Oracle® MICROS Tablet and Base Station E-Series
Setup Guide

November 2015

ORACLE

Contents

Tables

Figures

Preface

This document provides instructions on how to set up and operate the Tablet E-Series device with the Base Station. It is not specific to a particular software application.

Audience

This document is intended for users responsible for setting up, installing, and operating the Tablet E-Series with the Base Station.

Customer Support

To contact Oracle Customer Support, access My Oracle Support at the following URL:

https://support.oracle.com

When contacting Customer Support, please provide the following:

- Product version and program/module name
- Functional and technical description of the problem (include business impact)
- Detailed step-by-step instructions to re-create
- Exact error message received
- Screen shots of each step you take

Documentation

Oracle Hospitality product documentation is available on the Oracle Help Center at http://docs.oracle.com

Revision History

Date	Description of Change
November 20, 2015	▪ Initial publication.

1 Introduction of the MICROS Tablet and Base Station E-Series

The MICROS Tablet E-Series has two models, the E-Series 8 and the E-Series 11, available in 8″ and 10.8″ screen sizes. Each tablet is available with an optional MSR Sleeve.

Two POS Sleeves are available for the Tablet E-Series 8, and a second option incorporates a 1D/2D Imager/Scanner into the casework.

The Tablet E-Series 11 is a mobile device with an available MSR Sleeve that can be tethered to the Base Station E-Series for peripheral, wired Ethernet connectivity, and battery charging.

The Base Station E-Series is derived from the Base Station R-Series with a new Main Board as well as modifications to the docking tray and multi-function connector.

Tablet E-Series 8

The following figure shows front and back views of the Tablet E-Series 8 and available MSR Sleeve.

Figure 1-1 Tablet E-Series 8 with Optional MSR Sleeve

Tablet E-Series 8 Features

The Tablet E-Series 8 includes a WXGA 1280x800 LCD, 1.33GHz Intel Atom Quad Core Processor, 2GB DDR3L RAM, and 32GB eMMC storage device.

Also included is an 802.11 a/b/c/g/n Dual Band WiFi Radio, Bluetooth 4.0, and Micro SD Card Reader supporting up to 64GB.

The Tablet E-Series 8 ships with a Windows Embedded 8.1 Industrial Pro image customized to include the Oracle MICROS Client Application Loader (CAL) and a Tablet E-Series Diagnostics Utility.

OS image recovery methods include restoring the image from a hidden recovery partition, or by using the appropriate Tablet E-Series USB Recovery Flash Drive. See Chapter 3 for more information about Factory Recovery.

The Optional MSR Sleeve contains an encryption capable 3-Track head, the same as used on other MICROS workstations including the Tablet R-Series and Workstation 5A. The optional MSR Sleeve is also available with a 1D/2D scanner.

Optional MSR Sleeve

The figure below shows details about the optional E-Series 8 sleeve and USB Plug. The USB Plug attaches to the E-Series 8 Micro USB port during installation. It also contains a MSR LED to indicate a good MSR read and a light pipe for the charging indicator.

The Micro USB Port on the left of the sleeve is for charging only and accepts inputs from the charging transformer or future optional multi-gang charging station contacts.

A Tablet E-Series 8 USB Port is routed through the USB Plug to an on-board USB Hub if the optional 1D/2D scanner is used.

Figure 1-2 Optional Tablet E-Series 8 MSR Sleeve

Tablet E-Series 11

The figure below shows the front, rear, and MSR views of the Tablet E-Series 11 with the available MSR sleeve.

Figure 1-3 Tablet E-Series 11 with Optional MSR Sleeve

Tablet E-Series 11 Features

The Tablet E-Series 11 includes a 10.8" WXGA 1920x1080 HD LCD, 1.46GHz Intel Atom Quad Core Processor, 2GB DDR3L RAM, and 64GB eMMC storage device.

Also included is an 802.11 a/b/c/g/n Dual Band WiFi Radio, Bluetooth 4.0, and Micro SD Card Reader supporting up to 64GB.

The Tablet E-Series 11 ships with a Windows Embedded 8.1 Industrial Pro image customized to include the MICROS Client Application Loader (CAL) and the Tablet/Base Station E-Series Diagnostics Utility.

OS image recovery methods include restoring the image from a hidden recovery partition, or by using the appropriate Tablet E-Series USB Recovery Flash Drive. See Chapter 3 for more info about image recovery.

Optional MSR Sleeve

The figure below shows how the connectors on the optional sleeve align with the Tablet E-Series 11 USB Ports shown on the lower left. The full size USB port is used by the MSR and is not available. The Micro USB Port is for charging only and accepts input from a charging transformer or optional gang charging station.

Figure 1-4 Optional Tablet E-Series 11 MSR Sleeve Details

Base Station E-Series

The Base Station provides peripheral and wired Ethernet connectivity for the Tablet E-Series 11. The figure below shows the Tablet E-Series 11 with optional MSR sleeve installed on the Base Station E-Series.

Figure 1-5 Base Station E-Series with the Tablet E-Series 11

The Base Station E-Series is AC powered and features an internal universal power supply. In addition, it can be equipped with an optional Totex Smart Battery, capable of powering the Tablet E-Series 11 and peripherals for several hours.

The Base Station E-Series is not stand alone intelligent and relies on the Tablet E-Series 11 for all peripheral functionality. When connected to AC power, or powered from the optional battery, Base Station E-Series remains in a low power sleep mode until the

Tablet E-Series 11 is installed. When the Tablet E-Series is removed, it returns to sleep within 30 seconds.

The Base Station E-Series casework is derived from the Base Station R-Series and supports the same peripherals—Series 2 Integrated and Pole, a 2 inch thermal printer, and a 1D/2D Wireless Bar Code scanner.

The Base Station E-Series is assigned a unique identifier by the Oracle application, allowing it to identify key attributes, including cash drawer assignments by employees.

The Base Station E-Series tray details are below. Pulling the release pin allows the tray to be raised for installation or removal of the Tablet E-Series 11. After installation, the tray is closed and can be secured to Base Station E-Series with the provided key lock.

Figure 1-6 Base Station E-Series Tray

Peripheral Support

The Base Station E-Series I/O Panel features the following connectors:

- 2 MICROS Series 2 Cash Drawer Ports.
- 10/100/1000 Wired Ethernet.
- 2 x USB 3.0
- 2 x USB 2.0
- 4 Serial Ports
  - 1 RS232 DB9 /w Software Selectable 5V/9V/12V Power
  - 1 RS232 DB9 /w 12V Power (Recommended for the Mini Printer)
  - 1 IDN - Switchable RS422/RS232
  - 1 RJ45 Serial /w full handshake support.
- 1 Customer Display Port
- 1 MICROS Powered USB (12V, and 5V), reserved for the Protégé
- Customer Display System
- +12V Auxiliary Power Jack.

Indicators

The figure below shows the indicator LEDs on the Base Station E-Series tray.

Figure 1-7 Base Station E-Series LED Indicators

Tablet Rotation

The Rotate Button releases the Base Station E-Series tilt and rotate mechanism, allowing you to change the orientation of the Tablet E-Series 11. The figure below presents examples of portrait orientation with the mag card reader at the top and landscape orientation with the mag card reader positioned to the right.

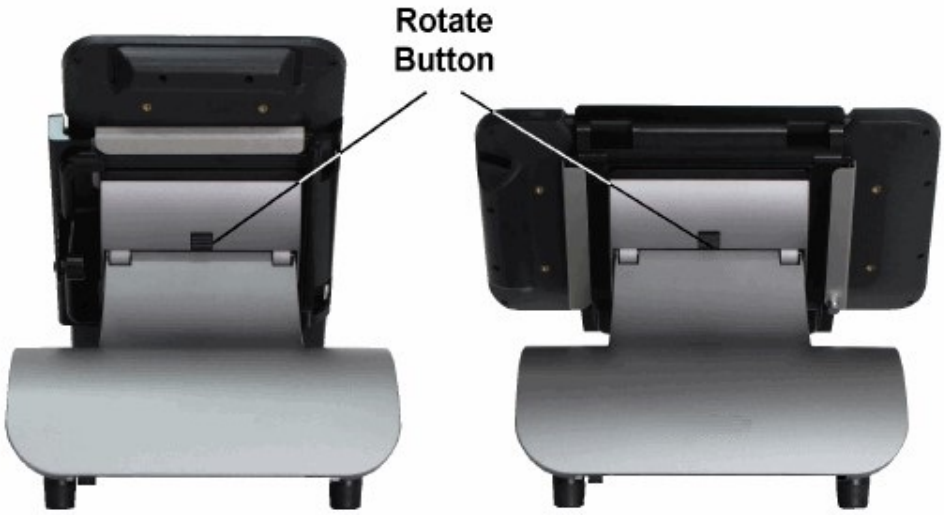


Figure 1-8 Changing the Tablet Orientation

The figure below points out the Base Station E-Series Accessary Mounting points.

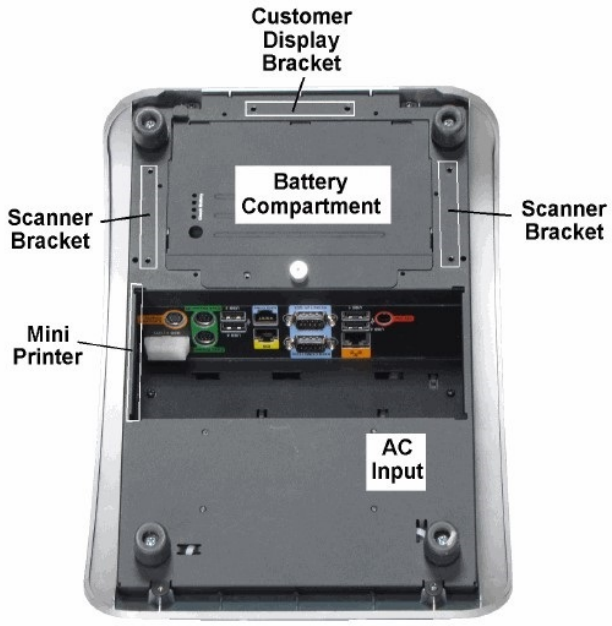


Figure 1-9 Base Station E-Series Accessory Mount Points

Base Station E-Series Accessories

Customer Displays

The Base Station E-Series introduces the Series 2 integrated and pole customer displays designed to match Base Station R-Series and E-Series styling.

