NINJA

Ultrahigh Accuracy
Insertion Type Ultrasonic Flow Meter

ict co.,ltd.

Technical Datasheet

Features

The NINJA is a direct insertion-type flowmeter that utilizes ultrasonic transit-time method for measuring flowrate (flow velocity). It can be directly installed to a pipeline using a repair valve, without stopping the water flow. The NINJA can measure positive and negative flow rates, total flow and pulse rates and can perform functions equal to or greater than electromagnetic flowmeters. Therefore, the scope of application is greater with NINJA compared to that of electromagnetic flow meters. It can be used immediately without the necessity to install multiple measuring instruments.

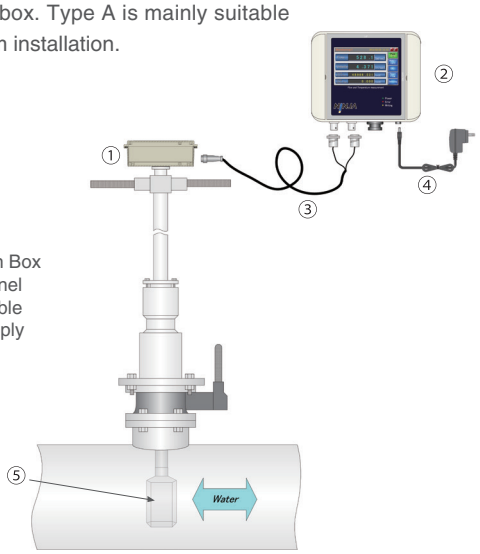
Composition

The NINJA is able to measure flowrate with high resolution, therefore it is very suitable for high-accuracy and high-speed measurement. It can also be operated by DC12V single power supply (DC5V~DC24V) external battery. The main unit is equipped with a SD card, the data is recorded at specified intervals and saved as CSV format which can then be uploaded and edited on a PC.

There are 2 types of NINJA, the integrated type (Type A) and the independent type (Type B).

Integrated Type (Type A)

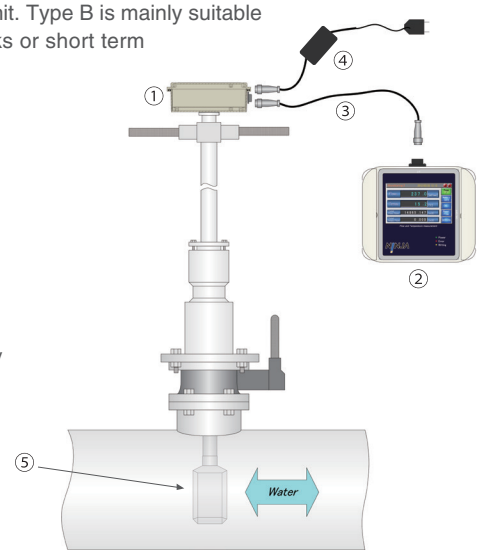
The controller is independent of the main unit.
The sensors need the control panel in order to operate.
The main unit consists of the sensor and connection box. Type A is mainly suitable for long-term installation.



① Connection Box
② Control Panel
③ Sensor Cable
④ Power Supply
⑤ Sensor

Independent Type (Type B)

The controller is built-in the Control box.
The settings unit is configured for LCD display only, therefore the sensor is operable without the settings unit. Type B is mainly suitable for spot checks or short term measurement.



① Control Box
② Settings Unit
③ Cable
④ Power Supply
⑤ Sensor

■General Specifications

• Measurement

Measurement Method	Transit-time measurement
Target Liquids	Water, Pure water
Installation Method	Mounted on Ball valve flange
Installation Method	Mounted on Ball valve flange
Pressure	Up to 1 [MPa]
Flow Velocity Range	±10.000 [m/sec]
Velocity Resolution	0.003 [m/sec]
Flow Rate Accuracy	±2% (Velocity > 0.3 [m/sec]) ±5% (Velocity < 0.3 [m/sec])

• Pipe

Pipe Material	Any material
Pipe Compatibility	DN85~DN300 (3~12 inches)

• Temperature Measurement

Temperature Range	0.0~50.0 [℃]
Measurement Method	Velocity-Temperature relationship
Temperature Resolution	0.1 [°C]
Temperature Accuracy	±1.0 [°C] (up to 50.0 [℃])

Storage Temperature	-10~60 [℃]
Operating Altitude	2000 [m] Max
Pollution Degree	Degree 2

■LCD Unit

• Control Panel (Type A)

Physical dimensions	H130-W160-D60 Excluding protrusions
Material	ABS Resin
Weight	Approx. 0.8kg
Water Protection	IP54 equivalent (surface)
Operating Temperature	0.0~45.0 [℃] (without condensation)
Operating Humidity	90%RH or less
User Interface	4.3” color LCD with touch panel
Sensor Connector	BNC (50Ω)
Signal Connector	8P Metal Connector (NJW-168)

• Settings Unit (Type B)

Physical dimensions	H130-W160-D60 Excluding protrusions
Material	ABS Resin
Weight	Approx. 0.6kg
Water Protection	IP54 equivalent (surface)
Operating Temperature	0.0~45.0 [℃] (without condensation)
User Interface	4.3” color LCD with touch panel
Signal Connector	8P Metal Connector (NJW-168)

■Sensor Specifications

Sensor	Ultrasonic
Bandwidth Frequency	2MHz~5MHz
Weight	Approx. 15kg~ Depends on length of shaft
Material	Stainless Steel (SUS304,AISI304)
Flange	JWWA B 126 compatible
Water Repellance	Sensor part (IP67 equiv.) Connection Box (IP65 equiv.)

