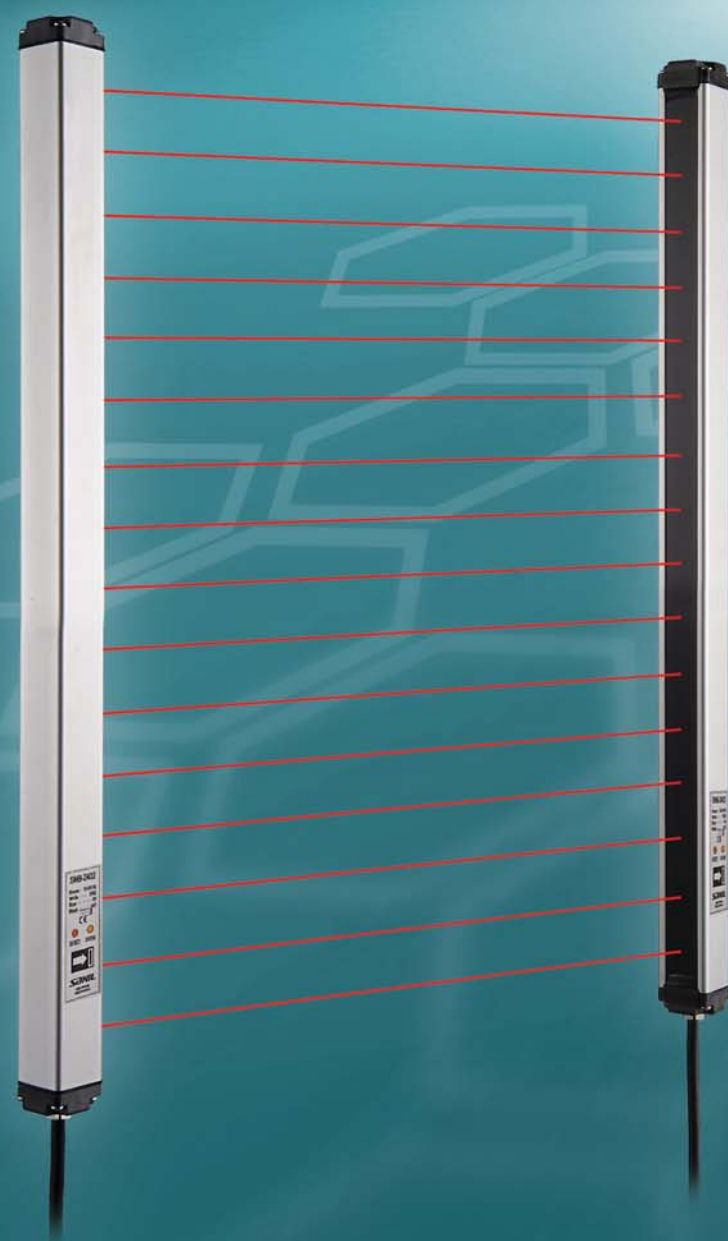


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SELECTION GUIDE

원주형 근접 Cylindrical type

S K D-12 M S K B P-08 A T LS

- LS - 숏바디 (Short body)
L45 - M8 전용 롱바디 (only M8: long body)
- T - 플라스틱케이스 (Plastic case)
C - 전류출력 (Current output) : 아나로그타입 (only Analog)
- A - 아나로그(Analog)
- - 기본검출거리 (Standard distance) : mm
08 - 검출거리 (Detecting distance) : mm
- - NPN
P - PNP
- - A접점 (Normal open)
B - B접점 (Normal close)
- - 직류3선식 (DC 3 wire)
K - 직류2선식 (DC 2 wire)
- - 비실드 (Non-Shielded)
S - 실드 (Shielded)
- M - 나사선 타입(Thread type)
R - 나사선 없는 타입 (Smooth type)
- 12 - 외형크기 (Diameter) - ex) 4, 5, 8, 12, 18, 30, 34 etc.
- D - DC
A - AC
C - DC 커넥터 (DC Connector)
AC - AC 커넥터 (AC Connector)
- - 고주파발진 (Inductive)
K - 정전용량 (Capacitive)



각형 근접 Square type

S K D-17 H S-15 D N B

- - A접점 (Normal open)
B - B접점 (Normal close)
- N - NPN
P - PNP
- A - AC
D - DC 3선식 (DC 3 wire)
DK - DC 2선식 (DC 2 wire)
- 15 - 검출거리 (Detecting distance) : mm
- - 비실드 (Non-Shielded)
S - 실드 (Shielded)
- F - 전면검출 (Front type)
H - 상면검출 (Top type)
- 외형크기 (Diameter) - ex) 8, 10, 17, 30 etc.
- D - 일반각형 (Standard type)
Q - 플랫형 (Flat type)
- - 고주파발진형 (Inductive)
K - 정전용량형 (Capacitive)

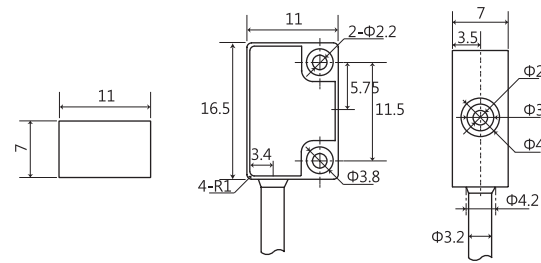


Photoelectric Sensor
ULTRAMINI TYPE

투과형 Through Beam



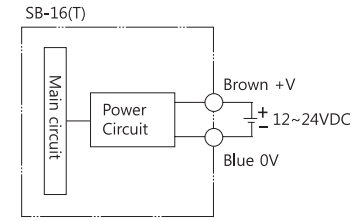
- Ultra Mini size (7mm X 11mm)
- Infrared LED
- Surge protection
- Cable 1m



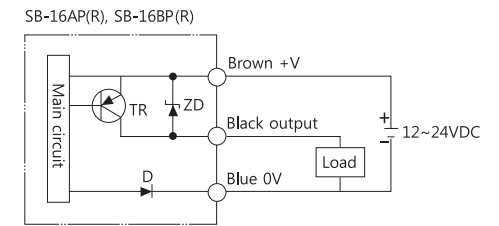
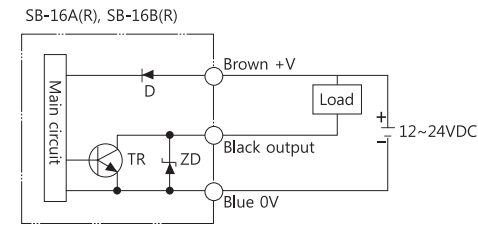
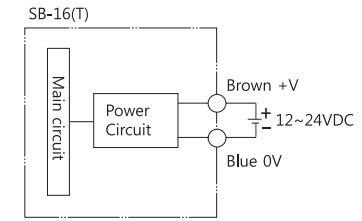
검출거리 (Detecting distance)		500mm	200 mm	
DC 3 wire 12~24V (Ripple ±10%)	NPN	Dark ON	SB-16A	SB-16A-2
		Light ON	SB-16B	SB-16B-2
	PNP	Dark ON	SB-16AP	SB-16AP-2
		Light ON	SB-16BP	SB-16BP-2
최소검출물체 (Detecting target of Min.)	≥ Φ20상 불투명체 (opaque materials)			
소비 전류 (Consumption current)	투광기 (transmitter) : ≤ 15mA 이하; 수광기 (receiver) : ≤ 15mA 이하			
제어 출력 (Control output)	NPN/PNP Transistor open collector, 부하전류 (load current) : ≤ 50mA 이하			
광원 (Light source)	적외광 LED (infrared LED)			
응답 시간 (Response time)	≤ 1ms이하			
보호 등급 (Protection category)	IP 65 (IEC specification)			
단락 보호 (Short circuit protection)	yes			
전원역접속보호 (Reverse polarity protection)	yes			
사용주위조도 (Ambient illumination)	태양광 (sunlight) : 20,000 lx, 백열등 (incandescent) : 3,000 lx			
사용주위온도 (Ambient temperature)	동작시(operating) : -10℃~55℃, 보존시(storage) : -30℃~70℃(단 결빙, 결로하지 않을 것)			
내전압 (Dielectric strength)	1kVAC, 50/60Hz for 1min			
내진동 (Vibration)	1.5mm amplitude at frequency of 10~55Hz in each of X,Y,Z directions for 2hours			
내충격 (Shock resistance)	500% (50G) X, Y, Z direction for 3times			
절연저항 (Insulation resistance)	≥ 20M이상 (DC 500V Megger)			
표시등 (Indicator)	투광기: 전원표시 (적색) Transmitter: Power (red LED) 수광기: 동작표시 (적색) Receiver: Operating (red LED)			
케이블 (Cable 1m : PVC)	투광기 (transmitter) : Φ2.5 x 2C x 0.08SQ 흑색 (black) 수광기 (receiver) : Φ2.5 x 3C x 0.08SQ 회색 (gray)			

제어출력 회로도 Control output diagram

● NPN

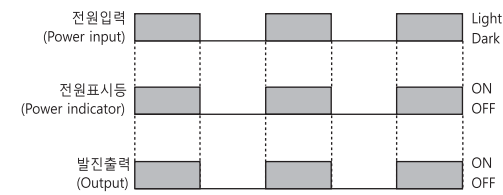


● PNP

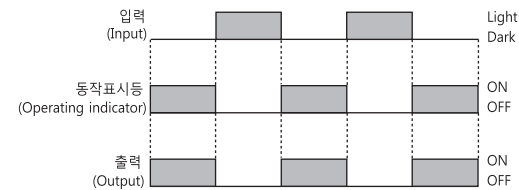


동작차트 Operating chart

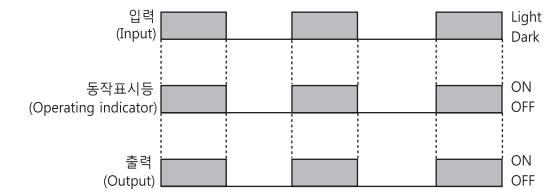
● 투광기(Transmitter)



● 수광기(Receiver) : Dark ON(SB-16A, 16AP, 16A-2, 16AP-2)

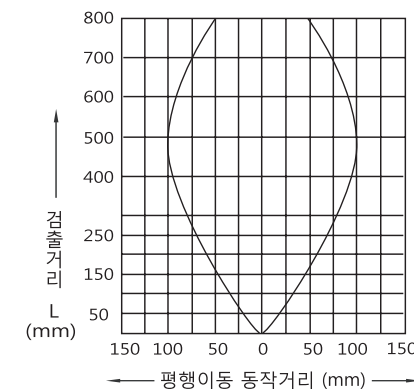


● 수광기(Receiver) : Light ON(SB-16B, 16BP, 16B-2, 16BP-2)

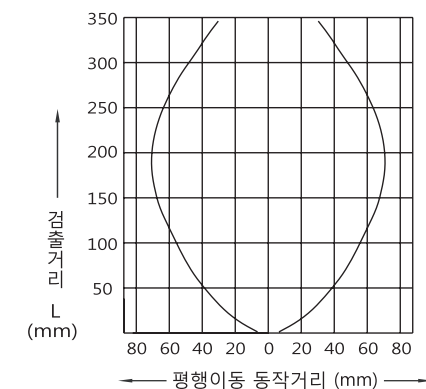


검출영역 특성곡선 Characteristics

● SB-16



● SB-16-2

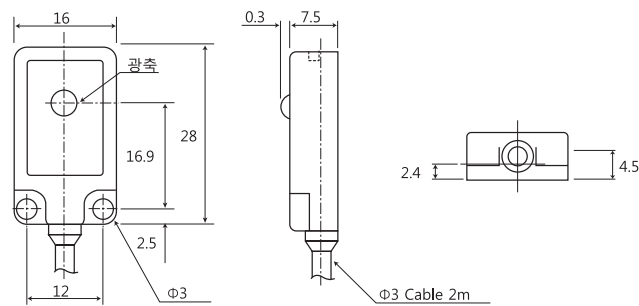


Photoelectric Sensor
SLIM TYPE

투과형 Through Beam



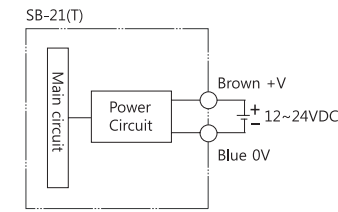
- Slim type (7.5mm)
- Infrared LED
- Surge protection
- Cable 2m (captyre)



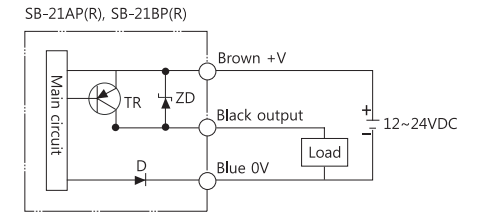
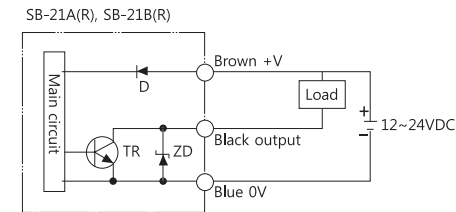
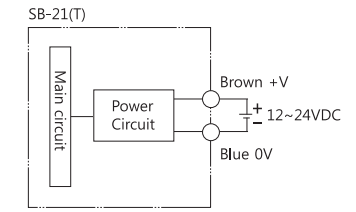
검출거리 (Detecting distance)	1.5m		
DC 3 wire 12~24V (Ripple ±10%)	NPN	Dark ON	SB-21A
		Light ON	SB-21B
	PNP	Dark ON	SB-21BP
		Light ON	SB-21AP
최소검출물체 (Detecting target of Min.)	≥ φ10이상 불투명체 (opaque materials)		
소비 전류 (Consumption current)	투광기 (transmitter) : ≤ 20mA 이하, 수광기 (receiver) : ≤ 20mA 이하		
제어 출력 (Control output)	NPN/PNP Transistor open collector, 부하전류 (load current) : ≤ 100mA 이하		
광원 (Light source)	적외광 LED (infrared LED)		
응답 시간 (Response time)	≤ 2ms 이하		
보호 등급 (Protection category)	IP 67 (IEC specification)		
단락 보호 (Short circuit protection)	yes		
전원역접속보호 (Reverse polarity protection)	yes		
사용주위조도 (Ambient illumination)	태양광 (sunlight) : 100,000 lx, 백열등 (incandescent) : 3,000 lx		
사용주위온도 (Ambient temperature)	동작시(operating) : -25°C~60°C, 보존시(storage) : -25°C~70°C(단, 결빙, 결로하지 않을 것)		
내전압 (Dielectric strength)	1kVAC, 50/60Hz for 1min		
내진동 (Vibration)	1.5mm amplitude at frequency of 10~55Hz in each of X,Y,Z directions for 2hours		
내충격 (Shock resistance)	500% (50G) X, Y, Z direction for 3times		
절연저항 (Insulation resistance)	≥ 20MΩ이상 (DC 500V Megger)		
표시등 (Indicator)	투광기 전원표시 (적색) Transmitter: Power (red LED) 수광기 동작표시 (적색) Receiver: Operating (red LED)		
케이블 (Cable 2m : PVC)	투광기(transmitter) : φ3 x 2C x 0.25Q 수광기(receiver) : φ3 x 3C x 0.25Q		

제어출력 회로도 Control output diagram

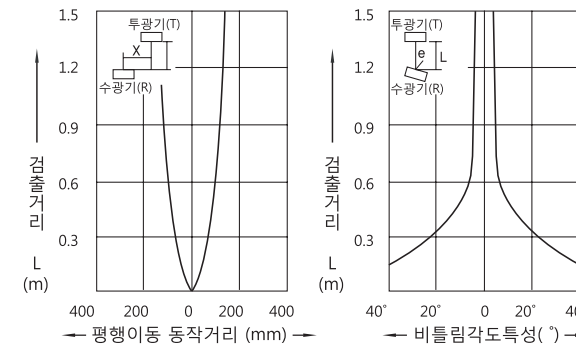
● NPN



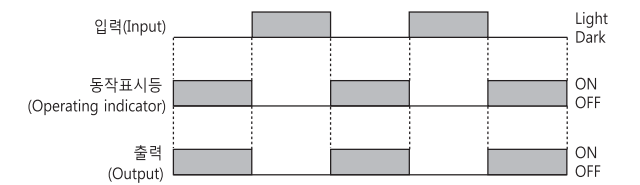
● PNP



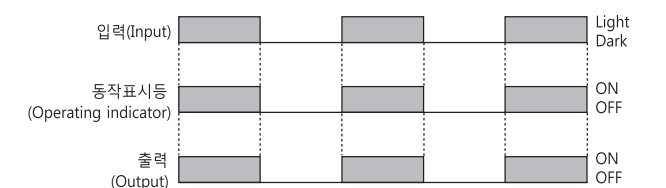
검출영역 특성곡선 Characteristics / 동작차트 Operating chart



● 수광기(Receiver) : Dark ON (SB-21A, SB-21AP)

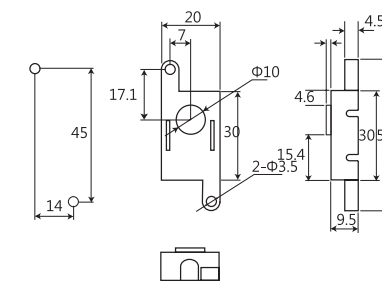


● 수광기(Receiver) : Light ON (SB-21B, SB-21BP)

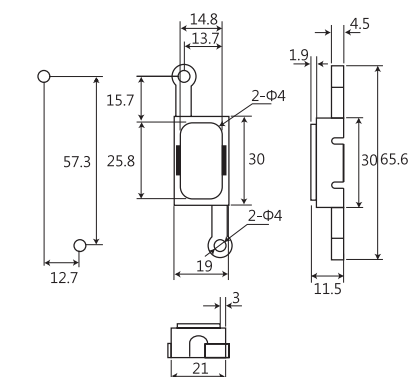


브라켓 외형도 Bracket dimensions

● A형 (SBB21-01)



● B형 (SBB21-02)

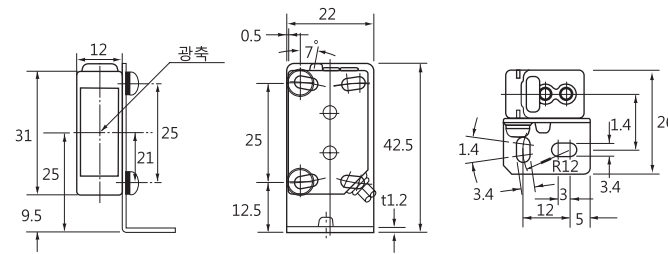


Photoelectric Sensor MINI TYPE

투과형 Through Beam



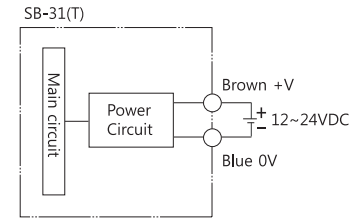
- Mini size
- Surge protection



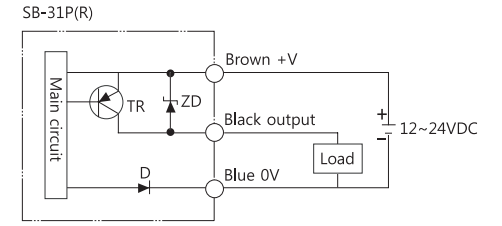
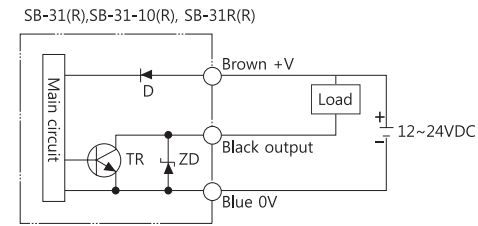
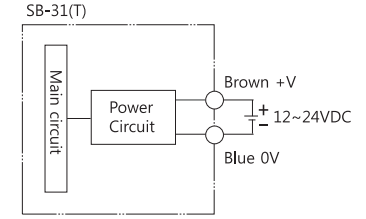
검출거리 (Detecting distance)		5m	10m	5m	
DC 3 wire 12~24V (Ripple ±10%)	NPN	D/O, L/O Adjustable	SB-31	SB-31-10	SB-31R
		Dark ON	SB-31A	SB-31A-10	SB-31RA
		Light ON	SB-31B	SB-31B-10	SB-31RB
	PNP	D/O, L/O Adjustable	SB-31P	-	-
		Dark ON	SB-31AP	-	-
		Light ON	SB-31BP	-	-
최소검출물체 (Detecting target of Min.)		≥ φ120이상 불투명체 (opaque materials)			
소비 전류 (Consumption current)		투광기 (transmitter) : ≤ 20mA이하, 수광기(receiver) : ≤ 20mA이하			
제어 출력 (Control output)		NPN/PNP Transistor open collector, 부하전류 (load current) : ≤ 100mA이하			
광원 (Light source)		적외광 LED (infrared LED)	적외광 LED (infrared LED)	적색광 LED(red LED)	
응답 시간 (Response time)		≤ 1ms이하			
보호 등급 (Protection category)		IP 64 (IEC specification)			
단락 보호 (Short circuit protection)		yes			
전원역접속보호 (Reverse polarity protection)		yes			
사용주위조도 (Ambient illumination)		태양광 (sunlight) : 20,000 lx, 백열등 (incandescent) : 3,000lx			
사용주위온도 (Ambient temperature)		동작시 (operating) : -10℃~55℃, 보존시(storage) : -30℃~70℃ (단, 결빙, 결로하지 않을 것)			
내전압 (Dielectric strength)		1kVAC, 50/60Hz for 1min			
내진동 (Vibration)		1.5mm amplitude at frequency of 10~55Hz in each of X,Y,Z directions for 2hours			
내충격 (Shock resistance)		500% (50G) X, Y, Z direction for 3times			
절연저항 (Insulation resistance)		≥ 20MΩ이상 (DC 500V Megger)			
표시등 (Indicator)		투광기: 전원표시(적색) Transmitter: Power (red LED) 수광기: 동작표시(적색), 안정표시(녹색) Receiver: Operating (red LED), Stability (green LED)			
케이블 (Cable 2m : PVC)		투광기 (transmitter) : φ4 x 2C x 0.2SQ 수광기 (receiver) : φ4 x 3C x 0.2SQ			

제어출력 회로도 Control output diagram

● NPN

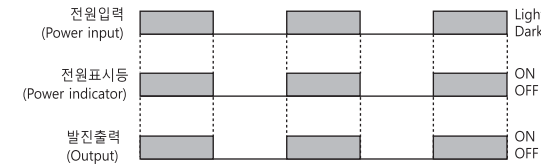


● PNP

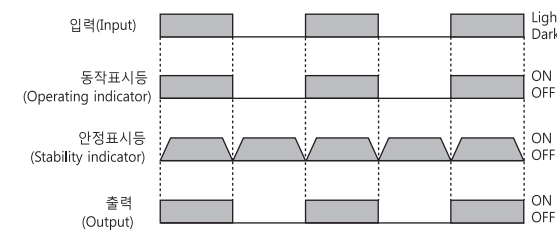


동작차트 Operating chart

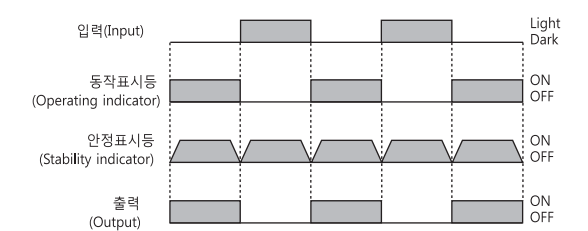
● 투광기(Transmitter)



● 수광기(Receiver) : Dark ON (SB-31A, 31AP, 31A-10, 31RA)

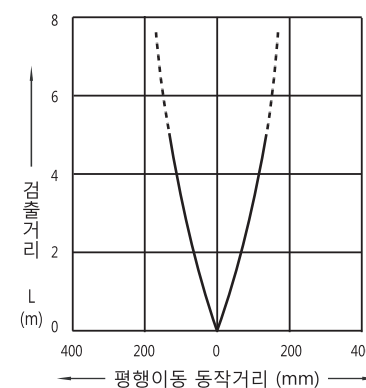


● 수광기(Receiver) : Light ON (SB-31B, 31BP, 31B-10, 31RB)

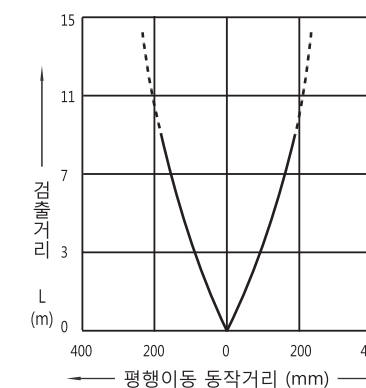


검출영역 특성곡선 Characteristics

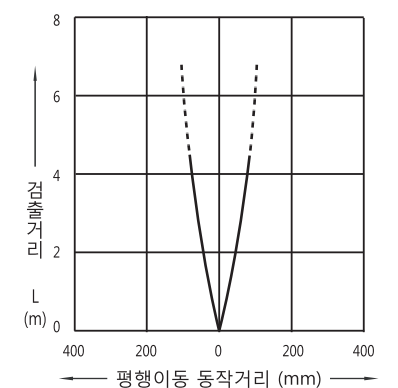
● SB-31, SB-31P



● SB-31-10



● SB-31R

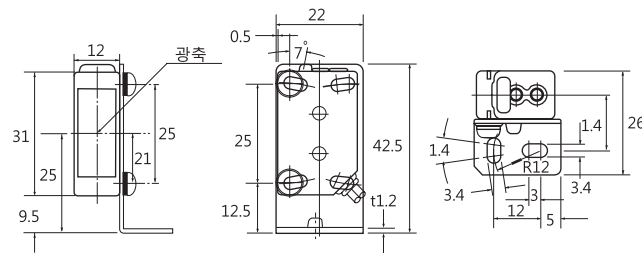


Photoelectric Sensor
MINI TYPE

투과형 Through Beam



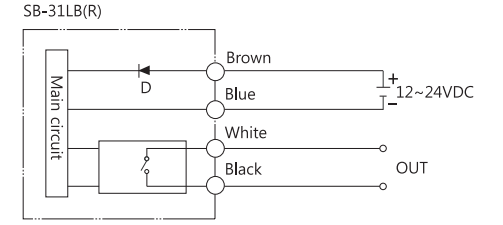
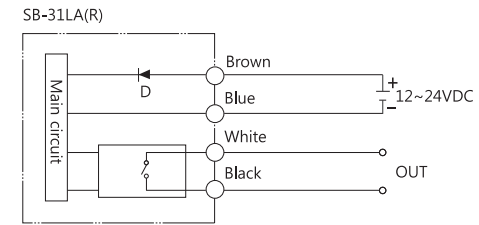
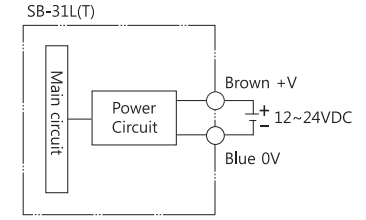
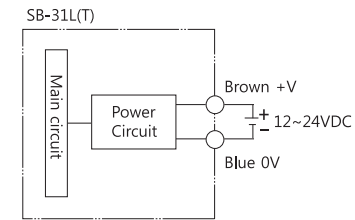
- Mini size
- Surge protection
- Mos Relay output



검출거리 (Detecting distance)	5m
DC 3 wire 12~24V (Ripple ±10%)	Mos Relay D/O, L/O Adjustable Dark ON Light ON SB-31LA SB-31LB
최소검출물체 (Detecting target of Min.)	≥ φ10 이상 불투명체 (opaque materials)
소비 전류 (Consumption current)	투광기(transmitter) : ≤ 20mA 이하; 수광기 (receiver) : ≤ 20mA 이하
제어 출력 (Control output)	Mos Relay output, 100mA 48V DC, 100mA 220V AC
광원 (Light source)	적외광 LED (infrared LED)
응답 시간 (Response time)	≤ 1ms이하
보호 등급 (Protection category)	IP 64 (IEC specification)
단락 보호 (Short circuit protection)	yes
전원역접속보호 (Reverse polarity protection)	yes
사용주위조도 (Ambient illumination)	태양광 (sunlight) : 10,000lx, 백열등 (incandescent) : 3,000 lx
사용주위온도 (Ambient temperature)	동작시(operating) : -20°C~60°C, 보존시(storage) : -25°C~70°C(단, 결빙, 결로하지 않을 것)
내전압 (Dielectric strength)	1kVAC, 50/60Hz for 1min
내진동 (Vibration)	1.5mm amplitude at frequency of 10~55Hz in each of X,Y,Z directions for 2hours
내충격 (Shock resistance)	500% (50G) X, Y, Z direction for 3times
절연저항 (Insulation resistance)	≥ 20MΩ이상 (DC 500V Megger)
표시등 (Indicator)	투광기: 전원표시(적색) Transmitter: Power (red LED) 수광기: 동작표시(적색), 안정표시(녹색) Receiver: Operating (red LED), Stability (green LED)
케이블 (Cable 2m : PVC)	투광기 (transmitter) : φ4 x 2C x 0.25Q 수광기 (receiver) : φ4 x 3C x 0.25Q