Series 2 Integrated

In the figure below, the Series 2 2x20 Text LCD is on the left and the Series 2 240x64 Graphics LCD is on the right. In the lower half of the figure is the new fixed angle mounting bracket shared by each Series 2 Customer Display. The mounting bracket features thumbscrews for quick installation and service.

Figure 1-10 Series 2 Integrated 240x64 and 2x20 Customer Displays

Series 2 Pole

The figure below shows front and side views of the Series 2 240x64 Pole Display.

Figure 1-11 Series 240x64 Pole Display

The Series 2 pole and base are oval shaped, but the pole centers are compatible with the Series 1 pole display base, shown below.

Figure 1-12 Series 1 (Left) and Series 2 (Right) Pole Display Bases

The Integrated Mini Printer

The Integrated Mini-Printer is a compact thermal printer designed to attach to a fixed location on the Base Station E-Series and R-Series. The Integrated 2-inch Mini Printer is based on a Fujitsu thermal print mechanism and firmware, and is not Epson compatible.

The printer is RS232 based and includes an interface cable with DB9F connector that is recommended for COM2, a powered RS232 Port with 12V available.

The figure below highlights the custom printer mounting bracket that attaches to the Base Station. At the lower half, is a channel that attaches near the I/O panel and in the upper half, a pair of tabs that attach to a Base Station ventilation slot.

Figure 1-13 Integrated Mini-Printer Bracket and Location on Base Station

The Base Station E-Series Wireless Scanner

The Base Station Wireless Scanner consists of a compact battery powered Wireless Scanner and a Dock/Cradle attached to the left or right rear of the Base Station E-Series and R-Series. The figure below shows an example of the Wireless Scanner installed on the right rear side of the Base Station E-Series.

Figure 1-14 Wireless Scanner and Dock

The Dock receives power through the USB interface cable to operate the wireless scanner in presentation mode or to charge the internal AAA batteries for trigger mode.

For fixed operation in presentation mode, the Wireless Scanner can be secured to the Dock. About six inches clearance in front of the scan window is required and most items will scan when placed within two to three inches from the window.

The Base Station Wireless Scanner contains a Scan Engine and Image Decoder.

The Scan Engine is composed of a CCD imager, lens, motion sensor, plus illumination and targeting LEDs housed in small a cube shaped package attached to the scanner housing with a custom bracket.

The Scan Engine is coupled to a PL3307 Image Decoder, a multi-chip processing system located on the scanner board. The PL3307 configures the imager through an I2C interface, acquires the image through its Camera Sensor Interface (CSI) interface, and then decodes the 1D or 2D bar code symbologies.

After the Image Decoder receives the image and reads the bar code, the scanned data is sent over a Symbol Simple Serial Interface (SSI) to the Bluetooth Module. The Dock contains a second Bluetooth Module to receive scanned data, converts it to the SSI interface and feeds it to a USB to COM Port device.

The Wireless Scanner supports the following bar code symbologies by default.

Table 1-1 Wireless Scanner Bar Code Symbologies

1D Symbologies	2D Symbologies	Postal Codes
UPC/EAN	PDF417	US Postnet
Bookland EAN	MicroPDF417	US Planet
UCC Coupon Code	Data Matrix	UK Postal

1D Symbologies	2D Symbologies	Postal Codes
ISSN EAN	Data Matrix Inverse	Japan Postal
Code 128	Maxicode	Australian Postal
GST-123	QR Code	Netherlands KIX Code
ISBT 123	MicroQR	USPS 4CB/One/Code/Intelligent Mail
Code 36	QR Inverse	UPF FICS Postal
Trioptic Code 39	Aztec	
Code 32	Aztec Inverse	
Code 93		
Code 11		
Interleaved 2 of 5		
Discreet 2 of 5		
Codabar		
MSI		
Chinese 2 of 5		
Matrix 2 of 5		
Korean 3 of 5		
Inverse 1D		
GS1 DataBar		
Composite Codes		

Tablet E-Series 11 General Specifications

The Tablet E-Series 11 with MSR sleeve specifications are listed below.

Table 1-2 Tablet E-Series 11 General Specifications

Specification	Parameters
Processor	Intel Atom Z3740D Quad Core SoC @ 1.33 GHz (1.83 GHz Turbo). 2M L2 Cache Intel Gen7 Integrated Graphics
Memory	2GB LPDDR3 SDRAM PC-1333
Storage	64 GB eMMC
Operating System	Microsoft Windows Embedded 8.1 Industry Pro (32bits)
Display	10.8″ IPS Display at 1920x1080 Portrait or Landscape orientation, Auto Rotating.
Touchscreen	10-Point Capacitive Touch Sensor (Supports multi-touch and gesturing)

Specification	Parameters
Magnetic Card Reader	Optional POS Sleeve with Modular Integrated 3-Track MCR capable of encryption at the swipe
Scanner	Not Available
External Connectors and Controls with MSR Sleeve	▪ Micro USB (charging only) ▪ Headphone/Microphone jack ▪ Volume Up/Down ▪ Power/Standby Button ▪ Gang Charger Pins ▪ Multi-function Docking Connector for Base Station
Network/Wireless	▪ 802.11 a/b/g/n WiFi with WPA WPA2, TKIP, AES support ▪ Bluetooth V4.00
Card Reader	Micro-SD (SD, SDHC, SDXC - 64GB max)
Battery	2-Cell Lithium-Ion 32 Wh
Operating Temperature	0°C (32°F) to 40°C (104°F)
Weight	726g (1.7lb)
Dimensions	Length: 280mm (11.02 inches) Width: 177mm (6.97 inches) Thickness: 10.2 mm (0.40 inches)
Certifications	http://www.dell.com/regulatory_compliance_datasheets

Tablet E-Series 8 General Specifications

The Tablet E-Series 8 with MSR sleeve specifications are listed below.

Table 1-3 Tablet E-Series 8 General Specifications

Specification	Parameters
Processor	Intel Atom Z3740D Quad Core SoC @ 1.33 GHz (1.83 GHz Turbo) 2M L2 Cache Intel Gen7 Integrated Graphics
Memory	2GB LPDDR3 SDRAM PC-1333
Storage	32 GB eMMC
Operating System	Microsoft Windows Embedded 8.1 Industry Pro (32bits)
Display	8.0" IPS Display at 1280x800 Portrait or Landscape orientation, Auto Rotating
Touchscreen	10-Point Capacitive Touch Sensor (supports multi-touch and gesturing)

Specification	Parameters
Magnetic Card Reader	Optional POS Sleeve with Modular Integrated 3-Track MCR capable of encryption at the swipe
Scanner	Optional POS Sleeve supports 1D/2D Imager/Scanner
External Connectors and Controls with MSR Sleeve	▪ Micro USB (charging only) ▪ Headphone/Microphone jack ▪ Volume Up/Down ▪ Power/Standby Button ▪ Gang Charger Pins ▪ Scanner Trigger Button (Optional Scanner)
Network/Wireless	▪ 802.11 a/b/g/n WiFi with WPA WPA2, TKIP, AES support ▪ Bluetooth V4.00
Card Reader	Micro-SD (SD, SDHC, SDXC - 64GB max)
Battery	2-Cell Lithium-Ion 18 Wh
Operating Temperature	0°C (32°F) to 35°C (95°F)
Weight	400g (0.88lb)
Dimensions	Length: 216mm (8.51 inches) Width: 130mm (5.11 inches) Thickness: 9 mm (0.35 inches)
Certifications	http://www.dell.com/regulatory_compliance_datasheets

Base Station E-Series General Specifications

The Base Station E-Series is designed specifically for the Tablet E-Series 11. It is not compatible with Tablet E-Series 8 or the MCIROS Tablet R-Series.

Table 1-4 Base Station E-Series General Specifications

Specification	Parameters
Processor	NXP LPC1751
Memory	On-Board 32K Flash, 8K SRAM
LAN Interface	10/100/1000 Mb LAN /w RJ-45 Connector
Serial Ports	2 DB9 Powered RS232 Serial with handshake • COM1 - user selectable 5V/9V/12 options • COM2 - 12V available 1 Modular RS232 Serial /w handshake 1 Modular IDN Serial (RS422 or RS232) ☐ Refer to the Peripheral Power Specification table on the next page.

Specification	Parameters
USB Ports	2 - USB 2.0 Type A 2 - USB 3.0 Type A 1 - MICROS Powered USB Port
Optional Battery	79Wh Lithium Ion
Input Power	25 Watts
Storage Temperature	**Without Battery:** -25°C (-13°F) to 80°C (176°F) **With Optional Totex Battery:** -20°C (-4°F) to 60°C (140°F)
Operating Temperature	-10°C (14°F) to 60 °C (140°F) **When Charging the Tablet E Series 11 and or optional Base Station E-Series Battery:** 0°C (32°F) to 45°C (113°F)
Weight	2.60 kg (5.75 lb.) **With Optional Battery:** 3.08 kg (6.80lb)
Case Material	PC-ABS Plastic
Physical Dimensions	See Appendix A

Base Station E-Series Peripheral Power Specifications

The Base Station E-Series I/O Panel includes two DB9 powered COM ports, one MICROS powered USB port, one 12V power jack, two USB 2.0 ports, and two USB 3.0 ports. The table below lists each port and the power available.

Table 1-5 Base Station E-Series Port Power Specifications

Port or Connector	Power Bus	Available Power
COM1 DB9	VCC 12 VCC 9 VCC 5	12V @ 1.5A (18W) or 9V @ 1.5A (13.5W) or 5V @ 1.5A (7.5W)
COM2 DB9	VCC 12	12V @ 1.5A (18W)
USB 5 (12v) (Protégé Only)	VCC 12 VCC 5	12V @ 1.5A (18W) and 5V @ 0.5A (2.5W)
+12V out	VCC12	12V @ 1.5A (18W)
Customer Displays	VCC5	5V @ 0.1A (0.5W)
USB 1-USB 4	VCC5	4 x +5V @ 0.5A (10W)

Port or Connector	Power Bus	Available Power
Multi-function Connector to Tablet	VCC19.5	19.5V @ 2.0A (6.25W when charging the Tablet - Typical)
Cash Drawer	VCC24	24V @ 0.021A (0.5W)
	VCC12	12V @ 0.042A (0.5W)

The Base Station E-Series has five primary power busses, each with a fixed amount of power available. VCC5, VCC9, and VCC12 are available at the I/O Panel for peripheral devices.

