

Overview

The BAPI Washdown Wall Plate Unit (**BA/SPV**) measures the room temperature and humidity and transmits the data to an Analog Output Module through wired RS-485 communications. Multiple Wall Plate Units can reside on a single RS-485 communication trunk. The temperature and humidity transmitter is mounted on a single or doublegang stainless steel wall plate. A doublegang plate provides space for an optional Pushbutton Override Switch and/or Direct Temperature Sensor which are direct wired to the controller.

The data transmit rate between the Washdown Wall Plate Unit and the Analog Output Modules is approximately once every 10 seconds. Each Washdown Wall Plate Unit has a unique address with built-in error detection. The temperature and humidity information sent by the Washdown Wall Plate Unit is picked up and converted by a BAPI Analog Output Module to a voltage, current or resistance signal which is wired to the controller. Directed water at any pressure is not recommended.

Product Identification

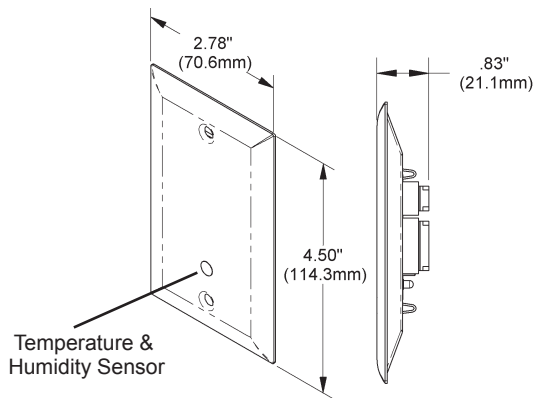


Fig 1: Single Gang Washdown Wall Plate Unit

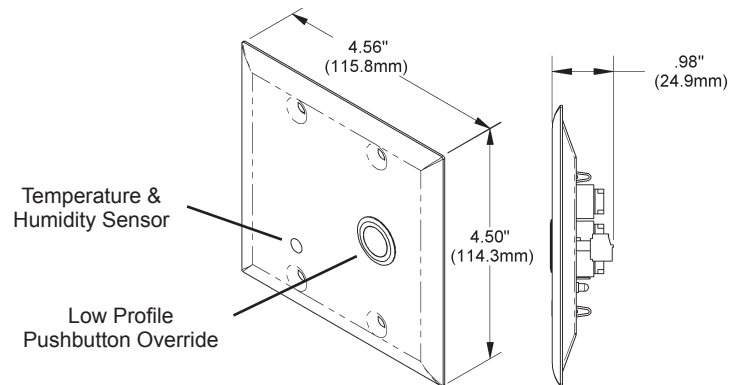


Fig 2: Doublegang Washdown Wall Plate Unit with Low Profile Pushbutton Override

Mounting

The Washdown Wall Plate Unit can be mounted over a J-Box or directly to a wall. Mounting hardware is provided for both junction box and drywall installation.

Junction Box

1. Pull the wire through the wall and out of the junction box, leaving about six inches free.
2. Terminate the unit according to the guidelines in **Termination** section.
3. Secure the plate to the box using the #6-32 x 1/2 inch mounting screws provided.
4. The unit is designed to be cleaned with a damp cloth. If it will be exposed to dripping or flowing water, then the screw heads must be caulked using a butyl rubber sealant to prevent against water infiltration. (See Cleaning below)

Drywall Mounting

1. Place the plate against the wall where you want to mount the sensor.
2. Using a pencil mark out the two mounting holes.
3. Drill a 3/16" diameter hole in the center of each marked mounting hole. Insert a drywall anchor into each hole.
4. Cut hole between the two mounting holes that clears the apparatus mounted on the plate.
5. Pull the wire through the wall hole cut in step 4, leaving about six inches free.
6. Terminate the unit according to the guidelines in **Termination** section.
7. Secure the plate to the drywall anchors using the #6 x 1 inch mounting screws provided.
8. The unit is designed to be cleaned with a damp cloth. If it will be exposed to dripping or flowing water, then the screw heads must be caulked using a butyl rubber sealant to prevent against water infiltration. (See Cleaning below)

Cleaning

1. The plate may be wiped using a clean damp cloth using clean water and hand washing soap.
2. Rinse the sensor with clean fresh water with a damp cloth and towel dry or air dry.
3. If hosing down is unavoidable, then protect the sensor from direct water spray using a BAPI-Guard thermostat protector. Do not use chemicals in the water spray.

Caution: Bleach, peroxide or ammonia will damage the temperature/humidity sensor. Also, directed water such as a hose, pressure washer or spray bottle should not be used.

Specifications subject to change without notice.