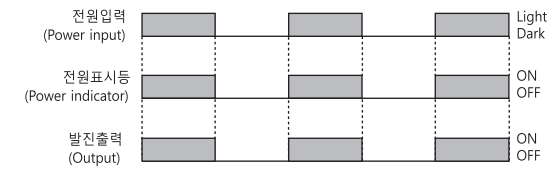
제어출력 회로도 Control output diagram

● Mos Relay

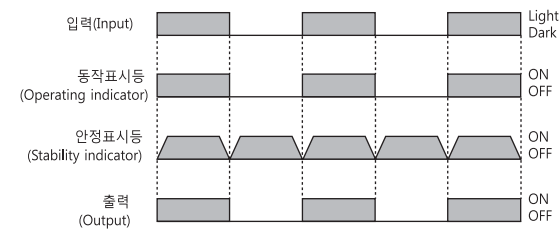


동작차트 Operating chart

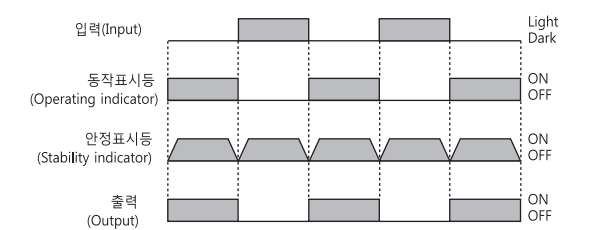
● 투광기 (Transmitter)



● 수광기 (Receiver) : Dark ON (SB-31LA)

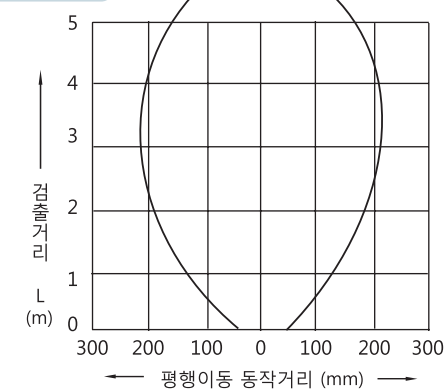


● 수광기 (Receiver) : Light ON (SB-31LB)



검출영역 특성곡선 Characteristics

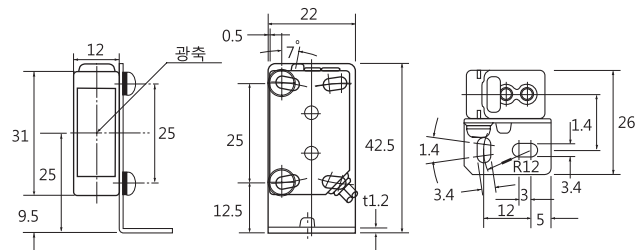
● SB-31L



Photoelectric Sensor MINI TYPE

직접반사형 Reflex

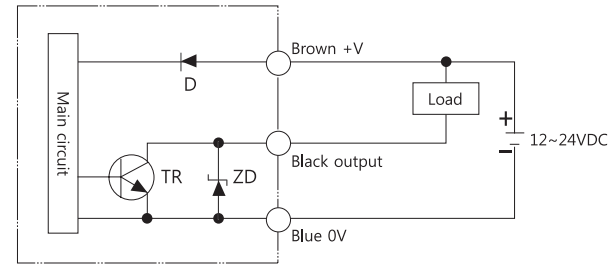
- Mini size
- Surge protection



검출거리 (Detecting distance)	150mm	500mm	700mm
DC 3 wire 12~24V (Ripple ±10%)	NPN D/O, L/O Adjustable	PNP D/O, L/O Adjustable	-
표준검출물체 (Standard target)	200mm x 200mm 백색무광택지(non-glossy white paper)		
최소검출물체 (Detecting target of Min.)	투명체, 불투명체(transparent, opaque)		
소비 전류 (Consumption current)	≤ 35mA이하		
제어 출력 (Control output)	NPN(PNP) Transistor open collector, 부하전류 (load current) : ≤ 100mA 이하		
광원 (Light source)	적외광 LED (infrared LED)		
응답 시간 (Response time)	≤ 1ms이하		
응차 거리 (Hysteresis)	≤ 20%(sr)이하		
보호 등급 (Protection category)	IP 64 (EC specification)		
단락 보호 (Short circuit protection)	yes		
전원역접속보호 (Reverse polarity protection)	yes		
사용주위조도 (Ambient illumination)	태양광 (sunlight) : 10,000 lx, 백열등 (incandescent) : 3,000 lx		
사용주위온도 (Ambient temperature)	동작시(operating) : -10°C~55°C, 보존시(storage) : -30°C~70°C(단, 결빙, 결로하지 않을 것)		
내전압 (Dielectric strength)	1kVAC, 50/60Hz for 1min		
내진동 (Vibration)	1.5mm amplitude at frequency of 10~55Hz in each of X,Y,Z directions for 2hours		
내충격 (Shock resistance)	500% (50G) X, Y, Z direction for 3times		
절연저항 (Insulation resistance)	≥ 20MΩ이상 (DC 500V Megger)		
표시등 (Indicator)	작업표시(녹색) Power (green LED) 동작표시(적색), 안정표시(녹색) Operating (red LED), Stability (green LED)		
케이블 (Cable 2m : PVC)	∅4 x 3C x 0.2SQ		

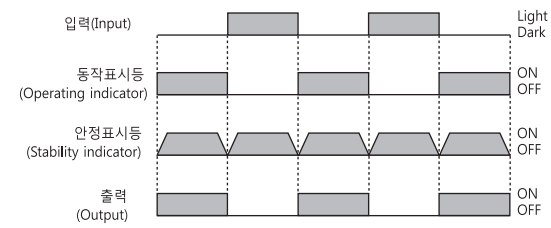
제어출력 회로도 Control output diagram

● NPN

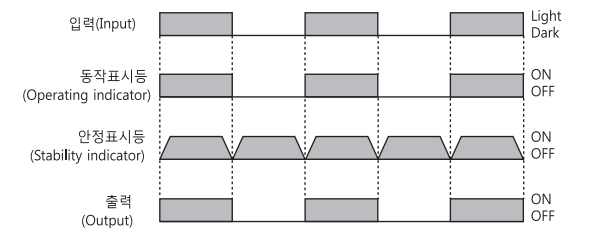


동작차트 Operating chart

● Dark ON

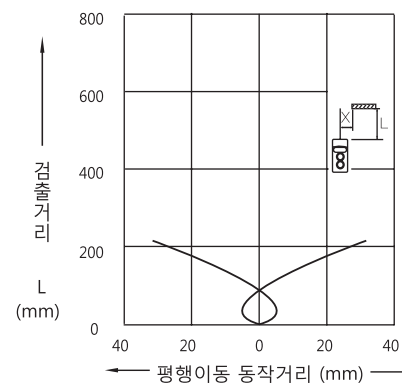


● Light ON

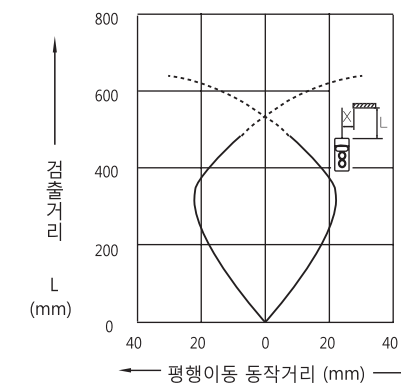


검출영역 특성곡선 Characteristics

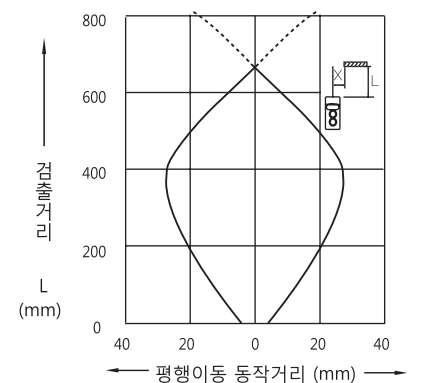
● SB-32-2



● SB-32



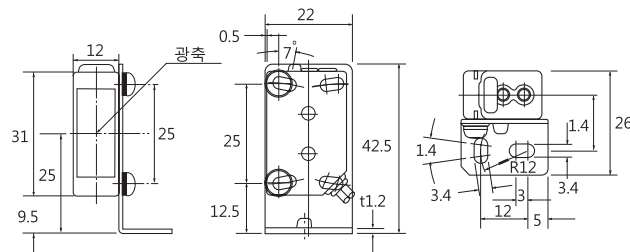
● SB-32-7L



Photoelectric Sensor MINI TYPE

한정반사형 limited Reflex

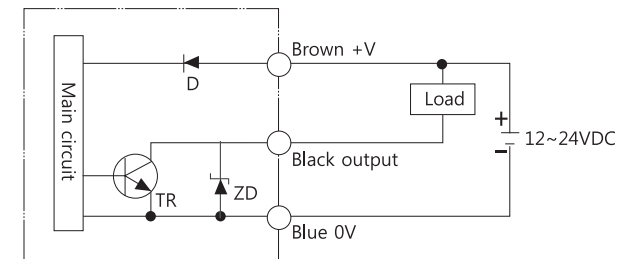
- Mini size
- Surge protection



검출거리 (Detecting distance)	20mm	30m	50m
DC 3 wire 12~24V (Ripple ±10%)	NPN D/O, L/O Adjustable SB-32B	PNP D/O, L/O Adjustable SB-32B-3	PNP D/O, L/O Adjustable SB-32B-5
표준검출물체 (Standard target)	100mm x 100mm 백색무광택지(non-glossy white paper)		
최소검출물체 (Detecting target of Min.)	투명체, 불투명체(transparent, opaque)		
소비 전류 (Consumption current)	≤ 35mA이하		
제어 출력 (Control output)	NPN Transistor open collector, 부하전류 (load current) : ≤ 100mA이하		
광원 (Light source)	적외광 LED (infrared LED)		
응답 시간 (Response time)	≤ 1ms이하		
응차 거리 (Hysteresis)	≤ 10%(s)이하		
보호 등급 (Protection category)	IP 64 (EC specification)		
단락 보호 (Short circuit protection)	yes		
전원역접속보호 (Reverse polarity protection)	yes		
사용주위조도 (Ambient illumination)	태양광(sunlight) : 10,000lx, 백열등 (incandescent) : 3,000lx		
사용주위온도 (Ambient temperature)	동작시(operating) : -10℃~55℃, 보존시(storage) : -30℃~70℃(단 결빙, 결로하지 않을 것)		
내전압 (Dielectric strength)	1kVAC, 50/60Hz for 1min		
내진동 (Vibration)	At frequency of 10~55Hz in each of X,Y,Z directions for 2hours		
내충격 (Shock resistance)	500% (50G) X, Y, Z direction for 3times		
절연저항 (Insulation resistance)	≥ 20MΩ이상 (DC 500V Megger)		
표시등 (Indicator)	전원표시(녹색) Power (green LED) 동작표시(적색), 안정표시(녹색) Operating (red LED), Stability (green LED)		
케이블 (Cable 2m : PVC)	∅4 x 3C x 0.2SQ		

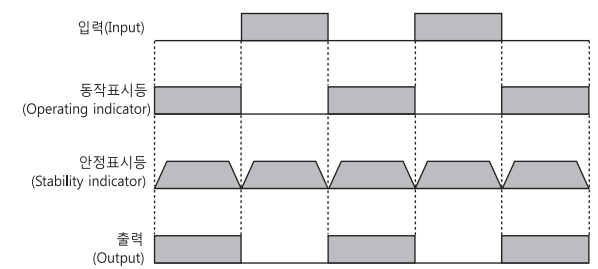
제어출력 회로도 Control output diagram

● NPN

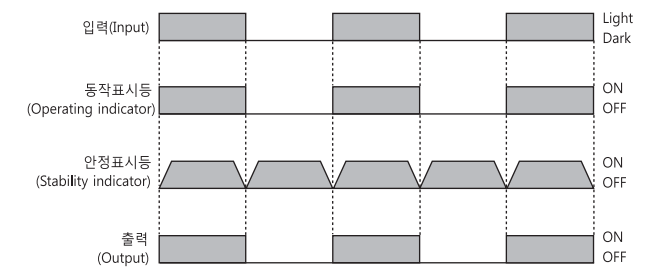


동작차트 Operating chart

● Dark ON

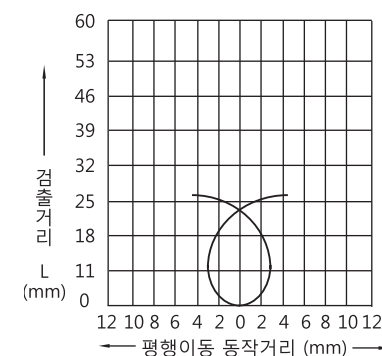


● Light ON

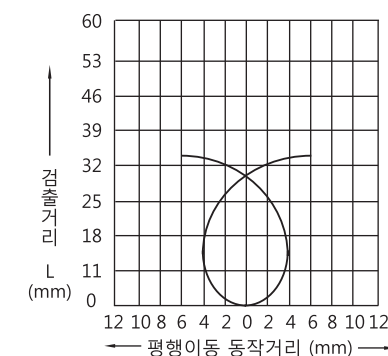


검출영역 특성곡선 Characteristics

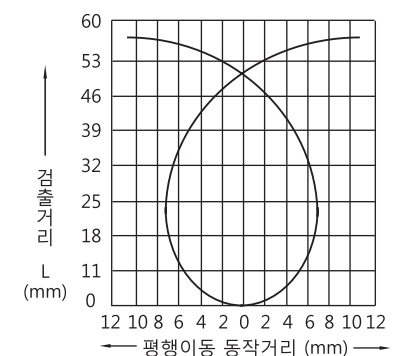
● SB-32B



● SB-32B-3



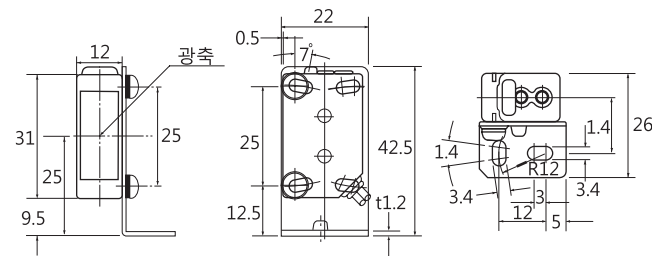
● SB-32B-5



Photoelectric Sensor MINI TYPE

확산반사형 Diffuse Reflex

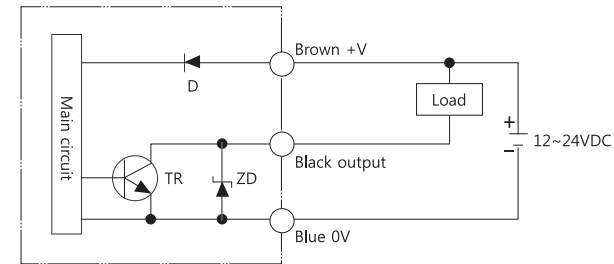
- Mini size
- Surge protection



검출거리 (Detecting distance)	100mm	150m	300m
DC 3 wire 12~24V (Ripple ±10%)	NPN D/O, L/O Adjustable	PNP D/O, L/O Adjustable	
표준검출물체 (Standard target)	100mm x 100mm 백색무광택지(non-glossy white paper)	100mm x 100mm	
최소검출물체 (Detecting target of Min.)	투명체, 불투명체(transparent, opaque)		
소비 전류 (Consumption current)	≤ 35mA 이하		
제어 출력 (Control output)	NPN Transistor open collector, 부하전류 (load current) : ≤ 100mA 이하		
광원 (Light source)	적외광 LED (infrared LED)		
응답 시간 (Response time)	≤ 1ms 이하		
응차 거리 (Hysteresis)	≤ 20%(sr) 이하		
보호 등급 (Protection category)	IP 64 (EC specification)		
단락 보호 (Short circuit protection)	yes		
전원역접속보호 (Reverse polarity protection)	yes		
사용주위조도 (Ambient illumination)	태양광(sunlight) : 10,000 lx, 백열등 (incandescent) : 3,000 lx		
사용주위온도 (Ambient temperature)	동작시(operating) : -10°C~60°C, 보존시(storage) : -20°C~70°C (단, 결빙, 결로하지 않을 것)		
내전압 (Dielectric strength)	1kVAC, 50/60Hz for 1min		
내진동 (Vibration)	1.5mm amplitude at frequency of 10~55Hz in each of X,Y,Z directions for 2hours		
내충격 (Shock resistance)	500% (50G) X, Y, Z direction for 3times		
절연저항 (Insulation resistance)	≥ 20M이상 (DC 500V Megger)		
표시등 (Indicator)	작업표시(녹색) Power (green LED) 동작표시(적색), 안정표시(녹색) Operating (red LED), Stability (green LED)		
케이블 (Cable 2m : PVC)	φ4 x 3C x 0.2SQ		

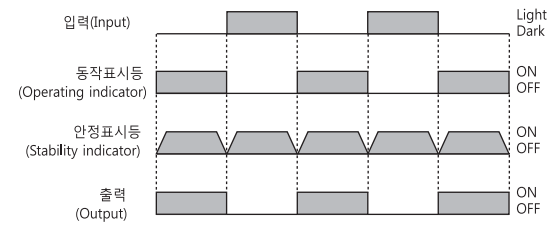
제어출력 회로도 Control output diagram

• NPN

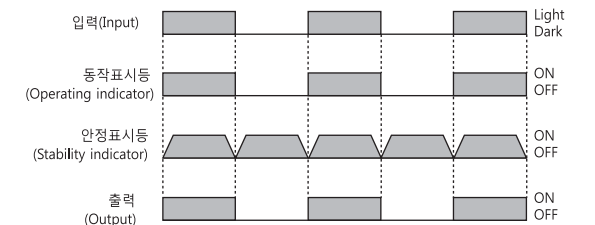


동작차트 Operating chart

• Dark ON

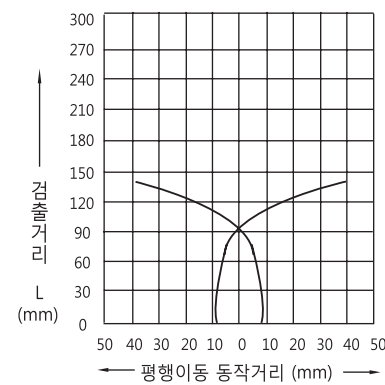


• Light ON

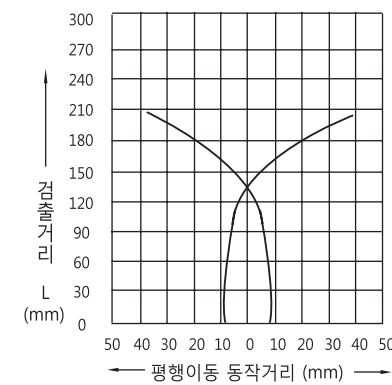


검출영역 특성곡선 Characteristics

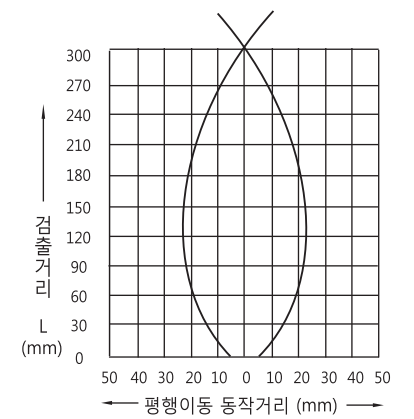
• SB-32S



• SB-32WS

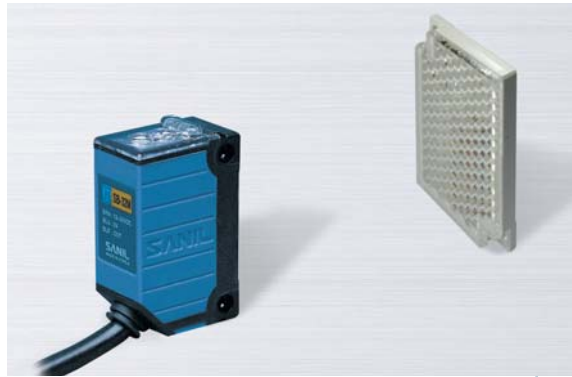


• SB-32W

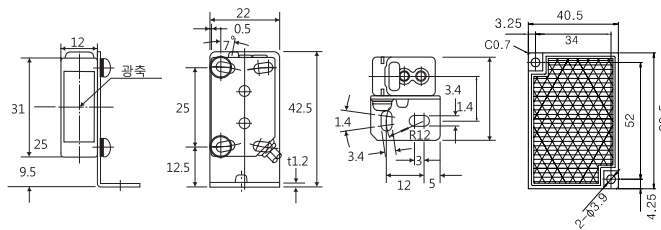


Photoelectric Sensor
MINI TYPE

밀러반사형 Retro-Reflex



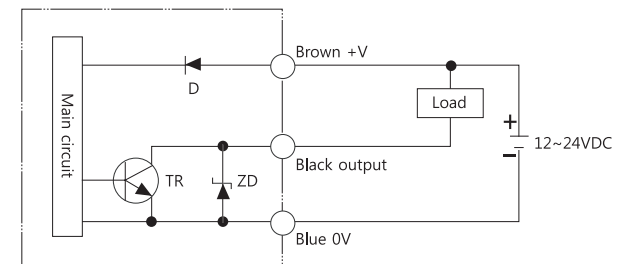
- Mini size
- Surge protection
- Target : SBM-4060
- ※ SBM-4060: 40mm x 60mm, mirror



검출거리 (Detecting distance)		2m	1m	1m	
DC 3 wire 12~24V (Ripple ±10%)	NPN	D/O, I/O Adjustable	SB-32M	SB-32MV	SB-32MR
		Dark ON	SB-32MA	SB-32MVA	SB-32MRA
		Light ON	SB-32MB	SB-32MVB	SB-32MRB
최소검출물체 (Detecting target d Min.)		≥ φ35 이상 불투명체 (opaque materials)			
소비 전류 (Consumption current)		≥ 35mA 이하			
제어 출력 (Control output)		NPN Transistor open collector, 부하전류(load current) : ≤ 100mA 이하			
광원 (Light source)		적외광 LED (infrared LED)			
응답 시간 (Response time)		≤ 1ms 이하			
보호 등급 (Protection category)		IP 64 (IEC specification)			
단락 보호 (Short circuit protection)		yes			
전원역접속보호 (Reverse polarity protection)		yes			
사용주위조도 (Ambient illumination)		태양광 (sunlight) : 10,000 lx, 백열등 (incandescent) : 3,000 lx			
사용주위온도 (Ambient temperature)		동작시(operating) : -10°C~55°C, 보존시(storage) : -30°C~70°C(단, 결빙, 결로하지 않을 것)			
내전압 (Dielectric strength)		1kVAC, 50/60Hz for 1min			
내진동 (Vibration)		15mm amplitude at frequency of 10~55Hz in each of X,Y,Z directions for 2hours			
내충격 (Shock resistance)		500% (50G) X, Y, Z direction for 3times			
절연저항 (Insulation resistance)		≥ 20MΩ 이상 (DC 500V Megger)			
표시등 (Indicator)		전원표시(녹색) Power (green LED) 동작표시(적색), 안정표시(녹색) Operating (red LED), Stability (green LED)			
케이블 (Cable 2m : PVC)		φ4 x 3C x 0.25Q			

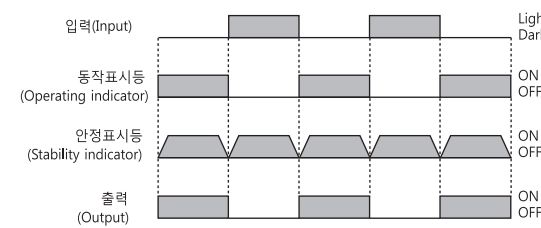
제어출력 회로도 Control output diagram

- NPN

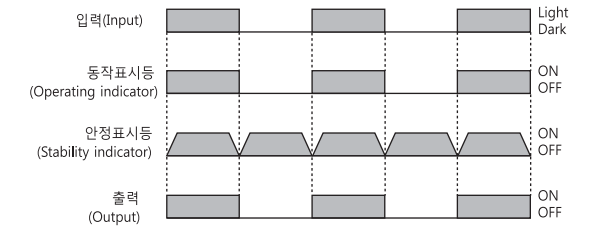


동작차트 Operating chart

- Dark ON (SB-32MA, 32MVA, 32MRA)

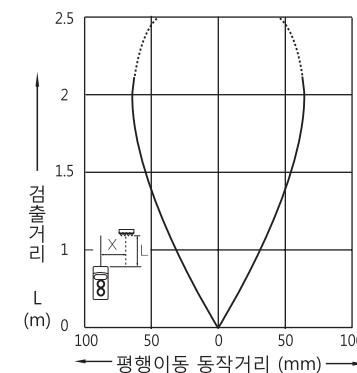


- Light ON (SB-32MB, 32MVB, 32MRB)

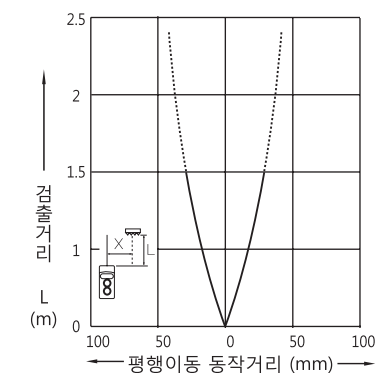


검출영역 특성곡선 Characteristics

- SB-32MA, SB-32MB

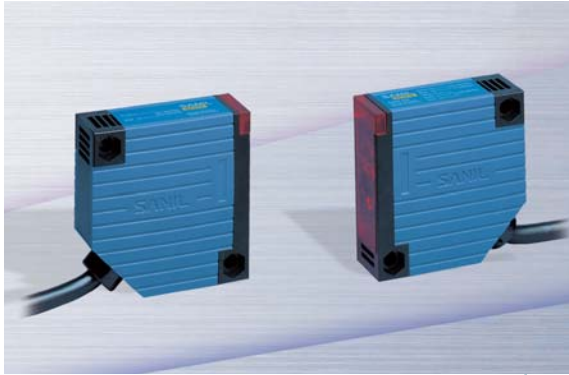


- SB-32MVA, SB-32MVB

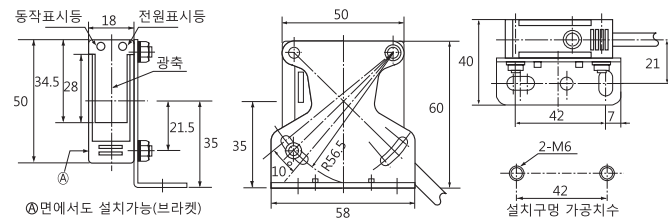


FREE VOLTAGE TYPE

투과형 Through Beam



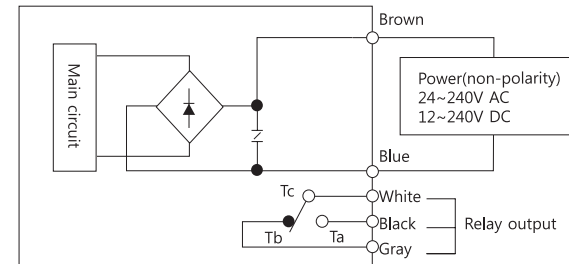
- Free voltage
- Relay output



검출거리 (Detecting distance)		10m	25m	10m	25m	
AC 24~240V DC 24~240V (Ripple ±10%)	Relay	Dark ON	SB-51	SB-51-3	SB-51V	SB-51V-3
		Light ON	SB-51B	-	SB-51VB	-
최소검출물체 (Detecting target d Min.)		≥ ϕ15 이상 불투명체 (opaque materials)				
소 비 전 력 (Consumption power)		투광기(transmitter) : ≤ 3W이하, 수광기(receiver) : ≤ 3W이하				
제 어 출 력 (Control output)		Relay output, ≥ DC 5V 10mA 이상, AC 250V 3A(cos φ=1)				
광 원 (Light source)		적외광 LED (infrared LED)				
응 답 시 간 (Response time)		≤ 30ms이하				
보 호 등 급 (Protection category)		IP 65 (IEC specification)				
사용주위조도 (Ambient illumination)		태양광 (sunlight) : 10,000 lx, 백열등 (incandescent) : 3,000 lx				
사용주위온도 (Ambient temperature)		동작시(operating) : -25℃~55℃, 보존시(storage) : -25℃~70℃ (단, 결빙, 결로하지 않을 것)				
내 전 압 (Dielectric strength)		1.5kVAC, 50/60Hz for 1min				
내 진 동 (Vibration)		1.5mm amplitude at frequency of 10~55Hz in each of X,Y,Z directions for 2hours				
내 충 격 (Shock resistance)		500% (50G) X, Y, Z direction for 3times				
절 연 저 항 (Insulation resistance)		≥ 20MΩ이상 (DC 500V Megger)				
표 시 등 (Indicator)		투광기 전원표시(적색) Transmitter: Power (red LED) 수광기 전원표시(황색), 동작표시(적색) Receiver: Power (yellow LED), Operating (red LED)				
케 이 블 (Cable 2m : PVC)		투광기(transmitter) : ϕ5.6 x 2C x 0.2SQ 수광기(receiver) : ϕ5.6 x 5C x 0.2SQ				
감 도 조 정 (Adjusting volume)		-	-	단회전볼륨(volume)	단회전볼륨(volume)	

