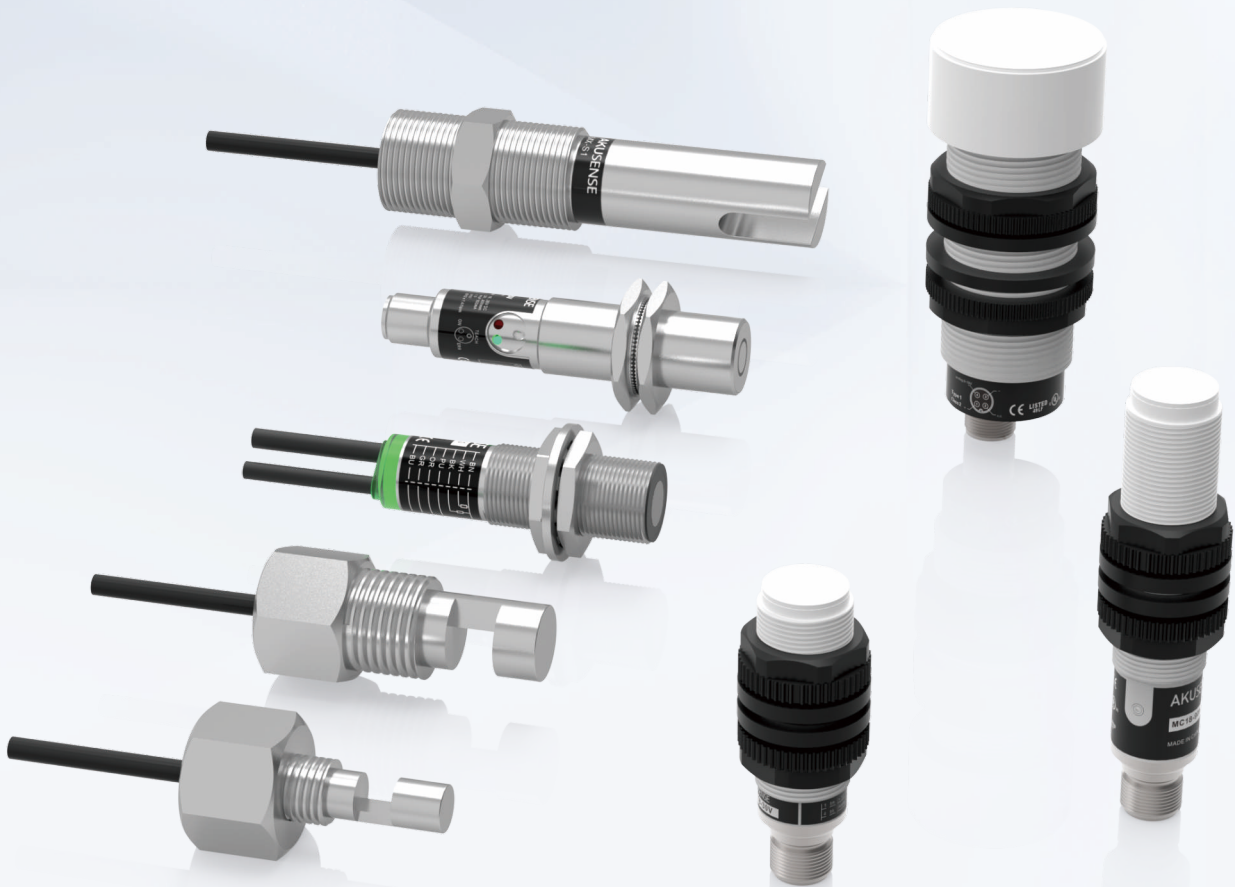


Ultrasonic Sensors



- ◎ All-rounder, detects a wide range of objects
- ◎ Maximum 6m measuring distance, millimeter-level accuracy
- ◎ Adaptable to a variety of harsh environments, such as high temperature, dusty, water mist

Wide Variety of Objects

The color, transparency, material (metallic, non-metallic), and form (solid, liquid) of the objects do not affect the detection.



Transparent objects



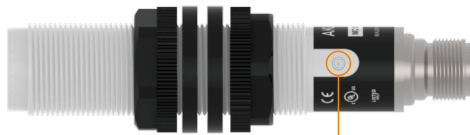
Metallic objects



Liquid objects



Color



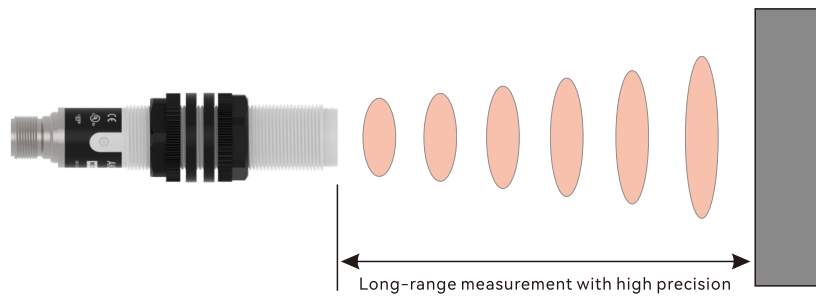
One-touch Teaching

One-touch Teaching Function

The setting of whether there are workpieces, and the removal of background influence, can be easily achieved with simple settings

