

900 MHz

Wireless Switch Follower/Digital/Analog Sensor Receiver

The SF900C Analog Sensor, Remote Control/Switch Followers are a system designed to provide a quick and cost effective solution for a variety of wireless switching and remote sensing applications. Each transmitter has 4-Analog inputs, 4-Digital inputs and 4-Relay outputs. Each receiver has 4-Analog outputs, 4-Relay outputs and 4-Digital inputs.

The universal Analog inputs are default 0-10 VDC but can be jumper selected for for 10k thermistors or 4-20mA inputs. The analog outputs are set up for both 4-20mA and 0-10 VDC on separate terminals. Custom versions are available to accommodate other analog inputs and outputs, as well as two-way communication.

The Digital inputs are opto-isolated and may be operated by an applied voltage that can be supplied by a power source from 5 to 24 Volts AC or DC through a switch contact, relay, sensor, PLC output, etc. The digital outputs are isolated relay contacts.

The one-way digital systems (see table below) can work point-to-multipoint. The 2-way digital products work only as pairs.

These products utilize spread spectrum technology and are immune to interference and multipath fading. These systems will not interfere with wifi networks.



Features

- 8-Input Channels/8-Output Channels
- 4 Channel-Analog Inputs/Outputs
 - 10k Thermistor (input only)
 - 4-20mA
 - 0-10V
- 2-Way, 4-Channel Digital (On/Off) Inputs/Relay (10A) Outputs
- Long Range: 2-miles+
- Spread Spectrum Technology
- Isolated Inputs and Outputs
- 12-24 Volt DC Operation
- Accuracy +/-0.2% Full Scale
- Optional NEMA IP65 Enclosure
- Antenna Included
- FCC Certified
- Made in USA

Typical Applications

- Thermistor/Remote Temperature Monitoring
- Other sensor Monitoring
- Solenoid Control
- PLC Activation
- HVAC Control

Ordering Information

| <i>Model No. (sets)</i> | <i>Product Description</i> | <i>Digital ON/OFF Response Time</i> | <i>Analog Samples /Sec</i> | <i>Range (Miles)</i> | <i>2-way digital (4-ch.)</i> | <i>1-way Digital (4-ch.)</i> | <i>1-way Analog (4-ch.)</i> |
|-----------------------------|----------------------------|---|------------------------------------|--------------------------|--------------------------------------|--------------------------------------|-------------------------------------|
| SFA900C8-B-1-PR | Transmitter/Receiver Pair | 180 ms | 1.5 | 2.5 | √ | | √ |
| SFA900C8-B-S-PR | Transmitter/Receiver Pair | 180 ms | 4 | 2.5 | | √ | √ |
| SFA900C8-J-1-PR | Transmitter/Receiver Pair | 58 ms | 6 | 0.5 | √ | | √ |
| SFA900C8-J-S-PR | Transmitter/Receiver Pair | 58 ms | 22 | 0.5 | | √ | √ |
| -OPT14 | IP67 Watertight Encl. | | | | | | |

Specifications subject to change without notice or obligation.

Electrical Characteristics

| Sym | Parameter | Min | Typ | Max | Unit |
|------------------|---------------------------------------|-----|------|-----|----------------|
| | Operating Voltage Range | 10 | 12 | 36 | Volts DC |
| | Operating Current, Receive Mode | | 45 | 56 | mA |
| | Operating Current, Transmit Mode | | 212 | 225 | mA |
| | Digital Input Resistance | | 4.7K | | Ohms |
| | Digital Input Voltage | 5 | | 24 | Volts AC or DC |
| | Output Relay Contact Ratings at 28VDC | | | 10 | Amps |
| | 4-20mA Output Load (12VDC Supply) | | | 300 | Ohm |
| | 4-20mA Output Load (24VDC Supply) | | | 900 | Ohm |
| f | Frequency Range | 902 | | 928 | MHz |
| Z _{out} | Antenna Input Impedance | | 50 | | Ohms |
| T _{op} | Operating Temperature | -20 | | +60 | C |

