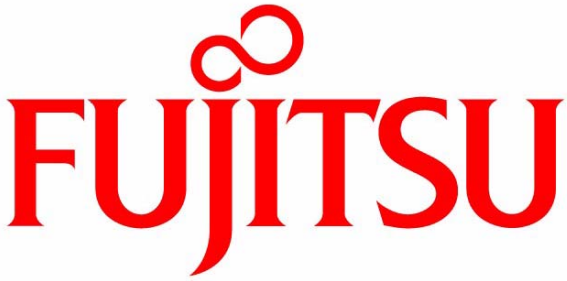
U-SCAN® MAX™

Single Belt Station

Site Preparation and Installation Guide

FUJITSU



Title:	U-Scan Max Single Belt Site Preparation and Installation Guide
Date:	February 22, 2007
Audience:	Field Engineers and Fujitsu Corporate Clients
Document Update:	Version 11

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1 Introduction

The U-Scan® Self-Checkout system is an automated self-service checkout solution for the retail customer. Once installed, the U-Scan system enables customer self-service and requires minimal intervention by Attendant Station personnel.

U-Scan Supported Operating Systems

The typical store layout for the U-Scan system includes one Attendant Station with four Customer Stations.

The U-Scan system can support the following POS applications

- IBM 4680/90 (supports: ACE, SMA, GSA, and CSA)
- NCR Unity
- ICL ISS400
- POS 6300
- POS Plus (Retail for Windows)
- Proprietary DOS
- UNIX ACR
- UNIX Innovax/Aurora
- Fujitsu (supports: Global Store, Retalix, and ISS45)
- Radiant

This document describes the site preparation and installation requirements.

This document includes:

- Physical dimensions of major components
- Space requirements
- Electrical power requirements
- Cabling requirements
- System network requirements necessary for installation of the U-Scan

Document Updates

Version 11:

- Added Customer Station optional skirt installation procedures (main unit, pedestals, bagging shelf).
- Modified instructions for leveling the system.
- Added procedure for installing the controller board.
- Updated diagram of BANNER sensor array controller box.
- Updated information on connecting the conveyor unit to the main unit.
- Updated test shim information in the post-installation checklist.
- Added instructions to cycle the power on the BANNER sensor array after adjusting the sensor array.

Version 10:

- Added "Appendix: HyperTerminal" on page 43 containing Hyperterminal procedures.
- Updated instructions to indicate that the elevation and latitude settings should be verified and modified if necessary after installation.
- Added instructions for verifying the scale type through Hyperterminal.
- Updated instructions to indicate that the scale should be calibrated (auto-calibration method) through HyperTerminal after installation.
- Removed instructions for performing a hard zero after installation.

Version 9:

- Updated instructions to indicate that a hard zero should be done through Hyperterminal after the system is installed.

Version 8:

- Removed all instructions on calibrating the input belt scale after installation.
- Added instructions to zero the input belt scale after installation.

Version 7:

- Added instructions for removing the shipping brace on page 24.
- Added instructions for removing the shipping screw on page 24.
- Updated unit dimensions in the "Delivery Issues" section on page 9.
- Added BANNER sensor array grounding information on page 21.
- Updated main unit diagrams to show the 2.53 casing.

Version 6:

- Replaced all SCANGINEER sensor array information with the BANNER sensor array information.

Version 5:

- Added instructions for leaving 4” of plastic tubing covering the cables inside the casing (page 26).
- Updated cable access image to show the cut-out on the bottom of each pedestal (page 6).
- Updated image of bagging shelf on page 32.
- Added check box to the Post-Installation Checklist for ensuring that items measuring less than 1/8” are not detected by the sensor array on page 38.
- Added further instructions for checking the cables in Post-Installation Checklist on page 38.
- Updated procedure for connecting the conveyor unit to the main unit that starts on page 25. Casing design “C” is now reflected. The threaded holes on the conveyor unit were replaced by studs. A star washer and a nut are fastened to each stud to secure the two units.

Version 4:

- Added information on the ground cable connecting the two motor grounding points on page 21 and 22.
- Added grounding plug information and Grounding Methods Illustration from “Motor Operated Appliances - UL 73 illustration on page 8.

Version 3:

- Added information on the power cable connection to the controller board on page 8.
- Added information on grounding the controller board tray to the grounding table and diagram on page 21 and 22.
- Added grounding warnings on page 21.
- Updated section heading for UL compliance.

Version 2:

- Updated cable connection schematic and table with the latest information received from the Assembly facility.
- Made minor modifications to the procedure “Install the Cable Gland on the Main Unit” on page 25.
- Added instructions for installing the optional bagging shelf on page 32.
- Made minor modifications to the “U-Scan Max Single Belt Post-Installation Checklist” on page 38.
- Updated image on cover page.

Version 1:

- Document creation.

2
Site Preparation

Site Layout

A standard layout of the Attendant Station and Customer Stations is illustrated below:

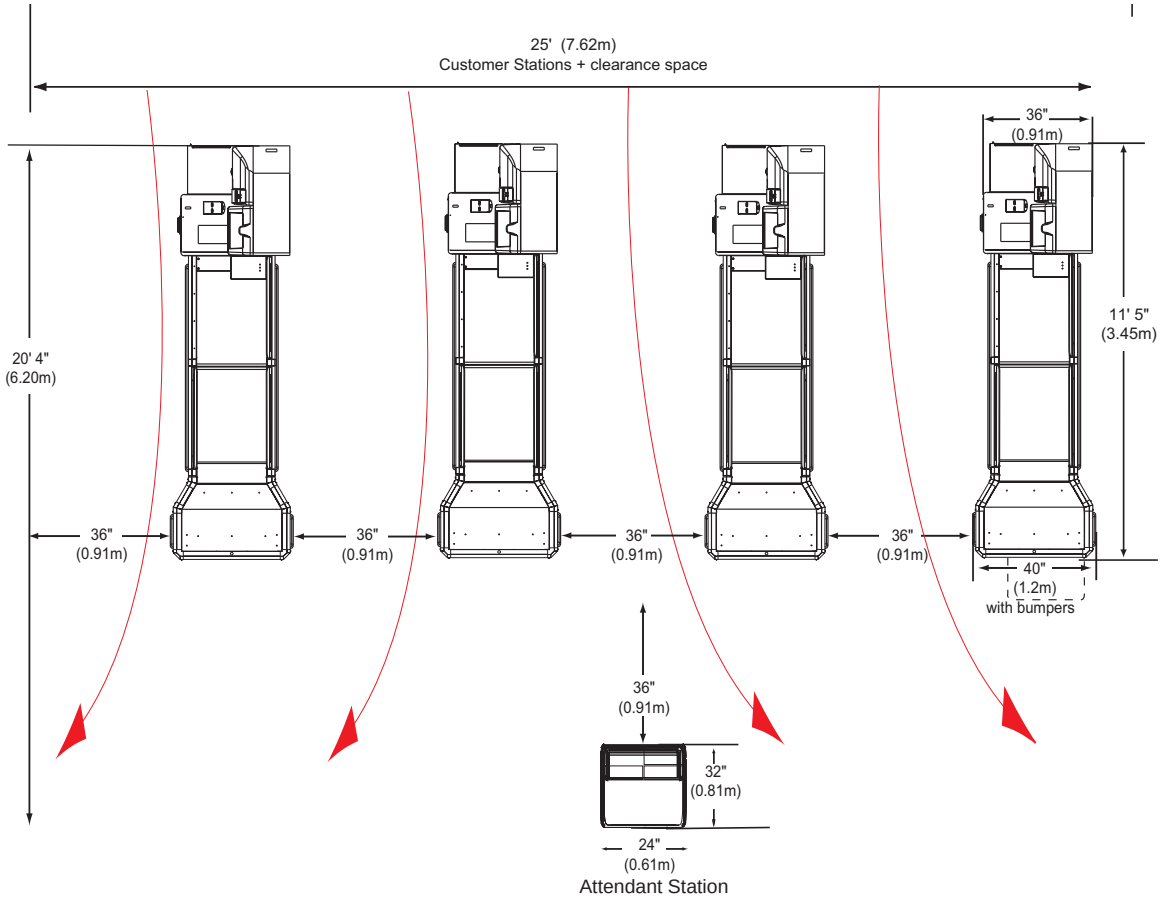


Figure 2.1 Four U-Scan Max Single Belt Customer Stations with 24” Attendant Station floor plan

Your site may require a different look due to unique characteristics of your store and available floor space. Fujitsu performs a site survey prior to installation to assist in site planning and integration of the U-Scan system into your store’s existing traffic flow patterns.

Local Codes

Consult the local fire department and building department for fire, safety, and electrical codes applicable in your area.

Critical Layout Issues

Adhering to the following recommendations will help ensure successful installation and operation. The space requirements critical to traffic flow and maintenance access are:

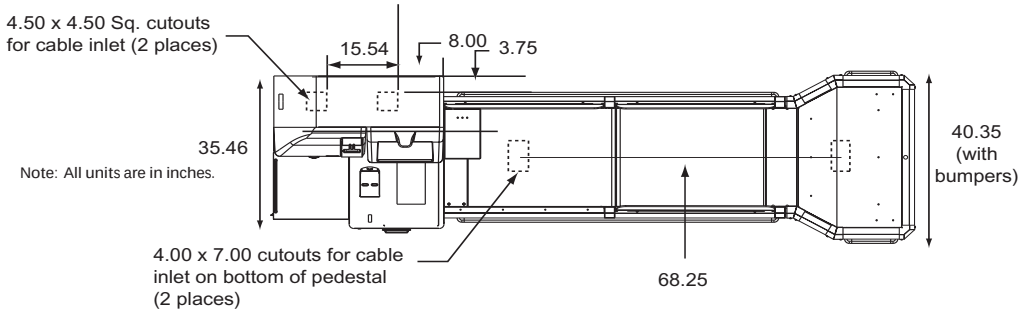
- A traffic flow area equal to at least three times the width of a shopping cart between the left and right Customer Stations. It is recommended in all layouts to place the Customer Station with its front panel flush with the rearmost panel of the rear lanes.
- A distance of 48 inches must exist between the Attendant Station and the nearest spot on the Customer Station case. This space ensures adequate space for customers to exit the self-checkout area. This space may be calculated diagonally.
- A one foot clearance **behind** the Attendant Station and Customer Stations is required if the Attendant Station and Customer Stations are backed against a wall.

Communication and Cabling Access

Customer Station

Clearance space between the floor and the Customer Station cabinet for a power or communication outlet can vary between 3 to 5 inches. Multiple openings in the cabinet bottom provide cable access. The power supply mounts to a removable tray to facilitate cabling. When the Customer Station is installed, levellers are used to bring it flush with the duct-work.

U-Scan Max Single Station Cable Access



Attendant Station

Clearance space between the floor and the Attendant Station cabinet for a power or communication outlet can vary between 3 to 5 inches. Cable routing into the Attendant Station is through the bottom of the cabinet. The removable panels allow cable routing into the cabinet. Openings in the cabinet floor and wall facilitate routing cables within the

cabinet. Once the Attendant Station is installed, its adjustable levellers are used to bring the station flush with the duct-work.

