



**SMART**  
**TRACK**  
**RFID**

SMARTTRACK EXPRESS  
ENTRY LEVEL RFID SOLUTION  
FOR ART GALLERY & MUSEUM  
COLLECTIONS

SMARTTRACK RFID PTY LTD | SUITE 602, 282 OXFORD ST  
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[WWW.SMARTTRACKRFID.COM](http://WWW.SMARTTRACKRFID.COM)

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# Smarttrack Express Solution Pack for Museums & Galleries

## TABLE OF CONTENTS

Why RFID? .....	3
Who is Smarttrack RFID? .....	4
What is Smarttrack Express RFID? .....	4
Smarttrack Express RFID Solution.....	5
System Architecture .....	5
Hardware .....	6
Handheld RFID Reader – CS101 .....	6
Tags - Smarttrack Delta RFID Labels .....	6
Software .....	7
Smarttrack Mobile .....	7
Smarttrack Express .....	8
Upgrade and additional options.....	9
Pricing .....	10
Appendix A - Specifications – CS101 handheld UHF Gen 2 reader.....	12
Appendix B - Specifications – Smarttrack Delta RFID Label.....	12
Appendix C – Recommended System specifications .....	13

# Smarttrack Express Solution Pack for Museums & Galleries

## WHY RFID?

Museums and Galleries, both small and large, keep large collections of objects and artworks. These collections do not remain static – they are constantly moved or checked for a variety of reasons e.g. display, conservation, photography, research, storage redevelopment, inventory, audits, etc, etc. Keeping track of the whereabouts of each and every item within the collection is a core function of every Museum and Gallery. Traditionally this has been done through manual record-keeping, updating ledgers or card files with new locations whenever something is moved. In recent years this has largely been superseded by the use of electronic Collection Management Systems (CMS), which provide a more robust, flexible, and accessible recording system. However, the actual recording of location moves is by and large still a manual process, with numbers needing to be read on objects, transposed onto paper forms, which are then manually entered into the CMS – each step potentially having errors, requiring considerable time, and also requiring unnecessary handling of the objects or artworks.

The unique features of RFID technology (in particular that line of sight not required to read tags and that 100's of tags can be read per second) enables Museums and Galleries to totally automate these processes, thereby providing the following benefits:

- Full visibility of collections, leading to increase in quality, quantity and availability of information
- Significant labour savings in inventory, audits, stock-takes, condition checks, loan processing, crate tracking, etc. RFID tagging eliminates the need to manually count and handle objects and artworks, whilst eliminating human error with less physical human interaction.
- Reduced risks to objects and artworks through the reduction in handling required.
- RFID tags can be interfaced with existing CMS'.

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## WHO IS SMARTTRACK RFID?

The **Smarttrack** RFID solution has been developed specifically for Museum and Gallery collections by the combined knowledge and expertise of staff from International Conservation Services and Ramp.

International Conservation Services (ICS) provides conservation services and collection management consulting to the heritage sector. It is the largest privately-owned conservation business in Australasia, with a staff of up to 30 covering a wide range of disciplines. As part of its collection management consulting services ICS has carried out RFID studies for the National Museum of Australia, Melbourne Cricket Club, Museum of Brisbane, and the National Gallery of Australia.

Ramp is a technology solutions integrator, exclusively focussed on RFID integration and application development. Ramp has considerable experience in with retail and logistics utilising RFID technology and provides leading-edge software and hardware solutions to a wide range of clients.

## WHAT IS SMARTTRACK EXPRESS RFID?

The **Smarttrack** Express RFID solution is designed with smaller Museums and Galleries in mind. The basic system includes one handheld reader which enables custodians of smaller collections to carry out the normal day-to-day tasks associated with tracking objects, namely:

- Update locations
- Carry out stock-takes / inventory
- Search for missing items

The standard **Smarttrack** Express solution provides for 1000 tags and one handheld reader. The system is provided with an installation CD including PC software (**Smarttrack** Express database) and all manual required to operate the system.

All that is required to implement the **Smarttrack** Express system is a PC (subject to minimum PC requirements) with USB ports.

The handheld reader connects to the PC to automatically synchronize and update the database with location changes, inventory data, etc.

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## SMARTTRACK EXPRESS RFID SOLUTION

Objects are tagged with the Smarttrack Delta tags in order to conduct collection audits and to search for objects using the CS101 handheld reader. The handheld reader is also used to assign tags to objects.