Transmitter/Receiver Detail

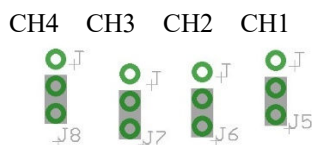
| Model | Description | Digital Response Time | Analog Samples/Sec | Frequency (MHz) | Analog Input Types | Range (Feet) | Relay Output | Digital Input Channel | Analog Input Channels | Relays Output | Analog Output Channel | Supply Voltage |
|--|-------------|-----------------------|--------------------|-----------------|-------------------------------|--------------|--------------|-----------------------|-----------------------|---------------|-----------------------|----------------|
| One Way Analog, Two Way Digital | | | | | | | | | | | | |
| SFA900C8-B-AI-1 | Transmitter | 180 | 1.5 | 902-928 | 0-10V/ 4-20mA/ 10k Thermistor | 2.5 mi+ | SPDT, 10A | 4 | 4 | 4 | 0 | 12-30V DC |
| SFA900C8-B-AO-1 | Receiver | 180 | 1.5 | 902-928 | | 2.5 mi+ | SPDT, 10A | 4 | 0 | 4 | 4 | 12-30V DC |
| One-Way Analog, One-Way Digital | | | | | | | | | | | | |
| SFA900C8-B-AI-S | Transmitter | 180 | 4 | 902-928 | 0-10V, 4-20mA, 10k Thermistor | 2.5 mi+ | none | 4 | 4 | 0 | 0 | 12-30V DC |
| SFA900C8-B-AO-S | Receiver | 180 | 4 | 902-928 | | 2.5 mi+ | SPDT, 10A | 0 | 0 | 4 | 4 | 12-30V DC |
| One Way Analog, Two Way Digital | | | | | | | | | | | | |
| SFA900C8-J-AI-1 | Transmitter | 58 | 6 | 902-928 | 0-10V, 4-20mA, 10k Thermistor | 0.5 mi+ | SPDT, 10A | 4 | 4 | 4 | 0 | 12-30V DC |
| SFA904C8-J-AO-1 | Receiver | 58 | 6 | 902-928 | | 0.5 mi+ | SPDT, 10A | 4 | 0 | 4 | 4 | 12-30V DC |
| One-Way Analog, One-Way Digital | | | | | | | | | | | | |
| SFA900C8-J-AI-S | Transmitter | 58 | 22 | 902-928 | 0-10V, 4-20mA, 10k Thermistor | 0.5 mi+ | none | 4 | 4 | 0 | 0 | 12-30V DC |
| SFA900C8-J-AO-S | Receiver | 58 | 22 | 902-928 | | 0.5 mi+ | SPDT, 10A | 0 | 0 | 4 | 4 | 12-30V DC |

Note: -14 Watertight Polycarbonate Enclosure option may be ordered separately for transmitters and receivers.

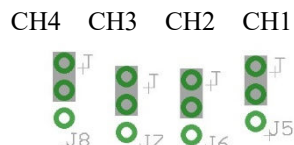
Optional Antenna Bulkhead Extension Cables

| Model | Description | Length |
|-------------------------|----------------------|-----------|
| 600279-8 | RPSMA Male to Female | 8 Inches |
| 600279-L100E-24 | LMR-100 or Equiv. | 24 Inches |
| 600279-10F-L200 | LMR-200 or Equiv. | 10-Ft |
| 600279-15F-L200 | LMR-200 or Equiv. | 15-Ft |
| 600279-20F-L200 | LMR-200 or Equiv. | 20-Ft |
| 600279-25F-L200 | LMR-200 or Equiv. | 25-Ft |
| Other lengths available | | |

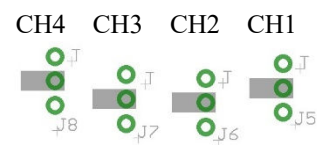
ANALOG INPUT JUMPER SELECTIONS



4 to 20mA Current Input



10K ohm Thermistor input



Zero to 10 VOLT INPUT

Specifications subject to change without notice or obligation.