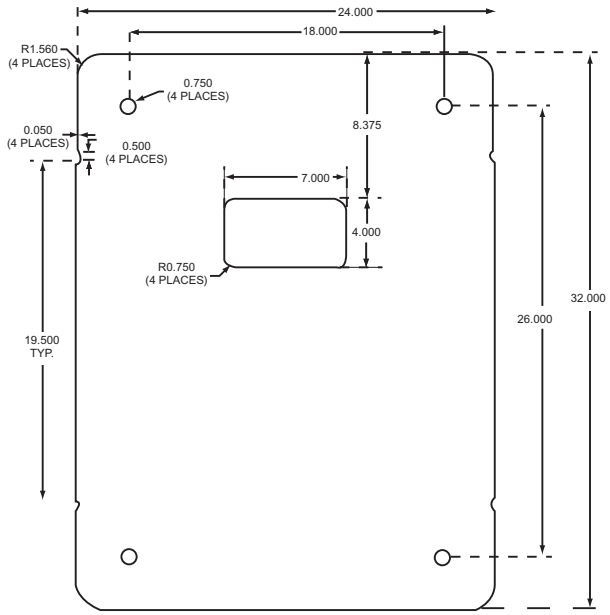


Figure 2.2 24” Attendant Station communication and cabling access

Electrical Power Requirements

Before installing the U-Scan system, verify that your electrical service matches the U-Scan system’s requirements. The U-Scan system has been engineered for compatibility with electrical systems that operate in ranges from 100 to 130 VAC at 60 Hz.

The Attendant Station requires:

- One dedicated 110-volt, 20 amp AC electrical circuit with a minimum of one outlet.

Each U-Scan Max Customer Station requires:

- **Two** dedicated 100-volt, 20 amp AC electrical circuits: one for the controller board, and one for the U-Scan UPS.

NOTE: *These requirements are for your U-Scan system only and do not take into account any extra electrical devices such as overhead lighting or marketing system printers. These devices should be connected on different outlets than those used for the U-Scan system. Do **NOT** connect these devices to the U-Scan power bars or UPS.*

CAUTION:
Safe operation of your U-Scan system requires properly grounded electrical outlets. You

must have a qualified electrician certify the earth-ground connection on the AC circuits used to power your system.

Controller Board Power

The power cable connection to the controller board must be easily removed to allow the check stand to be connected to a supply by a fixed wiring system if the local authority requires permanent connection.

The cable to the controller drawer must be modified as follows:

- Plug must be removed.
- Minimum of 6” of lead length must be provided inside the junction box for the electrician to make the connection between the fixed wiring system and the controller drawer.

This modification must be made in an area such that it can be easily inspected and approved by the local authority.

This appliance is for use on a nominal 120 V circuit, and has a grounding plug that looks like the plug illustrated in sketch A in [Figure 2.3]. A temporary adaptor, which looks like the adaptor illustrated in sketches B and C, may be used to connect this plug to a 2-pole receptacle as shown in sketch B if a properly grounded outlet is not available. The temporary adaptor should be used only until a properly grounded outlet can be installed by a qualified electrician. The green colored rigid ear, lug, and the like, extending from the adaptor must be connected to a permanent ground such as a properly grounded outlet box cover. Whenever the adaptor is used, it must be held in place by the metal screw.

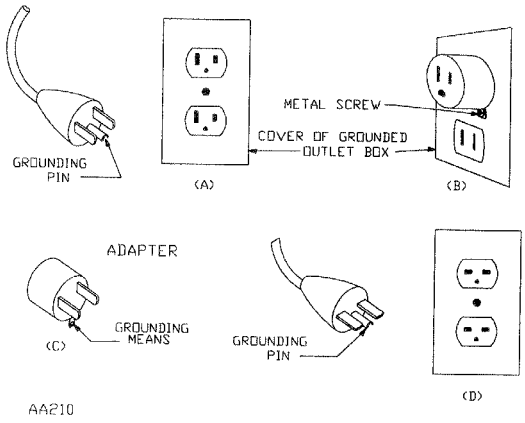


Figure 2.3 Grounding Methods Illustration from “Motor Operated Appliances - UL 73”

AC Power Supply

There is one Uninterrupted Power Supply (UPS) for each Customer and Attendant Station. The power cord that connects the power supply to the AC outlet is the only part that may be unique to your installation.

The input ratings of the U-Scan power supply are:

VOLTAGE	FREQUENCY	CURRENT (RMS)
100 - 130 VAC	60 HZ +5%	20 Amps @ 110V

The U-Scan Max Single Belt controller board has its own 24V, 1.25A power supply that connects to an AC outlet.

Every effort is made to ensure that your U-Scan system is compatible with your electrical system. If the power cord will not plug into your AC power receptacle, contact Fujitsu immediately.

Delivery Issues

Access from the loading area to the installation site requires a minimum allowance of the following dimensions:

CUSTOMER STATION	WIDTH	HEIGHT	LENGTH
U-Scan Max Single Station	Main unit: 36” Conveyor belt: 41” (with bumpers)	52” (with wheels)	Main unit: 36” Conveyor belt: 100” Full Station: 137”

The Attendant Station and Customer Stations are shipped on wheels for ease of movement. Once on site, the stations are stabilized on the built-in adjustable legs. Removing the shipping wheels is optional but recommended.

Shipping Specifications

The U-Scan system is shipped encased in shrink wrap and wrapped in blankets to prevent damage. The U-Scan Max Single Belt Customer Station is shipped in two portions: the main unit and the conveyor belt unit.

NOTE: *The system should be inspected for damage on arrival. If unable to do so, acknowledge receipt on the waybill but include that the system has **not** been inspected for damage.*

Required Tools

Ordinary hand tools are required.

System Cable Requirements

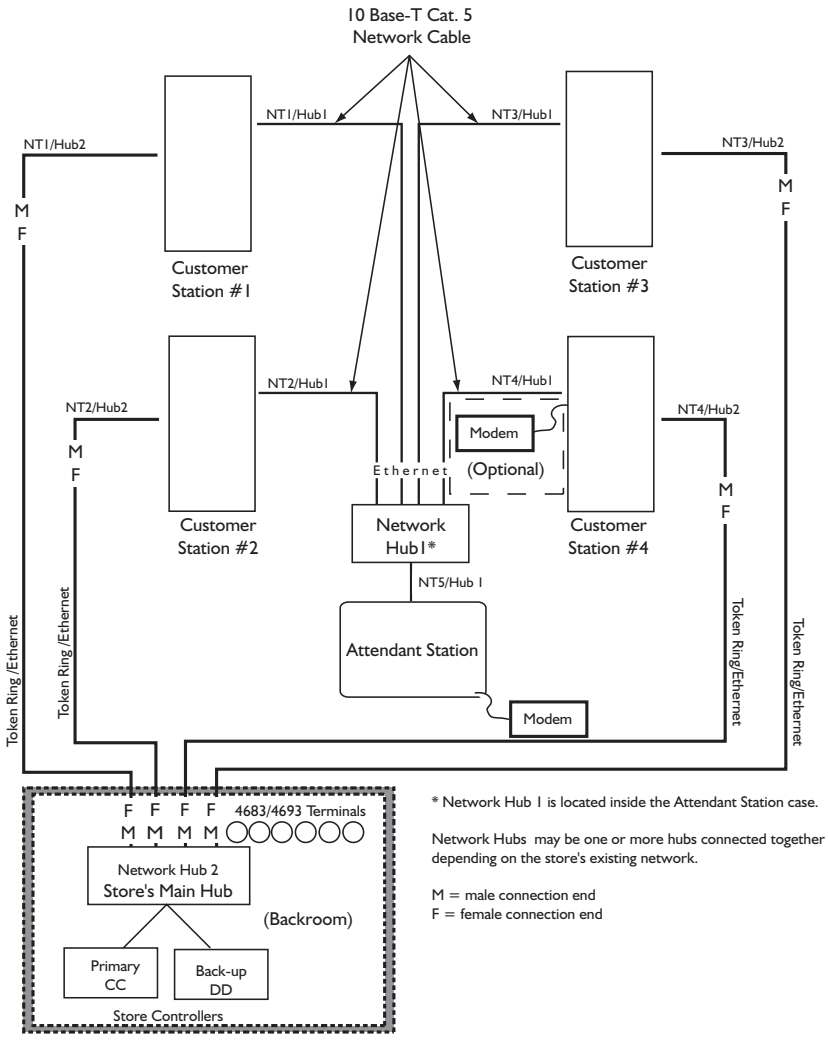


Figure 2.4 U-Scan system cable connections

Figure 2.4 demonstrates the system cable requirements for the U-Scan system. Cabling for the Customer Stations EFT device must be installed by you and is not included in the diagram. The overall network hub configuration may vary from site to site.

3
Installation

Installation Instructions

Pre-Installation Check

Before installing the Customer Stations, verify that:

- AC Power plugs are installed.
- System cables are routed between the U-Scan site and the Store Controller.
- System cables are labeled properly.

Attendant Station

Most of the Attendant Station's core components are mounted in the cabinet at the installation site. See Figure 3.1. The core components include:

- Computer
- Touch Screen Monitor
- Keyboard
- Network Hub
- Handheld Scanner
- Receipt Printer / Check Endorser
- Cash Drawer
- Serial I/F Box Ports (1-4)
- Relay SEM / Beeper (not shown in Figure 3.1)
- Uninterruptible Power Source (UPS)
- Modem
- iPAD Mobile Attendant
- iPAD Mobile Attendant Wireless Hub

Figure 3.1 shows the core components of the Attendant Station.

Attendant Station (UL Regulations)

In accordance with UL regulations, locks must be installed on the U-Scan Attendant Station casing. Ensure that locks are installed on the Attendant Station.

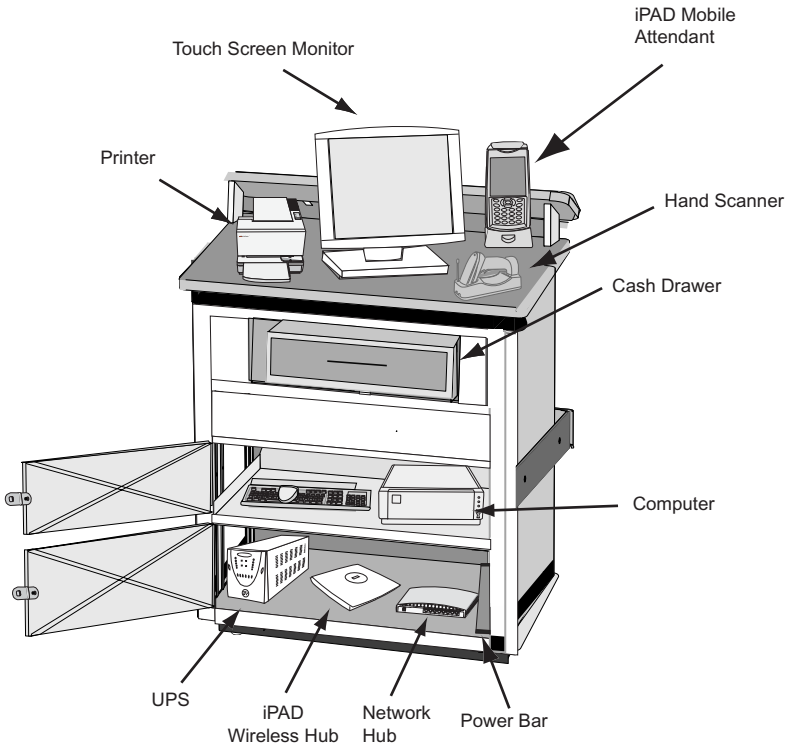


Figure 3.1 Attendant Station core components

Attendant Station Cable Connections

The following table lists the required internal cable connections corresponding with Figure 3.2. Procedures for installing each core component are described beginning on page 12.