Long-distance High Precision

Measuring distance up to 6m, millimeter level accuracy



Adaptable to various harsh environments, such as high temperature, dust, and water mist



Highly dusty conditions



High temperature



Water mist

- Fiber Optic
- Slot Sensors
- Photoelectric
- Laser
- Proximity
- Displacement
- Magnetic
- Contact
- Area
- Ultrasonic
- AI Image
- Code Readers
- Vibration
- Temperature
- RFID
- Safety door lock
- Pressure Switch
- Communication
- Accessories

Guidance

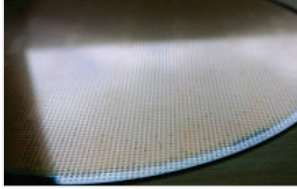
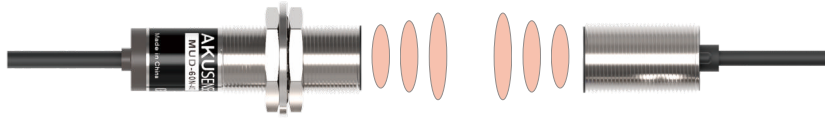
Ultrasonic

- Cylindrical type
- Solid level switches type
- Fork level switch typ
- Double-sheet sensor

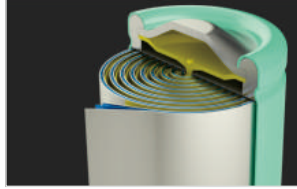
Product Highlights

Thru Beam MUD Series

Capable of reliably distinguishing between single and double layers of thin objects, such as battery electrodes, silicon wafers, paper, wooden boards, glass sheets, metals, and other thin materials



Silicon Wafers



Battery Electrodes



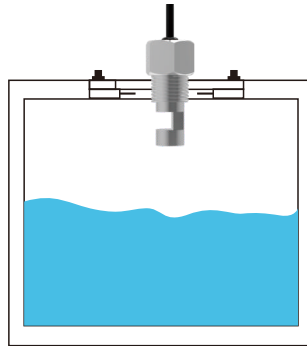
Wood



Glass

Thru Beam MDJ Series

Capable of stable liquid level detection



Cylindrical Type

- Sizes of M18 and M30 for choosing
- Sensing distance varies from 40 to 6000mm
- Different output types (NPN/PNP/ Analog Voltage/ Analog Current) are available

P.J-04



Solid Level Switch

- It can detect a variety of viscous liquids such as water, oil, solvent and reagents
- Position repeatability up to 2mm, strong stability
- Integrated NPN/PNP relay output ,connection is convenient

P.J-11



Fork Type Liquid Level Switch

- It can detect all kinds of liquid
- Using digital filtering technology, the performance is reliable
- It can work normally under the high pressure environment of 1000PSI

P.J-12



NEW!

Double Sheet Detection Sensor

- Reliable detection of single and double sheets (multiple sheets) of material
- It can be flexibly set by the Teach-in function
- Stable detection of paper / metal / plastic / platinum / silicon / battery pole pieces and other materials

P.J-13

- Fiber Optic
- Slot Sensors
- Photoelectric
- Laser
- Proximity
- Displacement
- Magnetic
- Contact
- Area
- Ultrasonic**
- AI Image
- Code Readers
- Vibration
- Temperature
- RFID
- Safety door lock
- Pressure Switch
- Communication
- Accessories

- Ultrasonic**
- Cylindrical type
- Solid level switches type
- Fork level switch typ
- Double-sheet sensor

Cylindrical Type

M18 Short-body Series



Ultrasonic

Basic Features	Operating Principle	Ultrasonic Detection		
	Enclosure Shape	Cylindrical		
	Detection Method	Diffuse reflection		
	Detection Range	40~300mm	60~800mm	
	Divergence Angle	7°±2°	8°±2°	
	Resolution	2mm		
	Detection Range Adjustment	External teaching		
Electrical data	Output Mode	0~10V / 4~20mA / NPN / PNP	0~10V / 4~20mA / NPN / PNP	
	Response Time	Switch output 12ms, Analog output 500ms	Switch output 80ms, Analog output 500ms	
	Switching Frequency	8Hz	5Hz	
	Repeatability	2%		
	Hysteresis	2%		
	Operating Voltage	15~30VDC		
	Operating Current	≤35mA		
	Residual Voltage	2.2Vmax(1L=100mA)		
	Load Current	≤100mA		
	Maximum Ripple	±5%		
	Voltage Drop	≤2.2V(100mA)		
	Protection Circuit	Reverse polarity protection/short circuit protection (auto reset)/surge protection		
	Temperature Drift	5%		
	Temperature Compensation	Have		
	Environmental conditions	Working Temperature	-20~70°C	
Protect Degree		IP67		
Mechanical data	Connection Method	M12/4-pin connector		
	Maximum Tightening Torque	1Nm		
	Dimensions	M18x60.4mm		
	Material	PBT		
	Weight	0.015kg		
	Accessories	Plastic nut M18x1		
Model	Analog	Voltage	MS18-30V	MS18-90V
		Current	MS18-30I	MS18-90I
	Switch	NPN	MS18-30N	MS18-90N
		PNP	MS18-30P	MS18-90P

Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
AI Image
Code Readers
Vibration
Temperature
RFID
Safety door lock
Pressure Switch
Communication
Accessories

Guidance

Ultrasonic

Cylindrical type

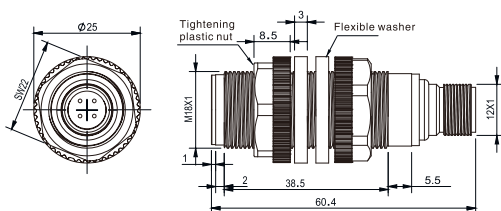
Solid level switches type

Fork level switch typ

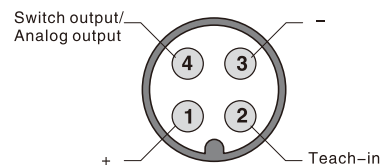
Double-sheet sensor

Dimensions

Unit: mm



Wiring Diagram



Cylindrical Type

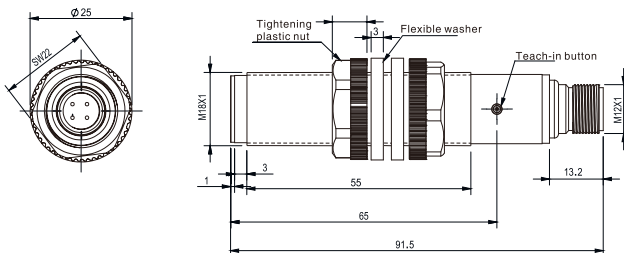
M18 Plastic Housing Series



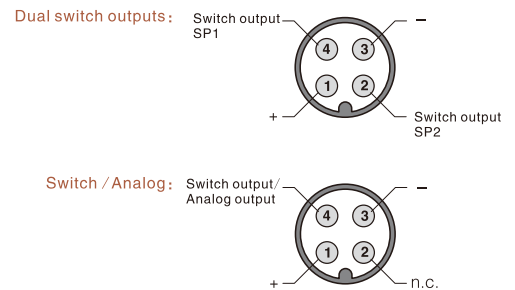
Basic Features	Operating Principle	Ultrasonic Detection				
	Enclosure Shape	Cylindrical				
	Detection Method	Diffuse reflection				
	Detection Range	50~400mm	100~900mm	150~1600mm	200~2200mm	
	Divergence Angle	± 8°	± 7°	± 8°	± 7°	
	Resolution	3mm	2mm	3mm		
	Detection Range Adjustment	-				
Electrical data	Output Mode	0~10V / 4~20mA / NPN / PNP	0~10V / 4~20mA / NPN / PNP	0~10V / 4~20mA / NPN / PNP	0~10V / 4~20mA / NPN / PNP	
	Response Time	500ms	≤125ms	≤250ms	≤500ms	
	Switching Frequency	10Hz	4Hz	2Hz	1Hz	
	Repeatability	0.5%				
	Hysteresis	1%				
	Operating Voltage	15~30VDC				
	Operating Current	≤50mA				
	Residual Voltage	2.2V max.(1L=100mA)				
	Load Current	≤100mA				
	Maximum Ripple	± 5%				
	Voltage Drop	≤2.2V(100mA)				
	Protection Circuit	Reverse Polarity Protection/Short-circuit (Auto-reset)/Pulse Overvoltage Protection				
	Temperature Drift	5%				
	Temperature Compensation	Have				
	Environmental conditions	Working Temperature	-20~60°C			
Protect Degree		IP67				
Mechanical data	Connection Method	M12/4-pin connector				
	Maximum Tightening Torque	50Nm				
	Dimensions	M18x91.5mm				
	Material	PBT				
	Weight	0.026kg				
	Accessories	Plastic nut M18x1				
Model	Analog	Voltage	MC18-40V	MC18-90V	MC18-160V	MC18-220V
		Current	MC18-40I	MC18-90I	MC18-160I	MC18-220I
	Switch	NPN	MC18-40N	MC18-90N	MC18-160N	MC18-220N
		PNP	MC18-40P	MC18-90P	MC18-160P	MC18-220P