J-Loop Termination Technique

Incorporating a “J-Loop” (also known as a drip loop) into all terminations adds an additional layer of protection against moisture and oxidation by directing moisture away from the connection. The idea is to place the wire junction as high as possible and form a “J” with the lead wires. The bottom of this “J” should be below the junction point. Any moisture that collects on the lead wires is pulled downward by gravity to the bottom of this loop and away from the connection.

Termination

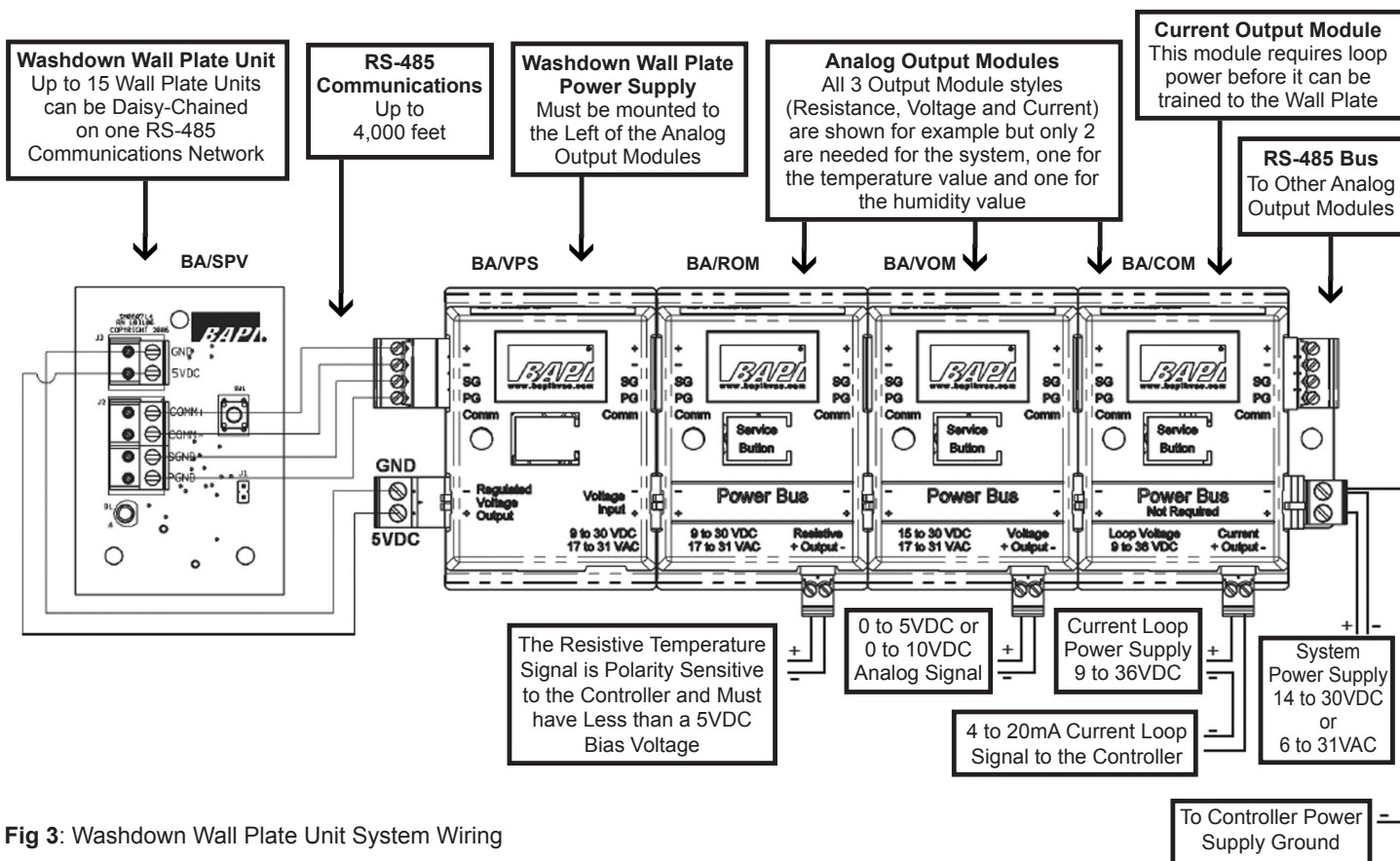


Fig 3: Washdown Wall Plate Unit System Wiring

- Note 1:** Each Washdown Wall Plate Unit requires two Analog Output Modules - One for the Temperature information and one for the Humidity information. Each Wall Plate Unit also requires one Washdown Wall Plate Power Supply.
- Note 2:** Wire the Washdown Wall Plate Unit to the Washdown Wall Plate Power Supply and Analog Output Modules as shown in Fig 3 above. All three Output Module styles (Resistance, Voltage and Current) are shown above for example but only two Output Modules are required for the system.
- Note 3:** Up to 15 Washdown Wall Plate Units can be connected to the network, all wired in parallel with the first.
- Note 4:** Up to 127 Analog Output Modules can be connected to one Washdown Wall Plate Power Supply. The modules can be plugged into one another or connected with RS-485 cable.
- Note 5:** The total aggregate length of the RS-485 cable is 4,000 feet (305 meters).
- Note 6:** If any RS-485 cable segment for the Analog Output Modules is longer than 100 feet (30.5 meters), then each group of Analog Output Modules must have its own power supply.
- Note 7:** The Current Output Module requires loop power before the module can be trained to the Washdown Wall Plate Unit.

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Override & Direct Sensor Termination

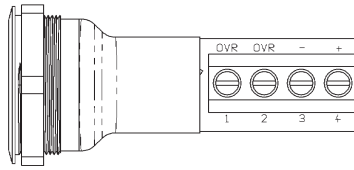


Fig 4: Low Profile Pushbutton Override with LED indicator

Note 8: The “OVR” Terminals (Numbers 1 & 2) are Normally Open (N.O.) Contacts for the Pushbutton Switch. The “+” and “-” Terminals (Numbers 3 and 4) are for 5VDC or 24VAC/VDC to power the LED in the Switch (depending upon which LED model is ordered).

