

NSA-7000

Flush-Mounted Network Sensor

Product Bulletin

The flush-mounted NSA7000 series network sensor with LCD is an electronic room sensor designed to function directly with Johnson Controls® BACnet® MS/TP digital controllers in heating, ventilating and air conditioning (HVAC) systems. Models in this series monitor the zone temperature and humidity, and transmit this data to a field controller on the Sensor Actuator (SA) bus.

NSA-FHR71x3-0 can toggle between Temperature and RH on the display, and has the capability to set the desired default display to either Temperature or RH.

The temperature only model NSA-FTD70x3-0 includes Fan mode push button to set the desired fan speed (OFF-LOW-MED-HIGH-AUTO). All models have occupancy button, which allows user to signal when the zone is occupied, to set the comfort mode only when is necessary.

The model without display NSA-FHN70x1-0 has not buttons but provides an accurate measurement of the zone temperature and humidity.

Installation is quite easy, given the possibility to configure the functionality from the display itself and through the METASYS controllers configuration tool. Connection to the controller is flexible, each model supports screw terminal and modular jack connections also.



The NSA-7000 standard color is white but they may be customized in black or other colors, customization requires a minimum order quantity.

Features and Benefits

- Large backlit display in a low profile enclosure
- Suitable for Sensor and Actuator Bus (SA Bus)
- Customizable display Toggle humidity, temperature in °C or °F or Setpoint only
- Configurable Adjust or Warmer and Cooler Setpoint functionality reduces items at stock
- All with built-in modular jack and screw terminal connector for an easy installation
- Configurable Setpoint limits and keypad lockable help tenants to meet building policy
- Mounting plate avoid to reduce installation complexity
- Removable and repositionable protection cap protects the sensor during commissioning
- Flush mount installation offers suitable for European boxes
- The white front panel can be customized in black or other color with a minimum order quantity

General Description

The NSA-7000 Network Sensor has four or three buttons keypads and a large customizable display.

The model NSA-FTD70x3-0 with **four buttons** can manage:

Occupancy, Fan Speed, Setpoint and provides an accurate measurement of room temperature.

The other models with **three buttons** manage:

Occupancy, Setpoint and provide temperature only (NSA-FTB70x3-0) or temperature plus humidity measurement (NSA-FHR71x3-0).

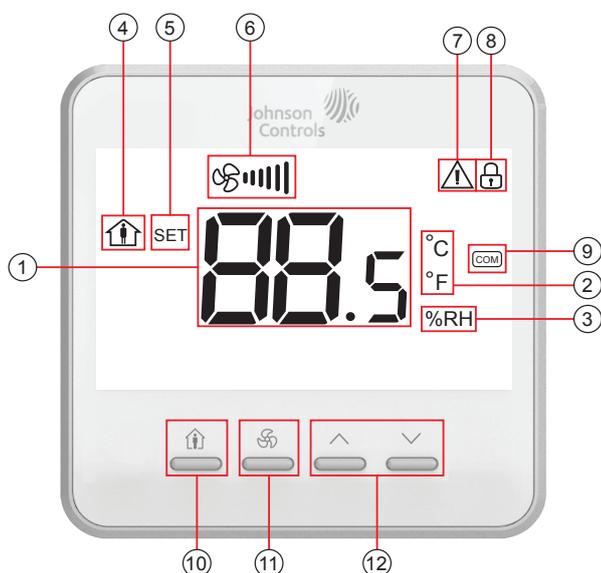
In corridors or public spaces where occupancy and set point management is demanded to the building management system the NSA range can offer the model NSA-FHN70x1-0 without display and keypad that provides the Temperature and the Humidity present in the room.

All models offer Modular Jack connection for an easy wiring and Screw Terminal where longer distance between the controller and the Networks sensor is required.

Customization

Display and Keypad Protection

The backlit display provide real time status of the environment with intuitive and clear user interface:



1	Display room temperature, humidity and setpoint
2	Temperature units
3	Humidity unit
4	Occupancy status
5	Setpoint indicator
6	Fan speed status
7	Warning indicator
8	Keypad lock indicator
9	Communication status (normal-on, fault-flashing)
10	Occupancy
11	Fan speed adjustment
12	Setpoint adjustment

From the parameters configuration page the NSA-7000 can be customize to meet the building policy.