Dimensions

Unit: mm



Wiring Diagram





Basic Features	Operating Principle	Ultrasonic Detection	
	Enclosure Shape	Cylindrical	
	Detection Method	Diffuse reflection	
	Detection Range	60~1000mm	
	Divergence Angle	± 7°	
	Resolution	0.5mm	
	Ultrasonic Frequency	200kHz	
	Detection Range Adjustment	-	
	Indicator	When no target is detected, the learning status LED remains lit: red LED; when a target is detected, it blinks in learning mode: blue LED; operational mode: yellow LED; power on: green LED	
Electrical data	Output Mode	0~5V / 0~10V / 4~20mA / NPN / NPN Hysteresis Mode / PNP / PNP Hysteresis Mode	
	Response Time	100ms	
	Switching Frequency	5Hz	
	Repeatability	0.3%	
	Linearity	< 1%	
	Operating Voltage	9~30VDC	
	Operating Current	≤25mA	
	Residual Voltage	≤10μA(30VDC)	
	Load Current	≤200mA	
	Maximum Ripple	±10%	
	Insulation Resistance	-	
	Protection Circuit	Reverse Connection Protection/Transient Overvoltage Protection	
	Temperature Drift	0.05%/°C	
	Temperature Compensation	Have	
Environmental conditions	Working Temperature	-20~70°C	
	Protect Degree	IP65	
Mechanical data	Connection Method	V3 Connector, 4 Pins	
	Maximum Tightening Torque	50Nm	
	Dimensions	M18x90.7mm	
	Material	Nickel-Copper Plating	
	Weight	0.062kg	
	Accessories	Nut M18x1	
Model	Analog	Voltage Output 0~5V	MT18-100V
		Voltage Output 0~10V	MT18-100V2
		Current Output 4~20mA	MT18-100A
	Switch	NPN	MT18-100N
		NPN Hysteresis Mode	MT18-100N2
		PNP	MT18-100P
		PNP Hysteresis Mode	MT18-100P2
Numerical Capacity	TTL Output	MT18-100T	

Fiber Optic

Slot Sensors

Photoelectric

Laser

Proximity

Displacement

Magnetic

Contact

Area

Ultrasonic

AI Image

Code Readers

Vibration

Temperature

RFID

Safety door lock

Pressure Switch

Communication

Accessories

Guidance

Ultrasonic

Cylindrical type

Solid level switches type

Fork level switch typ

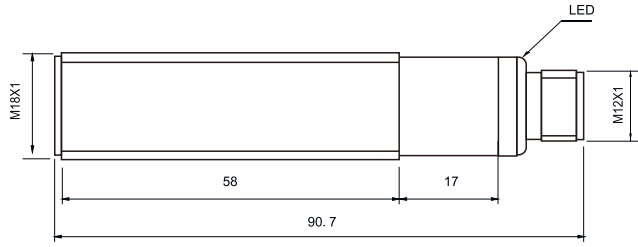
Double-sheet sensor

Cylindrical Type

M18 Metal Housing Series

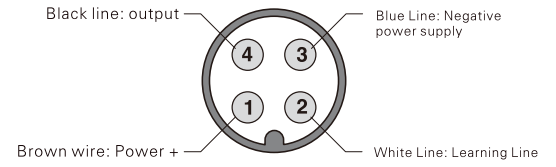
Dimensions

Unit: mm

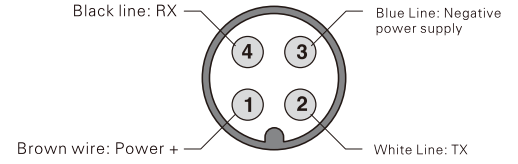


Circuit Diagram

TTL output



Other output



- Fiber Optic
- Slot Sensors
- Photoelectric
- Laser
- Proximity
- Displacement
- Magnetic
- Contact
- Area
- Ultrasonic
- AI Image
- Code Readers
- Vibration
- Temperature
- RFID
- Safety door lock
- Pressure Switch
- Communication
- Accessories

Guidance

Ultrasonic

Cylindrical type

Solid level switches type

Fork level switch typ

Double-sheet sensor



Basic Features	Operating Principle	Ultrasonic Detection	
	Enclosure Shape	Cylindrical	
	Detection Method	Diffuse reflection	
	Detection Range	50~400mm	
	Divergence Angle	≤12°	
	Resolution	0.1mm	
	Ultrasonic Frequency	300kHz	
	Detection Range Adjustment	Teach Button	
	Indicator	Operational/Error Mode: LED; Switch Status: LED	
Electrical data	Output Mode	NPN+0~10V	
	Response Time	25ms	
	Switching Frequency	20Hz	
	Repeatability	1mm	
	Hysteresis	2mm	
	Operating Voltage	18~30VDC	
	Operating Current	≤30mA	
	Residual Voltage	≤10μA(30VDC)	
	Load Current	≤100mA	
	Voltage Drop	≤2.2V(100mA)	
	Protection Circuit	Short-circuit Protection/Reverse Polarity Protection/Overload Protection	
	Temperature Compensation	None	
	Environmental conditions	Working Temperature	-25~60°C
		Protect Degree	IP67
Mechanical data	Connection Method	M12/5-Pin Connector	
	Maximum Tightening Torque	-	
	Dimensions	M18x86.0mm	
	Material	Stainless steel	
	Weight	0.062kg	
	Accessories	Nut M18x1	
	Model	MD18-35V	

