



# KANSAI Automation Best Products

General Catalogue

EDITION

2

Level Switch for Powder

Level Switch for Powder & Liquid

Non-Contact Level Meter

Flow Sensor

Contact Level Meter

Liquid Level Meter & Switch

Conveyor Peripherals

Environment Measurement Instrument

Special Measurement Instrument

## Corporate Philosophy

Aiming for A RAISON D'ETRE indispensable to the betterment for life of mankind with  
OUR ZEAL AND OUR ORIGINAL TECHNOLOGY

## Management Creed

### 「Zeal and Originality」

PASSION above all can be a foundation for strength.  
Exerting our knowledge and making the impossible come true in the firm belief that  
our possibilities may be expanded infinitely

ORIGINALITY can pave a new path.  
Exerting our technical capabilities and turning adversity to leap in the hope that  
our dream may come true.

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# Powder Level Switch

## ■ SWING TYPE LEVEL SWITCH

**SWINGMASTER®**

**One and only development for Powder Level Switch, based on our extensive experiences.**

It's New



PATPEND

### SWM Series

Highly functional as well as cost effective.  
Versatile enough to be used for any applications.

SWM-8B



**Newly developed "SWING MASTER"**  
Future standard level switch for powder

SWG-8B



### SWG Series

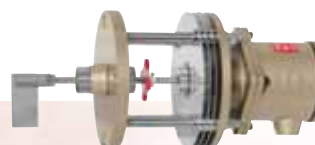
Integration of electronics and mechatronics.  
Tough functionality against rough application.



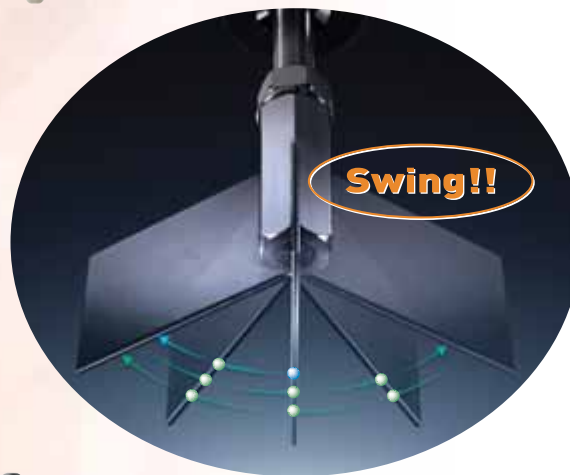
SWG-8BS



SWG-8BH



SWM-8BH



Powder Granules

## ■ MICROWAVE TYPE LEVEL SWITCH

### MWS2-24TN/24RN Type

The attenuation of microwave detects levels of powder, granules and blocks as well as pulverized materials.  
Heat-resistant type can be available.



MWS2-24TN



MWS2-24RN

**Transmission of 24GHz**  
enables to detect widely and sharply.

Powder Granules Lump

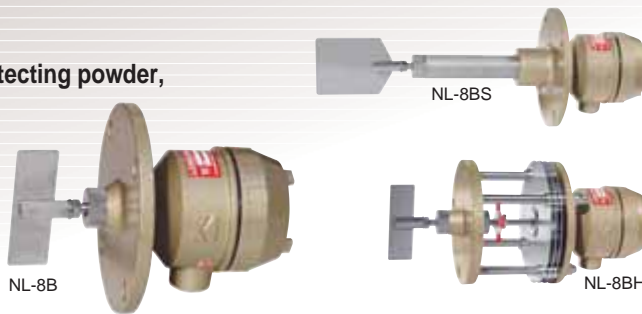


# Powder Level Switch

## ■ ROTARY PADDLE TYPE LEVEL SWITCH

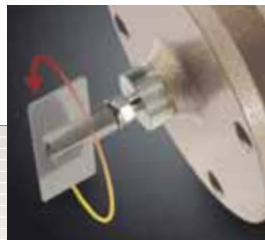
### NL Series

Standard type for detecting powder, versatile usages.



NL-8B

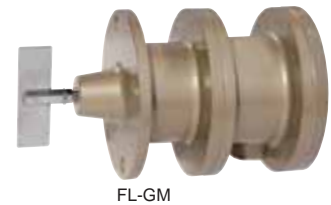
NL-8BH



24VDC Power Adaptive

### FL-GM Series

Flame-proof model  
d2G4



FL-GM

Powder Granules

### NM Series

Cost effective, standard type with no excessive functions.



NM-8B

NM-8BH

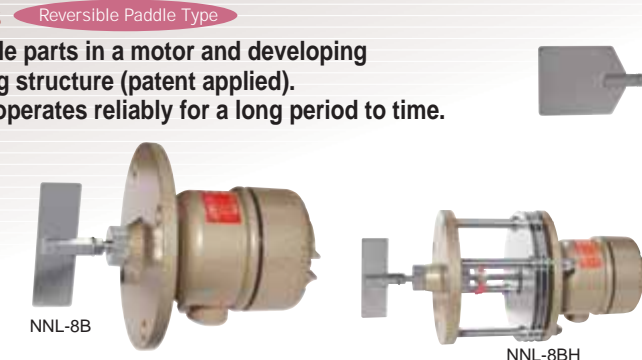


NM-8BS

24VDC Power Adaptive Powder Granules

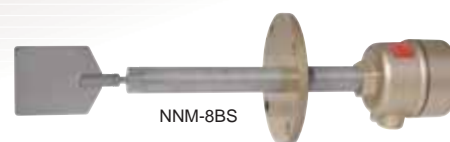
### NNL/NNM Series Reversible Paddle Type

Removing expendable parts in a motor and developing the original switching structure (patent applied). The motor unit now operates reliably for a long period to time.



NNL-8B

NNL-8BH



NNM-8BS



Powder Granules

### LEMICON Series Extremely Compact Type

Extremely Compact Type



LS

LS-S



Powder Granules

# Powder & Liquid Level Switch

## CAPACITANCE TYPE LEVEL SWITCH

### ALN Series

Extremely high-stable & reliable detection  
Versatile level switch  
being used for  
many applications.

ALN-12□-□  
Teflon-coated  
Type

ALN-11□-□H  
Super Heatproof  
Type

ALN-14□-□  
Wire Type

ALN-131-□  
Flat Type

SL-11□-□  
Straight-rod  
Type

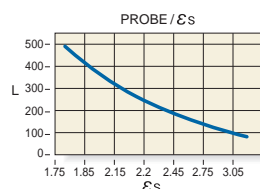
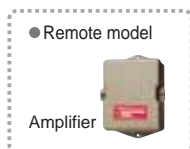
### SL Series

Certified as the Intrinsically  
Safe Explosion-proof can be  
accommodated to any  
shape of electrode.



Relay Power  
Unit

Intrinsically safe  
model (i)3nG5



ALN-155-□  
Pipeline Type

Powder Granules Liquid Surface Interface

## VIBRATION TYPE LEVEL SWITCH

### KVK Series

A single vibrating probe  
realizes as delicate vibration  
as tuning fork.  
High reliable detection and  
various product line.

