

# KSL SERIES

## SOUNDING BOB TYPE LEVEL INDICATOR

Measuring Level Correctly & Reliably !!  
Ultimate Solution for Stock Management



The housing is so robust that the unit's durability under  
harsh conditions may be incomparable.  
It can be applied to every process !!

# **KSL SERIES**

**SOUNDING BOB TYPE LEVEL INDICATOR**

## **Ultimate Solution for Stock Management Reliably Catching Level for Powder, Granules & Lumps**

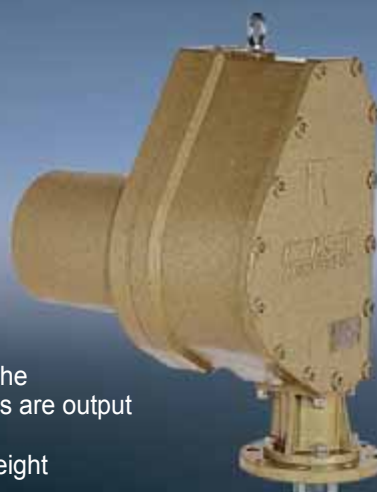
This is the general-purpose level meter having a good market share as a level meter for powder, granules and lumps stored in a tank, a silo or the like. It can be used for versatile purposes as a level meter for all sorts of powder, granules, and lumps.



**KSL-T8**  
CPU Built-in

### **PRINCIPLE OF OPERATION**

- 1 When a start signal is input, the motor starts up and then the metering tape comes out, followed by the weight descending.
- 2 The motor stops when the weight touches on the measuring substance, and level measurements are output
- 3 When the motor reversely rotates to get the weight back to the roll-up-complete position, it stops.
- 4 The unit stands by awaiting the next start signal



**KSL-GT**

Withstand-pressure  
Explosion-proof  
Exd II BT4

Just push a measuring button on any tanks, and, with only this touch, you can select the tank to measure and start measuring !!



