

# Wireless HVAC Sensors

**Wireless** 

Transmitter

Transmitters, Receivers, Repeaters & Output Modules

### Wireless Overview

- 8 Year Battery Life
- Temperature Only or Temperature/Humidity Combination
- 100 Foot In-Building Range, Extendable to 1,000 Feet with **Repeater\***
- Transmitted signals can be converted to Voltage, Current or Resistive Outputs for the Controller

The BAPI Wireless Temperature or Temperature/Humidity Combination system incorporates a 418 MHz transmitter along with a Receiver and one or more Analog Output Modules to send zone temperature, humidity or other system variables to the DDC controller.

The wireless transmitter has an in-building range of 100 feet\*, extendable to the 1,000 feet with a Repeater. The transmitter uses two highcapacity 3.6 volt lithium batteries and has an estimated battery life of 8 years with a transmit rate of approximately once every 10 seconds.

Wireless Receiver

**Output Module** 

BAP



#### Rev. 12/20/10

# Features & Options

- 8 Year Battery Life (with two 3.6 volt lithium batteries, full AA size)
- Optional Setpoint and Occupant Override

**Temperature Transmitter** 

- 100 Foot In-Building Range, Extendable to 1,000 Feet with Repeater\*
- Transmitted signals can be converted to Voltage, Current or Resistive Outputs for the Controller

The BAPI Wireless Transmitter measures the room temperature and transmits the data through 418MHz RF to a receiver. The transmitter is mounted in a BAPI-Stat 2 style enclosure and has an in-building range of 100 feet\*. It is available with optional Setpoint and Override.

The unit has an estimated battery life of 8 years using two high-capacity 3.6V lithium batteries with a transmit rate of about once every 10 seconds. Each transmitter has a unique address with built in error detection. Each variable sent by the transmitter is picked up by the receiver and converted by a BAPI Analog Output Module to a voltage, current or resistance signal which is sent to the controller. The unit can be set up to trigger an alarm on the controller when the batteries need replacing.



Transmitter with optional Setpoint & Override

PART NUMBER: BA/BS2-WT - Wireless Temperature Transmitter PART NUMBER: BA/BS2-WT-O - Wireless Temperature Transmitter with Occupant Override PART NUMBER: BA/BS2-WT-S - Wireless Temperature Transmitter with Setpoint Adjustment PART NUMBER: BA/BS2-WT-SO - Wireless Temperature Transmitter with Setpoint & Override PART NUMBER: BA/LI3620 - Lithium Battery 3.6V

See end of Section H for list pricing.

# Associated Products

#### • 418 or 900 MHz Receivers

Receives the RF signal from one or more transmitters or repeaters and outputs the values to up to 127 Analog Output Modules.

#### Analog Output Modules:

Converts the signal from the Receiver into a Resistance, Voltage or Current for sending to the controller.

#### Repeater

Extends the range of the Transmitter up to 1,000 feet.



Receiver with two Analog Output Modules

# Specifications for the Wireless Temperature Transmitters

Supply Power: Two 3.6V Lithium batteries, 8 year battery life at 10 second transmit rate

Inputs: Built in thermistor

**Accuracy:** ±0.36°F (±0.2°C)

Transmitted Range: -40°F to 185°F (-40°C to 85°C)

Environmental Operation Range:

Temp: 32°F to 140°F (0°C to 60°C)

Humidity: 5% to 95% RH non-condensing

Material: ABS Plastic

Material Rating: UL94 V-0

Radio Frequency: 418 MHz

Transmitter Interval: ~10 seconds

Antenna: Built inside the enclosure

FCC Approval: FCC ID# T4F061213RSO







# Temperature and Humidity Transmitter

Wireless Sensors

#### Rev. 12/20/10

# Features & Options

- 8 Year Battery Life (with two 3.6 volt lithium batteries, full AA size)
- Optional Temperature Setpoint and Occupant Override
- 100 Foot In-Building Range, Extendable to 1,000 Feet with Repeater\*
- Transmitted signals can be converted to Voltage, Current or Resistive Outputs for the Controller

The BAPI Wireless Transmitter measures the room temperature and Humidity and transmits the data through 418MHz RF to a receiver. The transmitter is mounted in a BAPI-Stat 2 style enclosure and has an inbuilding range of 100 feet\*. It is available with optional Temperature Setpoint and Occupant Override.

The unit has an estimated battery life of 8 years using two high-capacity 3.6V lithium batteries with a transmit rate of once every 10 seconds. Each transmitter has a unique address with built in error detection. Each variable sent by the transmitter is picked up by the receiver and converted by a BAPI



Transmitter with optional Temperature Setpoint & Override

Analog Output Module to a voltage, current or resistance signal for the controller. The unit can be set up to trigger an alarm on the controller when the batteries need replacing.

**PART #: BA/BS2-WTH** - Wireless Temp. and Humidity Transmitter

**PART #: BA/BS2-WTH-O** - Wireless Temp. and Humidity Transmitter with Override **PART #: BA/BS2-WTH-S** - Wireless Temp. and Humidity Transmitter with Temp. Setpoint Adjustment **PART #: BA/BS2-WTH-SO** - Wireless Temp and Humidity Transmitter w/ Temp. Setpoint & Override **PART #: BA/LI3620** - Lithium Battery 3.6V

See end of Section H for list pricing.

## Associated Products

#### • 418 or 900 MHz Receivers

Receives the RF signal from one or more transmitters or repeaters and outputs the values to up to 127 Analog Output Modules.

#### Analog Output Modules:

Converts the signal from the Receiver into a Resistance, Voltage or Current for sending to the controller.

#### Repeater

Extends the range of the Transmitter up to 1,000 feet.



Receiver with two Analog Output Modules

2.79in [70.9mm] 1.06in [26.9mm]

4.50in [114.4mm]

Closed

Cell Foam

Ø

# Specifications for the Wireless Temperature & Humidity Transmitters

**Supply Power:** Two 3.6V Lithium batteries, 8 year battery life at 10 second transmit rate **Sensing Elements:** 

Temp. - Semiconductor Band Gap, Proportional to Absolute Temperature, ±0.54°F (±0.3°C)

Humidity - Capacitive Polymer, ±1.8% RH Accuracy

Transmitted Range: -40°F to 185°F (-40°C to 85°C) • 0-100% RH

#### Environmental Operation Range:

Temp: 32°F to 140°F (0°C to 60°C) Humidity: 5% to 95% RH non-condensing

Material & Rating: ABS Plastic, UL94 V-0

Radio Frequency: 418 MHz

Transmitter Interval: ~10 seconds

Antenna: Built inside the enclosure

FCC Approval: FCC ID# T4F061213RSO



Building Automation Products, Inc., 750 North Royal Avenue, Gays Mills, WI 54631 USA Tel: +1-608-735-4800 • Fax: +1-608-735-4804 • E-mail:sales@bapihvac.com • Web:www.bapihvac.com Duct Temperature Transmitter

### Wireless Sensors

Rev. 12/20/10

## Features & Options

- 8 Year Battery Life (with two 3.6 volt lithium batteries, full AA size)
- 100 Foot In-Building Range, Extendable to 1,000 Feet with Repeater\*
- Transmitted signals can be converted to Voltage, Current or Resistive Outputs for the Controller
- Probe Lengths: 4", 8", 12" and 18"
- Watertight BAPI-Box Enclosure and Stainless Steel Probes
- Etched Teflon Leadwires & Double Encapsulated Sensors



Wireless Duct Temperature Transmitter

• 2 Year Warranty

BAPI Wireless Duct Temperature Transmitters feature closed cell foam to seal the probe insertion hole and to absorb vibration. Mounting feet allow for easy installation directly to the wall of the duct. The Duct Units come with etched teflon leadwires, double encapsulated sensors and a watertight BAPI-Box enclosure to withstand high humidity and condensation and perform under real world conditions. The units are available with probe lengths from 4" to 18" to accommodate most duct shapes and sizes. Custom probe lengths are also available.