Core Component	Required Cable
1 Touch Screen - Computer:	System supplied cable
2 Touch Screen VGA - Computer (AGP)	System supplied cable
3 Cash Drawer - Printer/Endorser:	System supplied cable
4 Keyboard - Computer:	System supplied cable
5 POS Keyboard - Computer:	Customer supplied
6 Serial I/F Box - Computer:	System supplied cable
7 Printer/Check Endorser - Serial I/F Box (Port 5):	RS-232 serial cable
8 Handheld Scanner - Serial I/F Box (Port 6):	RS-232 serial cable

9 SEM (Beeper) - Serial I/F Box (Port 7):	RS-232 serial cable
10 Modem – Computer:	System supplied cable

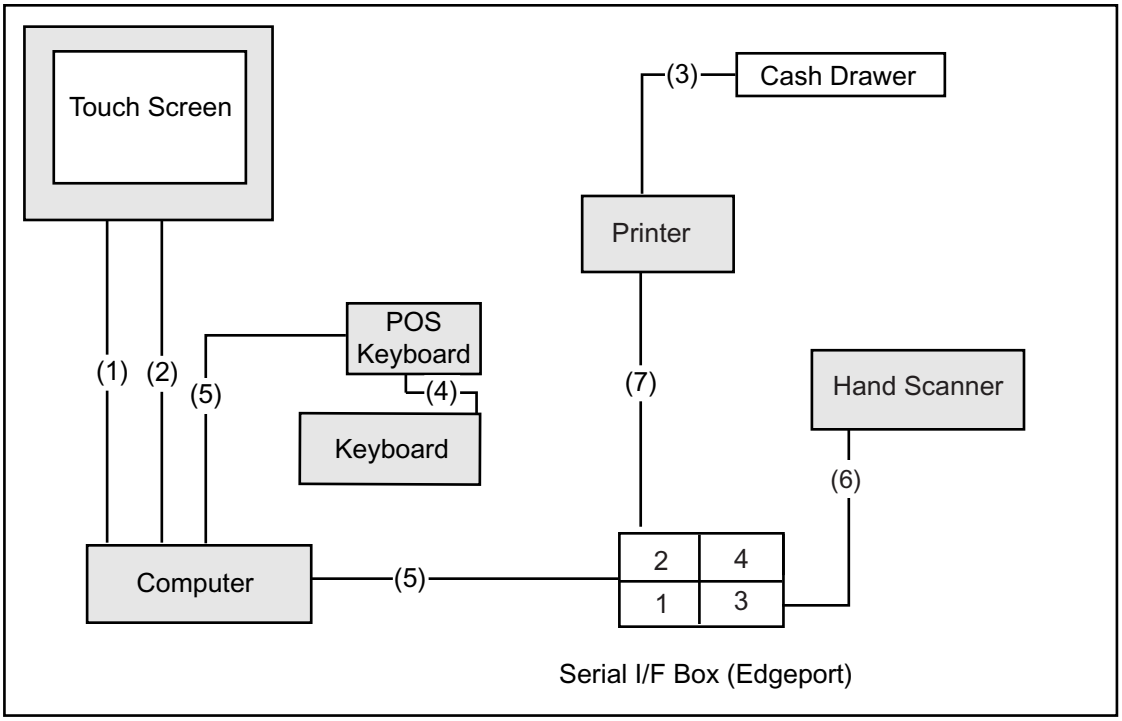


Figure 3.2 Attendant Station cable requirements

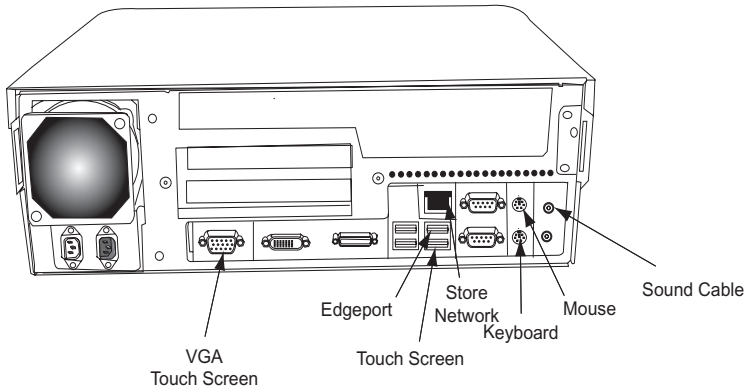


Figure 3.3 Attendant Station Computer and Serial I/F Box connections

Installing the Attendant Station Components

Touch Screen Monitor

To install the Touch Screen Monitor:

1. Position the Monitor on the Attendant Station counter-top.
2. Plug the USB cable into the USB port on the underside of the Monitor.
3. Plug the 15-pin (male) connector into the port DVI port on the Monitor.
4. Route the two monitor cables (USB and VGA) through the counter-top access hole to the Attendant Station Computer.
5. Plug the USB cable into USB port 1 on the Computer.
6. Plug the 15-pin cable (male) into the Computer's Monitor port.

Keyboard

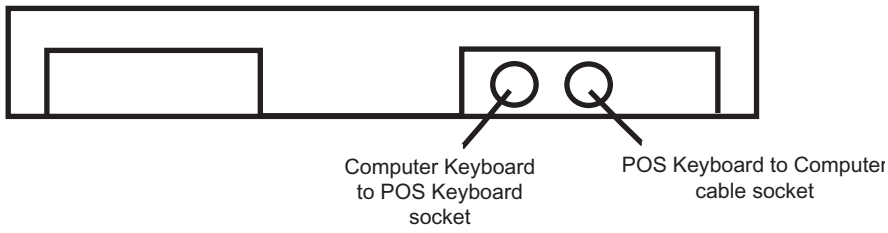


Figure 3.4 Rear of POS Keyboard

To install the POS Keyboard:

1. Place the standard Computer Keyboard in the Attendant Station's case.
2. Route the Keyboard cable through the counter-top access hole to the location of the POS Keyboard.
3. Insert one end of the POS Keyboard cable into the Computer Keyboard. See Figure 3.4.
4. Place the POS Keyboard on the counter-top and route its cable through the counter-top access hole to the Attendant Station's Computer.
5. Plug the POS Keyboard into the Attendant Station Computer. See Figure 3.3.
6. Plug the Computer Keyboard cable into the appropriate Computer Keyboard socket on the back of the POS Keyboard.

7. Route the Computer Keyboard's cable through the counter-top access hole and plug it into the appropriate Keyboard socket at the back of the POS Keyboard.

Printer and Check Endorser

To install the Printer and Check Endorser:

1. Route the Printer cable through the countertop access hole to the Serial I/F Box.
2. Plug the 25-pin RS-232 cable into port 5 of the Serial I/F Box.
3. Plug the Cash Drawer into the Printer.

Handheld Scanner

To install the Handheld Scanner:

1. Route the Handheld Scanner cable through the counter top access hole to the Serial I/F Box.
2. Plug the RS-232 cable into port 6 of the Serial I/F Box.

Customer Station

The U-Scan Max Single Belt Customer Station ships in two separate modules: the main unit and the conveyor belt unit. Most of the Customer Station's core components are mounted in the cabinet at the factory. **The field engineer installs the controller board on site and joins the two modules.** The Customer Station core components include:

Main Unit

- Computer
- Touch Screen Monitor
- Scanner Scale
- Bill Acceptor
- Coin Acceptor and MoneyFlex unit
- Scale CPU
- Speaker
- Bill Dispenser
- Coin Dispenser
- Receipt Printer
- Signature Capture (if applicable)
- Coupon Detector (if applicable)
- Edgeport Serial I/F Box
- UPS
- Controller board
- Proximity Sensor (if applicable)

Conveyor Belt Unit

- Input Belt Scale
- Take-Away Belt
- Sensor Array (arch sensors)
- Take-Away Belt Sensors
- Collection Area Sensors

Customer Station (UL Regulations)

In accordance with UL regulations, locks must be installed on the U-Scan Customer Station casing. Ensure that locks are installed on all Customer Stations.

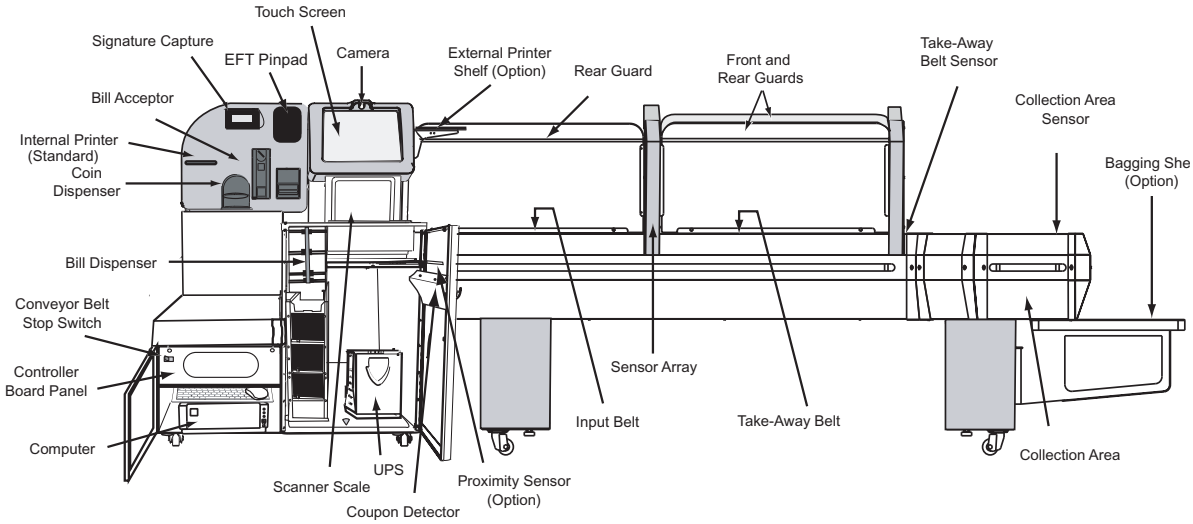


Figure 3.5 U-Scan Max Single Belt components

Power Connections

The device power supply adapters are already connected to the power bars or to the UPS inside the Customer Station. You must connect two power cables to a **dedicated AC outlet on-site:**

- Controller board power cable

NOTE: *Do **NOT** connect the controller board power cable to the UPS.*

- UPS power cable

Internal Communication Cable Connections (Main Unit)

The cables and AC plugs of site-installed components are in the cabinet, ready to be connected. You must provide the EFT equipment which is installed at the site. Follow the applicable manufacturer's instructions for installing the EFT.

The following table lists the required internal cable connections corresponding with Figure 3.6 .

