

# ALTJ 3000

## Smart Immersion Type Liquid Level Transmitter

JTL220/230 (for City Water)

JTL221/231 (for Sludge or Waste Water)

JTL222/232 (for Seawater)

### Introduction

Smart ALTJ3000, incorporating a compound semiconductor sensor and a microcomputer, is an immersion type liquid level transmitter designed to enable high-accuracy measurement of liquid levels. This indicator is usable in water supply reservoirs, wells, dams, rivers, and seawater inlets, as well as in waste water tanks, waste water pump wells, sludge storage tanks, and sewage tanks in sewage treatment stations. Parameters and settings of the indicator (range, damping time constant, constant-current output, and others) can be remote-controlled from the instrument room via the communicator.

Types usable for sludge or seawater are provided with protective diaphragms (optional specification for seawater types) on the outer circumferences of metal diaphragms for protection against sewage or sludge contained in the liquids.



### Standard Specifications

Item	Specifications
Measuring Span	JTL22□: 3 to 100 kPa {0.3 to 10 mH <sub>2</sub> O} JTL23□: 70 to 700 kPa {7 to 70 mH <sub>2</sub> O}
Setting Range	JTL22□: 0 ≤ URV <sup>(*)1</sup> ≤ 100 kPa {10 mH <sub>2</sub> O}, 0 ≤ LRV <sup>(*)2</sup> ≤ 100 kPa {10 mH <sub>2</sub> O} JTL23□: 0 ≤ URV ≤ 700 kPa {70 mH <sub>2</sub> O}, 0 ≤ LRV ≤ 700 kPa {70 mH <sub>2</sub> O}
Output	4 to 20mA DC
Accuracy	Percentage with respect to $x$ (kPa, {mH <sub>2</sub> O}) that represents the URV or LRV, or span, whichever is greatest of the calibrated range. JTL22□: ±0.25% ..... When $x$ is 12.5 kPa {1.25 mH <sub>2</sub> O} or greater. [With protective diaphragms ... ±0.5%] ± [0.05 + (0.2 × $\frac{12.5}{x}$ )] % ..... When $x$ is less than 12.5 kPa {1.25 mH <sub>2</sub> O}. (With damping effected) [With protective diaphragms ... ± [0.1 + (0.4 × $\frac{12.5}{x}$ )] %] JTL23□: ±0.25% ..... When $x$ is 210 kPa {21 mH <sub>2</sub> O} or greater. [With protective diaphragms ... ±0.5%] ± [0.05 + (0.2 × $\frac{210}{x}$ )] % ..... When $x$ is less than 210 kPa {21 mH <sub>2</sub> O}. (With damping effected) [With protective diaphragms ... ± [0.1 + (0.4 × $\frac{210}{x}$ )] %]
Supply Voltage and Load Resistance	17.6 to 45V DC (See Figure 2.)
Overpressure Limit	JTL22□: 300 kPa {30 mH <sub>2</sub> O} max. JTL23□: 1050 kPa {105 mH <sub>2</sub> O} max.

(\*1): URV denotes the value for 100% (20 mA DC) output.

(\*2): LRV denotes the value for 0% (4 mA DC) output.

