

# MULTI ANTENNA READER SYSTEM | MARS-24 AT



## Overview

The Multiple Antenna Reader System with Adaptive Tuning (MARS-24AT) is an RFID reader/writer built for speed and accuracy. The MARS-24AT is able to verify, edit, monitor and control a large number of valuable items on up to 24 individual antennas. Adaptive tuning compensates for the effects of antenna detuning and will even alert the user should an antenna ever be disconnected or become detuned beyond the readers bounds.

The MARS-24 is a high performance system suitable for use with PJM RFID tags. It provides fast and reliable operations with a range of different external antenna types. All Magellan readers are supplied with ReaderManager software that provides a platform for reader setup, configuration, demonstrations, testing and application development.

Antennas connected to a MARS-24 can be arranged as required to operate 24 separate read/write stations or any combination of multi-axis stations that will identify tags in multiple orientations. Antennas requiring tuning will only need to be tuned once, on initial setup and can be fitted to display cases, cabinets, presentation areas and on gaming tables and shelves or on a high speed conveyor.



## FEATURES AND BENEFITS

- » Identify many hundreds of tags a second
- » Reliable identification of tightly stacked, overlapping or touching tags
- » Very fast operation with 8 reply channels
- » Rapid detection the movement of tags between antennas instantly
- » Write data such, as an Electronic Product Code (EPC), at a rate of 3000 tags per minute
- » Adaptive tuning
- » Great connectivity offering both Ethernet and USB interfaces
- » Dedicated digital I/O Interface

# SPECIFICATIONS

Electrical	
Operating Frequency	13.56 MHz
ISO/IEC Compliance	ISO/IEC 18000-3 Mode 2
Command Data Rate	424 kbit/s
Reply Data Rate	106 kbit/s per channel
Number of Reply Channels	8
Number of External Antennas	24
Number of Axes	Antennas may be designed for 1, 2 or 3 dimension operation
Operating Range	Tag type dependant
Single Axis Antennas	Round: 60 mm diameter and 124 mm diameter Rectangular: 60 x 420 mm, 120 x 240 mm and 202 x 352 mm (special antennas are available on request)
Antenna Cable Length	1.5 m, 3m (Optional cable extender required), 8m
Dedicated I/O	1 supply +5V at 200 mA maximum 8 push-pull outputs +3.3V logic 8 inputs +5V logic with 1K $\Omega$ pull-up see Digital I/O Application Note 063-70-050-DOC for further information
I/O Connector	20 way IDC Header with latches
Power Supply	12 VDC @ 3A maximum
DC Power Supply Connector	2.5 mm DC centre pin positive
Power Consumption	36W
Performance	
Recommended tags	See website for Tag Reference Table
Identification rate at 100% accuracy	Up to 600 tags/s
Identify and read 96 bits data at 100% accuracy	Up to 250 tags/s
Identify write and read back 96 bit data at 100% accuracy	Up to 50 tags/s
Host	
Host Interface	USB, Ethernet NB: Ethernet cabling must be CAT5 and shielded
Minimum Host Requirements	Windows XP SP2 / 500 MHz CPU / 128 MB RAM
Software	
Minimum Firmware	Reader Server - Version 3.42.8
Environmental	
Operating Environment	Indoor use
Temperature Range	0°C to +45°C ambient
Humidity	10% to 80% (non-condensing)

Mechanical	
Overall External Dimensions: (L x W x H)	383 x 186 x 80 mm
Net Weight	3.7 kg including power supply
Net Volume	0.0055 m <sup>3</sup>
Certifications	
USA	UL/CSA (Pending) FCC Part 15 Low Power Communication Device and EN 55022 Class B (Pending)
Europe (CE Mark)	EN55022, EN 301 489-1 V1.6.1, EN 301 489-3 V1.4.1, EN 61000-3-2, EN 61000-3-3, EN 61000-4-2, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6, EN 61000-4-11, EN 60950.1, EN 300 330-1 V1.3.1, EN 300 330-2 V1.3.1, EN 50364, EN 50357, RoHS
Australia	AS/NZS CISPR 22(2006), EN55022, AS/NZS 4268 (2003), AS/NZS 60950, RPS3 (ARPANSA)
Other Features	
Operation	Powerful processing platform allowing for automated calibrating and tuning - antenna dependant (refer to Magellan for further details)
Reader Placement	Can be placed close to each other, refer to Magellan for further information
	NB: Specifications may change without notice

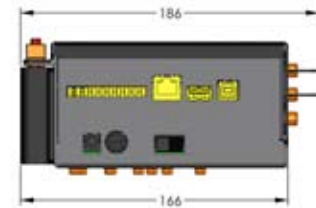


Figure 1. Dimensions (mm) back view



Figure 2. Dimensions (mm) side view



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## About Magellan

Magellan Technology Pty Ltd, Sydney, Australia, is a technology developer, manufacturer and licensor of advanced read/write 13.56 MHz RFID systems. Magellan designs and offers PJM RFID chips, inlets, a complete portfolio of reader/writers and operating software. Magellan's Phase Jitter Modulation (PJM) technology complies with the International Standard ISO/IEC 18000 Part 3 Mode 2.