

# NS Series Network Sensors

## Product Bulletin

NS-AHx7x0x-x, NS-APx7x0x-0, NS-ATx700x-x,  
NS-BCN7004-x, NS-BHx7x0x-0, NS-BPx700x-0,  
NS-BTx700x-x, NS-DTN70x3-0, NS-FTN7003-2

**Code No. LIT-12011574**  
**Issued December 8, 2011**  
*Supersedes August 1, 2011*

Refer to the [QuickLIT Web site](#) for the most up-to-date version of this document.

The NS Series Network Sensor offering includes NS Series Network Zone Sensors and NS Series Network Discharge Air Sensors. The NS Series Network Sensors are designed to function directly with Metasys® system Field Equipment Controllers (FECs), Input/Output Modules (IOMs), Variable Air Volume (VAV) Modular Assembly (VMA16) controllers, and Facility Explorer FX-PC Series Programmable Controllers (FX-PCGs, FX-PCVs, and FX-PCXs).

The majority of NS Series Network Zone Sensors monitor room temperature; however, options are available to also monitor zone humidity, carbon dioxide (CO<sub>2</sub>), local temperature setpoint adjustments, and other variables. This data is transmitted to a controller on the Sensor Actuator (SA) Bus.

The NS Series Network Zone Sensors include models with a temperature setpoint dial and Liquid Crystal Display (LCD) that allows occupants to view the zone temperature, Relative Humidity (RH), and view and adjust the zone temperature setpoint. Some temperature and humidity models include a push button to toggle between temperature and RH on the display. These models also have the capability to set the desired default display to either temperature or RH.

A fan mode push button is included to set the desired fan speed (AUTO-OFF-low-medium-high). An occupancy override function allows the user to signal the controller that the zone is occupied to override the scheduled mode. Some models have DIP switches to set a unique address for applications that require multiple sensors.

For communication wiring flexibility, the wires connecting the network zone sensor to a controller can be terminated using a modular jack or screw terminals.

Each network sensor includes an SA Bus access port to allow accessories to access the SA Bus. This plug allows accessories to service or commission the connected controller or gain access to any other controller on the same Field Controller (FC) Bus.



**Figure 1: NS Series Network Sensors**

The NS Series Network Zone Sensor offering includes models that can be surface mounted, vertical wallbox mounted, or flush mounted to meet the requirements of the specific application.

The NS Series Network Discharge Air Sensors monitor the duct temperature, typically at the discharge of the VAV box, and transmit this data to a local controller on the SA Bus using the 10 ft (305 cm) wiring lead included with the unit. The 10 ft (305 cm) wiring lead consists of four 22 AWG (0.6 mm) trade size color-coded wires encased in a plenum-rated jacket. Each of the wires is stripped and tinned for easy connection to the SA Bus screw terminal block.

The NS Series Network Discharge Air Sensors are available with either a 4 or 8 in. (102 or 203 mm) temperature probe. All models include DIP switches for applications requiring multiple discharge air sensors, each with a unique DIP switch address.

**Table 1: Features and Benefits**

Features	Benefits
<b>BACnet® Master-Slave/Token-Passing (MS/TP) Protocol Communication</b>	Provides compatibility with Metasys system field controllers and Facility Explorer programmable controllers in a proven communication network.
<b>Backlit LCD Available on Some Models</b>	Provides real-time status of the environment with backlighting activated during user interaction.
<b>Simple Temperature Setpoint Adjustment Available on Some Models</b>	Enables you to change the setpoint with the turn of a dial.
<b>Temporary Occupancy Available on Some Models</b>	Provides a timed override command, which temporarily initiates an alternate mode.
<b>Field Selectable Default Display Setting on Some Models</b>	Allows you to toggle between temperature and RH on the display, and set the desired default for continuous viewing.
<b>Fahrenheit/Celsius (F/C) Button Available on Some Models</b>	Toggles the display temperature between degrees Celsius and degrees Fahrenheit.

**Ordering Information**

Table 2 through Table 6 list the various NS Series Network Zone Sensors available, and Table 7 lists the various NS Series Network Discharge Air Sensors available.