Item	Specifications
<b>Operating Temperature Range</b>	Sensor (wetted parts): Normal operating conditions; -5 to +55°C Operative limits (For short period); -5 to +60°C Transportation and storage conditions; -40 to +85°C Relay box: Normal operating conditions; -5 to +55°C Operative limits (For short period); -30 to +80°C Transportation and storage conditions; -40 to +85°C
<b>Operating Humidity Range</b>	Relay box : 10 to 90% RH
<b>Temperature Effect(*3) (Shift with respect to setting range)</b>	Percentage with respect to x (kPa, {mH <sub>2</sub> O}) that represents the URV or LRV, or span, whichever is greatest of the setting range. JTL22□: Zero shift; $\pm(0.15+(0.8 \times \frac{12.5}{x}))\%/30^\circ\text{C}$ change [With protective diaphragms; $\pm(0.15+(32 \times \frac{12.5}{x}))\%/30^\circ\text{C}$ change] Combined shift (Including zero and span shifts); $\pm 1.3\%/30^\circ\text{C}$ change .... When x is 12.5 kPa {1.25 mH <sub>2</sub> O} or greater. $\pm(0.4+(0.9 \times \frac{12.5}{x}))\%/30^\circ\text{C}$ change ..... When x is less than 12.5 kPa {1.25 mH <sub>2</sub> O} [With protective diaphragms; $\pm(0.4+(33 \times \frac{12.5}{x}))\%/30^\circ\text{C}$ change ..... When x is 3 to 100 kPa {0.3 to 10 mH <sub>2</sub> O}] JTL23□: Zero shift; $\pm(0.15+(0.2 \times \frac{210}{x}))\%/30^\circ\text{C}$ change [With protective diaphragms; $\pm(0.15+(1.9 \times \frac{210}{x}))\%/30^\circ\text{C}$ change] Combined shift (Including zero and span shifts); $\pm 0.7\%/30^\circ\text{C}$ change .... When x is 210 kPa {21 mH <sub>2</sub> O} or greater. $\pm(0.4+(0.3 \times \frac{210}{x}))\%/30^\circ\text{C}$ change ..... When x is less than 210 kPa {21 mH <sub>2</sub> O} [With protective diaphragms; $\pm(0.4+(2 \times \frac{210}{x}))\%/30^\circ\text{C}$ change .... When x is 70 to 700 kPa {7 to 70 mH <sub>2</sub> O}]
<b>Power Supply</b>	Sensor: 24V DC
<b>Power Consumption</b>	DC supply: 50mA
<b>Stability Against Supply Voltage Change</b>	0.005% FS/V
<b>Induction Lightning Arrester</b>	Standard equipment (Sensor and Relay box)
<b>Dead Time</b>	Approx. 0.4 sec.
<b>Damping Time Constant</b>	Adjustable within range of 0.4 to 32 sec. in 10 steps. (At 25°C)
<b>Relay Box Structure</b>	JIS C0920 Weatherproof
<b>Relay Box Electrical Conduit Connection</b>	G $\frac{1}{2}$
<b>Materials</b>	Models for city water or sludge Sensor body, weight, chain: SUS304 Diaphragm: SUS316L Protective diaphragm: Chloroprene rubber Models for seawater Sensor housing: Cupro nickel (C7060T) Diaphragm: Hastelloy C Other wetted metal parts: Aluminum bronze (C6191) Protective diaphragm: Chloroprene rubber (optional specification) Relay box Aluminum alloy
<b>Finish</b>	Relay box: Baked acryl paint (corrosion-resistant paint as standard)
<b>Paint Color</b>	Relay box: Light beige (Munsell 4Y7.2/1.3)
<b>Installation</b>	Sensor: Set in water (on water bottom). (Weight attachable, except models for seawater.) Relay box: Mounted on 2-inch pipes or wall.
<b>Sensor Cable</b>	Structure: Hollow cable, 2-core shield (stranded), with 3 reinforcing wires O.D: 17 mm, Allowable bending radius: 30cm, Sheath material: Polyethylene
<b>Weight</b>	Sensor: Approx. 2kg, Relay box: Approx. 1.5kg Weight: Approx. 6kg, Chain: 0.26kg/m, Hollow cable: 0.26kg/m