High Sensitivity Type



KVK-111



KVK-36□



### KVA/KVF Series

Our own technology has made it  
possible to line up series of  
withstand-load probe that can  
still come with delicate vibration.

Withstand Load Type



KVA-111



KVA-13□



KVF-121



KVS-16□-P

### KVS Series

Intrinsically safe  
model i2G4



Barrier/  
Power Unit

Remote model



Amplifier

Powder Granules Liquid Underwater Solid

### KVX Series

Pursuing simple operation.  
Our own technology realizes more stable  
vibration with new physical principle.

Compact

KVX-111



KVX-112



KVX-211



### XV2 Series

Extremely compact and  
light suitable for such a place as  
the compact size is required in particular.

Extremely Compact Type

XV2-111



XV2-121



XV2-211



Powder Granules Liquid

# Non-Contact Level Meter

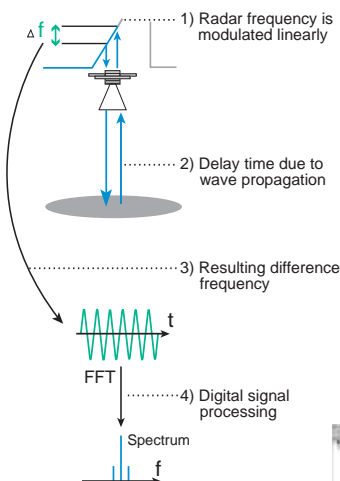
## RADAR TYPE LEVEL TRANSMITTER

Outstanding software ensures the most reliable detection. Microwaves make it possible to detect levels that have so far been difficult to be measured.

ATEX  
EEExia II CT6  
EEExd ia II C T6

### VG Series [ FMCW TYPE ]

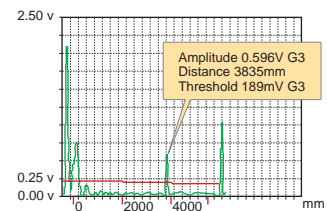
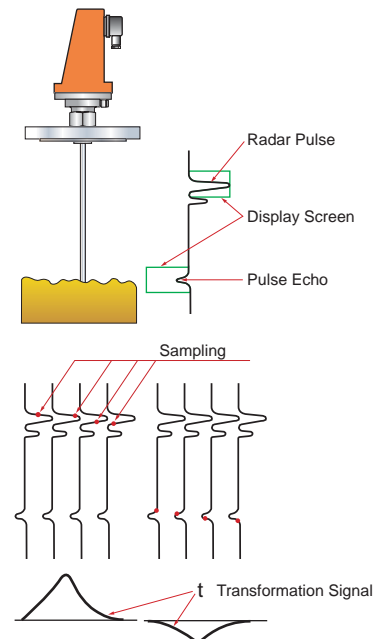
It guarantees the reliable detection in exercising frequency modulated continuous measurement, empty tank spectrum and tank bottom following principle.



● PC Display (VG)

### VF Series [ TDR TYPE ]

Micro pulses are sent toward a product to be measured via a probe, and it exactly measures levels with no influence of obstacles such as powder, dust and vapor.



● PC Display (VF)

Granules Liquid

## LASER TYPE LEVEL INDICATOR

Best suitable for non-contact measurement at the places where it is highly difficult or dangerous to measure!



### LASER RANG-L

It measures levels by pinpoint in utilizing semiconductor laser. The maximum range is 30 meters.



### LASER RANG-S

Extremely compact Laser Type Level Meter that can measure up to 10 meters by pinpoint.



Granules Liquid

# Non-Contact Level Meter

## ULTRASONIC LEVEL INDICATOR

### REFLEX

REFLEX  
SCANFLEX



Good for measuring a long range and scanning. Powerful enough to measure a wide range of products.

### MULTIFLEX



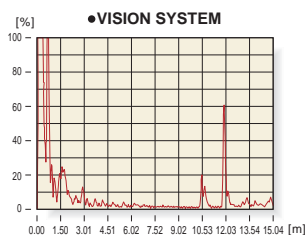
It can be applied to all processes from powder to liquid with particular setups.

### MINIFLEX LR



MINIFLEX LR

It builds in the minimum function with a user-friendly software.



• Measuring Water-level Differential



### MICROFLEX-C

Amplifier-integrated Type, coupled with two-wire loop powered. Easy to set up and handle.



ATEX  
ExEm II T6

Powder Granules Liquid

## ULTRASONIC LEVEL METER

### Ultimate Solution for Compact Ultrasonic Type

It exactly measures levels with narrow beam width.

Transmitter/Converter in one unit



LU83-5161



LU20-5061



LU20-5061-IS

CSA  
Intrinsically safe



Safety barrier MTL728+

Intrinsically safe  
model Exia II CT6

Liquid

# Flow Sensor

## MICROWAVE TYPE FLOW SENSOR



### KFD-1/KFD-2

24GHz helps this sensor make highly sensitive and reliable. It does not overlook even a grain.

Powder Granules

## PARTICLE FLOW SENSOR



### KDS-1

Monitoring the concentration of exhausted dust and minute particles and detecting flow/no flow.

Powder Granules

## POWDER FLOW MONITOR

### Electrodynamics System FM60

Reliably detect the concentration changes of Powder, Easy to handle, least maintenance



Powder Granules



# Contact Level Meter

## SOUNDING TYPE LEVEL METER

Various product lines.  
They can be applied to all processes, and  
they are the best selling lines for their reliability.



**KSL-T2**  
SPAN:MAX40m  
Standard

Powder  
Granules  
Lump  
Underwater Solid



CPU built-in models. Upgraded models are all weathertight constructions with aluminum casting body.

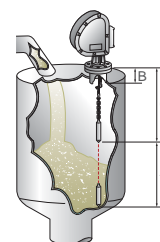


**KSL-T8**  
SPAN:MAX40m  
Build-in CPU

Powder  
Granules  
Lump  
Underwater Solid

**KSL-MT**  
SPAN:MAX20m  
Build-in CPU

Powder  
Granules  
Underwater Solid



A. Measuring Range  
B. Height of Nozzle  
C. Roll-up Position

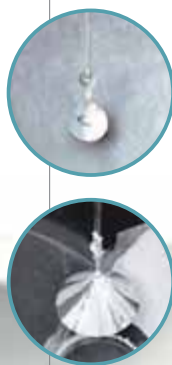
**KSL-W3T**  
SPAN:MAX20m  
Standard

Powder  
Granules  
Underwater Solid



**KSL-W2B**  
SPAN:MAX20m  
Standard

Powder  
Granules  
Underwater Solid



It can be applied to  
hazardous areas

**KSL-GT**  
SPAN:MAX30m

Flame-proof model  
Exd II BT4

Powder  
Granules  
Lump  
Underwater Solid



### Optional Units



**KSLAU**  
Control Unit



**PSC**  
P/I  
Converter

### Optional Units



**KSLAU**  
Control Unit

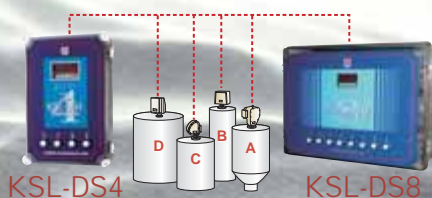


**PSC**  
P/I  
Converter

## SOUNDING TYPE LEVEL METER CONTROLS

A controller controls many units (4 for DS4 and 8 for DS8). Selecting a tank with one-touch operation. Memory function is equipped.

