

## Specifications

|                        |                                                                                                                                                                                       |
|------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Model name             | FUD-1 Model-13 / FUD-1 Model-130                                                                                                                                                      |
| Measurement parameters | Ultrasonic propagation speed · temperature                                                                                                                                            |
| Display                | LCD (Conc. Temp. Velocity/Variou parameters)                                                                                                                                          |
| Output                 | Analog DC4 to 20mA (adjustable for conc. value)<br>Digital RS232C (Conc. Temp. Velocity Error code)<br>Alarm High & Low limit Error                                                   |
| Power                  | AC100 to 240V 50/60Hz 30VA                                                                                                                                                            |
| Transmitter            | Panel mount type (DIN size)                                                                                                                                                           |
| Environment            | (M13) 0 to 50 Celsius (M130) 10 to 40 Celsius / RH85% or less                                                                                                                         |
| Fluid temperature      | (M13) 0 to 100 Celsius (M130) 0 to 50 Celsius                                                                                                                                         |
| Function               | Output setting, Alarm output setting, Average setting<br>Offset and Gain setting, Self-diagnosis check<br>Auto error cancelation setting, Fail safe mode setting,R.L.P.F. (M130 only) |
| Option                 | RS485 output (Alternative choice with RS232C)<br>Temperature output (DC4 to 20mA)                                                                                                     |
| Channel                | Maximum 10 Ch                                                                                                                                                                         |
| Cable                  | 6m (standard)                                                                                                                                                                         |
| Transducer material    | SUS316(L) SUS304(L) PFA coating Hastelloy Titanium<br>Nickel Tantalum PFA PTFE PVC PVDF etc                                                                                           |

\*Specification may change without notice

|                        |                                                                                                                                                                                       |
|------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Model name             | FUD-1 Model-53 / FUD-1 Model-530                                                                                                                                                      |
| Measurement parameters | Ultrasonic propagation speed Temperature Conductivity                                                                                                                                 |
| Display                | LCD (Conc. 1 Conc. 2 Temp. Velocity Cond. / Various parameters)                                                                                                                       |
| Output                 | Analog DC 4-20mA (2 lines : adjustable for conc. values)<br>Digital RS232C (Conc. 1 Conc. 2 Temp. Velocity Conductivity Error code)<br>Alarm High & Low (2 lines) Error               |
| Power                  | AC100 to 240V 50/60Hz 30VA                                                                                                                                                            |
| Transmitter            | Panel mount type (DIN size)                                                                                                                                                           |
| Environment            | (M53) 0 to 50 Celsius (M530) 10 to 40 Celsius / RH85% or less                                                                                                                         |
| Fluid temperature      | (M53) 0 to 100 Celsius (M530) 0 to 50 Celsius                                                                                                                                         |
| Function               | Output setting, Alarm output setting, Average setting<br>Offset and Gain setting, Self-diagnosis check<br>Auto error cancelation setting, Fail safe mode setting,R.L.P.F. (M530 only) |
| Option                 | RS485 output (Alternative choice with RS232C)<br>Temperature output (DC4 to 20mA)                                                                                                     |
| Channel                | Maximum 7 Ch                                                                                                                                                                          |
| Cable                  | 6m (standard)                                                                                                                                                                         |
| Transducer material    | SUS316(L) SUS304(L) PFA coating Hastelloy Titanium<br>Nickel Tantalum PFA PTFE PVC PVDF etc                                                                                           |



## WHY ULTRASONIC?

Ultrasonic principle is available for almost every kind of liquid. Moreover, it does not require any periodical calibration because of no long time degradation of piezoelectric element.



### In-line/Real time measurement

This product can measure concentration with outstanding tight accuracy and long term stability since the principle of this product is independent of color (transparency), flow rate, and din (sound noise).



### User-friendly maintenance

This product does not require any periodical parts replacement due to no moving parts that can wear out or age. In addition, it is possible to check the product condition with water with its self-diagnostic function.



### Superior customer service based on over 40 years sales experience

Together with our worldwide sales representatives who pride themselves in superior customer support, we always strive for complete customer's satisfaction.



## Ultrasonic Concentration Meter

# FUD-1

Model-13 / 130  
Model-53 / 530



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FUJITSU ULTRASONIC ENGINEERING CO.,LTD.



**Binary type**

**Ultrasonic  
Concentration Meter**

# FUD-1 series

**Ternary type**

We strive to be flexible, reliable & honest for the customer needs based on our over 40 years sales experience.  
Available for variety applications such as acid, alkali, and organic fluids with minimum effort for installation and operation

**Standard model : Single solute measuring in real time**

**FUD-1 Model-13**

Transmitter : Panel mount type  
Transducer : PFA flange



**Standard model : Two solutes measuring in real time**

**FUD-1 Model-53**

Transmitter : Panel mount type  
Ultrasonic transducer : PFA / JIS10K50A  
Conductivity detector : PFA / JIS10K50A



**High grade (tighter accuracy + more stable) model**

**FUD-1 Model-130**

Transmitter : Panel mount type  
Transducer : PFA flow cell



**High grade (tighter accuracy + more stable) model**

**FUD-1 Model-530**

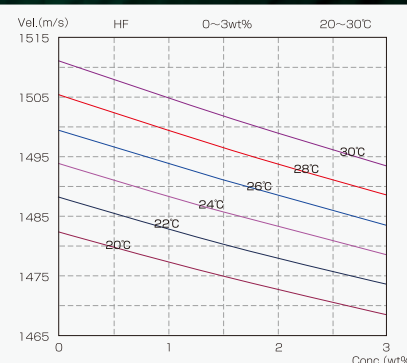
Transmitter : Panel mount type  
Transducer : Two in one PFA flow cell  
(Ultrasonic & Conductivity)



## Measurement principle

The ultrasonic velocity is determined by density, bulk module & temperature of the liquid. This product can measure velocity & temperature of the liquid accurately, and can calculate the concentration with the characteristic curve of the liquid.

Ex. HF characteristic curve



## Applications (Binary)

- H2O2 in CMP slurry
- NH4OH
- TMAH
- HF and etc.

## Applications (Ternary)

- TMAH (KOH) + PR
- TMAH (KOH) + Si
- HF + H2SiF6
- HF + H2SO4 and etc.

## Measurement principle

The graph shows the correlation of ultrasonic velocity, temperature, conductivity and concentration. This characteristic is recorded in a data ROM, and the two concentrations are calculated by measurement result of velocity, temperature, and conductivity.

Ex. TMAH+Si characteristic curve

