vizmo

FREEDOM FROM WIRES

DATASHEET

ahSP1

IEEE 820.11 ah

High-Performance, World's first WiFi-HaLow module available for SONY SPRESENCE

Sub GHz ISM Band

902 MHz to 928 MHz operating Frequency in license-free Band, 1/2/4 MHz Channel Bandwidths

Industrial grade

-40 deg C to +85 deg C operation temperature

dun & bradstreet

Business Eminence Awards 2020 Singapore

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HW REV# 03.00

TECHNICAL SPECIFICATION

RADIO MODULE – GENERAL INFO	
Chipset	NRC7292, Cortex-M0,32MHz (11aH) Cortex-M3, 48 MHz (Application), 11aH MAC/PHY
Memory	8Mb, Serial NOR Flash, 752 KB SRAM
Operating frequency	902 MHz to 928 MHz
300,600,900,1200,1800,2400,2700,300	BPSK(1/2),QPSK(1/2),QPSK(3/4),16QAM(1/2),16QAM(3/4),64QAM(2/3),64QAM(3/4),64QAM(5/6) (1MHz CH BW)
650,1300,1950,2600,3900,5200,5850,6500	BPSK(1/2),BPSK(3/4),QPSK(1/2),QPSK(3/4),16QAM(1/2),16QAM(3/4),64QAM(2/3),64QAM(3/4) (2MHz CH BW)
1350,2700,4050,5400,8100,108000,12150,13500	BPSK(1/2),QPSK(1/2),QPSK(3/4),16QAM(1/2),16QAM(3/4),64QAM(2/3),64QAM(3/4),64QAM(5/6) (4MHz CH BW)
Channel BW	1MHz/2 MHz/4 MHz
RoHS Compliance	Compliant
INTERFACE SPECIFICATIONS	
Operating Voltage	5V +/- 10% (Power feed through USB Micro B connector)
Interface	SPI (1.8V)
RF Antenna connector	x1 SMA
ENVIRONMENTAL SPECIFICATIONS	
Operating Temperature Range	-40 deg C to +85 deg C
PHYSICAL SPECIFICATIONS	
Mechanical Dimension	(L) 68.6 mm x (W) 53.3 mm
Weight	12G
REGULATORY INFORMATION	
Compliance	JAPAN, R020-230040
PACKAGING INFORMATION	
No of units	TBD

ORDERING INFORMATION	
ahSP1-JP	Extension Board for SONY SPRESENCE, JAPAN, SISO, IEEE 802.11 ah ,902 MHz, 13 dBm
ahSP1-NA	Extension Board for SONY SPRESENCE, AMERICA, SISO, IEEE 802.11 ah ,902 MHz, 27 dBm

RADIO SPECIFICATION

Frequency Channel Mapping, JAPAN (ahSP1-JP)

BW = 1 MHz

Channel number	Frequency (MHz)
40	921
42	923
43	924
44	925
45	926
46	927

BW = 2 MHz

Channel number	Frequency (MHz)
36	923.5
37	924.5
38	925.5
39	926.5

BW = 4 MHz

Channel number	Frequency (MHz)
47	924.5
48	925.5

TX Power and RX Sensitivity (ahSP1-NA)

Tolerance for TX Power and Sensitivity = +/- 1 dBm

Parameter	BW (MHz)	Spec (dBm) +/- 1 dBm
Transmit Power	1,2,4	13
RX Sens @ <10% PER, MCS10	1	-110
RX Sens @ <10% PER, MCS0	1	-106
RX Sens @ <10% PER, MCS0	2	-103
RX Sens @ <10% PER, MCS0	4	-100
RX Sens @ <10% PER, MCS0	1	-86
RX Sens @ <10% PER, MCS0	2	-83
RX Sens @ <10% PER, MCS0	4	-80

Frequency Channel Mapping, USA, CANADA (ahSP1-NA)

Country: USA, Canada
Tolerance for TX Power and Sensitivity = +/- 1 dBm

BW = 1 MHz

Channel number	Frequency (MHz)
30	902.5
31	903.5
32	904.5
33	905.5
34	906.5
35	907.5
36	908.5
37	909.5
38	910.5
39	911.5
40	912.5
41	913.5
42	914.5
43	915.5
44	916.5
45	917.5
46	918.5
47	919.5
48	920.5
49	921.5
50	922.5
51	923.5
52	924.5
53	925.5
54	926.5
55	927.5

BW = 2 MHz

Channel number	Frequency (MHz)
150	903
151	905
152	907
153(Default)	909
154	911
155	913
156	915
157	917
158	919
159	921
160	923
161	925
162	927