Microprocessor Control System





# Contact Level Meter

## CAPACITANCE TYPE LEVEL INDICATOR

**No moving part. It can be applied to any processes.  
Best selling line in continuous measurement**

**Various kinds of electrode that can be provided for hazardous places.**

Electrode · Amplifier  
Remote Type

## KLI Series

KLI-4□□

KLI-4□□  
Cable with  
TEFLON-coating

Electrode · Amplifier  
Built-in Type

## KLT Series

KLT-2□□  
TEFLON-tubing  
probe

Intrinsically safe  
explosion-proof model

## KLG Series

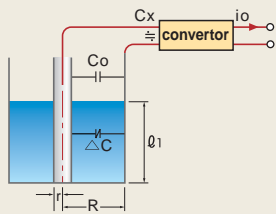
**Intrinsically safe  
model (i)2G4**

KLG-2□3  
TEFLON-tubing  
probe

KLT-1□□  
Bare probe

KLI-2□□  
TEFLON-tubing  
probe

Amplifier



$$C_X = C_0 + \Delta C$$

$$\Delta C = \frac{K(\varepsilon_2 - \varepsilon_1) \varrho_1}{\log_{10}(R/r)}$$

( Increment of capacitance when the tank is filled with the material to be measured )  
( Co:Capacitance when the tank is empty )

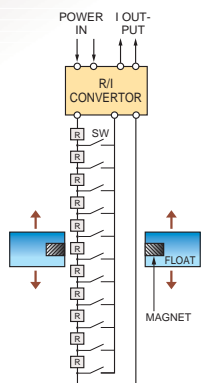
**Powder** **Granules** **Liquid** **Surface Interface**

VERTICAL FLOAT TYPE  
LEVEL INDICATOR

## KF-100 Series

It is not at all affected by environmental conditions such as material changes, gas and so on. Pioneer of Liquid Level Indicator

## INSIDE CIRCUIT



KF-10□  
made of  
SUS

KF-13□  
made of  
PVC

- Remote model

Amplifier

**Liquid Surface Interface**

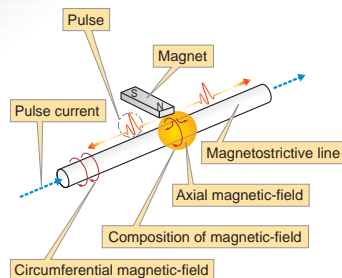
**MAGNETOSTRICTION  
(DOLPHIN MODEL)  
LEVEL INDICATOR**

## KF-900 Series

Linear Displacement Sensor  
with absolute  
magnetostrictive-wire inserted.  
It can accurately measure  
the liquid level.

KF-900-□□2  
Flange Type

KF-900-□□1  
Screw Type



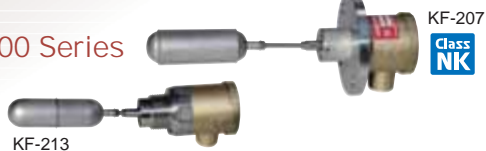
**Liquid**

# Liquid Level Meter & Switch

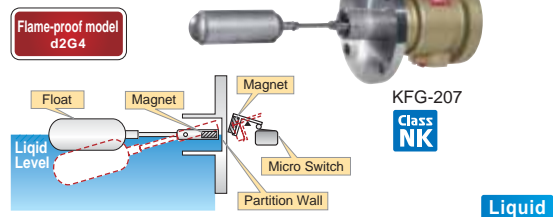
## HORIZONTAL FLOAT TYPE LEVEL SWITCH

Many products up graded depending on application and installation. Best selling line for its reliability.

### KF200 Series

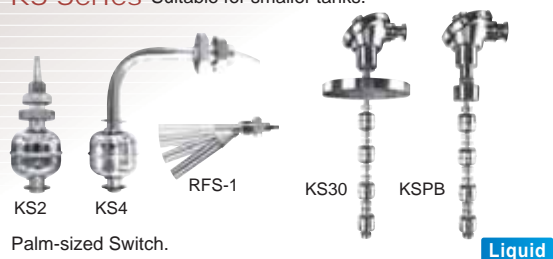


### KFG200 Series



## COMPACT FLOAT SWITCH

KS Series Suitable for smaller tanks.



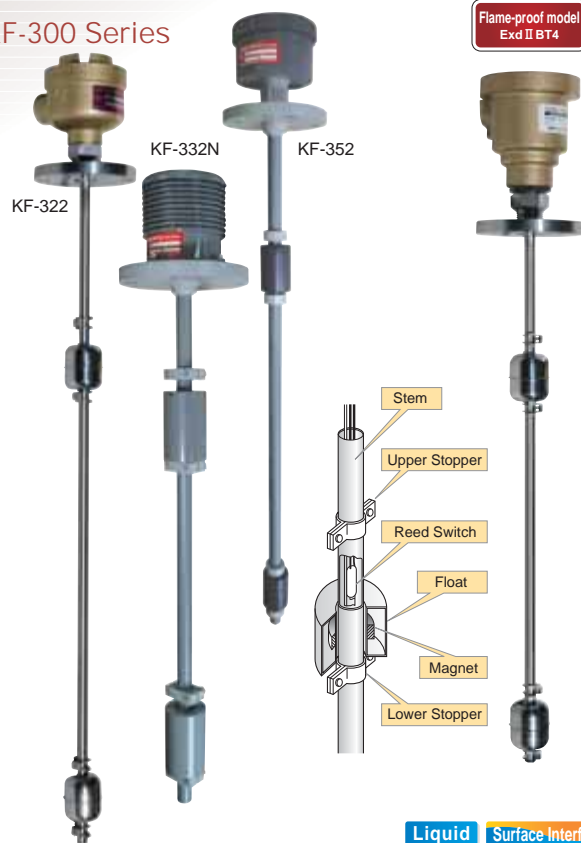
## VERTICAL FLOAT TYPE LEVEL SWITCH

These can be applied to all processes with various sizes and materials.

### KFE-3000 Series

Flame-proof model Exd II BT4

### KF-300 Series



## DIAPHRAGM TYPE LEVEL SWITCH

### KF500 Series

Can be used for viscous liquids as well as high temperature liquids. Diaphragm can reliably detect level.



