

xTP INSTALLATION AND USER GUIDE

Revision History

Rev	Date	Author	Description
01	10/17/2012	Brian Piquette	Initial release

Document Approvers & Sign-Off

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Table of Contents

1	Introduction.....	4
1.1	Purpose.....	5
1.2	Definitions	5
2	Safety Warnings.....	6
2.1	Important Safety Instructions	6
2.2	Explosive Safety Warning	6
2.3	Lightning Warning	6
3	Regulatory Compliance.....	7
3.1	Federal Communications Commission (United States)	7
3.2	UL Certification.....	7
4	Specifications.....	8
4.1	Connection Ports	8
4.2	RFID Capabilities	8
4.3	Operating Conditions.....	8
4.4	Power	9
4.5	Physical.....	10
4.5.1	xTPX Module, Available in 4 different color options.....	10
5	Installation	13
5.1	Trained Installation and Service Personnel Warning	13
5.2	Electrostatic Discharge Warning	13
5.3	Telecom Warning.....	13
5.4	Installation Instructions.....	14
5.4.1	Generic Stanchion Installation	14

1 Introduction

The Synapse xTP Short Range Reader is part of a proprietary data acquisition and tracking system. It provides an HF RFID reader (TX/RX) to read RFID tag data from proprietary RFID media. This RFID tag data can be then sent over an Ethernet connection to a data collection/concentration object. The xTP is designed to be mounted in several known stanchions which provide the final weather proof enclosure for the product.

The xTP assembly is designed to be mounted in one of several different stanchion designs. Among the existing stanchion designs are the Park Entry Sphere, multiple themed stanchions, and several kiosk installations. The diagram below shows the sub-assemblies that go into the themed stanchion assemblies.



1.1 Purpose

This document provides basic installation and user instructions for the Synapse xTP Short Range Reader.

1.2 Definitions

Term	Definition
RFID	Radio Frequency Identification
OTS	Off the shelf
cULus (NRTL)	Canadian & US Underwriters Lab recognition (Nationally Recognized Testing Laboratory)

2 Safety Warnings

2.1 Important Safety Instructions

When using this device, basic safety precautions should always be followed to reduce the risk of fire, electric shock and injury to persons.

Do not use this product near water. For example, do not use:

- near a bath tub
- near a wash bowl
- near a kitchen sink or laundry tub
- in a wet basement
- near a swimming pool

2.2 Explosive Safety Warning

Warning! Do not operate this device near explosive devices, unshielded blasting caps or in an otherwise explosive environment unless the device has been approved for such use by qualified personnel.

Warning! Do not disconnect the power or any other cabling in an explosive environment until such qualified personnel, trained specifically in explosive environment handling, have determined it is safe to do so.

2.3 Lightning Warning

Warning! Do not connect or disconnect cables or otherwise work with the device hardware during periods of lightning activity.

Avoid using this product during an electrical storm. There may be a remote risk of electric shock from lightning.

3 Regulatory Compliance

3.1 Federal Communications Commission (United States)

Regulatory Compliance Information

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Caution:

Any changes or modifications not expressly approved by Walt Disney Parks and Resorts U.S. (WDPR) could void the user's authority to operate this equipment.

3.2 UL Certification

The xTP has been certified as a UL Recognized Component to the UL 60950-1 standard.

900-0142	Rev 01	xTP Installation and User Guide	Page 7 of 16
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4 Specifications

The Synapse xTP Short Range Reader is manufactured to the following specifications:

4.1 Connection Ports

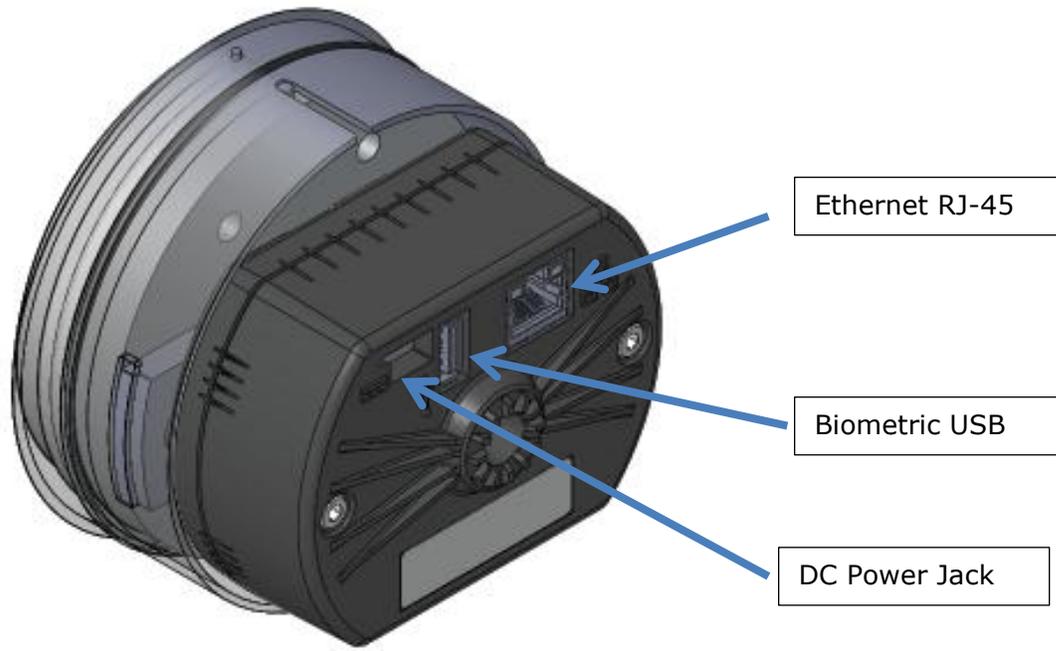


Figure 1 – xTP Connections

- **Ethernet 10/100 RJ-45:** 100m Max. cable length
- **USB-A HS port:** USB port for biometric reader peripheral, not intended for OTS USB peripheral connections.
- **DC Power Jack:** Hirose Part Number RP34L-5R-3PD connector, See Document 604-0016-01 for the mate with connector detail and pinout.

4.2 RFID Capabilities

- **TX/RX:** 13.56 MHz
- ISO 14443A, with support for proprietary security protocols

4.3 Operating Conditions

Temperature:

- **Operating:** -10°C to 50°C
- **Storage:** -20°C to 60°C
- **Operating Relative Humidity:** 90% condensing/non-condensing

- **Altitude:** 8,000 ft @28°C (82.4°F)

4.4 Power

DC Input: 24Vdc, 3A max

NOTE: This product must be used with a DC power source that is cULus (NRTL) Listed, with an output rated 24VDC +/- 20% maximum, minimum 3A , Marked "LPS" or "Class 2", output rated SELV, non-energy hazardous and suitable for connection to a standard power receptacle in the US and Canada.

4.5 Physical

4.5.1 xTPX Module, Available in 5 different color options

xTPX, PN: 300-001044-xx, 300-001424 (Figure 2)

- **Plastic face material:** Polycarbonate
- **Dimensions:**
Diameter: 99.28mm
Height: 40.96mm
- **Unit Weight:** 360 grams



Figure 2 – xTPX Module

The xTPX is available in 4 different color configurations. The part number details are as follows:

Part Number	Color Callout
300-001044-01	CWCL 3164M
300-001044-02	Dupont Spectramaster YS146
300-001044-03	Dupont Spectramaster DS 171
300-001044-04	Pantone 464U
300-001424	Test Track Logo Dome



DuPont
Spectramaster
YS146

Pantone 464U

Dupont
Spectramaster
DS171

CWCL 3164M

Test Track Logo Dome



4.5.2 xTPE Module

xTPE Module, PN: 300-001051 (Figure 3)