The Wireless Duct Temperature Transmitter measures the duct temperature and transmits the data through 418MHz RF to a receiver. It has an in-building range of 100 feet\* and an estimated battery life of 8 years using two high-capacity 3.6V lithium batteries with a transmit rate of about once every 10 seconds. Each transmitter has a unique address with built in error detection. Each variable sent by the transmitter is picked up by the receiver and converted by a BAPI Analog Output Module to a voltage, current or resistance signal which is sent to the controller. The unit can be set up to trigger an alarm on the controller when the batteries need replacing.

PART NUMBER: BA/WT-D-4" - Wireless Duct Temperature Transmitter, 4" Probe Length PART NUMBER: BA/WT-D-8" - Wireless Duct Temperature Transmitter, 8" Probe Length PART NUMBER: BA/WT-D-12" - Wireless Duct Temperature Transmitter, 12" Probe Length PART NUMBER: BA/WT-D-18" - Wireless Duct Temperature Transmitter, 18" Probe Length PART NUMBER: BA/WT-D-XX\* - Wireless Duct Temperature Transmitter, Custom Probe Length PART NUMBER: BA/WT-D-XX\* - Wireless Duct Temperature Transmitter, Custom Probe Length PART NUMBER: BA/LI3620 - Lithium Battery 3.6V

#### See end of Section H for list pricing.

\*Custom Lengths of 1/4" Diameter Stainless Steel Probe are Available. Call BAPI for more information.

# Specifications

Supply Power: Two 3.6V Lithium batteries, 8 year battery life at 10 second transmit rate

Inputs: Built in thermistor

**Accuracy:** ±0.36°F (±0.2°C)

Transmitted Range: -40°F to 185°F (-40°C to 85°C)

#### **Environmental Operation Range:**

Temp: -40°F to 185°F (-40°C to 85°C) Humidity: 0% to 100% RH, non-condensing

Enclosure Rating: IP66

Enclosure Material: UV-Resistant Polycarbonate

Material Rating: UL94 V-0

Radio Frequency: 418 MHz

Transmitter Interval: ~10 seconds

Antenna: Built inside the enclosure

FCC Approval: FCC ID# T4F060811TEMP







# Duct Temp. & Humidity Transmitter

Wireless Sensors

Rev. 03/24/11

# Features & Options

- 8 Year Battery Life (with two 3.6 volt lithium batteries, full AA size)
- 100 Foot In-Building Range, Extendable to 1,000 Feet with Repeater\*
- Temperature and Humidity signals can be converted to Voltage, Current or Resistive Outputs for the Controller
- Watertight BAPI-Box Enclosure
- Closed Cell Foam Padding
- 2 Year Warranty



Wireless Duct Temperature and Humidity Transmitter

BAPI Wireless Duct Temp. and Humidity Transmitters feature closed cell foam to seal the probe insertion hole and to absorb vibration. Mounting feet allow for easy installation directly to the wall of the duct. The wireless Duct Units come with a watertight BAPI-Box enclosure to withstand high humidity and condensation and perform under real world conditions.

The Wireless Duct unit measures the duct temperature and humidity and transmits the data through 418MHz RF to a receiver. It has an in-building range of 100 feet\* and an estimated battery life of 8 years using two high-capacity 3.6V lithium batteries with a transmit rate of about once every 10 seconds. Each transmitter has a unique address with built in error detection. Each variable sent by the transmitter is picked up by the receiver and converted by a BAPI Analog Output Module to a voltage, current or resistance signal which is sent to the controller. The unit can be set up to trigger an alarm on the controller when the batteries need replacing.

# **PART #: BA/WTH-D** - Wireless Duct Temp. & Humidity Transmitter, 5" Probe Length **PART #: BA/LI3620** - Lithium Battery 3.6V

#### See end of Section H for list pricing.

# Specifications

Supply Power: Two 3.6V Lithium batteries, 8 year battery life at 10 second transmit rate

#### Sensing Elements:

Temp. - Semiconductor Band Gap, Proportional to Absolute Temperature, ±0.54°F (±0.3°C) Humidity - Capacitive Polymer, ±1.8% RH Accuracy

Transmitted Range: -40°F to 185°F (-40°C to 85°C)

#### Environmental Operation Range:

Temp: -40°F to 185°F (-40°C to 85°C) Humidity: 0% to 100% RH, non-condensing

#### Enclosure Rating: IP66

#### Enclosure Material:

UV-Resistant Polycarbonate

Material Rating: UL94 V-0

Radio Frequency: 418 MHz

Transmitter Interval: ~10 seconds

Antenna: Built inside the enclosure

FCC Approval: FCC ID# T4F060811RH



# Immersion Temperature Transmitter

## Wireless Sensors

Rev. 12/20/10

# Features & Options

- 8 Year Battery Life (with two 3.6V lithium batteries, full AA size)
- 100 In-Building Foot Range, Extendable to 1,000 Feet with Repeater\*
- Transmitted signals can be converted to Voltage, Current or Resistive Outputs for the Controller
- Probe Lengths: 2", 4" and 8" (fit standard BAPI Thermowells)
- Watertight BAPI-Box Enclosure and Stainless Steel Probes
- Etched Teflon Leadwires & Double Encapsulated Sensors



Wireless Immersion Temperature Transmitter

• 2 Year Warranty

BAPI Wireless Immersion Units are available in 2", 4" and 8" probe lengths. The sensor is potted inside a 1/4" stainless steel probe with thermally conductive epoxy. The Immersion Units come with etched teflon leadwires, double encapsulated sensors and a BAPI-Box enclosure to withstand high humidity and condensation and perform under real world conditions.

The Wireless Immersion Temperature Transmitter measures the temperature and transmits the data

#### **BAPI** Thermowells

Immersion Unit Probes are designed to be inserted into a Thermowell. BAPI Thermowells are available in machined stainless steel or brass, or welded stainless steel, in lengths to match our Immersion Unit Probe Lengths. For more info, see page A60. through 418MHz RF to a receiver. It has an in-building range of 100 feet\* and an estimated battery life of 8 years using two high-capacity 3.6V lithium batteries with a transmit rate of about once every 10 seconds. Each transmitter has a unique address with built in error detection. Each variable sent by the transmitter is picked up by the receiver and converted by a BAPI Analog Output Module to a voltage, current or resistance signal which is sent to the controller. The unit can be set up to trigger an alarm on the controller when the batteries need replacing.

**PART NUMBER: BA/WT-I-2**" - Wireless Immersion Temperature Transmitter, 2" Probe Length **PART NUMBER: BA/WT-I-4**" - Wireless Immersion Temperature Transmitter, 4" Probe Length **PART NUMBER: BA/WT-I-8**" - Wireless Immersion Temperature Transmitter, 8" Probe Length **PART NUMBER: BA/LI3620** - Lithium Battery 3.6V

#### See end of Section H for list pricing.

\*Custom Lengths of 1/4" Diameter Stainless Steel Probe are Available. Call BAPI for more information.