## ELECTRODE TYPE LEVEL SWITCH



## MULTI-POINT BALL FLOAT SWITCH/ KARI FLOAT SWITCH



# Conveyor Peripherals

## CONVEYOR PERIPHERALS SWITCH

### KP-800 Series

Ensuring safety operation of Conveyor Lines

KP-850-1  
KP-850-2

Standard

KP-860

Indication Lamp

KP-870

Indication Plate

Detecting operational exceptions such as belt moving-off-to-one-side.

KP-880

Powder Granules Lump

## LEAK TYPE LEVEL SWITCH

### KEL-2 Series



KEL-2



Porcelain

No moving part.  
Suitable for measuring sand, aggregate, limestone and so on.

Powder Granules Lump

## TILT TYPE SWITCH



TC-3



TC-1

### TC Series

Simple mechanical construction tough enclosure. Level measurement with simple and reliable operation

Powder Granules Lump

## FLOW SWITCH

### KP-800 Series

Flow detection of powder and granules on a conveyor.

KP-810

KP-820

KP-4

KP-830

KPG-840

Flame-proof model d2G4

Powder Granules Lump

## SPEED DETECTOR

Reliably catching changes of conveyor speed, preventing motor and other components from being damaged.

### KPS Series



KPS-11

Directly Connected to Shaft



KPS-21

Non-contact Type



KPS-123/124

Touch-roll Type

Powder Granules Lump



# Environment Measurement Instrument

## DUST MONITOR

Reliably measure low to high dust concentrations in every process

### Electrodynamic Series

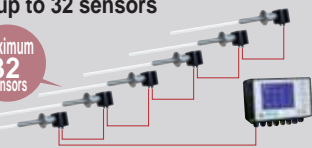
Measure dust concentrations reliably and accurately

DT990

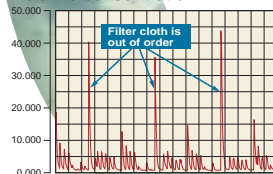


Fieldbus can control at most up to 32 sensors

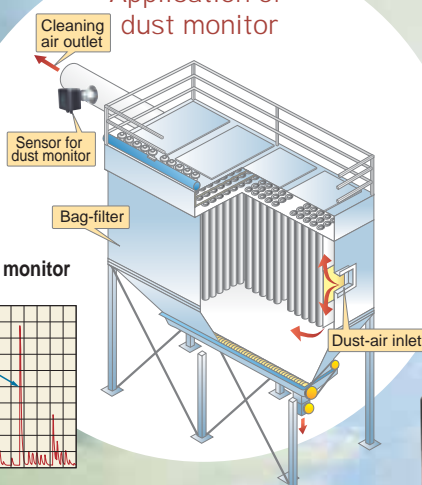
Maximum 32 sensors



● Output trend of dust monitor  
Relative concentration



### Application of dust monitor

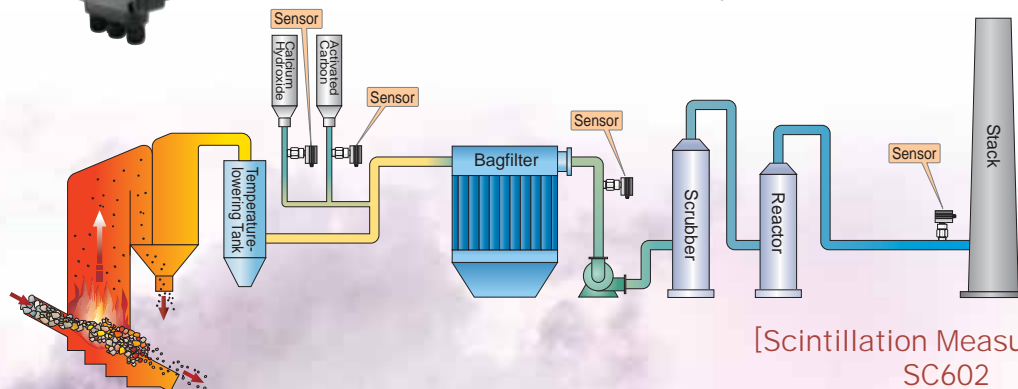


High-resolution Monitoring of Bagfilter Conditioning

MARK V



Controller-integrated Type.  
Easy to handle.



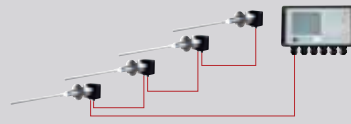
[Forward Scattering]  
LMS181



ATEX  
EX II 1G EEx II CT4  
EX II 1D

DT373  
Absolute Dust  
Monitor  
(Standard)

Multi-lay-out, enabling to connect 4 sensors



DA50  
Outstanding User-friendliness and  
Unique Parameter

[Scintillation Measurement]  
SC602

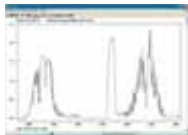


Can fit any ducts in a large diameter as well as incinerators of a large size.

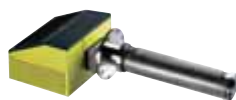
# Environment Measurement Instrument

## ■ FTIR Gas Analyzer

**Fourier Transform Infrared Spectroscopy**  
Continuously monitor the components of more than 12 different gases in the specific algorithm.



CEMS System



In-Situ  
Continuous Gas Analysis



## ■ Zirconium Oxygen Analyzer

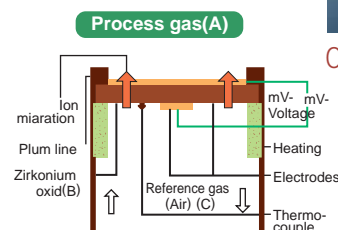
**Highly Accurate Measurement with Special Sealing Technique Reducing maintenance with long-lived cell**



OXITEC 5000



OXITEC ECONOMY



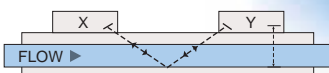
# Special Measurement Instrument

## ■ Ultrasonic Liquid Flow Meter

Portaflow PF-300



Simple and Quick set-up by way of Fast Strapping



Ultraflow UF-2000



Stationary Model meeting a variety of applications

Dopplerflow PDFM-IV



Flow meter utilizing the ultrasonic Doppler effect, suitable for measuring liquids containing bubbles or solids !



