

# EnPointe Fencing EP-W01 User Manual

BRAND  
ENPOINTE FENCING

MODEL  
EP-W01

The EP-W01 holds full modular approval. The OEM must follow the regulatory guidelines and warnings listed below to inherit the modular approval.

The EP-W01 modules are fencing specific radio modules, designed to interface with the EnPointe Fencing wireless fencing scoring systems. These modules are designed for integration into scoring machines, repeater lights and other sport fencing products, and can be used to allow other sport fencing manufacturers to access the EnPointe Fencing proprietary data communications via the custom radio network.

These modules are not user programmable, as they are issued from EnPointe Fencing fully programmed for the user's needs. The radio communication core uses the Nordic nRF52833 SoC, with an ARM Cortex-M4F MCU, 512KB flash, 128KB RAM, embedded 2.4GHz multi-protocol transceiver, and a u.FL connector for an external antenna.

## EP-W01 FEATURES

- 64MHz Cortex-M4 with FPU
- 512KB Flash, 128KB RAM
- 2.4GHz radio transceiver
  - Compatible with EnPointe Fencing radio protocol
  - Can be configured for BLE or 802.15.4 communication
  - 2Mbps, 1Mbps, 500kbps, 250kbps, 125kbps data rates
  - Up to 8dBm TX power in EnPointe mode
  - -92dBm RX sensitivity in EnPointe mode
- 1.7V to 5.5V supply voltage range
- Integrated DC-DC converter
- -40°C to 105°C operating temperature
- 68 pin LGA package, 10.2×15×1.9mm
  - All 42 GPIO pins are accessible

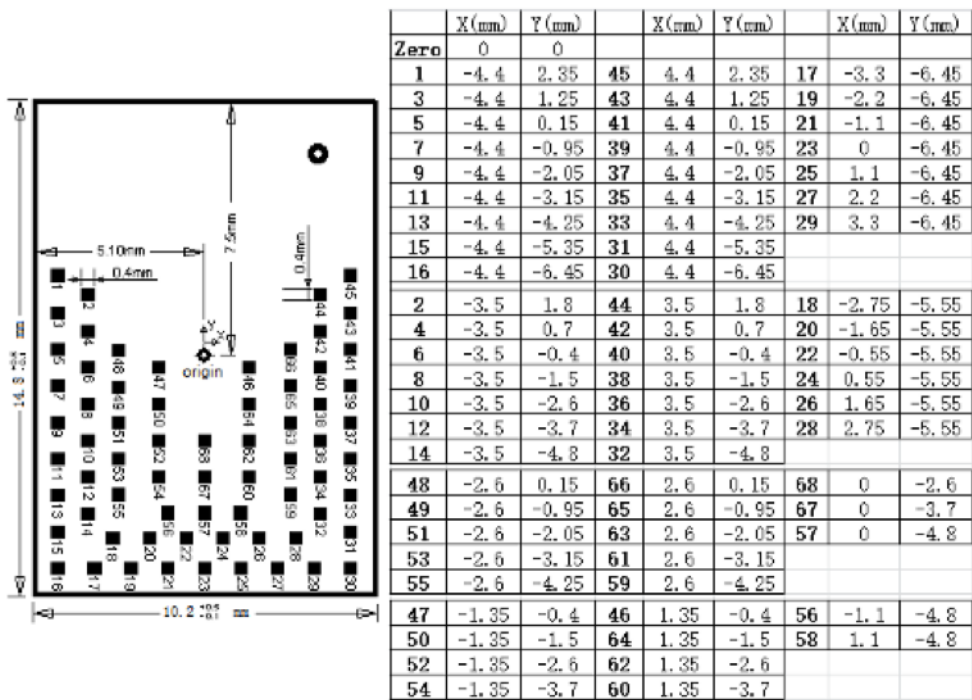
- Flexible communication interfaces
  - Full-speed 12Mbps USB 2.0 devices
  - 32Mbps SPI master, 8Mbps SPI slave
  - 1Mbps UART (with flow control)
  - 400kbps I2C
  - 13.56MHz Type 2 NFC-A tag (106kbps)
- Audio interfaces
  - I2S for connection to speaker drivers and codecs
  - PDM digital microphone interface
- 5 configurable 32-bit timers
- 3 real time counters
- 16 PWM channels
- Analogue peripherals
  - 64 level comparator with selectable reference
  - 200ksps ADC with 8 single-ended or differential channels and programmable gain
  - Temperature sensor
- Flexible firmware options for interfacing with EnPointe Fencing radio network
  - Pin selection is customisable
  - Port expander functionality is available
- Integrated touch-on sensing of other EnPointe products from any pair of analogue pins
  - Over-the-Air firmware updates using BLE mode
  - Updates via other communication interfaces available



