

Flexible Solutions Enable Ubiquitous RFID Coverage



Mojix eNode™ transmitters are the building blocks of the revolutionary Mojix STAR™ system, defining a STAR system's vast three dimensional coverage area and potentially up to hundreds of individual interrogation spaces configured to support each unique business process. Mojix provides a full range of low-cost, easy-to-deploy eNode models – from wired to wireless to highly flexible multiple antenna models – thus enabling truly ubiquitous RFID coverage, indoors and out.

Mojix eNodes are reliable, autonomously operated simple RF repeaters, designed to excite all EPC UHF Gen 2 RFID tags within their designated interrogation spaces with an excite range of 30 feet and a coverage area of 2,500 square feet. Up to 512 eNodes are controlled by a single Mojix STAR Receiver, which can manage a mixed population of fixed and mobile eNodes, as well as sensors, in support of numerous concurrent business processes.

As Mojix eNodes are controlled by the STAR system, their installation and maintenance is free from intensive configuration, firmware upgrades, and network configuration requirements. eNodes can be deployed to define discrete, overlapping, contiguous or mobile interrogation spaces and even to create virtual fences, and are easily moved or reoriented to create new and different interrogation spaces as needs change.

Mojix eNodes Fast Facts:

- Ubiquitous, cost-effective RFID coverage
- UHF EPC Gen 2 compliant
- Wired, wireless and multiple port form factors
- Support for fixed, mobile and handheld use cases
- 99.9 percent read reliability
- Unrivalled economics and flexibility
- Sensor fusion capable

Multiple port eNodes – Flexible, Economic Interrogation

An economic breakthrough for RFID deployments, multiple port Mojix eNodes are engineered to bring new levels of flexibility, cost-effectiveness and reliability to a wide range of use cases. Wired or wireless, a multiple port eNode employs between one and four external antennas, which can be a variety of antennas types, and can be deployed in a variety of ways to fit particular application needs. A 4-port eNode can illuminate a population of RFID tags from up to four different positions. As a result, equipment, deployment, maintenance and IT infrastructure costs are substantially reduced, while comprehensive, accurate reads of large tag populations are ensured.

Wired eNodes – Fixed Interrogation

Wired Mojix eNodes are designed for fixed location deployment, both within structures and in outside yards. They are connected directly to a Mojix STAR system via coaxial cable through which they receive power, baseband RF signals and control commands, and return sensor data. With power supplied through the cable, no power drops need be installed.

Wireless eNodes – Mobile Interrogation

Wireless Mojix eNodes are designed for mobile (carts, forklifts, etc.), fixed mounted, and handheld use cases, and for outdoor deployment where local power is preferable to coaxial power delivery. These ruggedized units have a variety

of power options including battery, solar cell, automotive battery and DC converter. Mobile eNodes are controlled via a wireless backhaul channel to the Mojix STAR system.

Mojix eNode Family Options: Six degrees of freedom for creating interrogation spaces

- Wired or Wireless
- Fixed mounted or mobile mounted
- Indoor or Outdoor

Sensor Fusion with Mojix eNodes

The Mojix eNode family is designed to provide input and output ports as a conduit to the STAR system for transporting the state of a variety of sensors. This enables the STAR receiver to gather data on the physical

environment as well as RFID passive tag data. Each eNode includes 4 in and 4 out dry relay contacts for integration with a variety of sensors eliminating the need for a separate wireline overlay for a sensor network.

Sensors I/O supported by Mojix eNodes

- Electromagnetic
- Motion
- Temperature
- Data storage (e.g. EPC Code)
- Luminosity
- Condensation
- Radioactivity
- Toxicity



Mojix eNodes At Work

Placing RF energy precisely where needed

A Mojix eNode provides energy to tags within its interrogation space, a space defined by the eNode's placement and orientation and, in the case of multiple port eNodes, by how its multiple antennas are positioned to bring RF energy precisely to where it is needed. This flexibility opens the door to highly economical and reliable applications.

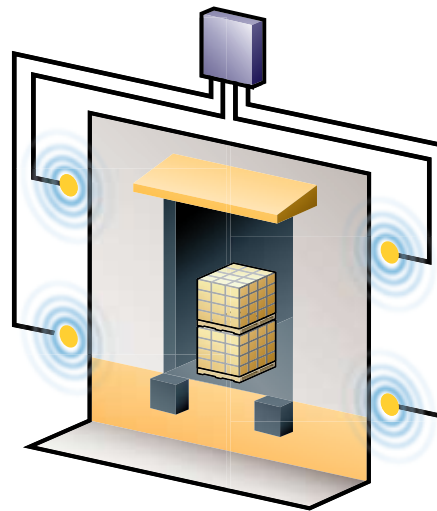
More economical RFID portals. A single four-port Mojix eNode, with its four external antennas positioned to surround a dock door or other portal in a shipping, receiving or manufacturing environment, does the job of multiple similarly placed conventional RFID readers – but at a fraction of the initial and ongoing costs, and with 99.9 percent read reliability.

Going deep into inventory. A multiple port eNode, with its external antennas arrayed linearly, can extend low-cost, reliable RFID coverage across single or multiple apparel or other racks of goods in a retail environment for such applications as inventory, replenishment and shrinkage control.