SFA900 TRANSMITTER CONNECTOR PINOUT



SFA900 RECEIVER CONNECTOR PINOUT



Note: Terminal blocks are “pluggable”.

Specifications subject to change without notice or obligation.

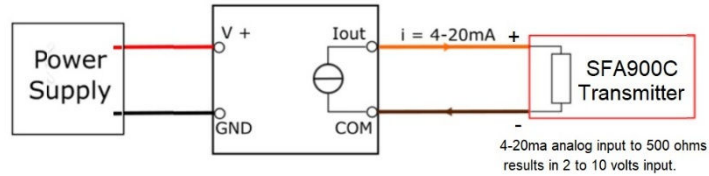
www.appliedwireless.com • Tel: (805) 383-9600 • sales@appliedwireless.com

Revised 1/07/2026

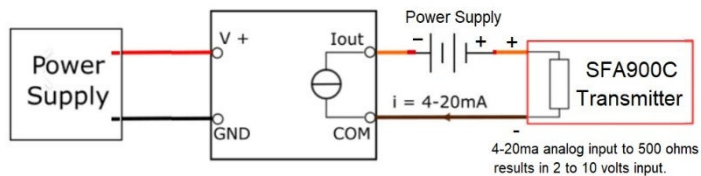
4-20 mA Connections

Three different types of sensor connections are shown here. Note that the system actually measures 0-20mA, where 0 can indicate a sensor fault.

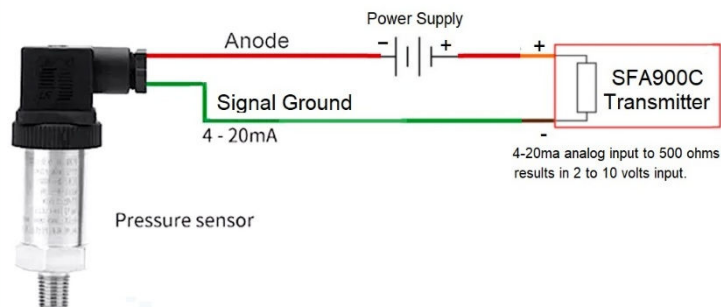
4 Wire Active 4 to 20ma Current Loop



4 Wire Passive 4 to 20ma Current Loop



2 Wire Passive 4 - 20ma current loop



How do I know if a 4 - 20mA signal is active or passive?

Disconnect the two current loop wires from the SFA900C module input terminal. Using a voltmeter, measure for DC voltage present on the wires. If no voltage is present, then your device is creating a passive current signal. This means a loop excitation source must be used to power the current loop.

If you measure voltage on the wires, (typically 12...24 VDC), then the current signal created by your device is active.

Specifications subject to change without notice or obligation.

SFA SERIES LEARN PROCEDURE

The standard configuration is one transmitter and one receiver. They are supplied already paired at the factory. The learn procedure will have to be re-done when adding units, replacing units, or changing the frequency (discussed next).

The learn process is initiated by pressing the learn button on the transmitter and on the receiver. Their respective learn lights will flash. This places both units to a particular frequency used for learning. The second push of the learn button on the receiver will trigger the learning process. Once completed the lights will turn Off. The receiver will have learned the transmitter's address code and frequency.

Additional receivers can be added one at a time using the same process. However, the covers will have to be removed from the additional receivers and the ACK jumper will have to be moved to the NO ACK position to disable acknowledgements. Only one receiver can respond to acknowledgement requests from the transmitter to avoid collisions.

MANUALLY CHANGING THE FREQUENCY

From the factory, the frequency of operation can be determined by checking the 4-digit address code on the label. The last two alphanumeric hexadecimal characters in the code indicate the frequency (see table).

It is rarely necessary to manually change the frequency, however the following outlines the procedure should it be necessary:

From the factory, the units are set to 1 of 32 frequencies. If two or more Base units are to be operating in the same area and they happen to have the same frequency, the Base units can be set to different frequencies if they aren't already. There are 16 possibilities for manually set frequencies.