**KSL-DS4**

**KSL-DS8**



**KSL-MT**  
CPU Built-in



**KSL-W2B**  
Standard



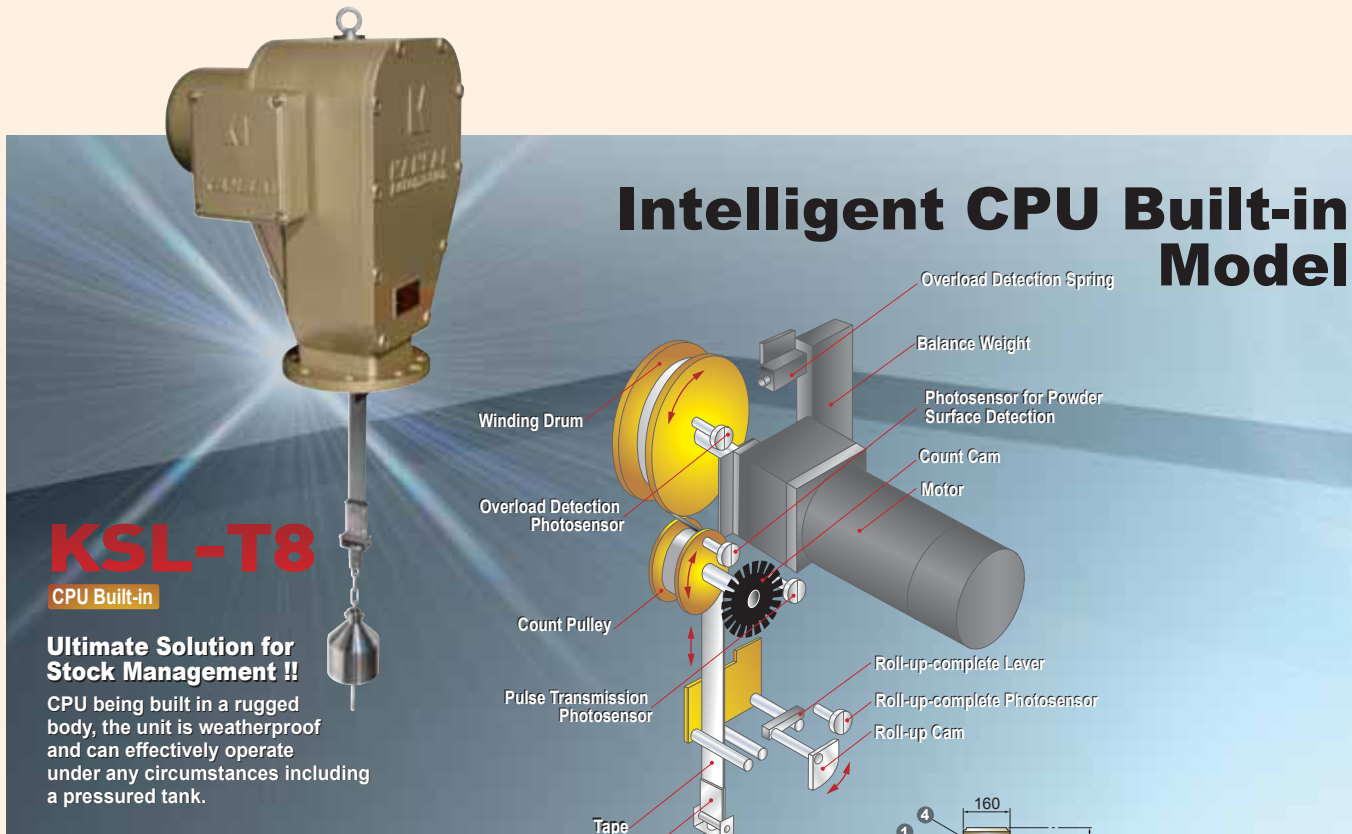
**KSL-T2**  
Standard



**KSL-W3T**  
Standard







## KSL-T8

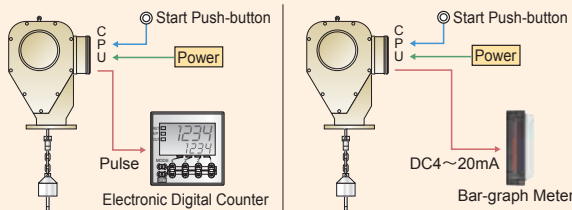
CPU Built-in

### Ultimate Solution for Stock Management !!

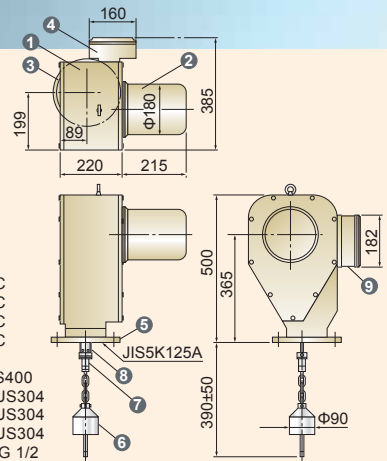
CPU being built in a rugged body, the unit is weatherproof and can effectively operate under any circumstances including a pressured tank.

### Example of Equipment Configuration

Transmitted pulses may be indicated directly on an Electromagnetic counter or on an electronic counter via Control Unit, or may be displayed as analog outputs via P/I Converter from Control Unit.