- VCC24 @ 2A is used only if Base Station E-Series 11 is configured to use 24V Cash Drawers. It is not used to power peripheral devices.
- VCC19.5 @ 2A is fed through the multi-function connector to power the Tablet E-Series 11 and charge the internal battery. It is not used to power peripherals.
- VCC12 @ 3.5A is available at COM1, COM2, USB 5, and the 12V Out Jack. A total of 42 Watts is available. Each output can provide 1.5A or 18 Watts.
- VCC9 @ 2A is available at the COM1 connector for use with some small form factor printers. A total of 13.5 Watts is available.
- VCC5 @ 4A is available at COM1, USB ports 1 through 5 and one or two customer displays. A total of 20 Watts is available. See below.

Examples:

- A MICROS Protégé Customer Display is connected to USB 5. It consumes 12 Watts from VCC12 and 2.5 Watts from VCC5. This leaves approximately 30 Watts available on VCC12 and 17.5 Watts available on VCC5 for the I/O Panel USB Ports and Customer Display(s).
- A thermal printer such as the MICROS Integrated Mini-Printer consumes 15 Watts from VCC12, leaving 24 Watts available for other 12V devices. COM2 is the recommended port for the Integrated Mini Printer.

Certifications

The Tablet and Base Station meet the following safety and environmental certifications.

Table 1-6 Tablet E-Series Safety and Environmental Certifications

Directive	Specification	Year
Safety	EN 60950-1:2006+A11+A1+A12	2011
(2006/95/EC)	IEC 60950-1:2005+A1	2010
R&TTE	EN 300 328 V1.8.1	2012
(1999/5/EC)	EN 301 489 V1.9.2	2011
	EN 301 489-17 V2.2.1	2012

Table 1-7 Base Station E-Series Safety and Environmental Certifications

Directive	Specification	Year
Safety	EN 60950-1:2006+A11+A1+A12	2011
(2006/95/EC)	IEC 60950-1:2005+A1	2010
EMC	EN 55022:2010	2010
(2004/108/EC)	EN 55024:2010	2010
	EN 61000-3-2:2006+A1+A2	2009
	EN 61000-3-3:2008	2008

2 Identifying the Internal Components

This chapter describes how to open the Base Station E-Series, identify the internal components, and provides technical descriptions and a block diagram.

Disassembling the Base Station E-Series

The following procedure describes how to disassemble the unit and access the system board and peripheral components.

Caution: Double Pole/Neutral Filtering

The Base Station E-Series Power Supply contains a permanently connected fuse in the neutral line. After fuse operation, parts of the power supply remain energized and present a shock hazard as long as the AC Power Cord is connected. Always disconnect the AC power cord before opening the unit for service or configuration.

1. Remove all cables from the I/O Panel including the AC Power cable before disassembling the unit.
2. Remove the optional Smart Battery if installed. The optional Smart Battery is capable of powering Base Station E-Series and must be removed before opening the unit for service or installing peripherals.
3. Place the Base Station E-Series face down and remove the screws as shown below.

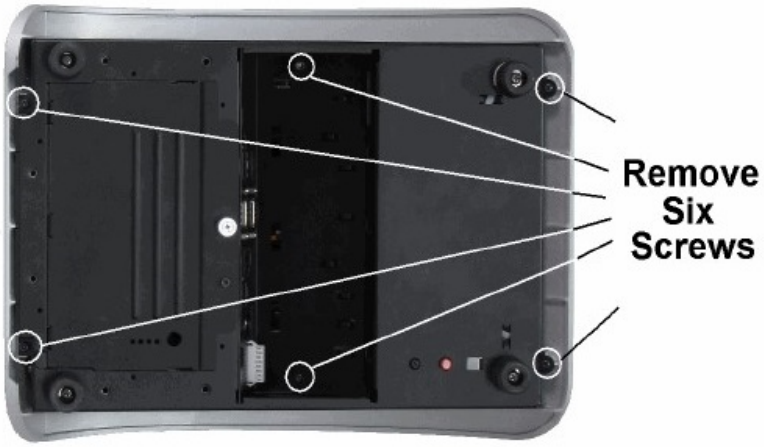


Figure 2-1 Removing the Base Station Screws

4. Return the unit to the normal operating position. Lift up and tilt the cover to the right, just enough to remove the Cable Bundle from CN8 before fully removing the cover.

Figure 2-2 Removing the Base Station E-Series Cover

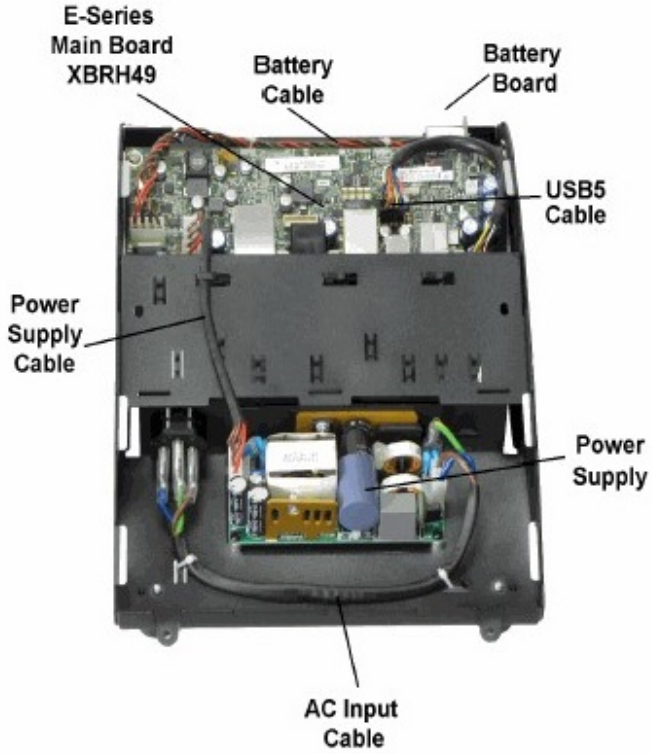


Figure 2-3 Base Station E-Series Cables and Internal Components

Base Station E-Series Main Board Description

This section provides a block diagram of the Base Station E-Series Main or System Board and describes the major components. The block diagram is displayed below.

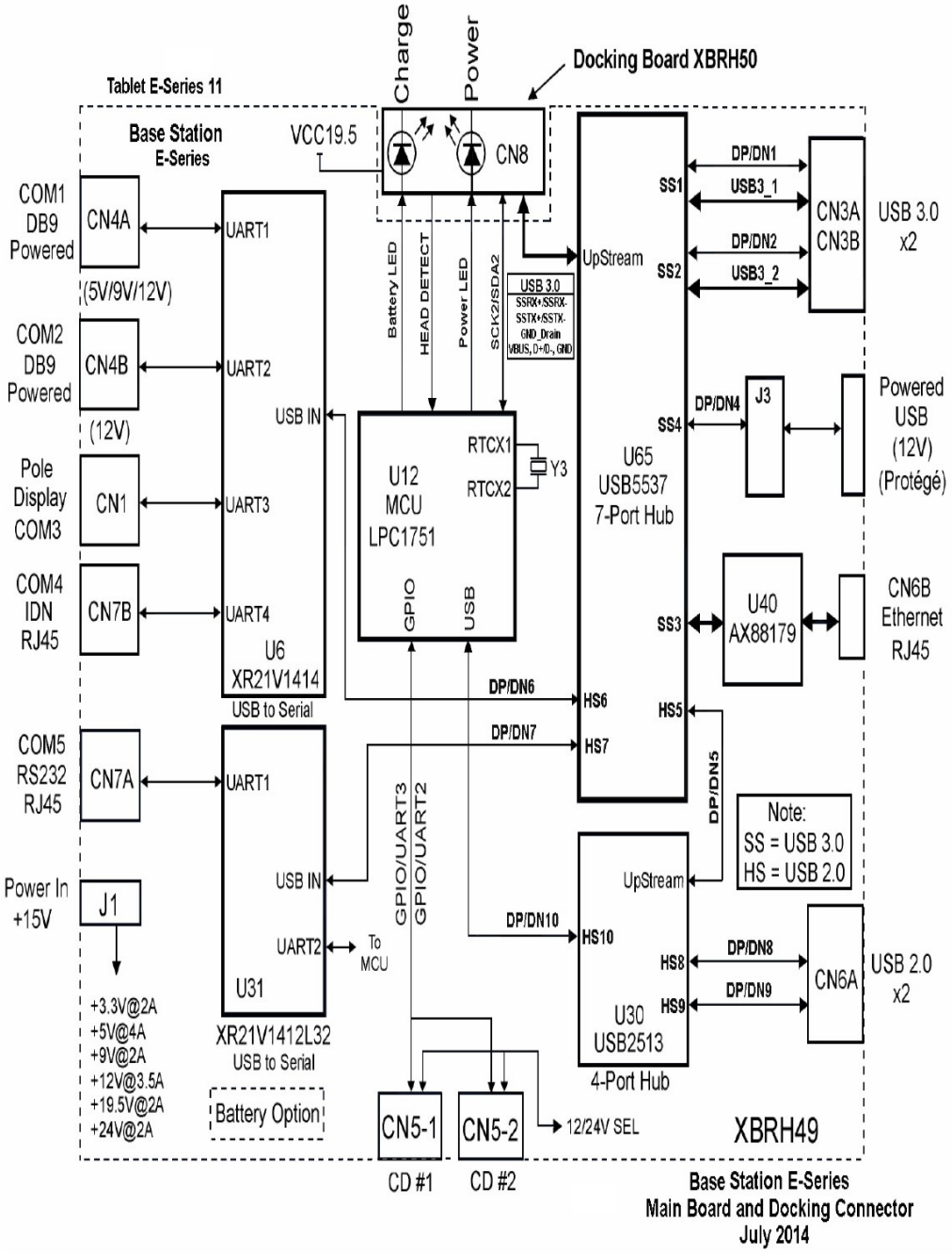


Figure 2-4 Base Station E-Series Block Diagram

Base Station E-Series Main Board – Connectors and Components

The figures below point out the connectors and components referenced in the block diagram.