Core Component	Required Cable
1 Bill Dispenser - Serial I/F Box (Port 7):	RS-232 serial cable
2 Touch Screen - Computer:	System supplied cable (TS/VGA)
3 Serial I/F Board - Computer:	System supplied cable
4 Scanner Scale - Serial I/F Box (Port 3):	RS-232 serial cable
5 Input Belt Scale - Serial I/F Box (Port 2):	RS-232 serial cable
6 Receipt Printer - Serial I/F Box (Port 6):	RS-232 serial cable
7 Coin Dispenser - Serial I/F Box (Port 1):	RS-232 serial cable
8 MoneyFlex - Serial I/F Box (Port 5):	RS-232 serial cable
9 MoneyFlex - Coin Acceptor:	System supplied cable
10 EFT - Serial I/F Box (Port 4):	RS-232 serial cable
11 Bill Acceptor - Serial I/F Box (Port 8):	RS-232 serial cable
12 Speaker – Computer:	22 AWG speaker wire
13 Controller Board - Serial I/F Box (Port 9):	RS-232 serial cable
14 Signature Capture device - Serial I/F Box (Port 11):	System supplied cable
15 Sensor array (arch) controller box - Serial I/F Box (Port 14):	RS-232 serial cable
16 Proximity sensor - Serial I/F Box (Port 15):	System supplied cable
17 Cable harness - Controller Board:	System supplied cable
18 Touch Screen - USB port 2 on Edgeport:	USB cable
19 Coupon Detector - Serial I/F Box (Port 13):	System supplied cable
20 Sensor array to sensor array controller box:	System supplied cable

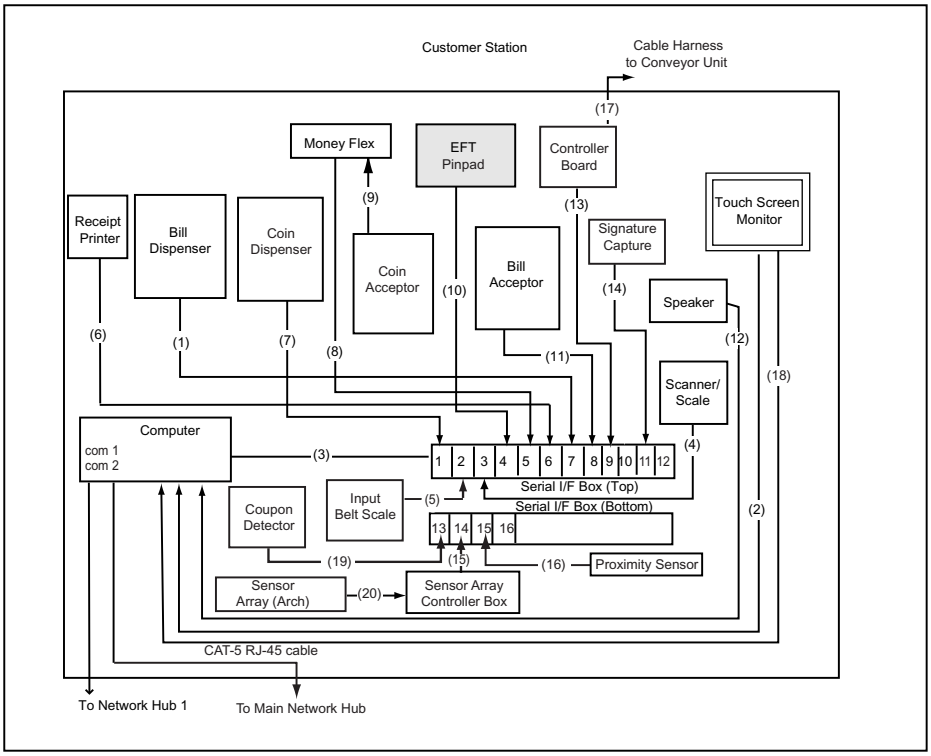


Figure 3.6 Customer Station cable requirements

Internal Cable Connections (Conveyor Unit)

Cable Harness

The following cables are grouped into the mesh of the cable harness:

- Input belt motor cable
- Take-away belt motor cable
- Take-away belt sensor communication cable
- Collection area sensor communication cable

The cable harness connects to a 15-pin cable from the controller board. Both cables are labeled “BC” on the connector head.

Other Cables

The following cables from the conveyor unit are not included in the cable harness:

- Input belt load cell cables
- Conveyor unit ground cables (2)
- Sensor array cable assembly including the following cable connections:
  - Sensor array power cables (2)
  - Sensor array logic box communication cable
  - Sensor array communication cable (routed between sensor and emitter sticks)

Labels

The conveyor unit cables are labeled on the connector head. The table below lists the conveyor unit cable assignments.

Component	Label
Cable harness (main unit)	BC
Input belt motor cable (conveyor unit)	V
Take-away belt (conveyor unit)	W
Take-away sensor (conveyor unit)	Y
Collection area sensor (conveyor unit)	Z
BANNER sensor array to U-Scan Max controller board	P1
BANNER sensor array to sensor array controller box	P2
BANNER sensor array to sensor array controller box	P3
BANNER sensor array to sensor stick	P5
BANNER sensor array to emitter stick	P6

U-Scan Max Single-Belt Station Grounding

The appliance must be grounded. In the event of malfunction or breakdown, grounding provides a path of least resistance for electric current to reduce the risk of electric shock. This appliance is equipped with a cord having an equipment-grounding conductor and grounding plug. The plug must be plugged into an appropriate outlet that is properly installed and grounded in accordance with all local codes and ordinances.

DANGER - Improper connection of the equipment-grounding conductor can result in a risk of electric shock. The conductor with insulation having an outer surface that is green with or without yellow stripes is the equipment-grounding conductor. If repair or replacement of the cord or plug is necessary, do not connect the equipment-grounding conductor to a live terminal. Check with a qualified electrician or serviceman if the grounding instructions are not completely understood, or if in doubt as to whether the appliance is properly grounded. Do not modify the plug provided with the appliance - if it will not fit the outlet, have a proper outlet installed by a qualified electrician.

The U-Scan Max is grounded in the following locations:

Component	Grounding
UPS	Braided ground cable is fastened with a screw to the back of the UPS and to an unpainted pem stud on the casing behind the controller board.
Controller board (terminal block)	Green and yellow twisted ground cable from the controller board terminal block is secured to the ground stud on the controller board.
Controller board tray	Braided ground cable from the controller board tray is secured to the ground stud on the controller board and to the unpainted pem stud on the casing behind the controller board.
Conveyor unit	Braided ground cable is fastened to the frame inside the conveyor unit and then grounded to the same unpainted stud listed above. Braided ground cable is run between and fastened to the two motor grounding points.
Input belt and take-away belt motors	Ground cable for each motor is fastened with a screw to the conveyor frame.
BANNER sensor array	Ground cable is fastened with a screw to the base of the sensor housing.

Refer to Figure 3.7 and Figure 3.8 for the grounding locations.

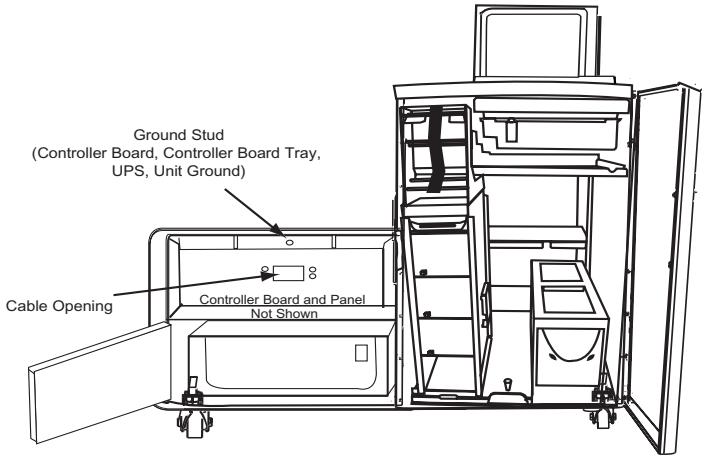


Figure 3.7 : Main Unit Ground Stud Location

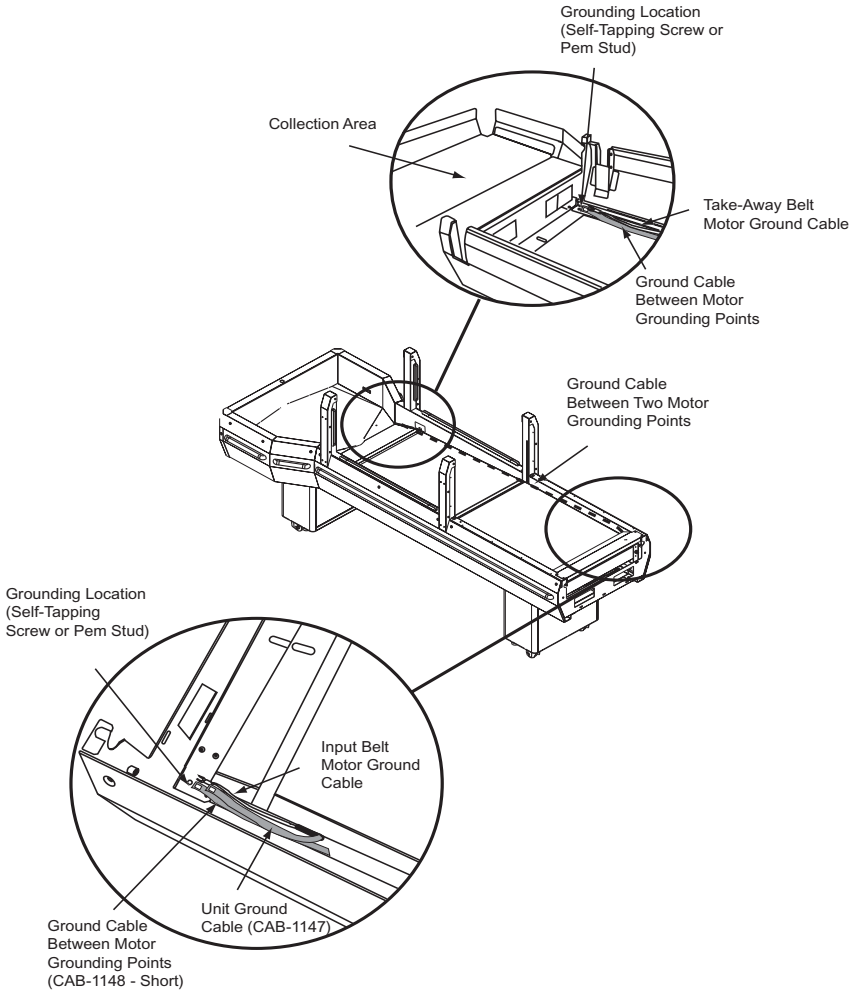


Figure 3.8 Conveyor Unit Grounding

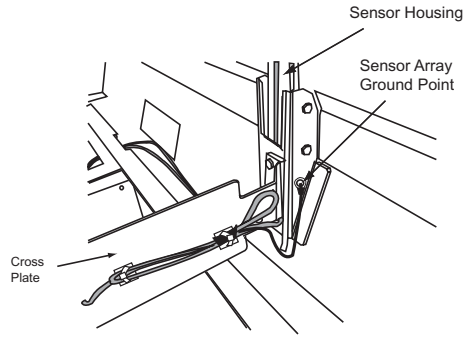
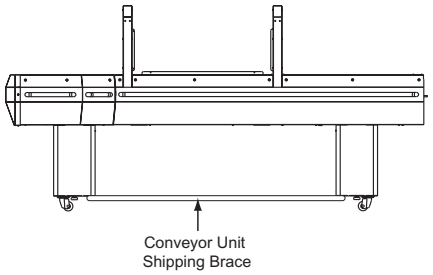


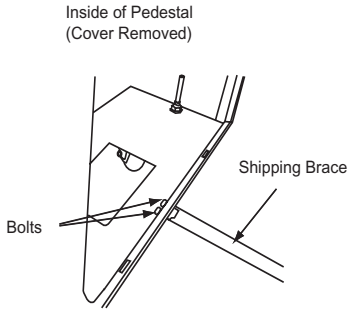
Figure 3.9 BANNER Sensor Array Ground Point

Installing the Customer Station

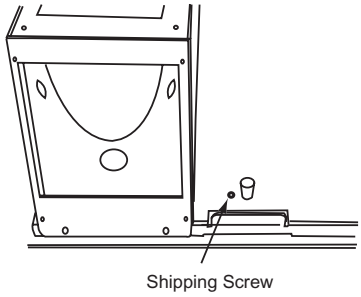
Prepare the Unit

1. Remove the shrink wrap and blankets from the two U-Scan modules (main unit and the conveyor unit).
2. Open both pedestals supporting the conveyor unit.
3. From the inside of the pedestals, remove the bolts securing the shipping brace (two each side).





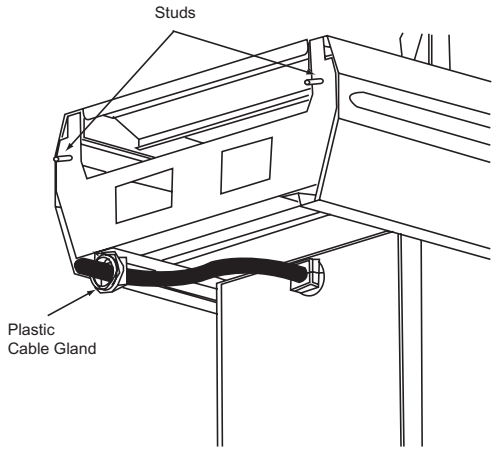
4. Remove the shipping brace.
5. Remove all of the foam packaging from the U-Scan modules. Unlock and open all of the doors and remove the foam inside the unit.
6. Remove the shipping screw securing the tray housed below the Scanner Scale.



