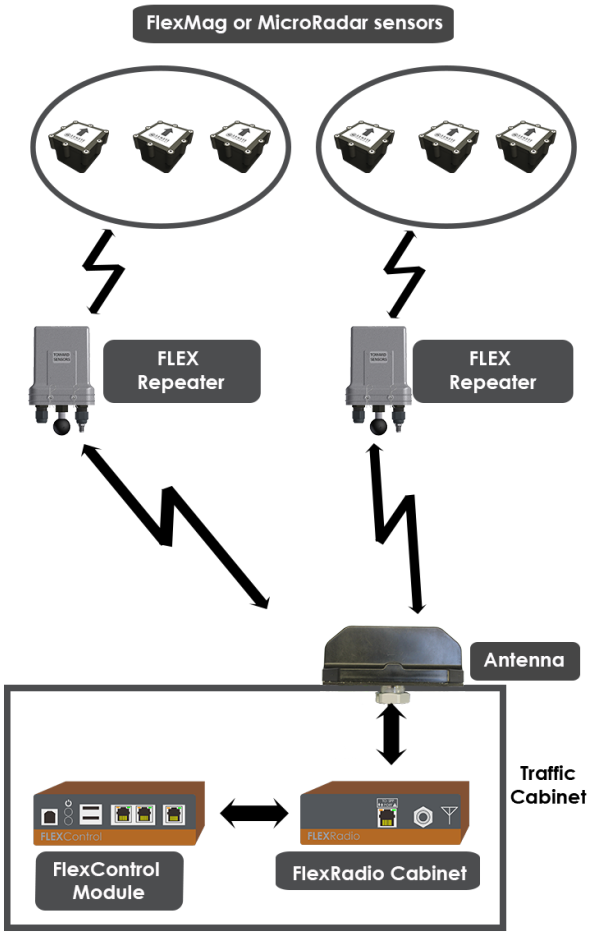
FlexRadio Cabinet

The Sensys Networks FlexRadio Cabinet is a module mounted inside the traffic cabinet with an external omni directional antenna mounted on top of the cabinet. This method of installation allows the FlexRadio Cabinet to communicate with repeaters without the need for running cables through external conduits.

The FlexRadio Cabinet is a low powered radio that maintains two-way wireless links to an installation's repeaters. The FlexRadio Cabinet establishes overall time synchronization, transmits configuration commands and message acknowledgements, and receives data from the sensors and repeaters. The FlexRadio Cabinet then relays the data to the FlexControl Module† over a CAT5 cable.

FlexControl Module with FlexRadio Cabinet Configuration



A typical configuration consists of one FlexControl Module, one FlexRadio Cabinet, and an omni directional antenna. The FlexRadio Cabinet can be mounted in the cabinet by a DIN or bracket mount that is provided by Sensys Networks. The external omni directional antenna connects to the FlexRadio Cabinet via a coaxial cable. The external antenna must have gain less than +6dBi to meet regulatory requirements.

† Applicable also to the FlexControl Card (or APCC)

Functions / Features

Sensys Networks radio communications

- To/from Sensys Networks repeaters

Radio signal quality measurements

- Receive Signal Strength Indicator (RSSI, in dBm)
- Link Quality Index (LQI, figure of merit)

Simple installation

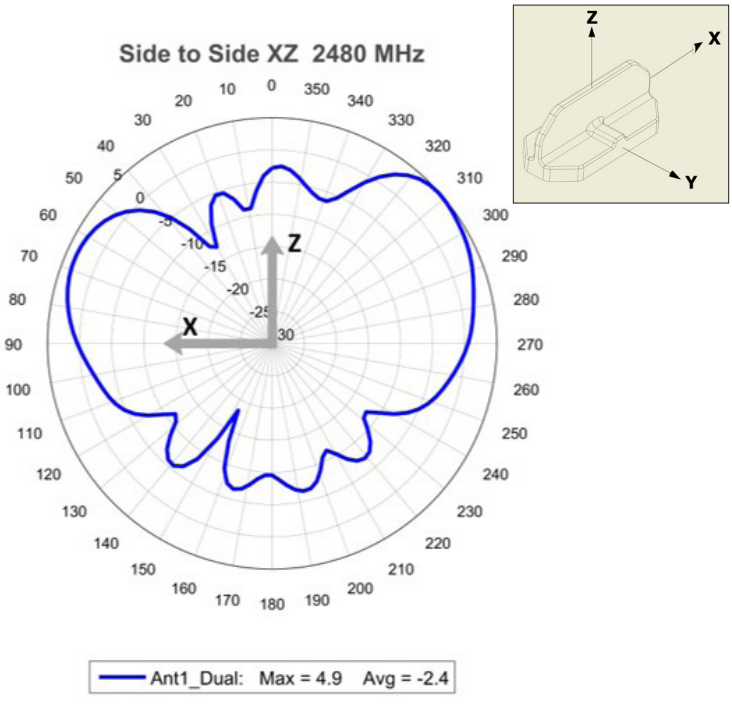
- Any roadside cabinet location that provides adequate signal coverage to repeaters

Low power consumption

- Receives power through the FlexControl Module in the traffic cabinet

Mounts in traffic cabinet with DIN mount or bracket mount

The antenna accessory has the polar gain shown below. The antenna requires sufficient grounding.



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FlexRadio Cabinet

Functional Specifications

interfaces	RS-422 full duplex to FlexControl Module via RJ45 connector
over-the-air protocol	Sensys NanoPower (SNP) protocol (TDMA)
physical layer protocol	IEEE 802.15.4 PHY
modulation	Direct Sequence Spread Spectrum Offset Quadrature Phase-Shift Keying (DSSS O-QPSK)
transmit/receive bit rate	250 kbps
frequency band	2405 to 2483.5 MHz (ISM unlicensed band)
frequency channels	16
channel bandwidth	2.8 MHz (20 dB)
external antenna type	cabinet mounted omni directional antenna
external antenna field of view	360°
nominal output power	+3 dBm
spurious emissions	• 30 - 1000 MHz: < -36 dBm • 1 - 12.75 GHz: < -30 dBm • 1.8 - 1.9 GHz: < -47 dBm • 5.15 - 5.3 GHz: < -47 dBm
typical receive sensitivity	-101 dBm (PER ≤ 1%)
saturation (max input level)	≥ 10 dBm

Power, Physical, & Environmental

power consumption	• 150 mW
input voltage	• 24 V
RF connector	• RP TNC female
dimensions	• FlexRadio Cabinet: 4.3" x 3.5" x 1.2" (10.9 cm x 8.8 cm x 3 cm) without mount • omni directional antenna: 2" x 2.2" x 5" (5 cm x 5.5 cm x 12.7 cm) • antenna cable length: 6' (1.82 m)
weight	• FlexRadio Cabinet: 7.8 oz (221.5 g) without mount • omni directional antenna: 6.2 oz (175.7 g)
operating temp	industrial -40°F to 185°F/-40°C to 85°C
mounting	DIN or bracket mount

Available Product

Order Code	Description
FLEX-RAD-CM	FlexRadio Cabinet: Radio module mounted inside cabinet for wireless links to repeaters. Requires external antenna. DIN and bracket mounting kit provided.
ANT-CM-RAD	Omni-Directional Antenna: External cabinet mount antenna. Connects to FlexRadio Cabinet module.

Compliance

safety	• 2014/35/EU
RF	• 2014/53/EU
EMC	• 2014/30/EU • FCC: 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. • IC: This device complies with Industry Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device. • IC : Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

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