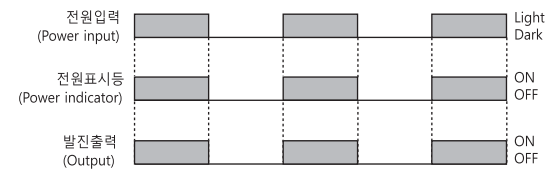
제어출력 회로도 Control output diagram

Relay

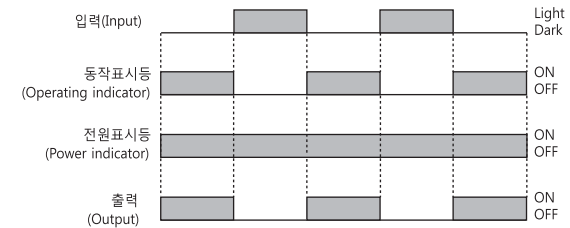


동작차트 Operating chart

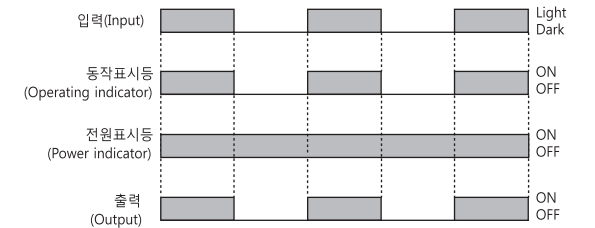
투광기(Transmitter)



수광기(Receiver) : Dark ON (SB-51, 51V, 51-3, 51V-3)

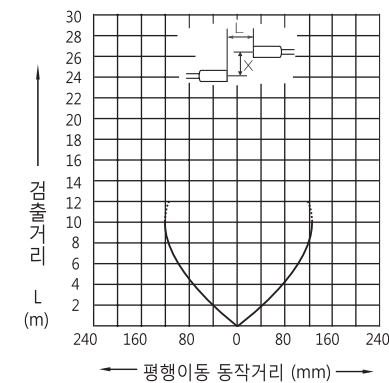


수광기(Receiver) : Light ON (SB-51B, 51VB)

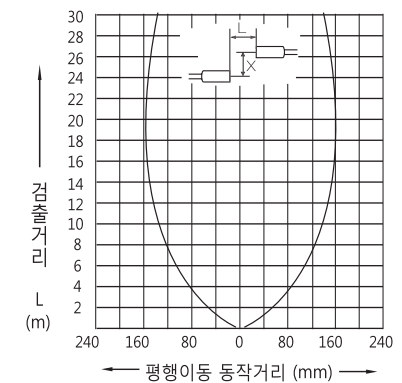


검출영역 특성곡선 Characteristics

SB-51, SB-51B, SB-51V, SB-51VB



SB-51-3, SB-51V-3

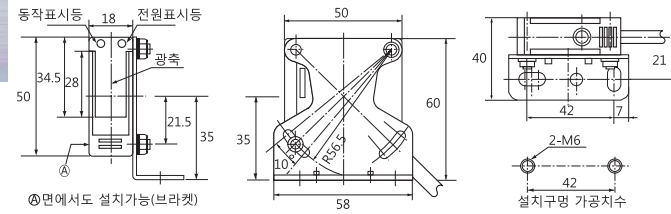


FREE VOLTAGE TYPE

직접반사형 Reflex



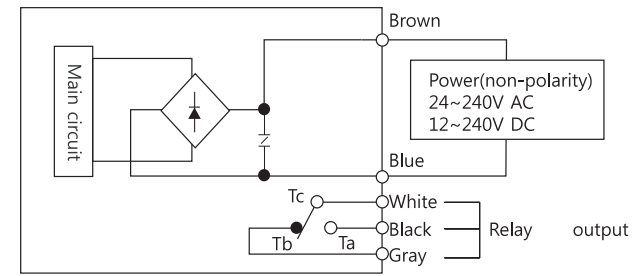
- Free voltage
- Relay output



검출거리 (Detecting distance)		700mm
AC 24~240V	Relay	Dark ON
DC 24~240V (Ripple ±10%)		Light ON
표준검출물체 (Standard target)		200mm x 200mm 백색무광택지(non-glossy white paper)
검출가능물체 (Detectable target)		투명체, 불투명체(transparent, opaque)
소비전력 (Consumption power)		≤ 2W이하
제어출력 (Control output)		Relay output, ≥ DC 5V 10mA 이상, AC 250V 3A(cos φ=1)
광원 (Light source)		적외광 LED (infrared LED)
응답시간 (Response time)		≤ 30ms 이하
응차거리 (Hysteresis)		≤ 20%(sr)이하
보호등급 (Protection category)		IP 65 (IEC specification)
사용주위조도 (Ambient illumination)		태양광(sunlight) : 11,000 lx, 백열등(incandescent) : 3,000 lx
사용주위온도 (Ambient temperature)		동작시(operating) : -25℃~55℃, 보존시(storage) : -25℃~70℃ (단, 결빙, 결로하지 않을 것)
내전압 (Dielectric strength)		1.5kVAC, 50/60Hz for 1min
내진동 (Vibration)		1.5mm amplitude at frequency of 10~55Hz in each of X,Y,Z directions for 2hours
내충격 (Shock resistance)		500%(50G) X,Y,Z direction for 3times
절연저항 (Insulation resistance)		≥ 20M이상 (DC 500V Megger)
표시등 (Indicator)		전원표시(황색), 동작표시(적색) Power (yellow LED), Operating (red LED)
케이블 (Cable 2m : PVC)		φ5.6 x 5C x 0.2SQ

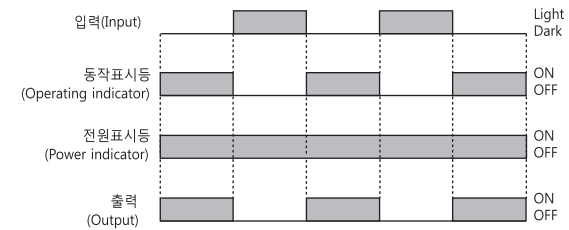
제어출력 회로도 Control output diagram

Relay

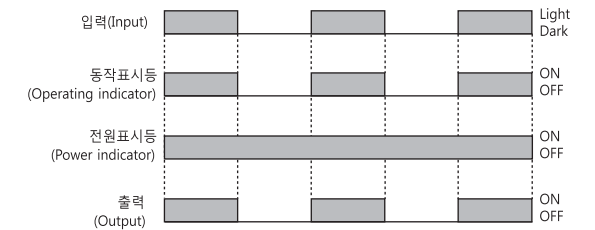


동작차트 Operating chart

Dark ON (SB-52)

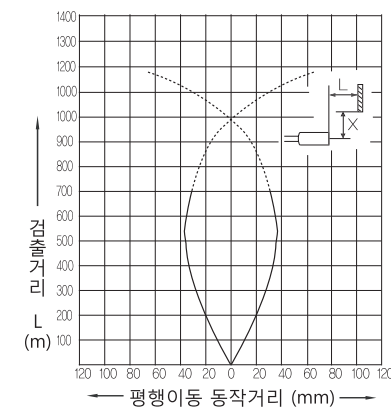


Light ON (SB-52B)



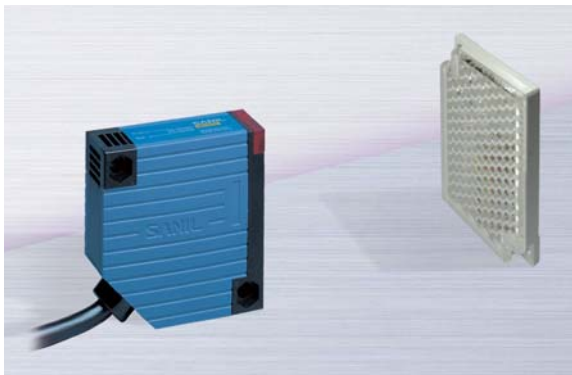
검출영역 특성곡선 Characteristics

SB-52, SB-52B

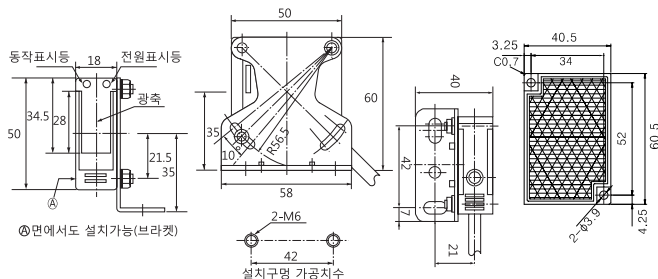


FREE VOLTAGE TYPE

밀러반사형 Retro-Reflex



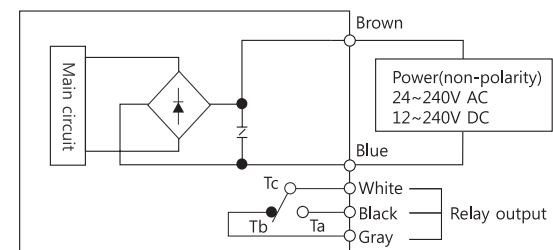
- Free voltage
- Relay output
- SB-52MR-8, SB-52MBR-8 : 밀러(SBM-4060) 2개를 붙여서 사용하십시오.
Use a pair of mirror(SBM-4060)



검출거리 (Detecting distance)		5m	3m	8m
AC 24~240V DC 24~240V (Ripple ±10%)	Relay	Dark ON SB-52M	SB-52MV	SB-52MR-8
	Light ON	SB-52MB	SB-52MVB	SB-52MBR-8
최소검출물체 (Detecting target of Min.)		≥ φ50이상 불투명체 (opaque materials)		
소비전력 (Consumption power)		≤ 2W이하		
제어출력 (Control output)		Relay output, ≥ DC 5V 10mA 이상, AC 250V 3A (cos φ=1)		
광원 (Light source)		적외광 LED (infrared LED)	적외광 LED (infrared LED)	적색광 LED (red LED)
응답시간 (Response time)		≤ 30ms이하		
보호등급 (Protection category)		IP 65 (IEC specification)		
사용주위조도 (Ambient illumination)		태양광 (sunlight) : 10,000 lx, 백열등 (incandescent) : 3,000 lx		
사용주위온도 (Ambient temperature)		동작시(operating) : -10°C~60°C, 보존시(storage) : -20°C~70°C (단 결빙, 결로하지 않을 것)		
내전압 (Dielectric strength)		1.5kVAC, 50/60Hz for 1min		
내진동 (Vibration)		1.5mm amplitude at frequency of 10~55Hz in each of X,Y,Z directions for 2hours		
내충격 (Shock resistance)		500%(50G) X,Y,Z direction for 3times		
절연저항 (Insulation resistance)		≥ 20M이상 (DC 500V Megger)		
표시등 (Indicator)		전원표시(황색), 동작표시(적색) Power (yellow LED), Operating (red LED)		
케이블 (Cable 2m : PVC)		φ5.6 x 5C x 0.2SQ		
감도조정 (adjusting volume)		-	단회전볼륨(volume)	-

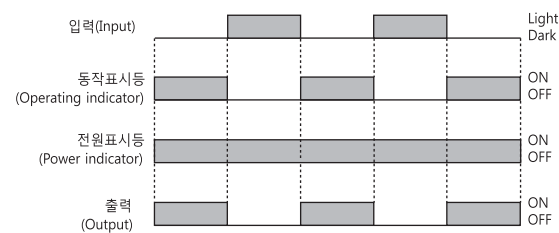
제어출력 회로도 Control output diagram

Relay

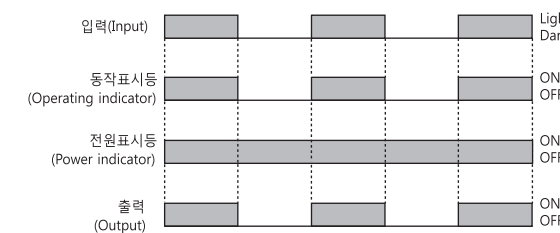


동작차트 Operating chart

Dark ON (SB-52M, 52MV, 52MR-8)

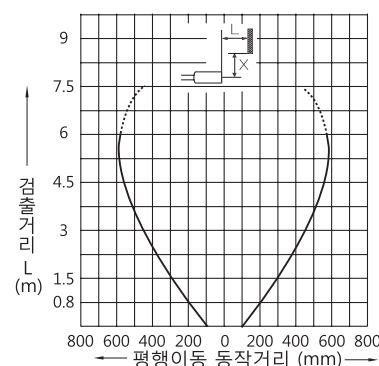


Light ON (SB-52MB, 52MVB, 52MBR-8)

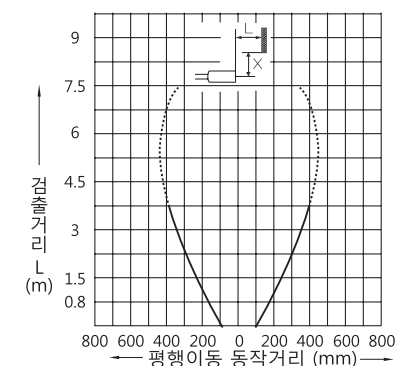


검출영역 특성곡선 Characteristics

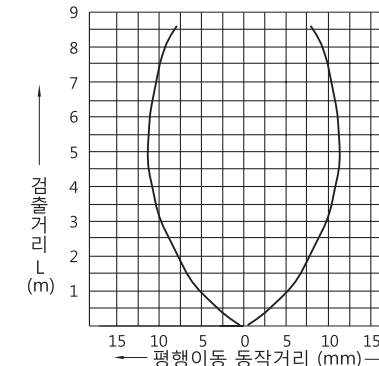
SB-52M



SB-52MV



SB-52MR-8 (SBM-4060 x 2EA)

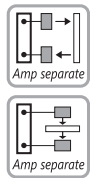
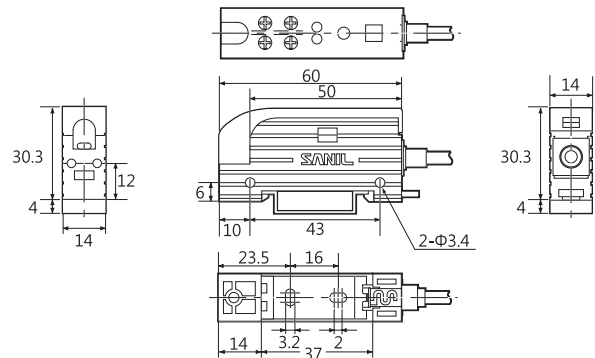


AMPLIFIER SEPARATED TYPE

엠프분리형 Amplifier separated Type



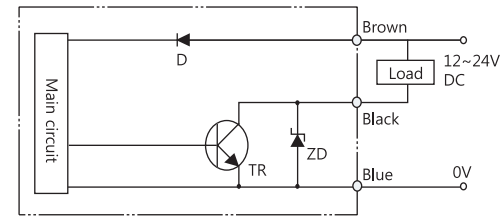
- Surge protection
- Cable 2m



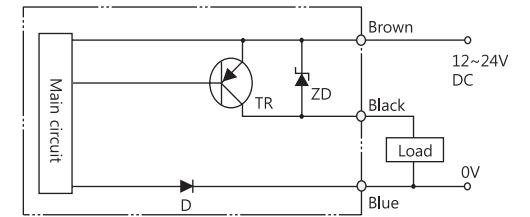
엠프 타입 (Amplifier type)	기본 타입 (Standard)	이주파 타입 (another Frequency)	내노이즈 타입 (Noise resistance)
DC 3 wire 12~24V (Ripple ±10%)	NPN D/O, L/O Adjustable SB-99	PNP D/O, L/O Adjustable SB-99P	SB-99I -
출력 (Output)	NPN/PNP Transistor open collector, 부하전류(load current) : ≤ 100mA 이하		
소비전류 (Consumption current)	≤ 35mA 이하		
전압 (Control output)	≤ 1.0V 이하 : 부하전류(load current) 100mA일때, <0.4V 이하 : 부하전류(load current) 16mA일때		
응답시간 (Response time)	≤ 0.5ms 이하	≤ 0.5ms 이하	≤ 3ms 이하
출력 동작 (Output operation)	입광시 ON/차광시 ON 전환 스위치(Dark ON/Light ON adjustable switch)		
감도 조정 (Adjusting)	3회전 연속 가변 볼륨(adjustable volume of 3 turns)		
단락 보호 (Short circuit protection)	yes		
전원역접속보호 (Reverse polarity protection)	yes		
타이머 기능 (Timer)	40ms of delay 고정 : 투과형 (40ms of delay fixed : through beam type)		
사용주위조도 (Ambient illumination)	동작시(operating) : -10°C~55°C, 보존시(storage) : -20°C~70°C (단, 결빙, 결로하지 않을것)		
사용주위온도 (Ambient temperature)	35% ~ 85% RH		
내노이즈 (Noise)	전원라인 : 240V(pulse 폭 : 0.5μs), 복사 : 300V(pulse 폭 : 0.5μs) Power line : 240V(pulse width : 0.5μs), Radiation : 300V(pulse width : 0.5μs)		
내전압 (Dielectric strength)	1k VAC, 50/60Hz for 1min		
내진동 (Vibration)	1.5mm amplitude at frequency of 10~55 Hz in each of X, Y, Z directions for 2hours		
내충격 (Shock resistance)	100%(10G) X, Y, Z direction for 3times		
절연저항 (Insulation resistance)	≥ 25M 이상 (DC 500V Megger)		
표시등 (Indicator)	동작표시(적색) 입광시 점등 Power (red LED) 안정표시(녹색) 안정 입광시 점등 Stability (green LED)		
케이블 (Cable 2m : PVC)	φ4 x 3C x 0.2SQ		

제어출력 회로도 Control output diagram

● NPN

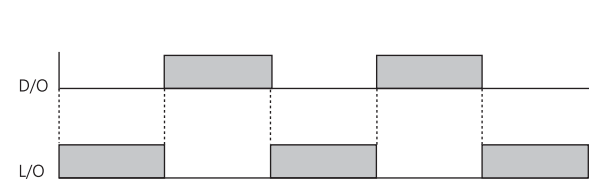


● PNP

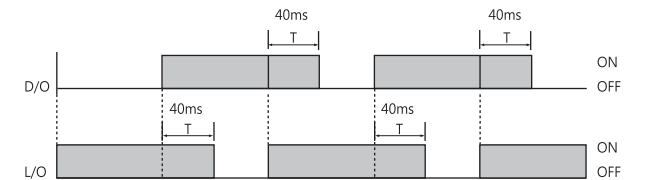


동작모드 Operating mode

● 기본동작 Standard operating



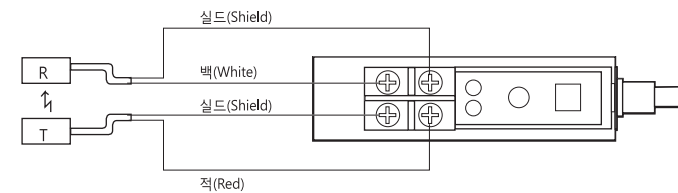
● 타이머동작 Timer operating



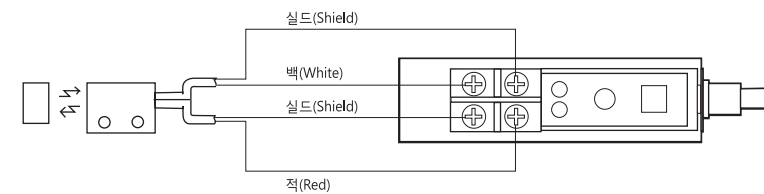
※ 투과형(Through beam type) : 40ms OFF delay (with SB-99, SB-99I)
 밀러반사형(Retro-Reflex type) : 40ms OFF delay (with SB-99, SB-99I)
 반사형(Reflex type) : 40ms ON delay (with SB-99, SB-99I)

센서 헤드와의 접속도 Connection with sensor head

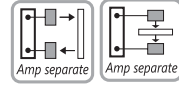
● 투과형(Through beam)



● 반사형(Reflex)

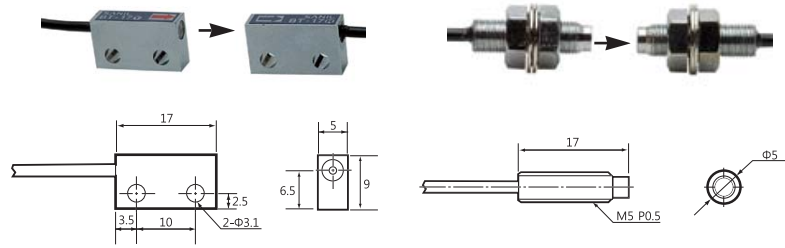


HEAD with SB-99



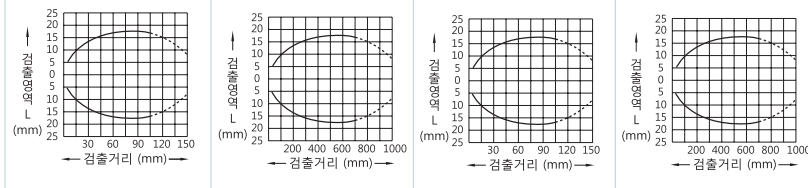
BT-17, 17-7, 5M, 5M-7

· Cable 2m : Shield, 1C(PVC)



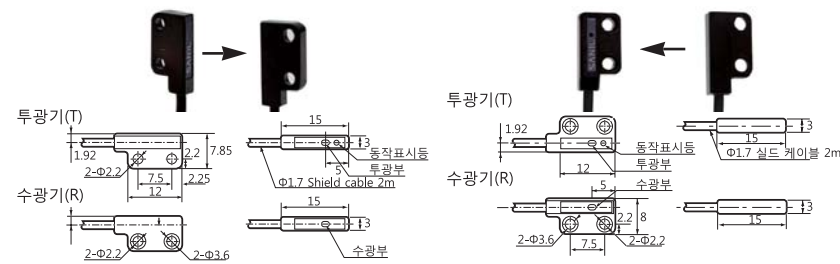
모델 (Model)	BT-17	BT-17-7	BT-5M	BT-5M-7
검출 거리 (Detecting distance)	100(120)mm	700(800)mm	100(120)mm	700(800)mm
최소검출물체 (Detecting target of Min.)	φ 0.3	φ 0.5	φ 0.3	φ 0.5
광원 (Light source)	적외 LED (infrared LED)			
보호 등급 (Protection category)	IP66 (IEC specification)			
사용주위온도 (Ambient temperature)	-10°C~55°C (±10%)			
사용주위조도 (Ambient illumination)	태양광 (sunlight) : 10,000 lx, 백열등 (incandescent) : 3,000 lx			
재질 (Housing material)	황동 (크롬도금) Chromium plated brass			

※검출거리 () 안의 숫자는 SB-99 사용 검출거리입니다
Detecting distance () is with SB-99



BT-12, 12G, 12F

· 초박형(Ultra slim type) : 3mm
· Cable 2m : Shield, 1C(PVC)



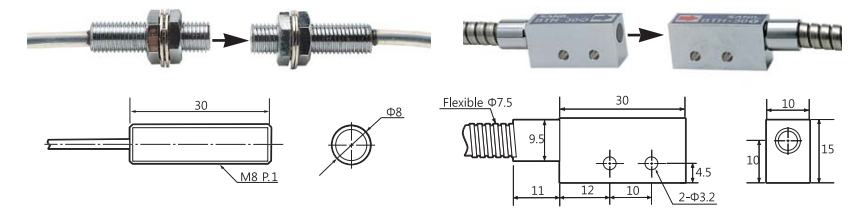
모델 (Model)	BT-12	BT-12G	BT-12F
검출 거리 (Detecting distance)	300(360)mm		
최소검출물체 (Detecting target of Min.)	φ 0.3		
광원 (Light source)	적외LED(infrared LED)	녹색LED(green LED)	적외LED(infrared LED)
보호 등급 (Protection category)	IP54 (IEC specification)		
사용주위온도 (Ambient temperature)	-10°C~55°C (±10%)		
사용주위조도 (Ambient illumination)	태양광 (sunlight) : 10,000 lx, 백열등 (incandescent) : 3,000 lx		
재질 (Housing material)	PC		

※검출거리 () 안의 숫자는 SB-99 사용 검출거리입니다
Detecting distance () is with SB-99



BT-8M, BTH-30

· BTH-30 : 고온용(High temperature)
(-10°C~100°C)



Cable 3m : Shield, 1C(PVC)

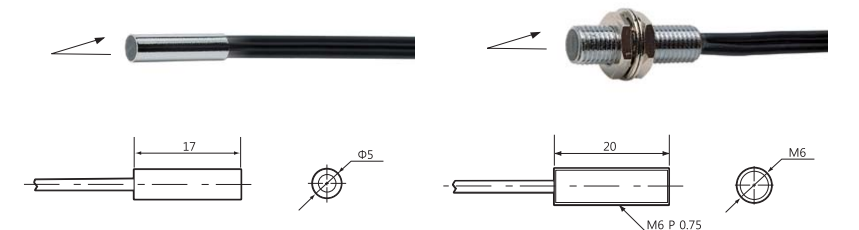
Cable 5m : Shield(Teflon)

모델 (Model)	BT-8M	BTH-30
검출 거리 (Detecting distance)	5m	
최소검출물체 (Detecting target of Min.)	φ 5	
광원 (Light source)	적외 LED (infrared LED)	
보호 등급 (Protection category)	IP66 (IEC specification)	
사용주위온도 (Ambient temperature)	-10°C~55°C (±10%)	-10°C~100°C (±10%)
사용주위조도 (Ambient illumination)	태양광 (sunlight) : 3,000 lx	
재질 (Housing material)	황동 (크롬도금) Chromium plated brass	



BR-5S, 6M

· Cable 2m : Shield, 2C(PVC)

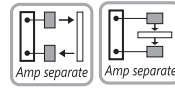


모델 (Model)	BR-5S	BR-6M
검출 거리 (Detecting distance)	30 (40)mm	
표준검출물체(Standard target)	백색무광택지 (non-glossy white paper) : 100x100	
광원 (Light source)	적외LED (infrared LED)	
보호 등급 (Protection category)	IP54 (IEC specification)	
사용주위온도 (Ambient temperature)	-10°C~55°C (±10%)	
사용주위조도 (Ambient illumination)	태양광 (sunlight) : 11,000 lx, 백열등 (incandescent) : 3,000 lx	
재질 (Housing material)	STS (stainless steel)	황동(크롬도금) Chromium plated brass

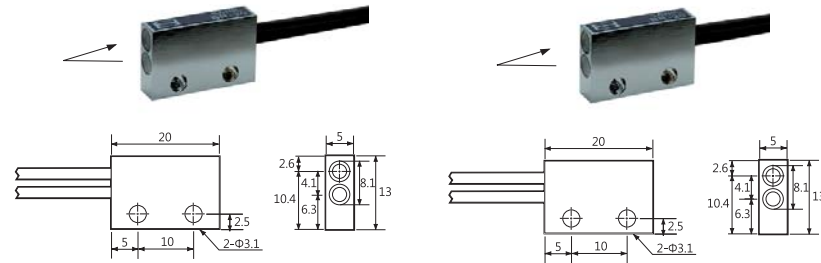
※검출거리 () 안의 숫자는 SB-99 사용 검출거리입니다
Detecting distance () is with SB-99



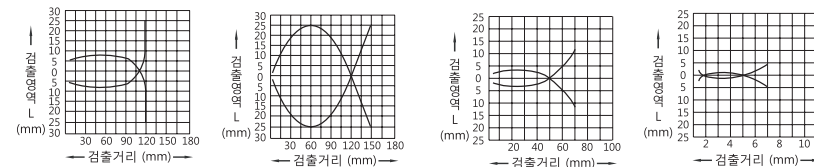
HEAD with SB-99



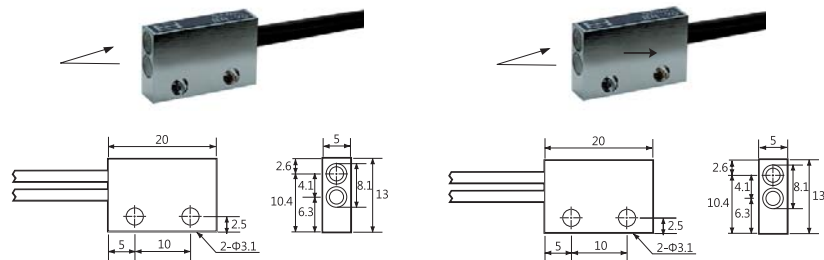
BR-20RN, 20RW, 20RH, 20RS



모델 (Model)	BR-20RN	BR-20RW	BR-20RH	BR-20RS
검출 거리 (Detecting distance)	100(120)mm	100(120)mm	40(50)mm	4(5)mm
최소검출물체 (Detecting target of Min.)	백색무광택지 (non-glossy white paper) : 100x100			
광원 (Light source)	적외 LED (infrared LED)			
보호 등급 (Protection category)	IP 66 (EC specification)			
사용주위온도 (Ambient temperature)	-10℃~55℃ (±10%)			
사용주위조도 (Ambient illumination)	태양광 (sunlight) : 10,000 lx, 백열등 (incandescent) : 3,000 lx			
재질 (Housing material)	황동 (크롬도금) Chromium plated brass			

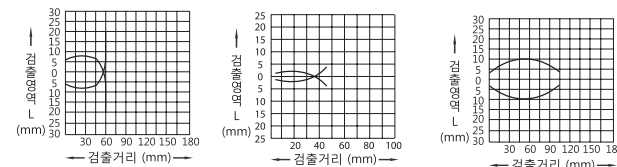


BR-20GN, 20GH, 20N



모델 (Model)	BR-20GN	BR-20GH	BR-20N
검출 거리 (Detecting distance)	50(60)mm	30(40)mm	80(100)mm
표준검출물체 (Standard target)	백색무광택지 (non-glossy white paper) : 100x100		
광원 (Light source)	녹색 LED (green LED)	녹색 LED (green LED)	적외 LED (infrared LED)
보호 등급 (Protection category)	IP 66		
사용주위온도 (Ambient temperature)	-10℃~55℃ (±10%)		
사용주위조도 (Ambient illumination)	태양광 (sunlight) : 10,000 lx, 백열등 (incandescent) : 3,000 lx		
재질 (Housing material)	황동 (크롬도금) Chromium plated brass		

※검출거리 인의 숫자는 SB-99에 사용 검출거리 입니다
Detecting distance() is with SB-99



MEMO

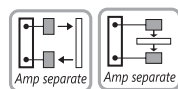
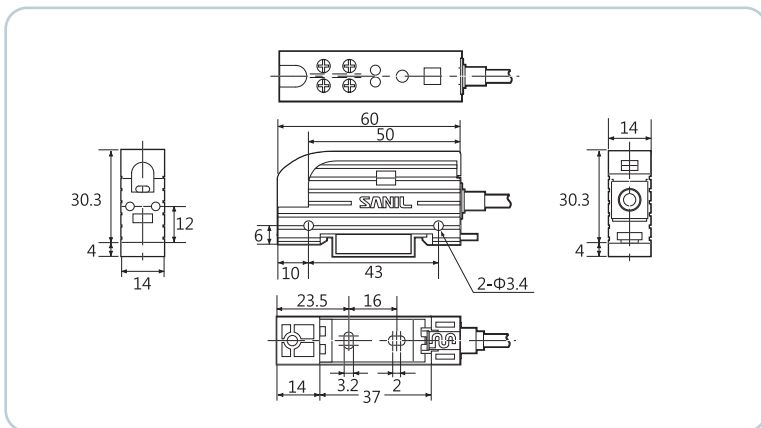
Blank lined area for notes.