**IMPORTANT:** The NS Series Network Sensor is intended to provide an input to equipment under normal operating conditions. Where failure or malfunction of the network sensor could lead to personal injury or property damage to the controlled equipment or other property, additional precautions must be designed into the control system. Incorporate and maintain other devices, such as supervisory or alarm systems or safety or limit controls, intended to warn of or protect against failure or malfunction of the network sensor.

**Repair Information**

If the NS Series Network Zone Sensor or the NS Series Network Discharge Air Sensor fails to operate within its specifications, replace the unit. For a replacement sensor, contact the nearest Johnson Controls® representative.

**Table 2: Network Zone Sensor Ordering Information — Temperature Only Models (Part 1 of 3)**

Product Code Number	Size (mm), Height x Width	Vertical Wallbox-Mounted (WB) or Surface-Mounted (SM)	Johnson Controls Logo	LCD Display	Temperature Adjustment: Setpoint (Set) or Warmer/Cooler Dial (W/C)	Occupancy Override	F/C Scale Toggle	Fan Control	Screw Terminals (ST) or Modular Jack (MJ)	Address Switches	VAV Balancing Feature
NS-ATA7001-0	80 x 80	SM	Yes	Yes	Set	Yes	No	No	MJ	No	No
NS-ATA7002-0	80 x 80	SM	Yes	Yes	Set	Yes	No	No	ST	No	No
NS-ATA7003-0	80 x 80	SM	Yes	Yes	Set	Yes	No	No	ST	Yes	No
NS-ATB7001-0	80 x 80	SM	Yes	Yes	Set	Yes	Yes	No	MJ	No	No
NS-ATB7002-0	80 x 80	SM	Yes	Yes	Set	Yes	Yes	No	ST	No	No
NS-ATB7003-0	80 x 80	SM	Yes	Yes	Set	Yes	Yes	No	ST	Yes	No

**Table 2: Network Zone Sensor Ordering Information — Temperature Only Models (Part 2 of 3)**

Product Code Number	Size (mm), Height x Width	Vertical Wallbox-Mounted (WB) or Surface-Mounted (SM)	Johnson Controls Logo	LCD Display	Temperature Adjustment: Setpoint (Set) or Warmer/Cooler Dial (W/C)	Occupancy Override	F/C Scale Toggle	Fan Control	Screw Terminals (ST) or Modular Jack (MJ)	Address Switches	VAV Balancing Feature
NS-ATC7001-0	80 x 80	SM	Yes	Yes	Set	Yes	No	Yes	MJ	No	No
NS-ATC7002-0	80 x 80	SM	Yes	Yes	Set	Yes	No	Yes	ST	No	No
NS-ATD7001-0	80 x 80	SM	Yes	Yes	Set	Yes	Yes	Yes	MJ	No	No
NS-ATD7002-0	80 x 80	SM	Yes	Yes	Set	Yes	Yes	Yes	ST	No	No
NS-ATF7001-0	80 x 80	SM	Yes	Yes	W/C	Yes	Yes	No	MJ	No	No
NS-ATF7002-0	80 x 80	SM	Yes	Yes	W/C	Yes	Yes	No	ST	No	No
NS-ATN7001-0	80 x 80	SM	Yes	No	N/A	No	No	No	MJ	No	No
NS-ATN7001-2	80 x 80	SM	No	No	N/A	No	No	No	MJ	No	No
NS-ATN7003-0	80 x 80	SM	Yes	No	N/A	No	No	No	ST	Yes	No
NS-ATN7003-2	80 x 80	SM	No	No	N/A	No	No	No	ST	Yes	No
NS-ATP7001-0	80 x 80	SM	Yes	No	W/C	Yes	No	No	MJ	No	No
NS-ATP7001-2	80 x 80	SM	No	No	W/C	Yes	No	No	MJ	No	No
NS-ATP7002-0	80 x 80	SM	Yes	No	W/C	Yes	No	No	ST	No	No
NS-ATP7003-0	80 x 80	SM	Yes	No	W/C	Yes	No	No	ST	Yes	No
NS-ATP7003-2	80 x 80	SM	No	No	W/C	Yes	No	No	ST	Yes	No
NS-ATV7001-0	80 x 80	SM	Yes	Yes	Set	Yes	Yes	No <sup>1</sup>	MJ	No	Yes
NS-ATV7002-0	80 x 80	SM	Yes	Yes	Set	Yes	Yes	No <sup>1</sup>	ST	No	Yes
NS-BTB7001-0	120 x 80	WB, SM	Yes	Yes	Set	Yes	Yes	No	MJ	No	No
NS-BTB7001-2	120 x 80	WB, SM	No	Yes	Set	Yes	Yes	No	MJ	No	No
NS-BTB7002-0	120 x 80	WB, SM	Yes	Yes	Set	Yes	Yes	No	ST	No	No
NS-BTB7003-0	120 x 80	WB, SM	Yes	Yes	Set	Yes	Yes	No	ST	Yes	No
NS-BTF7001-0	120 x 80	WB, SM	Yes	Yes	W/C	Yes	Yes	No	MJ	No	No
NS-BTF7002-0	120 x 80	WB, SM	Yes	Yes	W/C	Yes	Yes	No	ST	No	No
NS-BTN7001-0	120 x 80	WB, SM	Yes	No	N/A	No	No	No	MJ	No	No