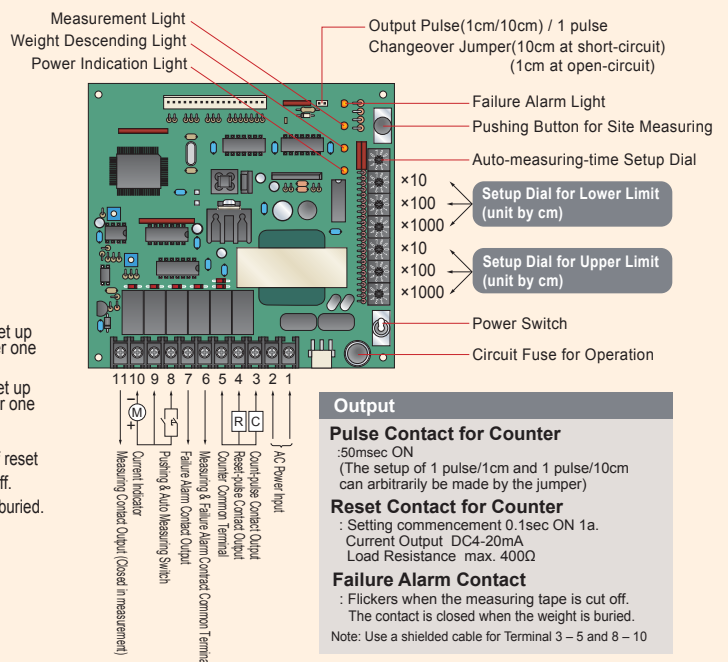
- |                       |         |
|-----------------------|---------|
| 1 Main Frame          | AC      |
| 2 Motor Cover         | AC      |
| 3 Drum Cover          | AC      |
| 4 Control Board       | AC      |
| 5 Terminal Box        | AC      |
| 6 Mounting Flange     | SS400   |
| 7 Weight              | SUS304  |
| 8 Chain Rotation Axis | SUS304  |
| 9 Tape Stopper        | SUS304  |
| Conduit Connection    | 2-G 1/2 |



### Standard Specification

- Power Voltage : 100VAC or 200VAC, Single-phase 50/60Hz
- Consumption : Max. 150VA
- Allowable Temperature : ambient - 10°C ~ + 50°C (No freezing /condensation)  
Inside tank - 10°C ~ + 80°C (No freezing/ condensation)
- Measuring Span : Standard 20m ( Max. 40m Option)
- Measuring Method : Pulse Counting
- Measuring Unit : 1 pulse/10cm, or 1 pulse/1cm
- Measuring Accuracy : ±10cm / ±1cm
- Motor : Single-phase, Reversible, Output 40W  
30 minutes rating, with brake
- Elevating Speed : 8.8m/min(50Hz), 11.0m/min(60Hz),
- Measure : SUS304, CSP tape W32 x Thick 0.3mm
- Cutoff Load : 9kN
- Output Signal : Current signal DC4 ~ 20mA (indicate remains).  
DC20 ~ 4mA(indicate vacated portion) — User can set up either one
- Pulse contact signal 1 pulse / 1cm — User can set up either one  
(No-volt signal) 1pulse / 10cm
- Built-in Timer : Measuring stand-by time can be adjusted via a set-up..
- Output Contact : Reset Contact / for Remote Indication Counter, ON at the time of reset  
Failure Alarm Contact/ Flickers when the measuring tape is cut off.  
The contact is closed when the weight is buried.
- Body material : Aluminum casting
- Mounting Method : JIS 5K 125A
- Protection Rank : IP66 or equivalent
- Weight : 45kg

### Circuit Board Layout / Interconnecting Diagram



#### Output

##### Pulse Contact for Counter

:50msec ON  
(The setup of 1 pulse/1cm and 1 pulse/10cm can arbitrarily be made by the jumper)

##### Reset Contact for Counter

: Setting commencement 0.1sec ON 1a.  
Current Output DC4-20mA  
Load Resistance max. 400Ω

##### Failure Alarm Contact

: Flickers when the measuring tape is cut off.  
The contact is closed when the weight is buried.

Note: Use a shielded cable for Terminal 3 - 5 and 8 - 10

The level indications are directed from the remote. That requires no site measurement, and you can expect much improvement in terms of the working and safety environment.