# Specifications

Supply Power: Two 3.6V Lithium batteries, 8 year battery life at 10 second transmit rate

Inputs: Built in thermistor

Accuracy: ±0.36°F (±0.2°C)

Transmitted Range: -40°F to 185°F (-40°C to 85°C)

Environmental Operation Range:

Temp: -40°F to 185°F (-40°C to 85°C) Humidity: 0% to 100% RH, non-condensing

#### Enclosure Rating: IP66

Enclosure Material: UV-Resistant Polycarbonate

Material Rating: UL94 V-0

Radio Frequency: 418 MHz

Transmitter Interval: ~10 seconds

Antenna: Built inside the enclosure

FCC Approval: FCC ID# T4F060811TEMP





# Remote Probe Transmitter



Wireless Sensors

Rev. 12/20/10

# Features & Options

- 8 Year Battery Life (with two 3.6V lithium batteries, full AA size)
- 100 Foot In-Building Range, Extendable to 1,000 Feet with Repeater\*
- Transmitted signals can be converted to a Voltage, Current or Resistance
- Plenum Rated Cable or FEP Jacketed Cable
- Double Encapsulated Probe Sensor
- 2 Year Warranty

BAPI Wireless Remote Probes feature a 1.75" long stainless steel probe with either Plenum-Rated Cable or FEP-Jacketed Cable and a watertight BAPI-Box Enclosure. Standard lead lengths are 18", 5', 10', 15', 20', and 25'. Remote Probes are commonly used in refrigerated case or strap-on applications. They are ideal for hard-to-access areas or for applications where the usual Immersion or Duct Sensors do not fit well. Additional cable options, lead lengths and probe styles are available upon request.



Wireless Remote Probe Transmitter

The Wireless Remote Probe Transmitter measures the temperature and transmits the data through 418MHz RF to a receiver. It has an in-building range of 100 feet\* and an estimated battery life of 8 years using two high-capacity 3.6V lithium batteries with a transmit rate of about once every 10 seconds. Each transmitter has a unique address with built in error detection. Each variable sent by the transmitter is picked up by the receiver and converted by a BAPI Analog Output Module to a voltage, current or resistance signal which is sent to the controller. The unit can be set up to trigger an alarm on the controller when the batteries need replacing.

BA/WT-RPP-5'	Remote Probe, Plenum Rated Cable - 5' Leads
BA/WT-RPP-10'	Remote Probe, Plenum Rated Cable - 10' Leads
BA/WT-RPP-15'	Remote Probe, Plenum Rated Cable - 15' Leads
BA/WT-RPP-20'	Remote Probe, Plenum Rated Cable - 20' Leads
BA/WT-RPP-25'	Remote Probe, Plenum Rated Cable - 25' Leads
BA/WT-RPFEP-5'	Remote Probe with FEP Jacketed Cable - 5' Leads
BA/WT-RPFEP-10'	Remote Probe with FEP Jacketed Cable - 10' Leads
BA/WT-RPFEP-15'	Remote Probe with FEP Jacketed Cable - 15' Leads
BA/WT-RPFEP-20'	Remote Probe with FEP Jacketed Cable - 20' Leads
BA/WT-RPFEP-25'	Remote Probe with FEP Jacketed Cable - 25' Leads
BA/LI3620	Lithium Battery, 3.6 Volt (for Wireless Transmitters)

See end of Section H for list pricing.

# Specifications

Supply Power: Two 3.6V Lithium batteries, 8 year battery life at 10 second transmit rate Inputs: Built in thermistor Accuracy: ±0.36°F (±0.2°C) 5.00in Transmitted Range: -40°F to 185°F (-40°C to 85°C) 2.50in [63.5mm /2" Drillable **Environmental Operation Range:** Temp: -40°F to 185°F (-40°C to 85°C) Humidity: 0% to 100% RH, non-condensing 4.1<sup>'</sup>1in 6 104.4 Enclosure Rating: IP66 Enclosure Material: UV-Resistant Polycarbonate Material Rating: UL94 V-0 Тур Radio Frequency: 418 MHz Transmitter Interval: ~10 seconds Antenna: Built inside the enclosure FCC Approval: FCC ID# T4F060811TEMP

# Outside Air Temperature Transmitter

Wireless Sensors

Rev. 12/20/10

# Features & Options

- 8 Year Battery Life (with two 3.6 volt lithium batteries, full AA size)
- 100 Foot In Building Range, Extendable to 1,000 Feet with Repeater\*
- Transmitted signals can be converted to Voltage, Current or Resistive Outputs for the Controller
- Watertight BAPI-Box Enclosure
- Quick Response Sensor
- Light-Colored Sensor Guard
- Etched Teflon Leadwires
- 2 Year Warranty



Wireless Outside Air Temperature Transmitter

BAPI Wireless Outside Air Temperature Transmitters are designed to be mounted outdoors. The UV-resistant plastic shield keeps the sensor out of the sunlight and allows for excellent air circulation.The Outside Air Units come with a watertight BAPI-Box enclosure which is made of UV-resistant polycarbonate and carries an IP66 rating.

The Outside Air unit measures the temperature and transmits the data through 418MHz RF to a receiver. It has an in-building range of 100 feet\* and an estimated battery life of 8 years using two high-capacity 3.6V lithium batteries with a transmit rate of about once every 10 seconds. Each transmitter has a unique address with built in error detection. Each variable sent by the transmitter is picked up by the receiver and converted by a BAPI Analog Output Module to a voltage, current or resistance signal which is sent to the controller. The unit can be set up to trigger an alarm on the controller when the batteries need replacing.

**PART NUMBER: BA/WT-O-BB** - Wireless Outside Air Temperature Transmitter **PART NUMBER: BA/LI3620** - Lithium Battery 3.6V

See end of Section H for list pricing.

# Specifications

Supply Power: Two 3.6V Lithium batteries, 8 year battery life at 10 second transmit rate

Inputs: Built in thermistor

**Accuracy:** ±0.36°F (±0.2°C)

**Transmitted Range:** -40°F to 185°F (-40°C to  $85^{\circ}$ C)

Enclosure Rating: IP66

Enclosure Material: UV-Resistant Polycarbonate

Material Rating: UL94 V-0

Environmental Operation Range: Temp: -40°F to 185°F (-40°C to 85°C) Humidity: 0 to 100% RH

Radio Frequency: 418 MHz

Transmitter Interval: ~10 seconds

Antenna: Built inside the enclosure

FCC Approval: FCC ID# T4F060811TEMP



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\*Actual in-building transmission distances will vary depending upon building construction and other factors.

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# Outside Air Temp./Humidity Transmitter

Wireless Sensors

#### Rev. 12/20/10

## Features & Options

- 8 Year Battery Life (with two 3.6 volt lithium batteries, full AA size)
- 100 Foot In-Building Range, Extendable to 1,000 Feet with Repeater\*
- Temperature and Humidity signals can be converted to Voltage, Current or Resistive Outputs for the Controller
- Watertight BAPI-Box Enclosure
- Quick Response Sensor
- 2% RH Accuracy
- 2 Year Warranty

**BAPI Wireless Outside Air Temperature and Humidity Transmitters** are designed to be mounted outdoors. The UV-resistant plastic shield keeps the sensor out of the sunlight and allows for excellent air circulation. The Outside Air Units come with a watertight BAPI-Box enclosure which is made of UV-resistant polycarbonate and carries an IP66 rating.