**Table 2: Network Zone Sensor Ordering Information — Temperature Only Models (Part 3 of 3)**

Product Code Number	Size (mm), Height x Width	Vertical Wallbox-Mounted (WB) or Surface-Mounted (SM)	Johnson Controls Logo	LCD Display	Temperature Adjustment: Setpoint (Set) or Warmer/Cooler Dial (W/C)	Occupancy Override	F/C Scale Toggle	Fan Control	Screw Terminals (ST) or Modular Jack (MJ)	Address Switches	VAV Balancing Feature
NS-BTN7001-2	120 x 80	WB, SM	No	No	N/A	No	No	No	MJ	No	No
NS-BTN7003-0	120 x 80	WB, SM	Yes	No	N/A	No	No	No	ST	Yes	No
NS-BTP7001-0	120 x 80	WB, SM	Yes	No	W/C	Yes	No	No	MJ	No	No
NS-BTP7001-2	120 x 80	WB, SM	No	No	W/C	Yes	No	No	MJ	No	No
NS-BTP7002-0	120 x 80	WB, SM	Yes	No	W/C	Yes	No	No	ST	No	No
NS-BTP7002-2	120 x 80	WB, SM	No	No	W/C	Yes	No	No	ST	No	No
NS-BTP7003-0	120 x 80	WB, SM	Yes	No	W/C	Yes	No	No	ST	Yes	No
NS-BTV7001-0	120 x 80	WB, SM	Yes	Yes	Set	Yes	Yes	No <sup>1</sup>	MJ	No	Yes
NS-BTV7002-0	120 x 80	WB, SM	Yes	Yes	Set	Yes	Yes	No <sup>1</sup>	ST	No	Yes

1. In the VAV balancing models, the fan control button is replaced by a light bulb button used in the VAV balancing process.