Portaflow  
PF-204 Plus/216

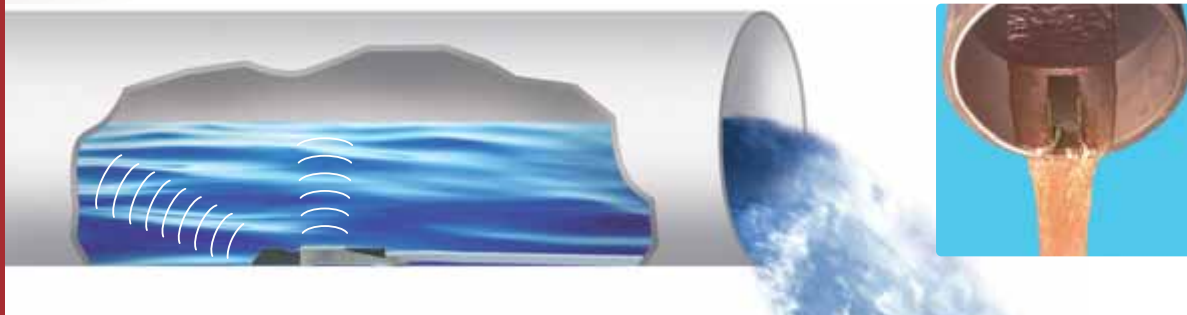
Best suitable for measuring small-bore pipes

# Special Measurement Instrument

## ■ Ultrasonic Area-velocity Flow Meter

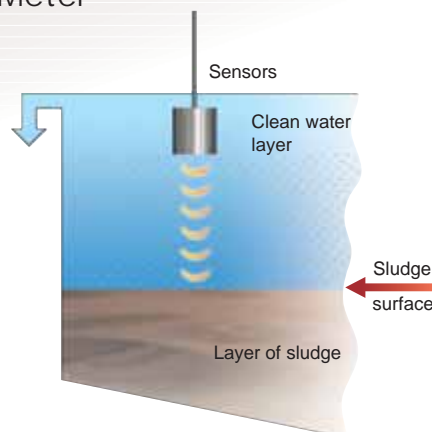
**AVFM-II**  
A single sensor can measure both  
flow velocity & level.

No Flume or Weir required



## ■ Ultrasonic Sludge Blanket Level Meter

**ENV100**  
Can reliably measure  
submerged sludge-layer  
in a septic tank, thickener  
or the like.



## ■ Online Fluid Analyzing Sensor

**FluidScan-S**  
Can measure fat concentrations in milk/ liquids  
and detect composition  
of products.

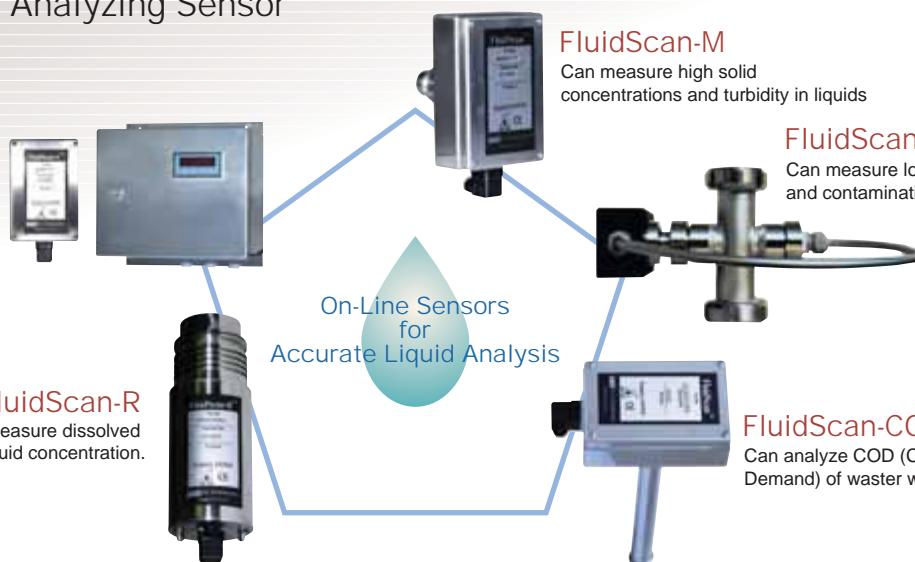
**FluidScan-R**  
Can measure dissolved  
solids / fluid concentration.

**FluidScan-M**  
Can measure high solid  
concentrations and turbidity in liquids

**FluidScan-F**  
Can measure low concentrations  
and contamination of fresh water

**FluidScan-COD**  
Can analyze COD (Chemical Oxygen  
Demand) of waster waters.

On-Line Sensors  
for  
Accurate Liquid Analysis





# OPTIONAL UNITS

## Controller



### MSC-B51D5

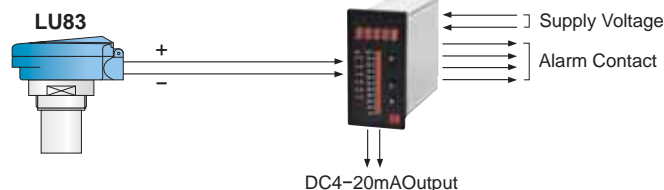
Size : 1/8DIN W48 x H96mm  
 Supply Voltage : 85-265VAC / 95-370VDC  
 (Shared power for AC/DC within any voltage as above)  
 Sensor Voltage : 24VDC  
 Consumption : 5W  
 Display : Digital (5 digit, LED)  
 Bargraph (51 segment, LED)  
 Analogue Output : DC4-20mA, load resistance below 500Ω  
 Output Contact : 4SPST (A contact)  
 Features : Scaling function, Built-in Linealizer

**Sensor Voltage (24VDC) and Scaling Function Equipped as Standard, additionally Built-in Linealizer**

### Recommended Adaptive Model

•VG/VF •LASER RANG-S •MICRO FLEX-C  
 •LU83/LU20

### Configuration Diagram



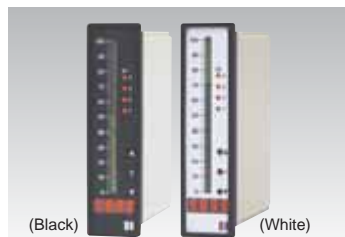
## Digital Meter Relay



### MR-B51D5

Size : 1/8DIN W48 x H96mm  
 Supply Voltage : 85-265VAC / 95-370VDC  
 (Shared power for AC/DC within any voltage as above)  
 Consumption : 5W  
 Display : Digital (5 digit, LED)  
 Bargraph (51 segment, LED)  
 Input : DC4-20mA  
 Output Contact : 2SPST (A contact)  
 Features : Scaling function

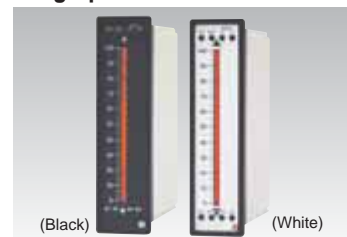
## Bargraph Meter Relay



### MR-B101D4

Size : 9/64DIN W36 x H144mm  
 Supply Voltage : 85-265VAC / 95-370VDC  
 (Shared power for AC/DC within any voltage as above)  
 Consumption : 5W  
 Display : Digital (4 digit, LED)  
 Bargraph (101 segment, LED)  
 Input : DC4-20mA  
 Output Contact : 2SPST (A contact)  
 Features : Scaling function

## Bargraph Meter



### M-B101

Size : 9/64DIN W36 x H144mm  
 Supply Voltage : 85-265VAC / 95-370VDC  
 (Shared power for AC/DC within any voltage as above)  
 Consumption : 5W  
 Display : Bargraph (101 segment, LED)  
 Input : DC4-20mA  
 Output Contact : nil