Using the 4-position dip switch S1 and an enable jumper J4, 16 possible Manual Set frequencies are possible. To enable the alternate frequency selection, Jumper J4 must be moved to the two pins closest to the "EN" position and each of the S1 dip switches must be moved up or down.

To *disable* the alternate frequency selection, the enable jumper must be moved to the two pins farthest from the EN location and the dip switches must be moved to the center tri-state position. See the Frequency Select Switch Table. (1 is UP and 0 is DOWN.)

In the photo above, the frequency code is "70" (last 2 of the address code). In the frequency table, it can be seen that that corresponds to a frequency of 915.00 MHz.

NOTE: Whenever the frequency select switch, S1, is changed on the Base unit, the power has to be turned Off and back On again for the frequency change to take effect. Then, the Learn Procedure will have to be repeated for all of the Remote units associated with the Base unit that has a new frequency setting.



Specifications subject to change without notice or obligation.

www.appliedwireless.com • Tel: (805) 383-9600 • sales@appliedwireless.com

Revised 1/07/2026

SF/SFA900 FREQUENCY TABLE

(Address Code is Found on Label)

| | | | | Serial ID | Frequency | | | |
|-----------|-----------|-----------|--|-----------|--------------------|----------|-----------------------------|-----------|
| Frequency | | Frequency | Address Code Position, Left to Right | | | | MANUAL (ALTERNATE) SETTINGS | |
| CHANNEL | FREQUENCY | CHANNEL | <u>1</u> | <u>2</u> | <u>3</u> | <u>4</u> | 4-Pos Switch (S1) | J4 Jumper |
| Decimal | MHz | HEX | <<<<<< 4-Digit Hex Address Code >>>>>> | | | | BINARY, lsb first | Setting |
| 0 | 903.00 | 00 | x | x | 0,2,4,6,8,A,C or E | 0 | 0000 | EN |
| 1 | 903.75 | 01 | x | x | 0,2,4,6,8,A,C or E | 1 | | |
| 2 | 904.50 | 02 | x | x | 0,2,4,6,8,A,C or E | 2 | 1000 | EN |
| 3 | 905.25 | 03 | x | x | 0,2,4,6,8,A,C or E | 3 | | |
| 4 | 906.00 | 04 | x | x | 0,2,4,6,8,A,C or E | 4 | 0100 | EN |
| 5 | 906.75 | 05 | x | x | 0,2,4,6,8,A,C or E | 5 | | |
| 6 | 907.50 | 06 | x | x | 0,2,4,6,8,A,C or E | 6 | 1100 | EN |
| 7 | 908.25 | 07 | x | x | 0,2,4,6,8,A,C or E | 7 | | |
| 8 | 909.00 | 08 | x | x | 0,2,4,6,8,A,C or E | 8 | 0010 | EN |
| 9 | 909.75 | 09 | x | x | 0,2,4,6,8,A,C or E | 9 | | |
| 10 | 910.50 | 0A | x | x | 0,2,4,6,8,A,C or E | A | 1010 | EN |
| 11 | 911.25 | 0B | x | x | 0,2,4,6,8,A,C or E | B | | |
| 12 | 912.00 | 0C | x | x | 0,2,4,6,8,A,C or E | C | 0110 | EN |
| 13 | 912.75 | 0D | x | x | 0,2,4,6,8,A,C or E | D | | |
| 14 | 913.50 | 0E | x | x | 0,2,4,6,8,A,C or E | E | 1110 | EN |
| 15 | 914.25 | 0F | x | x | 0,2,4,6,8,A,C or E | F | | |
| 16 | 915.00 | 10 | x | x | 1,3,5,7,9,B,D or F | 0 | 0001 | EN |
| 17 | 915.75 | 11 | x | x | 1,3,5,7,9,B,D or F | 1 | | |
| 18 | 916.50 | 12 | x | x | 1,3,5,7,9,B,D or F | 2 | 1001 | EN |
| 19 | 917.25 | 13 | x | x | 1,3,5,7,9,B,D or F | 3 | | |
| 20 | 918.00 | 14 | x | x | 1,3,5,7,9,B,D or F | 4 | 0101 | EN |
| 21 | 918.75 | 15 | x | x | 1,3,5,7,9,B,D or F | 5 | | |
| 22 | 919.50 | 16 | x | x | 1,3,5,7,9,B,D or F | 6 | 1101 | EN |
| 23 | 920.25 | 17 | x | x | 1,3,5,7,9,B,D or F | 7 | | |
| 24 | 921.00 | 18 | x | x | 1,3,5,7,9,B,D or F | 8 | 0011 | EN |
| 25 | 921.75 | 19 | x | x | 1,3,5,7,9,B,D or F | 9 | | |
| 26 | 922.50 | 1A | x | x | 1,3,5,7,9,B,D or F | A | 1011 | EN |
| 27 | 923.25 | 1B | x | x | 1,3,5,7,9,B,D or F | B | | |
| 28 | 924.00 | 1C | x | x | 1,3,5,7,9,B,D or F | C | 0111 | EN |
| 29 | 924.75 | 1D | x | x | 1,3,5,7,9,B,D or F | D | | |
| 30 | 925.50 | 1E | x | x | 1,3,5,7,9,B,D or F | E | 1111 | EN |
| 31 | 926.25 | 1F | x | x | 1,3,5,7,9,B,D or F | F | | |

