

Frequency Inverters

NE-S1 Series

Small, Easy, Economical

HITACHI

Inspire the Next





Side-by-Side Installation

Among the smallest form-factors in its category:

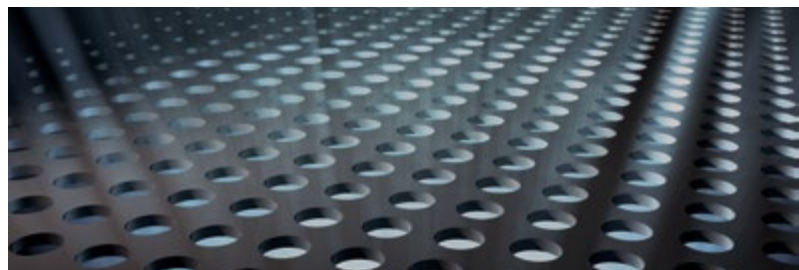
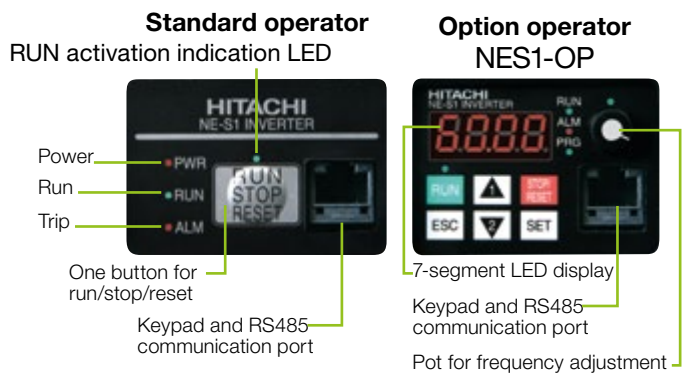
- The compact dimensions allow for space-saving side-by-side installation

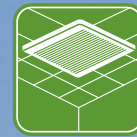


* Side-by-side installation: derating for carrier frequency and output current required

Easy Operation

- The RUN/STOP/RESET functions are integrated in one button for easy operation
- A multi-function, attachable operation panel is available as an option





Model Name Indication

NES1 - 002 S BE

Series name | Applicable motor capacity
002: 0.2kW – 040: 4.0kW

E: European version
B: Without keypad
Power Source
S: 1-phase 200V class
H: 3-phase 400V class



Model Line-up

Applicable motor kW	0.2	0.4	0.75	1.5	2.2	4.0
1-phase 200V SBE	●	●	●	●	●	●
3-phase 400V HBE		●	●	●	●	●

Versatile Functions

- **Energy saving function**
An automatic function has been implemented to minimize energy consumption.
- **Arithmetic and delay functions**
Timer function can reduce the need for external hardware.
- **Keypad / Terminal switching**
Source of frequency and run commands can be selected via intelligent terminal.

- **2nd motor function**
Settings for 1st and 2nd motor can be selected via intelligent input.
- **Three-wire Operation**
Momentary Contacts can be utilized for RUN and STOP.
- **Analog Input Disconnection - detection function**
The NE-S1 outputs a disconnection signal when the frequency command via the analog input is lost.

Applications

- Optimal performance for energy saving applications such as fans and pumps

Fans and air conditioners

- Air conditioning systems
- Clean rooms
- Fans and blowers


Pumps

- Water and wastewater pump systems
- Tankless water supply and drainage systems

Food Processing Machines

- Slicers
- Confectionary machines
- Mixers
- Fruit sorters

Global standards

- **Conformity to global standards**
CE, UL, c-UL, c-Tick approvals. 
- **Sink / source logic is standard**
Logic input and output terminals can be configured for sink or source logic.
- **Wide input power voltage range**
Input voltage of 240 V for 200 V class and 480 V for 400 V class as standard.