Inductive Proximity Switch AMPLIFIER SEPARATED TYPE

앰프분리형 Amplifier separated Type



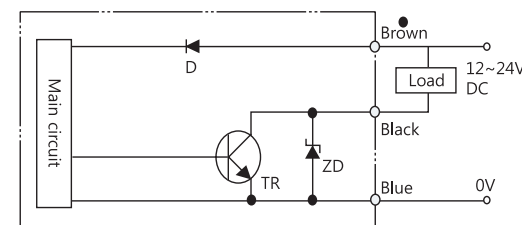
- Surge protection
- Cable 2m



앰프타입 (Amp type)	통과센서용 (Ring type)	분리형 근접센서용 (Inductive Proximity switch)
DC 3 wire 12~24V (Ripple ±10%) NPN D/O, L/O Adjustable	SP-01	SP-02
출력 (Output)	NPN Transistor open collector, 부하전류 (load current) : ≤ 100mA 이하	
소비전류 (Consumption current)	≤ 20mA 이하	
잔류전압 (Control output)	≤ 1.0V 이하 : 부하전류 (load current) 100mA일때, <0.4V 이하 : 부하전류 (load current) 16mA일때	
응답시간 (Response time)	≤ 1ms 이하	
출력동작 (Output operation)	N.O / N.C 동작변환 스위치 (adjustable switch)	
감도조정 (Adjusting)	3회전 연속 가변 볼륨 (adjustable volume of 3 turns)	
단락보호 (Short circuit protection)	yes	
전원역접속보호 (Reverse polarity protection)	yes	
사용주위온도 (Ambient temperature)	동작시 (operating) : -10°C~55°C, 보존시 (storage) : -20°C~70°C (단, 결빙, 결로하지 않을것)	
사용주위습도 (Ambient humidity)	35% ~ 85% RH	
내노이즈 (Noise)	전원라인 : 240Vp (펄스폭 : 0.5µs), 복사 : 300Vp (펄스폭 : 0.5µs)	
내전압 (Dielectric strength)	Power line : 240Vp (pulse width : 0.5µs), Radiation : 300Vp (pulse width : 0.5µs) 1k VAC, 50/60Hz for 1min	
내진동 (Vibration)	1.5mm amplitude at frequency of 10~55 Hz in each of X, Y, Z directions for 2hours	
내충격 (Shock resistance)	100% (10G) X, Y, Z direction for 3times	
절연저항 (Insulation resistance)	≥ 20M 이상 (DC 500V Megger)	
표시등 (Indicator)	동작표시 (적색) 입광시 점등 Power (red LED) 안정표시 (녹색) Stability (green LED)	
케이블 (Cable 2m : PVC)	Ø4 x 3C x 0.2SQ	

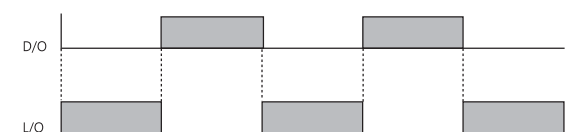
제어출력 회로도 Control output diagram

● NPN

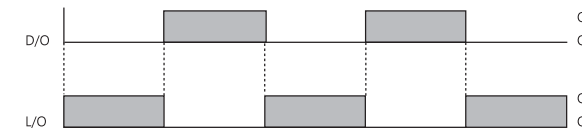


동작모드 Operating mode

● SP-01

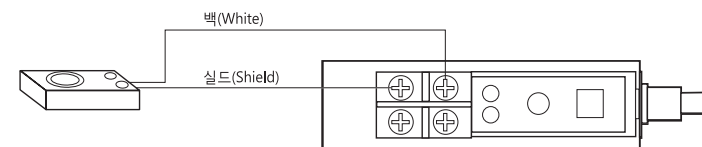


● SP-02

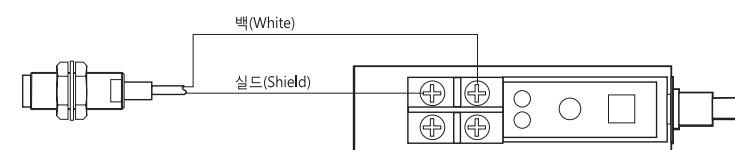


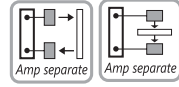
센서 헤드와의 접속도 Connection with sensor head

● SP-01(Ring sensor)



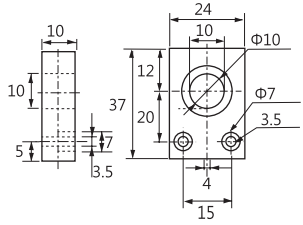
● SP-02(Inductive)

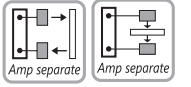




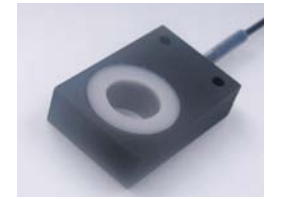
SP-10H

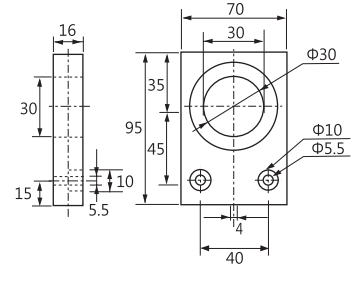
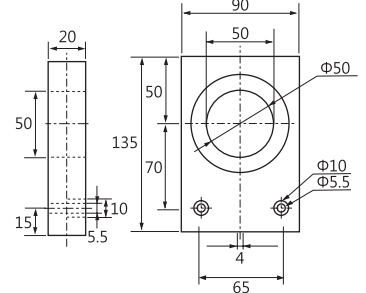


모 델 (Model)	SP-10H
통 과 범 위 (Detecting hole)	φ 10mm
최소검출물체 (Detecting target of Min.)	φ 0.3강선(wire), φ 2강구(ball)
절 연 저 항 (Insulation resistance)	≥ 20M이상 (DC 500V Megger)
보 호 등 급 (Protection category)	IP66 (IEC specification)
사용주위온도 (Ambient temperature)	-10°C~55°C(±10%)
사용주위습도 (Ambient humidity)	35% ~85% RH
내 전 압 (Dielectric strength)	1kVAC, 50/60Hz for 1min
외 형 도 (Dimension)	

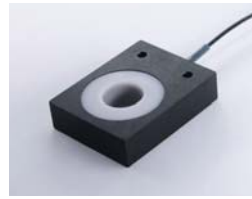
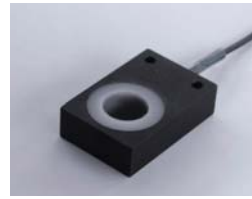


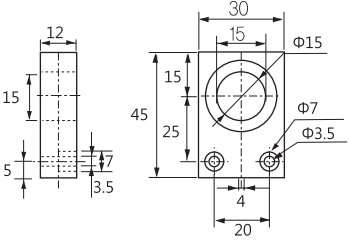
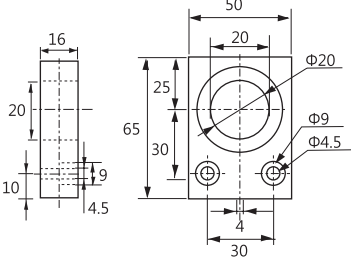
SP-30H, SP-50H



모 델 (Model)	SP-30H	SP-50H
통 과 범 위 (Detecting hole)	φ 30mm	φ 50mm
최소검출물체 (Detecting target of Min.)	φ 1강선(wire), φ 5강구(ball)	φ 3강선(wire), φ 10강구(ball)
절 연 저 항 (Insulation resistance)	≥ 20M이상 (DC 500V Megger)	
보 호 등 급 (Protection category)	IP66 (IEC specification)	
사용주위온도 (Ambient temperature)	-10°C~55°C(±10%)	
사용주위습도 (Ambient humidity)	35% ~85% RH	
내 전 압 (Dielectric strength)	1kVAC, 50/60Hz for 1min	
외 형 도 (Dimension)		

SP-15H, SP-20H,



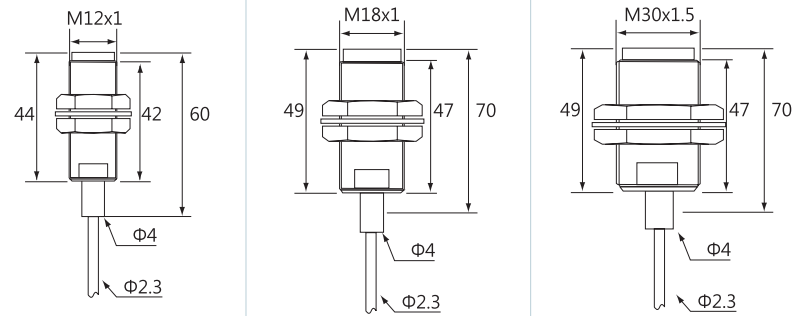
모 델 (Model)	SP-15H	SP-20H
통 과 범 위 (Detecting hole)	φ 15mm	φ 20mm
최소검출물체 (Detecting target of Min.)	φ 0.5강선(wire), φ 3강구(ball)	φ 1강선(wire), φ 4강구(ball)
절 연 저 항 (Insulation resistance)	≥ 20M이상 (DC 500V Megger)	
보 호 등 급 (Protection category)	IP66 (IEC specification)	
사용주위온도 (Ambient temperature)	-10°C~55°C(±10%)	
사용주위습도 (Ambient humidity)	35% ~85% RH	
내 전 압 (Dielectric strength)	1kVAC, 50/60Hz for 1min	
외 형 도 (Dimension)		

HIGH TEMPERATURE

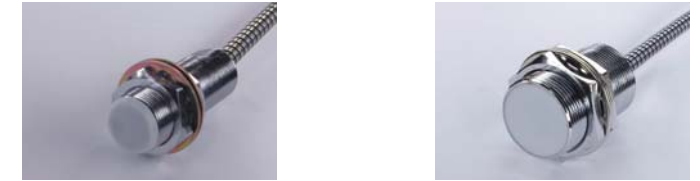
SP - 12MS, 18MS, 30MS



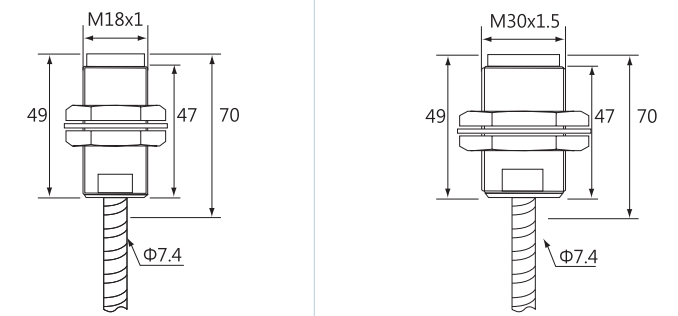
모 델 (Model)	SP-12MS	SP-18MS	SP-30MS
검출 거리 (Detecting distance)	4mm	8mm	12mm
설정 거리 (Setting distance)	2.8mm	5.6mm	8.4mm
표준검출물체 (Standard target)	12mm x 12mm x 1t	25mm x 25mm x 1t	30mm x 30mm x 1t
응 차 (Hysteresis)	≤ 15%(sr)이하		
보호 등급 (Protection category)	IP68 (IEC specification)		
사용주위온도 (Ambient temperature)	0℃~80℃		
사용주위습도 (Ambient humidity)	90% RH		
내 전 압 (Dielectric strength)	1kVAC, for 1min.		
절 연 저항 (Insulation resistance)	≥ 20MΩ이상 (DC 500V Megger)		
재 질 (Housing material)	황동:크롬도금(chrome plated brass)		
검출면 재질 (Active face material)	테프론(TEFLON)		
케 이 블 (Cable 2m : Teflon)	∅2.3 x 2C x 0.08SQ		



SPH - 18MS, 30MS



모 델 (Model)	SPH-18MS	SPH-30MS
검출 거리 (Detecting distance)	8mm	12mm
설정 거리 (Setting distance)	5.6mm	8.4mm
표준검출물체 (Standard target)	25mm x 25mm x 1t	30mm x 30mm x 1t
응 차 (Hysteresis)	≤ 15%(sr)이하	
보호 등급 (Protection category)	IP68 (IEC specification)	
사용주위온도 (Ambient temperature)	0℃~200℃	
사용주위습도 (Ambient humidity)	90% RH	
내 전 압 (Dielectric strength)	1kVAC, for 1min.	
절 연 저항 (Insulation resistance)	≥ 20MΩ이상 (DC 500V Megger)	
재 질 (Housing material)	황동:크롬도금(chrome plated brass)	
검출면 재질 (Active face material)	테프론(TEFLON)	
케 이 블 (Cable 3.5m : Teflon)	∅0.25 x 1P Shield x Protection Tube 3m x 실드선 3.5m	

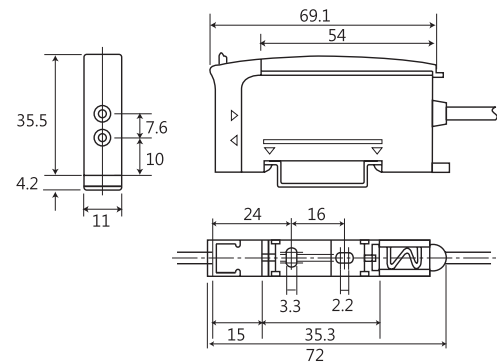


Fiber AMP

화이버 앰프 Fiber Amp



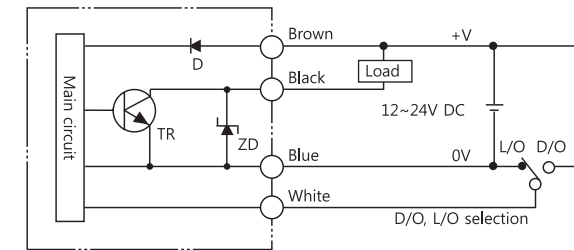
· Light ON/Dark ON selection (white cable)



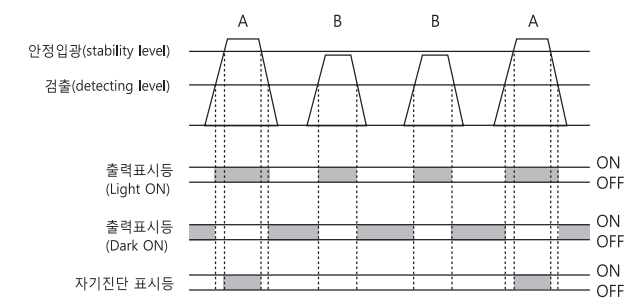
앰프 타입 (Amplifier type)	일반형 (Standard type)	근거리 미세조정형 (Short distance minuteness type)
DC 3 wire 12~24V (Ripple ±10%)	NPN D/O, L/O Adjustable	SBF-1
	PNP D/O, L/O Adjustable	-
검출 거리 (Detecting distance)	200mm(with FT4M)	60mm(with FR6M1)
소비 전류 (Consumption current)	≤ 40mA 이하	
출력 (Output)	NPN open collector, 부하전류(load current) : ≤ 100mA 이하	
광원 (Light source)	적색광 LED(red LED)	
응답 시간 (Response time)	≤ 0.5ms이하	
출력 동작 (Output operation)	입광시 ON/차광시 ON 케이블 전환방식 Dark ON/Light ON selection, white cable	
감도 조정 (Adjusting)	3회전 연속 가변 볼륨(adjustable volume of 3turns)	
과전류 보호 (Surge protection)	no	
전원역접속보호 (Reverse polarity protection)	yes	
보호 등급 (Protection category)	IP 50 (IEC specification)	
사용주위조도 (Ambient illumination)	태양광(sunlight) : 10,000 lx, 백열등(incandescent) : 3,000 lx	
사용주위온도 (Ambient temperature)	-25℃~55℃	
사용주위습도 (Ambient humidity)	45% ~ 85% RH	
내 노이즈 (Noise)	전원라인 : 240Vp(펄스폭 : 0.5μs) Power line : 240Vp(pulse width : 0.5μs)	
내 전압 (Dielectric strength)	1kVAC, 50/60Hz for 1min	
내 진동 (Vibration)	1.5mm amplitude at frequency of 10~55Hz in each of X,Y,Z directions for 2hours	
내 충격 (Shock resistance)	100% (10G) X, Y, Z direction for 3times	
절연저항 (Insulation resistance)	≥ 25M이상 (DC 500V Megger)	
표시등 (Indicator)	동작표시(적색) 입광시 점등 Operation (red LED) 안정표시(녹색) 안정 입광시 점등 Stability (green LED)	
케이블 (Cable 2m : PVC)	φ4 x 4C x 0.2SQ	

제어출력회로도 Control output diagram

● NPN

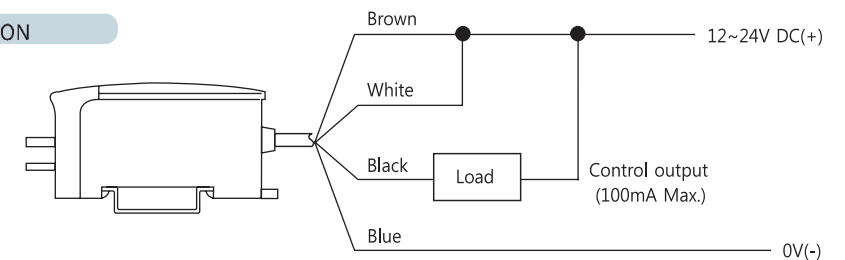


동작차트 Operating chart

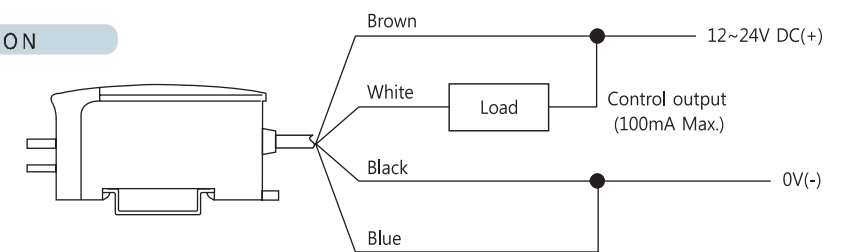


접속도 Connection

● Dark ON



● Light ON

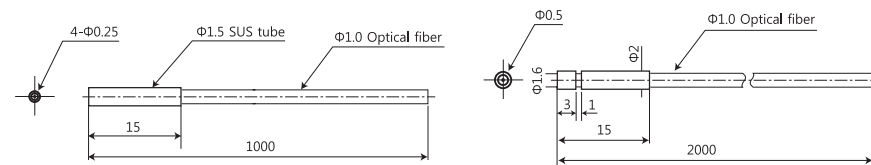


Fiber FIBER CABLE

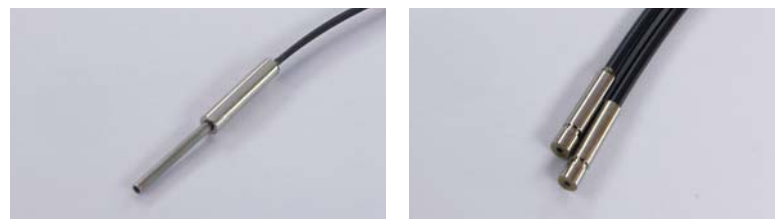
FT1.5S, FT2S



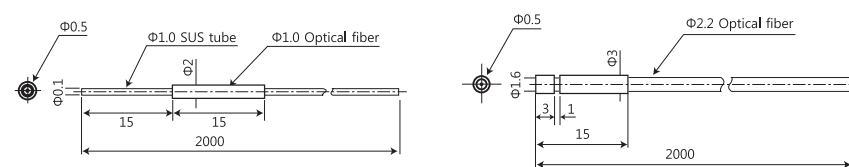
모 델 (Model)	FT1.5S	FT2S
타 입 (Type)	투과형 (through beam)	
크 기 (Collar bushing size)	φ 1.5	φ 2
곡률 반경 (Bending radius)	25mm	
케 이 블 (Cable)	φ1.0 Optical fiber	
코 어 (Core)	4-φ0.25	φ0.5
코 어 재 질 (Core material)	Plastic	
사용주위온도 (Ambient temperature)	-40°C~80°C	



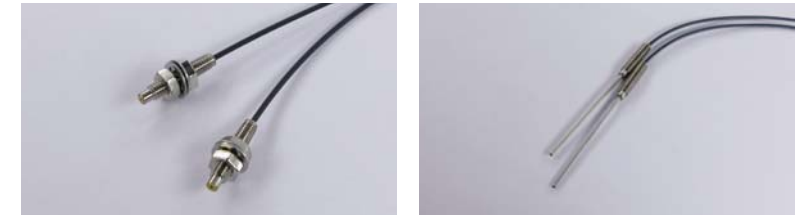
FT2S-S15, FT3S



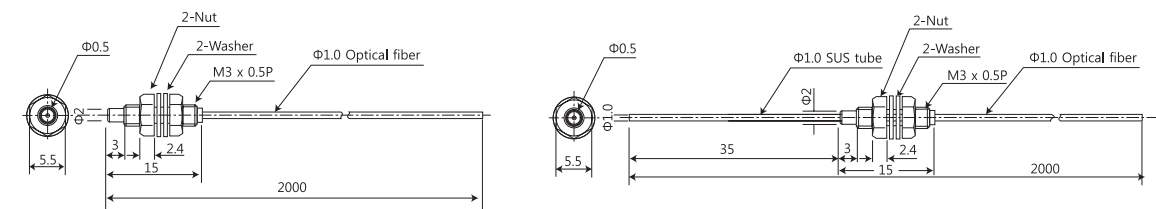
모 델 (Model)	FT2S-S15	FT3S
타 입 (Type)	투과형 (through beam)	
크 기 (Collar bushing size)	φ 2	φ 3
곡률 반경 (Bending radius)	25mm	
케 이 블 (Cable)	φ1.0 Optical fiber	φ2.2 Optical fiber
코 어 (Core)	4-φ0.25	φ0.5
코 어 재 질 (Core material)	Plastic	
사용주위온도 (Ambient temperature)	-40°C~80°C	



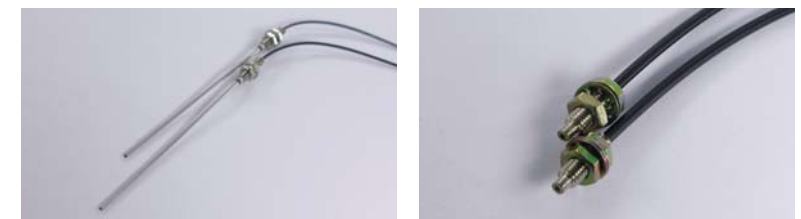
FT3M, FT3M-S35



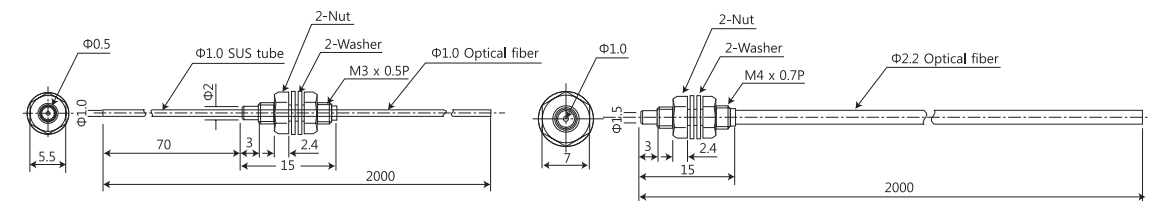
모 델 (Model)	FT3M	FT3M-S35
타 입 (Type)	투과형 (through beam)	
크 기 (Collar bushing size)	M3	
곡률 반경 (Bending radius)	25mm	
케 이 블 (Cable)	φ1.0 Optical fiber	
코 어 (Core)	φ0.5	
코 어 재 질 (Core material)	Plastic	
사용주위온도 (Ambient temperature)	-40°C~80°C	



FT3S-S70, FT4M

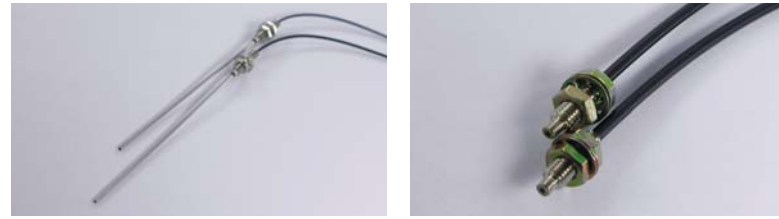


모 델 (Model)	FT3S-S70	FT4M
타 입 (Type)	투과형 (through beam)	
크 기 (Collar bushing size)	M3	M4
곡률 반경 (Bending radius)	25mm	
케 이 블 (Cable)	φ1.0 Optical fiber	φ2.2 Optical fiber
코 어 (Core)	4-φ0.25	φ0.5
코 어 재 질 (Core material)	Plastic	
사용주위온도 (Ambient temperature)	-40°C~80°C	

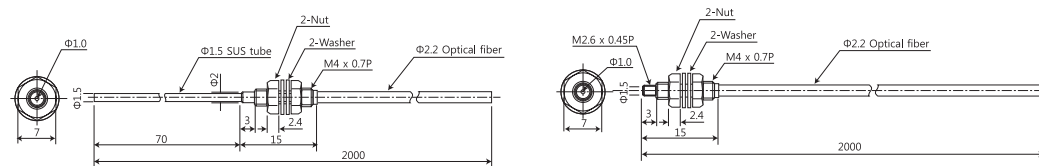


Fiber
FIBER CABLE

FT4M-S70, FT4M-T



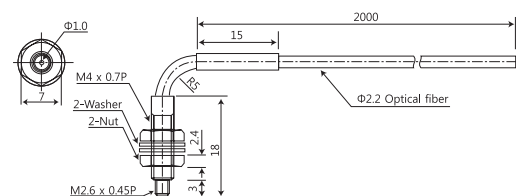
모 델 (Model)	FT4M-S70	FT4M-T
타 입 (Type)	투과형 (through beam)	
크 기 (Collar bushing size)	4M	
곡률 반경 (Bending radius)	25mm	
케 이 블 (Cable)	Ø2.2 Optical fiber	
코 어 (Core)	Ø1.0	
코 어 재 질 (Core material)	Plastic	
사용주위온도 (Ambient temperature)	-40°C~80°C	