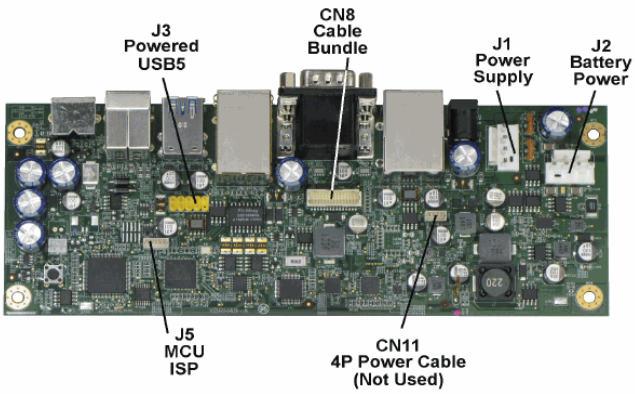


Figure 2-5 Base Station E-Series Main Board – Connectors

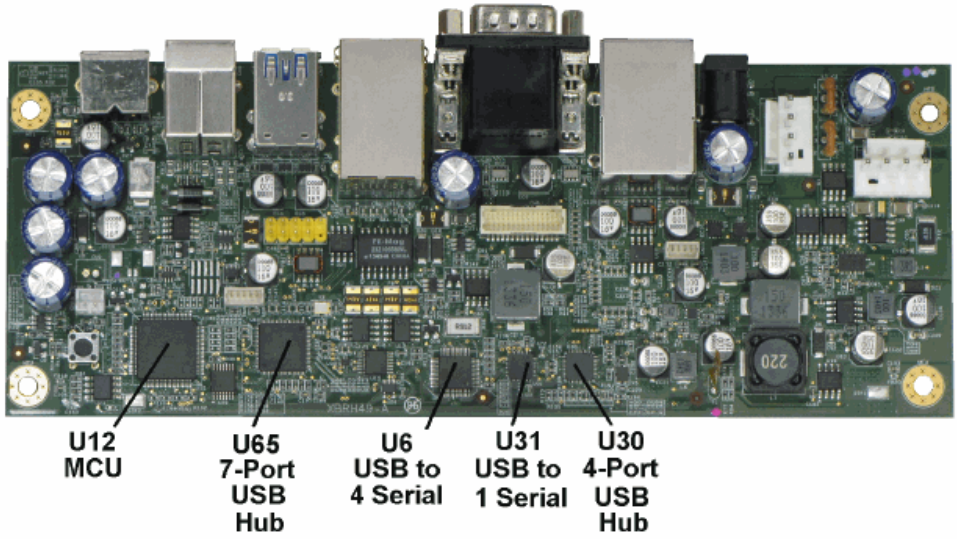


Figure 2-6 Base Station E-Series Main Board – Components

Base Station E-Series MCU

The Base Station E-Series MCU is a NXP LPC1751 containing an ARM Cortex-M3 Processor with 32kB Flash and 8kB SRAM on board. The ARM Cortex M3 is a general purpose 32-bit microprocessor, offering high performance and very low power consumption. Features include:

- In-System Programming (ISP) and In-Application Programming (IAP)
- USB 2.0 full speed controller
- Four UARTs with fractional baud rate generation
  - UART0 is dedicated to MCU In System Programming.
  - UART2 and UART3 are dedicated to the smart cash drawer interfaces.

- Two I2C-bus interfaces supporting fast mode with a data rate of 400 kbit/s
  - One IC2 interface is dedicated to the optional Smart Battery.
  - The second IC2 interface is dedicated to the on-board EEPROM, U23. The EEPROM is used to store application data.
- 52 General Purpose I/O (GPIO) pins with configurable pull-up/down resistors. Functions include:
  - Base Station E-Series Battery and Power LEDs
  - Powered COM Port voltage control and monitoring
  - Tablet E-Series 11 Detection
  - RS422/RS232 Mode Select for the IDN COM4 interface
  - Cash Drawer Open/Closed
  - Base Station E-Series Board Revision
  - 12V/24V Cash Drawer Voltage Select
- 12-bit Analog-to-Digital Converter (ADC) with conversion rates up to 200 kHz
  - All on-board and DSUB voltages are monitored by the ADC and displayed in the Base Station E-Series MCU API selection from the Diagnostics Utility.
- Integrated PMU (Power Management Unit) with four reduced power modes

Base Station E-Series/Tablet E-Series 11 Detection

When the Base Station E-Series is connected to AC Power and the Tablet E-Series 11 is not installed, the Base Station E-Series MCU is in a low power sleep mode and all power supply voltages are off (with the exception of a standby voltage).

As shown in the block diagram, HEAD_DETECT is an input to the Base Station E-Series from the Tablet E-Series 11.

- HEAD_DETECT is forced active when the Tablet E-Series 11 is installed. This wakes the Base Station E-Series MCU from sleep mode and it responds by asserting PWR_CTRL.
- An active PWR_CTRL enables all Base Station E-Series Main Board voltage regulators including 3.3V, 5V, 9V, 12V, and 19.5V. After the voltages are active, the MCU turns on the Power LED.
- When the Tablet E-Series 11 is removed, the MCU waits for re-installation for up to 20 seconds. If re-installation does not occur, the MCU disables PWR_CTRL to turn off the internal regulators, turns off the Power LED and enters a low power sleep mode.

U65 - USB5537 7-Port SuperSpeed or High Speed Hub Controller

The SMSC USB5537 is a 7-Port Hub supporting both USB 3.0 or SuperSpeed (SS) and USB 2.0 Full Speed (FS) USB Interfaces as well as complete coverage of all compatible operating speeds. USB modes supported include:

- 5 Gbps SuperSpeed (SS)
- 480 Mbps High-Speed (HS)
- 12 Mbps Full-Speed (FS)
- 1.5 Mbps Low-Speed (LS)

As shown in the block diagram, USB 3.0 interface signals from the Tablet E-Series 11 pass through the multi-function connector to the Upstream port of U65. U65 generates all Base Station E-Series USB and Serial Ports from this input.

Legacy USB speeds such as Full-Speed (FS) and Low-Speed (LS) are handled by the USB 2.0 controller. The SuperSpeed USB 3.0 Controller operates in parallel with the USB 2.0 controller so that the SuperSpeed data transfers are not affected by USB 2.0 traffic.

- Four downstream USB 3.0 SuperSpeed Ports. On the E-Series Main Board, each port is connected to the following:
  - SS Ports 1 (USB3_1) and 2 (USB3_2) are fed directly to CN3A and CN3B and designated USB3 and USB4 on the I/O Panel. The blue connectors indicate USB 3.0 compatibility.
  - SS Port 3 (USB3_3) is fed to U40, an on-board AX88179 USB 3.0 to Gigabit Ethernet Controller. U40 is a highly integrated ASIC, combining a USB 3.0 PHY and 10/100/1000Mbps Gigabit Ethernet PHY in a single package. The Ethernet PHY supports IEEE 802.3, IEEE 802.3u and IEEE 802.3ab. The output is fed to I/O Panel connector U6 for wired Ethernet.
  - SS Port 4 is configured for USB 2.0 operation and fed to the 2x5 header J3 for Protégé Customer Display support. The USB 3.0 interface is not used.
- Three downstream USB 2.0 ports labeled HS5, HS6, and HS7.
  - HS5 is fed to U30, a USB2513 USB 2.0 compatible 4-Port Hub.
  - HS6 is fed to U6, a USB to 4-Port Serial UART.
  - HS7 is fed to U31 a USB to 2-Port Serial UART.

USB 3.0 Overview

The USB 3.0 specification improves upon the USB 2.0 specification by adding a physically separate full-duplex (two ways) communications channel on top of the existing half duplex (one way) USB 2.0 channel.

USB 3.0 introduces a new 5 Gbit/s transfer type called SuperSpeed or 'SS' where one channel is dedicated to transmitting data and the second channel dedicated to receiving data simultaneously. This eliminates the overhead associated with a USB 2.0 controller having to 'turn-around' the half duplex channel from transmit to receive and vise-versa.

U65 or any USB hub supporting both specifications will include independent USB controllers to prevent USB 2.0 data transfers from interfering with USB 3.0 data transfers.

USB 3.0 Type A Plugs and Receptacles

The figure below shows a typical USB 3.0 Type A receptacle on the Base Station E-Series. USB 3.0 adds five more pins to the existing Type A Plug and Receptacles and are colored blue. The existing USB 1.x/2.0 compatible pins are at the lower half labeled VBUS (Power), DN/DP, and GND.

Figure 2-7 Typical USB 3.0 Type A Receptacle

USB 3.0 adds 5 pins to the upper half of the connector, including two differential pairs for SuperSpeed signaling, called out as SSRX+/SSRX- and SSTX+/SSTX- and GND_DRAIN in the figure above. The additional ground wire is critical for maintaining the SuperSpeed channel signal integrity and reducing EMI.

U30 - USB 4-Port HUB USB2513

The SMSC USB2513 4-port hub is part of a family of low-power, OEM configurable, MTT (Multi-Transaction translator) hub controller ICs.

The USB2517 provides 7 downstream ports for Base Station.

The SMSC hub supports Low-Speed (LS), Full-Speed (FS), and High-Speed (HS) devices on all downstream ports.

The Upstream port is driven by HS5 from Hub U65.

The downstream ports are configured as follows:

- HS8, HS9 - to Base Station E-Series I/O Panel USB 2.0 Ports, USB1, and USB2
- HS10 - to Base Station E-Series MCU

U6 XR21V1414 High Speed USB to Four Channel UART

U6 converts a single High Speed USB 2.0 input into four serial Universal Asynchronous Receiver Transmitters (UARTS).

The XR21V1414 is attached to the HS6 downstream port of U65. The USB interface is fully compliant with Full Speed USB 2.0 Specification.

Each UART contains a large transmit and receive FIFO to optimize data throughput as detailed below.