Wireless Outside Air Temperature and **Humidity Transmitter** 

2.50in

[63.5mm]

0

4.1<sup>'</sup>1in

[104.4mm

2.58in [65.6mm]

1/2" NPSM Тур

Closed Cell

Foam

The Wireless Outside Air Temperature and Humidity Transmitter measures the temperature and humidity and transmits the data through 418MHz RF to a receiver. It has an in-building range of 100 feet\* and an estimated battery life of 8 years using two high-capacity 3.6V lithium batteries with a transmit rate of about once every 10 seconds. Each transmitter has a unique address with built in error detection. Each variable sent by the transmitter is picked up by the receiver and converted by a BAPI Analog Output Module to a voltage, current or resistance signal which is sent to the controller. The unit can be set up to trigger an alarm on the controller when the batteries need replacing.

PART NUMBER: BA/WTH-O-BB - Wireless Outside Air Temperature and Humidity Transmitter PART NUMBER: BA/LI3620 - Lithium Battery 3.6V

#### See end of Section H for list pricing.

# Specifications

Supply Power: Two 3.6V Lithium batteries, 8 year battery life at 10 second transmit rate Sensing Elements:

Temp. - Semiconductor Band Gap, Proportional to Absolute Temperature, ±0.54°F (±0.3°C) Humidity - Capacitive Polymer, ±1.8% RH Accuracy

Transmitted Range: -40°F to 185°F (-40°C to 85°C) 5.00in [127mm Enclosure Rating: IP66 **Enclosure Material:** UV-Resistant Polycarbonate 1/2" Drillable Port Material Rating: UL94 V-0

**Environmental Operation Range:** Temp: -22°F to 158°F (-30°C to 70°C) Humidity: 0 to 100% RH

Radio Frequency: 418 MHz

Transmitter Interval: ~10 seconds

Antenna: Built inside the enclosure

FCC Approval: FCC ID# T4F060811RH \*Actual in-building transmission distances will vary depending upon building construction and other factors.

# Thermobuffer Freezer Transmitter

Wireless Sensors

Rev. 12/20/10

# Features & Options

- Reduces Temperature "Spikes" Caused By Opening the Cooler or Freezer Door
- Wirelessly Transmits the Temperature
- 100 Foot In-Building Range, Extendable to 1,000 Feet with a Repeater\*
- Receiver & Output Modules Convert the Wireless Data to Voltage, Current or Thermistor Resistive
- Buffer Chamber is 304 Stainless or Aluminum
- 8 Year Battery Life
- 2 Year Warranty



The BAPI Wireless Thermobuffer wirelessly transmits the temperature of walk-in freezers or coolers to a receiver within 100 feet\*. The Thermobuffer **(2 inch probe shown)** slows the temperature reaction of a freezer door opening to prevent false alarms or short cycling the compressor.

The Thermobuffer features a watertight BAPI-Box enclosure and is designed to be mounted to the wall of the cooler or freezer saving valuable shelf space. It is available with a two-inch or four-inch stainless steel buffer chamber (optional aluminum) which is sealed with customer provided oil, or a 50/50 glycol solution to approximate the temperature reaction of the refrigerated contents in the freezer or cooler.

# Associated Products

#### • 418 or 900 MHz Receiver

Receives the RF signal from the transmitter or repeater and outputs the values to up to 127 different Analog Output Modules.

#### • Repeater:

Extends the range of the Transmitter up to 1,000 feet.

• Analog Output Modules: Converts the signal from the Receiver into a Resistance, Voltage or Current for the DDC controller.



418 MHz Receiver with two Analog Output Modules

# Wireless Operation

The Wireless Thermobuffer measures the temperature through the buffer chamber and transmits the temperature approximately once every 10 seconds to a receiver which in-turn sends the signal to an analog output module. These output modules come in all the standard BAS analog inputs including Voltage, Current or Thermistor Resistance.







# Ordering Information

#### **PART NUMBERS:**

#### **BA/WT-TB-M304-2-BB**

Wireless Thermobuffer, 304 Stainless Steel Chamber, 2 inch probe, BAPI-Box Enclosure

#### **BA/WT-TB-M304-4-BB**

Wireless Thermobuffer, 304 Stainless Steel Chamber, 4 inch probe, BAPI-Box Enclosure

#### **BA/WT-TB-MAL-2-BB**

Wireless Thermobuffer, Machined Aluminum Chamber, 2 inch probe, BAPI-Box Enclosure

#### **BA/WT-TB-MAL-4-BB**

Wireless Thermobuffer, Machined Aluminum Chamber, 4 inch probe, BAPI-Box Enclosure

#### **BA/LI3620**

Replacement Battery, Lithium 3.6V

#### See end of Section H for list pricing.

# Specifications

Supply Power: Two 3.6V Lithium batteries, Material Rating: UL94 V-0 Battery Life: 8 years at 10 second transmit rate Battery capacity: 2.25 AH Sensor: Built in thermistor **Accuracy:** ±0.36°F (±0.2 °C) Warranty: 2 Years Temperature Range: -40°F to 185°F (-40°C to 85°C) Radio Frequency: 418 MHz (US), 433 MHz (international) Transmit Power: 1.5mW 2.50in [63.5mm] Transmit Time: 20ms 5.00in Modulation: Amplitude Modulation (AM) 127mm 1/2" Drillable Port A/D Resolution: 12 Bit Transmitter Interval: ~10 seconds 4 1<sup>'</sup>1in 6 [104.4mm Antenna: Built inside the enclosure Error checking: CRC 16, Cyclic Redundancy Check 16 bit Agency: FCC ID#T4F060811TEMP Weight: 2 lb (0.9kg) 1/2" NPSM Typ **Environmental Operation Range:** Temp: -22°F to 158°F (-30°C to 70°C) Humidity: 0% to 100% RH, Non-condensing Enclosure Rating: NEMA 4, IP66

Note: Unit requires food grade glycol antifreeze for proper operation.

Enclosure Material: UV-Resistant Polycarbonate

Probe: 2 or 4 inch, 1/4" 304 Stainless Steel

Buffer chamber: 2 or 4" 304 Stainless Steel (Optional machined aluminum)



# Wireless Universal Input Transmitter

# Wireless Sensors

Rev. 04/07/11

# Features & Options

- Battery Powered (Eight Year Battery Life)
- Analog Input (0-5VDC, 0-10VDC & 4-20mA), Digital Input (dry contact) and Thermistor Temperature Input Models
- 100' In-Building Range, Extendable to 1,000' with a Repeater\*

The Wireless Universal Input Transmitters take a hard-wired signal and transmit that signal wirelessly to a 418 MHz receiver. The Analog Input version receives a 0-5VDC, 0-10VDC or 4-20mA signal, the Digital Input version receives any dry contact on/off status, while the Thermistor Temperature Input version takes a 10K-2 thermistor sensor input.

All models transmit their data every 10-17 seconds at 418 MHz to a BAPI 418 MHz Receiver. An Output Module connected to the Receiver converts the data back to its original form for the BAS controller. The transmitters are battery powered and only require wiring from the remote input sensor.