**Table 3: Network Zone Sensor Ordering Information — Temperature and Humidity Models without RH Display (Part 1 of 2)**

Product Code Number	Size (mm), Height x Width	Vertical Wallbox-Mounted (WB) or Surface-Mounted (SM)	LCD Display, RH Display	Humidity Element Accuracy	Temperature Adjustment: Setpoint (Set) or Warmer/Cooler Dial (W/C)	Occupancy Override	F/C Scale Toggle	Screw Terminals (ST) or Modular Jack (MJ)	Address Switches
NS-AHA7001-0	80 x 80	SM	Yes, No	3%	Set	Yes	No	MJ	No
NS-AHA7002-0	80 x 80	SM	Yes, No	3%	Set	Yes	No	ST	No
NS-AHB7001-0	80 x 80	SM	Yes, No	3%	Set	Yes	Yes	MJ	No
NS-AHB7002-0	80 x 80	SM	Yes, No	3%	Set	Yes	Yes	ST	No
NS-AHB7003-0	80 x 80	SM	Yes, No	3%	Set	Yes	Yes	ST	Yes
NS-AHN7001-0	80 x 80	SM	None	3%	N/A	No	No	MJ	No
NS-AHN7001-2	80 x 80	SM	None	3%	N/A	No	No	MJ	No
NS-AHP7001-0	80 x 80	SM	None	3%	W/C	Yes	No	MJ	No
NS-APA7001-0	80 x 80	SM	Yes, No	2%	Set	Yes	No	MJ	No
NS-APA7002-0	80 x 80	SM	Yes, No	2%	Set	Yes	No	ST	No
NS-APB7001-0	80 x 80	SM	Yes, No	2%	Set	Yes	Yes	MJ	No
NS-APB7002-0	80 x 80	SM	Yes, No	2%	Set	Yes	Yes	ST	No
NS-APB7003-0	80 x 80	SM	Yes, No	2%	Set	Yes	Yes	ST	Yes
NS-BHB7001-0	120 x 80	WB, SM	Yes, No	3%	Set	Yes	Yes	MJ	No
NS-BHB7002-0	120 x 80	WB, SM	Yes, No	3%	Set	Yes	Yes	ST	No
NS-BHB7003-0	120 x 80	WB, SM	Yes, No	3%	Set	Yes	Yes	ST	Yes
NS-BHN7001-0	120 x 80	WB, SM	None	3%	N/A	No	No	MJ	No

**Table 3: Network Zone Sensor Ordering Information — Temperature and Humidity Models without RH Display (Part 2 of 2)**

Product Code Number	Size (mm), Height x Width	Vertical Wallbox-Mounted (WB) or Surface-Mounted (SM)	LCD Display, RH Display	Humidity Element Accuracy	Temperature Adjustment: Setpoint (Set) or Warmer/Cooler Dial (W/C)	Occupancy Override	F/C Scale Toggle	Screw Terminals (ST) or Modular Jack (MJ)	Address Switches
NS-BHP7001-0	120 x 80	WB, SM	None	3%	W/C	Yes	No	MJ	No
NS-BPB7001-0	120 x 80	WB, SM	Yes, No	2%	Set	Yes	Yes	MJ	No
NS-BPB7002-0	120 x 80	WB, SM	Yes, No	2%	Set	Yes	Yes	ST	No
NS-BPB7003-0	120 x 80	WB, SM	Yes, No	2%	Set	Yes	Yes	ST	Yes

**Table 4: Network Zone Sensor Ordering Information — Temperature and Humidity Models with Temperature or RH Display (Field Selectable Default Display)**

Product Code Number	Size (mm), Height x Width	Vertical Wallbox-Mounted (WB) or Surface-Mounted (SM)	LCD Display, RH Display	Humidity Element Accuracy	Temperature Adjustment: Setpoint (Set) or Warmer/Cooler Dial (W/C)	Occupancy Override	F/C Scale Toggle	Screw Terminals (ST) or Modular Jack (MJ)	Address Switches
NS-AHR7101-0	80 x 80	SM	Yes, Yes	3%	Set	Yes	Yes	MJ	No
NS-AHR7102-0	80 x 80	SM	Yes, Yes	3%	Set	Yes	Yes	ST	No
NS-AHR7103-0	80 x 80	SM	Yes, Yes	3%	Set	Yes	Yes	ST	Yes
NS-APR7101-0	80 x 80	SM	Yes, Yes	2%	Set	Yes	Yes	MJ	No
NS-APR7102-0	80 x 80	SM	Yes, Yes	2%	Set	Yes	Yes	ST	No
NS-BHR7101-0	120 x 80	WB, SM	Yes, Yes	3%	Set	Yes	Yes	MJ	No
NS-BHR7103-0	120 x 80	WB, SM	Yes, Yes	3%	Set	Yes	Yes	ST	Yes

**Table 5: Network Zone Sensor Ordering Information — CO<sub>2</sub> Models**

Product Code Number	Size (mm) Height x Width	Vertical Wallbox-Mounted (WB), or Surface-Mounted (SM)	LCD Display	CO <sub>2</sub> Measurement Range	Johnson Controls Logo	Screw Terminals (ST), or Modular Jack (MJ)	Sensor Addressing
NS-BCN7004-0	120 x 80	WB, SM	No	0 to 2,000 ppm	Yes	ST, MJ	DIP Switch (212 to 219)
NS-BCN7004-2	120 x 80	WB, SM	No	0 to 2,000 ppm	No	ST, MJ	DIP Switch (212 to 219)