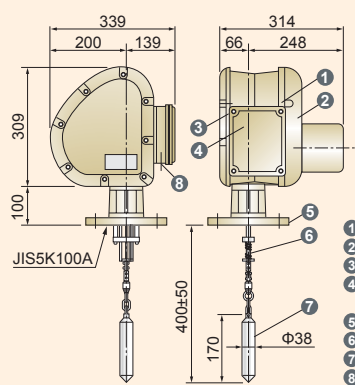


## KSL-MT

CPU Built-in

### CPU Built-in Model of Compact Size

Suitable for level control of Hopper Bin or the like in smaller capacity



- |                      |         |
|----------------------|---------|
| 1 Main Frame         | AC      |
| 2 Motor Cover        | AC      |
| 3 Pulley Cover       | AC      |
| 4 Control Board      | AC      |
| 5 Mounting Flange    | SS400   |
| 6 Measuring Tape     | SUS304  |
| 7 Weight             | SUS304  |
| 8 Conduit Connection | 2-G 1/2 |

### Standard Specification

Power Voltage : 100VAC or 200VAC, Single-phase 50/60Hz  
 Consumption : Max. 90VA  
 Allowable Temperature : -10°C ~ +50°C (No freezing / no condensation)  
 Measuring Span : 0 ~ 20m  
 Measuring Method : Pulse Counting  
 Measuring Unit : 1 pulse/10cm or 1 pulse/1cm  
 Measuring Accuracy : ±10cm / ±1cm  
 Motor : Single-phase, Reversible, Output 25W  
 30 minutes rating, with brake  
 Elevating Speed : 7.2m/min (50Hz), 8.5m/min (60Hz),  
 Measure : SUS304, CSP tape W10 x Thick 0.2mm  
 Cutoff Load : 1kN  
 Output Signal : Current signal DC4 ~ 20mA (indicate remains):  
 DC20 ~ 4mA (indicate vacated portion) — User can set up either one  
 Pulse contact signal 1 pulse / 1cm — User can set up either one  
 (No-volt signal) 1 pulse / 10cm  
 Built-in Timer : Measuring standby time can be adjusted by a set-up.  
 Output Contact : Reset Contact / for Remote Indication Counter, ON at the time of reset  
 Failure Alarm Contact/ Flickers when the measuring tape is cut off.  
 The contact is closed when the weight is buried.  
 Body material : Aluminum casting  
 Mounting Method : JIS 5K 100A  
 Protection Rank : IP66 or equivalent  
 Weight : 20kg

## Rugged Withstand-pressure Explosion-proof For Explosive Environment

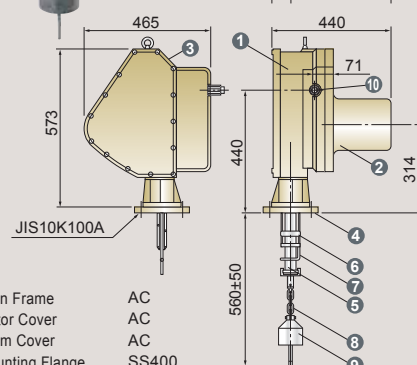
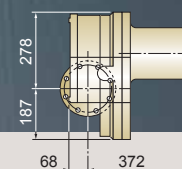
## KSL-GT

Withstand-pressure  
Explosion-proof  
Exd II BT4



It can reliably operate regardless of particulates, temperature changes, and electric fluctuation of measuring substances.

It can measure explosive substances as well as effectively function in the explosive gas environments such as chemical/medical factories, power station or the like.



- |                        |        |
|------------------------|--------|
| 1 Main Frame           | AC     |
| 2 Motor Cover          | AC     |
| 3 Drum Cover           | AC     |
| 4 Mounting Flange      | SS400  |
| 5 Tape                 | SUS304 |
| 6 Cleaner              | PA     |
| 7 Roll-up-complete Rod | SUS304 |
| 8 Chain                | SUS304 |
| 9 Weight               | SUS304 |
| 10 Conduit Connection  | G 3/4" |
- Pressure Tight Gland(Cable dia. Φ14 - Φ16)