FT4M-TR

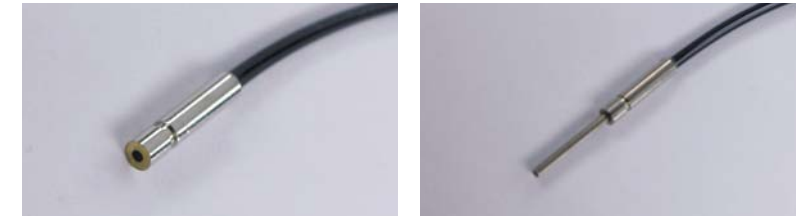


모 델 (Model)	FT4M-TR
타 입 (Type)	투과형 (through beam)
크 기 (Collar bushing size)	4M
곡률 반경 (Bending radius)	25mm
케 이 블 (Cable)	Ø2.2 Optical fiber
코 어 (Core)	Ø1.0
코 어 재 질 (Core material)	Plastic
사용주위온도 (Ambient temperature)	-40°C~80°C

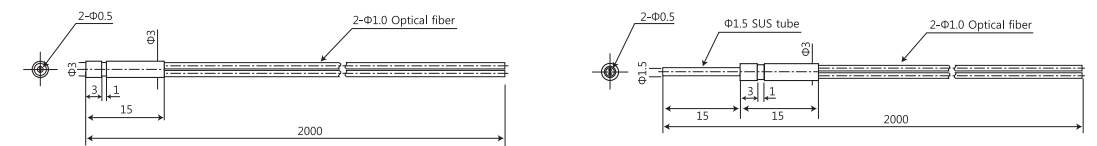


Fiber
FIBER CABLE

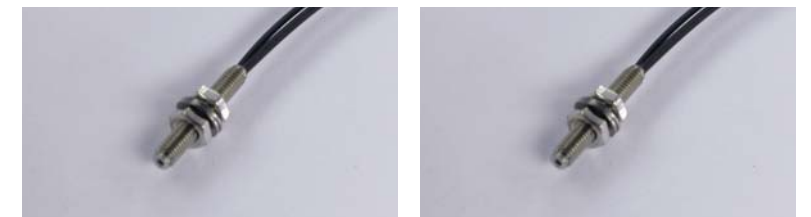
FR3S, FR3S-S15



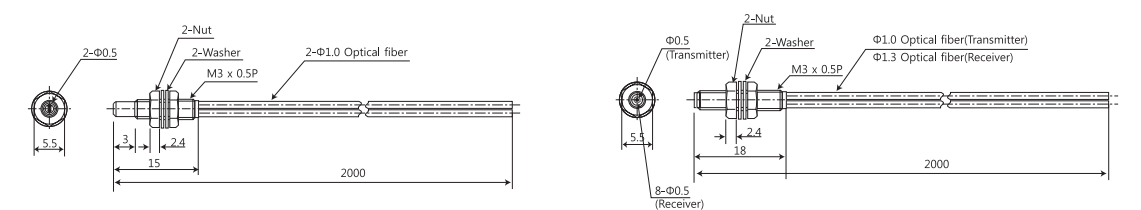
모 델 (Model)	FR3S	FR3S-S15
타 입 (Type)	반사형(reflex)	
크 기 (Collar bushing size)	Ø3	
곡률 반경 (Bending radius)	25mm	
케 이 블 (Cable)	2-Ø1.0 Optical fiber	
코 어 (Core)	2-Ø0.5	
코 어 재 질 (Core material)	Plastic	
사용주위온도 (Ambient temperature)	-40°C~80°C	



FR3M, FR3M-C



모 델 (Model)	FR3M	FR3M-C
타 입 (Type)	반사형(reflex)	
크 기 (Collar bushing size)	M3	
곡률 반경 (Bending radius)	25mm	
케 이 블 (Cable)	2-Ø1.0 Optical fiber	Ø1.0 Optical fiber(transmitter), Ø1.3 Optical fiber(receiver)
코 어 (Core)	2-Ø0.5	Ø0.5(transmitter), 8-Ø0.5(receiver)
코 어 재 질 (Core material)	Plastic	
사용주위온도 (Ambient temperature)	-40°C~80°C	



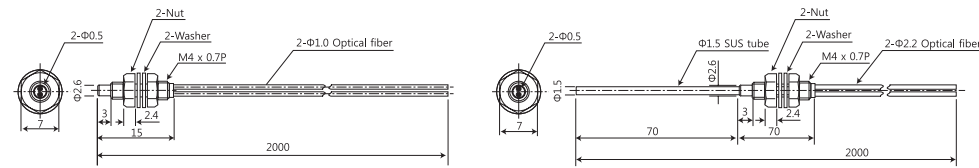
* 동축케이블(co-axial)

FIBER CABLE

FR4M, FR4M-S70



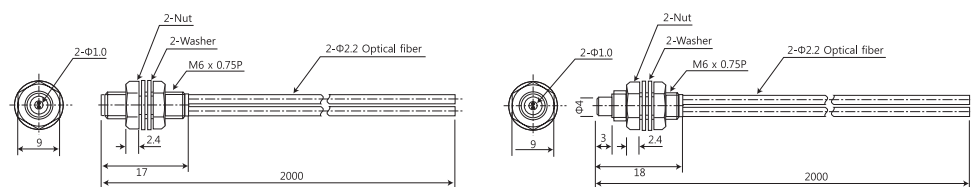
모 델 (Model)	FR4M	FR4M-S70
타 입 (Type)	반사형(reflex)	
크 기 (Collar bushing size)	M4	
곡률 반경 (Bending radius)	25mm	
케 이 블 (Cable)	2- ϕ 1.0 Optical fiber	
코 어 (Core)	2- ϕ 0.5	
코 어 재 질 (Core material)	Plastic	
사용주위온도 (Ambient temperature)	-40 $^{\circ}$ C~80 $^{\circ}$ C	



FR6M, FR6M-S



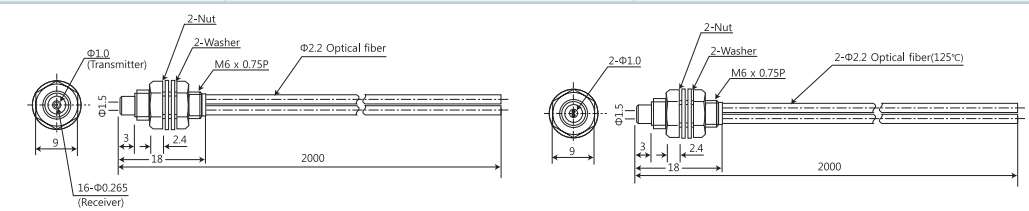
모 델 (Model)	FR6M	FR6M-S
타 입 (Type)	반사형(reflex)	
크 기 (Collar bushing size)	M6	
곡률 반경 (Bending radius)	25mm	
케 이 블 (Cable)	2- ϕ 2.2 Optical fiber	
코 어 (Core)	2- ϕ 1.0	
코 어 재 질 (Core material)	Plastic	
사용주위온도 (Ambient temperature)	-40 $^{\circ}$ C~80 $^{\circ}$ C	



FR6M-C, FR6M-HA



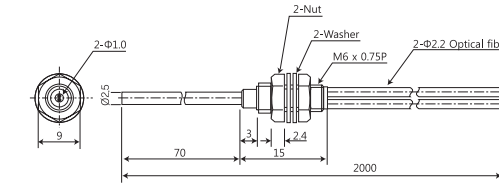
모 델 (Model)	FR6M-C	FR6M-HA
타 입 (Type)	반사형(reflex)	
크 기 (Collar bushing size)	M6	
곡률 반경 (Bending radius)	25mm	
케 이 블 (Cable)	2- ϕ 1.0 Optical fiber	
코 어 (Core)	ϕ 1.0, ϕ 16-0.265	2- ϕ 1.0
코 어 재 질 (Core material)	Plastic	
사용주위온도 (Ambient temperature)	-40 $^{\circ}$ C~80 $^{\circ}$ C	-40 $^{\circ}$ C~125 $^{\circ}$ C
	* 동축케이블(co-Axial)	* 고온용(High temperature)



FR6M-S70



모 델 (Model)	FR6M-S70
타 입 (Type)	반사형(reflex)
크 기 (Collar bushing size)	M6
곡률 반경 (Bending radius)	25mm
케 이 블 (Cable)	2- ϕ 2.2 Optical fiber
코 어 (Core)	2- ϕ 1.0
코 어 재 질 (Core material)	Plastic
사용주위온도 (Ambient temperature)	-40 $^{\circ}$ C~80 $^{\circ}$ C

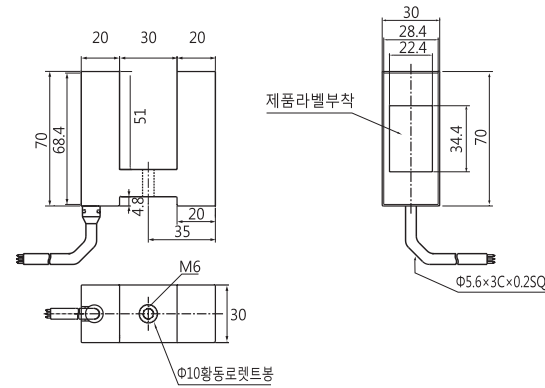


U TYPE

말단형 U Type



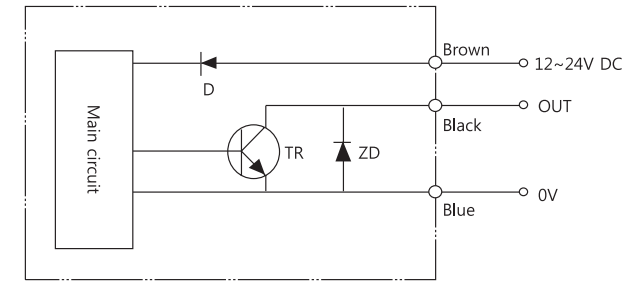
Photoelectric



검출거리(Detecting distance)	30mm	
DC 3 wire 12~24V (Ripple ±10%)	NPN	Dark ON
		Light ON
최소검출물체 (Detecting target of Min.)	≥ φ5mm 이상 불투명체 (opaque)	
검출 방식 (Detecting type)	광전식(photoelectric)	
소비 전류 (Consumption current)	≤ 30mA이하	
제어 출력 (Control output)	NPN Transistor open collector, 부하전류(load current) : ≤ 100mA이하	
광원 (Light source)	적외광 LED(infrared LED)	
응답 시간 (Response time)	≤ 1ms이하	
보호 등급 (Protection category)	IP 65 (EC specification)	
서지 보호 (Surge protection)	yes	
전원역접속보호 (Reverse polarity protection)	yes	
사용주위조도 (Ambient illumination)	태양광(sunlight) : 10,000lx, 백열등(incandescent) : 3,000lx	
사용주위온도 (Ambient temperature)	동작시(operating) : -10℃~60℃, 보존시(storage) : -20℃~70℃ (단, 결빙, 결로하지 않을 것)	
내전압 (Dielectric strength)	1kVAC, 50/60Hz for 1min	
내진동 (Vibration)	1.5mm amplitude at frequency of 10~55Hz in each of X,Y,Z directions for 2hours	
내충격 (Shock resistance)	500%(50G) X,Y,Z direction for 3times	
절연저항 (Insulation resistance)	≥ 20MΩ이상 (DC 500V Megger)	
표시등 (Indicator)	동작표시(적색) Operating (red LED)	
케이블 (Cable 2m : PVC)	φ5.6 x 3C x 0.25Q	

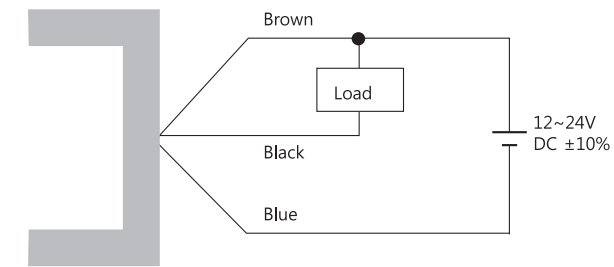
제어출력 회로도 Control output diagram

● NPN



접속도 Connection

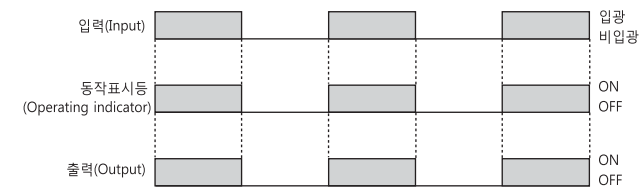
● SB-73



동작차트 Operating chart

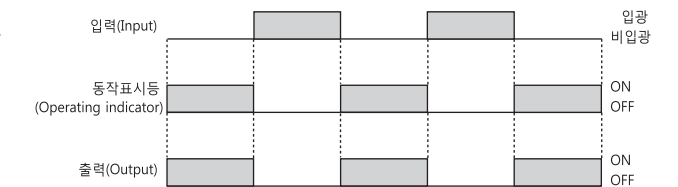
● DARK ON

- SB-73A



● LIGHT ON

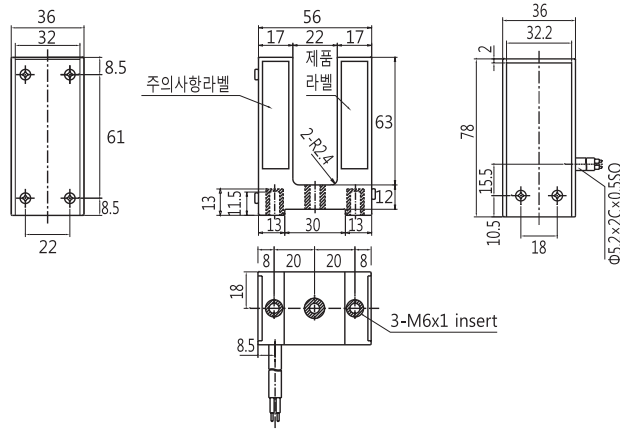
- SB-73B



말뚝형 U Type



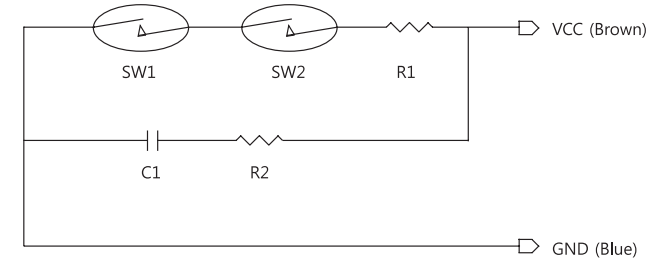
· Magnetic



검출거리(Detecting distance)	30mm	
DC 3 wire 12~24V (Ripple ±10%)	Magnetic contact	SL-73A(1a contact)
		SL-73B(1b contact)
최소검출물체 (Detecting target of Min.)	60 × 100 × 1t 철판(steel)	
최대접점하중 (Max. switching power)	50W(resistive load)	
최대개폐전압 (Max. switching voltage)	AC 150V, DC 200V	
최대개폐전류 (Max. switching current)	AC 0.7A, DC 1A	
응답시간 (Response time)	≤ 3ms이하, 동작시간(operating time) : ≤ 4ms이하, 복귀시간(release time) : ≤ 2ms이하	
보호등급 (Protection category)	IP 67 (IEC specification)	
서지보호 (Surge protection)	yes	
전원역접속보호 (Reverse polarity protection)	yes	
수명 (Life cycle)	기계적수명(mechanical) : 1억회(M n, 100million), 전기적수명(electrical) : 15백만회(M n, 15million(at 30V, 20mA)	
사용주위온도 (Ambient temperature)	동작시(operating) : -10℃~60℃, 보존시(storage) : -25℃~70℃(단, 결빙, 결로하지 않을것)	
내전압 (Dielectric strength)	접점간(contact/contact) : 500VAC for 1min, 단자와케이스(terminal/case) : 1500VAC for 1min	
내진동 (Vibration)	1.5mm amplitude at frequency of 30Hz in each of X,Y,Z directions for 2hours	
내충격 (Shock resistance)	100%(10G) X,Y,Z direction for 3times	
절연저항 (Insulation resistance)	≥ 100MΩ이상 (DC 500V Megger)	
표시등 (Indicator)	동작표시(작색) Operating (red LED)	
케이블 (Cable 2m : PVC)	φ5.0 x 2C x 0.5SQ	

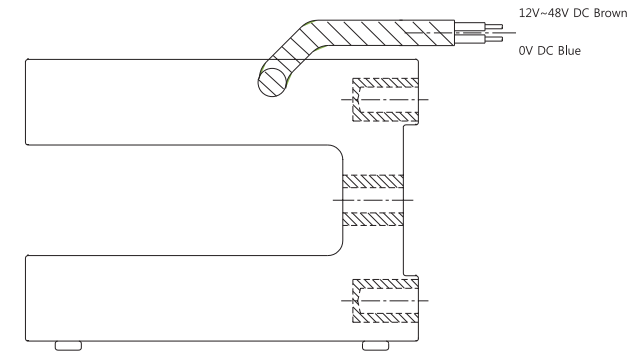
제어출력 회로도 Control output diagram

● 자석식 (Magnetic)



접속도 Connection

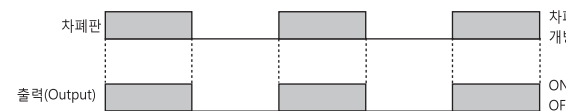
● SL-73



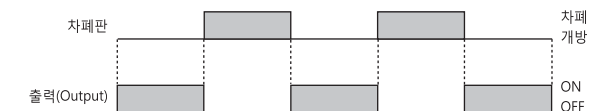
동작차트 Operating chart

● 자석식(Magnetic)

- SL-73A



- SL-73B

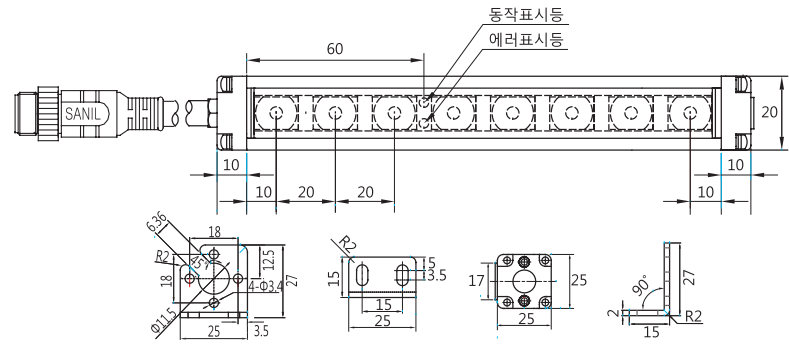


AREA

투과형 Through Beam

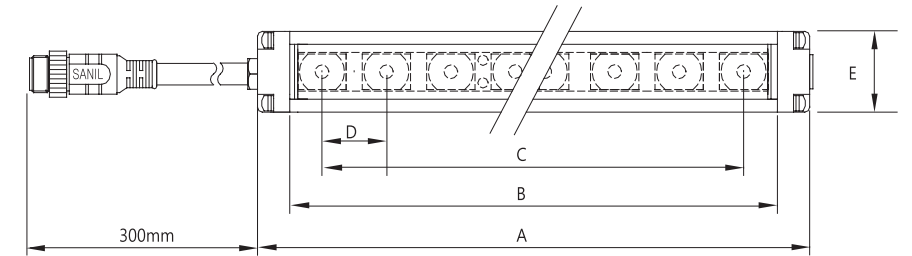


· 1:3, 1:5 멀티스캔 방식 주문제작 (1:3, 1:5 Multi Scan on Request)



검출거리 (Detecting distance)		0~7000mm	
DC 3 wire 12~24V (Ripple ±10%)	NPN	Dark ON	SMB-□□02A SMB-□□04A
		Light ON	SMB-□□02B SMB-□□04B
	PNP	Dark ON	SMB-□□02AP SMB-□□04AP
		Light ON	SMB-□□02BP SMB-□□04BP
광 축 간 격 (Resolution)	20mm pitch	40mm pitch	
최소 검출물체 (Detecting target of Min.)	≥ φ30 이상 Opaque ≥ φ50이상 Opaque		
제 어 출 력 (Control output)	NPN/PNP: Max. 200mA		
이상 검지출력 (Error output)	NPN/PNP Transistor open collector		
	1 광축이상 60초 이상 차광시 고장검지 출력 ON (one or more beam interrupted for 60sec)		
보 호 기 능 (Protect function)	직사광 및 불량광축 무시기능 (ignore the direct rays and error beam-axis)		
스 비 전 류 (Consumption current)	투광기(transmitter) : ≤ 100mA 이하, 수광기(receiver) : ≤ 50mA 이하		
응 답 시 간 (Response time)	≤ 10ms 이하		
투광부 광원 (Light source: transmitter)	적외광 LED (infrared LED)		
보 호 등 급 (Protection category)	IP 65 (IEC specification)		
단 락 보 호 (Short circuit protection)	yes		
전원역접속보호 (Reverse polarity protection)	yes		
주 위 조 도 (Ambient illumination)	태양광(sunlight) : ≤ 100,000 lx 이하		
주 위 온 도 (Ambient temperature)	동작시(operating) : -10°C~55°C, 보존시(storage) : -30°C~70°C (단 결빙, 결로하지 않을 것)		
내 전 압 (Dielectric strength)	1kVAC, 50/60Hz for 1min		
내 진 동 (Vibration)	1.5mm amplitude at frequency of 10~55Hz in each of X,Y,Z directions for 2hours		
내 충 격 (Shock resistance)	100%(10G) X,Y,Z direction for 3times		
절 연 저 항 (Insulation resistance)	≥ 20M 이상 (DC 500V Megger)		
표 시 등 (Indicator)	투광기 전원표시(적색), 이상표시(황색) Transmitter: Power (red LED), Error(황색)		
	수광기 동작표시(적색), 안정이상표시(황색) Receiver: Operating (red LED), Stability/Error (yellow LED)		
재 질 (Material)	케이스(case): 알루미늄(aluminum anodized), 렌즈(lens): PMMA, 커버(cover): 아크릴(acrylic)		
커넥터 (M12, 300mm connector : PVC)	투광기(transmitter) : φ5.6 x 4C x 0.2SQ x 4pin		
	수광기(receiver) : φ5.6 x 4C x 0.2SQ x 4pin		

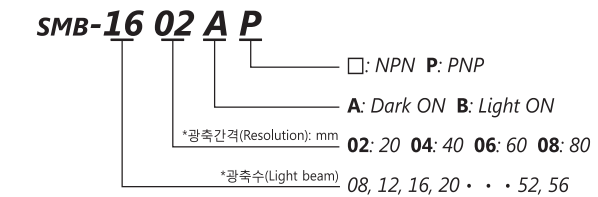
외형치수도 Dimension



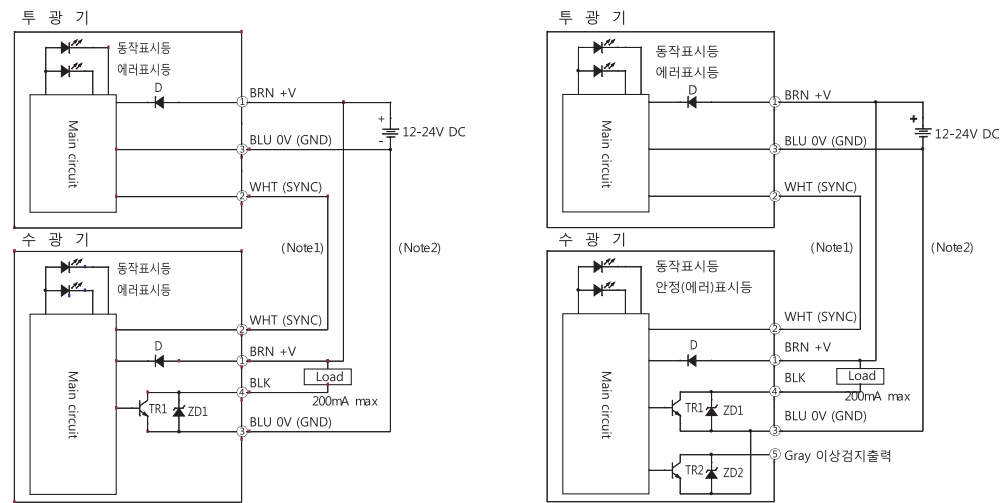
- 검출거리 : 7m 기준 - 장거리검출 타입(10m, 15m, 20m) 주문 생산가능
Standard detecting distance : 7m (Long distance type(10m, 15m, 20m) on request)
- 케이블 타입 주문생산 가능 Cable type on request
- 커넥터 타입 기본형 Connector type on standard (연장 커넥터 별매)

모 델 (Model)	A	B	C	D	E
SMB-0802 (0404)	180	160	140 (120)	20 (40)	25
SMB-1202 (0604)	260	240	220 (200)	20 (40)	25
SMB-1602 (0804)	340	320	300 (280)	20 (40)	25
SMB-2002 (1004)	420	400	380 (360)	20 (40)	25
SMB-2402 (1204)	500	480	460 (440)	20 (40)	25
SMB-2802 (1404)	580	560	540 (520)	20 (40)	25
SMB-3202 (1604)	660	640	620 (600)	20 (40)	25
SMB-3602 (1804)	740	720	700 (680)	20 (40)	25
SMB-4002 (2004)	820	800	780 (760)	20 (40)	25
SMB-4402 (2204)	900	880	860 (840)	20 (40)	25
SMB-4802 (2404)	980	960	940 (920)	20 (40)	25
SMB-5202 (2604)	1060	1040	1020 (1000)	20 (40)	25
SMB-5602 (2804)	1140	1120	1100 (1080)	20 (40)	25
SMB-0306	180	160	120	60	25
SMB-1408	1140	1120	1040	80	25

모델구성표 Order guide



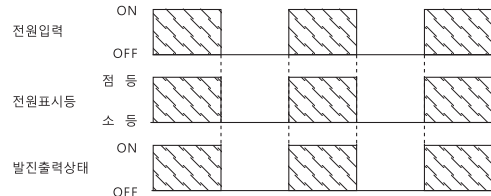
제어출력 회로도 Control output diagram



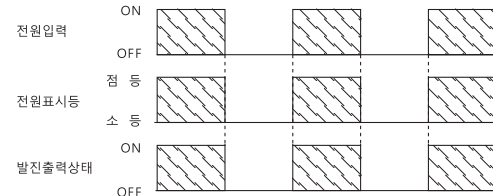
- Note 1) 동기 신호선의 연결이 +전원이나 GND에 연결되지 않도록 하십시오.
- Note 2) 공급 전원의 GND와 발광측, 수광측의 GND를 공통으로 연결하여 사용하십시오.