**Model Number Table**

**Sensor**

Basic Model No.	Selections		Options I	Options II	Description
	Cable Length	Relay Box Type			
JTL220					Measuring span : 3~100kPa {0.3 to 10m}, models for city water
JTL221					Measuring span : 3~100kPa {0.3 to 10m}, models for sludge or waste water
JTL222					Measuring span : 3~100kPa {0.3 to 10m}, models for seawater
JTL230					Measuring span : 70~700kPa {7 to 70m}, models for city water
JTL231					Measuring span : 70~700kPa {7 to 70m}, models for sludge or waste water
JTL232					Measuring span : 70~700kPa {7 to 70m}, models for seawater
	-05				5m (Only with JTL22□)
	-10				10m
	ι				ι (See Note 1)
	-90				90m
		S			Wall-mounted type
		T			2-inch pipe mounted type
			-X00		No option
			-B00		Corrosion-proof finish for relay box
			-F05		Cable-retaining flange JIS10K-50mm
			-F08		Cable-retaining flange JIS10K-80mm
			-F10		Cable-retaining flange JIS10K-100mm
			-M00		Built-in indicating meter
			-G00		Built-in indicating meter in engineering unit (See Note 4)
			-N00		½NPT electrical conduit connection
			-P00		With protective diaphragm (models for seawater only, standard equipment on models for sludge)
			-R00		Wetted metal parts buffed (inapplicable to models for seawater)
			-W05		Chain length (with weight) 5m (only with JTL22□)
			ι		(See Note 2)
			W80		Chain length (with weight) 80m
			E15		Weight Diameter φ150 (See Note 3)
			E20		Weight Diameter φ200 (See Note 3)
			E25		Weight Diameter φ250 (See Note 3)
			-XX0		No option
			-A50		Burnout feater (Upper limit of value at abnormal condition)
			-A60		No burnout feature