**Table 6: Network Zone Sensor Ordering Information — Flush-Mount Temperature Only Model**

Product Code Number	Faceplate Dimensions, Height x Width	Mounting	LCD Display	Temperature Measurement Range	Terminations	Sensor Addressing
NS-FTN7003-2	4-1/2 in. x 3 in. x 2-3/4 in. (114 mm x 70 mm)	Flush-Mount	No	32.0°F/0.0°C to 104.0°F/40.0°C	Screw Terminal Block	DIP Switch (200 to 203)

**Table 7: Network Discharge Air Sensor Ordering Information**


Product Code Number	Dimensions, Height x Width x Depth	Temperature Probe Length	305 cm (10 ft) Wiring Lead Included	Terminations	Sensor Addressing
NS-DTN7043-0	3 in. x 3 in. x 2 in. (76 mm x 76 mm x 51 mm)	4 in. (102 mm)	Yes	Screw Terminal Block	DIP Switch (204 to 211)
NS-DTN7083-0	3 in. x 3 in. x 2 in. (76 mm x 76 mm x 51 mm)	8 in. (203 mm)	Yes	Screw Terminal Block	DIP Switch (204 to 211)

## Technical Specifications

### NS Series Network Zone Sensors — Temperature Only Models and Temperature and Humidity Models (Part 1 of 2)

<b>Supply Voltage</b>	9.8 to 16.5 VDC; 15 VDC Nominal (From SA Bus)
<b>Current Consumption</b>	<b>Temperature Only Models with LCD Display:</b> 21 mA Maximum (Non-transmitting)
	<b>Temperature Only Models without LCD Display:</b> 13 mA Maximum (Non-transmitting)
	<b>Temperature and Humidity Models with LCD Display:</b> 25 mA Maximum (Non-transmitting)
	<b>Temperature and Humidity Models without LCD Display:</b> 17 mA Maximum (Non-transmitting)
<b>Terminations</b>	Modular Jack or Screw Terminal Block
<b>Sensor Addressing</b>	<b>NS-AHx7003-0, NS-APB7003-0, NS-ATx7003-0, NS-BHx7003-0, NS-BPB7003-0, NS-BTB7003-0, NS-BTN7003-0, and NS-BTP7003-0 Models:</b> DIP Switch Set from 200 to 203; Factory Set at 203
	<b>All Other Models:</b> Fixed Address of 199
<b>Wire Size</b>	<b>Modular Jack Models:</b> 24 AWG or 26 AWG (0.5 or 0.4 mm Diameter) Recommended; Three Twisted Pair (Six Conductors)
	<b>Screw Terminal Block Models:</b> 18 to 22 AWG (1.0 to 0.6 mm Diameter); 22 AWG (0.6 mm Diameter) Recommended
<b>Communication Rate</b>	<b>Auto-Detect:</b> 9.6k, 19.2k, 38.4k, or 76.8k bps
<b>Mounting</b>	<b>Surface-Mounted:</b> 80 x 80 mm
	<b>Surface-Mounted or Vertical Wallbox-Mounted:</b> 120 x 80 mm
<b>Temperature Measurement Range</b>	32.0°F/0.0°C to 104.0°F/40.0°C
<b>Humidity Measurement Range</b>	<b>Full Range:</b> 0 to 100% RH
	<b>Calibrated Range:</b> 10 to 90% RH
<b>Temperature Sensor Type</b>	Local Platinum Resistance Temperature Detector (RTD)
<b>Humidity Sensor Type</b>	Thin Film Capacitive Sensor
<b>Temperature Resolution (Models with LCD)</b>	±0.5F°/±0.5C°
<b>Temperature Sensor Accuracy</b>	±1.0F°/±0.6C°
<b>Humidity Element Accuracy</b>	<b>NS-APx700x-0 and NS-BPB700x-0 Models:</b> ±2% RH for 20 to 80% RH; ±4% RH for 10 to 20% and 80 to 90% RH
	<b>NS-AHx700x-0 and NS-BHx700x-0 Models:</b> ±3% RH for 20 to 80% RH; ±6% RH for 10 to 20% and 80 to 90% RH
<b>Time Constant</b>	10 Minutes Nominal at 10 fpm Airflow
<b>Default Temperature Setpoint Adjustment Range</b>	<b>With LCD Display:</b> 50.0°F/10.0°C to 86.0°F/30.0°C in 0.5° Increments
	<b>Without LCD Display:</b> ±5.0F°/±3.0C°
<b>Ambient Conditions</b>	<b>Operating:</b> 32 to 104°F (0 to 40°C); 10 to 90% RH, Noncondensing; 85°F (29°C) Maximum Dew Point
	<b>Storage with LCD Display:</b> -4 to 140°F (-20 to 60°C); 5 to 95% RH, Noncondensing
	<b>Storage without LCD Display:</b> -40 to 158°F (-40 to 70°C); 5 to 95% RH, Noncondensing