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### FOOTPRINT AND LGA PAD LOCATIONS



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### PINOUT

Pin #	Pin Name	Pin Description	Pin #	Pin Name	Pin Description
1	VSS	Ground	35	P0.15	GPIO
2	VSS	Ground	36	P0.16	GPIO
3	VSS	Ground	37	P0.17	GPIO
4	VSS	Ground	38	P1.00	GPIO
5	VSS	Ground	39	NC	Do not connect
6	NC	Do not connect	40	P0.18	GPIO
7	P0.26	GPIO	41	P0.13	GPIO
8	P0.27	GPIO	42	SWDCK	Reserved for programming; do not connect
9	P0.28/AIN4	GPIO/Analogue input	43	SWDIO	Reserved for programming; do not connect
10	P0.29/AIN5	GPIO/Analogue input	44	P0.22	GPIO
11	P0.30/AIN6	GPIO/Analogue input	45	VSS	Ground
12	P0.31/AIN7	GPIO/Analogue input	46	NC	Do not connect
13	VSS	Ground	47	P0.24	GPIO
14	VDD	Power supply	48	P0.19	GPIO
15	VSS	Ground	49	P1.03	GPIO
16	P0.00	GPIO	50	NC	Do not connect
17	P0.01	GPIO	51	P1.05	GPIO
18	VSS	Ground	52	P1.09	GPIO
19	VSS	Ground	53	P0.23	GPIO
20	P0.03/AIN1	GPIO/Analogue input	54	P1.08	GPIO
21	P0.04/AIN2	GPIO/Analogue input	55	P0.25	GPIO
22	P0.02/AIN0	GPIO/Analogue input	56	VDDH	High voltage power supply
23	P0.05/AIN3	GPIO/Analogue input	57	NC	Do not connect
24	P0.07	GPIO	58	VBUS	5V input for USB 3.3V regulator
25	P0.06	GPIO	59	NC	Do not connect
26	P0.09/NFC1	GPIO/NFC antenna connection	60	P0.21	GPIO
27	P0.08	GPIO	61	P1.04	GPIO
28	VDD	Power supply	62	P0.20	GPIO
29	P0.10/NFC2	GPIO/NFC antenna connection	63	NC	Do not connect
30	VSS	Ground	64	P0.12	GPIO
31	P1.01	GPIO	65	P1.06	GPIO
32	P1.02	GPIO	66	P1.07	GPIO
33	P0.14	GPIO	67	D+	USB D+
34	P0.11	GPIO	68	D-	USB D-



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### ANTENNA INFORMATION

The module has been designed to operate with the antennas listed below.

Manufacturer	Model	Type	Connector	Peak gain
Pulse	W32921B0100	Dipole	u.FL	1dBi
LSR	001-0014	PIFA	u.FL	2dBi

**Note:** the OEM is free to choose another vendor’s antenna of like type and equal or lesser gain as an antenna appearing in the table and still maintain compliance. Reference FCC Part 15.204(c)(4) for further information on this topic.

### FEDERAL COMMUNICATIONS COMMISSION (FCC) STATEMENT

You are cautioned that changes or modifications not expressly approved by the part responsible for compliance could void the user’s authority to operate the equipment.

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:

- Reorient or relocate the receiving antenna
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

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 of the device.

### FCC RF RADIATION EXPOSURE STATEMENT

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. End users must follow the specific operating instructions for satisfying RF exposure compliance. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter. This device is intended only for OEM integrators under the following conditions:

1. The module may not be co-located with any other transmitter or antenna.
2. The module must be used with the firmware provided by EnPointe Fencing Pty Ltd.



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If the conditions above are met, further transmitter testing is not required. However, the OEM integrator is still responsible for testing their end-product for any additional compliance requirements required with this installed module. The end product with this module may be subject to FCC part 15 unintentional emissions test requirements.

**Important note:** If these conditions cannot be met (for example, certain laptop configurations or co-location with another transmitter), then the FCC authorization is no longer considered valid and the FCC ID cannot be used on the final product. In these circumstances, the OEM integrator is responsible for re-evaluating the end product (including the transmitter) and obtaining a separate FCC authorization.

## END PRODUCT LABELLING

Any device incorporating this module must include an external, visible, permanent marking or label which states: "Contains FCC ID: 2A3F8W01".

## MANUAL INFORMATION TO END USER

The OEM integrator must be aware not to provide information to the end user regarding how to install or remove this RF module in the user's manual of the end product which integrates this module. The end user manual shall include all required regulatory information/warning as shown in this manual.

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