• Connector

Type A	5P Metal connector
Type B	8P Metal connector (for settings panel) 12P Metal connector (for signal & power)

• Operating Temperature

Type A	0~60.0 [℃] Connection box must be above water
Type B	0~45.0 [℃] Control box must be above water

■ Electrical Characteristics

Power Supply	DC24V 0.3A (DC15~DC26V)
Power Consuption	5W or less
AC Power Source	AC100~240V
Allowable Power Fluctuation	Source Voltage ±10% or less
Overvoltage Category	2.5kV (category II)
Stora	4.3” color LCD with touch panel
Sensor Connector	BNC (50Ω)

• Data

Recording Media	SD Card (MAX 2GB)
Parameter Storage	Nonvolatile memory FRAM re-writable 512byte
Data File Type	CSV format (Excel® file)
Recording Interval	6sec.~1hr.

・Output

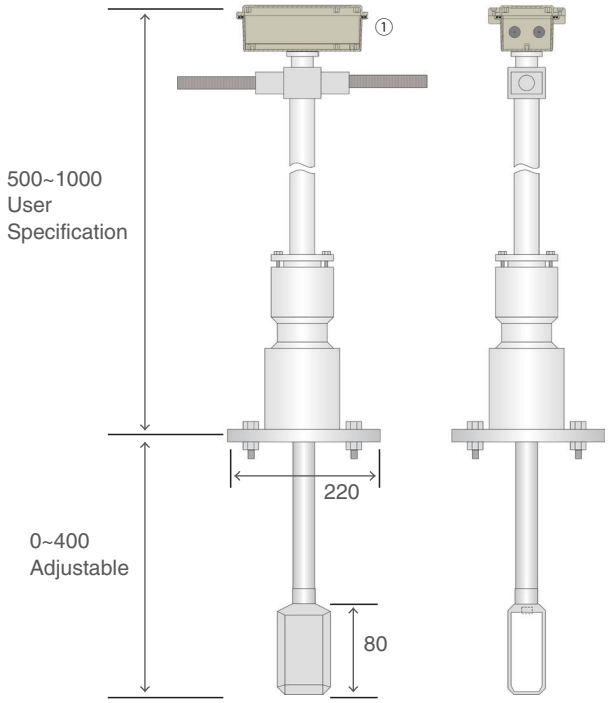
Analog Output	**[Ch.1]** Flowrate DC4 ～ 20mA（DC 0 ～ 24mA） Programmable Max resistance 500Ω
	[Ch.2] Velocity (±1.000m) or Water temperature (0~50°C) Selectable DC0 ～ 5V Min resistance 10KΩ
Digital Output (PhotoMOS Relay) DC30V 1A	**[Do1]** Flowrate pulse (pulse programmable) MOS-FET or Non-voltage contact (1A-MAX)
	[Do2] Measurement Error Non-voltage contact (1A-MAX)

■Data Display

Flowrate Units	[L/sec] [L/min] [L/hr] [m³/sec] [m³/min] [m³/hr] Programmable
Velocity	Range (±10.000 [m/sec]) Fixed
Temperature	Range (0~50 [℃]) Fixed
Total Pos. Flow	Range (0~999999.999 [m³]) Does not subtract negative flowrate
Total Neg. Flow	Range (0~999999.999 [m³]) Does not subtract positive flowrate

■Sensor Unit Parts and Dimensions (mm)

① Connection Box (Type A)
Control Box (Type B)



■Controller Parts

Control Panel (Type A)

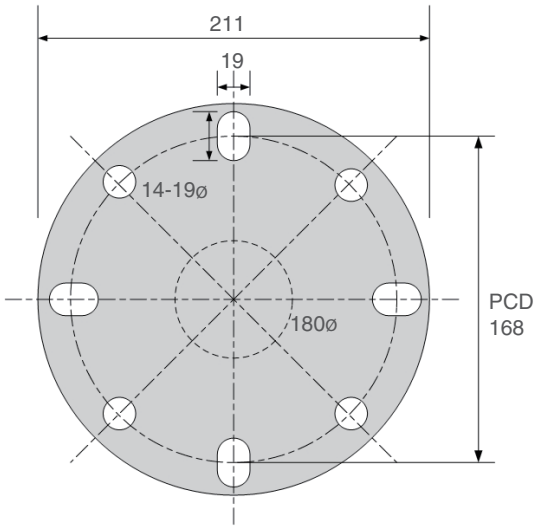
① SD Card slot
② Power switch
③ Sensor Cable Connector
④ Signal Cable Connector
⑤ Inlet (AC Adapter)

Settings Unit (Type B)

① Sensor Cable Connector
② Power switch

■NINJA Flange Dimensions (mm)

JWWA B 126 equivalent



■Model Type

NJ-ST-1100-SJ

- 1 : Type A (without case)
- 2 : Type B (without case)
- 3 : Type A (with case)
- 4 : Type B (with case)

Shaft length (cm)

- J : Japanese
- E : English
- C: Chinese

- S : SD Card
- M : Modbus Communication
- B : Bluetooth Communication

*SD Card and Modbus cannot be selected together.
*Bluetooth and 4.3” Color LCD cannot be selected together.

This manual shows the specifications and details as of May 2nd 2016, and may be subject to change without notice. The NINJA may not be compatible with your installment environment. Please contact our dealer prior to purchasing the NINJA to ensure compatibility.

Contact

ict co.,ltd.
7-7-6 AO Matsubara City, Osaka JAPAN 580-0043
Phone +81 72-336-2311 Fax +81 72-336-2312
http://www.ict-osaka.net
Email:info_global@ict-osaka.com