

Specifications

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A P P E N D I X A

WLAN Interface

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- Standard: IEEE802.11a/b/g
- Frequency: 2.4 GHz
- Data rate: Up to 54 Mbps with fallback
- Modulation: DBPSK (1 Mbps), DQPSK (2 Mbps), CCK (5.5, 11 Mbps), BPSK (6, 9 Mbps), QPSK (12, 18 Mbps), 16-QAM (24, 36 Mbps), 64-QAM (48, 54 Mbps)
- The product will only transmit beacons when no other information is to be transmitted and if a software or hardware failure occurs, the product will automatically reset itself (through a watchdog time or under voltage sensor), stop all transmissions and reboot.

Serial Interface

Serial Interface

Two serial ports, one with full modem control signals and the other with TXD and RXD only.

Data Rates (bps)

50, 110, 134, 150, 200, 300, 600, 1200, 2400, 3600, 4800, 9600, 19200, 38400, 57600, 115200

Flow Control Options

RTS/CTS, XON/XOFF, None

Environmental

Digi Connect Wi-EM 9210	
Ambient Temperature	-22°F to 140°F (-30°C to 60°C) 60°C max at 100% duty cycle 65°C max at 50% duty cycle 70°C max at 30% duty cycle .
Storage Temperature	-40°F to 257°F (-40°C to 125°C)
Humidity	5% to 90%
Altitude	12000 feet (3657.60 meters)

DC Characteristics

The following tables provide DC characteristics for operating conditions, inputs, and outputs.

Operating Conditions					
Symbol	Description	Min	Typ	Max	Unit
V_{CC}	Supply Voltage	3.14	3.3	3.45	V
n/a	Power Supply Ripple			40	mVpp
I_{CC}	Supply Current	—	390	630	mA
I_{IL}	Input Current as "0" (16.5K equivalent pull-up)	—	—	200	μA
I_{IH}	Input Current as "1" (16.5K equivalent pull-up)	-10	—	10	μA
I_{OZ}	HighZ Leakage Current	-10	—	10	μA
I_{OD}	Output Drive Strength	—	—	2	mA
C_{IO}	Pin Capacitance ($V_O=0$)	—	—	4	pF

Mechanical

Inputs					
Symbol	Description	Min	Typ	Max	Unit
V _{IH}	Input High Voltage	2	—	V _{CC} +0.3	V
V _{IL}	Input Low Voltage	V _{SS} -0.3	—	0.2*V _{CC}	V

Outputs					
Symbol	Description	Min	Typ	Max	Unit
V _{OH}	Output High Voltage	2.4	—	3.45	V
V _{OL}	Output Low Voltage	0	—	0.4	V

Note: The embedded modules use a supervisory circuit with a 2.93V reset threshold. When VCC falls to the threshold voltage, a reset pulse is issued, holding the output in active state. When power rises above 2.93V, the reset remains for approximately 200 ms to allow the system clock and other circuits to stabilize.

Warning: The rise time of the 3.3v power supply must be between 700uS and 140ms and the inrush current must be limited to less than 2 A. A rise time outside of these limits may cause the device to malfunction and give a 3-1-3 diagnostic error.

Mechanical



Module Dimensions	
Dimension	Digi Connect Wi-EM
Length:	2.287 in (58.09 mm)
Width:	1.885 in (47.879 mm)

Module Dimensions		
Dimension	Digi Connect Wi-EM	
Height:	Fully populated 0.785 in (19.939 mm)	
	Pin header model 0.653in (16.586 mm)	
Weight	Antenna -.408 oz. (11.567 g)	.672 oz. (19.051 g)
	Total - 1.080 oz. (30.617 g)	