### Standard Specification

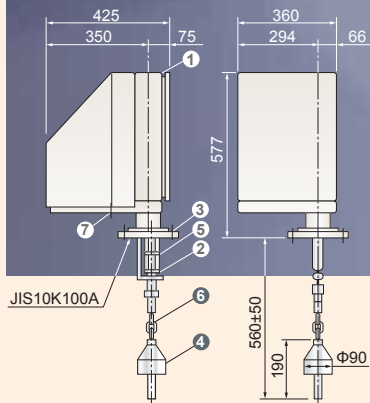
Power Voltage : 100VAC or 200VAC, Single-phase 50/60Hz  
 Consumption : 150VA  
 Allowable Temperature : ambient -10°C ~ +40°C (No freezing / condensation)  
 inside tank -10°C ~ +40°C (No freezing / condensation)  
 Measuring Span : 0 ~ 20m (Max. 30m Option)  
 Measuring Method : Pulse Counting  
 Measuring Unit : 1 pulse/10cm  
 Measuring Accuracy : ±10cm  
 Motor : Single-phase Output 40W, Class E Insulating  
 33% ED twice/hour (condenser 15μF)  
 Single-phase 200VAC 40W Class E Insulating  
 33% ED twice/hour (condenser 3.5μF)  
 Elevating Speed : 8.8m/min(50Hz), 11.0m/min(60Hz),  
 Measure : SUS304 - CSP tape W32 x Thick 0.3mm  
 Cutoff Load : 9kN  
 Body material : Aluminum casting  
 Mounting Method : JIS 10K 100A  
 Protection Rank : Indoor (Provide with raintight cover for outdoor use)  
 Weight : 75kg

## KSL-T2

Standard

This is the general-purpose level meter having a good market share as a level meter for powder & granules.

Stainless tape being adopted as a metering device, it can be used for versatile purposes as a level meter for all sorts of powder & granules.



- |                      |            |
|----------------------|------------|
| 1 Main Frame         | SPCC       |
| 2 Measuring Tape     | SUS304     |
| 3 Mounting Flange    | SS400      |
| 4 Weight             | SUS304     |
| 5 Cleaner            | Polyacetal |
| 6 Chain              | SUS304     |
| 7 Conduit Connection | Φ27        |

JIS10K100A

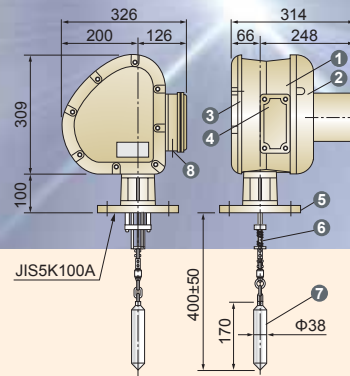
## VERSATILE MODEL HAVING CUSTOMERS' CONFIDENCE AND A GOOD MARKET SHARE

A Model of Medium size, suitable for Pressured Tank, Silo or the like.

Housed in aluminum casting, it is so occlusive that it may be dustproof, pressure-proof and weatherproof.

## KSL-W3T

Standard



- |                      |        |
|----------------------|--------|
| 1 Main Frame         | AC     |
| 2 Motor Cover        | AC     |
| 3 Pulley Cover       | AC     |
| 4 Terminal Box       | AC     |
| 5 Mounting Flange    | SS400  |
| 6 Measuring Tape     | SUS304 |
| 7 Weight             | SUS304 |
| 8 Conduit Connection | G 3/4  |

JIS5K100A

### Standard Specification

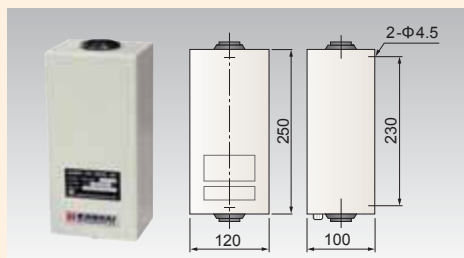
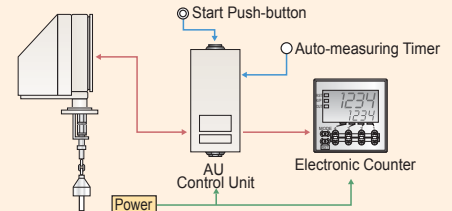
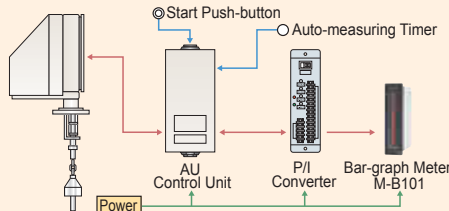
Power Voltage : 100VAC or 200VAC, Single-phase 50/60Hz  
 Consumption : 150VA  
 Allowable Temperature : ambient -10°C~+50°C (No freezing / condensation)  
 inside tank -10°C~+80°C (No freezing / condensation)  
 Measuring Span : 0 - 20m (Max. 40m Option)  
 Measuring Method : Pulse Counting  
 Measuring Unit : 1 pulse/10cm  
 Measuring Accuracy : ±10cm  
 Motor : Single-phase, Reversible, Output 40W  
 30 minutes rating, with brake  
 Elevating Speed : 9.3m/min (50Hz), 11.0m/min (60Hz),  
 Measure : Tape / SUS304 W32 x Thick 0.3mm  
 Cutoff Load : 9kN  
 Body material : SPCC  
 Mounting Method : JIS 10K 100A  
 Protection Rank : IP33 or equivalent  
 Weight : 53kg