To revert to the default frequency, set all switches to the middle (tri-state) position and move the J4 Enable jumper to the DISABLE position if present.

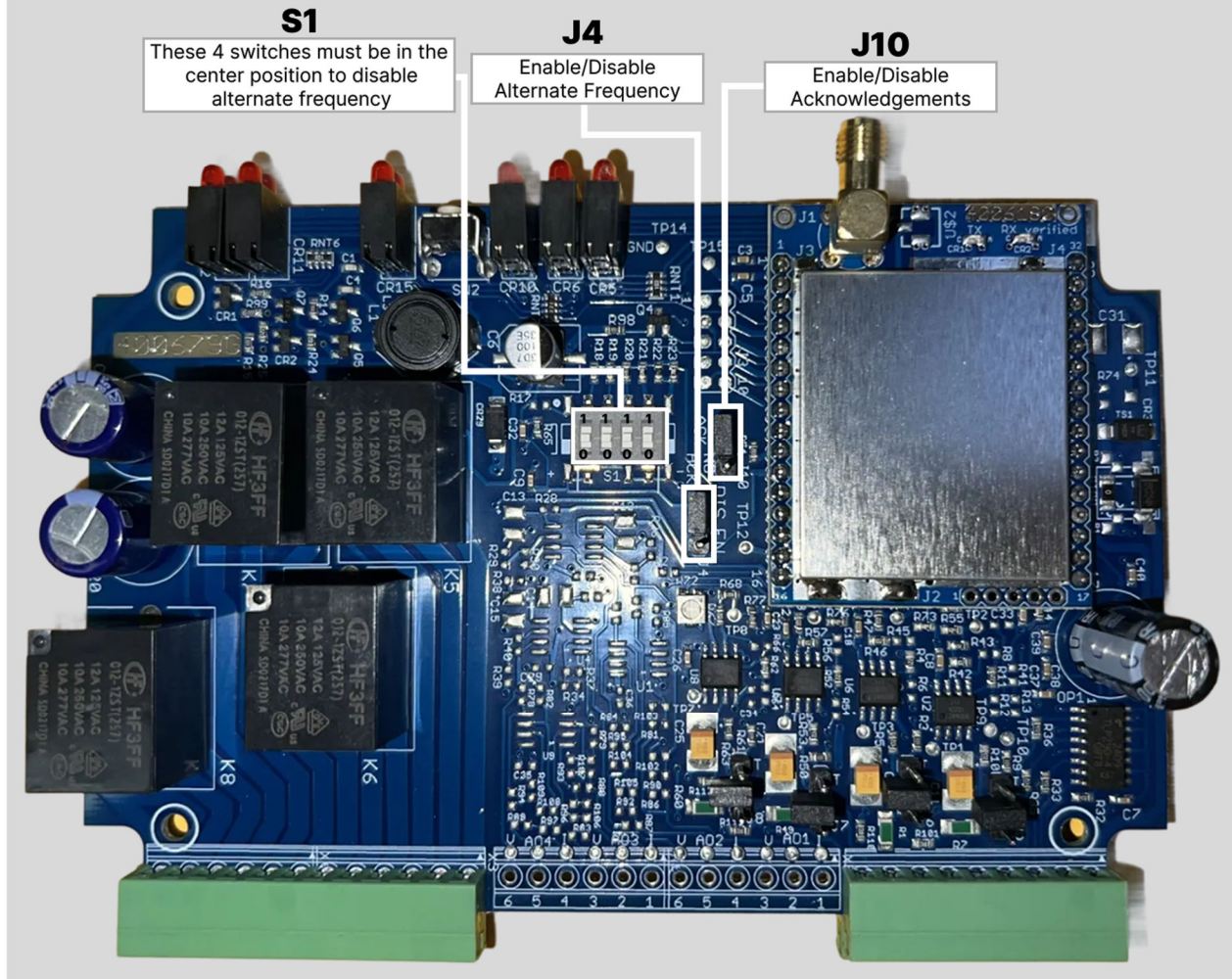
Power must be reset upon any frequency setting changes.