동작차트 Operating chart

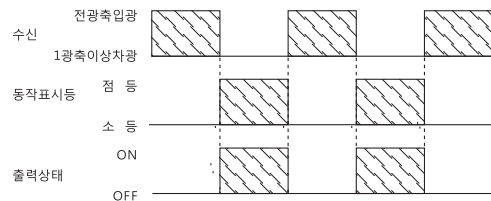
투광기



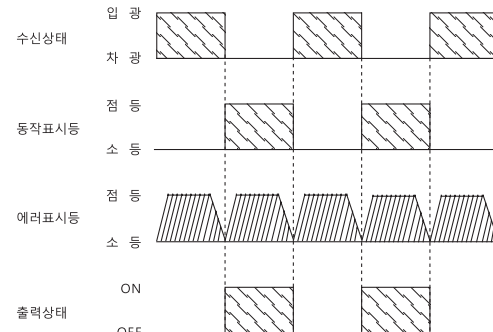
투광기



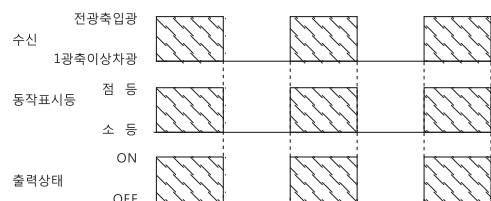
수광기 (Dark ON)



수광기 (Dark ON)

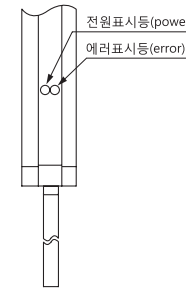


수광기 (Light ON)

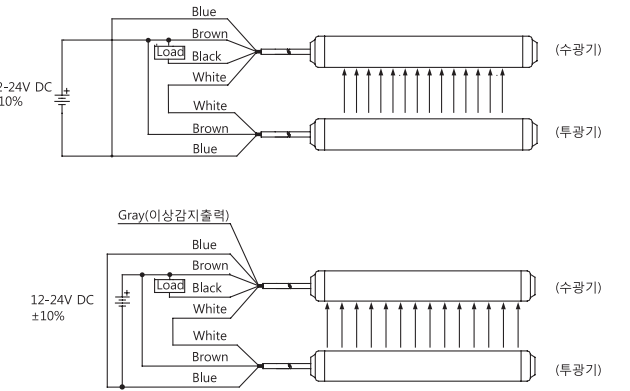
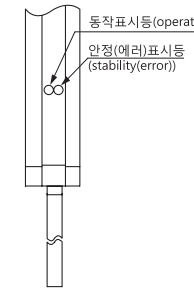


동작차트 Operating chart

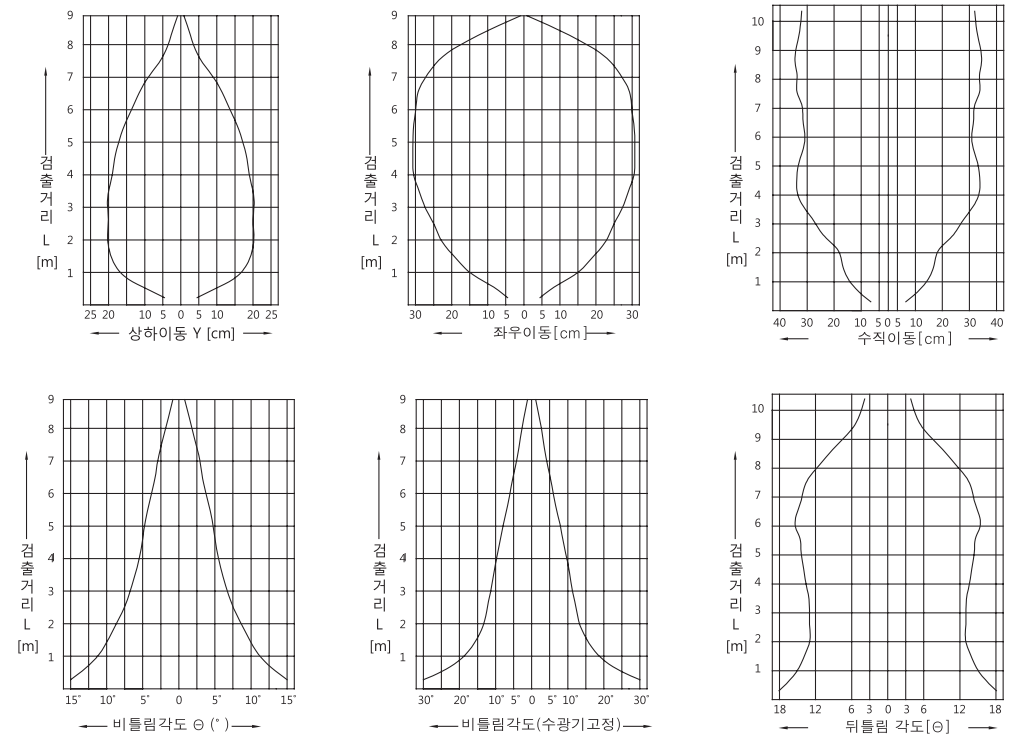
투광기



수광기

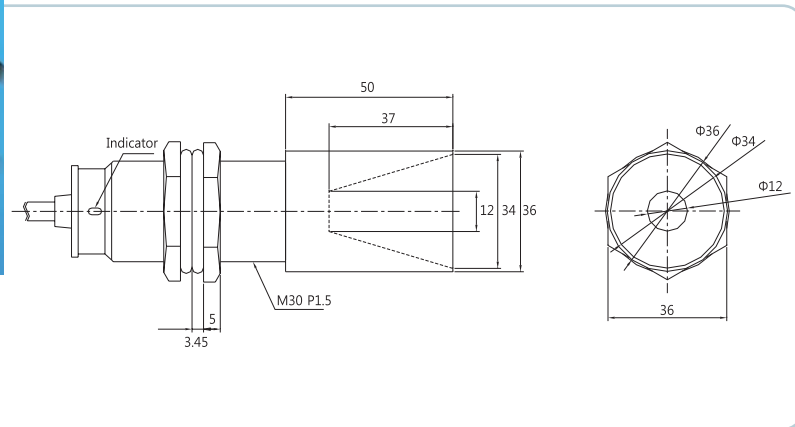


검출영역 특성곡선 Characteristics



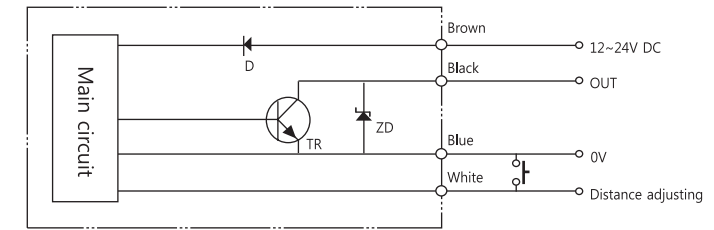
Sensor
ULTRASONIC

초음파 센서 Ultrasonic



검출거리 (Detecting distance) (백색선 GND 연결시)	200 ~ 3000mm	200 ~ 2000mm
	200 ~ 4500mm	200 ~ 3000mm
DC 3 wire 12~24V (Ripple ±10%)	NPN	Normal open
		Light close
표준검출물체 (Standard target)	300mm x 300mm 평판(flat board)	
초음파발진주파수(Ultrasonic oscillation frequency)	40kHz	
소비전류 (Consumption current)	≤ 30mA 이하	
제어 출력 (Control output)	NPN Transistor open collector, 부하전류 (load current) : ≤ 100mA 이하	
응답 시간 (Response time)	동작시(operating) ≤ 300ms이하, 복귀시(return) ≤ 200ms 이하	
응차 거리 (Hysteresis)	≤ 20%(sr)이하	
보호 등급 (Protection category)	IP 65 (IEC specification)	
전원역접속보호 (Reverse polarity protection)	yes	
사용주위온도 (Ambient temperature)	동작시(operating) : -10°C~55°C, 보존시(storage) : -30°C~70°C (단 결빙, 결로하지 않을 것)	
내전압 (Dielectric strength)	1kVAC, 50/60Hz for 1min	
내진동 (Vibration)	1.5mm amplitude at frequency of 10~55Hz in each of X,Y,Z directions for 2hours	
내충격 (Shock resistance)	500%(50G) X,Y,Z direction for 3times	
절연저항 (Insulation resistance)	≥ 20M이상 (DC 500V Megger)	
표시등 (Indicator)	동작표시(적색) Operating (red LED)	
케이블 (Cable 2m : PVC)	φ5.6 X 4C X 0.2SQ	

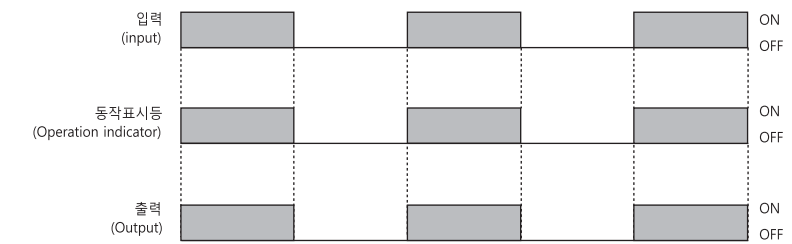
제어출력 회로도 Control output diagram



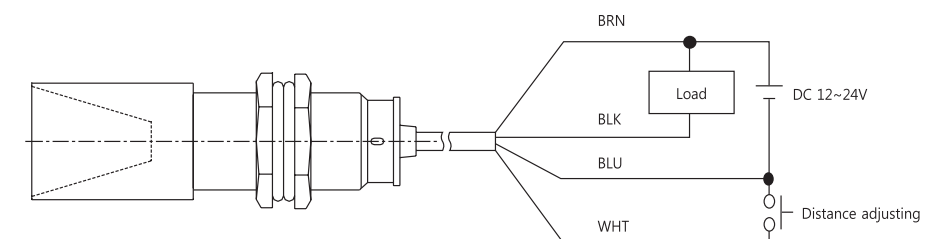
SUD-30M3 : 백색선 GND 연결시 3m, 개방시 2m
 : white cable link up with blue cable(0V): 3m, open: 2m
 SUD-30M5 : 백색선 GND 연결시 4.5m, 개방시 3m
 : white cable link up with blue cable(0V): 4.5m, open: 3m

동작차트 Operating chart

● 입음시 ON(Normal OPEN)

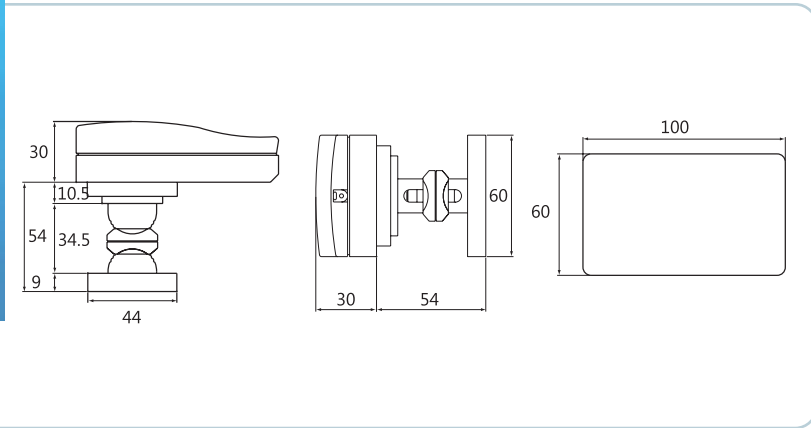


접속도 Connection



Sensor
MICROWAVE

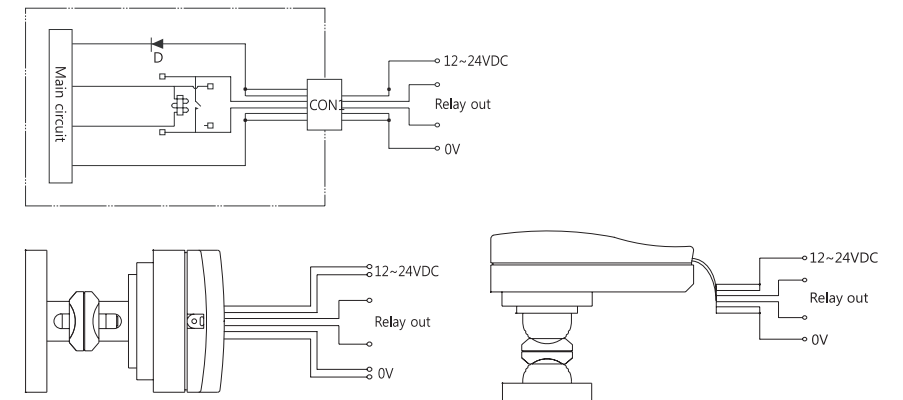
마이크로웨이브 Microwave motion



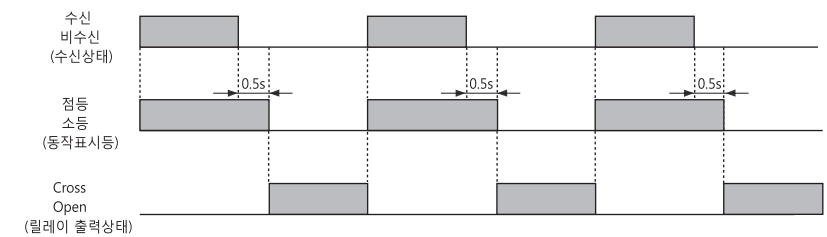
검출거리 (Detecting distance) 센서전면, 통로에서 인체 움직임기준	0~15m (VR Min.) 0~35m (VR Max.)
DC 3 wire 12~24V (Ripple ±10%)	ON SM-100 Relay OFF SM-100B
검출거리 (Detecting range)	감도 최소시 (VR Min.) 0~15m, 감도 최대시 (VR Max.) 0~35m
검출물체 (Detecting target)	∅10mm×300mm 센서로부터 500mm지점 움직임 감지 (500mm motion sensing from sensor)
출력저항 (Output resistance)	접점양단 간 저항 ≤ 1Ω 이하 (contact both ends ≤ 1Ω)
소비전류 (Consumption current)	≤ 60mA 이하
제어출력 (Control output)	DC 0~100V 200mA, 2VA / OFF Delay 0.5sec REED Relay output
감도조정 (Adjustable volume)	단 회전볼륨 270° (adjusting volume 270°)
응답시간 (Response time)	≤ 1ms이하
동작형태 (Operation form)	Relay ON : 움직임 감지(motion detected), Relay OFF : 움직임 미감지(motion non-detected)
보호등급 (Protection category)	IP 50 (IEC specification)
재질 (material)	케이스, 고정 브라켓(case, bracket) : ABS
주위습도 (Ambient humidity)	동작시(operating) : 45~85%RH, 보존시(storage) : 35~95%RH (단 결빙, 결로하지 않을 것)
주위온도 (Ambient temperature)	동작시(operating) : -10°C~50°C, 보존시(storage) : -20°C~70°C (단 결빙, 결로하지 않을 것)
내전압 (Dielectric strength)	1.5kVAC, 50/60Hz for 1min
내진동 (Vibration)	1.5mm amplitude at frequency of 10~55Hz in each of X,Y,Z directions for 2hours
내충격 (Shock resistance)	2m 자유낙하 3회 (2m free-fall 3 times)
절연저항 (Insulation resistance)	≥ 20M이상 (DC 500V Megger)
표시등 (Indicator)	동작표시등(적색) Operating LED(red LED)
커넥터 (MIC Connector : ABS)	커넥터 접속방식 (MIC connector)

제어출력 회로도 Control output diagram

Relay

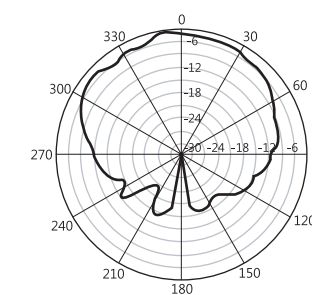


동작차트 Operating chart

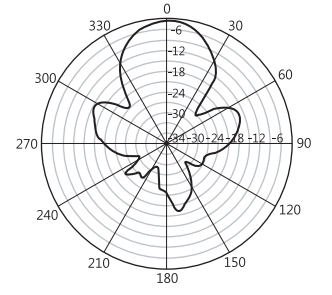


검출영역 특성곡선 Characteristics

수평방향 감지범위 (Azimuth)



수직방향 감지범위 (Elevation)



Sensor CONVERTER



모 델 (Model)	NP3	PN3
출력변환 (Converting output)	NPN → PNP	PNP → NPN
출력전류 (Output current)	DC 35V, 200mA	DC 35V, 200mA
보호등급 (Protection category)	IP66 (IEC specification)	IP66 (IEC specification)
외 형도 (Dimension)		
접 속도 (Connection)		



모 델 (Model)	NC4	PC4
출력변환 (Converting output)	NPN N.O → NPN N.C	PNP N.O → PNP N.C
출력전류 (Output current)	DC 35V, 200mA	DC 35V, 200mA
보호등급 (Protection category)	IP66 (IEC specification)	IP66 (IEC specification)
외 형도 (Dimension)		
접 속도 (Connection)		

MEMO

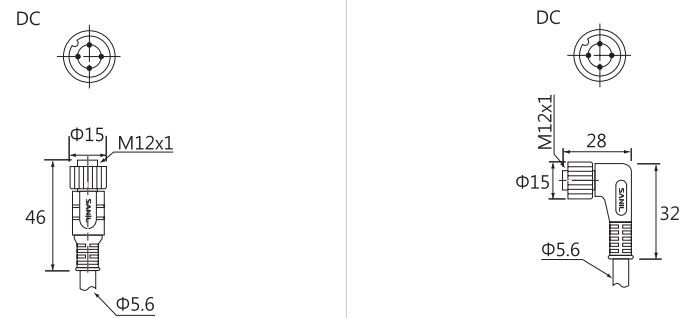
Blank lined area for notes.

CONNECTOR CABLE



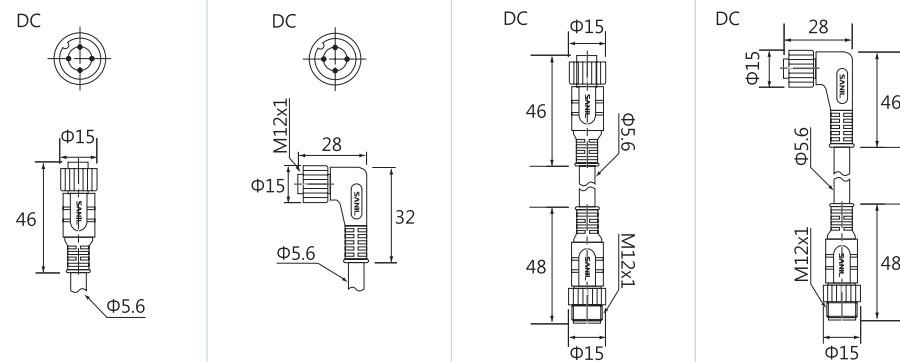
케이블길이 (Cable length) : 2m	SD-2I2	SD-2L2
케이블길이 (Cable length) : 5m	SD-2I5	SD-2L5
연 결 구 (Plug connection)	M12	
사용온도 (Operating temperature)	-25°C~70°C(±10%)	
보호등급 (Protection category)	IP67 (IEC specification)	
케이블재질 (Sheath material)	PVC	
너트재질 (Nut material)	Nikel plated brass	
케 이 블 (Cable)	φ5.6 x 2C x 0.2SQ	

· 케이블 길이 : 2m, 5m 기준
(기준사항과 다른 길이 주문 생산가능)
Standard length: 2m, 5m
(Other length on request)



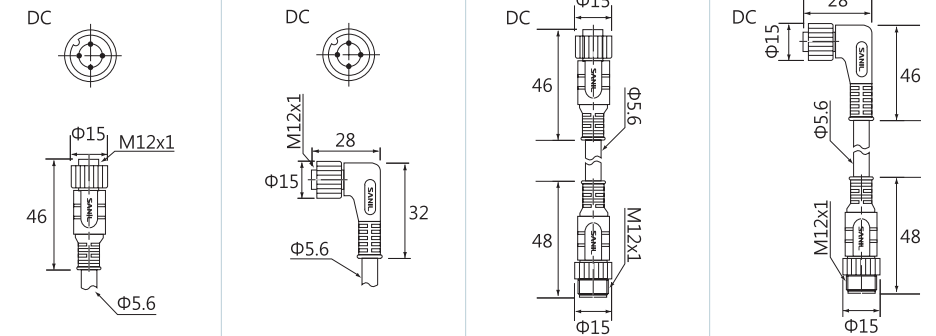
케이블길이 (Cable length) : 2m	SD-3I2	SD-3L2	SD-3I2I	SD-3L2I
케이블길이 (Cable length) : 5m	SD-3I5	SD-3L5	SD-3I5I	SD-3L5I
연 결 구 (Plug connection)	M12			
사용온도 (Operating temperature)	-25°C~70°C(±10%)			
보호등급 (Protection category)	IP67 (IEC specification)			
케이블재질 (Sheath material)	PVC			
너트재질 (Nut material)	Nikel plated brass			
케 이 블 (Cable)	φ5.6 x 3C x 0.2SQ			

· 케이블 길이 : 2m, 5m 기준
(기준사항과 다른 길이 주문 생산가능)
Standard length: 2m, 5m
(Other length on request)



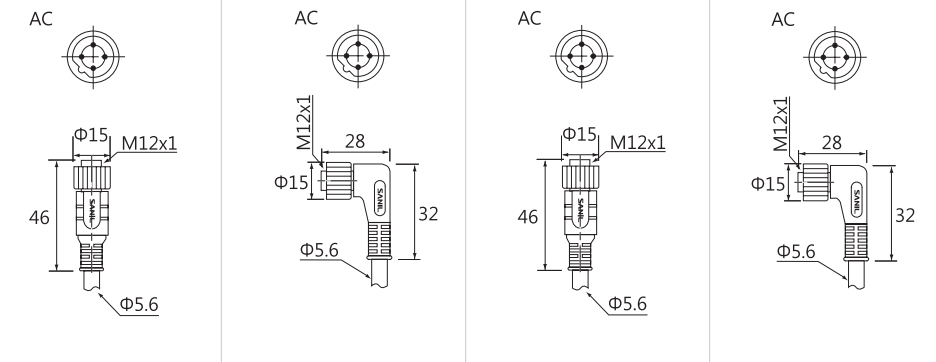
케이블길이 (Cable length) : 2m	SD-4I2	SD-4L2	SD-4I2I	SD-4L2I
케이블길이 (Cable length) : 5m	SD-4I5	SD-4L5	-	-
연 결 구 (Plug connection)	M12			
사용온도 (Operating temperature)	-25°C~70°C(±10%)			
보호등급 (Protection category)	IP67 (IEC specification)			
케이블재질 (Sheath material)	PVC			
너트재질 (Nut material)	Nikel plated brass			
케 이 블 (Cable)	φ5.6 x 4C x 0.2SQ			

· 케이블 길이 : 2m, 5m 기준
(기준사항과 다른 길이 주문 생산가능)
Standard length: 2m, 5m
(Other length on request)



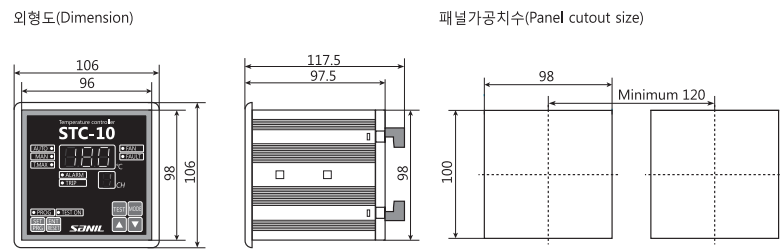
케이블길이 (Cable length) : 2m	SA-2I2	SA-2L2	SA-4I2	SA-4L2
케이블길이 (Cable length) : 5m	SA-2I5	SA-2L5	SA-4I5	SA-4L5
연 결 구 (Plug connection)	M12			
사용온도 (Operating temperature)	-25°C~70°C(±10%)			
보호등급 (Protection category)	IP67 (IEC specification)			
케이블재질 (Sheath material)	PVC			
너트재질 (Nut material)	Nikel plated brass			
케 이 블 (Cable)	φ5.6 x 2C x 0.2SQ		φ5.6 x 4C x 0.2SQ	

· 케이블 길이 : 2m, 5m 기준
(기준사항과 다른 길이 주문 생산가능)
Standard length: 2m, 5m
(Other length on request)



Temperature CONTROLLER

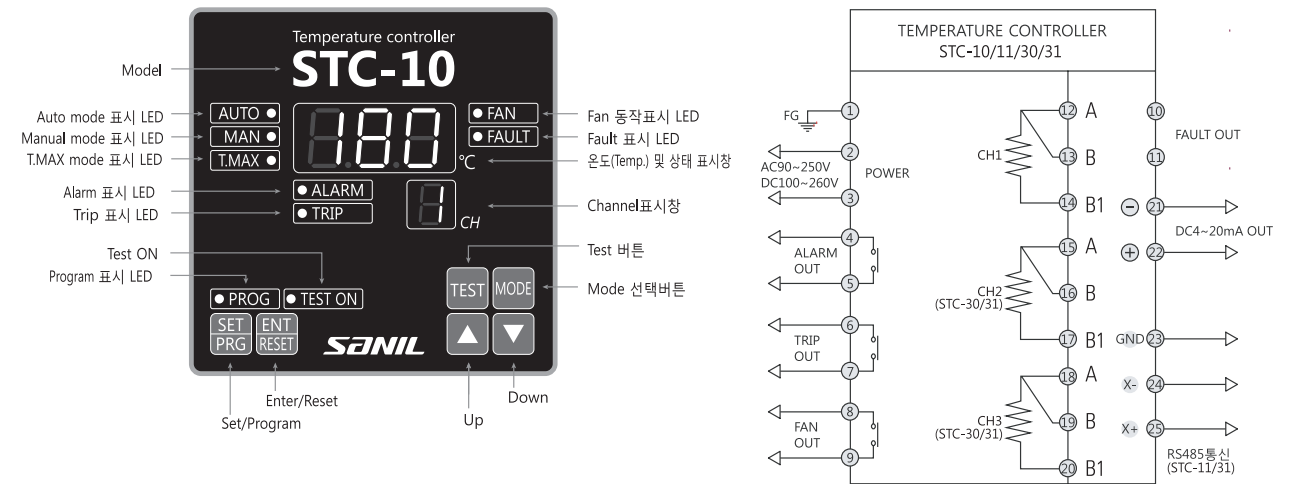
온도컨트롤러 Temperature controller



STC series

구분		단상용(Single phase)	3상용 (3 phase)
통신기능(Telecommunication)	NO	STC-10	STC-30
	YES	STC-11	STC-31
전원(Power)		단상(single phase) 85~250V, 50/60Hz	
사용 온도(Operating temperature)		0~60℃	
적용 센서(Sensor)		PT100Ω, 3선식(3wire)	
측정 범위(Measuring range)		0~200℃	
정밀도(Precision)		±0.5%	
온도 표시(Temperature display)		1℃	
제어 출력(Controll output)		AC 250V, 10A(저항부하: resistive load)	
DC전류출력(DC current output)		4~20mA	
통신 기능(Telecommunication)		RS-485 (2400bps, 9600bps) - STC-11, STC-31	
소비 전력(Consumption current)		Max. 8W	
내전압(Dielectric strength)		25kV/1min. (전원단자와 케이스간: between Power terminal to Case)	
절연저항(Insulation resistance)		1000MΩ, (500V Megger)	
최고온도저장기간(Highest temperature memory)		10년(10 years)	
무게(Weight)		380g	

각부명칭 및 기능 Functions / 외부결선도 Connections



동작항목 표시창 mode display

동작항목 (operating item)	온도표시창 (temp. window)	고장상태표시 (error display)	온도표시창 (temp. window)	프로그램모드 (program mode)	채널표시창 (channel window)
Start mode	22.9 RDY	Over Temperature	07.8 OTF	Fan ON	0 O
Relay Test mode	89.7 TST	Sensor Short	8.8 FCC	FAN OFF	8 F
Program mode	22.9 PRG	Sensor Open	8.8 FOC	Alarm temp.	8 A
Fan Relay	8.8 FAN	Connection Error	-1.0 -10	Trip temp.	7 T
Fault Relay	8.8 FLT			Cycle time of fan test	8 H
Alarm Relay	8.8 ALR			Number of measuring channel	5 S
Trip Relay	7.8 TRP			Telecommunications node address	0 C
				Cable length of PT100Ω	8 L

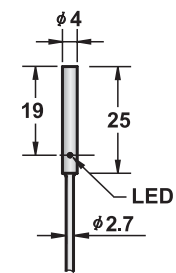
Inductive Proximity Switch

DC ULTRAMINI, CYLINDRIC

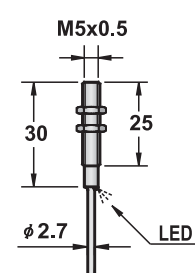
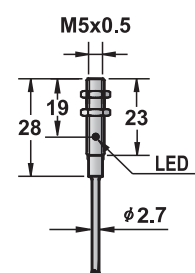


- Ultra mini size
- High switching frequency
- Reverse polarity protection

크 기 (Diameter)		φ4	M5	M5	
검출거리 (Switching distance)		0.8mm	0.8mm	0.8mm	
실드 / 비실드 (Shielded/non-Shielded)		Shielded	Shielded	Shielded	
DC 3 wire 10~30V (Ripple ±10%)	NPN	N.O	SD-4RS	SD-5MS	SD-5MSZ
		N.C	SD-4RSB	SD-5MSB	SD-5MSZB
	PNP	N.O	SD-4RSP	SD-5MSP	SD-5MSZP
		N.C	SD-4RSBP	SD-5MSBP	SD-5MSZBP
DC 2 wire 10~60V (Ripple ±10%)	N.O	-	-	-	
	N.C	-	-	-	
응답주파수 (Switching frequency)			2KHz		
소비전류 (Consumption current)			<10mA		
부하전류 (Max. Load current)			200mA		
전류전압 (Voltage drop)			<1.5V		
응차거리 (Hysteresis)			<15%(sr)		
반복정밀도 (Repeat accuracy)			<10%(sr)		
사용온도 (Operating temperature)			-25℃~70℃(±10%)		
단락보호회로 (Short-circuit protection)			Yes		
보호등급 (Protection category)			IP67		
재 질 (Housing material)			Stainless steel		
검출면 재질 (Material active face)			POM		
동작표시등 (Indicator)			LED		
케이블 (Cable)			φ2.7 x 3C x 0.15SQ		

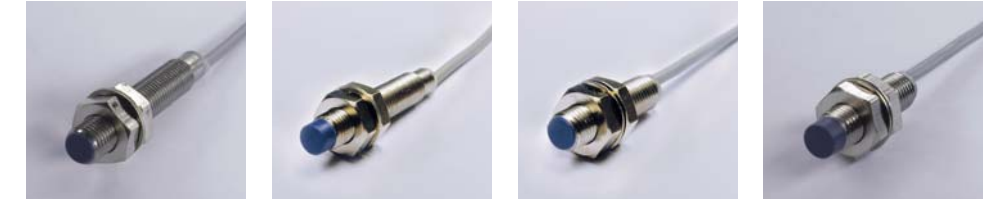


Smooth body



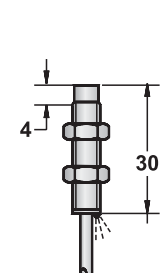
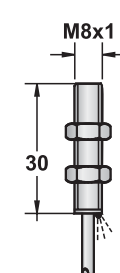
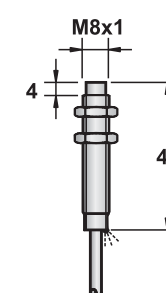
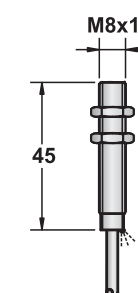
Inductive Proximity Switch