## Digital Meter



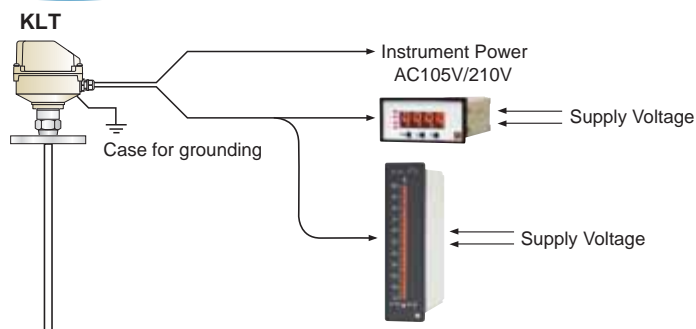
### MR-40

Size : 1/8DIN W96 x H48mm  
 Supply Voltage : 85-265VAC / 95-370VDC  
 (Shared power for AC/DC within any voltage as above)  
 Consumption : 5W  
 Display : Digital (4 digit, LED)  
 Analogue Input : DC4-20mA  
 Output Contact : 2SPST (A contact)  
 Features : Scaling function

### Recommended Adaptive Model

•LASER RANG-L •REFLEX •MULTIFLEX •MINIFLEX  
 •KSL •KLI •KLT •KLG •KF-100 •KF-900

### Configuration Diagram



The number of output contact and linealizer can be added dependent upon the model. Please feel free to consult with us.

# CERTIFIED EXPLOSION-PROOF INSTRUMENTS: USABLE RANGE OF EXPLOSIVE GAS

## National Standard

**d 2 G4**

- Ignition level : G1-G5
- EXP-proof grade : 1-3
- EXP-proof construction
  - d : Withstand pressure Exp-proof
  - e : Safety-increased EXP-proof
  - i : Intrinsic Safety EXP-proof
  - f : Pressurized construction
  - o : Oil filled EXP-proof
  - s : Special EXP-proof

## International Standard

**Ex d IIB T4**

- Surface Temp. Class: T1-T6
- Surface industries: IIA, IIB, IIC
- Flameproof enclosure type
  - g : Withstand pressure Exp-proof
  - e : Safety-increased EXP-proof
  - ia, ib : Intrinsic Safety EXP-proof
  - p : Pressurized construction
  - o : Oil filled EXP-proof
- Explosion-proof equipment (IEC)

Ignition Temp. of Explosive Gas		Over 450°C	Over 300°C Below 450°C	Over 200°C Below 300°C	Over 135°C Below 200°C	Over 100°C Below 135°C	Over 80°C Below 100°C
Temperature Grade		T1	T2	T3	T4	T5	T6
Ignition Level		G1	G2	G3	G4	G5	G6
Steam Category IIA	Explosion Grade 1	Acetone	Ehtanol	Gasoline	Acetaldehyde		Ethyl nitrite
		Ammonia	Isoamyl acetate	Hexane	(Di)ethyl ether		
		Carbon monoxide	Pranolol	Butyl chloride	Dibutyl ether		
		Ethane	Butane	Octane			
		Acetic acid	Acetic anhydride	Cyclohexane			
		Ethyl acetate	Methyl acrylate	Dimethyl ether			
		Acetonitrile	Ethyl acrylate	Tetrahydrofuran			
		Isopropyl chloride	Isooctane	Decane			
		m-xylene	Isopentane	Hexanol			
		Chlorobenzene	Vinyl chloride	Heptane			
		Hydrogen cyanide	Vinyl acetate	Pentanol			
		Dichloroethylene	Propyl acetate	Pentane			
		Trimethyl benzene	Cyclohexane	Methyl hexane			
		Toluene	Acetylacetone				
		Propane	Isobutanol				
		Benzene	Epichlorohydrin				
		Methanol	Isopentyl acetate				
		Methane	Butyl acetate				
		Acrylic nitrile	Pentyl acetate				
		Ethyl Methyl Ketone	Diisopropyl ether				
		O-xylene	Dioxane				
		P-xylene	Dichloroetane				
		Methyl acetate	Thiophene				
		Ethyl bromide	Furan				
		Styrene	Propanol				
		Benzotrifluoride	Propylene				
Steam Category IIB	Explosion Grade 2	Coal gas	Ethylene	Isopropylene			
		Dichloroethylene	Propylene oxide Ethylene oxide Butadiene	Hydrogen sulfide			
Steam Category IIC	Explosion Grade 3	Water gas Hydorgen	Acetylene			Carbon bysulfide	Ethyl sulfate

## CHEMICAL RESISTANCE TABLE

CHEMICALS	MATERIAL					
	PVC	PA	PP	FEP	PFA	SUS
Acetone	x	x	x	A	A	A
Aniline	x	B	B	A	A	A
Amyl alcohol	B	B	B	A	A	–
Ammonia water (10%)	B	A	A	A	A	A
Ammonia water (28%)	B	A	A	A	A	A
Isopropyl alcohol	B	B	B	A	A	A
Ethyl alcohol (50%)	B	A	B	A	A	A
Ethyl alcohol (95%)	B	B	B	A	A	A
Ethyl glycol	B	A	A	A	A	B
Zinc chloride	A	A	A	A	A	x
Aluminum chloride	A	A	A	A	A	x
Ammonium chloride	A	A	A	A	A	–
Potassium chloride	A	A	A	A	A	x
Calcium chloride	A	A	A	A	A	B
Ferric chloride	A	A	A	A	A	x
Magnesium chloride	A	A	A	A	A	B
Methylene chloride	x	x	x	A	A	B
Hydrochloric acid (10%)	A	A	A	A	A	x
Hydrochloric acid (35%)	A	A	A	A	A	x
Perchloric acid	B	B	B	A	A	x
Hydrogen peroxide (10%)	A	A	A	A	A	B
Hydrogen peroxide (3%)	A	A	A	A	A	A
Potassium permagnate	A	A	A	A	A	B
Formic acid	A	A	A	A	A	x
Xylene	x	x	x	A	A	A
Citric acid	A	A	A	A	A	A
Cresol	A	x	x	A	A	A
Chromic acid (10%)	B	B	B	A	A	x
Chromic acid (50%)		x	x	A	A	x
Chloroform	x	x	x	A	A	A
Acetic acid (50%)	A	A	A	A	A	A
Acetic acid (80%)	A	B	B	A	A	x
Acetic ether	x	x	x	A	A	B
Sodium hypochlorite	A	B	B	A	A	A
Carbon tetrachloride	x	x	x	A	A	B
Dimethylformamide	x	A	A	A	A	A
Oxalic acid	A	A	A	A	A	x