Layouts and Dimensions



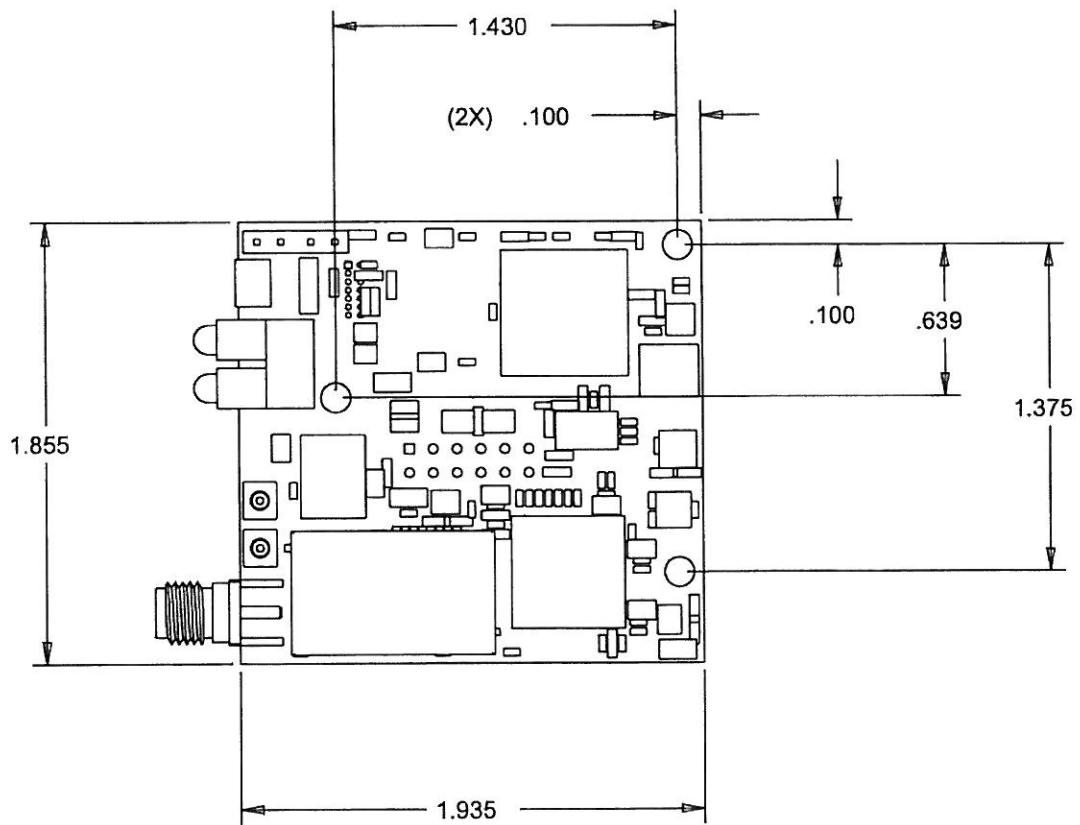
All dimensions are in inches. These are the tolerances for the drawings shown in this section:

Measure	Tolerance
.XX	± .02
.XXX	± .010
Angles	± 2 degrees

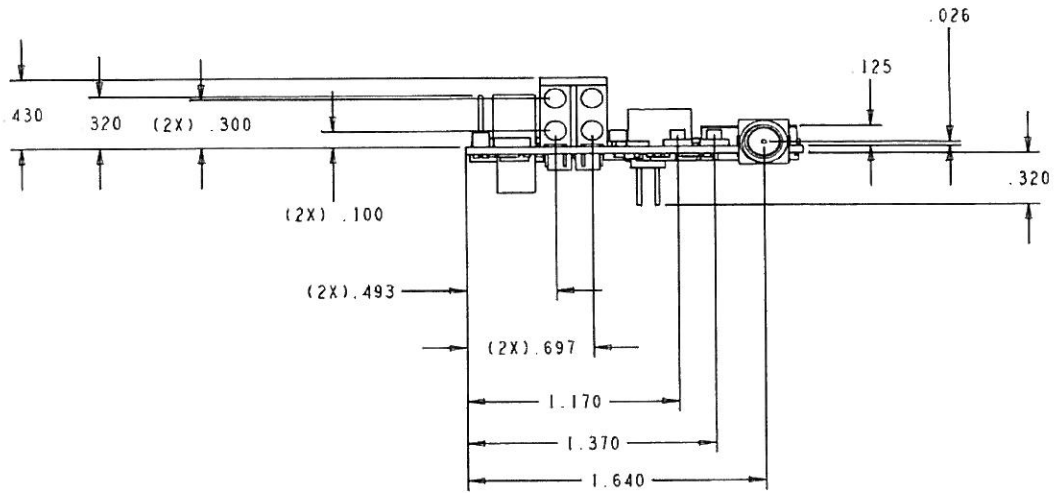
Layouts and Dimensions

Digi Connect Wi-EM (w/LED Array)