Specifications subject to change without notice or obligation.

www.appliedwireless.com • Tel: (805) 383-9600 • sales@appliedwireless.com

Revised 1/07/2026

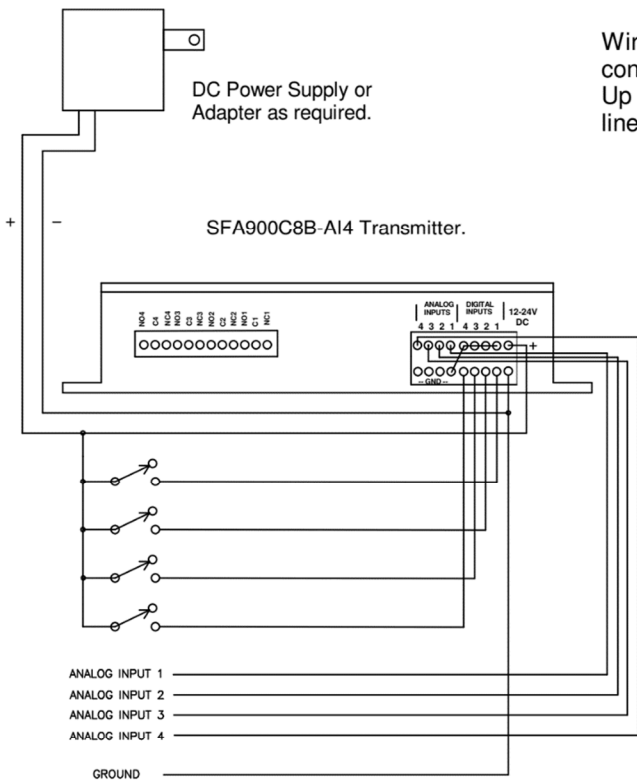
SFA900 Alternate/Default Frequency Settings