Wireless Universal Input Transmitter with the BAPI-Box open and closed

# Ordering Information

Wireless Universal Input Transmitter	Associated Wireless Products to Complete the System
BA/WAI-05	BA/RCV418-EZ & BA/VOM-05-AO-EZ
0-5VDC Analog Input Transmitter	418 MHz Receiver (p. H13) & 0-5V Voltage Output Module (p. H17)
<b>BA/WAI-10</b>	BA/RCV418-EZ & BA/VOM-10-AO-EZ
0-10VDC Analog Input Transmitter	418 MHz Receiver (p. H13) & 0-10V Voltage Output Module (p. H17)
<b>BA/WAI-420</b>	BA/RCV418-EZ & BA/COM-AO-EZ
4-20mA Analog Input Transmitter	418 MHz Receiver (p. H13) & 4-20 mA Current Output Module (p. H18)
<b>BA/WDI</b>	BA/RCV418-EZ & BA/RYOL-NO-EZ
Digital Input Transmitter	418 MHz Receiver (p. H13) & Latching Relay Output Module (p. H20)
BA/WTS	BA/RCV418-EZ & ROM, VOM or COM Temp. Output Module
Thermistor Sensor Transmitter	418 MHz Receiver (p. H13) & An ROM, COM or VOM Output Module

#### See end of Section H for list pricing.

# Specifications

Supply Power: ......3.6 Lithium, 2-AA Batteries (included) Analog Input: ......2-terminals BA/WAI-05.....0-5VDC, Imp. > 30KΩ BA/WAI-10.....0-10VDC, Imp. > 50KΩ BA/WAI-420......4-20mA, Imp. = 100Ω Digital Input: .....2-terminals BA/WDI.....Dry contact, >20 seconds Contact Status, <  $10\Omega$  closed, >250 $\Omega$  open Thermistor Input:...2-terminals BA/WTS......10K-2 Thermistor (sold seperately) Temp. Range, -40 to 185°F (-40 to 85°C) Mounting: .....Four corner feet Radio Frequency: ...418 MHz @ 1mW Transmitter Interval: ~10-17 sec. Transmission Range: Up to 100 feet direct\* (Up to 1,000 feet with a repeater\*)

Antenna: ......Built inside the enclosure Enclosure: ...... IP66 & NEMA-4 w/ cover screw Environmental Operating Range: Temperature .. 32°F to 140°F (0°C to 60°C)



\*Actual in-building transmission distances will vary depending upon building construction and other factors. Caution: BAPI wireless products are designed for non-critical HVAC monitoring. These products are not intended as safety devices or any heavy equipment control applications.



418 MHz Receiver



# Features & Options

- 100 Foot Range
- Extendable Antenna for Optimum Reception
- Surface, Snaptrack or Din Rail Mounting
- Can Accommodate Up To 127 Analog Output Modules

The BAPI 418 MHz unit receives the RF signal from one or more wireless temperature or humidity transmitters which have a range of 100 feet. The receiver then outputs the values to any Analog Output Module through a four-wire bus. The Analog Output Module converts the signal to an analog voltage, current or resistance for the controller. The receiver can accommodate up to 127 different Analog Output Modules. It is surface, snaptrack or din rail mountable with a 79" extendable antenna for optimum reception.

### PART NUMBERS:

BA/RCV418-EZ - 418 MHz Receiver

#### Replacement Antennas pg. H34

See end of Section H for list pricing.

# Associated Products

#### Wireless Temperature or Temp./Humidity Transmitter

Measures the room temperature and/or humidity and transmits the data through 418MHz RF to a receiver. The 1 mW transmitter is mounted in a BAPI-Stat 2 style enclosure and has an open-air range of 100 feet.

#### Analog Output Modules:

Converts the signal from the Receiver into a Resistance, Voltage or Current for sending to the controller.

#### Repeater

Extends the range of the Transmitter up to 1,000 feet.

# Specifications for the 418 MHz Receiver

Supply Power: 9 to 30 VDC or 17 to 31 VAC

Power Consumption: 20 mA max. DC, .5 VA max AC

#### Inputs: 418MHz

#### Bus Cable Distance:

4,000 ft with shielded, twisted pair cable (Belden 9841, Belden 8132 or equivalent)

#### Maximum Output Modules per Receiver: 127

### **Environmental Operation Range:**

Temp: 32°F to 140°F (0°C to 60°C) Humidity: 5% to 95% RH non-condensing

Material: ABS Plastic

Material Rating: UL94, V-0



#### 418 MHz Receiver



Wireless Sensors

H13



418 MHz Receiver with two Analog Output Modules mounted in 2.75" snaptrack

# Wireless **Transmitter**

**Wireless** Receiver

Output

Module

Rev. 01/05/11

# Features & Options

• 1,000 Foot Range with a Repeater

900 MHz Receiver

- Optional 79" Extendable Antenna for Optimum Reception
- Surface, Snaptrack or Din Rail Mounting
- Can Accommodate Up To 127 Analog Output Modules

The BAPI 900 MHz unit receives a repeated or re-transmitted RF signal from one or more wireless temperature or humidity transmitters. The transmitter signal (418 MHz) is received by a BAPI Repeater and then re-transmitted at 900 MHz up to 1,000 feet to the 900 MHz Receiver.

The 900 MHz Receiver then outputs the values to any Analog Output Module through a four-wire bus. The output module converts the signal to an analog voltage, current or resistance for the controller. The 900 MHz Receiver can accommodate up to 127 different output modules. The receiver is surface, snaptrack or din rail mountable with an attached antenna or a 79" extendable antenna.



**Fransmitter** 

Receiver

**Output Module** 

BAP

PART #s: BA/RCV900-EZ - 900 MHz Receiver with Attached Antenna BA/RCV900-EA-EZ - 900 MHz Receiver with Extendable Antenna

#### Replacement Antennas pg. H34

# Associated Products

• Wireless Temperature or Temp/Humidity Transmitter: Measures the room temperature and/or humidity and transmits the data through 418MHz RF to a receiver.

• **Analog Output Modules:** Converts the signal from the Receiver into a Resistance, Voltage or Current for the DDC controller.

• Repeater: Extends the range of the Transmitter up to 1,000 feet.

# Specifications for the 900 MHz Receiver

Supply Power: 9 to 15 VDC Power Consumption: 80 mA max. DC Bus Cable Distance:

4,000 ft with shielded, twisted pair cable (Belden 9841, Belden 8132 or equivalent) Inputs: 900MHz

> 900 MHz Receiver with Extendable Antenna



Maximum Output Modules per Receiver: 127 Environmental Operation Range:

Temp: 32°F to 140°F (0°C to 60°C) Humidity: 5% to 95% RH non-condensing Material: ABS Plastic

Material Rating: UL94, V-0

See end of Section H for list pricing.



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# 418 MHz to 900 MHz Repeater

H15 Wireless Sensors

Rev. 01/05/11

### Features & Options

#### Extends Transmitter Range to 1,000 Feet

The BAPI Repeater receives the 418 MHz RF signal from one or more wireless temperature or humidity transmitters which have a range of 100 feet. The Repeater re-transmits the signal at 900 Mhz to a distance of 1,000 feet to a BAPI 900 MHz Receiver.

The 900 MHz Receiver then outputs the values to any Analog Output Module through a four-wire bus. The Analog Output Module converts the signal to an analog voltage, current or resistance for the controller. The 900 MHz Receiver can accommodate up to 127 different Analog Output Modules. The Repeater is surface, snaptrack or din rail mountable with an attached 900 MHZ antenna and a 79" 418 MHz extendable antenna.