7. Remove the protective covering from the end-access plate.
8. Inspect the units for any sign of damage. Ensure that the sensor pillars are not bent or damaged.
9. Move the system(s) into position.
10. Cut the tie-wrap securing the cables (in plastic tubing) to the conveyor unit.
11. Remove the back panels on the main unit.

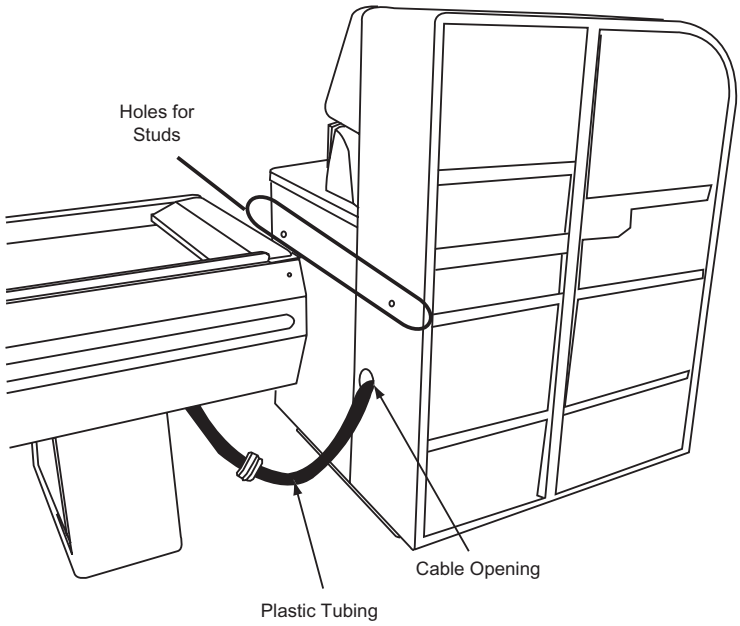
Install the Cable Gland on the Main Unit

1. Push the main unit and conveyor unit closer together.
2. Unscrew the nut from the plastic cable gland and slide it off the cable tubing.



NOTE: *Leave the bottom portion of the cable gland on the tubing.*

3. Thread the cable tubing partially into the circular cable opening on the main unit as shown below.



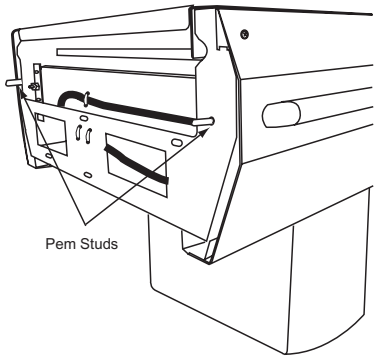
4. From the inside of the main unit, thread the nut you removed earlier onto the tubing and cables.
5. On the plastic tubing between the units, slide the plastic cable gland along the tubing and into the cable opening. If necessary, continue to route the plastic tubing into the main unit.

6. Ensure that approximately 4” of the plastic tubing covers the cables inside the casing as shown below.

7. From the inside of the unit, screw the nut onto the cable gland.

Connect the Conveyor Unit to the Main Unit

1. Unlock and open the door below the Scanner Scale on the main unit.
2. Locate the nuts and washers installed on the pem studs on the conveyor unit.



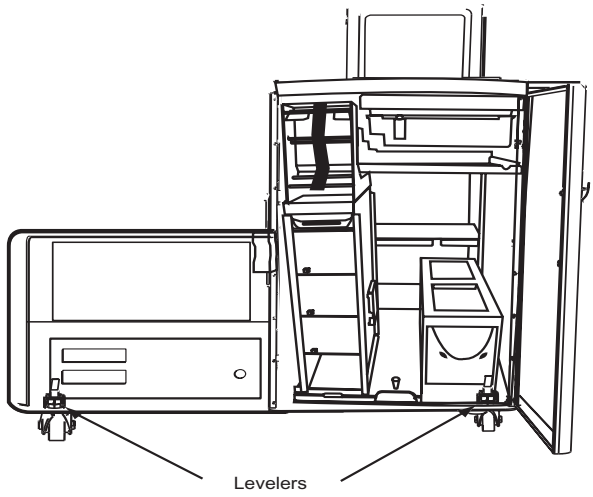
3. Use an adjustable wrench to remove the nuts, large flat washers and split lock washers from the studs. Set aside.
4. Align the two units. Line up the studs on the conveyor unit with the holes on the side of the main unit. If necessary, lift the conveyor unit slightly.
5. From the inside of the main unit, thread a large flat washer, split lock washer, and nut onto each of the studs on the conveyor unit.
6. Tighten the two nuts **finger-tight only**.
7. Pull the cables fully into the main unit. Do **NOT** leave any slack in the cables.

Lower and Level the System

Leveling Guidelines

- Begin adjusting the levelers in the main unit and work your way towards the collection area.
- Raise the lock nuts on the levelers before you begin to lower the levelers.
- Before you begin to level the system, lower all of the levelers so that the wheels are approximately 1/2” off the floor.
- Turn the levelers clockwise to raise them, and counterclockwise to lower them.
- Ensure that the metal tracks for the Plexiglas on the side of the main unit line up with the tracks behind the input belt. These tracks need to line up so that you can install the rear guard later in the procedure.
- Use a 2’ carpenter level. This allows you to account for any natural unevenness in the casing metal.

1. If applicable, position the skirts against the casing to gauge the appropriate height for the system.
2. Locate the four levelers inside the compartment: two at the front, and two at the back.



3. Lower the levelers in the main unit:
   a. Use a Phillips screwdriver to remove the screws securing the panel on the conveyor support pillar closest to the main unit.
   b. Raise the lock nuts on the levelers.

c. Insert a 1/4” Allen key into the hole on the top of one of the levelers.

NOTE: *You can also use an adjustable wrench to turn the levelers.*

d. Insert a 1/4” Allen key into the hole on the top of one of the levelers and turn it counterclockwise to lower the leveler until it touches the floor.

e. Repeat the steps above for the other levelers.

f. Use a 2’ carpenter level to verify that the main unit is level.

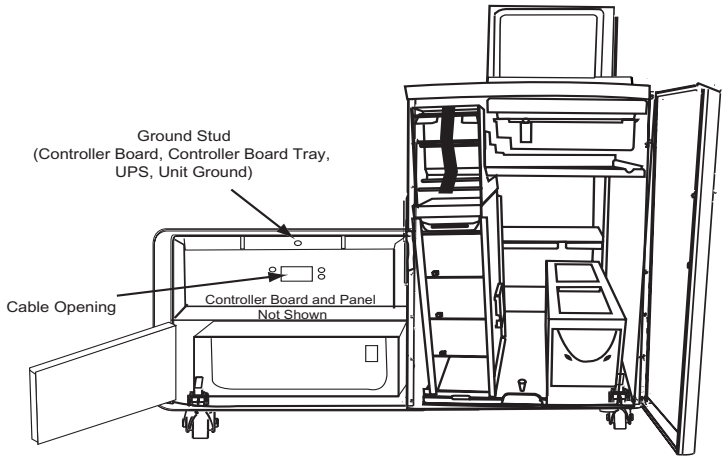
NOTE: *The unit must be level front-to-back and side-to-side.*

4. Remove the cover panels on the two support pedestals.
5. Repeat the steps above to lower the levelers in the conveyor unit.
6. Adjust the levelers until the conveyor unit is level.
7. Use the 2’ carpenter level to ensure that the system is level in the following spots:
   a. Top of the main unit casing (front-back and side-side)
   b. Scanner Scale bezel
   c. Inside both support pedestals
   d. Input belt (front-back and side-side)
8. When the system is level, **fully tighten the two nuts** securing the main unit to the conveyor unit.
9. Replace the screws securing the panel on both pillars.

Ground the Conveyor Unit to the Main Unit

1. From the back of the main unit, locate the ground cable from the conveyor unit.
2. Route the ground cable through the cable conduit and through the cable opening into the computer and controller board compartment.

3. Locate the ground stud on the panel behind the controller board. The UPS is already grounded at this location.



4. Thread the conveyor unit ground cable onto the stud.
5. Secure the conveyor unit ground cable with a star washer and a nut.

Install the Controller Board

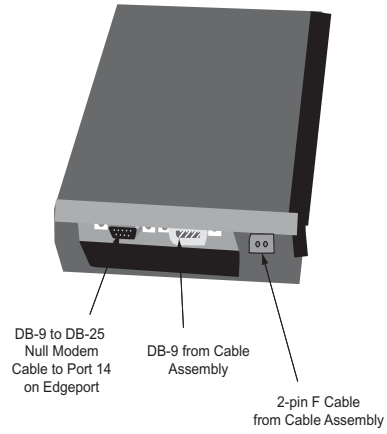
1. Unpack the controller board and set it in front of the unit.
2. Route the braided ground cable to the ground stud in the back of the controller board compartment. The UPS and conveyor unit are already grounded on this stud.
3. Secure the ground cable to the stud with a star washer and a nut.
4. Place the controller board tray on the rails.
5. Route the cable harness (cable “BC”) through the hole on the shelf and into the back of the main unit.
6. Lift the latch pin and close the controller board panel.
7. Fasten the two screws.
8. Close and lock the door.

Connect the Cables

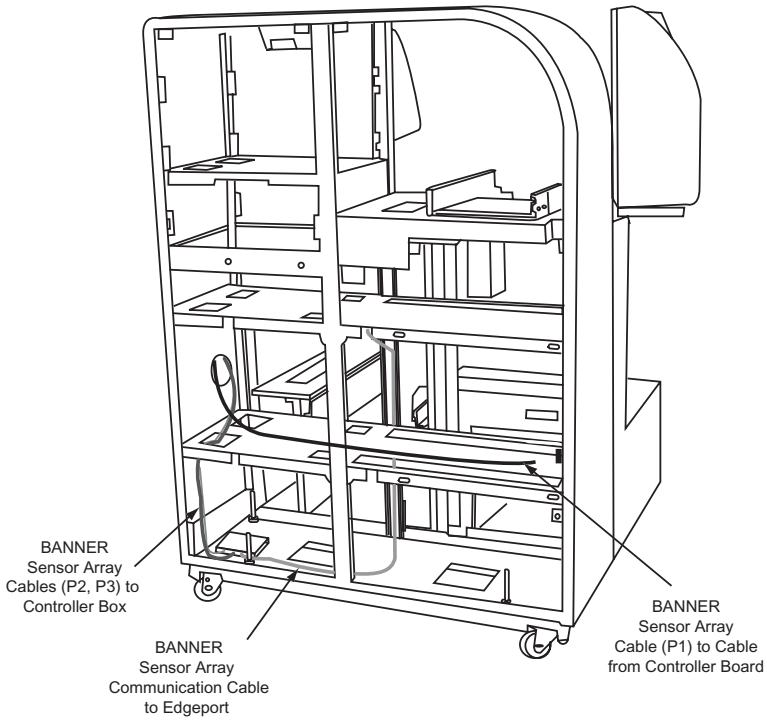
1. Inside the main unit, locate the cable harness connector from the controller board. It is labeled “BC” on the connector head.
2. Connect the cable to the cable harness from the conveyor unit (labeled “BC”).
3. Connect the communication cable from port “J3” on the controller board to Port 9 on the Edgeport.