## NS Series Network Zone Sensors — Temperature Only Models and Temperature and Humidity Models (Part 2 of 2)

	<b>BACnet International</b>	BACnet Testing Laboratories™ (BTL) 135-2004 Listed BACnet Smart Sensor (B-SS) <b>Note:</b> Excludes the NS-ATV700x-0 and NS-BTV700x-0 models.
	<b>United States</b>	UL Listed, File E107041, CCN PAZX, Under UL 916, Energy Management Equipment; FCC Compliant to CFR 47, Part 15, Subpart B, Class A
	<b>Canada</b>	UL Listed, File E107041, CCN PAZX7, Under CAN/CSA C22.2 No. 205, Signal Equipment; Industry Canada, ICES-003
	<b>Europe</b>	CE Mark – Johnson Controls, Inc., declares that this product is in compliance with the essential requirements and other relevant provisions of the EMC Directive 2004/108/EC.
	<b>Australia and New Zealand</b>	C-Tick Mark, Australia/NZ Emissions Compliant
<b>Accessory (Order Separately)</b>	<b>NS-WALLPLATE-0:</b> Adapts an 80 x 80 mm NS Series Network Zone Sensor to a Standard 80 x 120 mm Wallbox	
<b>Shipping Weight</b>	<b>NS-Axx7xxx-0 Models:</b> 0.20 lb (0.09 kg)	
	<b>NS-Bxx7xxx-0 Models:</b> 0.25 lb (0.11 kg)	

## NS Series Network Zone Sensor — CO<sub>2</sub> Models (Part 1 of 2)

<b>Supply Voltage</b>	<b>Non-isolated:</b> 20 to 30 VAC (18 to 30 VDC), Class 2 or Safety Extra-Low Voltage (SELV)
	<b>Isolated:</b> 9.8 to 16.5 VDC; 15 VDC Nominal (From SA Bus)
<b>Current Consumption</b>	<b>Non-isolated:</b> 22 mA Average at 24 VAC; 28 mA Average at 24 VDC
	<b>Isolated:</b> 5 mA Maximum, Non-transmitting (From SA Bus)
<b>Power Consumption</b>	<b>Non-isolated:</b> Less Than 0.7 W Average
<b>Terminations</b>	<b>Non-isolated Supply:</b> Screw Terminal Block
	<b>SA Bus:</b> Modular Jack or Screw Terminal Block
<b>Sensor Addressing</b>	DIP Switch Set from 212 to 219; Factory Set at 212
<b>Wire Size</b>	<b>Modular Jack:</b> 24 AWG or 26 AWG (0.5 or 0.4 mm Diameter) Recommended; Three Twisted Pair (Six Conductors)
	<b>Screw Terminal Block:</b> 18 to 22 AWG (1.0 to 0.6 mm Diameter); 22 AWG (0.6 mm Diameter) Recommended
<b>Communication Rate</b>	<b>Auto-Detect:</b> 9.6k, 19.2k, 38.4k, or 76.8k bps
<b>CO<sub>2</sub> Measurement Range</b>	0 to 2,000 ppm
<b>CO<sub>2</sub> Sensing Accuracy</b>	Plus or Minus the Sum of 50 ppm and 3.0% of the CO <sub>2</sub> Reading at 77°F (25°C) and 978 hPa or an Altitude of 1,000 ft/300 m <b>Note:</b> All accuracy specifications reflect the testing of the device using high-grade certified gases. This device is intended for an altitude range of 0 ft/0 m to 2,000 ft/600 m above sea level without compensation.
	<b>Temperature Dependence of Output:</b> -0.35% of the CO <sub>2</sub> Reading per 1.8F°/1C° Typical
	<b>Pressure Dependence of Output:</b> +0.15% of the CO <sub>2</sub> Reading per 1 hPa Typical
<b>CO<sub>2</sub> Sensing Resolution</b>	1 ppm
<b>CO<sub>2</sub> Sensing Response Time</b>	1 Minute (0 to 90%)
<b>CO<sub>2</sub> Sensing Warm-Up Time</b>	Less Than 1 Minute; Less Than 10 Minutes for Full Accuracy
<b>CO<sub>2</sub> Sensing Long-Term Stability</b>	Less Than ±100 ppm Over 5 Years
<b>Mounting</b>	<b>Surface-Mounted or Vertical Wallbox-Mounted:</b> 120 x 80 mm

