TDK

October 2018

Ultrasonic Nebulizer Units

Humidifier for mist generating system

Incorporate type

NB series

NB-59S-09S-0
NB-80E-01-H

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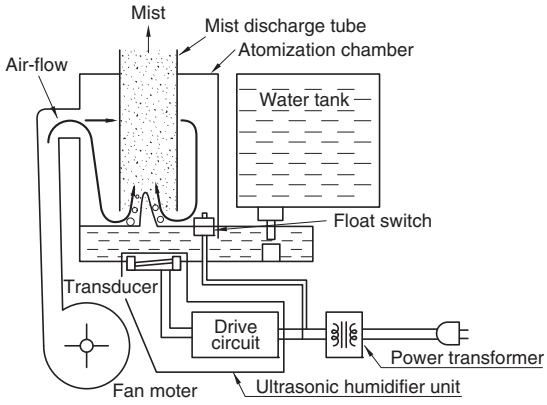
Ultrasonic Nebulizer Units

Incorporate type

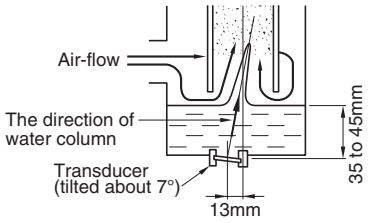
Overview of NB series

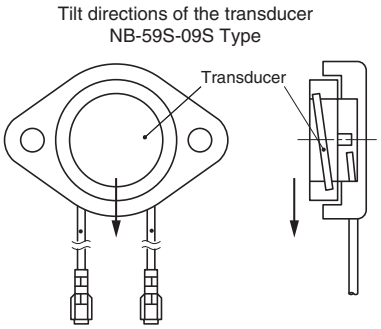
The TDK ultrasonic humidifier unit was the first such product in the world to be developed. There is an increasing need for indoor humidification due to the proliferation of clean air heat pumps and central heating systems.
When the appropriate amount of humidity is added as determined by the relationship between humidity and sensible temperature (temperature perceived by the body), humidification is advantageous from the standpoint of both health and reduced energy consumption. In addition to such home uses, these ultrasonic humidifier units have numerous advantages for humidification of vegetable showcases, preservation and growth of agricultural products, industrial applications, etc. A wide variety of standard units are available from TDK.

EXAMPLE OF ATOMIZATION CHAMBER CONSTRUCTION



TYPICAL TRANSDUCER INSTALLATION



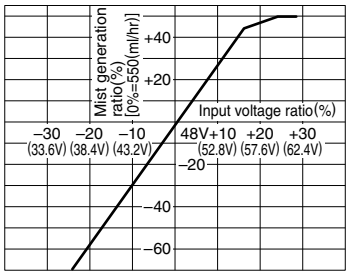


The arrows indicate the tilt direction of the transducer.

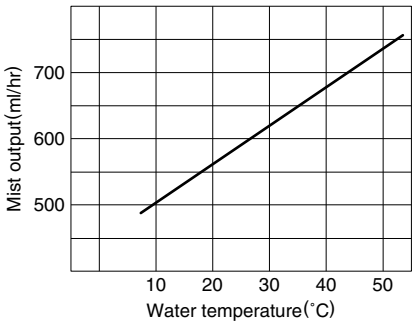
* The tilt direction of transtucer will be the same as the direction of water column.

TYPICAL CHARACTERISTICS OF HUMIDIFIER UNITS

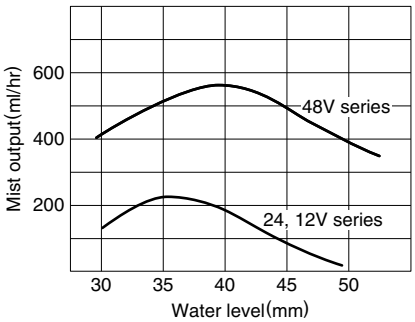
VOLTAGE CHARACTERISTICS(48V)



WATER TEMPERATURE CHARACTERISTICS(48V)



WATER LEVEL CHARACTERISTICS



⚠ Please be sure to request delivery specifications that provide further details on the features and specifications of the products for proper and safe use.
Please note that the contents may change without any prior notice due to reasons such as upgrading.