CHEMICALS	MATERIAL					
	PVC	PA	PP	FEP	PFA	SUS
Nitric acid (10%)	A	A	A	A	A	x
Nitric acid (50%)	B	A	A	A	A	x
Caustic silver	A	A	A	A	A	B
Sodium nitrate (10%)	A	A	A	A	A	A
Vegetable oil	B	A	A	A	A	A
Sugared water	A	A	A	A	A	A
Sugared water (alkali)	A	A	A	A	A	B
Potassium hydroxide (45%)	A	A	A	A	A	B
Potassium hydroxide (5%)	A	A	A	A	A	B
Potassium hydroxide (1%)	A	A	A	A	A	x
Potassium hydroxide (10%)	A	A	A	A	A	x
Potassium hydroxide (50%)	A	B	B	A	A	x
Stearic acid	A	B	B	A	A	A
Oil	B	x	x	A	A	A
Ammonium carbonate	A	A	A	A	A	A
Sodium carbonate	–	A	A	A	A	A
Kerosene	A	x	x	A	A	A
Toluene	x	x	x	A	A	A
Lactic acid	A	A	A	A	A	A
Picric acid	B	B	B	A	A	x
Phenol (50%)	–	A	A	A	A	A
n-butyl alcohol	A	A	A	A	A	–
Hydrofluoric acid (10%)	A	A	A	A	A	x
Hydrofluoric acid (50%)	A	A	A	A	A	x
Benzene	x	x	x	A	A	A
Boric acid	A	A	A	A	A	A
Formaldehyde (gas)	B	A	A	A	A	B
Methyl alcohol	B	A	A	A	A	A
Methyl ethyl ketone	x	x	x	A	A	A
Sulfuric acid (10%)	A	A	A	A	A	x
Sulfuric acid (50%)	B	A	A	A	A	x
Sulfuric acid (98%)	B	A	A	A	A	x
Ammonium sulfate	A	A	A	A	A	B
Phosphoric acid (10%)	A	A	A	A	A	B
Phosphoric acid (50-80%)	B	A	A	A	A	B
Ammonium phosphate	A	A	A	A	A	B
Sodium phosphate	A	A	A	A	A	–

A = Good B = dependent on conditions x = Unusable

## CHARACTERISTIC TABLE OF FLUOROCARBON RESIN

ABBREVIATION	PTFE (4F)	FEP (6F)	PFA	PVDF (2F)
NAME	POLYTETRA FLUORO ETYLENE	PERFLUOROETHYLENE- PROPYLENE COPOLYMER	TETRAFLUOROETHYLENE- PERFLUOROALKOXY VINYL ETHER COPOLYMER	POLYVINYLIDENE FLUORIDE
Continuous Temp. Limit (°C)	260	200	260	150
Pull Strength (Mpa)	13.7 – 34.3	16.6 – 21.6	27.5 – 29.4	24.5 – 50.0
Affected by weak acid	No	No	No	No
Affected by strong acid	No	No	No	Corroded by fuming sulfuric acid
Affected by weak alkali	No	No	No	No
Affected by strong alkali	No	No	No	No
Affected by organic solvent	No	No	No	Almost resistant
Affected by direct sunlight	No	No	No	No
Application-Features	Anti-corrosion materials for chemical-plant fixtures, non-adhesive applications, non-greased bearings and electric insulation of jet aircrafts.		Machinery parts requiring anti-corrosion, intensity and transparency.	Anti-corrosion and electric insulating materials requiring flammability
Models applied	<ul style="list-style-type: none"> <li>Insulator for Capacitance model</li> <li>Insulator for Dust Monitor</li> </ul>	<ul style="list-style-type: none"> <li>Teflon-tube for Capacitance model (Standard: Max 120°C)</li> </ul>	<ul style="list-style-type: none"> <li>Teflon-tube for Capacitance model (Special : Max 150°C)</li> <li>Wire-tube for Capacitance model</li> </ul>	<ul style="list-style-type: none"> <li>Transmitting device for Ultrasonic Transmitter</li> </ul>

\*The above characteristic table shows the features of fluorocarbon resin alone. When it is incorporated into a product, its heat resistant temperature and strength may be varied so that the performance level. may be maintained



TABLE OF RECOMMENDED SENSITIVITY AND SPECIFIC INDUCTIVE CAPACITY FOR CAPACITANCE TYPE LEVEL SWITCH

	Name of Object	SIC	S
A	Acrylic Rubber	4	1
	Acetate	3.2~7.0	1
	Acetic acid	6.1~6.7	1
	Acetic anhydride	22	2
	Acetum,	38	2
	Acrylic Resin	2.7~4.5	1
	Alcohol	16~31	2
	Aluminum fluoride	2.2	1
	Amber	2.8~2.9	1
	Aminoalkyl Resin	3.9~4.2	1
	Ammonia	15~25	2
	Amyl ether	3.1	1
	Aniline	6.9	1
	Arboreous cotton	1.3~1.4	1
	Asbestos	3.0~3.6	1
	Asbestos	3.0~3.5	1
	Asphalt	2.5~3.2	1
B	Bakelite	3.5~4.5	1
	Balm grounds	3.1	1
	Barley bran	1.8	1
	Barley flour	3.0~4.0	1
	Barley grain	3.0~4.0	1
	Barley hull	1.5	1
	Beeswax	2.5~2.9	1
	Benzene	2.3	1
	Benzine	2.3	1
	Benzyl alcohol	13	2
	Bone dust	5.0~6.0	1
	Borosilicic acid glass	4.5~6.2	1
	Bran	1.4~2.0	1
	Butanol	16~17	2
	Butyl alcohol	11	2
	Butyl chloride	7.4	1
	Butylaldehyde	13	2
	Butylnitryl	20	2
C	Calcite	8.3	1
	Calcium	3	1
	Calcium Carbonate	2.0~3.5	1
	Calcium hydroxide	2.0~3.5	1
	Calcium oxide	12	2
	Calcium phosphate	1.6~1.9	1
	Calcium sulfate	2.5~6.0	1
	Carbon bisulfide	2.6	1
	Carbon dioxide	1.6	1
	Casein resin	6.0~7.0	1
	Casting sand	3.4~3.5	1
	Cellophane	3.2~6.4	1
	Cellulose	3.2~7.5	1
	Cellulose acetate	3.2~7.0	1
	Cement powder	5.0~10	1
	Ceramic	4.0~7.0	1
	Cereal	3.0~8.0	1
	Charcoal	1.2~1.8	1
	CHCH3	12	2
	Chloride of lime	1.8~2.0	1
	Chlorobenzene	5.5~6.3	1
	Chloroform	4.8	1
	Chlorotoluene	4.0~4.5	1
	Chocolate	3.0~4.0	1
	Chrome	12	2
	Chromite	4.0~4.2	1
	Clay	1.8~2.8	1
	Coal	4	1
	Cocoa grounds	2.5~3.5	1
	Coffee grounds	2.4~2.6	1
	Compound	3.6	1
	Copper oxide	18	2
	Corn	5.0~10	1
	Corn husk	2.3~2.6	1