**Note 1 ; Option "Cable Length"**

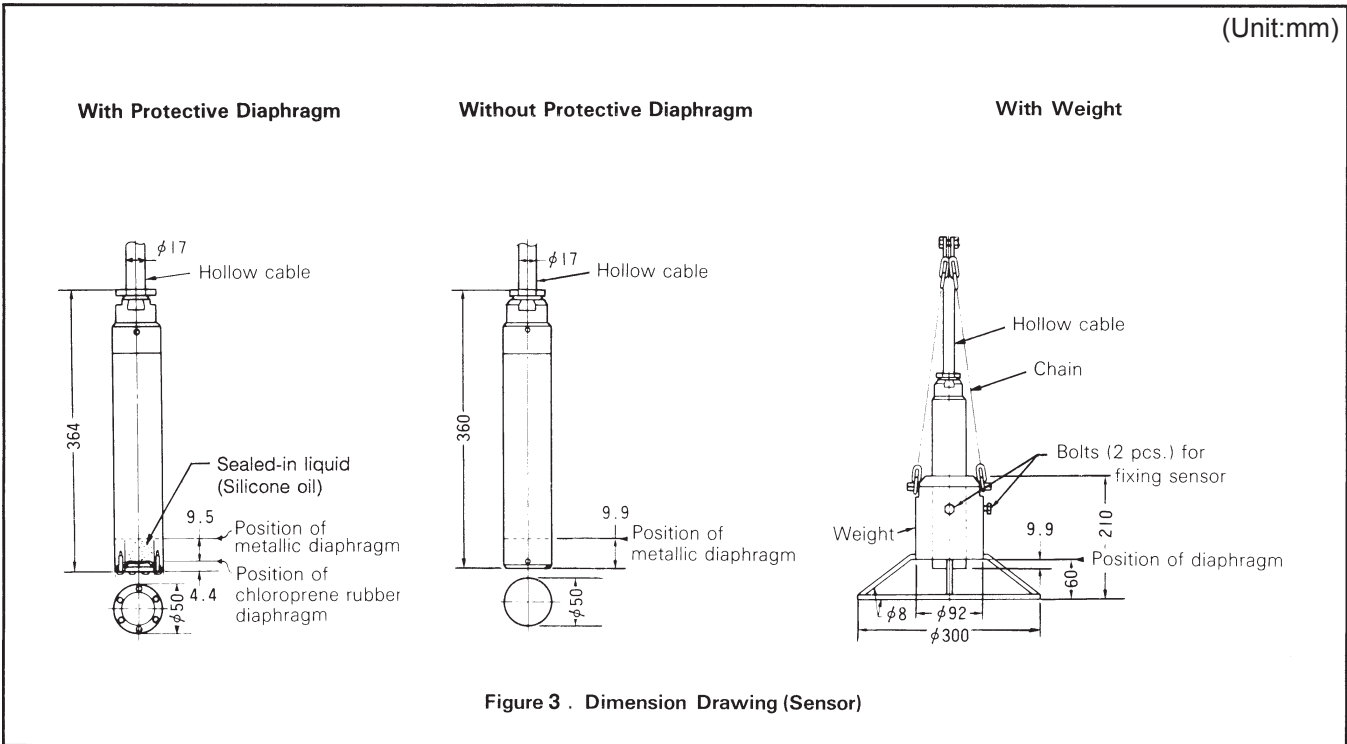
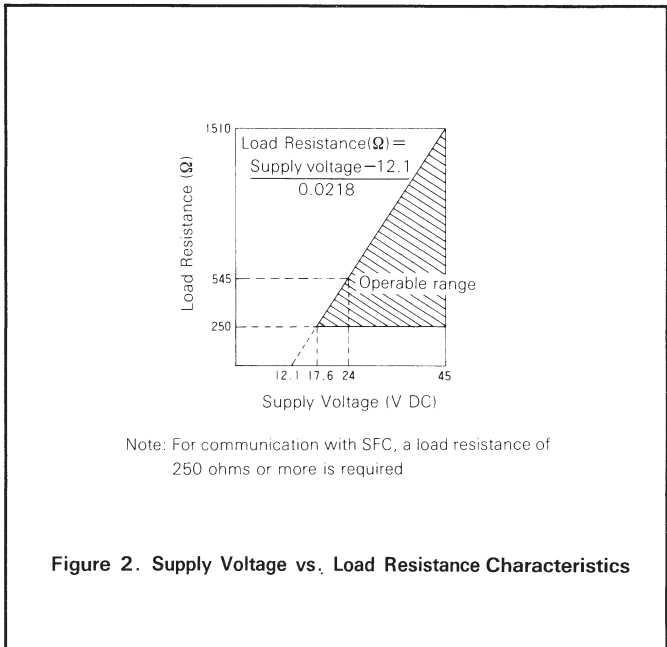
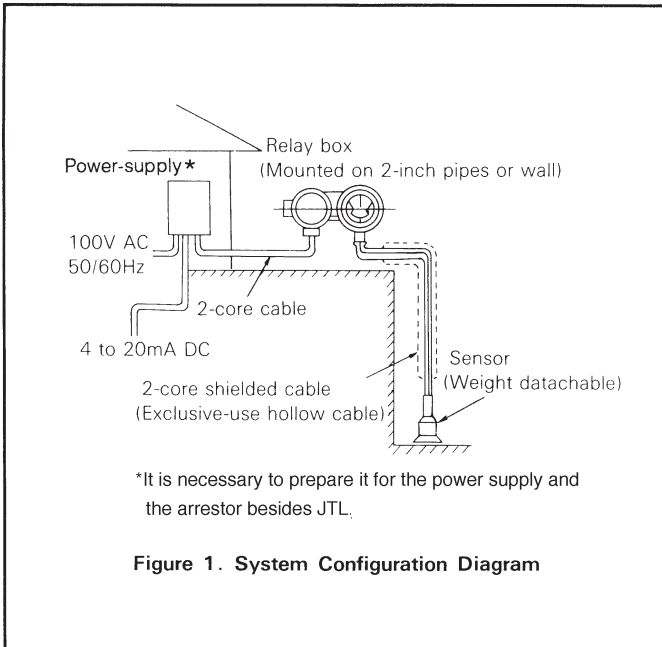
Model No.	Cable Length
-15	15m
-20	20m
-25	25m
-30	30m
-40	40m
-50	50m
-60	60m
-70	70m
-80	80m
-90	90m

**Note 2 ; Option "Chain Length"**

Model No.	Chain Length (with Weight)
-W10	10m (Excluding models for seawater)
-W15	15m (Same as above)
-W20	20m (Same as above)
-W25	25m (Same as above)
-W30	30m (Same as above)
-W40	40m (Same as above)
-W50	50m (Same as above)
-W60	60m (Same as above)
-W70	70m (Same as above)
-W80	80m (Same as above)

**Note 3 ; Weight Diameter φ300 is attached as standard, in case of this option is not shown.**

**Note 4 ; Specify the engineering unit.**









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11th edition: July 2015