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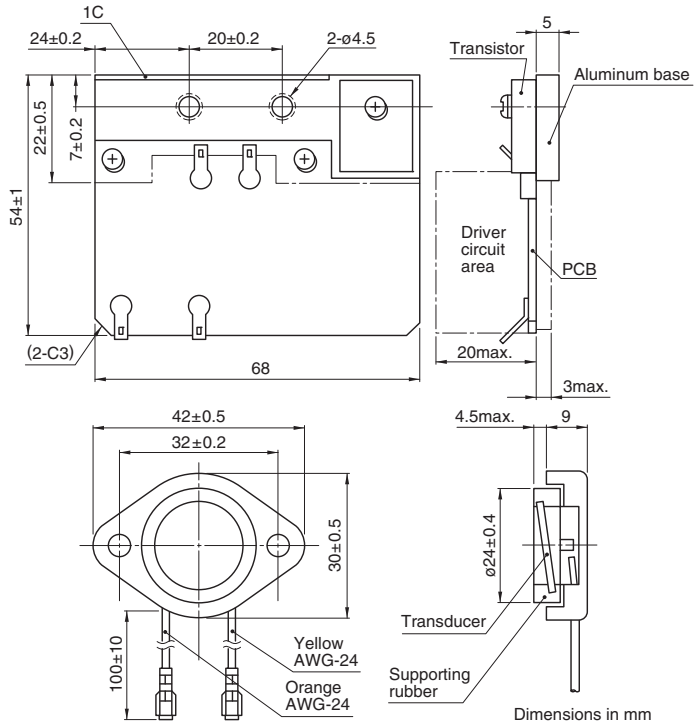
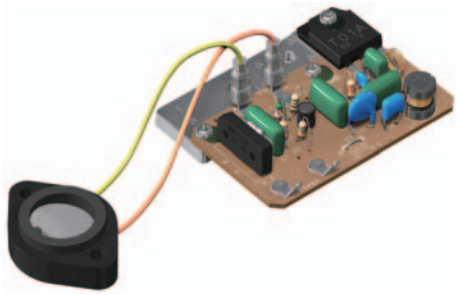
NB-59S-09S type

FEATURES

- Compact, with highly reliable circuitry.
- Separate transducer and drive circuit sections provide superior layout versatility.

SHAPE & DIMENSIONS





ELECTRICAL CHARACTERISTICS

CHARACTERISTICS SPECIFICATION TABLE

Part No.		NB-59S-09S-0
Rated input voltage	**Eac(V)**	48±10%
	Edc(V)	48±10%
Power consumption (W)		30±5
Mist output ratio (l/h)		450×10^{-3}min.
Ultrasonic frequency (kHz)		1600 to 1720
Normal water level (mm)		40
External potentiometer (kΩ)		—
Operating water temperature range (°C)		0 to 50
Water quality		Drinking water
Transducer element life (h)		10000
Cooling method		Water cooled
Parallel connected operation		Yes
Weight (g)		60
Main application		Various humidity control systems

- The character at the end of the product number indicates the transducer's direction of tilt.

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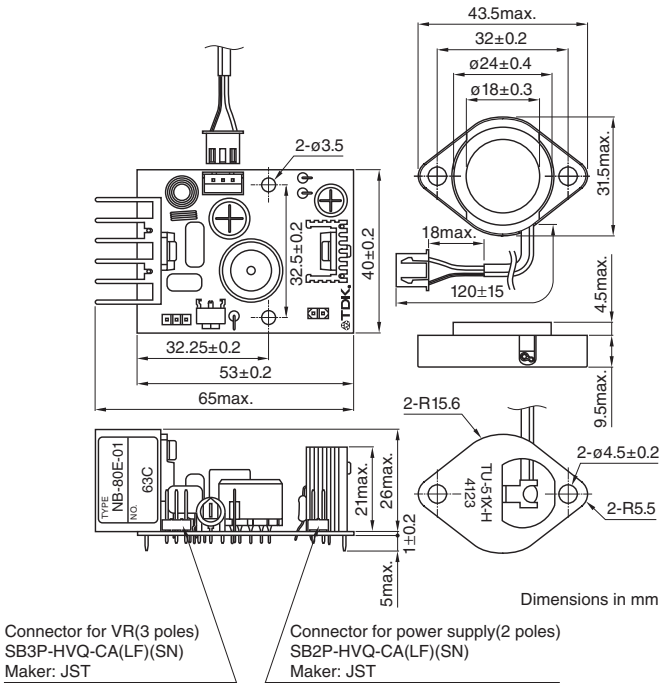
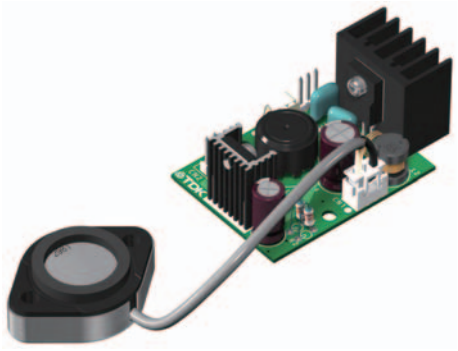
NB-80E-01 type

FEATURES

- Compact, with highly reliable circuitry.
- Separate transducer and drive circuit sections provide superior layout versatility.
- Because the ultrasonic frequencies used are higher than with typical household-type units, mist particle size is extremely fine. This part is thus ideal for products intended for smaller spaces.