PART #S: BA/RPT49-EZ - 418 to 900 MHz Repeater BA/RPT49-EA-EZ - 418 to 900 MHz Repeater with Extendable Antenna Replacement

Replacement Antennas pg. H34

See end of Section H for list pricing.



Power Consumption: 150 mA max. DC Inputs: 418MHz Output: 900MHz at 100mW

Temp: 32°F to 140°F (0°C to 60°C) Humidity: 5% to 95% RH non-condensing

Material: ABS Plastic Material Rating: UL94, V-0



**Repeater with Extendable Antenna** 



**Repeater with Attached Antenna** 

# Resistance Output Module (ROM)

### Wireless Sensors

Rev 02/21/11

### Overview

The Resistance Output Module (ROM) converts the temperature data from the Wireless Receiver into a Resistance for the DDC controller. The unit is factory calibrated to output a 10K-2, 10K-3 or 10K-3(11K) thermistor curve.

The ROM receives data from a BAPI 418 or 900 MHz Receiver through a four-wire bus. Up to 127 different Output Modules can be connected to a single receiver to send multiple variables to the controller. The ROM is easily trained to a single transmitter temperature or humidity variable with a pushbutton and LED. The ROM is surface, 2.75" snaptrack or 35mm din rail mountable.

#### PART NUMBERS:

BA/ROM-102-EZ BA/ROM-103-EZ BA/ROM-20-EZ

10K-2 thermistor curve 10K-3 thermistor curve BA/ROM-10311-EZ 10K-3(11K) thermistor curve 20K thermistor curve

See end of Section H for list pricing.

# Pluggable Terminal Blocks

AOMs plug into each other and the receiver as shown above. However, the AOMs may also be mounted remotely using the optional Pluggable Terminal Block Connectors which are available as a 4-connector kit.

#### PART NUMBER:

**BA/AOM-CONN** - Pluggable Terminal Block Kit for AOMs (includes 4 terminal block connectors, see image at right)

# Specifications for Resistance Output Modules

Temperature Output Ranges at ~0.5°F Resolution:

**10K-2 Unit:** .......35°F to 120°F (1°C to 50°C) **10K-3 Unit:** .......32°F to 120°F (0°C to 50°C) 10K-3(11K) Unit: 32°F to 120°F (0°C to 50°C) 

Supply Power: 9 to 30 VDC or 17 to 31 VAC, half wave

#### **Power Consumption:**

3 mA max. DC, .1 VA max AC

#### Analog Input Bias Voltage: 5 VDC max

Lost Comm. Timeout: 15 min. (Fast Flash) Reverts to High Resistance >35K $\Omega$  (Low Temp.)

#### **Bus Cable Distance:**

4,000 ft with shielded, twisted pair cable (Belden 9841, Belden 8132 or equivalent)

#### Output Resolution: ~40Ω

# Environmental Operation Range:

Temp: 32°F to 140°F (0°C to 60°C) Humidity: 5% to 95% RH non-condensing



Material: ABS Plastic Material Rating: UL94, V-0

1.28in 1.94in [32.5mm] [49.2mm] 2.7<sup>'</sup>5in [69.9mm] 3.32in [84.3mm]

#### **Resistance Output Module**





**Optional Pluggable Terminal Block Kit for AOMs (4 Connectors)** 







# Voltage Output Module (VOM)

Wireless Sensors

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# Overview

The Voltage Output Module (VOM) converts the temperature or humidity data from the Wireless Receiver into a linear 0-5 volt or 0-10 volt signal for the DDC controller.

The VOM receives the temperature or humidity data from a BAPI 418 or 900 MHz Receiver through a four-wire bus. Up to 127 different Output Modules can be connected to a single receiver to send multiple variables to the controller.

The VOM is easily trained to a single transmitter variable with a pushbutton and LED. The VOM is surface, 2.75" snaptrack or 35mm din rail mountable.

<u>°F PART NUMBERS:</u>	
BA/VOM-05-C-EZ:	0-5V Output, 50 to 90°F Temp. Range
BA/VOM-05-D-EZ:	0-5V Output, 55 to 85°F Temp. Range
BA/VOM-05-E-EZ:	0-5V Output, 60 to 80°F Temp. Range
BA/VOM-05-F-EZ:	0-5V Output, 65 to 80°F Temp. Range
BA/VOM-05-G-EZ:	0-5V Output, 45 to 96°F Temp. Range
BA/VOM-05-H-EZ:	0-5V Output, -20 to 120°F Temp. Range
BA/VOM-05-KK-EZ:	0-5V Output, 32 to 185°F Temp. Range
BA/VOM-05-MM-EZ:	0-5V Output, -40 to 140°F Temp. Range
BA/VOM-10-C-EZ:	0-10V Output, 50-90°F Temp. Range
BA/VOM-10-D-EZ:	0-10V Output, 55-85°F Temp. Range
BA/VOM-10-E-EZ:	0-10V Output, 60-80°F Temp. Range
BA/VOM-10-F-EZ:	0-10V Output, 65-80°F Temp. Range
BA/VOM-10-G-EZ:	0-10V Output, 45-96°F Temp. Range
BA/VOM-10-H-EZ:	0-10V Output, -20 to 120°F Temp. Range
BA/VOM-10-KK-EZ:	0-10V Output, 32 to 185°F Temp. Range
BA/VOM-10-MM-EZ:	0-10V Output, -40 to 140°F Temp. Range
°C PART NUMBERS:	
BA/VOM-05-C-C-EZ:	0-5V Output, 10 to 32°C Temp. Range
BA/VOM-05-D-C-EZ:	0-5V Output, 13 to 30°C Temp. Range
BA/VOM-05-E-C-EZ:	0-5V Output, 15 to 27°C Temp. Range
BA/VOM-05-F-C-EZ:	0-5V Output, 18 to 27°C Temp. Range
BA/VOM-05-G-C-EZ:	0-5V Output, 7 to 35°C Temp. Range
BA/VOM-05-H-C-EZ:	0-5V Output, -29 to 49°C Temp. Range
BA/VOM-05-KK-C-EZ:	0-5V Output, 0 to 85°C Temp. Range
BA/VOM-05-MM-C-EZ:	0-5V Output, -40 to 60°C Temp. Range
BA/VOM-10-C-C-EZ:	0-10V Output, 10 to 32°C Temp. Range
BA/VOM-10-D-C-EZ:	0-10V Output, 13 to 30°C Temp. Range
BA/VOM-10-E-C-EZ:	0-10V Output, 15 to 27°C Temp. Range
BA/VOM-10-F-C-EZ:	0-10V Output, 18 to 27°C Temp. Range
BA/VOM-10-G-C-EZ:	0-10V Output, 7 to 35°C Temp. Range
BA/VOM-10-H-C-EZ:	0-10V Output, -29 to 49°C Temp. Range
BA/VOM-10-KK-C-EZ:	0-10V Output, 0 to 85°C Temp. Range
BA/VOM-10-MM-C-EZ:	0-10V Output, -40 to 60°C Temp. Range
<u>%RH PART NUMBERS</u>	<u>.</u>
BA/VOM-05-M-EZ:	0-5V Output, 0-100% RH
BA/VOM-05-N-EZ:	0-5V Output, 35-70% RH
BA/VOM-10-M-EZ:	0-10V Output, 0-100% RH
BA/VOM-10-N-EZ:	0-10V Output, 35-70% RH
FULL SCALE PART NU	JMBERS:

BA/VOM-05-AO-EZ: 0-5V Output Full Scale BA/VOM-10-AO-EZ: 0-10V Output Full Scale

See end of Section H for list pricing.