### Standard Specification

Power Voltage : 100VAC or 200VAC, Single-phase 50/60Hz  
 Consumption : 90VA  
 Allowable Temperature : ambient -10°C~+50°C (No freezing / condensation)  
 inside tank -10°C~+80°C (No freezing / condensation)  
 Measuring Span : 0 - 20m  
 Measuring Method : Pulse Counting  
 Measuring Unit : 1 pulse/10cm  
 Measuring Accuracy : ±10cm  
 Motor : Single-phase, Reversible, Output 25W  
 30 minutes rating, with brake  
 Elevating Speed : 7.2m/min (50Hz), 8.5m/min (60Hz),  
 Measure : SUS304 - CSP tape W10 x Thick 0.2mm  
 Cutoff Load : 1kN  
 Body material : Aluminum Casting  
 Mounting Method : JIS 5K 100A  
 Protection Rank : IP66 or equivalent

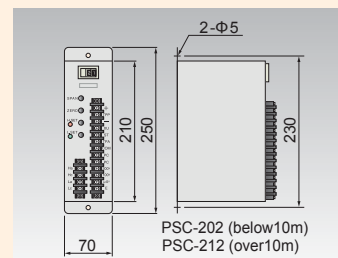
### Example of Equipment Configuration

Transmitted pulses may be indicated directly on an electromagnetic counter or on an electronic counter via Control Unit, or may be displayed as analog outputs via P/I Converter from Control Unit.



### Control Unit (KSLAU)

Supply Voltage : 100 / 110AC, 200 / 220V  
 50/60Hz as specified (same voltage as detector)  
 Output Contact Capacity : Rated load 220VAC 5A 30VDC 5A ( resistance load)  
 Minimum Applicable Resistance Load 5VDC 10mA  
 Allowable Ambient Temperature : 0°C~ +50°C  
 Painted color : Munsell 5Y 7/1  
 Housing Material : Steel Plate  
 Weight : 1.7kg



PSC-202 (below10m)  
 PSC-212 (over10m)

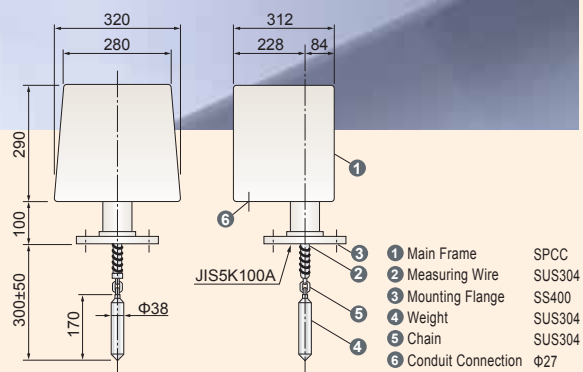


### COMPACT MODEL USED FOR A HOPPER BIN IN SMALLER CAPACITY.

This is a convenient type to be used for a less capacious storage tank which is placed in light-industry processing facilities including flour, feeding stuff, plastic and so on.