SHAPE & DIMENSIONS





ELECTRICAL CHARACTERISTICS

CHARACTERISTICS SPECIFICATION TABLE

Part No.		NB-80E-01-H
Rated input voltage	Eac(V)	–
	Edc(V)	12±10%
Power consumption (W)		13.2max.
Mist output ratio (l/h)		(150+100, –50)×10^{-3}
Ultrasonic frequency (kHz)		2350 to 2600
Normal water level (mm)		35
External potentiometer (kΩ)		10
Operating water temperature range (°C)		0 to 50
Water quality		Drinking water
Transducer element life (h)		5000
Cooling method		Air cooled
Parallel connected operation		Yes
Weight (g)		60
Main application		Microparticle applications such as for medical use

- The character at the end of the product number indicates the transducer's direction of tilt.

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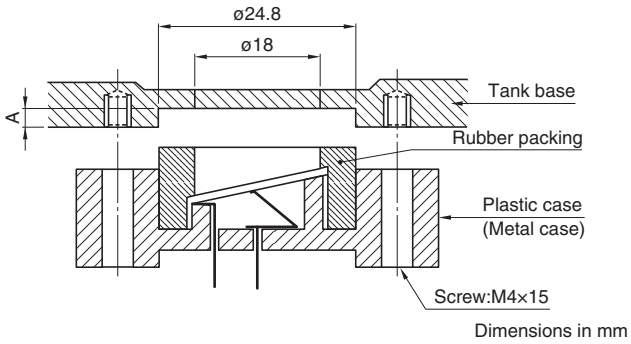
Mountings (Reference)

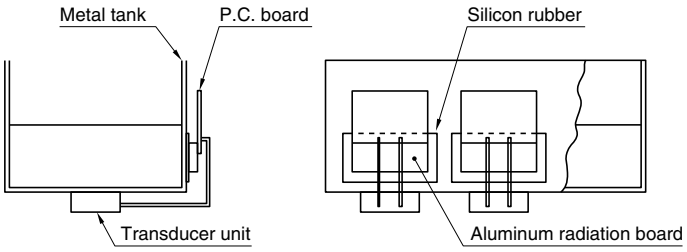
1.NB59S, NB-80E TYPES



The transducer can beak off if the A dimension depth is shallow. TDK recommends a 2mm A-dimension depth and a screw tightening torque of 0.39N • m.

2.CONSTRUCTION OF NB59S

The drawing below shows an example method for transistor heat dissipation. The attached aluminum cooling fins should fixed using silicon rubber to a metallic water tank, etc. with sufficient head dissipation capacity.
(It is recommended to use a plastic water tank. However, if a metallic water tank is absolutely must be used, be sure to insulate it from the power supply line.)



PRECAUTIONS

- These units are readily damaged by operation when empty (without water). Therefore a means (float switch, etc.) should be provided to assure operation does not occur when empty.
- Contact TDK prior to use of this unit for applications utilizing liquids other than water.
- The unit should be used only after sufficient consideration of the product specifications for that specific unit.
- When using units in parallel, make sure that voltage differences do not occur between the individual transducers.
- Do not use the unit to atomize a liquid other than drinking water. Doing so can deteriorate the transducer.
- Do not operate the transducer when the atomization unit tank is not charged with drinking water.
- Drain water from the transducer and clean the equipment into which the unit is incorporated if not used for a long period of time.
- Clean the transducer periodically to prevent any degradation in the atomizing capacity due to buildup in the transducer of such substances as calcium, sodium, magnesium, and silicon, commonly found in drinking water.
- TDK is not responsible for damage to the transducer resulting from use of oscillator circuitry not supplied or not approved by TDK.
- TDK is not responsible for worsening of unit performance resulting from operation in environments other than those recommended, storage in environments other than those recommended, or use of the unit in configurations other than those recommended by TDK for efficient mist generation.
- TDK is not responsible for the vaporization of pathogenic bacteria or particles, not responsible if drinking water contains substances that impede vaporization, and not responsible for bacterial growth due to lack of a water purification function.
- Please select a plastic material of construction for the water tank design. Metallic construction can result in electrolytic corrosion between the chamber base and water tank.
  Furthermore, if multiple units are used with the same tank, and if each unit is equipped to be separately turned ON/OFF, the power supply terminal for each unit should use a double-pole switch.

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