### NS Series Network Zone Sensor — CO<sub>2</sub> Models (Part 2 of 2)

<b>Ambient Conditions</b>		<b>Operating:</b> 32 to 104°F (0 to 40°C); 10 to 90% RH, Noncondensing; 85°F (29°C) Maximum Dew Point; 700 to 1,200 hPa
		<b>Storage:</b> -40 to 158°F (-40 to 70°C); 0 to 95% RH, Noncondensing
<b>Compliance</b>	<b>BACnet International</b>	BACnet Testing Laboratories™ (BTL) 135-2004 Listed BACnet Smart Sensor (B-SS)
	<b>United States</b>	UL Listed, File E107041 CCN PAZX, Under UL 916, Energy Management Equipment; FCC Compliant to CFR 47, Part 15, Subpart B, Class A
	<b>Canada</b>	UL Listed, File E107041, CCN PAZX7, Under CAN/CSA C22.2 No. 205, Signal Equipment; Industry Canada, ICES-003
	<b>Europe</b>	CE Mark – Johnson Controls, Inc., declares that this product is in compliance with the essential requirements and other relevant provisions of the EMC Directive 2004/108/EC.
	<b>Australia and New Zealand</b>	C-Tick Mark, Australia/NZ Emissions Compliant
<b>Shipping Weight</b>		0.35 lb (0.16 kg)

### NS Series Network Zone Sensor — Flush-Mount Temperature Only Model

<b>Supply Voltage</b>		9.8 to 16.5 VDC; 15 VDC Nominal (From SA Bus)
<b>Current Consumption</b>		12 mA Maximum (Non-transmitting) per Flush-Mount Network Sensor
<b>Terminations</b>		Screw Terminal Block <b>Note:</b> Wire leads are field supplied and are not tinned.
<b>Sensor Addressing</b>		DIP Switch Set from 200 to 203; Factory Set at 203
<b>Wire Size</b>		18 to 22 AWG (1.0 to 0.6 mm Diameter); 22 AWG (0.6 mm Diameter) Recommended; 10 ft (304.8 cm) Wiring Lead Included with the Unit
<b>Communication Rate</b>		<b>Auto-Detect:</b> 9.6k, 19.2k, 38.4k, or 76.8k bps
<b>Temperature Measurement Range</b>		32.0°F/0.0°C to 104.0°F/40.0°C
<b>Temperature Sensor Type</b>		Local Platinum Resistance Temperature Detector (RTD)
<b>Temperature Sensor Accuracy</b>		±1.0F°/±0.6C°
<b>Ambient Conditions</b>		<b>Operating:</b> 32 to 104°F (0 to 40°C); 10 to 90% RH, Noncondensing; 85°F (29°C) Maximum Dew Point
		<b>Storage:</b> -40 to 158°F (-40 to 70°C); 5 to 95% RH, Noncondensing
<b>Compliance</b>	<b>BACnet International</b>	BACnet Testing Laboratories™ (BTL) 135-2004 Listed BACnet Smart Sensor (B-SS)
	<b>United States</b>	UL Listed, File E107041, CCN PAZX, Under UL 916, Energy Management Equipment; FCC Compliant to CFR 47, Part 15, Subpart B, Class A
	<b>Canada</b>	UL Listed, File E107041, CCN PAZX7, Under CAN/CSA C22.2 No. 205, Signal Equipment; Industry Canada, ICES-003
	<b>Europe</b>	CE Mark – Johnson Controls, Inc., declares that this product is in compliance with the essential requirements and other relevant provisions of the EMC Directive 2004/108/EC.
	<b>Australia and New Zealand</b>	C-Tick Mark, Australia/NZ Emissions Compliant
<b>Shipping Weight</b>		0.25 lb (0.11 kg)

