



29449_ins_RCV-418-WAM

Wireless Asset Monitor (WAM) 418MHz Receiver

Installation & Operating Instructions

rev. 08/10/12

Overview

The Wireless Asset Monitor (WAM) unit receives data from all BAPI wireless 418 MHz sensor/transmitters. The receiver delivers the data simultaneously to the serial Universal Serial Bus (USB) output for local use and to the RJ45 Ethernet port for communication with the BAPI WAM Website (see "Associated Products" below) or to a web address of your choice.

Antennas of various lengths are available for ease of installation and optimal reception. The EZ mount system allows for DIN rail, snaptrack or surface mounting.

Two software programs and USB drivers are included on a CD. The first program identifies the IP address assigned to the WAM Receiver by the Dynamic Host Configuration Protocol (DHCP) network. The other program runs on the user's computer to locally monitor the wireless sensor/transmitters or to interface with the user's Building Automation System (BAS) equipment using the serial data output as each data packet is received.

The parts included with this device are:

BA/RCV418-WAM ... Receiver
 BA/PPS-5DC-25 Plug-in Power Supply
 BA/ANTxxx Antenna
 BA/CBL-USB-AB-3.. USB/A to USB/B, 3' cable
 BA/CBL-CAT5E-5.... Ethernet straight CAT5E, 5' cable
 BA/CD-WAM..... WAM software and read-me files

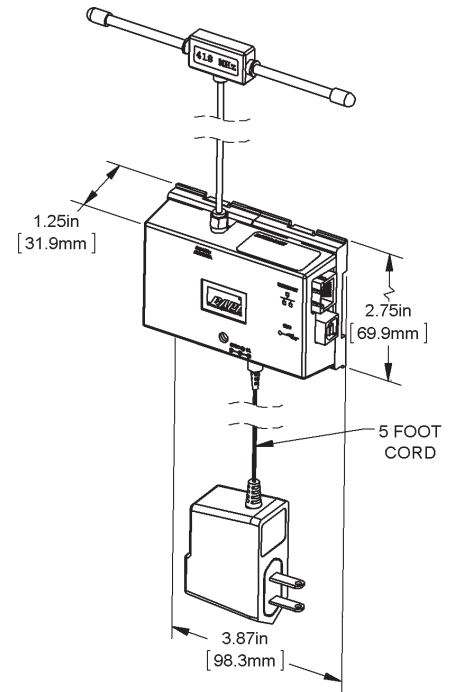


Fig. 1: Wireless Asset Monitor (WAM) Receiver

Associated Products - WAM Website

The WAM Receiver is specifically set up to communicate to the BAPI WAM Website at wam.bapisensors.com. The WAM Website lets the user monitor their specific sensor/transmitters from anywhere in the world with a web browser. The website is password protected and the customer has full administrative control over their locations, users, devices and alerts through their login.

The WAM Receiver also has a USB output that simultaneously streams a serial ASCII signal of the received transmitter data for use in a local computer or BAS system. The Ethernet port can be changed to a local IP address for use with the serial ASCII data, and connection to a local computer or BAS system. Note: If the IP address is changed to a local IP address, then the BAPI WAM website cannot be used.



Fig. 2: WAM Website

Customer Provided Equipment and Materials

The user must provide an active local internet-accessible port for this receiver if the Website or smart phone access is going to be used. The user's computer must have the following software and one of the following browsers to access the BAPI WAM website.

Required Supporting Software: Oracle JAVA or Adobe Flash Player

Web Browsers Supported: Microsoft Internet Explorer 7, Mozilla Firefox 11, Apple Safari 5.1, Google Chrome v18 (or newer versions of any of these)

If a local ethernet IP or serial connection is used, then custom interface software will be required to integrate to the BAS equipment.

Specifications subject to change without notice.

Mounting

1. Mount the WAM Receiver within range of the 418MHz sensor/transmitters (100 feet open field range).
2. Mount the 418 MHz antenna to a nonconductive surface so that the antenna is in a vertical orientation
3. Secure the antenna cable without kinking the cable or placing any mechanical stress on the antenna or cable. (Do not wrap the cable around the antenna.)
4. The 418 MHz antenna is shipped loose. Connect the antenna by turning the antenna nut onto the receiver's antenna fitting. The receiver antenna should be within range of the 418MHz transmitters (100 feet open field range).
5. Mount the Receiver using snaptrack or din rail or onto a flat surface with #4 screws (see diagrams below).
6. If the receiver is mounted inside a metal enclosure, mount the antenna outside of the enclosure.