- Data rates up to 12 Mbps
- Fractional Baud Rates up to 12 Mbps
- 128 byte TX FIFO
- 384 byte RX FIFO
- 7, 8, or 9 data bits - 1 or 2 stop bits - Odd, even, mark, space, or no parity
- Automatic Hardware Flow Control - (RTS/CTS or DTR/DSR)
- Automatic Software Flow Control (Xon/Xoff)
- Multi-drop and Half-Duplex Modes

On the Base Station E-Series Main Board, the four channel UART drives the following I/O Panel connectors:

- URAT1
  - COM1 DB9 Powered DB9
- URAT2
  - COM2 DB9 Powered
- URAT3
  - COM3 - Customer Display Port
- URAT4
  - COM4 - IDN (RJ45 RS422/RS232 multi-function port)

A serial driver running on Tablet E-Series establishes virtual COM ports.

U31 XR21V1412L32 High Speed USB to Two Channel UART

U31 converts a single High Speed USB 2.0 input into two serial Universal Asynchronous Receiver Transmitters (UARTS).

The XR21V1412L32 is attached to the HS7 downstream port of U65. The USB interface is fully compliant with Full Speed USB 2.0 Specification.

Each UART contains a large transmit and receive FIFO to optimize data throughput as detailed below.

- Data rates up to 12 Mbps
- Fractional Baud Rates up to 12 Mbps
- 128 byte TX FIFO
- 384 byte RX FIFO
- 7, 8, or 9 data bits - 1 or 2 stop bits - Odd, even, mark, space, or no parity
- Automatic Hardware Flow Control - (RTS/CTS or DTR/DSR)
- Automatic Software Flow Control (Xon/Xoff)
- Multi-drop and Half-Duplex Modes

On the Base Station E-Series Main Board, the two channel UART drives the following I/O Panel connectors:

- URAT1
  - COM5 RS232 RJ45
- URAT2
  - Base Station E-Series MCU

TI Fuel Gauge IC bq20z80

The Fuel Gauge resides in the optional Totex Smart Battery Pack. The fuel gauge uses TI's Impedance Track technology to provide information on remaining battery capacity (mAh), state of charge (%), run-time to empty (mins), battery voltage (mV), and battery temperature (°C).

To determine the battery state of charge (SOC), the fuel gauge measures cell voltage, temperature, and current. The current is measured by sensing the voltage drop across a small-value resistor in series with the battery. The fuel gauge accurately predicts the battery capacity and other operational characteristics such as state-of-charge (SOC), time-to-empty (TTE), time-to-full (TTF), as well as an SOC interrupt signal to the MCU. Both the Tablet and optional Base Station Battery State of Charge is available at the WEC7 power properties icon located in the system tray.

The Base Station E-Series Battery Status page of the Diagnostics Utility displays many of the fields available in the fuel gauge.

TI Charger IC bq24170

The bq24170 is highly integrated stand-alone single cell Li-Ion switch mode battery charger with two integrated N-channel power MOSFETs. It provides battery detection, pre-conditioning, charge monitoring, and charge termination. It also closely monitors battery pack temperature to allow charging in a preset window.

The charger is configured to charge the three-cell Base Station E-Series Li-Ion battery pack in three phases—preconditioning, constant current, and constant voltage.

Reassembling Base Station E-Series

The following procedure describes how to connect the cable bundle and reassemble the Base Station E-Series.

1. Place the top cover to the right of the base as shown in the figure below and connect the multi-function cable bundle to CN8.

2. Reattach the cover and place the Base Station E-Series face down to access the cover screws.
3. Install the six security screws to fasten the Base Station E-Series cover.

Figure 2-8 Installing the Base Station E-Series Cover

3 Installing and Operating the Tablet and Base Station E-Series

This chapter describes the environmental requirements for the hardware, the basic operation of the Tablet E-Series, the peripheral installation procedures, and the recovery procedures.

Care and Handling

Tips for placing the Base Station in an environmentally sound location and instructions for cleaning the cabinet are presented in this section.

Equipment Placement

The following pages present considerations for placement of the Base Station and related peripheral equipment.

Location

- Appendix A contains dimensional data for Base Station and peripheral devices. Before you decide on the space each piece of equipment will occupy, take measurements and ensure proper fit.
- Ensure the equipment location is accessible to all service personnel.
- Tile is the recommended floor surface for areas surrounding the equipment. If the floor covering adjacent to the equipment is carpeted, an anti-static grade of carpeting is recommended. If the carpeting surrounding the area housing the equipment is not composed of anti-static material, the use of static discharge mats is recommended. Anti-static mats incorporate a grounding clip with a cable for attachment to earth ground.

Proximity to Foreign Materials

Spilled liquids can cause damage to the circuits in MICROS equipment.

- Do not place equipment near food preparation areas, glass racks, or water stations.

Another source of potential hazards to the equipment are foreign objects, including paper clips, staples, and any other metallic objects.

- Safeguards should be taken to prevent the accidental dropping of such materials into the equipment.

Noise Induction

In addition to the AC Power Requirements outlined in the *Oracle MICROS Hardware Site Preparation Guide*, other sources of electromagnetic interference must be eliminated to ensure trouble-free operation of the equipment.

- Noise radiating from AC power lines throughout the site can be absorbed by MICROS AC power and communications lines and induced into the equipment. Consequently, no exposed cable dedicated to the MICROS equipment should be run in the vicinity of any AC power lines.

- Devices that emit RF energy, such as cordless phones, and walkie-talkies should be kept at least 8 inches from the equipment or cable during operation.

Electrostatic Discharge (ESD)

The occurrence of electrostatic discharge (ESD) usually takes the form of a discharge from the operator's hand to cash drawers, the workstation, the magnetic stripe card reader or other peripherals. ESD is more common in dry climates during the winter, and less common in moist climates. The workstation has excellent built-in immunity to ESD in most environments. However, tile or anti-static carpet is recommended in areas near the Base Station.

Operating Temperature

Tablet E-Series 8:

- 0°C (32°F) to 35°C (95°F)

Tablet E-Series 11:

- 0°C (32°F) to 40°C (104°F)

Base Station E-Series:

- -10°C (14°F) to 60°C (140°F)

AC Power and Data Cabling Requirements

AC Power, Ethernet, and MICROS IDN data cabling should be installed in accordance with the *Oracle MICROS Hardware Site Preparation Guide*.

Cleaning the Tablet Display, Cabinet, and Magnetic Stripe Reader

Recommendations for cleaning the Cabinet, Magnetic Stripe Reader, and LCD cover are described below.

Warning: Shock Hazard

Before performing preventive maintenance or cleaning the workstation, use the power button to turn the unit off.

LCD/Touchscreen Glass

The LCD/Touchscreen can be cleaned using any common household cleaner applied with a clean cotton cloth. Always spray the cloth with the cleaner first, then use the cloth to clean the screen.

Cabinet

Always use a chamois or clean lint-free cloth to clean the cabinet and screen surface. Do not use chemical, alcohol, or petroleum based cleaners that are not recommended for plastics.

Magnetic Card Reader

Depending on how much they are used, magnetic card readers may require periodic cleaning. Oracle MICROS recommends cleaning the heads as often as once a day if the reader is subjected to heavy usage.

Basic Operation of the Tablet E-Series 8 and E-Series 11

With the introduction of the E-Series tablets, the original MICROS Tablet is now designated Tablet R-Series.

The Tablet E-Series introduces two new devices to the MICROS Tablet line-up, with 8 and 11 displays.

The E-Series 11 is based on an Intel Atom Processor with a 10.8 inch touch screen.

- To add a Magnetic Card Reader, the optional POS Sleeve is available. A hand strap is available for mobile use.
- To access standard POS peripherals, the Base Station E-Series is also available.
- Multi-Bay Charger accessory (future).

The E-Series 8 is based on an Intel Atom Processor with 8.1 inch touch screen.

- To add a Magnetic Card Reader, the optional POS Sleeve is available with or without a 2D Imager/Scanner.
- Multi-Bay Charger Accessory (future)

The following sections describe the operational aspects of the Tablet and Base Station E-Series. This includes using the Power Button to turn the unit ON/OFF, or enter suspend mode. Other topics include how to install/remove the optional MSR Sleeve, install the Tablet E-Series 11 on the companion Base Station E-Series base, charge the battery, or recover the Tablet E-Series 8 or E-Series 11 operating system image.

Tablet E-Series 8 Operator Controls

The following illustrations point out the operator features of the Tablet E-Series 8 with optional MSR Sleeve.

