

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.

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

Model No. (sets)	Product Description	Digital ON/OFF Response Time	Analog Samples /Sec	Range (Miles)	2-way digital (4-ch.)	1-way Digital (4-ch.)	1-way Analog (4-ch.)
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.

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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

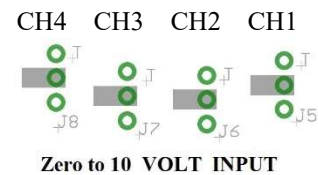
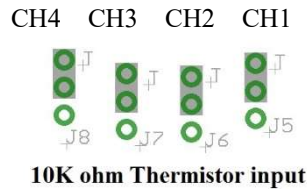
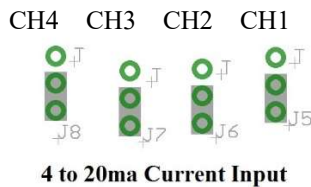
Model	Description	Length
600279-8	RPSMA Male to Female	8 Inches
600279-L100E-24	LMR-100 or Equiv.	24 Inches
600279-10F-L200	LMR-200 or Equiv.	10-Ft
600279-15F-L200	LMR-200 or Equiv.	15-Ft
600279-20F-L200	LMR-200 or Equiv.	20-Ft
600279-25F-L200	LMR-200 or Equiv.	25-Ft
Other lengths available		

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ANALOG INPUT JUMPER SELECTIONS



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..

CHANGING THE FREQUENCY:

The least significant 5 bits of the address of the transmitter unit is used to determine the frequency of operation, one of 32 possible. Therefore, there is a 1 in 32 chance that any two units will be operating on the same frequency. The label on the units will have the 4 hex digit code as well as a 2 digit hex frequency. If two or more units are to be operating in the same area and they have the frequency, the transmitter units can be set to different frequencies.

For those transmitters that have a 6 position tri-state dip switch at S1, switches 1 - 5 set the frequency by moving the switches to the up or down position and switch 6 is an enable switch for the alternate frequency selection if set to the down position. The center tri-state position for all of the switches disables the alternate frequency switch function.

An alternate is a 4 position dip switch covering switch positions 2 - 5 and an enable jumper in place of switch 6 allowing for 16 possible frequencies. To enable the alternate frequency selection, Jumper J4 must be moved to the two pins closest to the "EN" position and each of the 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 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.)

NOTE: Whenever the frequency select switch, S1, is changed on the transmitter 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 receiver units associated with the transmitter unit that has a new frequency setting.

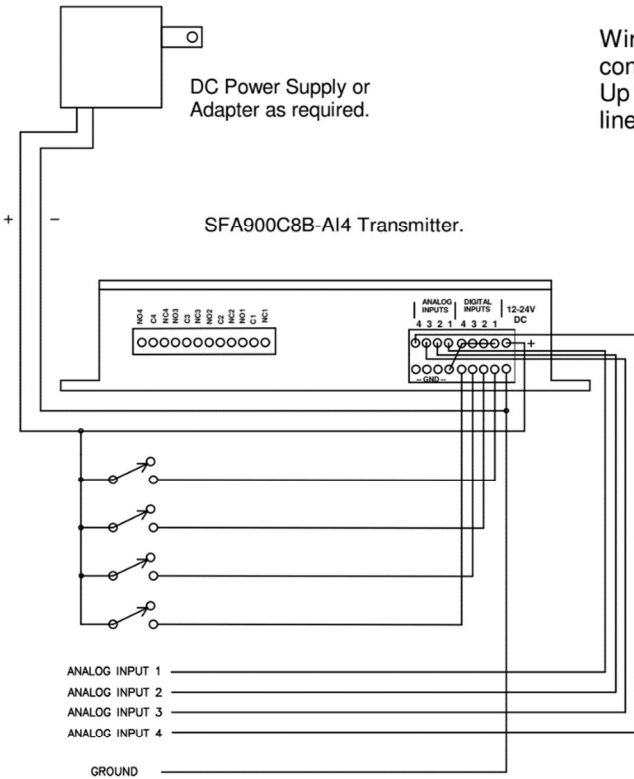
FREQUENCY SELECT SWITCH TABLE

CHANNEL <u>Decimal</u>	CHANNEL <u>HEX</u>	6 Position Switch <u>BINARY, lsb first</u>	4 Position Switch <u>BINARY, lsb first</u>
0	00	000000	0000 EN
1	01	100000	
2	02	010000	1000 EN
3	03	110000	
4	04	001000	0100 EN
5	05	101000	
6	06	011000	1100 EN
7	07	111000	
8	08	000100	0010 EN
9	09	100100	
10	0A	010100	1010 EN
11	0B	110100	
12	0C	001100	0110 EN
13	0D	101100	
14	0E	011100	1110 EN
15	0F	111100	
16	10	000010	0001 EN
17	11	100010	
18	12	010010	1001 EN
19	13	110010	
20	14	001010	0101 EN
21	15	101010	
22	16	011010	1101 EN
23	17	111010	
24	18	000110	0011 EN
25	19	100110	
26	1A	010110	1011 EN
27	1B	110110	
28	1C	001110	0111 EN
29	1D	101110	
30	1E	011110	1111 EN
31	1F	111110	