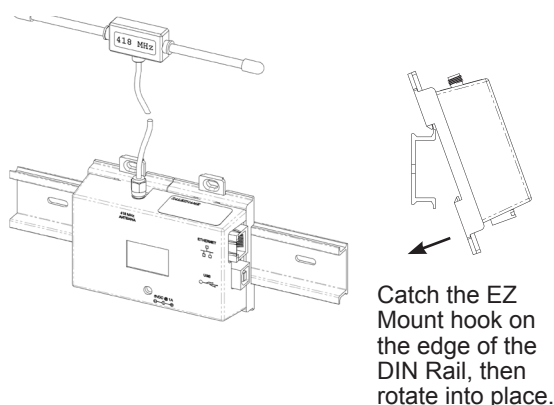


Fig. 3: Din Rail Mounting

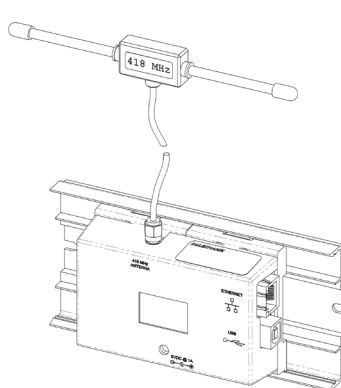


Fig. 4: Snaptrack Mounting

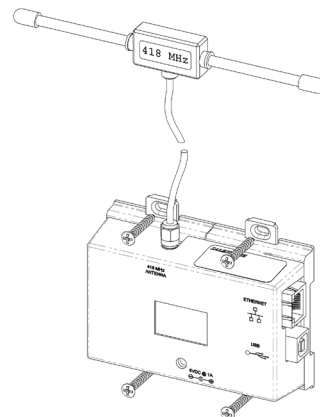


Fig. 5: Surface Mounting

Termination

Figure 6 shows all the possible receiver connections. There are two possible uses for the WAM receiver.

1. For WAM Website applications, the power plug, antenna and CAT5 Ethernet cable are all that needs to be connected for operation.
2. For local computer interface application, the power plug, antenna and either one or both of the communication cables may be used for interface with the local computer.

The receiver is powered by a plug-in 5VDC power supply which is provided with the unit. The 5 volt plug is inserted into the "power in" jack on the side of the receiver.

The provided antenna is screwed into the antenna jack. The RJ45 jack is connected to the local Ethernet jack via the provided straight-through CAT5 cable.

Note: If connecting directly to a computer, the receiver IP address must be changed to achieve the communication.

Termination

Description

Power Jack	Plug-in from Power Supply
RP-SMA	Antenna Screw-In Jack
RJ45 Jack	Ethernet Output to BAPI Website or Direct to Computer
USB-B	ASCII Serial Output Direct to a Computer

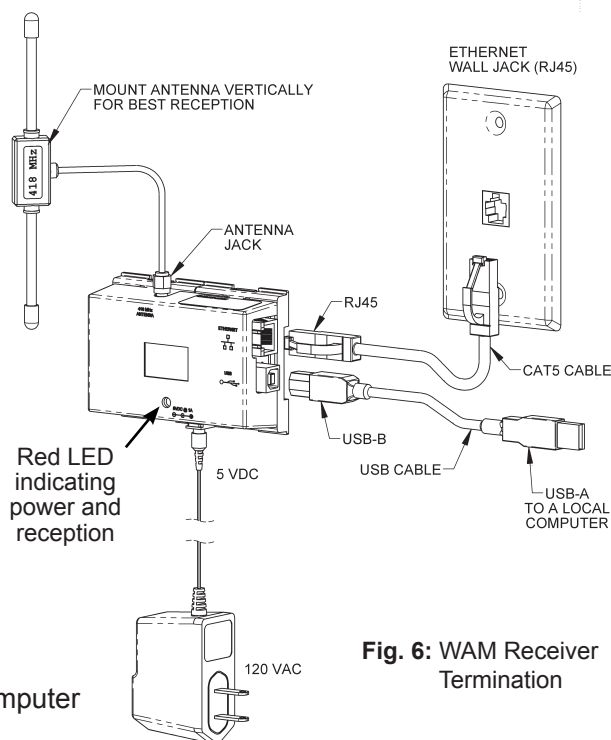


Fig. 6: WAM Receiver Termination

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Commissioning and Setup

Commissioning: (Hardware Checkout)

1. The red LED on the receiver illuminates when power is present.
2. If 418MHz transmitters are transmitting within range, the red LED will blink each time a reception is received.
3. If the Ethernet jack is connected, the left side green LED on the jack indicates the network is linked.
4. If the Ethernet jack is connected, the right side green LED on the jack indicates the network activity. It normally is blinking showing the network activity. If this LED stays dark, then there may be a network problem with a connection or the router. An active blinking of this LED indicates data is being transferred.
5. Proceed with energizing at least one wireless transmitter to check if the receiver is working. The red LED on the WAM receiver will blink with each wireless transmission/reception.
6. If any of the LEDs mentioned above are not visible, then there could be a problem with the Power or Ethernet connections and they should be checked out.

Auto Load WAM Website Setup: (Software/Firmware)

1. Be sure the power supply is connected as shown in the "Termination Section". The Red LED should be "On".
2. Be sure the network is connected using the provided Ethernet cable as shown in the "Termination Section" and the Ethernet jack LEDs are operating as described in Steps 3 and 4 above.
3. The unit will now begin sending data to the BAPI website automatically.
4. You may now open your browser and go to the WAM web site (wam.bapisensors.com). You then enter your password to enter your personal system web site. If you do have your password then contact the BAPI WAM support team. 1-608-735-4800 or wam@bapisensor.com
5. A wireless transmitter must be entered into the WAM website in order to check the complete communication connection. The following is the quick registration process.