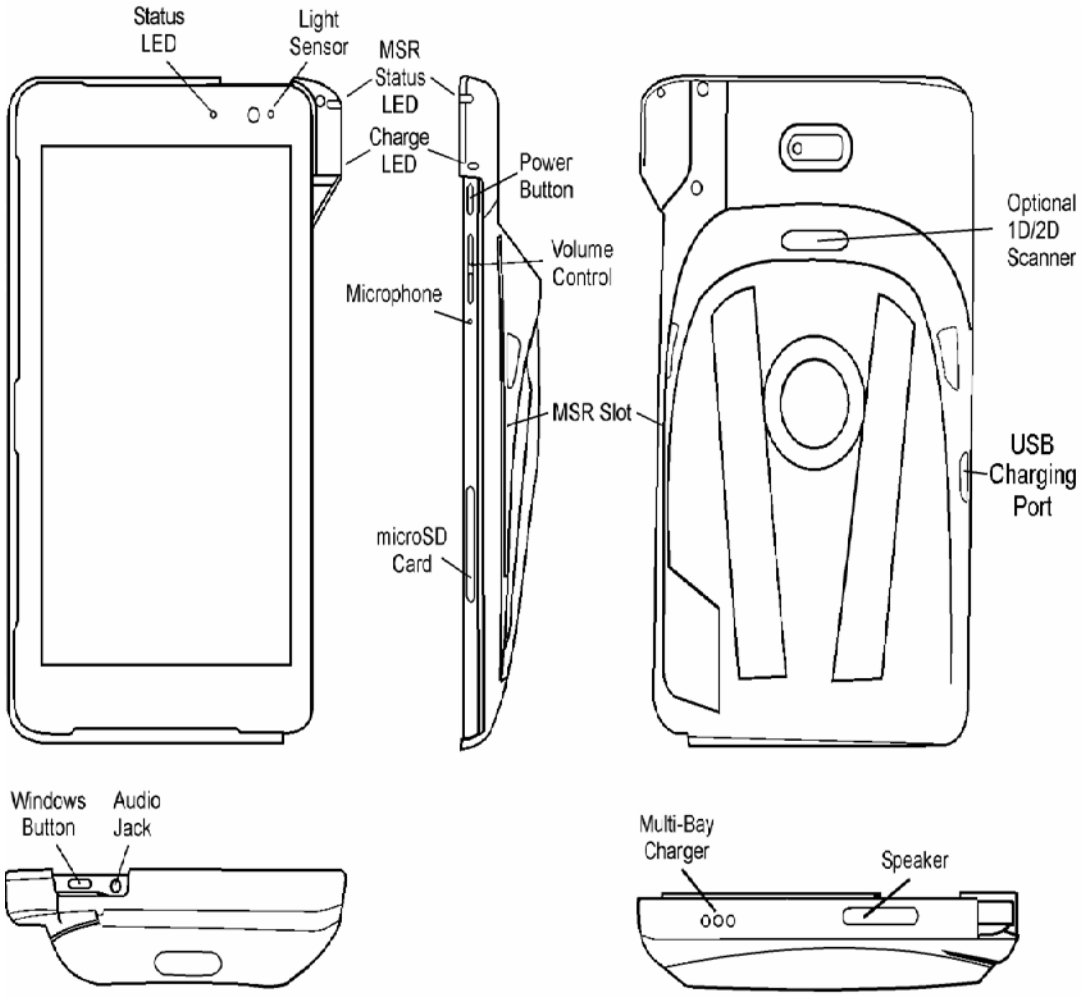


Figure 3-1 Tablet E-Series 8 Operator Controls

Tablet E-Series 11 Operator Controls

The illustration below points out the operator features of the Tablet E-Series 11 with optional MSR POS Sleeve.

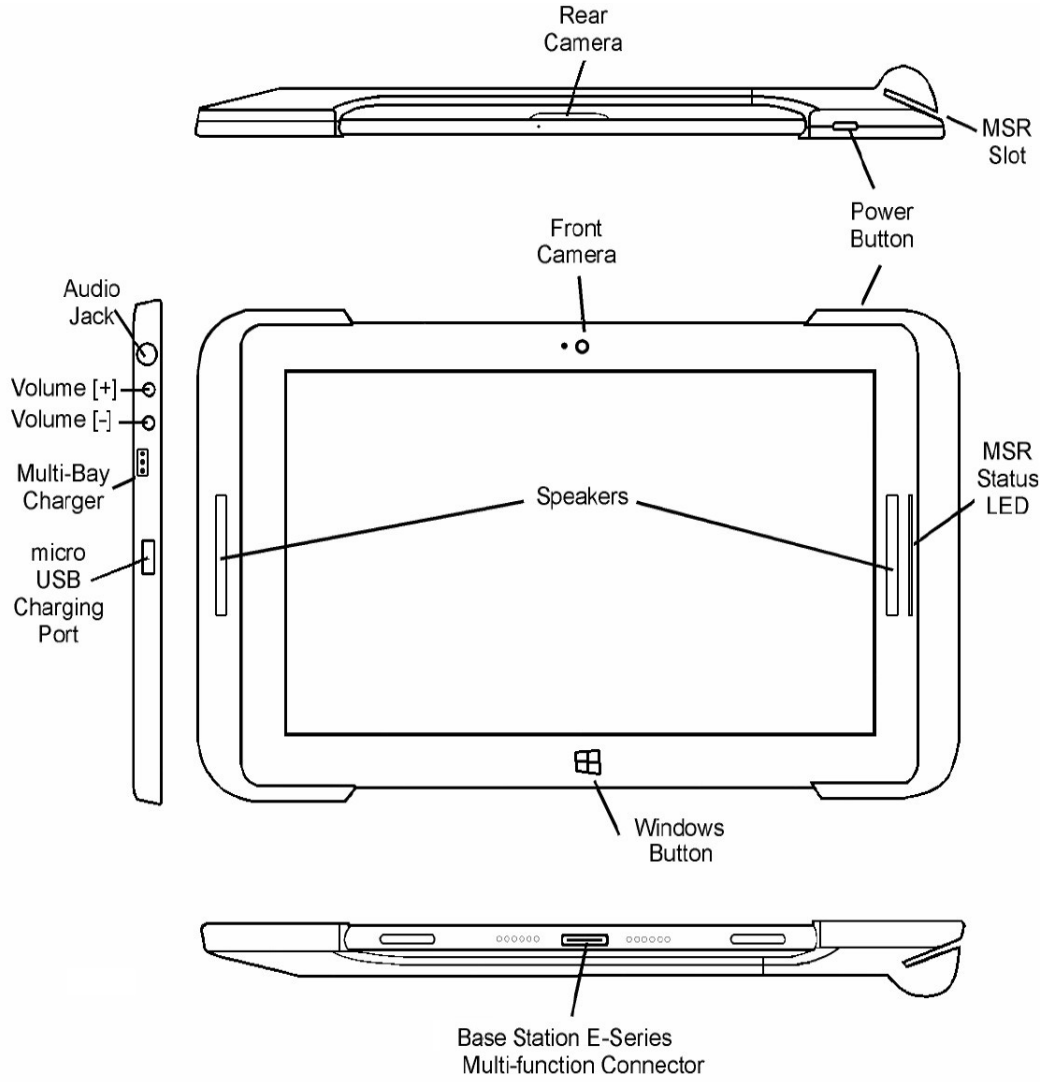


Figure 3-2 Tablet E-Series 11 Operator Controls

Using the Power Button

The Power Button, depending on how long it is pressed and released, turns the E-Series 8 or E-Series 11 On/Off or enters/exits sleep mode.

The E-Series 11 Power Button behaves in the same manner when installed on the Base Station E-Series.

When powering down, the Tablet E-Series 8 and 11 are configured to provide a brief haptic pulse to indicate when to release the Power Button.

Turning the unit ON and OFF

The following applies to both the E-Series 8 and E-Series 11 except where noted.

1. To turn the unit ON from the OFF State, press the Power Button, and then release it when the unit vibrates.

2. The unit powers up.
   - Tablet E-Series 8 - After a few seconds, a circular progress indicator appears. The MICROS logo is not displayed.
   - Tablet E-Series 11 - After a few seconds, the MICROS logo appears, followed by the MSR Status LED flashing Blue, then the circular progress indicator. If installed on the Base Station E-Series, it powers up as well.
3. After several seconds, the screen clears and the unit boots to the Windows 8.1 Start screen.
4. If previously installed, the MICROS CAL starts. To install CAL, tap the **Install CAL** icon on the desktop. After the installation completion, CAL starts automatically.
5. To view the MICROS Image Version or Model number:
   a. From the Start screen, tap **File Explorer**.
   b. Tap the **Properties** icon under the File tab.
   c. The System screen appears. The **Model** is the Image Version and is located in the **System** section of the screen.

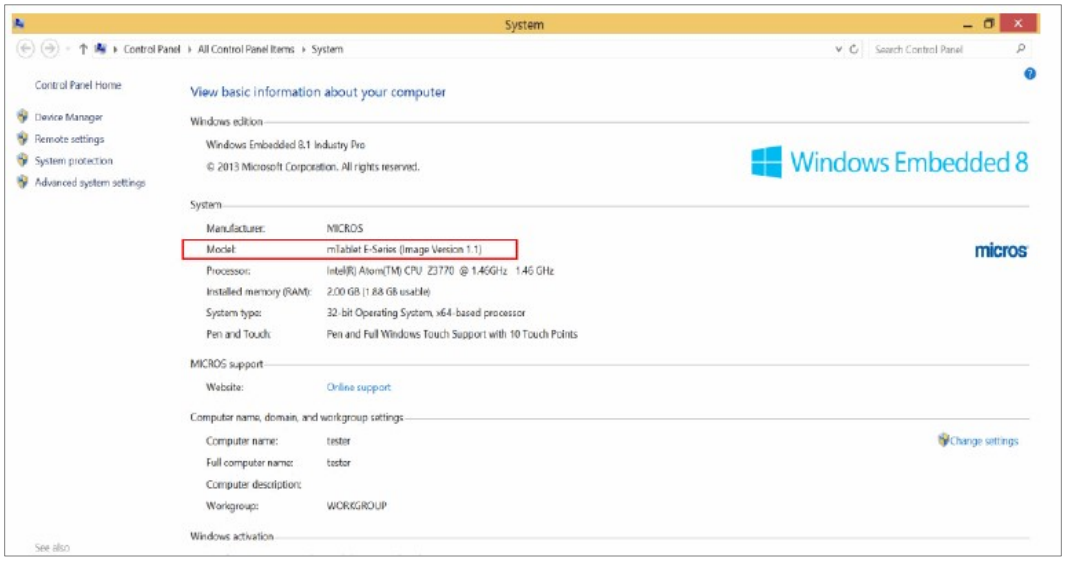


Figure 3-3 Checking the MICROS Windows Embedded 8.1 Image Version

Turning the unit Off from the On state

To turn off the device, press and hold the Power Button until you feel the haptic pulse, and then release. The Tablet E-Series device powers off.

Enter/Exit Suspend Mode from the ON State

When the Tablet E-Series 8 and 11 are mobile, the Power Button is used to enter/exit the suspend mode as described below. Suspend mode may not be supported by all application software.

1. To enter Suspend from the ON state, press the Power Button for one second, and then release. The LCD and Battery LED turn off.
2. To resume operation from Suspend mode, press the Power Button for less than two seconds. When the display resumes, release the button. The LCD and Battery LED are restored to the previous state.
3. To turn off the Tablet from Suspend, press and hold the Power Button for at least five seconds. When you feel the haptic 'pulse', release the Power Button.

Tablet E-Series Power and Brightness Settings

The default Tablet E-Series 8 and E-Series 11 Power Settings are listed below.

- The default Power Plan is Balanced. When running on the battery, the unit will enter standby after four minutes of inactivity.
- The default brightness setting is 36%.