Standard Specifications

1-phase 200V class

Model NES1-		002SBE	004SBE	007SBE	015SBE	022SBE	
Output Ratings	Applicable motor size, 4-pole kW	0.2	0.4	0.75	1.5	2.2	
	Rated capacity (kVA)	230V	0.5	1.0	1.5	2.8	3.9
		240V	0.5	1.0	1.6	2.9	4.1
	Rated output current (A)	1.4	2.6	4.0	7.1	10.0	
	Overload capacity (output current)	150% for 60 sec.					
Input Rating	Rated output voltage (V)	3-phase (3-wire) 200 to 240V (corresponding to input voltage)					
	Rated input voltage (V)	1-phase 200-15% to 240V+10%, 50/60Hz ±5%					
	Rated input current (A)	3.1	5.8	9.0	16.0	22.5	
Enclosure	IP20						
Cooling Method	Self-cooling			Force ventilation			
Weight (kg)	0.7	0.8	1.0	1.2	1.3		

3-phase 400V class

Model NES1-		004HBE	007HBE	015HBE	022HBE	040HBE	
Output Ratings	Applicable motor size, 4-pole kW	0.4	0.75	1.5	2.2	4.0	
	Rated capacity (kVA)	380V	0.9	1.6	2.6	3.6	6.0
		480V	1.2	2.0	3.4	4.5	7.6
	Rated output current (A)	1.5	2.5	4.1	5.5	9.2	
	Overload capacity (output current)	150% for 60 sec.					
Input Rating	Rated output voltage (V)	3-phase (3-wire) 380 to 480V (corresponding to input voltage)					
	Rated input voltage (V)	3-phase 380-15% to 480V+10%, 50/60Hz ±5%					
	Rated input current (A)	2.0	3.3	5.2	7.0	11.7	
Enclosure	IP20						
Cooling Method	Self-cooling			Force ventilation			
Weight (kg)	0.9	0.9	1.0	1.1	1.2		

General Specifications

Item	General Specifications		
Control	Control method	Line-to-line sine wave pulse-width modulation (PWM) control	
	Output frequency range	0.5 to 400Hz	
	Frequency accuracy	Digital command :±0.01%, Analog command ± 0.4% (25 ± 10°C)	
	Frequency setting resolution	Digital: 0.01Hz, Analog: (max frequency)/1000	
	Voltage/Frequency Characteristic	V/f control, V/f variable (constant torque, reduced torque)	
	Acceleration/deceleration time	0.00 to 3000 sec. (linear, sigmoid), two-stage accel./decel.	
	Starting torque	100%/6Hz	
	Carrier frequency range	2.0 to 15kHz	
Operation	Frequency setting	Operator Keypad (Option)	Up and Down keys / Value settings or analog setting via potentiometer on operator keypad
		External signal	0 to 10 V DC or 0/14 to 20 mA
		Serial port	RS485 interface (Modbus RTU)
	Forward/Reverse Stop/Run	Operator Keypad (Option)	Run key / Stop key (change FW/RV by function command)
		External signal	FW Run/Stop (NO contact), RV set by terminal assignment (NC/NO), 3-wire input available
Input terminal	Specification	5 terminals, 10kohm input impedance, sink/source logic selectable	
	Functions	36 functions assignable to each terminal	
Output signal	Intelligent output terminal	Specification	1 terminal, 27V DC 50mA max open collector output, 1 terminals 1c output 250V AC/30V DC 2.5A relay (AL0, AL1, AL2 terminals)
	Monitor output terminal	Function	22 functions assignable to each terminal
Operator	Operation key	Function	PWM output; Select analog output frequency monitor, analog output current monitor or digital output frequency monitor
	Status LED Interface	Operation key	1 unified key for RUN/STOP/RESET
Environment	Operating temperature	Status LED Interface	Control power supply LED (Red), LED during operation (yellow-green), Operation button operation LED (yellow-green), LED during tripping (Red), 4LED in total
	Storage temperature	Operating temperature	-10 to 50°C (carrier derating required for ambient temperature higher than 40°C), no freezing
	Humidity	Storage temperature	-20 to 60°C
	Vibration	Humidity	20 to 90% RH
	Location	Vibration	5.9 mm/s ² (0.6G) 10 to 55Hz
Other functions	Location	Other functions	Altitude 1,000 m or less, indoors (no corrosive gasses or dust)
Protective functions	Other functions	Protective functions	AVR (Automatic Voltage Regulation), V/f characteristic selection, accel./decel. curve selection, frequency upper/lower limit, 8 stage multispeed, PID control, frequency jump, external frequency input bias start/end, jogging, trip history etc.
Options	Protective functions	Options	Over-current, Over-voltage, Under-voltage, Overload, Overheat, Ground fault at power-on, Input over-voltage, External trip, Memory error, CPU error, USP error, Driver error, Output phase loss protection
	Options		Remote operator with copy function (WOP), Remote operator (OPE-SRmini, OPE-SR), Operator (NES1-OP), input/output reactors, DC reactors, radio noise filters, LCR filter, communication cables (ICS-1, 3)

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