	Name of Object	SIC	S
	Cotton-seed oil	3.1	1
	Cresol	9.0~11	2
	Crude oil	2.48	1
	Crystal	3.5~4.7	1
	Curry powder	2.6	1
	Cyclohexane	19	2
D	Decanol	8.1	1
	DEP dimethy	4.5~5.6	1
	Diallyl phthalein resin	3.3~6.0	1
	Diamond	2.2	1
	Dichloroethylene	4.6	1
	Diesel oil	1.8	1
	Diethyl ether	4.3	1
	Dolomite	8	1
E	Epoxy resin	2.5~6.0	1
	Ethanol	24	2
	Ethyl acetate	6.0~6.4	1
	Ethyl ether	3.9~4.3	1
	Ethyl iodide	7.8	1
	Ethyl toluene	2.2	1
	Ethylene dichloride	11~17	2
	Ethylene glycol	37	2
	Ethylene iodide	3.4	1
	Ethylene oxide	4.0~5.0	1
F	Ethylene resin	2.2~2.3	1
	Ethylene terafluoride	1.9~2.0	1
	Feeding stuff	38	2
	Feldspar porcelain	5.0~7.0	1
	Ferric oxide	14	2
	Ferromanganese	5.0~5.2	1
	Fiber	2.5~7.5	1
	Flour	2.5~3.0	1
	Fluid margarine	2.8~3.2	1
	Fluorine rubber	6.8~8.0	1
G	Fluorite	6.8	1
	Fly ash	1.5~1.7	1
	Formaline	23	2
	Formamido	109	2
	Formic acid	58	2
	Freon	2.2	1
	Gasoline	2.0~2.2	1
	Glass	3.7	1
	Glass (granulated)	6.0~7.0	1
	Glass-silicon board	3.5~4.2	1
H	Glycerin	47~68	2
	Glycol	35~40	2
	Granulated gelatine	2.6~2.7	1
	Granulated sugar	1.5~2.2	1
	Graphite	12~15	2
	Gravel	5.4~5.6	1
	Grout	3.0~5.0	1
	Gum	2.7~2.9	1
	Heavy oil	3	1
	Helium	1.1	1
I	Heptanal	13	2
	Heptane	1.9~2.0	1
	Hexane	5.8~6.3	1
	Hexanol	13	2
	Hydrochloric acid 100%	4.0-12	1
	Hydrofluoric acid	11~17	2
	Ink	2.5	1
	Iodine	11	2
	Isobutyl alcohol	18~40	2
	Isobutyl amine	4.5	1
K	Ivory	6.9	1
	Kerosene	1.8	1
L	Lactonitrile	38	2
	Lead carbonate	18	2
	Lead glass	7.0~10	1

SIC - Specific Inductive Capacity S - Sensitivity

\*Please be advised that recommended SENSITIVITY depends on the conditions of the object to be measured, environments/temperature, and the shape of the electrode or its mounted conditions.

TABLE OF RECOMMENDED SENSITIVITY AND SPECIFIC INDICATIVE CAPACITY FOR CAPACITANCE TYPE LEVEL SWITCH			
Sensitivity	Specific	Indicative Capacity	Capacitance Type Level Switch
			Capacitance Type Level Switch

	Name of Object	SIC	S	
M	Lead nitrate	38	2	
	Linoleic acid	2.6~2.7	1	
	Lumber, dried	2.0~6.0	1	
	Lumber, wet	11~30	2	
	Magnesium oxide	9.6	1	
	Magnesium sulfate	8.2	1	
	Manganese dioxide	5.0~5.2	1	
	Marble	3.5~9.3	1	
	Melamine resin	4.7~11	1	
	Menthol	3.9	1	
	Metane	1.7	1	
	Methacrylic resin	2.2~3.2	1	
	Methanol	33	2	
	Methyl aniline	5.9	1	
	Methyl ether	5	1	
	Methyl iodide	7	1	
	Methyl nitrate	24	2	
	Methylamine	9.4	1	
	Mica	5.0~9.0	1	
N	Mica	2.6~3.2	1	
	Micanite	1.8~2.6	1	
	Mineral oil	2.0~2.5	1	
	Molasses	50~80	2	
	Morpholine	7.3	1	
	Na2CO3	8.7	1	
	Naphthalene	2.5	1	
	Natural rubber	2.7~4.0	1	
	Neoprene	6.0~9.0	1	
	Nitrobenzene	36	2	
	Nitrocellulose	6.2~7.5	1	
	Nylon	4.0~5.0	1	
	O	Oil	2.0~2.2	1
	P	Paint or the like	5.0~8.0	1
		Palmitic acid	70	2
		Paper	2.0~2.5	1
		Paraffin	1.6~1.9	1
		Paraffin	2.4~6.5	1
		Paste	1.7~1.8	1
Pentanol		14	2	
Pentanone		15	2	
Petrolatum		2.2~2.9	1	
Phenol		9.8	1	
Phosphor		4	1	
Phthalic acid		5.0~6.3	1	
Picoline		9.8	1	
Pine oil		2.5~2.6	1	
Pine resin		1.5~1.8	1	
Piperidine		5.8	1	
Plywood		2.0~2.6	1	
Poly-ether chloride		2.9	1	
Polyacetal		2.6~3.7	1	
Polyamide		2.5~2.6	1	
Polybutylene		2.2~2.3	1	
Polycarbonate		2.9~3.0	1	
Polyester resin		2.8~8.1	1	
Polyethylene		2.2~2.4	1	
Polyethylene, pellet		1.5	1	
Polypropylene		1.5~1.8	1	
Polystyrol		2.0~2.6	1	
Polyvinyl acetate resin		2.7~6.1	1	
Polyvinyl alcohol		1.9~2.0	1	
Polyvinylidene chloride		4.5~6.0	1	
Polyvinylidene fluoride		8.4	1	
Powdered coal		2.0~4.0	1	
Propane		1.6	1	
Propionaldehyde		19	2	
Propyl alcohol		32	2	
Propyl butyrate		4.3	1	
Pvrex		4.8	1	

[illegible]



- Rotary Paddle Type Level Switch
- Vibration Type Level Switch
- Swing Type Level Switch
- Acoustic Level Switch
- Capacitance Type Level Switch
- Capacitive Proximity Sensor
- Capacitance Type Level Indicator
- Diaphragm Type Level Switch

- Tilt Switch
- Leak Type Level Switch
- Microwave Switch
- Sounding Bob Type Level Indicator
- Flow Switch
- Conductance Type Level Switch
- Float Switch
- Float Type Level Indicator

- Ultrasonic Type Level Indicator
- Equipments For Conveyor Lines
- Dust Monitor System
- Zirconia Oxygen Analyzer
- Laser Type Level Indicator
- RADAR Type Level Indicator
- On-line Sensors for Accurate Liquid Analysis
- Ultrasonic Flow meter

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Agent

\*Please be sure to read USER'S GUIDE, Installation & Operation Instructions when using the instrument.

\*The specifications herein may be subject to change without advance notice.