Touchscreen Calibration

The projected capacitive touchscreen technology used in the Tablet E-Series 8 and E-Series 11 does not require routine calibration at regular intervals. However, should it be required, a 16-point calibration utility can be found by starting Windows Explorer and navigate to the tabcal.exe utility.

- Tablet E-Series 11: `C:\Windows\System32\tabcal.exe`.
- Tablet E-Series 8: `C:\Windows\System32\tabcal.exe`.

The Optional MSR Sleeve

The following sections describe how to install and remove the optional MSR Sleeves.

Installing the Tablet E-Series 8 MSR Sleeve

To install the Tablet E-Series 8 in the optional MSR sleeve and install the USB plug, follow the instructions below.

1. Orient the Sleeve as shown below, and then slide the tablet into place.
2. Make sure the screws are in the Unlock position, and then attach the USB plug to the sleeve.
3. Using a small flat blade screwdriver, turn the screws to the Lock position.

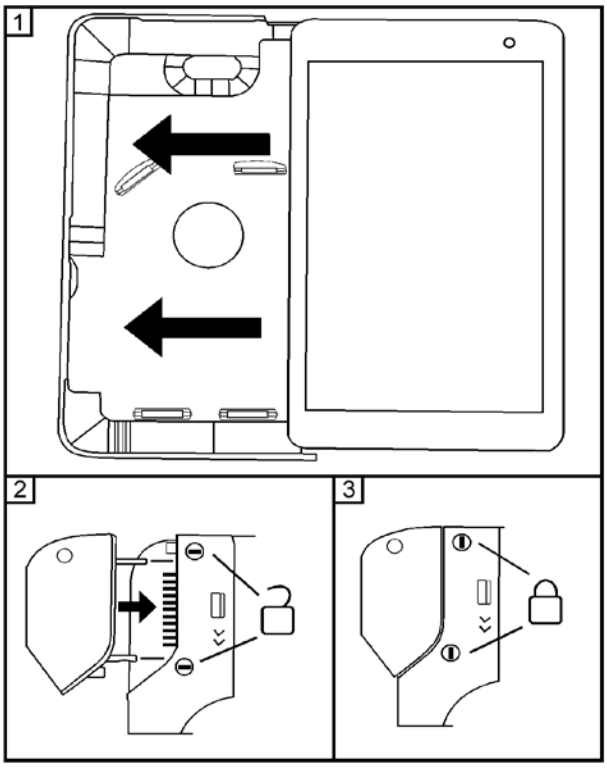


Figure 3-4 Installing the E-Series 8 MSR Sleeve

Removing the Tablet E-Series 8 MSR Sleeve

To remove the E-Series 8 MSR Sleeve, follow the instructions below.

1. Turn the screws to the Unlock position and remove the USB Plug.
2. Place your thumbnail in the slot shown by the arrow and remove the tablet from the sleeve.

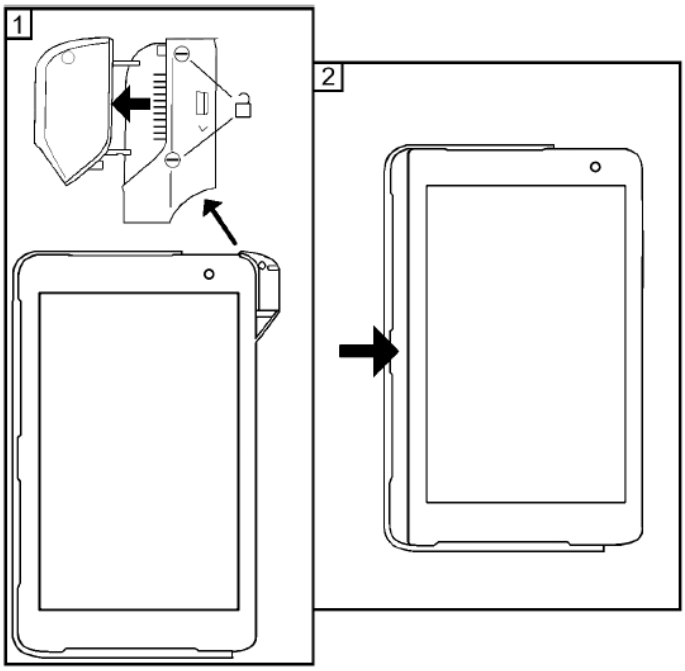


Figure 3-5 Removing the E-Series 8 MSR Sleeve

Installing the Tablet E-Series 11 MSR Sleeve

To install the Tablet E-Series 11 into the optional MSR sleeve, follow the instructions below.

1. Start by inserting the tablet into the sleeve with the Micro and Standard USB connectors oriented as shown.
2. Slide and attach the side of the sleeve with the MSR.
3. Place the unit facedown and, using a small flat blade screwdriver, turn the screws to the Lock position.

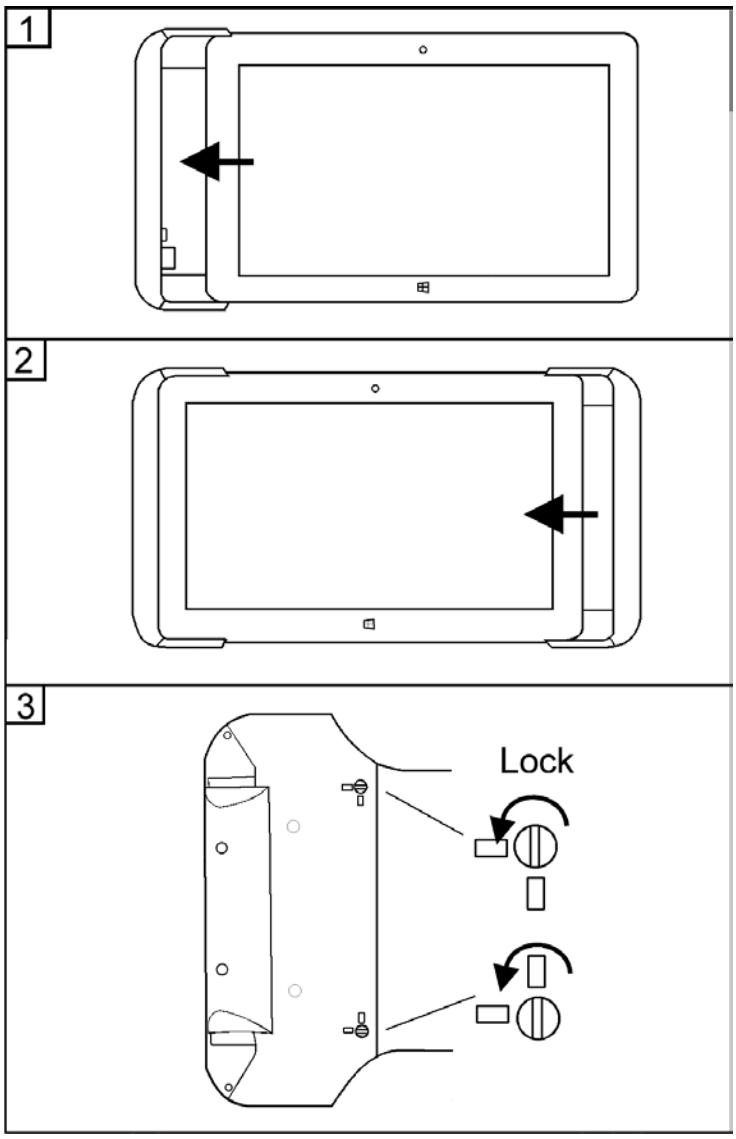


Figure 3-6 Installing the E-Series 11 MSR Sleeve

Removing the Tablet E-Series 11 MSR Sleeve

To remove the Tablet E-Series 11 MSR sleeve, follow the instructions below.

1. Place the unit face down and turn the screws to the Unlock position
2. Remove the half of the sleeve that includes the MSR.
3. Remove the second half of the sleeve with the USB connectors.

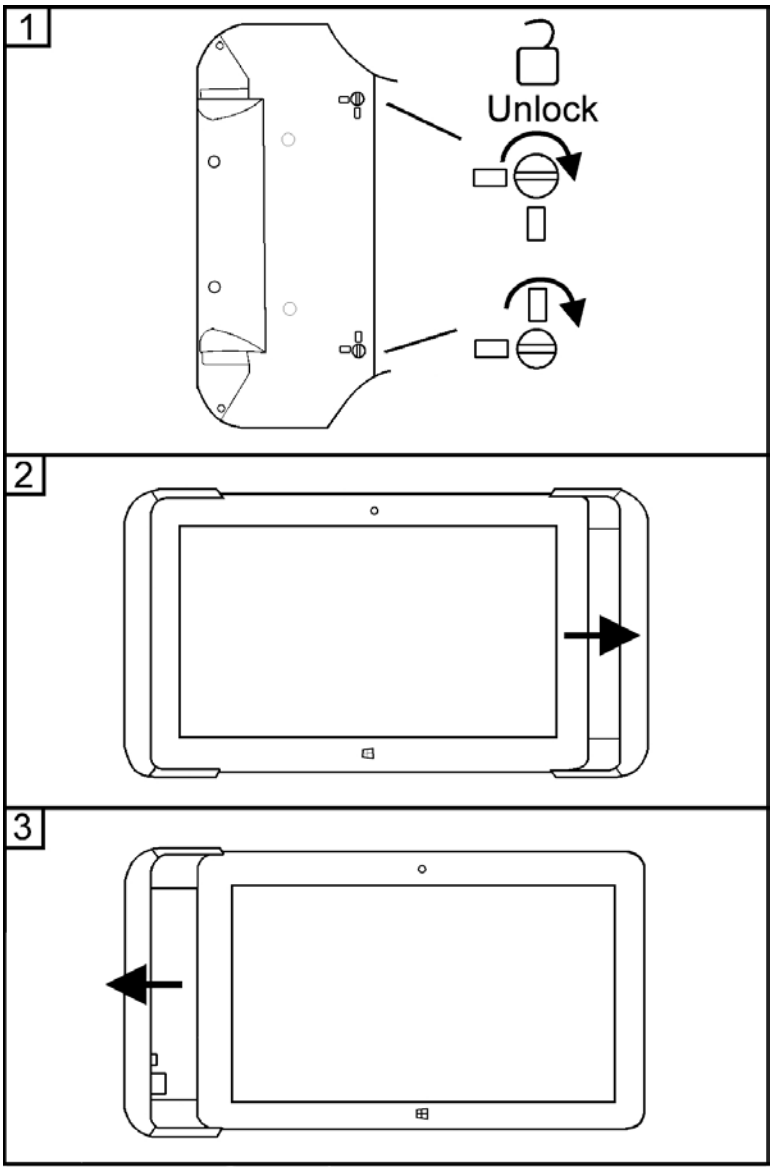


Figure 3-7 Removing the E-Series 11 MSR Sleeve

Charging the Tablet E-Series 8 and E-Series 11

Each tablet is shipped with an accessory charger and USB cable that can be used to charge the device when installed in the optional MSR Sleeve.