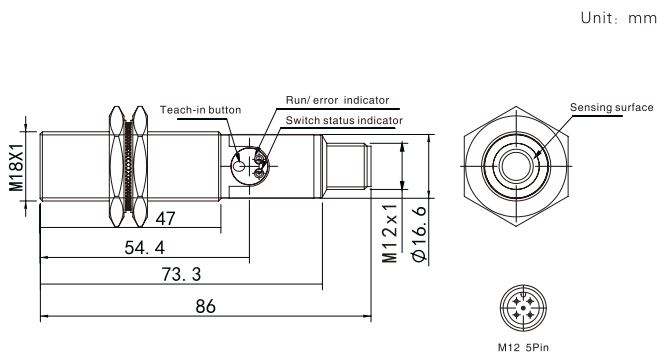
- Fiber Optic
- Slot Sensors
- Photoelectric
- Laser
- Proximity
- Displacement
- Magnetic
- Contact
- Area
- Ultrasonic**
- AI Image
- Code Readers
- Vibration
- Temperature
- RFID
- Safety door lock
- Pressure Switch
- Communication
- Accessories

Guidance

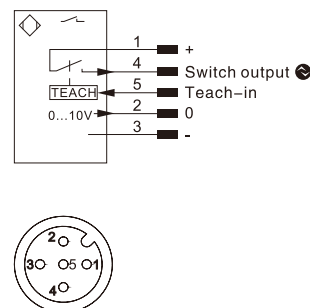
Ultrasonic

- Cylindrical type
- Solid level switches type
- Fork level switch typ
- Double-sheet sensor

Dimensions



Wiring Diagram



Cylindrical Type

M30 Series

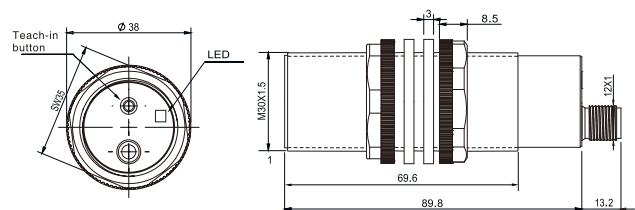


Basic Features	Operating Principle	Ultrasonic Detection		
	Enclosure Shape	Cylindrical		
	Detection Method	Diffuse reflection		
	Detection Range	250~3500mm	350~6000mm	
	Divergence Angle	± 7°	± 9°	
	Resolution	4.0mm	6.0mm	
	Detection Range Adjustment	Teach Button		
Electrical data	Output Mode	Analog: 0~10V / 4~20mA, Switch: NPN / PNP, Dual-channel Digital Output: 2NPN / 2PNP Analog + switch: NPN+4~20mA / PNP+4~20mA / NPN+0~10V / PNP+0~10V		
	Response Time	Switch value 250ms, analog value 600ms	Switch value 500ms, analog value 600ms	
	Switching Frequency	2Hz	1Hz	
	Repeatability	1.0%	0.5%	
	Hysteresis	1%		
	Operating Voltage	12~30VDC, Analog voltage output: 15~30VDC(5%)		
	Operating Current	≤ 50mA		
	Residual Voltage	2.2V max. (1L=100mA)		
	Load Current	≤ 100mA		
	Maximum Ripple	± 5%		
	Voltage Drop	≤ 2.2V(100mA)		
	Protection Circuit	Reverse Polarity Protection/Short-circuit (Auto-reset)/Transient Overvoltage Protection		
	Temperature Drift	± 8% (switch output), ± 5% (analog output)		
	Temperature Compensation	Have		
	Environmental conditions	Working Temperature	-20~70°C	
Protect Degree		IP67		
Mechanical data	Connection Method	M12/4pin connector		
	Maximum Tightening Torque	1.5Nm		
	Dimensions	M30x102.0mm	M30x93.0mm	
	Material	PBT		
	Weight	0.14kg	0.17kg/0.17kg/0.14kg/0.14kg/0.14kg/0.14kg	
	Accessories	Nut M30x1.5		
Model	Analog	Voltage	MC30-350V	
		Current	MC30-350I	
	Switch	NPN	MC30-350N	
		PNP	MC30-350P	
	Dual-channel Digital Output	NPN	MC30-350N2	MC30-600N2
		PNP	MC30-350P2	MC30-600P2
	Analog + switch	NPN+Current	MC30-350NI	MC30-600NI
		PNP+Current	MC30-350PI	MC30-600PI
NPN+Voltage		MC30-350NV	MC30-600NV	
PNP+Voltage		MC30-350PV	MC30-600PV	