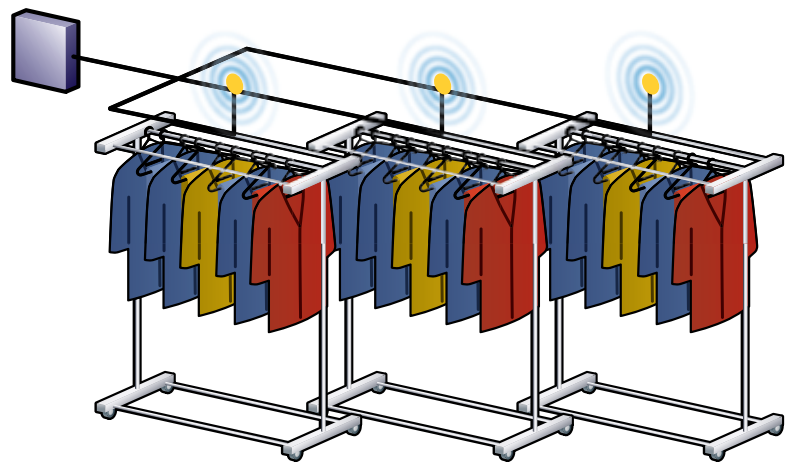
An eye on promotions. A entire, large promotional display can be embraced by one or more eNodes, each using up to four external dipole antennas, bringing cost-effective visibility right to the point of promotion in order to help monitor promotion effectiveness in real time.

An eNode for any location or use case

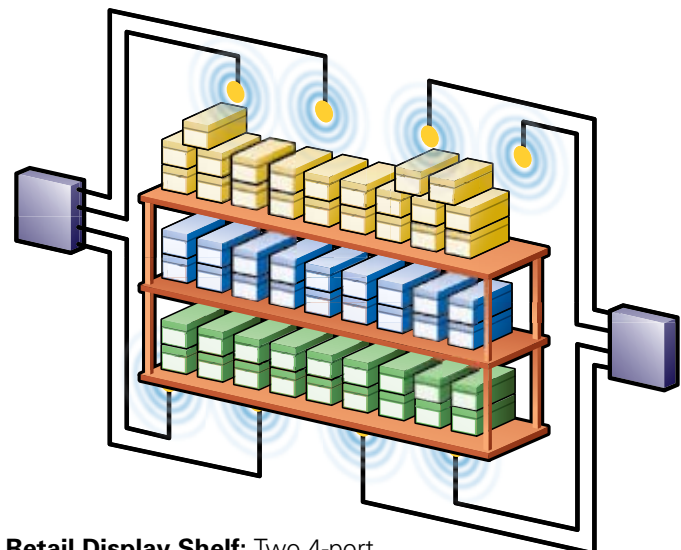
Fixed or mobile, single or multiple port, Mojix eNodes extend the unprecedented power and high ROI of the Mojix STAR system to any location and RFID use case required today, while helping customer move into the applications of tomorrow.



Dock doors: 4-port eNode puts energy where needed for reliable tag reads.



Apparel Rack: Multiple port eNode for true perpetual inventory.



Retail Display Shelf: Two 4-port eNodes bring cost-effective visibility to promotions.

Mojix eNode Technical Specification	ENM – Cabled eNode module – 4 port	ENM – Wireless eNode – 4 port
Operating Frequency	US Band: UHF Band, 902-928 MHz, FHSS	US Band: UHF Band, 902-928 MHz, FHSS
	European Band: UHF Band, 865.6-867.6 MHz	European Band: UHF Band, 865.6-867.6 MHz
Dimensions eNode	5' w x 7 3/4" L x 1.35" h 12.7 cm w x 19.68 cm L x 3.5 cm h	5' w x 9" L x 1.35" h 12.7 cm w x 23 cm L x 3.5 cm h
Weight eNode	1lb, 0.5 Kg	1lb, 0.5 Kg
Humidity	5-95% non-condensing	5-95% non-condensing
Compliance US Band	FCC Part 15	FCC Part 15
	EPC Class 1 Gen2	EPC Class 1 Gen2
Compliance European Band	ETSI – EN 302-208	ETSI – EN 302-208
	ETSI – EN 301-489	ETSI – EN 301-489
		ETSI – EN 300-220
Indicators	LED's for Power, Calibration and Transmit	LED's for Power, Calibration and Transmit
External I/O	Two SMA connectors for RF in and out. Four RP-SMA connectors for external transmit antenna's One HD-26 (Dry relay contacts 4 in / 4 out)	One SMA connector for command link Antenna Four RP-SMA connectors for external transmit antenna's One HD-26 (Dry relay contacts 4 in / 4 out) One external power supply connector
Transmit Power	US Band:	US Band:
	Per FCC Part 15	Per FCC Part 15
	Transmit power: 1 W (30 dBm) Maximum	Transmit power: 1 W (30 dBm) Maximum
	Antenna: External	Antenna: External
	European Band:	European Band:
	Antenna: External ; Transmit power and Antenna Beam width per:	Antenna: External ; Transmit power and Antenna Beam width per:
	ETSI – EN 302-208	ETSI – EN 302-208
	ETSI – EN 300-220	
Power Consumption	12 W Max	12 W Max
Power Supply	Powered through coaxial cable (24 volts DC)	24 volts DC
Power Supply Options	Coaxial cable	Battery, Solar, AC/DC
Warranty	US: 1 year from date of shipment	US: 1 year from date of shipment
	EU: 2 years from date of shipment	EU: 2 years from date of shipment
Extended Warranty Available	Yes	Yes



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