4. Connect the input belt scale load cell cables to the communication ports on the SCALETRON CPU (brain).

5. Locate the sensor array controller box on the bottom shelf of the casing.



6. Route the cables as shown below.



NOTE: *The communication cable is already routed and connected to the Edgeport.*

7. Connect the cable labeled “P2” to the 2-pin port on the controller box.

8. Connect the DB-9 F cable labeled “P3” to the DB-9 M port on the controller box.

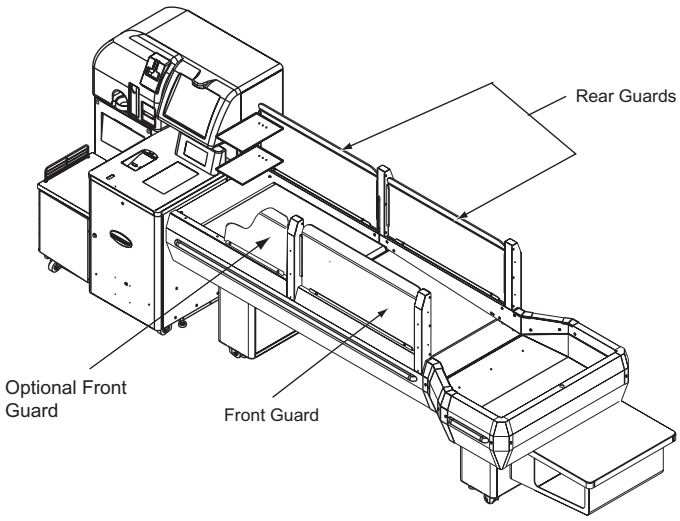
9. Connect the cable labeled “P1” to the 2-pin cable from the U-Scan Max controller board.

10. Connect the power cable for the controller board to an AC wall socket.

    NOTE: ***NEVER*** *connect the controller board power cable to the UPS. It must always be connected to a socket.*

11. Connect the UPS power cable to an AC wall socket.

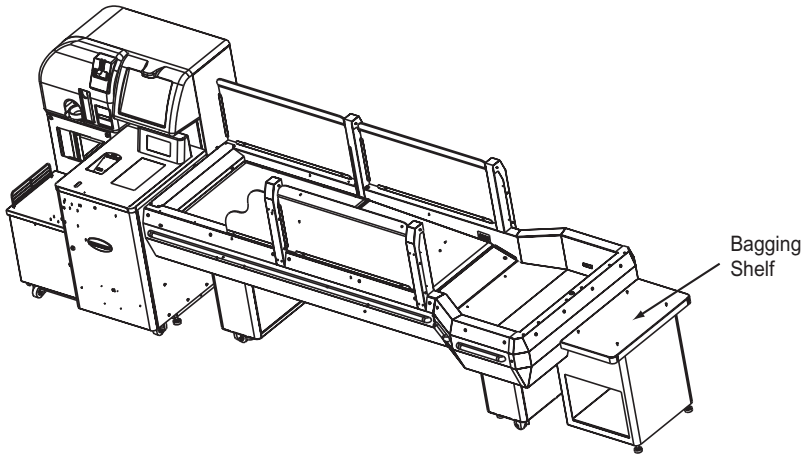
Install the Front and Rear Guards (Plexiglas Partitions)



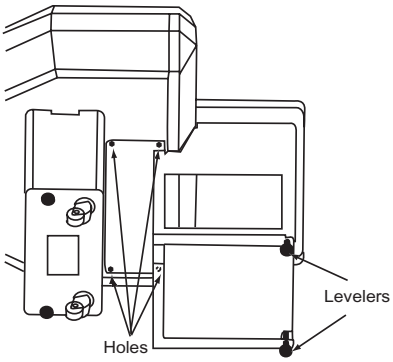
1. Locate and unpack the front and rear guards (three or four pieces of Plexiglas, depending on the store's options). Remove the protective covering from the guards.
2. Remove the two screws installed in the metal supports for the rear guard. Set aside.
3. Install the rubber grommets on the bottom and sides of the guard.
4. Align the holes on one of the Plexiglas pieces with the holes on the metal tracks. Ensure that the angled top part of the Plexiglas is facing in (towards the belt).
5. Push the Plexiglas piece into the tracks.
6. Fasten the two screws you removed earlier to secure the Plexiglas.
7. Repeat the steps above for the other rear guard.
8. Repeat the steps above for the front guard.
9. If necessary, repeat the steps above for the front guard closest to the main unit. This is the curved Plexiglas piece that is not as long as the other three.

Install the Bagging Shelf (If Applicable)

The bagging shelf is optional. Your store may not use a bagging shelf.



1. Locate the bagging shelf.
2. Position the bagging shelf so that the two levelers are furthest from the collection area.
3. Remove the four 1/4” - 20 bolts and flat washers installed in the four holes on the top plate of the bagging shelf.
4. Slide the top plate of the bagging shelf under the collection area.
5. Align the four holes on the top plate of the bagging shelf with the holes on the underside of the collection area.



6. Use a 1/4” Allen key to lower the levelers so that the bagging shelf is at the appropriate height for installation.
7. From the underside of the casing, fasten the four washers and bolts to secure the bagging shelf to the conveyor unit.
8. If necessary, adjust the height of the levelers again.
9. If necessary, set the bag racks on the bagging shelf.

Install the Skirts (If Applicable)

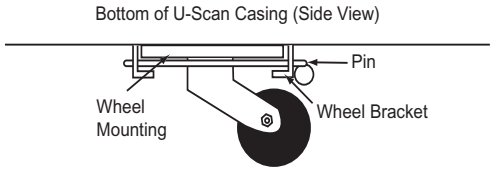
Not all stores install skirts on the Stations. If the system does not require skirts, go to "Test the System" on page 37.

Skirts can be installed on the bottom of the following areas:

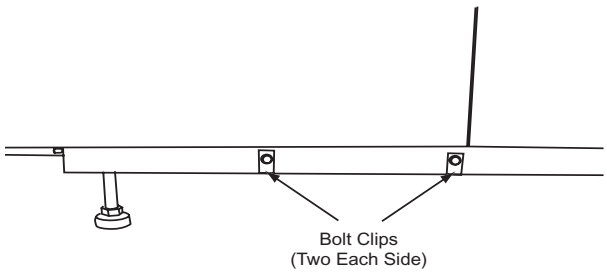
- Main unit
- Pedestals
- Bagging shelf

Installing the Skirts on the Main Unit

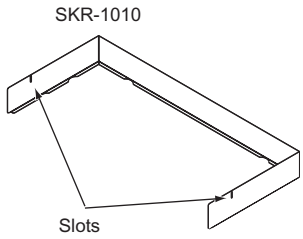
1. Remove the wheels from the Customer Station:
   a. Unlock and open the door below the Scanner Scale.
   b. Remove the pin that secures the first wheel to the wheel bracket.



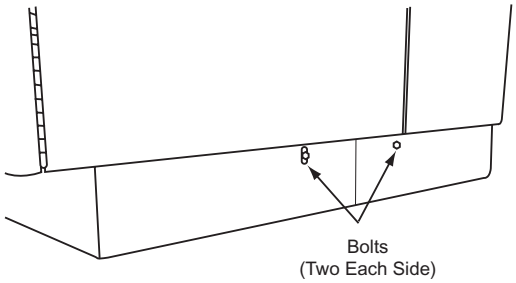
   c. Slide the wheel toward you and out of the casing.
   d. Repeat step **b** and step **c** for the remaining wheels.
2. Locate the two skirts (SKR-1010) shipped with the Customer Station.
3. Locate the four 5/16-18 x 3/4 bolts shipped with the unit.
4. On the sides of the Customer Station, locate the beige bumper plugs on the bottom of the unit. You will need to remove the two **inner** bumper plugs on each side of the Customer Station.
5. Slide a flat-head screwdriver under the bumper plug and pull gently toward you to remove the bumper plug from the hole.
6. Remove the other three bumper plugs.
7. From the bottom of the unit, clip a black bolt clip over each of the four holes as shown below.



8. Position the skirts at the bottom of the Customer Station so that the slots on the ends line up with the holes on the bolt clips.



9. Thread a 5/16-18 x 3/4 bolt into each hole on one side of the casing.

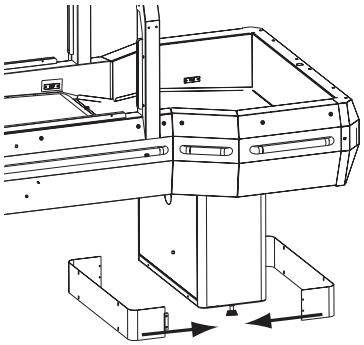


10. Use a wrench to fasten the bolts.

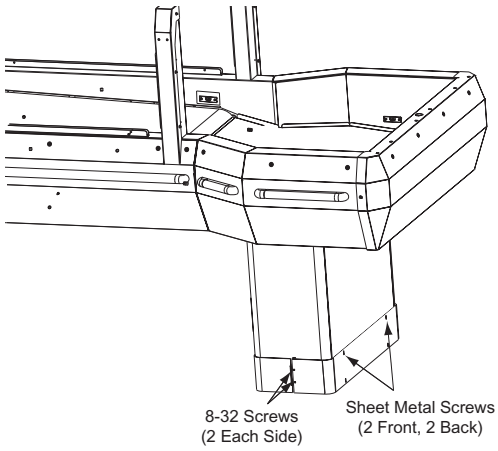
11. Repeat to fasten the two bolts on the other side.

Installing the Skirts on the Support Pedestals

1. Position the two metal parts of the skirt around the bottom of the support pedestal as shown below.



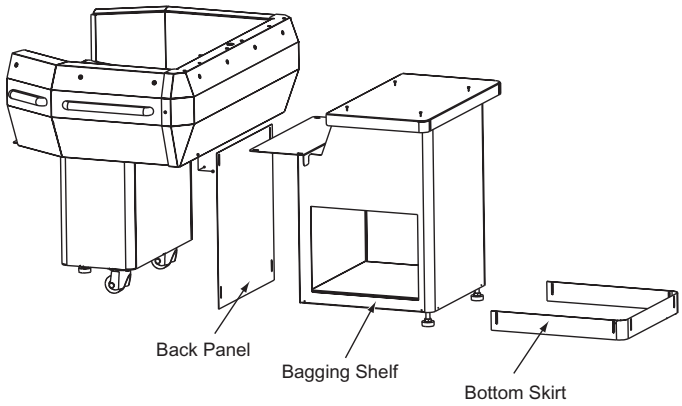
2. Fasten the four sheet metal screws supplied in the skirt kit to secure the skirts to the bottom of the pedestal.
3. Fasten the four 8-32 screws to secure the two parts of the skirt.



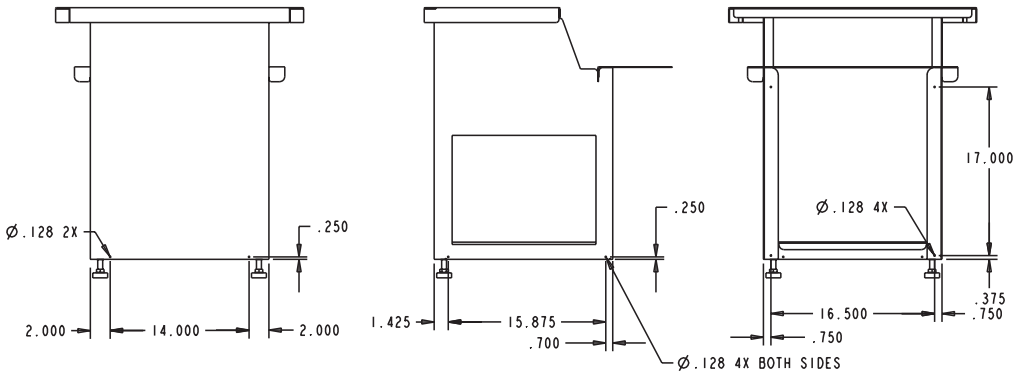
4. Repeat the steps above for the other pedestal.