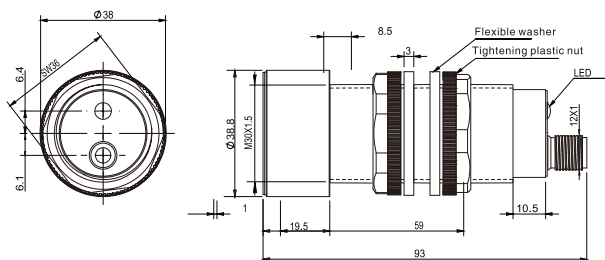
Dimensions

Unit: mm

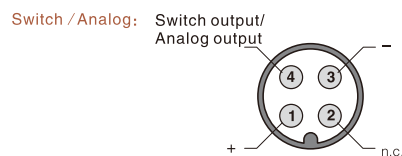
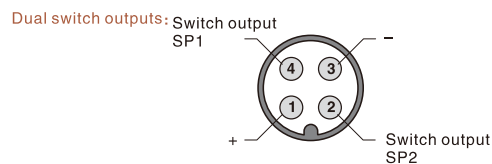
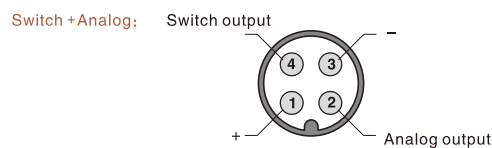
MC30-350



MC30-600



Wiring Diagram



- Fiber Optic
- Slot Sensors
- Photoelectric
- Laser
- Proximity
- Displacement
- Magnetic
- Contact
- Area
- Ultrasonic**
- AI Image
- Code Readers
- Vibration
- Temperature
- RFID
- Safety door lock
- Pressure Switch
- Communication
- Accessories

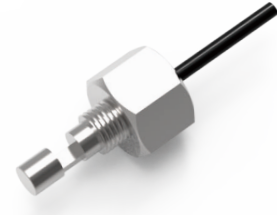
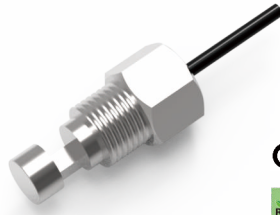
Guidance

Ultrasonic

- Cylindrical type
- Solid level switches type
- Fork level switch typ
- Double-sheet sensor

Solid Level Switch Type

MDJ Series

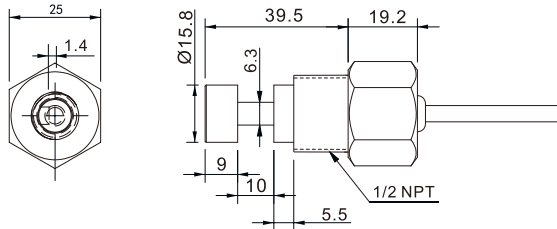


Basic Features	Operating Principle	Solid State Liquid Level Switch	
	Enclosure Shape	Cylindrical	
	Detection Method	Thru-beam	
	Mounting Method	1/2"NPT	1/4"NPT
Electrical data	Repeatability	≤2mm	
	Operating Voltage	5~30VDC	
	Leakage Current	≤50μA	
	Delay	0.5s	
	Output	Relay Output: 0.5A Single Pole Single Throw (NO)	
	Protection Circuit	Ransient Voltage and Polarity Reversal	
	Environmental conditions	Working Temperature	-29°C~80°C
	Environmental Pressure	250PSI, Customizable Development of 500/1000 PSI Products	
Mechanical data	Connection Method	12 inches (305mm)	
	Material	Stainless Steel (316L)	
	Model	MDJ-C02-1/2	MDJ-C02-1/4

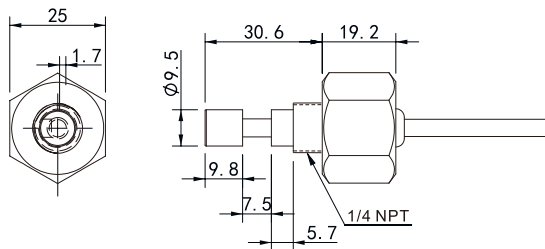
Dimensions

Unit: mm

MDJ-C02-1/2



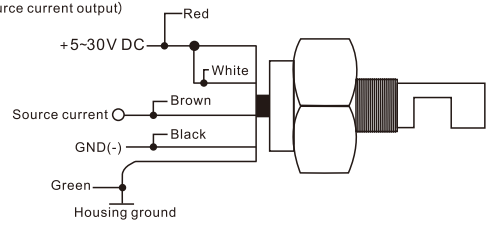
MDJ-C02-1/4



Wiring Diagram

PNP

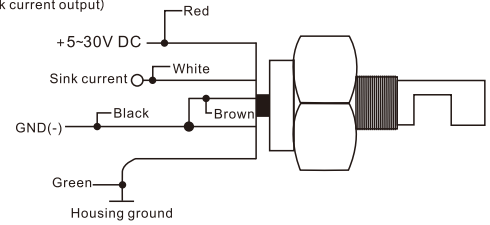
(Source current output)