DC STANDARD, CYLINDRIC



- High switching frequency
- Reverse polarity protection

크 기 (Diameter)		M8				
검출거리 (Switching distance)		1.5mm	2mm	1.5mm	2mm	
실드 / 비실드 (Shielded/non-Shielded)		Shielded	non-Shielded	Shielded	non-Shielded	
DC 3 wire 10~30V (Ripple ±10%)	NPN	N.O	SD-8MS-L45	SD-8M-L45	SD-8MS	SD-8M
		N.C	SD-8MSB-L45	SD-8MB-L45	SD-8MSB	SD-8MB
	PNP	N.O	SD-8MSP-L45	SD-8MP-L45	SD-8MSP	SD-8MP
		N.C	SD-8MSEB-L45	SD-8MBP-L45	SD-8MSEB	SD-8MBP
DC 2 wire 10~60V (Ripple ±10%)	N.O	-	-	-	-	
	N.C	-	-	-	-	
응답주파수 (Switching frequency)			2KHz			
소비전류 (Consumption current)			< 10mA			
부하전류 (Max. Load current)			200mA			
전류전압 (Voltage drop)			< 1.5V			
응차거리 (Hysteresis)			< 15% (sr)			
반복정밀도 (Repeat accuracy)			< 10% (sr)			
사용온도 (Operating temperature)			-25℃~70℃(±10%)			
단락보호회로 (Short-circuit protection)			Yes			
보호등급 (Protection category)			IP 67			
재 질 (Housing material)			Stainless steel			
검출면 재질 (Material active face)			POM			
동작표시등 (Indicator)			LED			
케이블 (Cable)			φ2.7 x 3C x 0.15SQ			

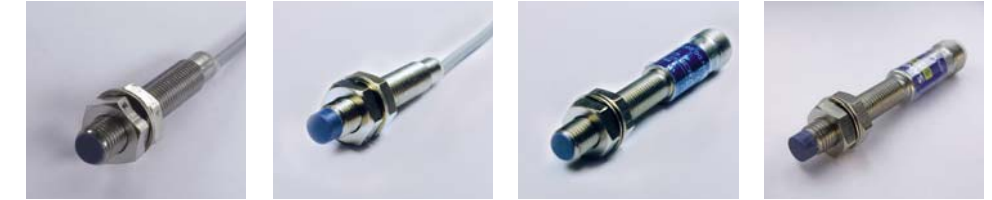


DC STANDARD, CYLINDRIC

- High switching frequency
- Reverse polarity protection

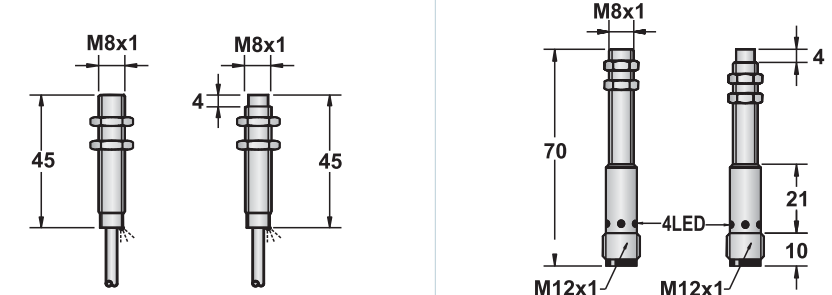
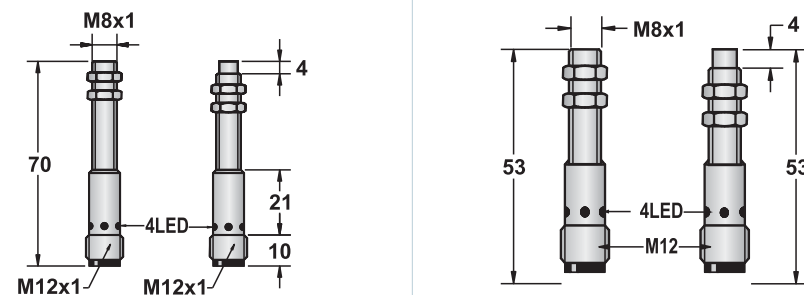


- High switching frequency
- Reverse polarity protection
- Long distance type



크 기 (Diameter)	M8					
검출거리 (Switching distance)	1.5mm	2mm	1.5mm	2mm		
실드 / 비실드 (Shielded/non-Shielded)	Shielded	non-Shielded	Shielded	non-Shielded		
DC 3 wire 10~30V (Ripple ±10%)	NPN	N.O	SC-8MS	SC-8M	SC-8MS-LS	SC-8M-LS
		N.C	SC-8MSB	SC-8MB	SC-8MSB-LS	SC-8MB-LS
	PNP	N.O	SC-8MSP	SC-8MP	SC-8MSP-LS	SC-8MP-LS
		N.C	SC-8MSBP	SC-8MBP	SC-8MSBP-LS	SC-8MBP-LS
DC 2 wire 10~60V (Ripple ±10%)	N.O	SC-8MSK	SC-8MK	-	-	
	N.C	SC-8MSKB	SC-8MKB	-	-	
응답주파수 (Switching frequency)	2KHz					
소비전류 (Consumption current)	<10mA					
부하전류 (Max. Load current)	200mA					
전류전압 (Voltage drop)	<1.5V					
응차거리 (Hysteresis)	<15%(sr)					
반복정밀도 (Repeat accuracy)	<1.0%(sr)					
사용온도 (Operating temperature)	-25°C~70°C(±10%)					
단락보호회로 (Short-circuit protection)	Yes					
보호등급 (Protection category)	IP67					
재 질 (Housing material)	Stainless steel or Nickel plated brass					
검출면 재질 (Material active face)	POM					
동작표시등 (Indicator)	LED					
케이블 (Cable)	-					

크 기 (Diameter)	M8					
검출거리 (Switching distance)	2mm	4mm	2mm	4mm		
실드 / 비실드 (Shielded/non-Shielded)	Shielded	non-Shielded	Shielded	non-Shielded		
DC 3 wire 10~30V (Ripple ±10%)	NPN	N.O	SD-8MS-02L45	SD-8M-04L45	SC-8MS-02	SC-8M-04
		N.C	SD-8MSB-02L45	SD-8MB-04L45	SC-8MSB-02	SC-8MB-04
	PNP	N.O	SD-8MSP-02L45	SD-8MP-04L45	SC-8MSP-02	SC-8MP-04
		N.C	SD-8MSBP-02L45	SD-8MBP-04L45	SC-8MSBP-02	SC-8MBP-04
DC 2 wire 10~60V (Ripple ±10%)	N.O	-	-	-	-	
	N.C	-	-	-	-	
응답주파수 (Switching frequency)	2KHz	1KHz	2KHz	1KHz		
소비전류 (Consumption current)	< 10mA					
부하전류 (Max. Load current)	200mA					
전류전압 (Voltage drop)	< 1.5V					
응차거리 (Hysteresis)	< 15% (sr)					
반복정밀도 (Repeat accuracy)	< 1.0% (sr)					
사용온도 (Operating temperature)	-25°C~70°C (±10%)					
단락보호회로 (Short-circuit protection)	Yes					
보호등급 (Protection category)	IP 67					
재 질 (Housing material)	Stainless steel		Stainless steel or Nickel plated brass			
검출면 재질 (Material active face)	POM					
동작표시등 (Indicator)	LED					
케이블 (Cable)	φ3 x 3C x 0.15SQ		-			



※ See the technical information at page 114, for the specifications of DC 2 wire type DC 2 선식 사양은 기술자료 114페이지 참조

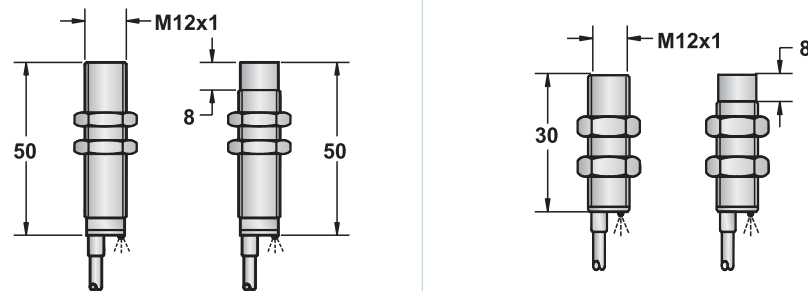


DC STANDARD, CYLINDRIC

- High switching frequency
- Reverse polarity protection



크 기 (Diameter)	M12					
검출거리 (Switching distance)	2mm	4mm	2mm	4mm		
실드 / 비실드 (Shielded/non-Shielded)	Shielded	non-Shielded	Shielded	non-Shielded		
DC 3 wire 10~30V (Ripple ±10%)	NPN	N.O	SD-12MS	SD-12M	SD-12MS-LS	SD-12M-LS
		N.C	SD-12MSB	SD-12MB	SD-12MSB-LS	SD-12MB-LS
	PNP	N.O	SD-12MSP	SD-12MP	SD-12MSP-LS	SD-12MP-LS
		N.C	SD-12MSBP	SD-12MBP	SD-12MSBP-LS	SD-12MBP-LS
DC 2 wire 10~60V (Ripple ±10%)	N.O	SD-12MSK	SD-12MK	SD-12MSK-LS	SD-12MK-LS	
	N.C	SD-12MSKB	SD-12MKB	SD-12MSKB-LS	SD-12MKB-LS	
응답주파수 (Switching frequency)	2KHz	1KHz	2KHz	1KHz		
소비전류 (Consumption current)	<10mA					
부하전류 (Max. Load current)	200mA					
전류전압 (Voltage drop)	<1.5V					
응차거리 (Hysteresis)	<15%(sr)					
반복정밀도 (Repeat accuracy)	<1.0%(sr)					
사용온도 (Operating temperature)	-25°C~70°C(±10%)					
단락보호회로 (Short-circuit protection)	Yes					
보호등급 (Protection category)	IP67					
재 질 (Housing material)	Stainless steel or Nickel plated brass					
검출면 재질 (Material active face)	POM / PBT					
동작표시등 (Indicator)	LED					
케 이 블 (Cable)	φ4.0 x 3C x 0.15SQ					

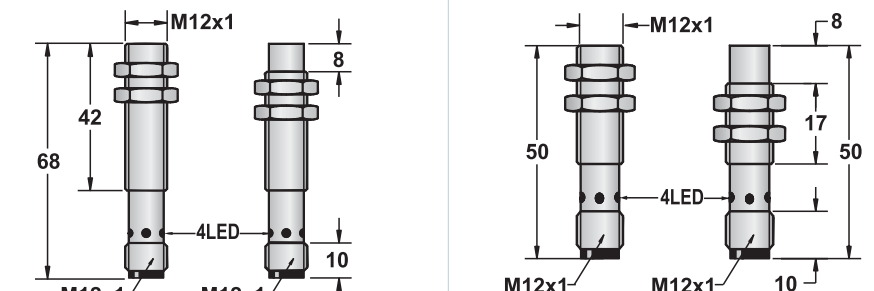


※ See the technical information at page 114, for the specifications of DC 2 wire type DC 2 선식 사양은 기술자료 114페이지 참조

- High switching frequency
- Reverse polarity protection



크 기 (Diameter)	M12					
검출거리 (Switching distance)	2mm	4mm	2mm	4mm		
실드 / 비실드 (Shielded/non-Shielded)	Shielded	non-Shielded	Shielded	non-Shielded		
DC 3 wire 10~30V (Ripple ±10%)	NPN	N.O	SC-12MS	SC-12M	SC-12MS-LS	SC-12M-LS
		N.C	SC-12MSB	SC-12MB	SC-12MSB-LS	SC-12MB-LS
	PNP	N.O	SC-12MSP	SC-12MP	SC-12MSP-LS	SC-12MP-LS
		N.C	SC-12MSBP	SC-12MBP	SC-12MSBP-LS	SC-12MBP-LS
DC 2 wire 10~60V (Ripple ±10%)	N.O	SC-12MSK	SC-12MK	SC-12MSK-LS	SC-12MK-LS	
	N.C	SC-12MSKB	SC-12MKB	SC-12MSKB-LS	SC-12MKB-LS	
응답주파수 (Switching frequency)	2KHz	1KHz	2KHz	1KHz		
소비전류 (Consumption current)	< 10mA					
부하전류 (Max. Load current)	200mA					
전류전압 (Voltage drop)	< 1.5V					
응차거리 (Hysteresis)	< 15% (sr)					
반복정밀도 (Repeat accuracy)	< 1.0% (sr)					
사용온도 (Operating temperature)	-25°C~70°C (±10%)					
단락보호회로 (Short-circuit protection)	Yes					
보호등급 (Protection category)	IP 67					
재 질 (Housing material)	Stainless steel or Nickel plated brass					
검출면 재질 (Material active face)	POM/PBT					
동작표시등 (Indicator)	LED					
케 이 블 (Cable)	-					



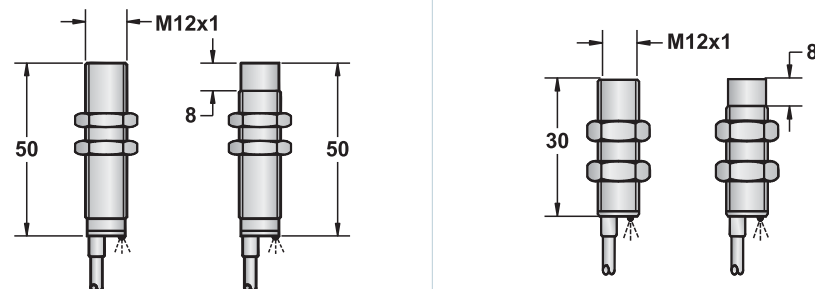
※ See the technical information at page 114, for the specifications of DC 2 wire type DC 2 선식 사양은 기술자료 114페이지 참조

DC STANDARD, CYLINDRIC

- High switching frequency
- Reverse polarity protection
- Long distance type



크 기 (Diameter)	M12					
검출거리 (Switching distance)	4mm	8mm	4mm	8mm		
실드 / 비실드 (Shielded/non-Shielded)	Shielded	non-Shielded	Shielded	non-Shielded		
DC 3 wire 10~30V (Ripple ±10%)	NPN	N.O	SD-12MS-04	SD-12M-08	SD-12MS-04LS	SD-12M-08LS
		N.C	SD-12MSB-04	SD-12MB-08	SD-12MSB-04LS	SD-12MB-08LS
	PNP	N.O	SD-12MSP-04	SD-12MP-08	SD-12MSP-04LS	SD-12MP-08LS
		N.C	SD-12MSBP-04	SD-12MBP-08	SD-12MSBP-04LS	SD-12MBP-08LS
DC 2 wire 10~60V (Ripple ±10%)	N.O	SD-12MSK-04	SD-12MK-08	-	-	
	N.C	SD-12MSKB-04	SD-12MKB-08	-	-	
응답주파수 (Switching frequency)	1KHz	500Hz	1KHz	500Hz		
소비전류 (Consumption current)	< 10mA					
부하전류 (Max. Load current)	200mA					
전류전압 (Voltage drop)	< 2.0V					
응차거리 (Hysteresis)	< 15% (sr)					
반복정밀도 (Repeat accuracy)	< 1.0% (sr)					
사용온도 (Operating temperature)	-25°C~70°C (±10%)					
단락보호회로 (Short-circuit protection)	Yes					
보호등급 (Protection category)	IP 67					
재 질 (Housing material)	Stainless steel or Nickel plated brass					
검출면 재질 (Material active face)	POM/PBT					
동작표시등 (Indicator)	LED					
케 이 블 (Cable)	φ4.0 x 3C x 0.15SQ					

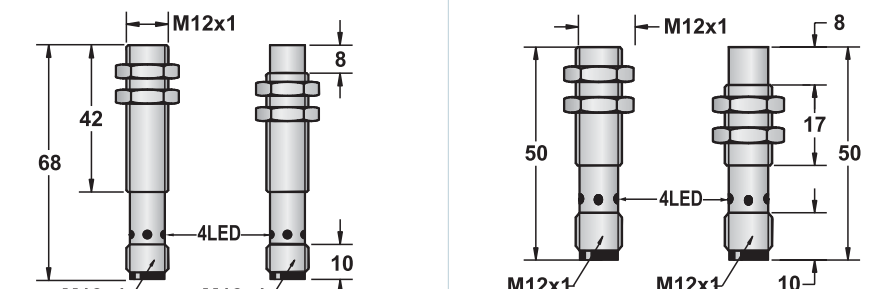


※ See the technical information at page 114, for the specifications of DC 2 wire type DC 2 선식 사양은 기술자료 114페이지 참조

- High switching frequency
- Reverse polarity protection
- Long distance type



크 기 (Diameter)	M12					
검출거리 (Switching distance)	4mm	8mm	4mm	8mm		
실드 / 비실드 (Shielded/non-Shielded)	Shielded	non-Shielded	Shielded	non-Shielded		
DC 3 wire 10~30V (Ripple ±10%)	NPN	N.O	SC-12MS-04	SC-12M-08	SC-12MS-04LS	SC-12M-08LS
		N.C	SC-12MSB-04	SC-12MB-08	SC-12MSB-04LS	SC-12MB-08LS
	PNP	N.O	SC-12MSP-04	SC-12MP-08	SC-12MSP-04LS	SC-12MP-08LS
		N.C	SC-12MSBP-04	SC-12MBP-08	SC-12MSBP-04LS	SC-12MBP-08LS
DC 2 wire 10~60V (Ripple ±10%)	N.O	SC-12MSK-04	SC-12MK-08	-	-	
	N.C	SC-12MSKB-04	SC-12MKB-08	-	-	
응답주파수 (Switching frequency)	1KHz	500Hz	1KHz	500Hz		
소비전류 (Consumption current)	< 10mA					
부하전류 (Max. Load current)	200mA					
전류전압 (Voltage drop)	< 2.0V					
응차거리 (Hysteresis)	< 15% (sr)					
반복정밀도 (Repeat accuracy)	< 1.0% (sr)					
사용온도 (Operating temperature)	-25°C~70°C (±10%)					
단락보호회로 (Short-circuit protection)	Yes					
보호등급 (Protection category)	IP 67					
재 질 (Housing material)	Stainless steel or Nickel plated brass					
검출면 재질 (Material active face)	POM/PBT					
동작표시등 (Indicator)	LED					
케 이 블 (Cable)	-					



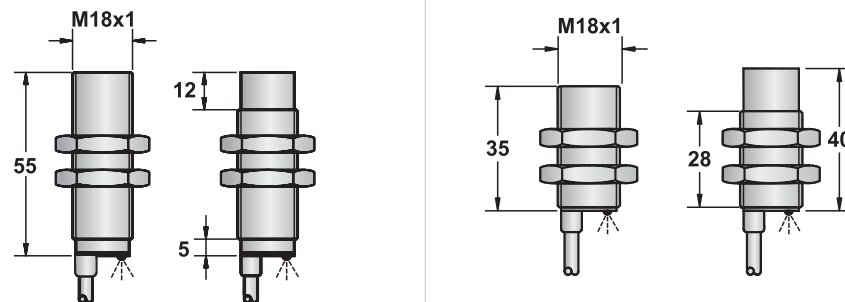
※ See the technical information at page 114, for the specifications of DC 2 wire type DC 2 선식 사양은 기술자료 114페이지 참조

DC STANDARD, CYLINDRIC

- High switching frequency
- Reverse polarity protection



크 기 (Diameter)	M18					
검출거리 (Switching distance)	5mm	8mm	5mm	8mm		
실드 / 비실드 (Shielded/non-Shielded)	Shielded	non-Shielded	Shielded	non-Shielded		
DC 3 wire 10~30V (Ripple ±10%)	NPN	N.O	SD-18MS	SD-18M	SD-18MS-LS	SD-18M-LS
		N.C	SD-18MSB	SD-18MB	SD-18MSB-LS	SD-18MB-LS
	PNP	N.O	SD-18MSP	SD-18MP	SD-18MSP-LS	SD-18MP-LS
		N.C	SD-18MSBP	SD-18MBP	SD-18MSBP-LS	SD-18MBP-LS
DC 2 wire 10~60V (Ripple ±10%)	N.O	SD-18MSK	SD-18MK	SD-18MSK-LS	SD-18MK-LS	
	N.C	SD-18MSKB	SD-18MKB	SD-18MSKB-LS	SD-18MKB-LS	
응답주파수 (Switching frequency)	1KHz	500Hz	1KHz	500Hz		
소비전류 (Consumption current)	< 10mA					
부하전류 (Max. Load current)	200mA					
전류전압 (Voltage drop)	< 1.5V					
응차거리 (Hysteresis)	< 15% (sr)					
반복정밀도 (Repeat accuracy)	< 1.0% (sr)					
사용온도 (Operating temperature)	-25°C~70°C (±10%)					
단락보호회로 (Short-circuit protection)	Yes					
보호등급 (Protection category)	IP 67					
재 질 (Housing material)	Stainless steel or Nickel plated brass					
검출면 재질 (Material active face)	PBT					
동작표시등 (Indicator)	LED					
케이블 (Cable)	φ4.0 x 3C x 0.34SQ					

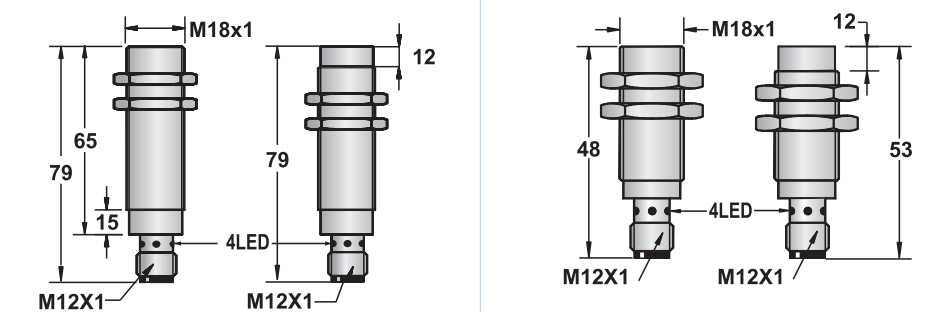


※ See the technical information at page 114, for the specifications of DC 2 wire type DC 2 선식 사양은 기술자료 114페이지 참조

- High switching frequency
- Reverse polarity protection



크 기 (Diameter)	M18					
검출거리 (Switching distance)	5mm	8mm	5mm	8mm		
실드 / 비실드 (Shielded/non-Shielded)	Shielded	non-Shielded	Shielded	non-Shielded		
DC 3 wire 10~30V (Ripple ±10%)	NPN	N.O	SC-18MS	SC-18M	SC-18MS-LS	SC-18M-LS
		N.C	SC-18MSB	SC-18MB	SC-18MSB-LS	SC-18MB-LS
	PNP	N.O	SC-18MSBP	SC-18MP	SC-18MSBP-LS	SC-18MP-LS
		N.C	SC-18MSP	SC-18MBP	SC-18MSP-LS	SC-18MBP-LS
DC 2 wire 10~60V (Ripple ±10%)	N.O	SC-18MSK	SC-18MK	SC-18MSK-LS	SC-18MK-LS	
	N.C	SC-18MSKB	SC-18MKB	SC-18MSKB-LS	SC-18MKB-LS	
응답주파수 (Switching frequency)	1KHz	500Hz	1KHz	500Hz		
소비전류 (Consumption current)	< 10mA					
부하전류 (Max. Load current)	200mA					
전류전압 (Voltage drop)	< 1.5V					
응차거리 (Hysteresis)	< 15% (sr)					
반복정밀도 (Repeat accuracy)	< 1.0% (sr)					
사용 온도 (Operating temperature)	-25°C~70°C (±10%)					
단락보호회로 (Short-circuit protection)	Yes					
보호 등급 (Protection category)	IP 67					
재 질 (Housing material)	Stainless steel or Nickel plated brass					
검출면 재질 (Material active face)	PBT					
동작 표시등 (Indicator)	LED					
케이블 (Cable 2m : PVC)	-					



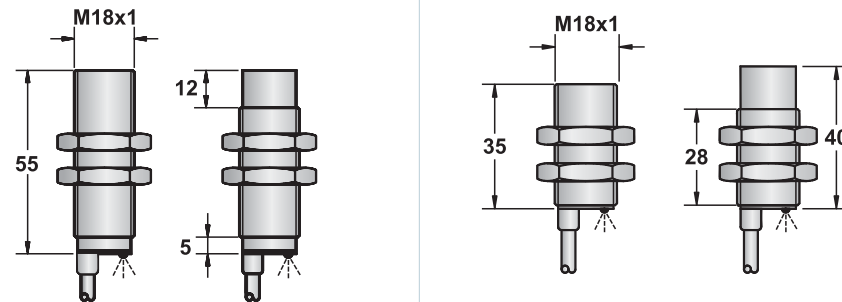
※ See the technical information at page 114, for the specifications of DC 2 wire type DC 2 선식 사양은 기술자료 114페이지 참조

DC STANDARD, CYLINDRIC



- Long distance type
- Reverse polarity protection

크 기 (Diameter)		M18				
검출거리 (Switching distance)		8mm	16mm	8mm	16mm	
실드/비 실드		Shielded	non-Shielded	Shielded	non-Shielded	
DC 3 wire 10~30V (Ripple ±10%)	NPN	N.O	SD-18MS-08	SD-18M-16	SD-18MS-08LS	SD-18M-16LS
		N.C	SD-18MSB-08	SD-18MB-16	SD-18MSB-08LS	SD-18MB-16LS
	PNP	N.O	SD-18MSP-08	SD-18MP-16	SD-18MSP-08LS	SD-18MP-16LS
		N.C	SD-18MSBP-08	SD-18MBP-16	SD-18MSBP-08LS	SD-18MBP-16LS
DC 2 wire 10~60V (Ripple ±10%)	N.O	SD-18MSK-08	SD-18MK-16	SD-18MSK-08LS	SD-18MK-16LS	
	N.C	SD-18MSKB-08	SD-18MKB-16	SD-18MSKB-08LS	SD-18MKB-16LS	
응답주파수 (Switching frequency)		500Hz	150Hz	500Hz	150Hz	
소비 전류 (Consumption current)		< 10mA				
부하 전류 (Max. Load current)		200mA				
잔류 전압 (Voltage drop)		< 2.0V				
응차 거리 (Hysteresis)		< 15% (sr)				
반복정밀도 (Repeat accuracy)		< 1.0% (sr)				
사용 온도 (Operating temperature)		-25°C~70°C (±10%)				
단락보호회로 (Short-circuit protection)		Yes				
보호 등급 (Protection category)		IP 67				
재 질 (Housing material)		Stainless steel or Nickel plated brass				
검출면 재질 (Material active face)		PBT				
동작표시등 (Indicator)		LED				
케 이 블 (Cable 2m : PVC)		φ4.0 x 3C x 0.34SQ				

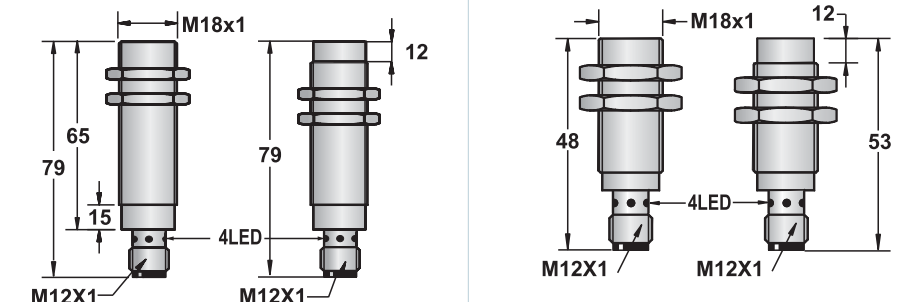


※ See the technical information at page 114, for the specifications of DC 2 wire type DC 2 선식 사양은 기술자료 114페이지 참조



- Long distance type
- Reverse polarity protection

크 기 (Diameter)		M18				
검출거리 (Switching distance)		8mm	16mm	8mm	16mm	
실드/비 실드		Shielded	non-Shielded	Shielded	non-Shielded	
DC 3 wire 10~30V (Ripple ±10%)	NPN	N.O	SC-18MS-08	SC-18M-16	SC-18MS-08LS	SC-18M-16LS
		N.C	SC-18MSB-08	SC-18MB-16	SC-18MSB-08LS	SC-18MB-16LS
	PNP	N.O	SC-18MSP-08	SC-18MP-16	SC-18MSP-08LS	SC-18MP-16LS
		N.C	SC-18MSBP-08	SC-18MBP-16	SC-18MSBP-08LS	SC-18MBP-16LS
DC 2 wire 10~60V (Ripple ±10%)	N.O	SC-18MSK-08	SC-18MK-16	SC-18MSK-08LS	SC-18MK-16LS	
	N.C	SC-18MSKB-08	SC-18MKB-16	SC-18MSKB-08LS	SC-18MKB-16LS	
응답주파수 (Switching frequency)		500Hz	150Hz	500Hz	150Hz	
소비 전류 (Consumption current)		< 10mA				
부하 전류 (Max. Load current)		200mA				
잔류 전압 (Voltage drop)		< 2.0V				
응차 거리 (Hysteresis)		< 15% (sr)				
반복정밀도 (Repeat accuracy)		< 1.0% (sr)				
사용 온도 (Operating temperature)		-25°C~70°C (±10%)				
단락보호회로 (Short-circuit protection)		Yes				
보호 등급 (Protection category)		IP 67				
재 질 (Housing material)		Stainless steel or Nickel plated brass				
검출면 재질 (Material active face)		PBT				
동작표시등 (Indicator)		LED				
케 이 블 (Cable 2m : PVC)		-				