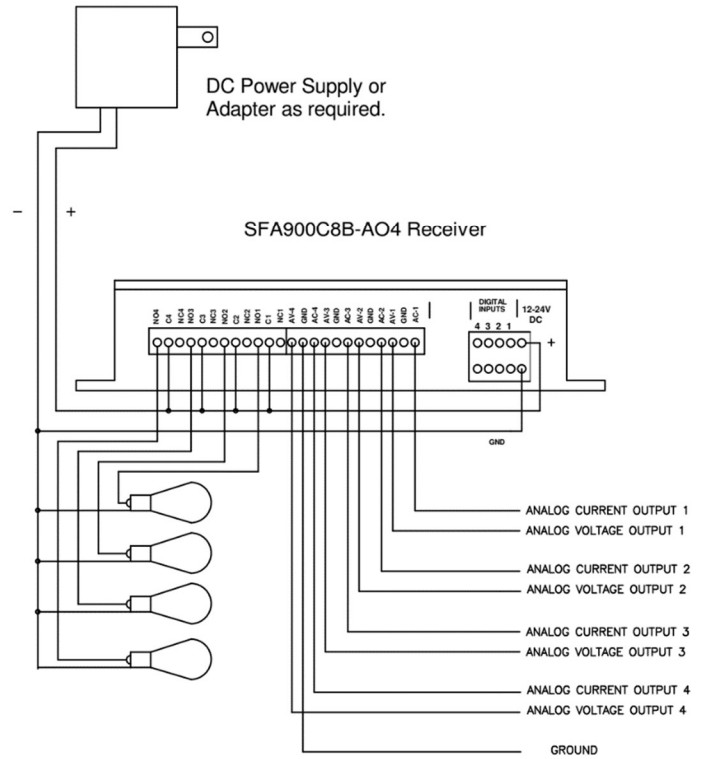
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SFA – Analog Series

APPLICATION CIRCUIT



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.

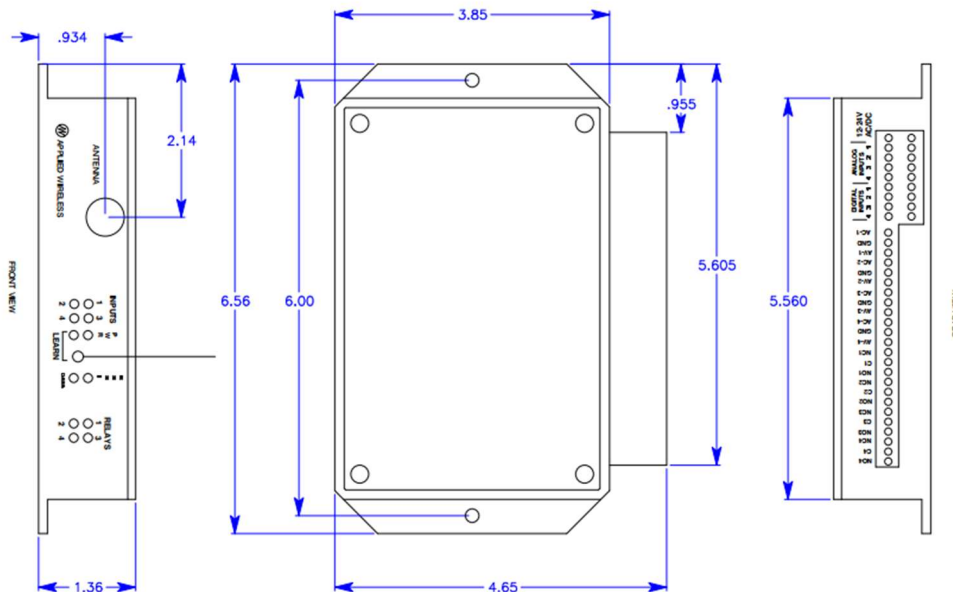
The lower four terminals of the analog inputs are all connected internally to Power Ground. The top terminals must be positive.

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

Package Dimensions



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FCC ID: QY4-618

“This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.”

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.