## KSL-W2B

Standard



### ■ Standard Specification

Power Voltage : 100VAC or 200VAC 50/60Hz  
Consumption : 70VA  
Allowable Temperature : ambient -10°C~+50°C (No freezing / condensation)  
inside tank -10°C~+80°C (No freezing / condensation)  
Measuring Span : 0 ~ 20m  
Measuring Method : Pulse Counting  
Measuring Unit : 1 pulse/10cm  
Measuring Accuracy : ±10cm  
Motor : Single-phase, Reversible, Output 15W  
30 minutes rating, with brake  
Elevating Speed : 7.0m/min (50Hz), 8.6m/min (60Hz),  
Measure : SUS304 Wire φ1.5mm 7 x 19 Z-Stranding  
Cutoff Load : 1.7kN  
Body material : SPCC  
Mounting Method : JIS 5K 100A  
Protection Rank : IP33 or equivalent  
Weight : 20kg

### Installed Equipment

#### ● P/I Converter (PSC)

Supply Voltage : 100/200VAC ±10% 50/60Hz  
Consumption : 4VA  
Level Output : DC4 ~ 20mA Allowable load resistance 1kΩ  
Output Contact Capacity : Rated load 250VAC 3A 30VDC 3A (Resistance load)  
\*Contact output of Upper/Lower limit Minimum Applicable Load DC1V10mA  
Allowable Ambient Temperature : 0°C~+50°C  
Painted Color : Munsell N7  
Housing Material : Steel Plate  
Weight : 2kg

## MICROPROCESSOR-CONTROL CONTROLLER

- Selecting a Tank with One-touch Operation
- Discretionary Detection by Application
- Intelligent Diagnosis, Equipped with Memory Function

### System Outline

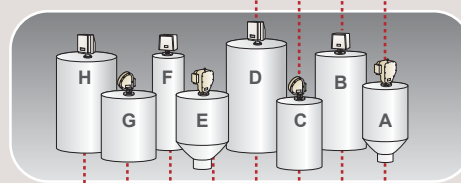
The descent distance of measuring tape/wire may be converted to the stock volume in a tank.

The detector detects in a mechanical manner.

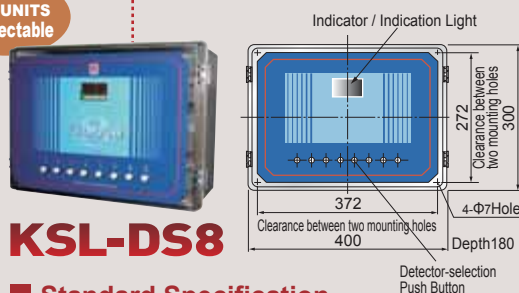
The measuring findings can be shown by height(m), %, ton & m3. You can select an indication of either Remains or Vacated Portion

### Applicable Models

KSL-T8(AUType), KSL-T2, KSL-W3T, KSL-W2B



8 UNITS  
connectable



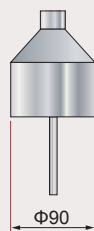
## KSL-DS8

### ■ Standard Specification

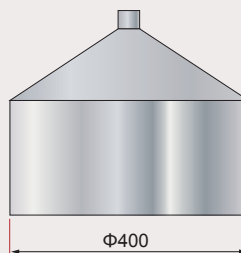
Housing Type : Indoor Wall-mounted Type DS4  
W188 x H278 x D130mm  
DS8 W400 x H300 x D180mm  
Allowable Temperature : 0 ~ 50°C  
Power : 100VAC or 200VAC±10% 50/60Hz  
Configured Detector : Select from KSL-W2B, W3T, T2, T8 (AU model) and so on.  
Number of Connected Detectors : DS4 / 4 units DS8 / 8 units  
Cable Type : Regular Control Cable (No extension limit)  
Number of Cable Cores : W2B : 6 cores  
W3T, T2, T8 (AU model) : 7 cores  
Measuring Range : 0 ~ 20m(T2, T8(AU model) Option Max. 40m)  
\*Varied by a selected detector  
Indicator : 7-segment LED (W8 x H14.2mm)  
Level Indication : Height(m), Specific Volume Bulk(%), Conversion (m3, ton) – No unit indicated  
Indication Format : Set up to indicate either vacated portion or remains.  
Indicated Conversion Values : Discretionary (in the range of 0 to 999)  
Memory Function : EEPROM, Set Values or Values formerly measured  
Diagnostic Function : Burial Alarm, Measure Cut-off Alarm depend on Selected Detector  
External Output : Not available