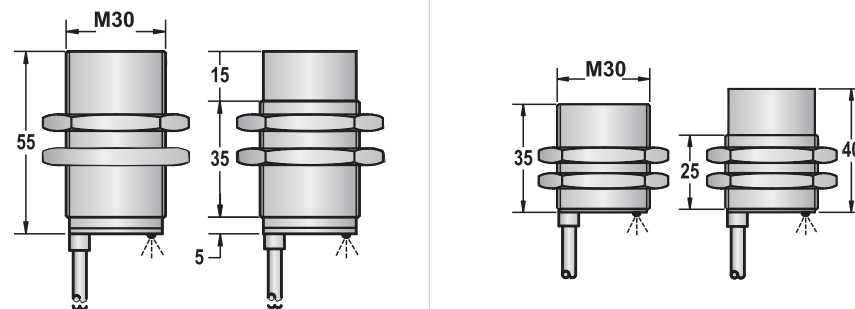
※ See the technical information at page 114, for the specifications of DC 2 wire type DC 2 선식 사양은 기술자료 114페이지 참조

DC STANDARD, CYLINDRIC



· Reverse polarity protection

크 기 (Diameter)		M30				
검출거리 (Switching distance)		10mm	15mm	10mm	15mm	
실드/비 실드		Shielded	non-Shielded	Shielded	non-Shielded	
DC 3 wire 10~30V (Ripple ±10%)	NPN	N.O	SD-30MS	SD-30M	SD-30MS-LS	SD-30M-LS
		N.C	SD-30MSB	SD-30MB	SD-30MSB-LS	SD-30MB-LS
	PNP	N.O	SD-30MSP	SD-30MP	SD-30MSP-LS	SD-30MP-LS
		N.C	SD-30MSBP	SD-30MBP	SD-30MSBP-LS	SD-30MBP-LS
DC 2 wire 10~60V (Ripple ±10%)	N.O	SD-30MSK	SD-30MK	SD-30MSK-LS	SD-30MK-LS	
	N.C	SD-30MSKB	SD-30MKB	SD-30MSKB-LS	SD-30MKB-LS	
응답주파수 (Switching frequency)		300Hz	150Hz	300Hz	150Hz	
소비 전류 (Consumption current)		< 10mA				
부하 전류 (Max. Load current)		200mA				
잔류 전압 (Voltage drop)		< 1.5V				
응차 거리 (Hysteresis)		< 15% (sr)				
반복정밀도 (Repeat accuracy)		< 1.0% (sr)				
사용 온도 (Operating temperature)		-25°C~70°C (±10%)				
단락보호회로 (Short-circuit protection)		Yes				
보호 등급 (Protection category)		IP 67				
재 질 (Housing material)		Stainless steel or Nickel plated brass				
검출면 재질 (Material active face)		PBT				
동작표시등 (Indicator)		LED				
케 이 블 (Cable 2m : PVC)		φ5.8 x 3C x 0.5SQ				

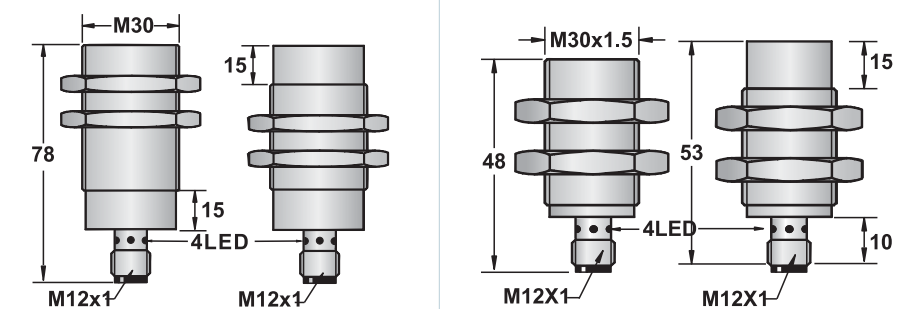


※ See the technical information at page 114, for the specifications of DC 2 wire type DC 2 선식 사양은 기술자료 114페이지 참조



· Reverse polarity protection

크 기 (Diameter)		M30				
검출거리 (Switching distance)		10mm	15mm	10mm	15mm	
실드/비 실드		Shielded	non-Shielded	Shielded	non-Shielded	
DC 3 wire 10~30V (Ripple ±10%)	NPN	N.O	SC-30MS	SC-30M	SC-30MS-LS	SC-30M-LS
		N.C	SC-30MSB	SC-30MB	SC-30MSB-LS	SC-30MB-LS
	PNP	N.O	SC-30MSP	SC-30MP	SC-30MSP-LS	SC-30MP-LS
		N.C	SC-30MSBP	SC-30MBP	SC-30MSBP-LS	SC-30MBP-LS
DC 2 wire 10~60V (Ripple ±10%)	N.O	SC-30MSK	SC-30MK	SC-30MSK-LS	SC-30MK-LS	
	N.C	SC-30MSKB	SC-30MKB	SC-30MSKB-LS	SC-30MKB-LS	
응답주파수 (Switching frequency)		300Hz	150Hz	300Hz	150Hz	
소비 전류 (Consumption current)		< 10mA				
부하 전류 (Max. Load current)		200mA				
잔류 전압 (Voltage drop)		< 1.5V				
응차 거리 (Hysteresis)		< 15% (sr)				
반복정밀도 (Repeat accuracy)		< 1.0% (sr)				
사용 온도 (Operating temperature)		-25°C~70°C (±10%)				
단락보호회로 (Short-circuit protection)		Yes				
보호 등급 (Protection category)		IP 67				
재 질 (Housing material)		Stainless steel or Nickel plated brass				
검출면 재질 (Material active face)		PBT				
동작표시등 (Indicator)		LED				
케 이 블 (Cable 2m : PVC)		-				



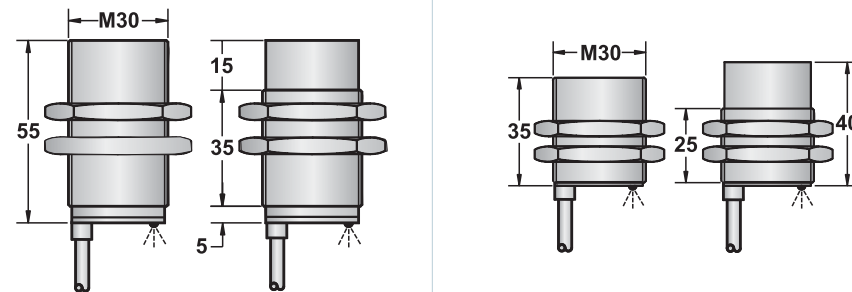
※ See the technical information at page 114, for the specifications of DC 2 wire type DC 2 선식 사양은 기술자료 114페이지 참조

DC STANDARD, CYLINDRIC



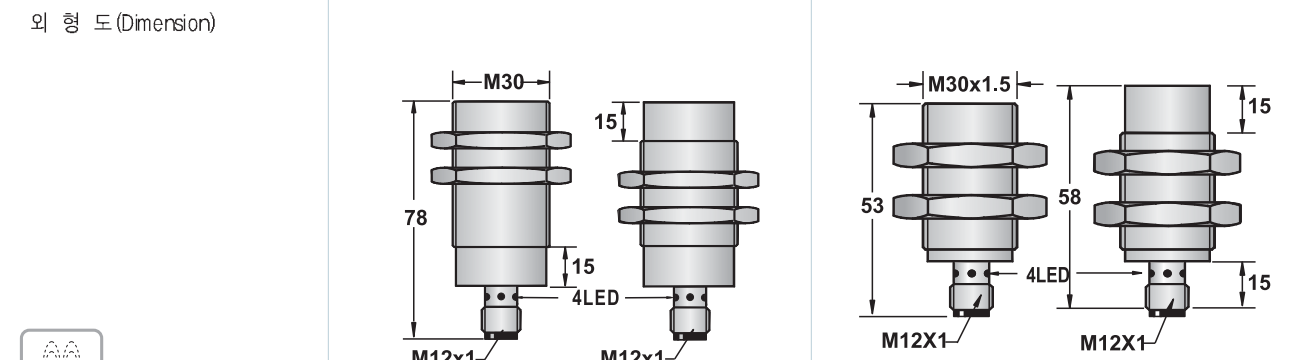
- Reverse polarity protection
- Long distance type

크 기 (Diameter)		M30				
검출거리 (Switching distance)		16mm	25mm	16mm	25mm	
실드/비실드		Shielded	non-Shielded	Shielded	non-Shielded	
DC 3 wire 10~30V (Ripple ±10%)	NPN	N.O	SD-30MS-16	SD-30M-25	SD-30MS-16LS	SD-30M-25LS
		N.C	SD-30MSB-16	SD-30MB-25	SD-30MSB-16LS	SD-30MB-25LS
	PNP	N.O	SD-30MSP-16	SD-30MP-25	SD-30MSP-16LS	SD-30MP-25LS
		N.C	SD-30MSBP-16	SD-30MBP-25	SD-30MSBP-16LS	SD-30MBP-25LS
DC 2 wire 10~60V (Ripple ±10%)	N.O	-	-	-	-	
	N.C	-	-	-	-	
응답주파수 (Switching frequency)		150Hz	100Hz	150Hz	100Hz	
소비 전류 (Consumption current)		< 10mA				
부하 전류 (Max. Load current)		200mA				
잔류 전압 (Voltage drop)		< 2.0V				
응차 거리 (Hysteresis)		< 15% (sr)				
반복정밀도 (Repeat accuracy)		< 1.0% (sr)				
사용 온도 (Operating temperature)		-25°C~70°C (±10%)				
단락보호회로 (Short-circuit protection)		Yes				
보호 등급 (Protection category)		IP 67				
재 질 (Housing material)		Stainless steel or Nickel plated brass				
검출면 재질 (Material active face)		PBT				
동작표시등 (Indicator)		LED				
케 이 블 (Cable 2m : PVC)		∅5.8 x 3C x 0.5SQ				



- Reverse polarity protection
- Long distance type

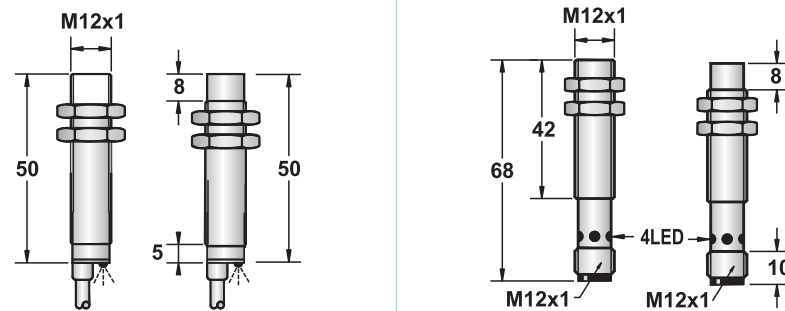
크 기 (Diameter)		M30				
검출거리 (Switching distance)		16mm	25mm	16mm	25mm	
실드/비실드		Shielded	non-Shielded	Shielded	non-Shielded	
DC 3 wire 10~30V (Ripple ±10%)	NPN	N.O	SC-30MS-16	SC-30M-25	SC-30MS-16LS	SC-30M-25LS
		N.C	SC-30MSB-16	SC-30MB-25	SC-30MSB-16LS	SC-30MB-25LS
	PNP	N.O	SC-30MSP-16	SC-30MP-25	SC-30MSP-16LS	SC-30MP-25LS
		N.C	SC-30MSBP-16	SC-30MBP-25	SC-30MSBP-16LS	SC-30MBP-25LS
DC 2 wire 10~60V (Ripple ±10%)	N.O	-	-	-	-	
	N.C	-	-	-	-	
응답주파수 (Switching frequency)		150Hz	100Hz	150Hz	100Hz	
소비 전류 (Consumption current)		< 10mA				
부하 전류 (Max. Load current)		200mA				
잔류 전압 (Voltage drop)		< 2.0V				
응차 거리 (Hysteresis)		< 15% (sr)				
반복정밀도 (Repeat accuracy)		< 1.0% (sr)				
사용 온도 (Operating temperature)		-25°C~70°C (±10%)				
단락보호회로 (Short-circuit protection)		Yes				
보호 등급 (Protection category)		IP 67				
재 질 (Housing material)		Stainless steel or Nickel plated brass				
검출면 재질 (Material active face)		PBT				
동작표시등 (Indicator)		LED				
케 이 블 (Cable 2m : PVC)		-				



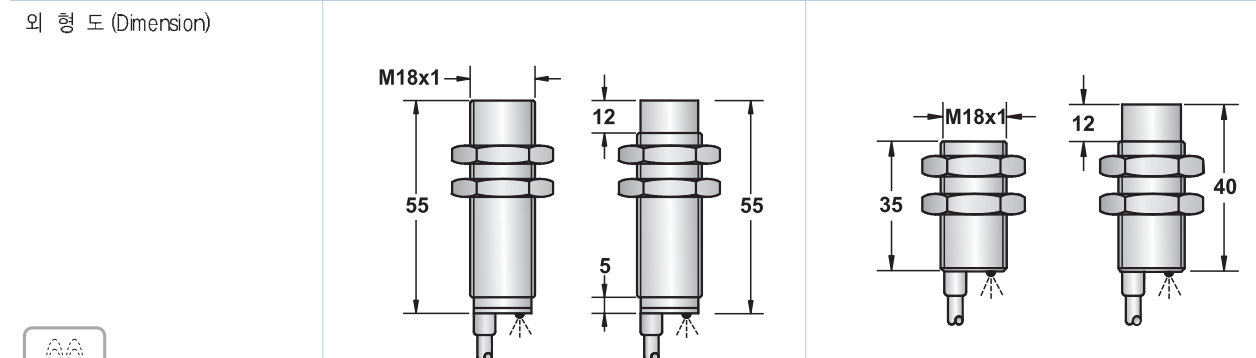
AC STANDARD, CYLINDRIC



크 기 (Diameter)		M12			
검출거리 (Switching distance)		2mm	4mm	2mm	4mm
실드 / 비 실드		Shielded	non-Shielded	Shielded	non-Shielded
AC 2 wire 20~250V (Ripple ±10%)	N,O	SA-12MS	SA-12M	SAC-12MS	SAC-12M
	N,C	SA-12MSB	SA-12MB	SAC-12MSB	SAC-12MB
응답주파수 (Switching frequency)		25Hz			
소비 전류 (Consumption current)		< 1.8mA			
부하 전류 (Max. Load current)		400mA			
잔류 전압 (Voltage drop)		≤ 8VAC (at 400mA)			
응차 거리 (Hysteresis)		< 15% (sr)			
반복정밀도 (Repeat accuracy)		< 1.0% (sr)			
사용 온도 (Operating temperature)		-25°C~70°C (±10%)			
단락보호회로 (Short-circuit protection)		No			
보호 등급 (Protection category)		IP 67			
재 질 (Housing material)		Stainless steel or Nickel plated brass			
검출면 재질 (Material active face)		PBT			
동작표시등 (Indicator)		LED			
케 이 블 (Cable 2m : PVC)		φ4.0 x 2C x 0.15SQ		-	



크 기 (Diameter)		M18			
검출거리 (Switching distance)		5mm	8mm	5mm	8mm
실드 / 비 실드		Shielded	non-Shielded	Shielded	non-Shielded
AC 2 wire 20~250V (Ripple ±10%)	N,O	SA-18MS	SA-18M	SA-18MS-LS	SA-18M-LS
	N,C	SA-18MSB	SA-18MB	SA-18MSB-LS	SA-18MB-LS
응답주파수 (Switching frequency)		25Hz			
소비 전류 (Consumption current)		< 1.8mA			
부하 전류 (Max. Load current)		400mA			
잔류 전압 (Voltage drop)		≤ 8VAC (at 400mA)			
응차 거리 (Hysteresis)		< 15% (sr)			
반복정밀도 (Repeat accuracy)		< 1.0% (sr)			
사용 온도 (Operating temperature)		-25°C~70°C (±10%)			
단락보호회로 (Short-circuit protection)		No			
보호 등급 (Protection category)		IP 67			
재 질 (Housing material)		Stainless steel or Nickel plated brass			
검출면 재질 (Material active face)		PBT			
동작표시등 (Indicator)		LED			
케 이 블 (Cable 2m : PVC)		φ4.0 x 2C x 0.34SQ			

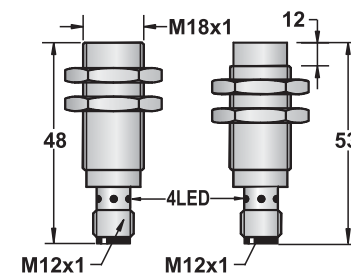
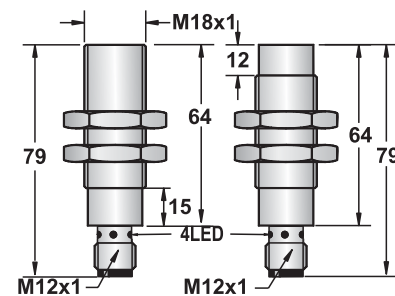




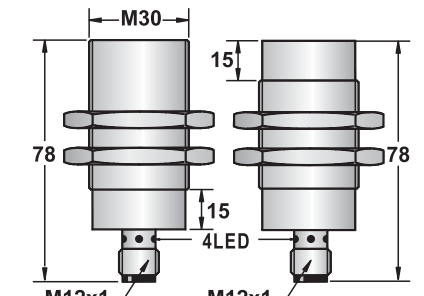
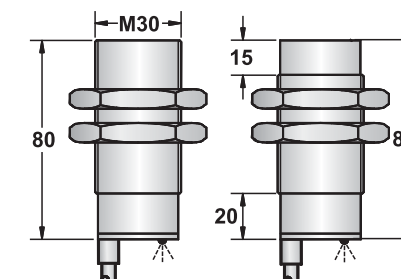
AC STANDARD, CYLINDRIC



크 기 (Diameter)		M18			
검출거리 (Switching distance)		5mm	8mm	5mm	8mm
실드 / 비 실드		Shielded	non-Shielded	Shielded	non-Shielded
AC 2 wire 20~250V (Ripple ±10%)	N,O	SAC-18MS	SAC-18M	SAC-18MS-LS	SAC-18M-LS
	N,C	SAC-18MSB	SAC-18MB	SAC-18MSB-LS	SAC-18MB-LS
응답주파수 (Switching frequency)		25Hz			
소비 전류 (Consumption current)		< 1.8mA			
부하 전류 (Max. Load current)		400mA			
잔류 전압 (Voltage drop)		≤ 8VAC (at 400mA)			
응차 거리 (Hysteresis)		< 15% (sr)			
반복정밀도 (Repeat accuracy)		< 1.0% (sr)			
사용 온도 (Operating temperature)		-25°C~70°C (±10%)			
단락보호회로 (Short-circuit protection)		No			
보호 등급 (Protection category)		IP 67			
재 질 (Housing material)		Stainless steel or Nickel plated brass			
검출면 재질 (Material active face)		PBT			
동작표시등 (Indicator)		LED			
케 이 블 (Cable 2m : PVC)		-			



크 기 (Diameter)		M30			
검출거리 (Switching distance)		10mm	15mm	10mm	15mm
실드 / 비 실드		Shielded	non-Shielded	Shielded	non-Shielded
AC 2 wire 20~250V (Ripple ±10%)	N,O	SA-30MS	SA-30M	SAC-30MS	SAC-30M
	N,C	SA-30MSB	SA-30MB	SAC-30MSB	SAC-30MB
응답주파수 (Switching frequency)		25Hz			
소비 전류 (Consumption current)		< 1.8mA			
부하 전류 (Max. Load current)		400mA			
잔류 전압 (Voltage drop)		≤ 8VAC (at 400mA)			
응차 거리 (Hysteresis)		< 15% (sr)			
반복정밀도 (Repeat accuracy)		< 1.0% (sr)			
사용 온도 (Operating temperature)		-25°C~70°C (±10%)			
단락보호회로 (Short-circuit protection)		No			
보호 등급 (Protection category)		IP 67			
재 질 (Housing material)		Stainless steel or Nickel plated brass			
검출면 재질 (Material active face)		PBT			
동작표시등 (Indicator)		LED			
케 이 블 (Cable 2m : PVC)		φ5.8 x 3C x 0.5SQ		-	

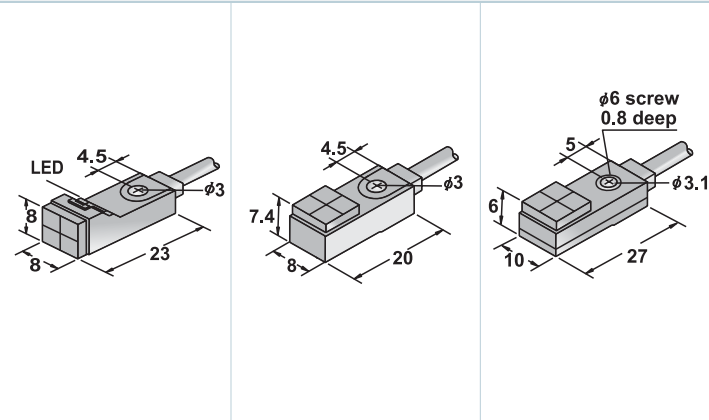


DC ULRTAMINI, SQUARE

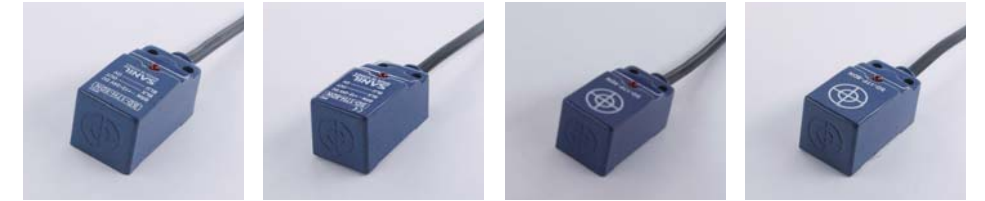


· Reverse polarity protection

크 기 (Diameter)		Q8		Q10	
검출거리 (Switching distance)		2.5mm	2.5mm	3.0mm	
실드 / 비 실드		Shielded	non-Shielded	non-Shielded	
DC 3 wire 10~30V (Ripple ±10%)	NPN	N.O	SQ-8H-2.5DN	SQ-8F-2.5DN	SQ-10F-3DN
		N.C	SQ-8H-2.5DNB	SQ-8F-2.5DNB	SQ-10F-3DNB
	PNP	N.O	SQ-8H-2.5DP	SQ-8F-2.5DP	SQ-10F-3DP
		N.C	SQ-8H-2.5DPB	SQ-8F-2.5DPB	SQ-10F-3DPB
응답주파수 (Switching frequency)		500Hz	500Hz	250Hz	
소비 전류 (Consumption current)		< 10mA			
부하 전류 (Max. Load current)		100mA			
잔류 전압 (Voltage drop)		< 1.5V			
응차 거리 (Hysteresis)		< 15% (sr)			
반복정밀도 (Repeat accuracy)		< 0.04mm			
사용 온도 (Operating temperature)		-25°C~70°C (±10%)			
단락보호회로 (Short-circuit protection)		Yes			
보호 등급 (Protection category)		IP 67			
재 질 (Housing material)		Polycarbonate			
검출면 재질 (Material active face)		Polycarbonate			
동작표시등 (Indicator)		LED			
케 이 블 (Cable 2m : PVC)		φ2.7 x 3C x 0.15SQ			

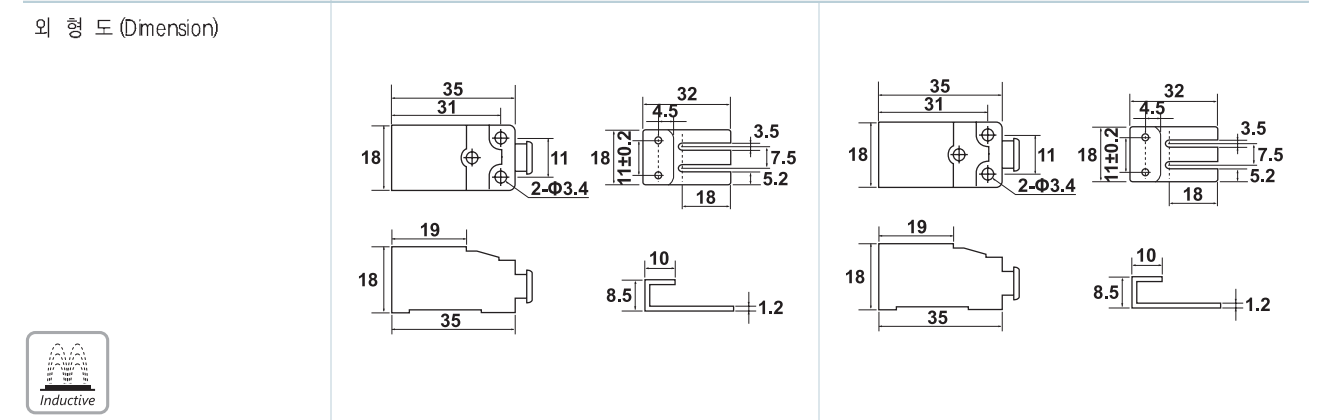


DC STANDARD, SQUARE



· Reverse polarity protection

크 기 (Diameter)		Q17			
검출거리 (Switching distance)		5mm	8mm	5mm	8mm
실드 / 비 실드		non-Shielded			
DC 3 wire 10~30V (Ripple ±10%)	NPN	N.O	SD-17H-5DN	SD-17H-8DN	SD-17F-5DN
		N.C	-	-	-
	PNP	N.O	-	-	-
		N.C	-	-	-
응답주파수 (Switching frequency)		500Hz	200Hz	500Hz	200Hz
소비 전류 (Consumption current)		< 10mA			
부하 전류 (Max. Load current)		100mA			
잔류 전압 (Voltage drop)		< 1.5V			
응차 거리 (Hysteresis)		< 15% (sr)			
반복정밀도 (Repeat accuracy)		-			
사용 온도 (Operating temperature)		-25°C~70°C (±10%)			
단락보호회로 (Short-circuit protection)		Yes			
보호 등급 (Protection category)		IP 67			
재 질 (Housing material)		Polycarbonate			
검출면 재질 (Material active face)		Polycarbonate			
동작표시등 (Indicator)		LED			
케 이 블 (Cable 2m : PVC)		φ4 x 3C x 0.25Q			

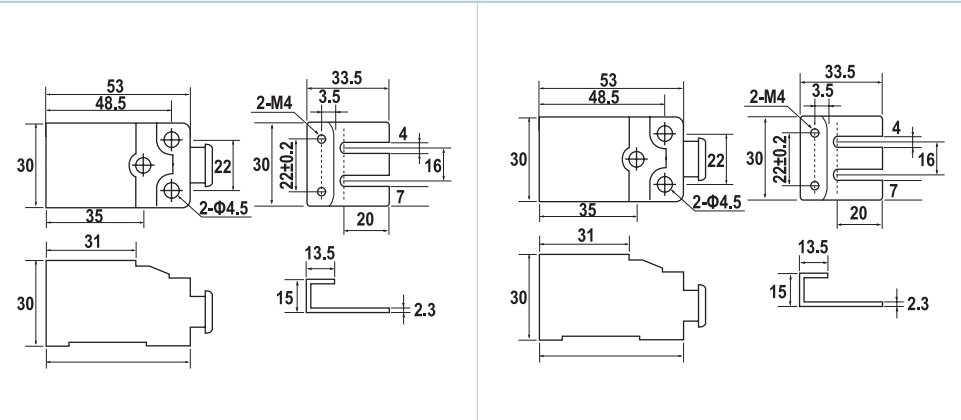


DC STANDARD, SQUARE



· Reverse polarity protection

크 기 (Diameter)		Q30				
검출거리 (Switching distance)		10mm	15mm	10mm	15mm	
실드/비 실드		non-Shielded				
DC 3 wire 10~30V (Ripple ±10%)	NPN	N.O	SD-30H-10DN	SD-30H-15DN	SD-30F-10DN	SD-30F-15DN
		N.C	-	-	-	-
	PNP	N.O	-	-	-	-
		N.C	-	-	-	-
응답주파수 (Switching frequency)		250Hz	200Hz	250Hz	200Hz	
소비 전류 (Consumption current)		< 10mA				
부하 전류 (Max. Load current)		100mA				
전류 전압 (Voltage drop)		< 1.5V				
응차 거리 (Hysteresis)		< 15% (sr)				
반복정밀도 (Repeat accuracy)		-				
사용 온도 (Operating temperature)		-25°C~70°C (±10%)				
단락보호회로 (Short-circuit protection)		Yes				
보호 등급 (Protection category)		IP 67				
재 질 (Housing material)		Polycarbonate				
검출면 재질 (Material active face)		Polycarbonate				
동작표시등 (Indicator)		LED				
케 이 블 (Cable 2m : PVC)		φ4 x 3C x 0.2SQ				



MEMO

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