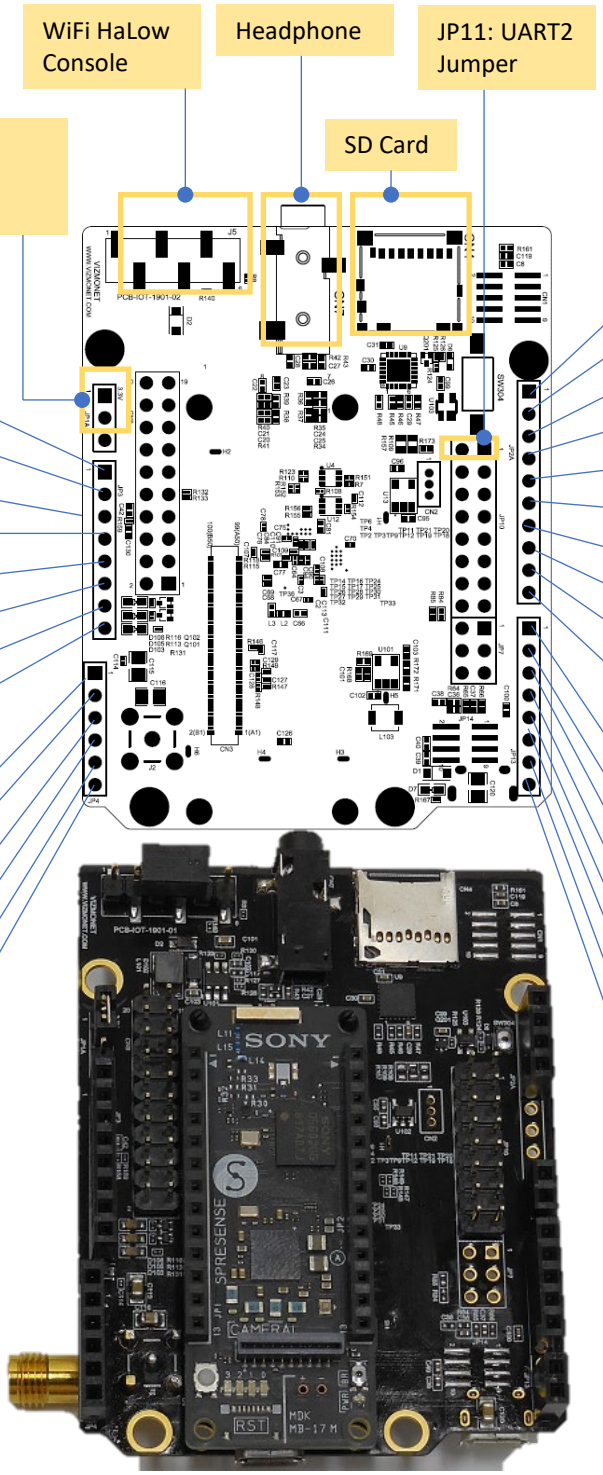
BW = 4 MHz

Channel number	Frequency (MHz)
TBD	904
TBD	908
TBD	912
TBD	916
TBD	920
TBD	924

TX Power & RX Sensitivity (ahSP1-NA)

Parameter	Data Rate	Spec (BW=1 MHz)	Spec (BW=2 MHz)	Spec (BW=4 MHz)
Tx Power (dBm)	MCS10	27	--	--
Tx Power (dBm)	MCS0	27	27	27
Tx Power (dBm)	MCS1	27	27	27
Tx Power (dBm)	MCS2	23	24	25
Tx Power (dBm)	MCS3	22	23	23
Tx Power (dBm)	MCS4	21	22	22
Tx Power (dBm)	MCS5	21	21	21
Tx Power (dBm)	MCS6	19	19	20
Tx Power (dBm)	MCS7	19	19	20
RX Sens (dBm)	MCS10	-110	---	---
RX Sens (dBm)	MCS0	-106	-103	-100
RX Sens (dBm)	MCS7	-86	-83	-80

PIN OUT



JP3

NO CONNECT
IO REF
RESET
3.3V
MAIN PWR IN
GND
GND
5V IN PWR IN

JP4

AIN2
AIN3
AIN4
AIN5
AIN0
AIN1

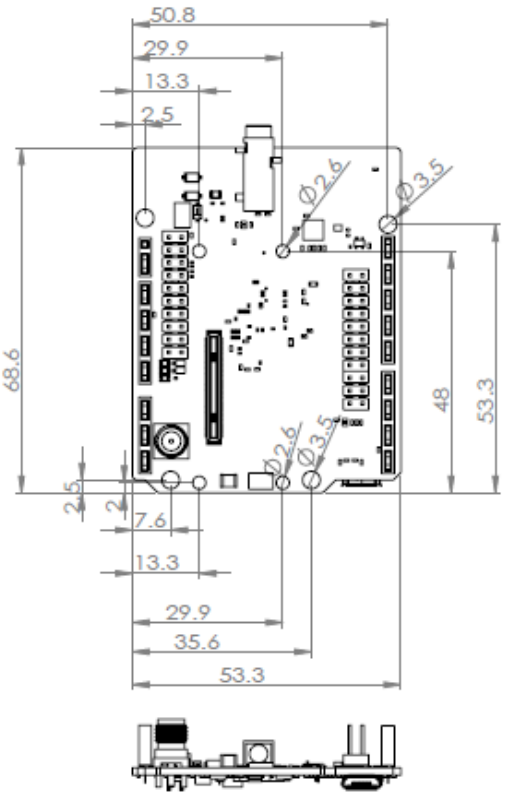
JP2A

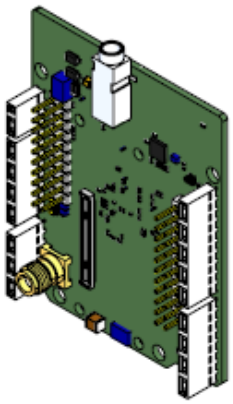
I2C SCL
I2C SDA
AREF
GND
SPI3 SCK
SPI3 MISO
SPI3 MOSI
SPI3 CS0
PWM 2
SPI2 MISO

JP13

SPI3 CS
PWM0
PWM1
SPI2 MOSI
PWM3
HIF_IRQ_OUT
UART2 TX
UART2 RX

MECHANICAL DIMENSIONS





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