

Rugged RFID tag designed for demanding outdoor environments

The Cargo Tag from Symbol Technologies is an all-weather RFID tag designed for the most demanding outdoor applications. With the durability required for 24-hour-a-day outdoor exposure in most environmental conditions, this robust tag offers proven tolerance of natural and incandescent light, vibration, shock, rain, dust, oil and chemical resistance, and more. This Gen 2 EPC™-compliant tag delivers accurate and reliable read performance of up to 40 feet/12.19m, enabling you to achieve maximum benefits in RFID cargo and asset tracking applications.

Maximum flexibility

Full mounting flexibility ensures the ability to install the tag wherever needed — the integral back plate can be secured with either an adhesive or metal screws. And a recessed area for a bar code label ensures your ability to track and scan cargo and assets end-to-end, with bar code or RFID fixed, mobile or handheld data capture devices.


High performance...low maintenance

The Cargo Tag is designed with Symbol technology innovations that deliver outstanding performance and reliability. Signals are easier to read via patented inlay technology that improves RF efficiency. The tag is tuned to utilize the aluminum backplate to improve the signal. The integrated antenna is designed to deliver superior read range. And since there is no battery to change, this passive tag is maintenance free, reducing the time and cost associated with replacing batteries in active tags — and eliminating any loss of read capability in your system due to a dead tag battery.

A world of uses

Together with Symbol's full suit of RFID reader options - from fixed and mobile to handhelds - this rugged tag provides the ideal solution for a variety of industries and applications, such as:

- **Transportation (trucking):** cargo container identification/tracking, yard/fleet management, express delivery vehicle identification, and vehicle and trailer tracking
- **Aerospace/marine/rail:** Cargo container tracking, supply container identification, and rail freight car identification/tracking
- **Government (federal, state, local):** Mass transit (light rail car) identification, municipal utility/passenger fleet management, military vehicle identification, and supply container tracking



FEATURES	BENEFITS
Patented inlay-integrated circuit technology; integral 4 in. x 4 in. antenna; tuned to leverage the integrated aluminum backplate for increased performance	Longer read ranges and more accurate read rates – up to 40 ft./12.19m and up to 400 tags per second
Tested for shock, rain, dust, light immunity, oil and chemical resistance, solar tolerance, humidity and extreme temperatures	Rugged design endures the rigors of most outdoor environments
Gen 2 Class 1 EPC™ compliant tag	Standards compliance ensures compatibility with any Gen 2 RFID system
Mounts via adhesive or off-the-shelf 1/8 in. bolts or screws to metal, plastic, wood or any other flat surface	Provides the flexibility to attach to nearly any flat surface
Passive RFID technology	Reduced cost of ownership — unlike active tags which require batteries, 'battery-free' passive tags are virtually maintenance-free throughout the life of the tag
96-bit memory with 16-bit control for lock and kill features	Enables secure storage of the data you need to maximize the benefit of your RFID application

Since the Cargo Tag utilizes EPC Gen 2 passive technology, you can count on dependable maintenance-free performance for many years to come. From simple yard management to global tracking of containers, the Cargo Tag from Symbol Technologies helps you get the most out of your RFID solution.

For more information about the Cargo Tag or other Symbol-enabled tag solutions, please contact us at +1.800.722.6234, +1.631.738.2400 or visit us on the Web at www.symbol.com/rfid/cargotag

Cargo Tag Specifications

Physical and Environmental Characteristics

Tag Dimensions:	6 in. H x 6 in. W x 0.53 in. D 152.4mm H x 152.4mm W x 13.46mm D
Mounting Hole Size:	0.28 in. / 7.1mm
Mounting Hole Placement:	5.00 in. / 127mm square pattern
Recess area for optional label:	4 in. x 4 in. / 101.6mm x 101.6mm
Weight:	9.8 oz. / 278 g
Packaging:	30 tags per case (minimum order quantity: 1 case)
Shelf Life:	1 year from date of manufacture under recommended conditions
Performance Quality:	100% tested with edit

Performance Characteristics

Operating Frequency:	UHF band, 860-960 MHz
RF Air Protocol:	EPCglobal Gen 2, Class 1
Functionality:	Read/write (user programmed); full duplex protocol
Memory:	96-bit with 16-bit control for lock and kill features
Memory – Expected Read/Write Cycles:	Up to 10,000 under normal circumstances
Data Retention:	Life of product
Read Rate:	Up to 400 per second under normal circumstances
Read Distance:	Up to 40 ft. / 12.19m (at 1 watt power under specified conditions) ¹
Write Distance:	Up to 10 ft. / 3.05m
Polarization:	Wide beam; polarization diverse
Recommended Application for Antenna Efficiency:	Metal, plastic, wood, or other flat surfaces

Operational and Environmental Specifications

Environment	Tolerance	Compliance
Operational Temperature:	-20°C to +85°C/-4°F to +185°F	IEC 60068-2-1/2/14 IEC 60068-2-1 (Test Ad, operating cold) IEC 60068-2-21 (Test Bd, operating dry heat) IEC 60068-2-14 (Test Nb, op. thermal shock)

Storage Temperature:	-40 to +70° C/-40 to +158° F	IEC 60068-2-1 (Test Ab, unpackaged non-operating cold) IEC 60068-2-2 (Test Bb, unpackaged non-operating dry heat) IEC 60068-2-14 (Test Na, unpackaged non-op thermal shock)
Operational Humidity:	5-95% non-condensing	IEC 60068-2-30 (Test Db, unpackaged operating damp heat)
Storage Humidity:	5-95% non-condensing	IEC 60068-2-30 (Test Db, unpackaged non-op damp heat)
Vibration:	2Gs PK, Sine (5Hz to 2KHz) 0.02g2/Hz, Random (20Hz to 2KHz)	IEC 60068-2-6 (Test Fc, operating)
Shock:	Product drop 4 ft./1.22m (23°C) to concrete/granite	IEC 60068-2-32 (Test Ed, free fall, procedure 1)
Rain:	Wind blown 40 mph, 0.1 inch/min., 15 min. IPX4 Spray – 4 liters/min., 10 min.	
Dust:	Small particle .88gm/m Portland cement, stirred 5 hrs.	IEC 60068-2-68 (Test L, dust and sand)
Light Immunity:	Incandescent: 450 foot candles Sunlight: 8,000 foot candles Mercury vapor: 450 foot candles Sodium vapor: 450 foot candles	EN 60947-5-2 (operating)
Oil/Chemical resistance:	Casual contact, splash test 0.1 gal./min. (45°): engine oil, gasoline, diesel fuel, water/glycol	
Solar:	1120 watt/m2Uv spectral 250-400nm	EN 60947-5-2 (operating)

Warranty

Warranty (Limited): 90 days from ship date

1- Tested in a laboratory environment utilizing a Symbol XR400 Fixed RFID Reader. Actual field results may vary based upon RFID reader model, environmental conditions, and material on which the tag is mounted.

About Symbol Technologies

Symbol Technologies, Inc., The Enterprise Mobility Company™, is a recognized worldwide leader in enterprise mobility, delivering products and solutions that capture, move and manage information in real time to and from the point of business activity. Symbol enterprise mobility solutions integrate advanced data capture technology, mobile computing platforms, wireless infrastructure, mobility software and world-class services programs. Symbol enterprise mobility products and solutions are proven to increase workforce productivity, reduce operating costs, drive operational efficiencies and realize competitive advantages for the world's leading retailers, transportation and logistics companies, manufacturers, wholesale and distribution centers, government agencies and healthcare facilities. More information is available at www.symbol.com



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