Installing the Skirts on the Bagging Shelf

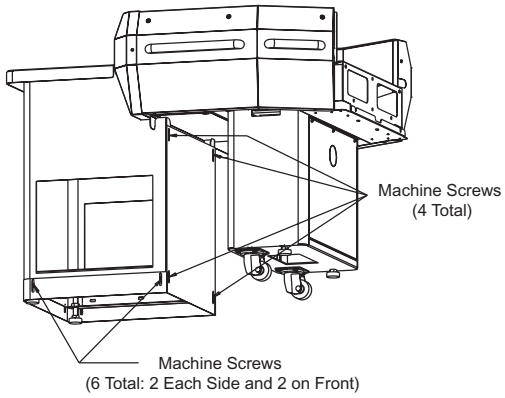
Overview



1. Locate the bagging shelf skirt kit (11001182).
2. Based on the measurements below, drill the ten pilot holes on the bagging shelf. All dimensions are in inches.



3. Secure the back panel to the bagging shelf with four of the machine screws provided in the kit.
4. Secure the bottom skirt to the bagging shelf with six of the machine screws provided in the kit.



Test the System

1. On the controller board, turn on the appropriate switches to run the conveyor belts.

Switch	Switch Function
A	Advances input belt
C	Advances take-away belt

2. Allow the conveyor belts to run for approximately 15 minutes.
3. Ensure that the belts are running straight and smoothly and that there are no unusual sounds, such as banging, or the sound of the belts rubbing against metal. If necessary, adjust the belts. Refer to the "Troubleshooting" section of the **U-Scan Max Single Station System Description and Service Guide** for information on adjusting the belts.
4. In the **Device Tester**, ensure that the input belt scale is online and working properly. Refer to "Testing the Belt Devices in the Device Tester" in the **U-Scan Max Single Belt Service Guide** for information on testing the input belt scale.
5. Ensure that the sensor array is working properly and that sensor is positioned correctly and adjusted properly. Refer to "Testing the Belt Devices from the Device Tester" in the **U-Scan Max Single Station System Description and Service Guide**.

   NOTE: *If you adjust the BANNER sensor array, disconnect and reconnect the power to the device to recalibrate the sensor array.*
6. Test all devices in the **Device Tester**. Refer to "Testing the Belt Devices in the Device Tester" in the **U-Scan Max Single Station System Description and Service Guide** for instructions on testing the belted devices.
7. Ensure that the **Scale Type** is set to **Conveyor 75 lbs.** in **Hyperterminal**. Refer to "Verifying the Scale Type" on page 44.
8. Verify the elevation and latitude settings for your location in **Hyperterminal**. Refer to "Verifying the Elevation and Latitude Settings" on page 45.
9. Perform the auto-calibration procedure through **HyperTerminal**. Refer to "Calibrating the Input Belt Scale (Auto-Calibration)" on page 47.
10. Ensure that the scale is weighing correctly. (These steps are included as part of the auto-calibration procedure.)

U-Scan Max Single Belt Post-Installation Checklist

Make sure that all of the considerations below are addressed after you install the U-Scan Max. For all testing, troubleshooting, and adjustment procedures, refer to the **U-Scan Max Single Belt Service Guide**.

- ☐ Verify the U-Scan Max Single Belt Station grounding.
- ☐ Make sure that the controller board has its own power outlet and that it is not connected to the UPS.
- ☐ Make sure that the system is level (main unit and conveyor unit).
- ☐ Make sure that all belts are running smoothly and that there are no sounds (clanging, belts rubbing against metal).
- ☐ Ensure that the take-away belt sensor is functioning properly.
- ☐ Ensure that the collection area sensor is functioning properly.
- ☐ Ensure that the sensor array is adjusted to the appropriate height so that the thicker test shim (9000101) is detected.
- ☐ Ensure that the sensor array is adjusted to the appropriate height so that the thinner test shim (9000100) is **not** detected.
- ☐ Ensure that the **Scale Type** is set to **Conveyor 75 lbs.** in **Hyperterminal**. Refer to "Verifying the Scale Type" on page 44.
- ☐ Verify the elevation and latitude settings for your location in **Hyperterminal**. Refer to "Verifying the Elevation and Latitude Settings" on page 45.
- ☐ Perform the auto-calibration procedure through **HyperTerminal**. Refer to "Calibrating the Input Belt Scale (Auto-Calibration)" on page 47.
- ☐ Ensure that the input belt scale reports the correct weight when tested.
- ☐ Ensure that the input belt scale reports the correct weight in the center of the belt and at each of the four corners. If the scale is weighing unevenly, push on each of the four corners to exercise the scale.
- ☐ If the input belt scale is still weighing incorrectly, make sure that:
  - The load cell or motor cables are not touching the scale frame.
  - The cables are properly secured in the casing and pedestal.
  - The cables are not touching the conveyor belt frame.
- ☐ Ensure that the weight reading does not fluctuate significantly (more than 0.05 lb.) when the belt is in motion.

Connecting the U-Scan System to the Store Controller

System Cable Requirements

The system cable requirements for each Customer Station are illustrated below:

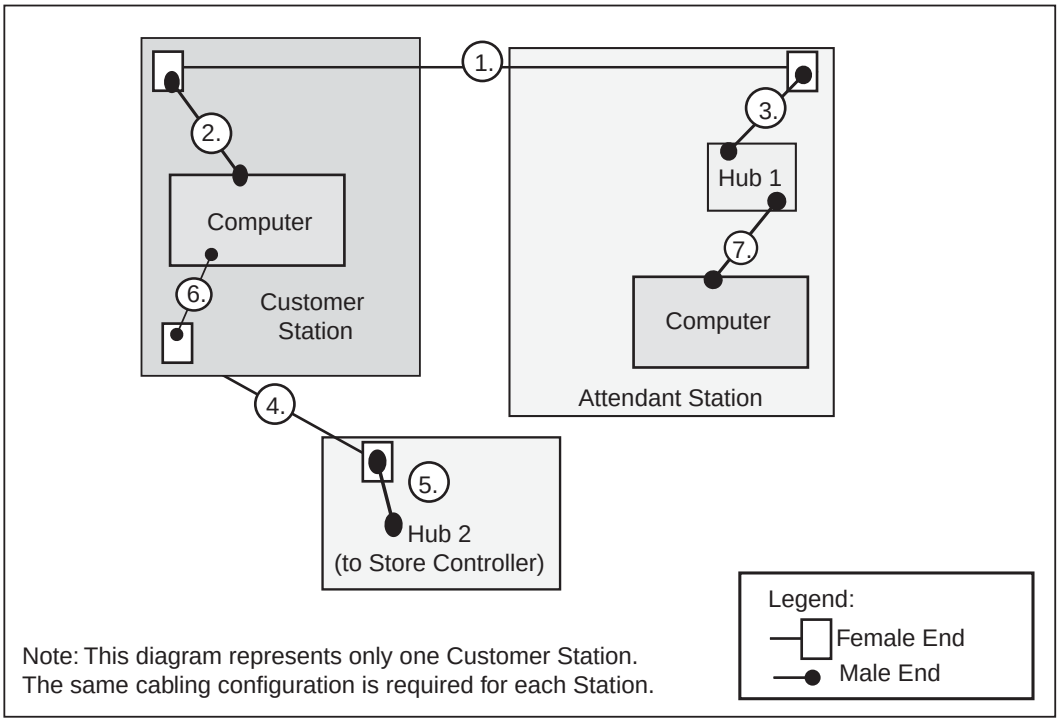


Figure 3.10 U-Scan system cable requirements

The cables listed in the table below are required. Note that the numbers and letters listed in the first column correspond to the numbers and letters in Figure 3.8.

#	From:	To:	Connector Type	Gender	Cable	Quantity
1.	Customer Station	Attendant Station	RJ-45 Ethernet Jack	Female (both ends) Bix Box	10 Base-T Cat 5	1 for each station
2.	Customer Station Computer	Network Hub 1 (Via cable #1)	RJ-45 Ethernet Jack	Male (both ends)	10 Base-T Cat 5	1 for each station
3.	Network Hub 1	Customer Station (via cable #1)	RJ-45 Ethernet Jack	Male (both ends)	10 Base-T Cat 5	1 for each station
4.	Customer Station	Network Hub 2	RJ-45 Ethernet Jack	Female (both ends) Bix Box	10 Base-T Cat 5	1 for each station

#	From:	To:	Connector Type	Gender	Cable	Quantity
5.	Customer Station	Network Hub 2 (via cable #4)	RJ-45 Ethernet Jack	Male (both ends)	10 Base-T Cat 5	1 for each station
6.	Network Hub 2	Customer Station (via cable #4)	RJ-45 Ethernet Jack	Male (both ends)	10 Base-T Cat 5	1 for each station
7.	Attendant Station Computer	Network Hub 1	RJ-45 Ethernet Jack	Male (both ends)	10 Base-T Cat 5	1 for each station

Connecting to the Store Controller

To connect the U-Scan system to the Store Controller for an Ethernet configuration:

1. Install one patch-block terminated network cable from each Customer Station to the Attendant Station.
2. Connect each of the female-ended network cables to Network Hub 1 using 10 Base-T patch cables.
3. Connect each Customer Station's Computer to the jack marked Network Hub 1 using a 10 Base-T patch cable.
4. Connect the Customer Station with an Ethernet communications card (BNC Connector and a RJ-45 connector) to the jack marked Network Hub 2 with a 10 Base-T patch cable.

To connect the U-Scan system to the Store Controller for a Token Ring configuration:

1. Install one female-ended network cable from each Customer Station to the Attendant Station.
2. Connect each of the female-ended network cables to Network Hub 1 using 10 Base-T patch cables.
3. Connect each Customer Station's Computer to the jack marked Network Hub 1 using a 10 Base-T patch cable.
4. Connect the TSNT Customer Station with the Token Ring communications card to the jack marked Network Hub 2 using a 10 Base-T patch cable.

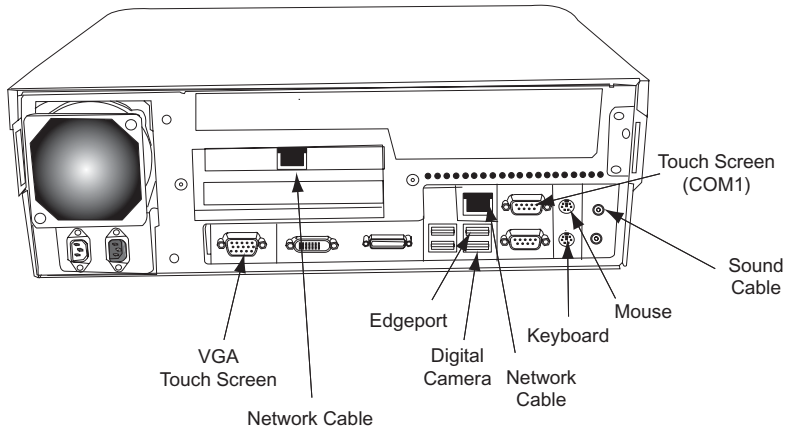


Figure 3.11 Customer Station Computer

Attendant Station

Connect the Attendant Station Computer to Network Hub 1 using a 10 Base-T cable with an RJ-45 cable interface.

NOTE: *Network Hub 1 may be several hubs connected together to function as a single hub.*

Network Hub

Connect Network Hub 2 (the Store Controller Hub) to the store's main Network Hub using a 10 Base-T cable.

NOTE: *Network Hub 2 may be several hubs connected together to function as a single hub.*

The hardware installation for the U-Scan system is complete.