The solution has a stand-alone database backend system with a web based user interface.

## SYSTEM ARCHITECTURE

The system architecture has three primary system components:

- 1) RFID Reader – CS101 handheld
- 2) RFID Tags attached to objects and artworks
- 3) Smarttrack Express Software



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## HARDWARE

### HANDHELD RFID READER – CS101

#### DESCRIPTION

The CS101 is a UHF EPC C1G2 handheld RFID reader with industry leading read range and read rate performance to enable ultra fast inventory of tagged objects in business processes where fixed reader class performance is required in a portable device.



#### FEATURES

- Excellent read range: 3 meters open space, 4 meters indoor confined space
- High read rate: 200 tags per second
- Country specific versions in terms of frequency bands

### TAGS - SMARTTRACK DELTA RFID LABELS

#### DESCRIPTION

The Smarttrack Delta UHF Gen 2 RFID label comprises an integrated circuit (IC or chip) that has been mounted on a substrate, which has been pre-printed with an antenna pattern using conductive ink.



The resulting inlay assembly is then converted or sandwiched between a printed label and its adhesive backing, yielding a smart label. The label is then programmed with a unique identifier (UID).

The UHF inlays used in the Smarttrack RFID labels are manufactured by UPM Raflatac, the global leader in RFID Inlay manufacturing. We use these inlays to make our complete range of Smarttrack RFID labels.

The integrated circuit (IC) within the Smarttrack RFID Tags are guaranteed for a minimum of 100,000 reads, which in a typical Museum / Gallery environment is likely to be several hundred years.

Tags can be attached in a variety of methods depending on the nature of the object or artwork. Please contact Smarttrack RFID to discuss the best attachment solutions for your collection.

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## SOFTWARE

### SMARTTRACK MOBILE

#### DESCRIPTION

Smarttrack Mobile is a software application designed to work on a CS101 handheld reader running Windows CE 5.0.

The system utilises Ultra High Frequency (UHF) RFID technology with the use of globally recognised EPC Gen2 compliant tags.

The Smarttrack Mobile Software is integrated to the Smarttrack Database using USB Active Sync to any PC on the network running the Smarttrack Services Communication Module.



#### FEATURES

- Inventory - read all tagged items in a selected location
- Search for a tagged item – visual and audible notification based on RSSI
- Add Items - read tag and add item to the database
- Add locations
- Add employees
- Read barcodes as well as tags for all the above
- Synchronise

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## SMARTTRACK EXPRESS

### DESCRIPTION

Smarttrack Express is a stand-alone Item Tracking database system with a web front end. Designed using Microsoft.Net and SQL technology, it is the backbone of the system. All interfaces and peripherals are linked to the Smarttrack Database via LAN or WLAN networking. Object, location and employee data is all stored and synchronized.



### FEATURES

- Item Cataloguing - Create Items on the system; enter the Tag Identifier, a detailed description, search terms, photo, Item type, Item group & subgroup(s), location and assign security access levels.
- Administration – Create users and security levels, Item types, groups and subgroups, locations and sub locations, alerts, reports and system settings.
- Item Search - Search for an Item on the system, view the status and location and any maintenance tasks scheduled.
- Detailed Reporting – The Smarttrack system allows for detailed reports on the use, location, movement and maintenance of Items as well as system audit reports.
- Web Management Console – All other functionality can be accessed via an Internet Browser on any PC connected to the LAN.

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## UPGRADE AND ADDITIONAL OPTIONS

Smarttrack Express users have a range of upgrade options available;

- Additional items – Express database allows a maximum of 1,000 objects. Additional tags can be purchased with an enhanced license to increase in lots of 1,000, 5,000 and 10,000.
- Additional handheld readers
- Fixed reader track points – allow for automated hands free tracking (requires upgrade to full Smarttrack solution)
- Integration – the Smarttrack Solution can be integrated to most collection management systems via web services, HTTP request or directly to a database (requires upgrade to full Smarttrack solution).

Please contact us to discuss these options.

Smarttrack RFID is also available to provide on-site installation and set up services, as well as on-site training. Please contact us to discuss this if required.

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## PRICING

SMARTTRACK EXPRESS	AUD	\$4,995
ANNUAL LICENSE FEE FROM YEAR 2*	AUD	\$1,200

### INCLUDES:

#### HARDWARE

CS 101 Handheld reader x 1

#### TAGS (INCLUDES PRINTING & ENCODING)

Smarttrack Delta Labels x 1,000

#### SOFTWARE

Smarttrack Mobile x 1 – annual license per reader\*

Smarttrack Services Express x 1 – annual license per instance\*

Smarttrack Enterprise Express x 1 – annual license per enterprise\*

\*Annual license fee includes all three Smarttrack software elements.