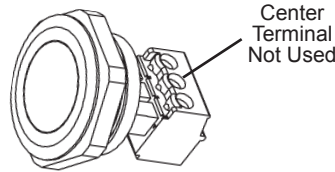


Fig 5: Low Profile Pushbutton Override without LED. The center terminal is not used.

Note 9: The Pushbutton Override without LED has N.O. contacts that handle 125mA at 4 to 48 VDC. The center terminal on the removable strip is not used.

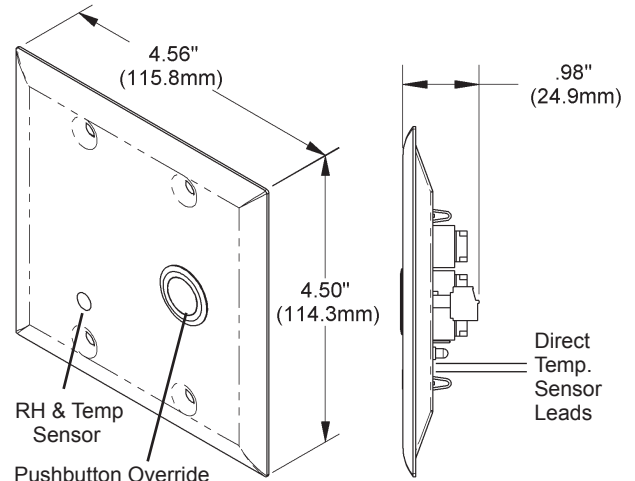


Fig 6: Doublegang Wall Plate with Pushbutton Override without LED

Note 10: The contacts for the Override Pushbutton, the power for the LED Indicator on the Pushbutton Override, and the Direct Temperature Sensor are all wired directly to the controller and Do Not communicate via the RS-485 network to the Washdown Wallplate Power Supply or the Analog Output Modules.

Analog Output Module Training

Note: It may be easier to perform this procedure in the shop before mounting the units at the job site.

1. Connect the Washdown Wall Plate Unit to the Washdown Wall Plate Power Supply and plug in the Analog Output Modules to the Washdown Wall Plate Power Supply as shown in Fig. 3 on page 2.
2. Apply power to the Analog Output Module and Washdown Wall Plate Power Supply as shown in Fig. 3 on page 2.
3. The power LED on the top of the Washdown Wall Plate Power Supply will light and remain lit. The LED on the top of each powered Analog Output Module will flash and go out. (The flash is very quick.) The LED on the back of the Washdown Wall Plate Unit will flash once approximately every 10 seconds. (The flash is very quick.)
4. Pick a Washdown Wall Plate Unit and an Analog Output Module that you want to train to recognize one another. Press and hold the plastic “Service Button” on the top of the Analog Output Module, at the same time press for one second and release the “Training Button” on the back of the Washdown Wall Plate Unit (See Fig. 7). When the LED on the top of the Analog Output Module lights, release the “Service Button” on the top of the module. (The LED will go out when you release the button). This Analog Output Module is now trained to the Washdown Wall Plate Unit and will report the Temperature or Humidity information from it. The output module’s LED will flash whenever it receives an update from the Washdown Wall Plate Unit.