**KSL-T8  
KSL-GT  
KSL-T2**  
Various Types  
of Weight

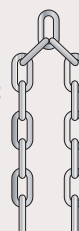
**Standard Weight**  
SUS304



**Opened/Float-type  
Weight**  
SUS304  
(Low Specific Gravity)

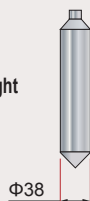


**Chain-type Weight**  
SS400 or  
SUS304  
(for lumps)

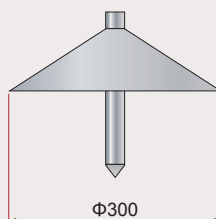


**KSL-MT  
KSL-W2B  
KSL-W3T**  
Various Types  
of Weight

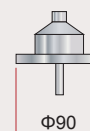
**Standard Weight**  
SUS304



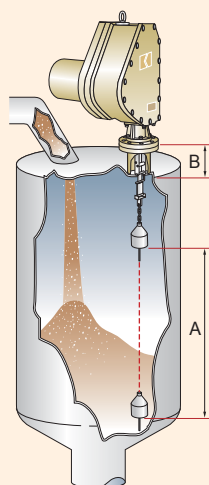
**Umbrella-type Weight**  
SUS304  
(Low Specific Gravity)



**Disc-shaped Weight**  
SUS304  
(Low Specific Gravity)



**Please advise the following information for your inquiries and ordering.**



1. Name of Measuring Substance	[ ]
2. Specific Gravity of the Substance	[ ]
3. Granularity of the Substance	[ ]
4. Granularity of the Substance	[ ]
5. Temperature in a Tank	[ ] °C
6. Pressure in a Tank	[ ] Pa
7. Ambient Temperature	[ ] °C
8. Power Voltage	[ ]
A. Measuring Range	[ ]
B. Nozzle Height	[ ]

**Installed Equipment**

● **Bar-graph Meter (M-B101)**



Size : 9/64DIN W36 x H144mm  
Power Voltage : 85 – 265VAC  
95 – 370VDC  
(Shared power for AC/DC  
within any voltage as above)  
Consumption : 5W  
Display : Bar-graph  
(101 segment, LED)  
Input : DC4 – 20mA  
Output Contact : not available

● **Electronic Digital Counter (H7CX-A114)**



Size : DIN48 x 48mm  
Power Voltage : 100 – 240VAC  
50/60Hz (common)  
Consumption : about 9.2VA  
Display : 7 segment, Negative  
Transmissive LCD in 4 digit)  
Input : Contact / Open the contact or  
short circuit.  
Features : Select either addition or subtraction.  
A counter that can operate the  
control output when a set number  
is counted

**Line of business**

- 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

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

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

Nuclear Power Generation to Rice Milling  
All-round Manufacturer of Level Controllers for Powder, Granules and Liquid

**KANSAI Automation Co., Ltd.**

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e-mail: info@kansai-automation.co.jp

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**Tokyo Branch :** 1-29-6, Hamamatsu-cho, Minato-ku, Tokyo 105-0013, Japan  
TEL. 81-3-5777-6931 FAX. 81-3-5777-6933

**Nagoya Office :** 3-31-27, Uchiyama, Chigusa-ku, Nagoya 464-0075, Japan  
TEL. 81-52-741-2432 FAX. 81-52-741-1588

**Kyushu Office :** 1-2-39, Asano, Kokura Kita-ku, Kitakyushu 802-0001, Japan  
TEL. 81-93-511-4741 FAX. 81-93-511-4580



Design, development, and manufacture  
of level measuring sensors

Agent