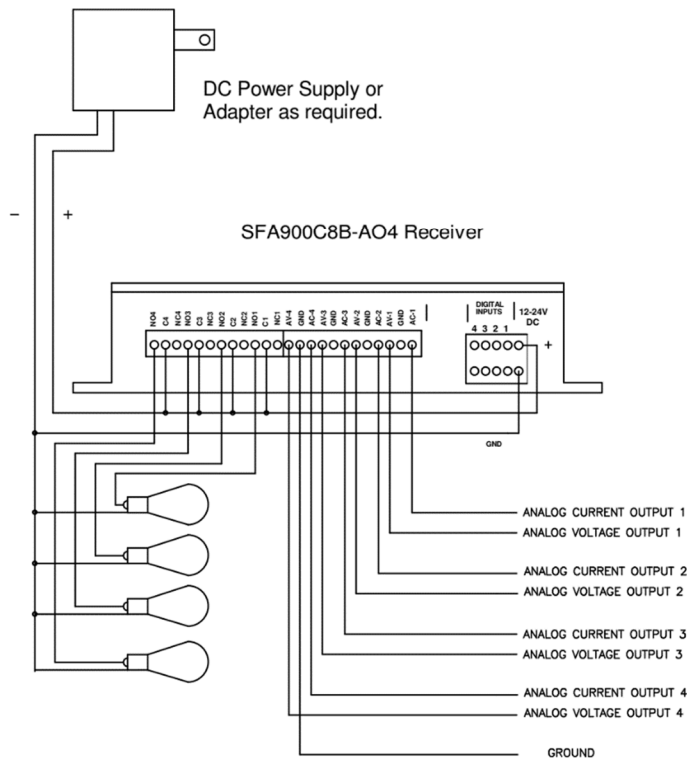
Specifications subject to change without notice or obligation.

www.appliedwireless.com • Tel: (805) 383-9600 • sales@appliedwireless.com

Revised 1/07/2026



Wireless control.
Up to 3 Miles
line of sight.



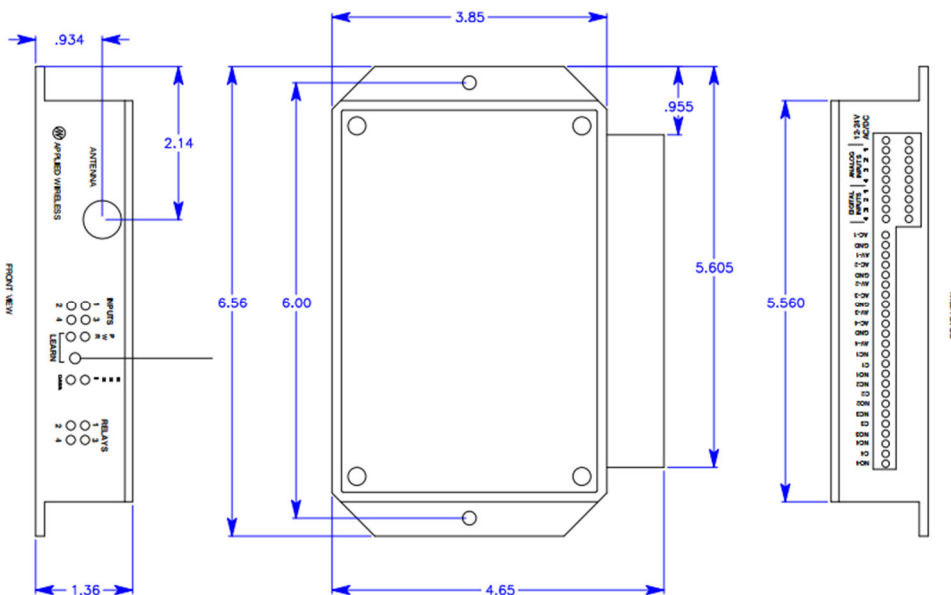
The analog inputs are jumper selectable for 10K Thermistor, 0 to 10 volts, or 0 to 20ma.

The lower four terminals of the analog inputs are all connected internally to Power Ground. The top terminals must be positive.

The digital inputs are bi-polar. Either the top or the bottom terminals can be positive.

The analog voltage outputs are 0 to +10 volts. The analog current outputs are 0 to +20ma positive current sourcing.

APPLIED WIRELESS SFA900C8 Analog Application



Specifications subject to change without notice or obligation.

www.appliedwireless.com • Tel: (805) 383-9600 • sales@appliedwireless.com

Revised 1/07/2026

INSTRUCTION TO THE USER

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult an experienced radio/TV technician for help.

Changes or modifications not expressly approved by Applied Wireless could void the user's authority to operate the equipment.

Specifications subject to change without notice or obligation.

www.appliedwireless.com • Tel: (805) 383-9600 • sales@appliedwireless.com

Revised 1/07/2026