White line jumper connected to red line(+)

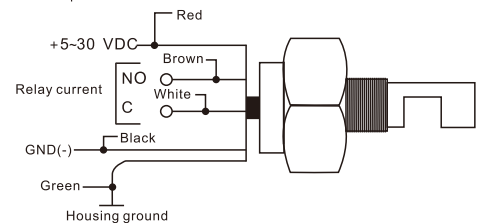
NPN

(Sink current output)



Brown line jumper connected to black line(-)

Relay current output



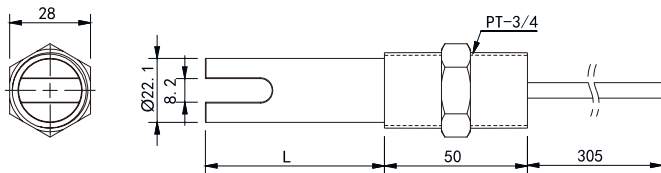


Basic Features	Operating Principle	Ultrasonic Detection
	Enclosure Shape	Cylindrical
	Detection Method	Thru-beam
	Mounting Method	3/4"NPT STD
Electrical data	Repeatability	≤2mm
	Operating Voltage	5~30VDC
	Leakage Current	≤50μA
	Delay	0.5s
	Output	Delayed Output: 1A Single Pole Double Throw (NO/NC); 30V DC
	Protection Circuit	Everse Connection Protection, Transient Protection
Environmental conditions	Working Temperature	-29°C~80°C
	Environmental Pressure	Maximum Pressure: Up to 1000 PSI
Mechanical data	Connection Method	Standard 305mm, customizable according to customer requirements
	Material	Stainless Steel (316L)
	Model	MX-S1

- Fiber Optic
- Slot Sensors
- Photoelectric
- Laser
- Proximity
- Displacement
- Magnetic
- Contact
- Area
- Ultrasonic
- AI Image
- Code Readers
- Vibration
- Temperature
- RFID
- Safety door lock
- Pressure Switch
- Communication
- Accessories

Dimensions

Unit: mm



*L default value is 62, L can be designed according to requirements

Guidance

Ultrasonic

- Cylindrical type
- Solid level switches type
- Fork level switch type
- Double-sheet sensor

Double-sheet Detection Sensor

MUD Series

Ultrasonic



Basic Features	Operating Principle	Ultrasonic Detection	
	Enclosure Shape	Cylindrical Shape (Pair of Sensors)	
	Mounting Method	Diffuse reflection	
	Detection Range	20~40mm Best:20mm+2mm	20~60mm Best:40mm+5mm
	Divergence Angle	± 45°	
	Ultrasonic Frequency	400kHz	200kHz
	Indicator	Green Light: Single Sheet, Flashing Green Light: Teaching Mode, Red Light: Double/Multiple Sheets, Flashing Red Light: No Paper	
Electrical data	Output Mode	NPN/PNP output: I _{max} =200mA (-V+2V)	
	Response Time	The automatic running mode is 2.5ms	The automatic running mode is 6.5ms
	Switching Frequency	20Hz	7Hz
	Hysteresis	<750ms	<1.9s
	Operating Voltage	20~30VDC	
	Operating Current	≤50mA	
	Residual Voltage	2V	
	Load Current	≤200mA	
	Maximum Ripple	± 10%	
	Insulation Resistance	-	
	Protection Circuit	Everse Polarity Protection/Short-circuit Protection	
	Temperature Compensation	None	
	Environmental conditions	Working Temperature	+5~+60°C
Protect Degree		IP65	
Mechanical data	Connection Method	2m PUR cable	
	Maximum Tightening Torque	15Nm	
	Dimensions	M18X1x60.0mm + M18X1x30.0mm	
	Material	Nickel-Copper Plating	
	Weight	0.4kg	
	Accessories	Nut M18x1	
Model	NPN	MUD-60N-400	MUD-60N-200
	PNP	MUD-60P-400	MUD-60P-200

Double-sheet Detection Sensor

MUD Series



NEW!

CE

Ultrasonic

Basic Features	Operating Principle	Ultrasonic Detection
	Enclosure Shape	Cylindrical Shape (Pair of Sensors)
	Detection Method	Diffuse reflection
	Detection Range	30~60mm
	Refreshment Rate	1ms
	Ultrasonic Frequency	200kHz
	Detection Range Adjustment	With Calibration Mode
	Indicator	Operational Status: LED
Electrical data	Output Mode	Three NPN / PNP
	Response Time	15ms
	Transducer Frequency	10Hz
	Operating Voltage	18~30VDC
	Operating Current	≤50mA
	Load Current	≤100mA
	Maximum Ripple	±10%
	Voltage Drop	<2V
	Protection Circuit	Short-circuit Protection/Overload Protection
	Temperature Drift	-
	Temperature Compensation	None
Environmental conditions	Working Temperature	-20~70°C
	Protect Degree	IP65
Mechanical data	Connection Method	With six-core cable VC, 2 meters
	Maximum Tightening Torque	-
	Dimensions	M18x79.0mm/M18x47.6mm
	Material	Nickel-Copper Plating
	Weight	0.17kg
	Accessories	Nut M18x1
Model	NPN	MUD-60N-18-GL
	PNP	MUD-60P-18-GL

Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
AI Image
Code Readers
Vibration
Temperature
RFID
Safety door lock
Pressure Switch
Communication
Accessories

Guidance

Ultrasonic

Cylindrical type

Solid level switches type

Fork level switch typ

Double-sheet sensor

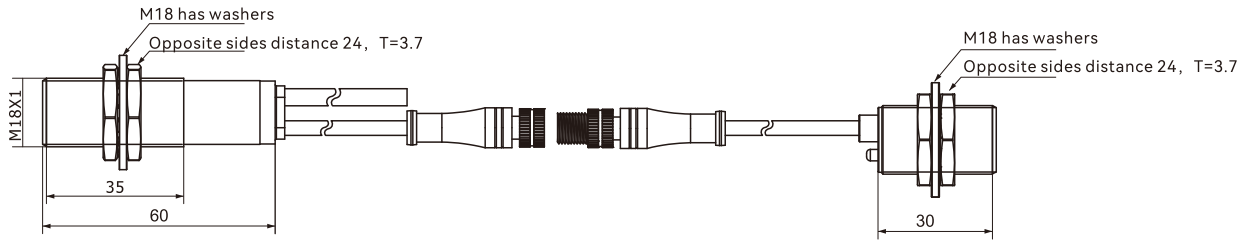
Double-sheet Detection Sensor

MUD Series

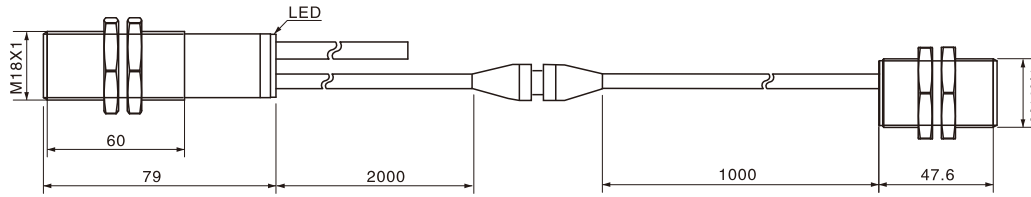
Dimensions

Unit: mm

MUD-60N/P-200/400



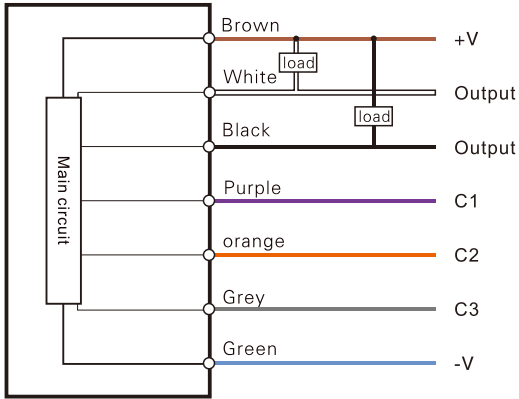
MUD-60N/P-18-GL



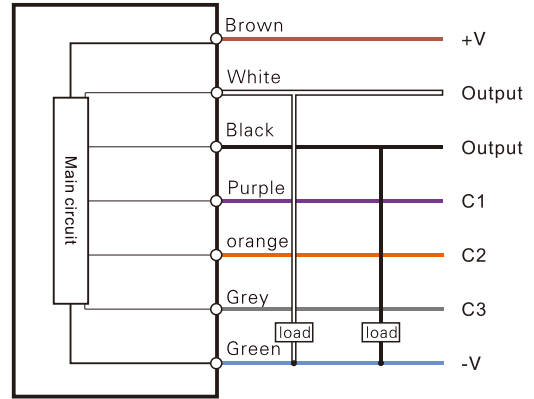
Circuit Diagram

MUD-60N/P-200/400

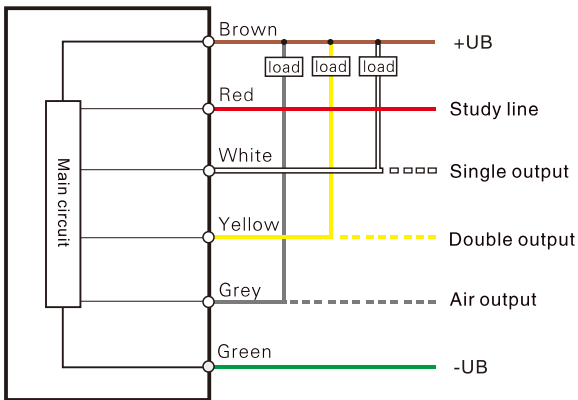
NPN



PNP



MUD-60N/P-18-GL



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Fiber Optic

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