- **Material:** Polycarbonate
- **Unit Weight:** 130 grams

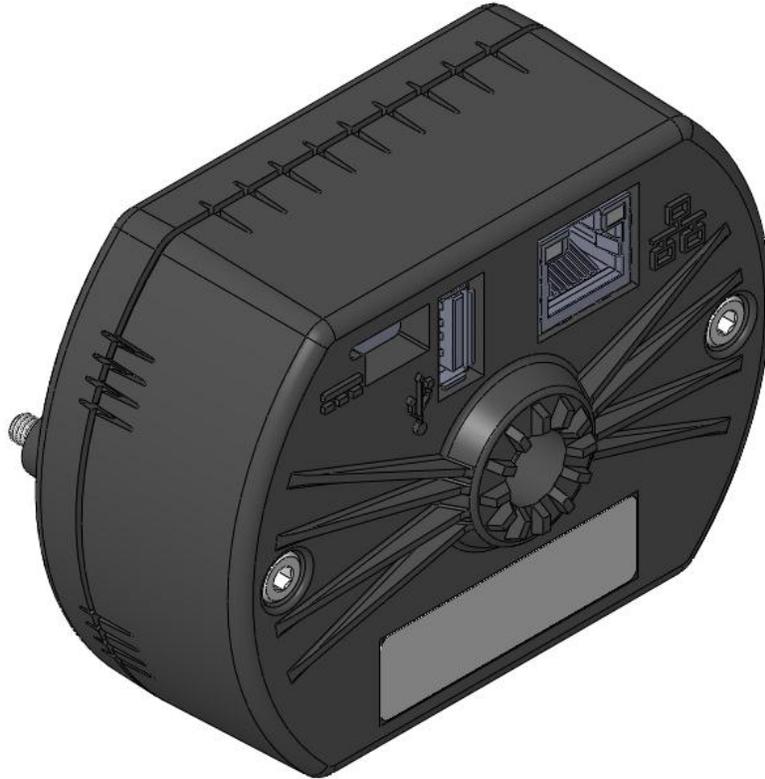


Figure 3- xTPE Module

5 Installation

5.1 Trained Installation and Service Personnel Warning

Warning! Installation and service of this product is to be performed by trained installation and service personnel only. Read and follow all warning notices and instructions marked on the product or included in the documentation. Before installing the product, read the rest of this document and follow specific product instructions.

When installing, the placement of the device must also satisfy the following installation requirements:

- Placement must allow for easily disconnecting the power cord/adaptor of the device from the AC wall-outlet.
- Keep the device away from excessive heat and humidity and keep the device free from vibration and dust.
- Installation must at all times conform to local regulations.
- Network Connections can be made with either Unshielded Twisted Pair (UTP) or Shielded Twisted Pair (STP) cabling.

5.2 Electrostatic Discharge Warning

Warning! Wear an anti-static wrist strap or take other suitable measures to prevent electrostatic discharge when handling this equipment.

5.3 Telecom Warning

Note: This unit is intended for local (intra-building) connections only and is not designed or evaluated for direct connections to the public telecommunications/cable distributions systems. Cable and Ethernet connections should be made in accordance to the National Electrical Code (NEC). For example, one of the following should be true*:

- Cable runs are located in the same building as this unit.
- Cable runs through air between buildings are less than 42m (140ft).
- Cable runs between buildings are directly buried.
- Cable runs between buildings are in underground conduit, where a continuous metallic cable shield or a continuous metallic conduit containing the cable is bonded to each building grounding electrode system.

*These options are from the US National Electrical Code, Sections 800.10, 800.12, 800.13, 800.31, 800.32, 800.33, and 800.40.

900-0142	Rev 01	xTP Installation and User Guide	Page 13 of 16
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5.4 Installation Instructions

The xTP was designed to be installed in various stanchion/enclosure designs. For detailed enclosure/stanchion design rules, refer to Document 900-0143, Stanchion Design Requirements.