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ADDITIONAL OPTIONS		
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HARDWARE	UNIT PRICE	TOTAL
CS 101 Handheld readers	\$3,600	\$3,600

TAGS (INCLUDES PRINTING & ENCODING)	UNIT PRICE	TOTAL
Smarttrack Delta Labels x 1,000	\$0.80	\$800
Smarttrack Delta Labels x 5,000	\$0.70	\$3,500
Smarttrack Delta Labels x 10,000	\$0.65	\$6,500

SOFTWARE	LICENCES	PER ANNUM
Smarttrack Mobile – annual license per reader	1	\$1,200
Smarttrack Services – annual license per instance	1	\$500
Smarttrack Enterprise – annual license per enterprise	1	\$3,500

**Note:**

All prices exclude GST  
 All prices FOB Sydney

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## APPENDIX A - SPECIFICATIONS – CS101 HANDHELD UHF GEN 2 READER

PHYSICAL CHARACTERISTICS	LENGTH = 197 MM, WIDTH = 122 MM; HEIGHT = 223 MM; WEIGHT = 1.2 KG
READ RANGE	UP TO 3 METERS IN OPEN AREA (USING SMARTTRACK DELTA TAG) UP TO 4 METERS IN CONFINED SPACE (USING SMARTTRACK DELTA TAG)
READ RATE	200 TAGS PER SECOND FOR SELECTED MODES
PROTOCOL	ISO18000-6C, EPC UHF CLASS 1 GEN 2
RFID FREQUENCY RANGES	ONE OF THE FOLLOWING: 865-868 MHZ, 902-928 MHZ, 952-954 MHZ, 919-928 MHZ, 910-914 MHZ
ENVIRONMENT	OPERATING TEMP: 0°C TO 50°C STORAGE TEMP: -40°C TO 85°C HUMIDITY: 10% TO 95% NON-CONDENSING
USER INTERFACE – INPUT	QWERTY KEYBOARD, TOUCH SCREEN, TRIGGER BUTTON
USER INTERFACE – OUTPUT	3.5" TRANSMISSIVE LCD, 320 X 240 PIXELS, LED X 2, BUZZER
CONNECTIVITY	WI FI (802.11 B/G), USB, RS232
EXTERNAL MEMORY	SD CARD, UP TO 2 GBYTE
PROCESSOR & MEMORY	SAMSUNG, 400 MHZ, 64 MBYTE FLASH, 64 MBYTE RAM
BATTERY LIFE	2 HOURS CONTINUOUS READ, 20 HOURS STANDBY, EASILY FIELD REPLACEABLE BATTERY
RESTRICTIONS ON USE	APPROVALS, FEATURES AND PARAMETERS MAY VARY DEPENDING ON COUNTRY LEGISLATION AND MAY CHANGE WITHOUT NOTICE

## APPENDIX B - SPECIFICATIONS – SMARTTRACK DELTA RFID LABEL

<b>GENERAL INFORMATION</b>	
FREQUENCY RANGE	860 – 960 MHZ
IC	EPC CLASS 1 GEN 2 NXP G2XL/M
<b>RF SPECIFICATIONS</b>	
IC PROTOCOL	UHF EPC CLASS-1 GEN2
IC MEMORY	880 BITS
READ RANGE	DELTA: +- 2 - 4M
<b>PHYSICAL SPECIFICATIONS</b>	
LABEL MATERIAL	PAPER
ATTACHMENT	STANDARD PERMANENT ADHESIVE
LENGTH	97 MM
WIDTH	15 MM
OPERATING TEMPERATURE	-20°C/+85°C
* OPERATING RANGE DEPENDS ON ANTENNA SELECTION, ENVIRONMENTAL FACTORS AND OPERATIONAL REQUIREMENTS.	

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## APPENDIX C – RECOMMENDED SYSTEM SPECIFICATIONS

- PENTIUM 4 2.4GHZ
- WINDOWS XP PRO / MICROSOFT SERVER 2003
- IIS 6
- 512 MB RAM MINIMUM
- 80 GB HARD DRIVE
- FIREFOX 3.0 / IE 7 / CHROME MINIMUM REQUIRED BROWSER