

Installation & Configuration Reference Guide (Detection)

Typical Component List

In the Cabinet	FlexControl Module or FlexControl Card (APCC)	Supports 2 radios; FlexControl Card (APCC) includes 4 controller inputs
	FlexControl Card (APCC) Enclosure	Holds 2 cards, detector cable separate
	EX Card(s) or FlexConnect	4 controller inputs per EX; FlexConnect uses SDLC for up to 64 channels
	Isolator or Flexisolator	Protection and signal boost, 1 or 2 radios respectively
	FlexRadio Cabinet	Connects to cabinet mounted omni antenna and FlexControl Card (APCC) or FlexControl Module unit
On a Pole	SPP Radio	1 or 2 per FlexControl Module or FlexControl Card (APCC) connected by CAT5/6
	Repeater	4 types - Long-Life, Flex Long-Life, Solar, FlexNode
	External Antenna options	Attaches to FlexRepeaters - standard, long-range, or omni-directional options
	Universal Mounting Bracket	Kit including plate, band, and clamp
In the Ground	FlexMag Sensor	4 types - F Deep, F Flush, T Deep, T Flush
	FlexRadar Sensor	Only one type - Flush
	Epoxy for Sensors	Two types: Short Open Time (SOT) for FlexMag Sensors and Long Open Time (LOT) for FlexRadar Sensors; both types are 1:1 ratio dual packs available only from Sensys Networks
Services	Services	As required for installation, configuration, monitoring, and training

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Tools/Peripheral items

- Standard Ethernet compatible cable, outdoor rated, 4-pair CAT5 or better
- RJ45 jack kit and crimp tool
- RJ45 connectors, cable ties, dielectric grease
- CAT5 jumpers for interconnecting components
- CAT5/6 cable tester
- Laptop with Ethernet port & Windows 10 or Windows 7
- TrafficDOT software downloaded free from:
www.sensysnetworks.com/resources#trafficdot
- Bucket/Lift truck (20 - 30 feet based on designated mounting height)
- Laser rangefinder or Trundle wheel
- Screwdriver, pliers, clamp band tool
- Hammer and chisel and/or a roto hammer and chisel bit
- Coring bit – 4" (10.2 cm) diamond-tip bit suitable pavement type
- Coring drill – outfitted for wet coring operations, ideally mounted to a lift gate
- Propane torch or hot air
- Tape measure (for hole depth)
- Vacuum
- Epoxy Applicator for dual tube (600mL dual cartridge dispensing gun)

Configuration (TrafficDOT) Elements

IP address default for Control	192.168.2.100
IP address for laptop (TrafficDOT)	192.168.2.200
Subnet mask	255.255.255.0
RSSI min acceptable	-79 dBm
RSSI typical Standard Deviation limit	9 dBm
LQI min acceptable	90
LQI typical Standard Deviation alert limit	9
Sensor battery voltage typical alert limit	3.4 V
Repeater battery voltage typical alert limit	2.7 V
Watchdog Timeout losing communication (yellow)	60 seconds
Watchdog Timeout lost communication (red)	90 seconds

RF Parameters

Radio cone angle for all sensors, SPP Radios, Repeaters	120 degrees
Radio cone angle for Long range antenna option with Flex Repeater only	60 degrees
FlexControl Module or Card (APCC) to SPP Radio max cable length (using Isolator)	2000 ft (610 m)
Typical SPP Radio or Repeater mounting height	20 ft (6.1 m)
Flex Repeater with Long Range antenna required height	30 ft (9.1 m)
SPP Radio or Repeater max distance* to sensor if mounted 20 feet (6.1 m) high	150 ft (45 m)
SPP Radio to Repeater max distance	1000 ft (305 m)
Flex Repeater with omni directional antenna, max distance to SPP Radio	225 ft (69 m)
Flex Repeater with omni directional antenna, max distance to FlexRadio	150 ft (45 m)
Flex Repeater with Long range antenna 30 feet high (minimum), max distance to sensors	300 ft (91 m)
Flex Repeater with Long range antenna max distance to SPP Radio	2000 ft (610 m)
Sensors per SPP Radio or FlexRadio (based on default latency settings)	48
SPP Radio or FlexRadio channels (0 through 15)	16
Frequency for channel 0 (then incremented up by .005 GHz)	2.405 GHz
Default channel for Sensors and SPPs	0
Default channel for Repeaters uplink towards AP, downlink towards Sensors	4/5
Sensors per Repeater with/without double timeslots	20/10
Repeated sensors total per SPP Radio or FlexRadio with/without double timeslots	40/20
Sensors per Repeater in tandem pair of Repeaters with/without double timeslots	12/6
Tandem Repeated sensors total per SPP Radio or FlexRadio	24/12
Outputs per card (EX, APCC)	4
Sensors per channel (Detection output/Controller input 'channel')	15

*All referenced distances are clear line-of-sight

For more information, please visit Resources section of the Sensys Networks website at <https://sensysnetworks.com/resources>

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