Appendix: HyperTerminal

HyperTerminal Procedures for the Input Belt Scale

Field engineers can use the **HyperTerminal** application to set up and troubleshoot the input belt scale by performing the procedures listed in the table below.

Procedure	Perform When
"Verifying the Scale Type" on page 44	You install the Station in a store. There are issues with scale performance.
"Verifying the Elevation and Latitude Settings" on page 45	You install the Station in a store.
"Calibrating the Input Belt Scale (Auto-Calibration)" on page 47	You install the Station in a store. The scale is weighing incorrectly.
"Calibrating the Input Belt Scale through HyperTerminal - Manual Calibration with Weights" on page 49	The auto-calibration procedure was unsuccessful.

Perform the procedures in this section as required when installing the U-Scan Max Single Station or when troubleshooting the scale.

Verifying the Scale Type

Perform this procedure after you install the Station a store to ensure that the correct scale type is set.

1. Make sure that there is no interference with the load cells. For example, make sure that no cables are touching the load cells.
2. Start a new HyperTerminal session:
   a. Go to **Start > Programs > Accessories > Communications > HyperTerminal**.

   NOTE: *If **HyperTerminal** is not present at the path above, see the alternate instructions below.*

   b. Click **HyperTerminal**.
   c. Enter a name for the session, then press **ENTER**.

   OR

   a. Go to **Start > Run**.
   b. Enter **Hypertrm**.
   c. Press **ENTER**.
   d. Enter a name for the session, then press **ENTER**.
3. On the **Connect to** screen, select **COM4** from the drop-down list.
4. On the **COM4 Properties** screen, enter the following communication settings:
   a. Baud Rate: **9600**
   b. Data Bits: **7**
   c. Parity: **Even**
   d. Stop Bits: **1**
   e. Handshake *or* Flow Control: **None**
5. Ensure that the text **Connected** appears in the bottom left corner of the **HyperTerminal** window.

   NOTE: *If **Connected** does not appear, choose **Call** from the window menus, and then choose **Connect**.*
6. When the session is running (connected), enter **/TEST** to view the **RL Scales** menu.

   NOTE: *Use the **CAPS LOCK** key and **NOT** the **SHIFT** key to capitalize "TEST."*
7. Ensure that the **Scale Type** field is set to **Conveyor 75 lbs**.
8. If it is set to **Static**, enter **s** to set it to **Conveyor 75 lbs**.
9. Enter **m** to exit.
10. Disconnect the HyperTerminal session.

Verifying the Elevation and Latitude Settings

Perform this procedure after you install the U-Scan Max Single Station in the store.

1. Start a new HyperTerminal session:

   a. Go to **Start > Programs > Accessories > Communications > HyperTerminal**.

   NOTE: *If **HyperTerminal** is not present at the path above, see the alternate instructions below.*

   b. Click **HyperTerminal**.

   c. Enter a name for the session, then press **ENTER**.

   OR

   a. Go to **Start > Run**.

   b. Enter **Hypertrm**.

   c. Press **ENTER**.

   d. Enter a name for the session, then press **ENTER**.

2. On the **Connect to** screen, select **COM4** from the drop-down list.
3. On the **COM4 Properties** screen, enter the following communication settings:

   a. Baud Rate: **9600**

   b. Data Bits: **7**

   c. Parity: **Even**

   d. Stop Bits: **1**

   e. Handshake *or* Flow Control: **None**

4. Ensure that the text **Connected** appears in the bottom left corner of the **HyperTerminal** window.

   NOTE: *If **Connected** does not appear, choose **Call** from the window menus, and then choose **Connect**.*

5. When the session is running (connected), enter **/TEST** to view the **RL Scales** menu.

   NOTE: *Use the **CAPS LOCK** key and **NOT** the **SHIFT** key to capitalize "TEST."*

6. Enter **c** to access calibration mode.
7. Enter **c** again to view the elevation and latitude settings.
8. Ensure that the settings are correct for your location.
9. If necessary, enter the correct elevation and / or latitude.
10. If you do not know the correct elevation or latitude, refer to "Determining Latitude" on page 46 or "Determining Elevation" on page 46.

11. Press **m** to exit HyperTerminal.

Determining Latitude

Option 1:

1. On a map, locate the city and determine which latitude lines it lies between.
2. Halve the difference and enter this number.
   EXAMPLE: Atlanta, GA is between the 30 and 35 degree lines. Enter **32.5**.

Option 2:

Go to the following link to locate the latitude for **major US and Canadian cities** http://www.infoplease.com/ipa/A0001796.htm.

For major cities outside North America, go to the link above, then click **Latitude and Longitude of World Cities**.

Determining Elevation

Option 1 (USA)

1. Access the following link http://geonames.usgs.gov/pls/gnispublic/.
2. In the **State or Territory** field, select the state of the installation.
3. In the **Feature Class** field, select **Populated Place**.
   A list of towns and elevations in the state displays.

Option 2 (Canada)

1. Go to the following link http://www.postalcodedownload.com/.
2. Select the Province.
3. Select the 3 first characters of the store's postal code.
4. Select the store's postal code from the results page.
   A page with details including the elevation appears.

Option 3 (Canada)

1. Go to the following link http://atlas.gc.ca/site/english/maps/reference/national/reliefinteractive.
2. Click **Zoom to Region**.
3. Select the Province from the drop-down list.
4. Select the City from the drop-down list.
5. Refer to the colored **Land Relief** chart on the right side to determine the elevation in METERS.

Option 4 (Outside North America)

1. Go to the following link http://www.fallingrain.com/world/.
2. Select the Country.

3. Select the Province.
4. Select the first letter of the city.
5. Locate the city on the list that appears.
6. Note the elevation in FEET and the latitude.

Calibrating the Input Belt Scale (Auto-Calibration)

Perform this procedure after you install the U-Scan Max Single Station in the store AND verify the latitude and elevation settings.

Perform this procedure if the scale is weighing incorrectly.

1. Make sure that there is no interference with the load cells. For example, make sure that no cables are touching the load cells.
2. Start a new HyperTerminal session:
   a. Go to **Start > Programs > Accessories > Communications > HyperTerminal**.

   NOTE: *If **HyperTerminal** is not present at the path above, see the alternate instructions below.*

   b. Click **HyperTerminal**.
   c. Enter a name for the session, then press **ENTER**.

   OR

   a. Go to **Start > Run**.
   b. Enter **Hypertrm**.
   c. Press **ENTER**.
   d. Enter a name for the session, then press **ENTER**.
3. On the **Connect to** screen, select **COM4** from the drop-down list.
4. On the **COM4 Properties** screen, enter the following communication settings:
   a. Baud Rate: **9600**
   b. Data Bits: **7**
   c. Parity: **Even**
   d. Stop Bits: **1**
   e. Handshake *or* Flow Control: **None**
5. Ensure that the text **Connected** appears in the bottom left corner of the **HyperTerminal** window.

   NOTE: *If **Connected** does not appear, choose **Call** from the window menus, and then choose **Connect**.*

6. When the session is running (connected), enter **/TEST** to view the **RL Scales** menu.

   NOTE: *Use the **CAPS LOCK** key and **NOT** the **SHIFT** key to capitalize "TEST."*

7. Enter **C** to calibrate the scale.
   The **Calibration** menu options display.

8. Remove all items from the input belt scale.

9. Enter **A** to select the auto-calibration method.

10. Wait for the auto-calibration procedure to complete. Do **NOT** touch the scale during this process.

11. After calibration is complete, place a weight in the middle of the scale.

12. Ensure that the weight displayed in the **Scale Calibration** window is correct.

13. Repeat to verify that the weight is constant in each of the four corners.

    NOTE: *A fluctuation of .02 lb. (2 clb.) is acceptable.*

14. Access the controller board and turn on switch A to run the input belt.

15. Place a 1 lb. weight on the moving belt and ensure that a stable weight is recorded.

16. Allow the input belt to run for 1-2 minutes to ensure that no weight fluctuations greater than 0.05 lb. (5 clb.) occur while the scale is in motion. Keep replacing the item on the moving belt during this time.

17. If the calibration did not work,

    a. Ensure that none of the scale cables is touching the scale.

    b. Ensure that the loop on the belt motor cable is not touching the side of the casing.

    c. If the scale is underweighing, ensure that the **PGA Gain** in the **Scale Calibration** window is set to **8**.

    d. If necessary, calibrate the scale manually.

18. Enter **m** to exit.

19. Disconnect the HyperTerminal session.

Calibrating the Input Belt Scale through HyperTerminal - Manual Calibration with Weights

Calibrate the input belt scale with weights if the auto-calibration method is unsuccessful (i.e. if the scale is not reading weight correctly after calibration).

Recommended Calibration Weight:

50 lbs.

Use known test weights only for calibration.

Maximum Scale Capacity:

75 lbs.

1. Make sure that there is no interference with the load cells. For example, make sure that no cables are touching the load cells.
2. Start a new HyperTerminal session:
   a. Go to **Start > Programs > Accessories > Communications > HyperTerminal**.

   NOTE: *If **HyperTerminal** is not present at the path above, see the alternate instructions below.*

   b. Click **HyperTerminal**.

   c. Enter a name for the session, then press **ENTER**.

   OR

   a. Go to **Start > Run**.

   b. Enter **Hypertrm**.

   c. Press **ENTER**.

   d. Enter a name for the session, then press **ENTER**.
3. On the **Connect to** screen, select **COM4** from the drop-down list.
4. On the **COM4 Properties** screen, enter the following communication settings:
   a. Baud Rate: **9600**

   b. Data Bits: **7**

   c. Parity: **Even**

   d. Stop Bits: **1**

   e. Handshake *or* Flow Control: **None**

5. Ensure that the text **Connected** appears in the bottom left corner of the **HyperTerminal** window.

   NOTE: *If **Connected** does not appear, choose **Call** from the window menus, and then choose **Connect**.*

6. When the session is running (connected), enter **/TEST** to view the **RL Scales** menu.

   NOTE: *Use the **CAPS LOCK** key and **NOT** the **SHIFT** key to capitalize "TEST."*

7. Enter **C** to calibrate the scale.

8. Enter **W** to calibrate the scale with weights.

9. Follow the on-screen instructions to complete the calibration.

   NOTES: *The system prompts you to use at least 40 lbs. Make sure that you use at least **50 lbs.** for accurate calibration.*

   *The elevation and latitude field values entered are not relevant when calibrating with weights. **Use the default values.***

10. After calibration is complete, place a weight in the middle of the scale.

11. Ensure that the weight displayed in the **Scale Calibration** window is correct.

12. Repeat to verify that the weight is constant in each of the four corners.

    NOTE: *A fluctuation of .02 lb. (2 clb.) is acceptable.*

13. Access the controller board and turn on switch A to run the input belt.

14. Place a 1 lb. weight on the moving belt and ensure that a stable weight is recorded.

15. Allow the input belt to run for 1-2 minutes to ensure that no weight fluctuations greater than 0.05 lb. (5 clb.) occur while the scale is in motion. Keep replacing the item on the moving belt during this time.

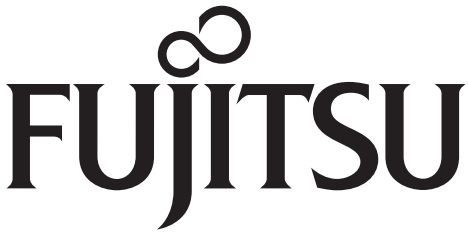
16. If the calibration did not work,

    a. Ensure that none of the scale cables is touching the scale.

    b. Ensure that the loop on the belt motor cable is not touching the side of the casing.

    c. If the scale is underweighing, ensure that the **PGA Gain** in the **Scale Calibration** window is set to **8**.

17. Exit the **Scale Calibration** window.



THE POSSIBILITIES ARE INFINITE