Note: Custom Ranges are available. Call BAPI for details.



418 MHz Receiver with two Analog Output Modules

# Specifications

Supply Power: (half wave) 0-5Vdc models: 9-30 VDC or 17-31 VAC 0-10Vdc models: 15-30 VDC, 17-35 VAC

**Output Voltage Range:** 0-5 Volts or 0-10 Volts (factory calibrated)

Output Current: 1 mA max

**Power Consumption:** 3 mA max. DC, .1 VA max. AC,

Lost Comm. Timeout: 15 min. (Fast Flash)

Temp. & Full Scale revert to 0 volts %RH reverts to high scale (5V or 10V)

#### **Bus Cable Distance:**

4,000 ft with shielded, twisted pair cable (Belden 9841, Belden 8132 or equivalent)

Output Resolution: 10 bit, 1024 counts

**Environmental Operation Range:** Temp: 32°F to 140°F (0°C to 60°C) Humidity: 5% to 95% RH non-condensing

Material: ABS Plastic

Material Rating: UL94, V-0

Accessory Terminals: BA/AOM-CONN (See page 18)





Voltage Output Module - VOM (includes the Voltage Output terminal block connector only)

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Rev. 02/21/11

## Features & Options

The Current Output Module (COM) converts the temperature or humidity data from the Wireless Receiver into a linear 4-20 mA signal for the DDC controller.

The COM is loop powered and receives data from a BAPI 418 or 900 MHz Receiver through a four-wire bus. Up to 127 different Output Modules can be connected to a single receiver to send multiple network variables to the controller. The COM is easily trained to a single transmitter variable with a pushbutton and LED. The COM is surface, 2.75" snaptrack or 35mm din rail mountable.

#### °F PART NUMBERS:

BA/COM-C-EZ:	4-20 mA Output, 50-90°F Temp. Range 🔎
BA/COM-D-EZ:	4-20 mA Output, 55-85°F Temp. Range
BA/COM-E-EZ:	4-20 mA Output, 60-80°F Temp. Range
BA/COM-F-EZ:	4-20 mA Output, 65-80°F Temp. Range
BA/COM-G-EZ:	4-20 mA Output, 45-96°F Temp. Range
BA/COM-H-EZ:	4-20 mA Output, -20 to 120°F Temp. Range
BA/COM-KK-EZ:	4-20 mA Output, 32 to 185°F Temp. Range
BA/COM-MM-EZ:	4-20 mA Output, -40 to 140°F Temp. Range

#### °C PART NUMBERS:

4-20 mA Output, 10 to 32°C Temp. Range BA/COM-C-C-EZ: BA/COM-D-C-EZ: 4-20 mA Output, 13 to 30°C Temp. Range 4-20 mA Output, 15 to 27°C Temp. Range BA/COM-E-C-EZ: BA/COM-F-C-EZ: 4-20 mA Output, 18 to 27°C Temp. Range 4-20 mA Output, 7 to 35°C Temp. Range BA/COM-G-C-EZ: 4-20 mA Output, -29 to 49°C Temp. Range BA/COM-H-C-EZ: BA/COM-KK-C-EZ: 4-20 mA Output, 0 to 85°C Temp. Range BA/COM-MM-C-EZ: 4-20 mA Output, -40 to 60°C Temp. Range

#### %RH PART NUMBERS:

BA/COM-M-EZ:	4-20 mA Output, 0-100% RH	
BA/COM-N-EZ:	4-20 mA Output, 35-70% RH	

#### FULL SCALE PART NUMBERS:

4-20 mA Output Full Scale BA/COM-AO-EZ:

#### **ACCESSORY TERMINALS:**

**BA/AOM-CONN:** Pluggable Terminal Block Kit for AOMs

See end of Section H for list pricing.

# Specifications for Current Output Modules

#### Output Current Range: 4-20 mA (factory calibrated)

Power Consumption: (half wave) Loop Powered, 20 mA max Loop Voltage Range 9-36 VDC,

Lost Comm. Timeout: 15 min. (Fast Flash) Temp. & Full Scale revert to 4 mA, %RH reverts to 20 mA

#### **Bus Cable Distance:**

4,000 ft with shielded, twisted pair cable (Belden 9841, Belden 8132 or equivalent)

Output Resolution: 12 bit, 4096 counts

#### **Environmental Operation Range:**

Temp: 32°F to 140°F (0°C to 60°C) Humidity: 5% to 95% RH non-condensing





418 MHz Receiver with two Analog Output Modules

#### Associated Products

AOMs plug into each other and the receiver as shown above. However, the AOMs may also be mounted remotely using the optional Pluggable Terminal Block Connectors which are available as a 4-connector kit.



### Material: ABS Plastic Material Rating: UL94, V-0



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Current Output Module



# Overview

The Setpoint Output Module (SOM) converts the Setpoint data from the Wireless Receiver into a Resistance or Voltage for the DDC controller.

The SOM receives the setpoint data from a BAPI 418 or 900 MHz Receiver through a four-wire bus. Up to 127 different Setpoint Output Modules or Analog Output Modules can be connected to a single receiver to send multiple variables to the controller.

The Setpoint Output Module is easily trained to a single transmitter setpoint with a pushbutton and LED. The SOM is surface, 2.75" snaptrack or 35mm din rail mountable.

### VOLTAGE OUTPUT PART #S:

BA/SOM-00-EZ:	0 to 5 Volts Output
BA/SOM-01-EZ:	1 to 5 Volts Output
BA/SOM-02-EZ:	3.7 to .85 Volts Output
BA/SOM-03-EZ:	5 to 0 Volts Output
BA/SOM-04-EZ:	4.2 to 1.2 Volts Output
BA/SOM-05-EZ:	2.75 to 3.34 Volts Output
BA/SOM-06-EZ:	2.88 to 3.17 Volts Output
BA/SOM-10-EZ:	0 to 10 Volts Output
BA/SOM-11-EZ:	2 to 10 Volts Output

### **RESISTANCE OUTPUT PART #S:**

BA/SOM-50-EZ: 0 to 5k Ohms Output
BA/SOM-51-EZ: 7.87k to 2.87k Ohms Output
BA/SOM-60-EZ: 0 to 10k Ohms Output
BA/SOM-61-EZ: 15k to 5k Ohms Output
BA/SOM-62-EZ: 9,577 to 1,422 Ohms
BA/SOM-63-EZ: 1k to 11k Ohms Output
BA/SOM-80-EZ: 0 to 20k Ohms Output
BA/SOM-81-EZ: 4.75k to 24.75k Ohms Output
BA/SOM-83-EZ: 6.19k to 26.19k Ohms Output
BA/SOM-83-EZ: 10k to 30k Ohms Output
BA/SOM-85-EZ: 24.75k to 4.75k Ohms Output
BA/SOM-91-EZ: 25k to 75k Ohms Output
BA/SOM-102-C-EZ: 10K-2 Thermistor, 50 to 90°F

### ACCESSORY TERMINALS:

BA/AOM-CONN: Pluggable Terminal Block Kit (See page H20)

See end of Section H for list pricing.