Note: The Washdown Wall Plate Unit sends both the temperature and humidity information when the “Training Button” is pressed. However, each Analog Output Module is configured at the time of order as either a temperature or humidity unit and will only recognize the relevant portion of the information.

5. Repeat this procedure for each Analog Output Module.
6. Mount the Washdown Wall Plate Unit at the desired location. The units will remain trained to one another through power failures.

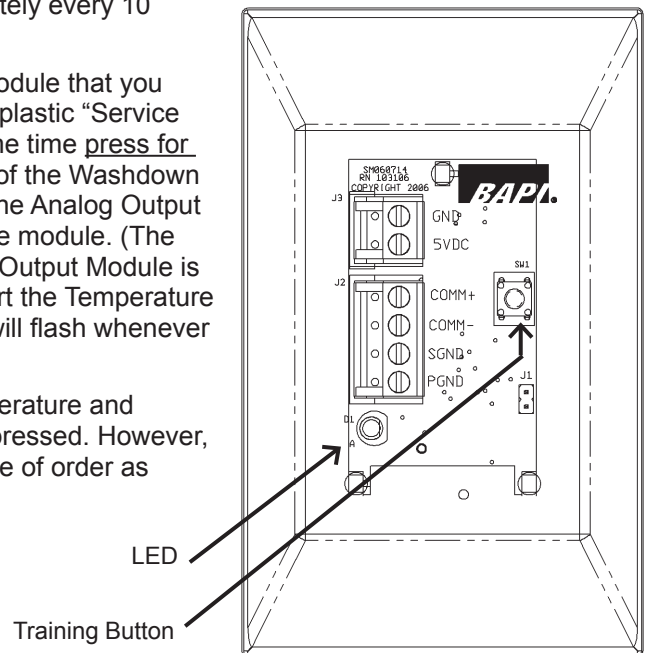


Fig 7: Back of Washdown Wall Plate Unit

Specifications subject to change without notice.



Diagnostics

Possible Problems:

Temperature or Humidity is reading its low limit

Temperature or Humidity reading is coming out of the wrong output module

Temperature or Humidity is reading incorrectly

Possible Solutions:

Check for proper power to the Analog Output Module.

Check the wiring from the Analog Output Module to the controller for proper connections and polarities.

Check to see if the controller's software is configured properly.

Check Washdown Wall Plate Unit to see if its LED flashes about every 10 seconds.

Check the Analog Output Module's LED. It will flash about once every 10 seconds if it is receiving information from the Washdown Wall Plate unit. If the module doesn't receive any information for approximately 15 minutes, the LED on the module will blink rapidly (about once every half a second). If the module's LED is blinking rapidly, check that the LED on the associated Washdown Wall Plate Unit is blinking about once every 10 seconds as described above. If the Wall Plate Unit LED is blinking properly, then retrain the Analog Output Module.

Retrain the Analog Output Modules.

Check the wiring from the Analog Output Modules to the controller for proper connections and polarities..

Check to see if the controller's software is configured properly.

Check to see if the correct Analog Output Module is connected to the right controller.

Specifications

Power:

5VDC from Washdown Wall Plate Power Supply (BA/VPS)
0.5mA max DC with 1 Washdown Wall Plate Unit attached
10mA max DC with 15 Washdown Wall Plate Units attached

Environmental:

Temperature: -30°C to 70°C (-49°F to 140°F)
Humidity: 0% to 100% RH, non-condensing

Humidity Measurement:

Sensor Type: Capacitive Polymer
Accuracy: ±2% RH

Temperature Measurement:

Sensor Type: Band Gap, Proportional to Absolute Temp.
Accuracy: 0.9°F, 23 to 120°F (0.5°C, 0 to 49°C)

RS-485 Cable Distance:

4,000 Ft (305 meters) with shielded, twisted pair cable
(Belden 9842, Belden 8132, or equivalent)
15 Wall Plate Units maximum per Power Supply Module

Rating:

NEMA3R, IP64

Required Accessories: (Power Supply & Output Modules)

BA/VPS: Washdown Wall Plate Power Supply Module
BA/VOM: Voltage Output Module
BA/COM: Current Output Module
BA/ROM: Resistance Output Module

Options:

Pushbutton Override Switch with or without LED Indicator
(LED can be green or red, 5VDC or 24VAC/VDC per order)
N.O. Switch Contacts, 4 to 48 VDC, 150mA max

Washdown Wall Plate Unit Cleaning:

Use only clean water and hand soap, no chemicals.
The unit is not intended for hose down applications.
See "Cleaning" instructions on page 1.

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