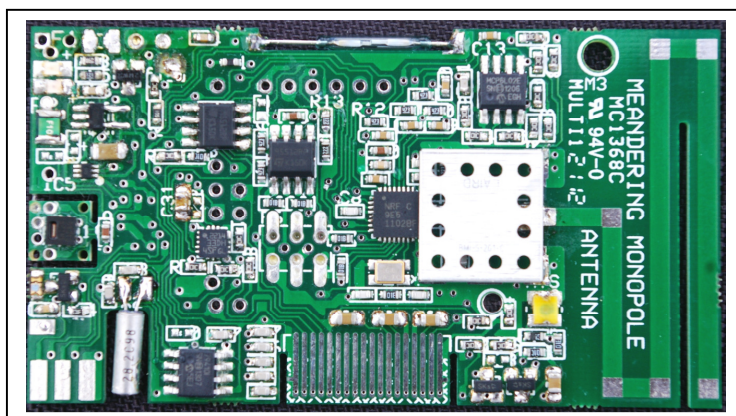# Intergrators Manual

Wireless Module K114
FCC ID: 2AAN2K114

Instruction for installation

Any enclosure into which this module is installed must display a Label clearly visible to the user without magnification stating "**Contains FCC ID: 2AAN2K114**"

Module Specifications

The 2AAN2K114 is a 10mW, 902-928 MHz frequency hopping wireless transceiver with on board sensors. The antenna is a meandering monopole tooled as a track on the PCB.

Physical Specifications

Parameter	Value	Remarks
Circuit board dimensions	73.5mm (x) by 40.5mm(y)	See diagram below

Radio Frequency Specifications

Parameter	Value	Remarks
Centre frequency	915MHz	USA ISM band
Modulation type	FHSS	Frequency Hopping Spread Spectrum
Number of channels	53	Must be greater than 50
Minimum Frequency	903MHz	Cannot be below 902MHz
Maximum Frequency	927MHz	Cannot be above 928MHz
Maximum Channel dwell time	120 milliseconds	Cannot exceed 400mS
Maximum Output Power	9dBm	Cannot exceed 27dBm
Antenna Type	PCB trace	Fixed

Electrical Specifications

Parameter	Value	Remarks
Minimum Input voltage	3.0 VoltsDC	
Maximum Input voltage	6.0 VoltsDC	
On board voltage regulator	Yes	
Maximum current draw	35 milliAmps	Peaks during transmit
Sleep current draw	5 microAmps	
Serial Communications	19200 Baud TTL	Fixed
General Purpose Input Output Pin Count	8	
Analogue to Digital inputs	4	

Analogue Sensor Data

Parameter	Value	Remarks
ADC0		
Sensor characteristics	R@25degC = 10K B=3997	Thermistor
DC drive voltage	1.2 VDC	
Voltage range (defined by ADC)	0 – 1.2 VDC	
Resolution	0.25 degC	
Accuracy	+/-0.5 degC	
Range	-30 to +40 degC	
ADC1		
Sensor characteristics	R@25degC = 10K B=3997	Signal from
DC drive voltage	1.2 VDC	Thermistor
Voltage range (defined by ADC)	0 – 1.2 VDC	on ADC0
Resolution	0.1 degC	amplified to
Accuracy	+/-0.3 degC	expand
Range	-30 to +10 degC	resolution

Analogue Sensor Data (continued)

Parameter	Value	Remarks
ADC2		
Sensor characteristics	R@25degC = 10K B=3997	Signal from
DC drive voltage	1.2 VDC	Thermistor
Voltage range (defined by ADC)	0 – 1.2 VDC	on ADC0
Resolution	0.1 degC	amplified to
Accuracy	+/-0.3 degC	expand
Range	0 to +40 degC	resolution
ADC3		
Sensor characteristics	Resistive divider	Voltage monitor
DC drive voltage	0 – 6 VDC	
Voltage range (after resistive divider)	0 – 1.2 VDC	
Resolution	0.02 V	
Accuracy	+/-0.1 V	

Digital Sensor Data

Parameter	Value	Remarks
D Sensor 1		**Reed Switch**
Sensor characteristics	On/Off switch Normally open	Reboot device
Voltage range	0 – 6 VDC	
D Sensor 2	OSRAM SFH3710	**Light**
Sensor characteristics	Optical photodiode	Input device
Spectral Range	350nm to 950nm	
D Sensor 3	SENSOLUTE MVS0608.02	**Vibration**
Sensor characteristics	Rolling Ball	Input device
Sensitivity	50mg	
D Sensor 4	ST LIS331DLH	**Accelerometer**
Sensor characteristics	3 axis MEMs	Input device
Sensitivity	0.9mg	
D Sensor 5	SENSIRION SHT25	**Humidity**
Sensor characteristics	0 – 100% RH	Input device
Accuracy	1.8%	
Sensitivity	+/- 1%	

Other Device Data

Parameter		Value	Remarks
Device 1		ST M95512-RMN6TP	**Memory**
	Size	512KB	EEPROM
	Connection	SPI	
Device 2		ST M95512-RMN6TP	**Memory**
	Size	512KB	EEPROM
	Connection	SPI	
Device 3		MicroChip MCP7941X	**Real Time Clock**
	Connection	I2C	
Device 4		Everbouquet MCG1603CW-SGR	**LCD Display**
	Connection	I2C	
Device 5		HSMH-C190	**LED**
	Connection	GPIO 2	
	Colour	RED	
Device 6		HSMG-C170	**LED**
	Connection	GPIO 3	
	Colour	GREEN	

Environmental Specifications

Parameter	Value	Remarks
Operating Temperature Range	-35 to + 50 deg C	
Operating Humidity Range	0 to 95% RH (non condensing)	
Storage Temperature range	-35 to + 60 degC	
Storage Humidity Range	0 to 95% RH (non-condensing)	
IP value	Not Applicable	IP value provided by enclosure

Parts & Materials

Test Parameter	Standard no/name	Remarks
Chemicals used in manufacture	RoHS	Only Lead-free solder used in PCBA

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.

FCC Caution: Any changes or modifications not expressly approved by Logpro Ltd. could void the user's authority to operate this equipment.

This transmitter module is authorized to be used in other devices only by OEM. Further transmitter testing will not be required. However, the OEM integrator is still responsible for testing their end-product for any additional compliance requirements required with this module installed (for example, digital device emissions, PC peripheral requirements, etc.).

The OEM integrator has to be aware not to provide information to the end user regarding how to install or remove this RF module in the user manual of the end product.

Note that this product is NOT a Software Defined Radio in the sense that it is not possible in any way to make any changes to the RF transmission characteristics via software that would cause non compliant behavior.

The antenna(s) used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter except in accordance with FCC multi-transmitter product procedures.