5.4.1 Generic Stanchion Installation

The images below show an show the xTP being installed into a stanchion mock up showing the front face and back wall to demonstrate the steps involved with installation. An actual stanchion is a full enclosed, sealed enclosure for the xTP.

To install the xTP Assembly:

1. Ensure that the Trim Ring O-ring is lubricated with Molykote 55.

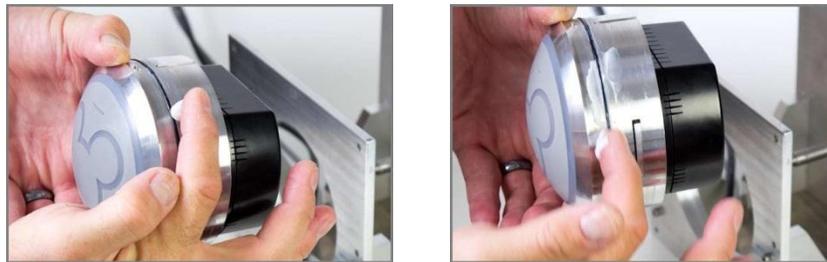


Figure 10.5 – Lubricating the Trim Ring

2. Plug in the Ethernet and power lead into the ports at the back of the xTPE. The arrow on the power lead is facing down.

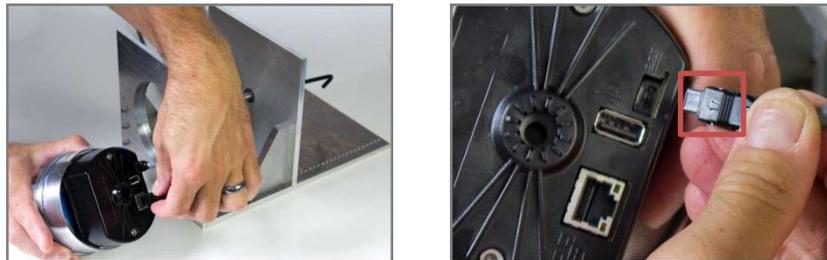


Figure 10.6 – Plugging in the Ethernet and Power Lead

3. Wait for the Ethernet indicator lights to show connection and activity by blinking.
NOTE: It can take over a minute to connect, once the power is plugged in.



Figure 10.7 – Ethernet Indicator Lights

4. Orient the Trim Ring pin to the groove in the stanchion (12 o'clock).



Figure 10.8 – Orienting the Trim Ring

5. Push the xTPA in until you meet some resistance.



Figure 10.9 – Pushing the Subassembly

6. When you meet resistance, the xTPA has contacted the screw at the back of the stanchion.



Figure 10.10 – Contacting the Screw

- Using a 3/16" Hex wrench, turn the screw at the back of the stanchion clockwise until the Trim Ring flange is flush against the stanchion's front wall.

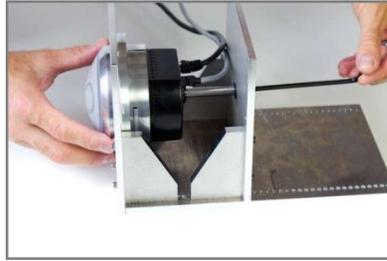


Figure 10.11 – Subassembly Against Stanchion Wall

- Continue to turn the screw until meeting some additional resistance. At this point, the screw shoulder has bottomed out in the xTPA.

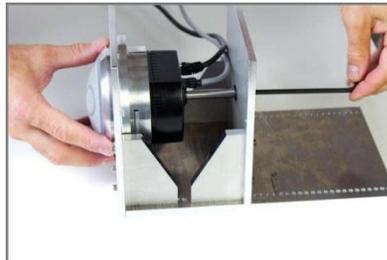


Figure 10.12 – Screw Shoulder Bottoms Out

- The installation is complete.