### Specifications

Supply Power: (half wave) Resistance models: 9-30 VDC or 17-31 VAC 0-5VDC models: 9-30 VDC or 17-31 VAC 0-10VDC models: 15-30 VDC, 17-35 VAC

Output Current: 1 mA

Analog Input Bias Voltage: 5 VDC max (Resistance Output Models only)

Power Consumption: 3 mA max. DC, .1 VA max AC

**Lost Comm. Timeout:** 15 min. (Fast Flash) Reverts to its last command

**Bus Cable Distance:** 4,000 ft with shielded, twisted pair cable (Belden 9841, Belden 8132 or equivalent)

**Output Resolution:** Resistance Output: ~40 ohms Voltage Output: 10 bit

Environmental Operation Range: Temp: 32°F to 140°F (0°C to 60°C) Humidity: 5% to 95% RH non-condensing

Material & Rating: ABS Plastic, UL94, V-0



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Rev. 02/21/11

# Features & Options

The Relay Output Modules convert the data from the Wireless Receiver into a floating solid state switch closure for the DDC controller. The RYOM is a momentary Relay and is trained to the occupant override button on the side of the BAPI Wireless Room Transmitter. The RYOL is a latching relay and is trained to the BAPI Wireless Digital Input Transmitter.

Both Relay Modules receive data from a BAPI 418 or 900 MHz Receiver through a four-wire bus. Up to 127 different Modules can be connected to a single receiver to send multiple variables to the controller. The Relay Modules are easily trained to a single transmitter variable with a pushbutton and LED. The RYOM is surface, 2.75" snaptrack or 35mm din rail mountable.



**Receiver with two Output Modules** 

#### PART NUMBERS:

BA/RYOM-NO-EZ	Relay Output Momentary, Normally Open Output
BA/RYOM-NC-EZ	Relay Output Momentary, Normally Closed Output
BA/RYOL-NO-EZ	Relay Output Latching, Normally Open Default
BA/RYOL-NC-EZ	Relay Output Latching, Normally Closed Default

#### See end of Section H for list pricing.

# Pluggable Terminal Blocks

AOMs plug into each other and the receiver as shown above. However, the AOMs may also be mounted remotely using the optional Pluggable Terminal Block Connectors which are available as a 4-connector kit.

#### PART NUMBER:

**BA/AOM-CONN** - Pluggable Terminal Block Kit for AOMs (includes 4 terminal block connectors, see image at right)



Optional Pluggable Terminal Block Kit for AOMs (4 Connectors)

# Specifications for Relay Output Modules

#### **Operation:**

**BA/RYOM:** 5 second momentary actuation **BA/RYOL:** Latching actuation

Supply Power: 9 to 30 VDC or 17 to 31 VAC

Power Consumption: 15 mA max. (relay on)

Lost Comm. Timeout: 15 minutes (Fast Flash) Reverts to normal condition, N.O. or N.C.

#### Bus Cable Distance:

4,000 ft with shielded, twisted pair cable (Belden 9841, Belden 8132 or equivalent)

#### **Environmental Operation Range:**

**Temp:** 32°F to 140°F (0°C to 60°C) **Humidity:** 5% to 95% RH non-condensing Material & Material Rating: ABS Plastic, UL94, V-0



**Relay Output Module** 



# Features & Options

- Rugged Injection Molded
- Compact and Unobtrusive
- Omni-directional Pattern
- Very Low VSWR
- RP-SMA Connectors

BAPI provides a broad line of wireless antennas for use with our receivers and repeaters.

The dipole antennas have 79 inch cords for flexibility in mounting. The receiver or repeater may be mounted low for accessibility while the antenna is mounted high for better reception. The long cord length allows the receiver to be mounted in a metal panel but allows the antenna to be outside of the panel for proper reception. An adhesive pad allows the antenna to be mounted on flat nonconductive surfaces such as drywall, windows or ceiling tiles.



The 900 MHz half wave flexible whip is a compact antenna for tight areas.

#### **Ordering Information**

#### **PART NUMBERS:**

BA/ANT418	Dipole, 79 inch cord, 418 MHz
BA/ANT900	Flexible Whip, 900MHz
BA/ANT900-EA	Dipole, 79 inch cord, 900 MHz

### Specifications



#### Rev. 07/14/10

# Features & Options

• Validates RF operation with a simple site visit

Wireless Field Verifiers

- Identifies radio positions before installation
- Battery operated for easy survey mobility
- Loaner verifiers available
- Automatic battery power management
- LED and beeper indication of performance

The 418 MHz Field Verifier is designed to measure how far the BAPI Wireless Transmitter signal will go in a specific installation. The verifier is equipped with an LED bar graph indicating signal strength and sounder from a single BAPI 418MHz transmitter or from all the BAPI 418MHz transmitters on the job.

The 900 MHz Field Verifier is designed to verify how far the BAPI Repeater will go in a specific installation. Each verifier is



equipped with an LED and sounder indicating packet reception from the other verifier. Units are used in pairs with one unit set-up as the transmitter and the other unit set-up as the receiver.

# Ordering Information

BA/FV-KIT - Combined Field Verifier Kit (BA/FV418K & BA/FV900K)
BA/FV-KIT-LOAN - Loaner Combined Field Verifier Kit (BA/FV418K & BA/FV900K)\*
BA/FV418K - Field Verifier Kit, 418 MHz, (1 transmitter & 1 verifier included)
BA/FV900K - Field Verifier Kit, 900 MHz, (2 transmitter/verifiers per kit)
BA/FV418 - Field Verifier 418 MHz, (1 verifier only)
BA/FV900 - Field Verifier 900 MHz, (1 verifier only)

#### See end of Section H for list pricing.

\*Note: You will receive 100% credit less shipping and handling charges if unit is returned in working order within 30 Days from product ship date

# Specifications

Battery Power: Auto Off:	BA/FV418, (2) 3.6 volt Lithium BA/FV900, 9VDC BA/FV418, 17 minutes	Agency:	418 MHz, FCC ID #T4F060811TEMP 900 MHz, FCC ID #OUR9XSTREAM
Storage/Operati	BA/FV900, 1 hour ng: 32° to 158°F (0 to 70°C)		Indoor Range Est. "Rules of Thumb" Xmtr = Transmitter Rptr = Repeater
BA/FV418K: 4 BA/FV900K: 9	'ower/Transmission time 18MHz/ 1mW / ~every 10S 00MHz/100mW / ~ every 1S		<ul><li>A) Xmtr, 0-50ft Will work in open office instances.</li><li>B) Xmtr, 0-100ft</li></ul>
Receiver Sensit Typical open air	ivity: 418MHz - 112dBm 900MHz - 110dBm range: 418MHz - 100 feet 900MHz - 1,000 feet		May work but verify. C) Xmtr, >100 ft Needs a repeater. D) Rptr, 0-300ft
Sound Indicatio BA/FV418 Indica BA/FV900 Indica Antenna: Detach	<b>n:</b> 50db@5ft beeper (Off sele <b>ation:</b> 10 element LED, ~6db per <b>ation:</b> 2 LED's, 1-transmit and 1-r nable whip (must be installed to op	ctable) element ecieve perate)	<ul> <li>Will work in most instances.</li> <li>E) Rptr, 0-800ft May work but verify.</li> <li>F) Rptr, &gt;1,000ft Needs another repeater.</li> </ul>
Weight: 0.5 lb	(.23kg) per unit		