Where required the display can be configured to show temperature in Celsius or Fahrenheit, it can toggle Humidity and Temperature or shows Setpoint only.

The Default Setpoint Mode Adjustment from 12 to 28°C can be changed to W/C mode $\pm 3^{\circ}\text{C}$ by selecting the Temperature Setpoint adjustment type. Once selected the Setpoint Mode, from the Controller Configuration Tool the Setpoint adjustment limits can be changed from remote to meet building tenant requirement.

When required the Network sensor Setpoint adjusting range can be limited or the keypad can be totally locked or all buttons can locked except the occupancy button, this to meet building policy.

Display will turn off the backlight automatically after 30 sec. from last keypad activity, timer is configurable from 5 to 60 sec.

Customizable Colors

The standard color of the NSA-7000 sensors is White, but it can be provided with front panel in Black or other colors. The bezel around the front panel and the buttons are and will be in Silver, while the back part of the sensor will remain white. Customization requires minimum order quantity (MOQ) for the black version. Other customization has to be defined and agreed with factory and may require contribution.

SA Bus Network

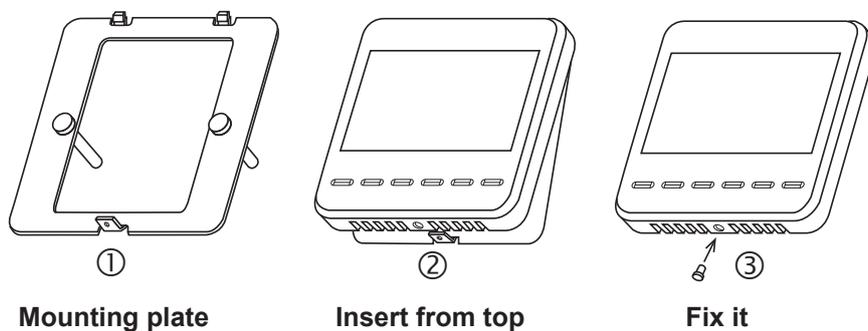
The NSA-7000 Network Sensor can be connected to Metasys® controllers through the SA Bus, together with IOMs, VSDs, and other network sensors with only four wires. The controller provides power for subordinate devices connected to the SA bus, including Network sensors. For best performance the recommended maximum number of NSA-7000 sensors, in a mixed configuration, is four units per SA Bus.

The NSA-7000 devices with display can be easily programmed using the keypad without the use of any tool, once the communication address and the Setpoint Mode Adjust or Warmer and Cooler is defined, the device becomes visible from the Controller Configuration Tool (CCT).

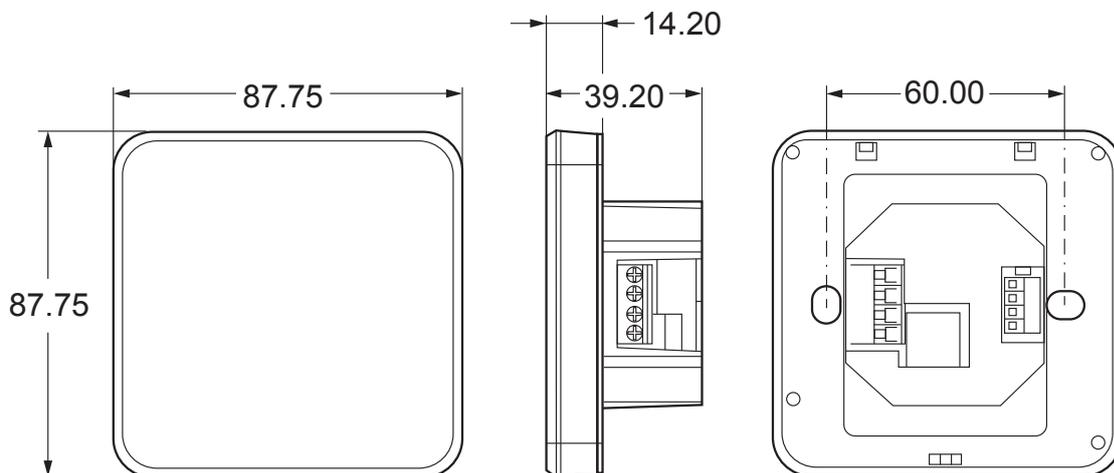
All NSA-7000 sensors with display can be set with any SA Bus address between 199 to 215, whilst the model without display has a fixed address of 199.