### NS Series Network Discharge Air Sensors (Part 1 of 2)

<b>Supply Voltage</b>		9.8 to 16.5 VDC; 15 VDC Nominal
<b>Current Consumption</b>		12 mA Maximum (Non-transmitting) per Discharge Air Sensor
<b>Terminations</b>		Four Color-Coded Wiring Leads, Stripped and Tinned; Factory-Installed at the Discharge Air Sensor Screw Terminal Block
<b>Sensor Addressing</b>		DIP Switch Set from 204 to 211; Factory Set at 204



## NS Series Network Discharge Air Sensors (Part 2 of 2)

<b>Wire Size</b>		18 to 22 AWG (1.0 to 0.6 mm Diameter); 22 AWG (0.6 mm Diameter) Recommended; 10 ft (305 cm) Wiring Lead Included with the Unit
<b>Communication Rate</b>		<b>Auto-Detect:</b> 9.6k, 19.2k, 38.4k, or 76.8k bps
<b>Mounting</b>		<b>Duct-Mounted:</b> 4 or 8 in. (102 or 203 mm) Temperature Probe Length
<b>Temperature Measurement Range</b>		14°F/-10°C to 140°F/60°C
<b>Temperature Sensor Type</b>		Local Platinum Resistance Temperature Detector (RTD)
<b>Temperature Sensor Accuracy</b>		±1.0F°/±0.6C°
<b>Ambient Conditions</b>		<b>Operating:</b> 14 to 140°F (-10 to 60°C); 10 to 90% RH, Noncondensing; 85°F (29°C) Maximum Dew Point
		<b>Storage:</b> -40 to 158°F (-40 to 70°C); 5 to 95% RH, Noncondensing
<b>CE</b>	<b>BACnet International</b>	BACnet Testing Laboratories™ (BTL) 135-2004 Listed BACnet Smart Sensor (B-SS)
	<b>United States</b>	UL Listed, File E107041, CCN PAZX, Under UL 916, Energy Management Equipment; FCC Compliant to CFR 47, Part 15, Subpart B, Class A
	<b>Canada</b>	UL Listed, File E107041, CCN PAZX7, Under CAN/CSA C22.2 No. 205, Signal Equipment; Industry Canada, ICES-003
	<b>Europe</b>	CE Mark – Johnson Controls, Inc., declares that this product is in compliance with the essential requirements and other relevant provisions of the EMC Directive 2004/108/EC.
	<b>Australia and New Zealand</b>	C-Tick Mark, Australia/NZ Emissions Compliant
<b>Shipping Weight</b>		<b>NS-DTN7043-0:</b> 1.15 lb (0.52 kg)
		<b>NS-DTN7083-0:</b> 1.17 lb (0.53 kg)

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, Inc. shall not be liable for damages resulting from misapplication or misuse of its products.

### United States Emissions Compliance

This equipment has been tested and found to comply with the limits for a Class A digital device pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when this equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his/her own expense.

### Canadian Emissions Compliance

This Class (A) digital apparatus meets all the requirements of the Canadian Interference-Causing Equipment Regulations.  
Cet appareil numérique de la Classe (A) respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.



**Building Efficiency**

507 E. Michigan Street, Milwaukee, WI 53202

Metasys® and Johnson Controls® are registered trademarks of Johnson Controls, Inc.  
All other marks herein are the marks of their respective owners. © 2011 Johnson Controls, Inc.