- a. Energize one of your wireless transmitters. (This may have been done in the hardware checkout #5 above)
- b. Then go to the Register Device Page on the WAM website and enter the data below.

Name: Any name of your choosing.

Description: Any description of your choosing.

Location: A drop-down list of all the locations available to the user. Select the location from the list.

Sensor Model: A drop-down list of common sensor models. Choose the model from the list.

Serial Number: Enter the unique serial number.

Device Status: Click "Enabled" to monitor the data from this sensor or "Disabled" to disregard.

Default Alerts: Adds a "No Data for 10 Minutes" alert for the device. If no data is received from this device for 10 minutes, then an alert is generated.

Save: Clicking the "Save" button will save the data.

6. Full WAM Website instructions can be found on the enclosed CD or at the BAPI website: bapihvac.com.
7. New points take up to 5 minutes to negotiate the startup process. Existing points normally update within 1 minute from the transmission reception. If you have any problems contact the BAPI WAM support team. 1-608-735-4800 or wam@bapisensor.com

Note: If you intend to use the BAPI website for data collection, you can stop here. If you are connecting to a local computer, then continue to "Local Computer Setup" below.

Local Computer Setup: (Load Software for local computer connection)

There are three folders provided on the software CD. The first folder contains the document file and should be read thoroughly before proceeding. The second folder contains the USB drivers needed to connect to the USB port on the WAM receiver. The third folder contains the utility files. This third folder has two main programs as shown below.

- A. The "Wireless Receiver Test Program" is used to test if the receiver is receiving data and delivering data to the USB and RJ45 Ethernet port.
- B. The "TCP IP Discover Tool" identifies the IP address assigned to the WAM Receiver by the local Dynamic Host Configuration Protocol (DHCP) network.

Note: The "WAM Receiver URL Address Setup" is used to define the website URL that the receiver will send the data to. The default URL is to the WAM website "wam.bapisensors.com" and this can be changed to a different URL for Ethernet operation. See the document file for the exact procedure.

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Commissioning and Setup continued....

Software Loading Procedure

1. Insert the provided CD and read the DOC file.
2. If you intend to use the USB interface, you must install the drivers. Insert the provided CD and install the USB drivers per the instructions on the screen.
3. Install and run the utilities file programs as needed.

Operating Notes

Most installers like to see that the WAM Receiver is receiving and sending wireless transmission information to the RJ45 or USB ports. To check this, the installer will have to run the "Wireless Receiver Test Program" from the provided CD on their computer. Install the disk and follow the instructions on the disk.

Diagnostics

Possible Problems:

The receiver is not sending data

Possible Solutions:

Check for power and proper connections as shown in the "Termination" section.
Check that the receiver's red LED is blinking on each reception as it should be.
Check that the RJ45 jack's left LED is "on" indicating a good Ethernet link.
Check that the RJ45 jack's right LED is "blinking randomly" indicating network activity.
Make sure the transmitters are operating and within range.
Run the "Wireless Receiver Test Program" from the provided disk.

Specifications

Supply Voltage:..... AC Receptacle Plug-in Power Supply (provided) with 5' cord and 2.5mm DC power jack
Volts..... 120VAC converter 5VDC@6W

Outputs:

Ethernet..... 1 RJ45 Jack (10base-T)
Serial USB-B Jack (USB-2, 19200 baud)

Serial Payload: Standard BAPI and Point Six Data Packets (Data Packet Specs Available Upon Request)

Termination:

Ethernet..... RJ45 CAT5e straight 5' cable (provided)
Serial USB-B/USB-A male, 3' cable (provided)
Antenna RP-SMA Connector

Display Indicator:

Receiver One Red LED for Power & Reception
RJ45 Jack..... Right green LED indicates network activity (Usually blinking).
Left side green LED indicates link status (On = Linked).

Antenna: Dipole or Whip, Selection Per Order

Mounting: 35mm DIN Rail, 2.75"x4" Snaptrack or Surface Mount with Tabs

Enclosure Rating: NEMA 1, (IP 20)

Enclosure Material: ABS Plastic, UL94 V-2, Warm White (WMW) Color

Ambient: 32° to 140°F (0°-60°C) • 5 to 95% RH, Non-Condensing

Agency: RoHS

Software: CD with Programs and Manuals Included

TCP IP Discover IP Search Program Identifies Assigned DHCP Network Address
URL Address Setup Change URL Addressing Setup
Receiver Test Monitor WAM Receiver Data Output
FTDI Drivers USB Communication Interface

Response Time Typical:

418 MHz Reception..... 100ms Pass Through to Output
Website Display..... Normally Within 1 Minute
New Point Registration.. Normally Within 5 Minutes

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