Installation

The NSA-7000 can be installed on round and square boxes using the mounting plate included in the supply. Once installed the devices will cover completely the mounting plate and it will protrude from the wall of 14 mm only. A little screw keeps the device in place.



Dimensions (in mm)



Ordering Information

White Standard devices

Codes	LCD	Temperature	Humidity ¹	Fan Control	Temp. Adjustment ²	°F / °C Scale Toggle	Occupancy Override	Screw Terminal ³	Address Selection ⁴
NSA-FHN7001-0	---	●	● (±3%)	---	---	---	---	ST/MJ	#199
NSA-FTD7003-0	●		---	●	Adj/WC	●	●		#199 to #215
NSA-FTB7003-0			---	---					
NSA-FHR7103-0			● (±3%)	---					

Black Optional devices

Codes	LCD	Temperature	Humidity ¹	Fan control	Temp. adjustment ²	°F / °C Scale Toggle	Occupancy override	Screw terminal ³	Address selection ⁴
NSA-FHN7011-0	---	●	● (±3%)	---	---	---	---	ST/MJ	#199
NSA-FTD7013-0	●		---	●	Adj/WC	●	●		#199 to #215
NSA-FTB7013-0			---	---					
NSA-FHR7113-0			● (±3%)	---					

Note

¹ For models with humidity sensor, the humidity value can be displayed in LCD too

² Adj/WC means this model can work under Adjust 12 to 28°C or WC (Warmer/Cooler) ±3°C mode, selected in setting.

³ All models equipped with both ST (Screw Terminal) and MJ (Modular Jack).

⁴ The address can be selected from the display (199-215). Default address is 199. Recommended number of device in a mixed bus is four.

Technical Specification

Supply Voltage	9.8 to 16.5 VDC; 15 VDC nominal (from SA Bus)
Current Consumption	35 mA maximum
Terminations	Modular jack and screw terminal block
Sensor Addressing	All models with factory set address 199. NSA-FTD70X3-0, NSA-FTB70X3-0 and NSAFHR71X3-0 can set address from 199 to 215 in setting page.
Wire Size	
Modular Jack	24 AWG or 26 AWG (0.5 or 0.4 mm diameter) recommended; Three twisted pair (six conductors)
Screw Terminal Block	18 - 22 AWG (1.0 - 0.6 mm diameter); 22 AWG (0.6 mm diameter) recommended
Communication Rate	Auto-detect: 9.6k, 19.2k, 38.4k or 76.8k bps
Mounting	Flush-Mounted
Sensor Readings	
Temperature Range	0 to 40°C
Humidity Range	Full range: 0 - 100% RH
Temperature Accuracy	±0.5°C
Humidity Accuracy	±3%RH
Default Setpoint Adjustment Range	
Default Adjust Range	12 to 28°C, max configurable 10 to 30°C in 0.5°C increments
Default W/C Range	-3 to 3°C, max configurable 0.5 to 5°C in 0.5°C increments
Ambient Conditions	
Operating	0 to 40°C with 10 - 90% RH, non-condensing
Storage	-20 to 60°C with 5 - 95% RH, non-condensing
Housing	Polycarbonate
Protection Class	IP20
Dimensions (H x W x D)	87.75 x 87.75 x 39.20 mm
Shipping Weight	Approx. 300 g
CE Compliance	Johnson Controls declares that these products are in compliance with the essential requirements and other relevant provisions of the EMC Directive and Low Voltage Directive. RCM mark, Australia/NZ emissions compliance RoHS, REACH, WEEE

The performance specifications are nominal and conform to acceptable industry standards. For application at conditions beyond these specifications, consult the local Johnson Controls office. Johnson Controls shall not be liable for damages resulting from misapplication or misuse of its products.