Top

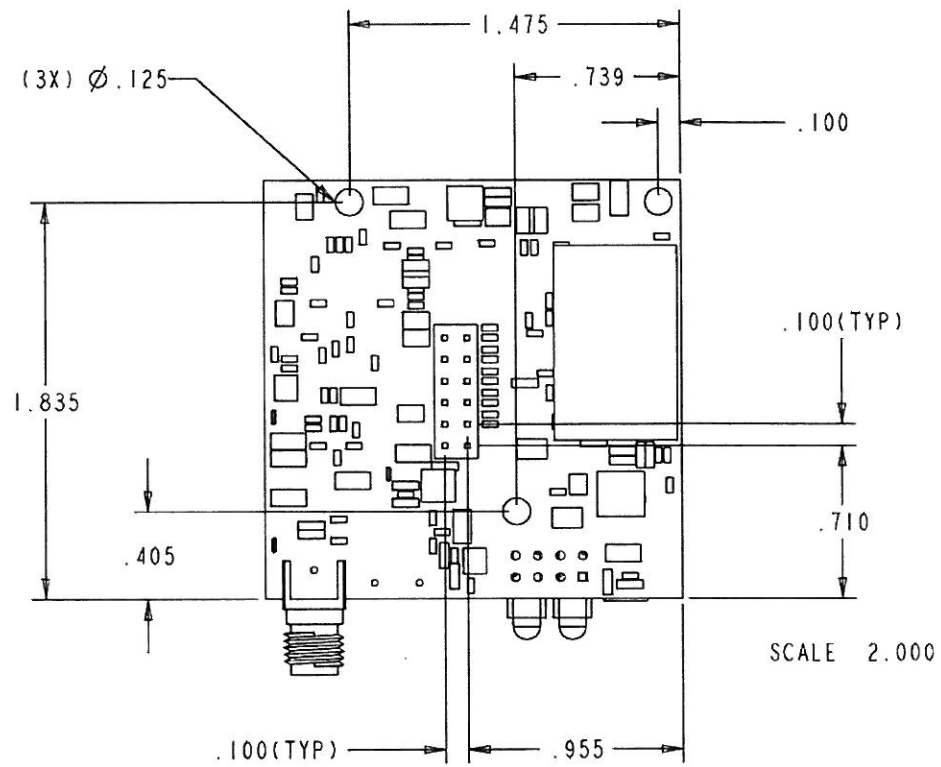


Front

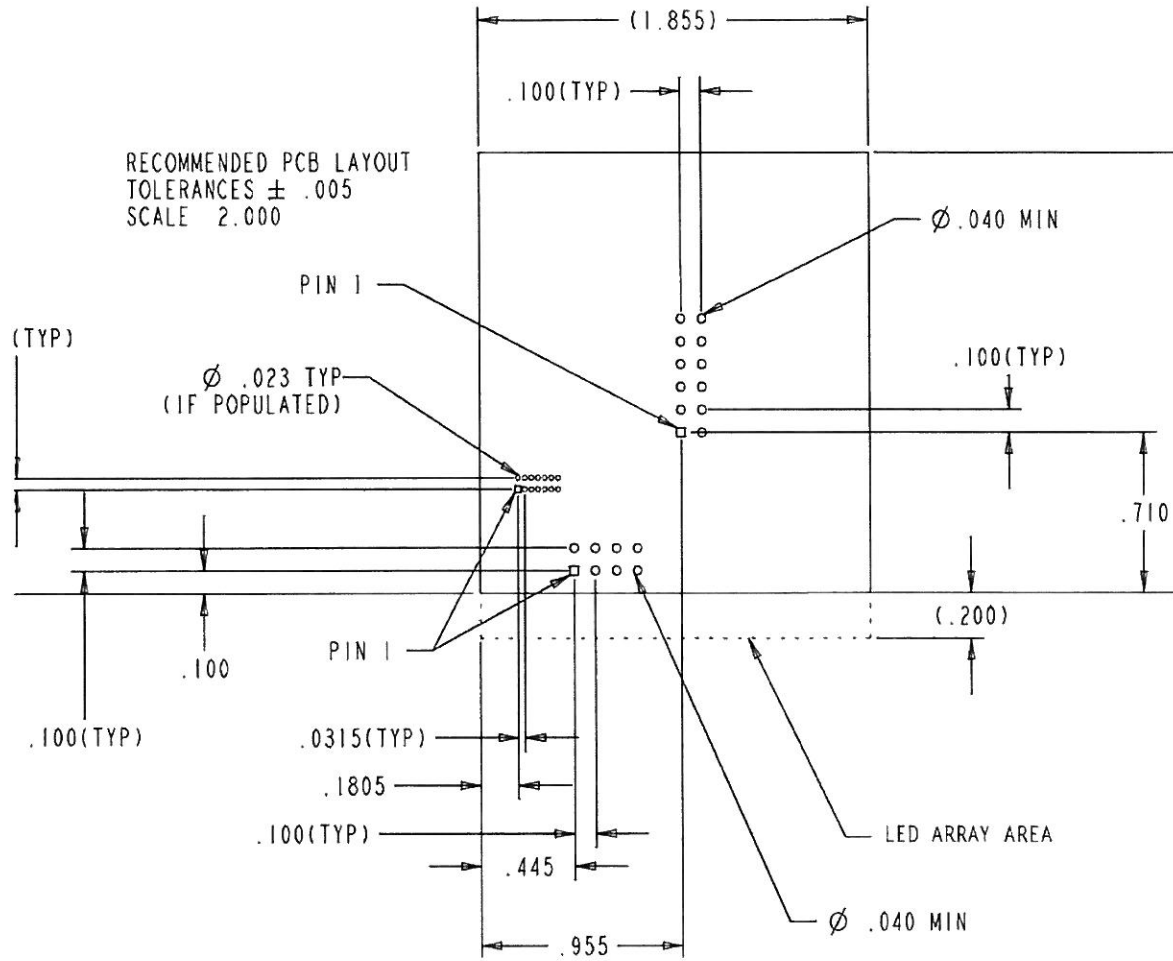


Layouts and Dimensions

Bottom



Digi Connect Wi-EM (w/LED Pin Headers)



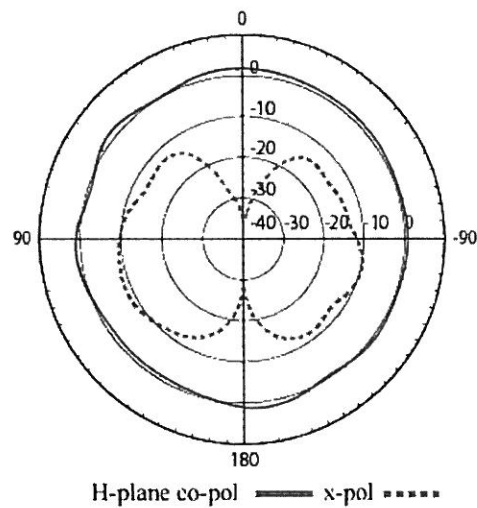
Antenna Information

Antenna Information

Antenna Strength

The following diagram demonstrates the strength of the signal received by the antenna on both a horizontal and vertical plane. The diagram shows the magnetic field when the antenna is in a vertical position. The red line represents the horizontal plane and the dotted green lined represents the vertical plane. You can see in the illustration that at 90degrees, the signal strength is (as expected) 0.

Radiation Patterns



Radiation Patterns for PCB Mount Antenna