The E-Series 11 includes a dual voltage charger (19.5V and 5V) that is compatible with the E-Series 8. The E-Series 8 charger is not compatible with the E-Series 11.

The figures below show the locations of the E-Series 8 and E-Series 11 Micro USB charging port, with and without the MSR Sleeve.

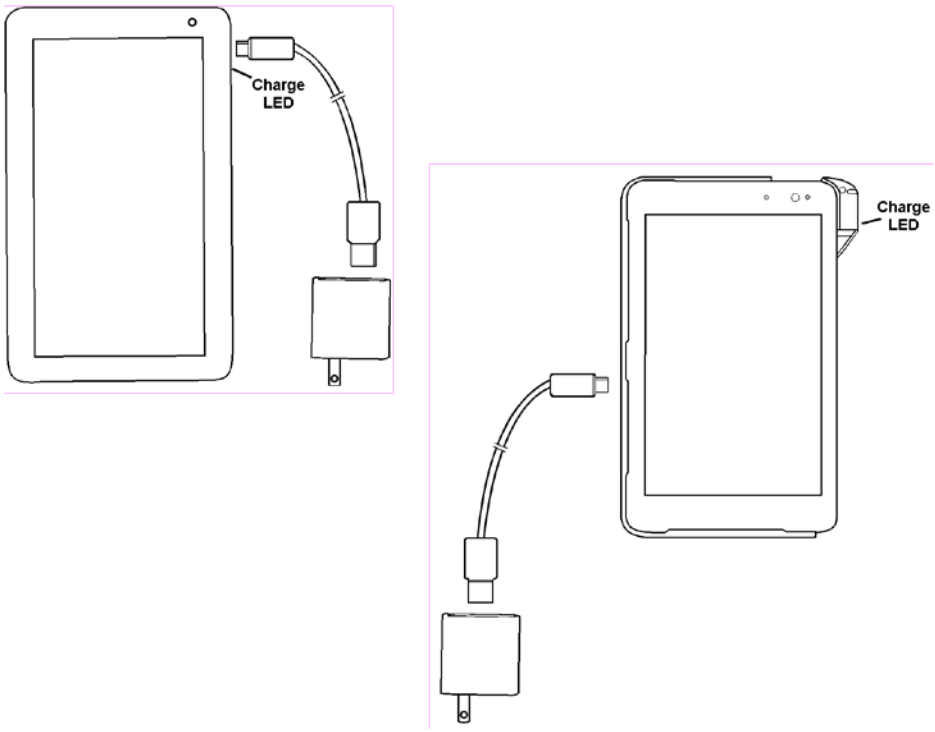


Figure 3-8 Charging the Tablet E-Series 8 with the Accessory Charger

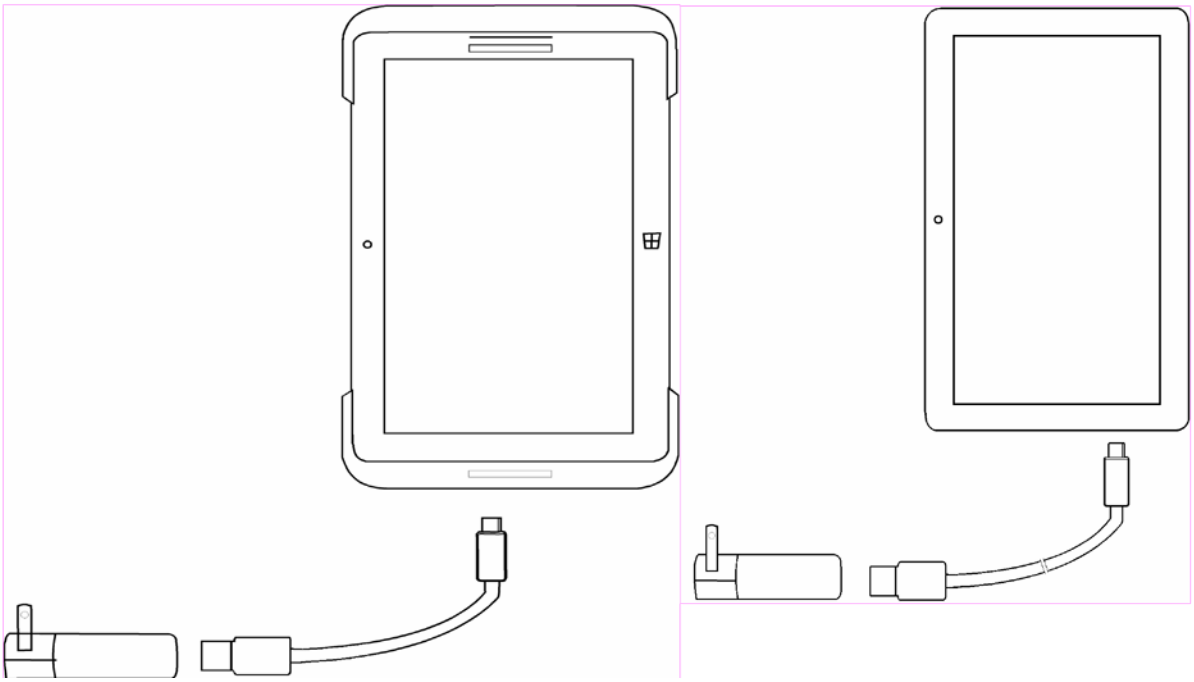


Figure 3-9 Charging the Tablet E-Series 11 with the Accessory Charger

Tablet E-Series Recovery Procedures

The Tablet E-Series 8 and E-Series 11 devices offer two methods of recovery, depending on if it can successfully boot to Windows Embedded 8.1 Industry Pro.

- If the Tablet E-Series 8 or E-Series 11 device does not boot to Windows Embedded 8.1 Industry Pro, it can be recovered using a MICROS E-Series USB Recovery Flash Drive. The USB Recovery Flash Drive can be purchased with the image installed or you can build it yourself.

  The Tablet E-Series Recovery Kit can be purchased for the E-Series 8 and E-Series 11 with the Windows Embedded 8.1 Industry Pro recovery image pre-installed. Contact your Oracle MICROS representative for assistance.

  See Using the Tablet E-Series USB Recovery Flash Drive for instructions.
- If the Tablet E-Series device can successfully boot to Windows Embedded 8.1 Industry Pro image and you want to refresh it or clear out old data, you can restore from a recovery image that resides in a hidden drive partition. This method uses the built-in Update and Recovery functionality of Windows Embedded 8.1 Industry Pro to copy the recovery image from a hidden recovery partition to the boot partition.

  See Recovering the Tablet E-Series from the Recovery Partition for instructions.

Using the Tablet E-Series USB Recovery Flash Drive

This section describes how to recover the Tablet E-Series 8 or Tablet E-Series 11 device that will not boot to Windows Embedded 8.1 Industrial Pro 8.1 using the appropriate Tablet E-Series USB Recovery Flash Drive.

The Tablet E-Series USB Recovery Flash Drive is the primary means of recovering or updating the operating system image on the Tablet E-Series 8 or E-Series 11 devices.

Requirements

- A Tablet E-Series USB Recovery Flash Drive for the Tablet E-Series 8 or 11 inch models. The Tablet E-Series USB Recovery Flash Drive can be purchased or you can build it yourself using the procedure in the Creating or Updating the Tablet E-Series USB Recovery Flash Drive section.
- Bitlocker recovery key (if Bitlocker is enabled). The Using the Tablet E-Series Recovery Controls section describes how to connect the E-Series USB Recovery Flash Drive to each device and points out the buttons used to access the UEFI boot menu.
- To use the Tablet E-Series 8 or E-Series 11 USB Recovery Flash Drive, the Tablet E-Series MSR Sleeve must be temporarily removed.

Procedure

1. Temporarily remove the MSR Sleeve from the E-Series 8 or E-Series 11, and then install the appropriate Tablet E-Series USB Recovery Flash Drive.
2. Make sure the unit is OFF. In order to access the UEFI boot menu, the device must be started from the OFF state.
3. Press and hold the Power Button and when the unit vibrates, release it.

   Immediately press and hold the Volume [+] button until a MICROS logo (E-Series 11) or circular progress indicator appears (E-Series 8). The E-Series 8 does not display the Oracle MICROS logo as it boots, only the circular progress indicator. When successful, the UEFI Boot Menu appears.

4. Tap the Volume Up button until the **UEFI:** field is highlighted. The USB Flash Drive ID should appear in this field.
5. Tap the Volume Down button to boot from the highlighted device. The Tablet E-Series device restarts and boots to the Recovery Flash Drive.
6. On the Choose your keyboard layout screen, select the appropriate keyboard layout.
7. On the Choose an option screen, select **Troubleshoot**.
8. On the Troubleshoot screen, select **Reset your PC**.
9. On the Reset your PC screen, select **Windows 8.1**. This screen may not appear if Windows 8.1 is not installed.
10. Click **Next** to continue.
11. On the Reset your PC screen, select **Yes, repartition the drives**.
12. Select to **Fully clean the drive**. Fully cleaning the drive removes any personal files and restores default settings.
13. Select **Reset** to proceed. The Tablet E-Series device restarts, and transfers the image from the MICROS USB Recovery Flash Drive. After about six minutes, the following message appears:

    ```
    A configuration change was requested to clear this
    computer's TPM (Trusted Platform Module)
    WARNING: Clearing erases information stored on the TPM. You
    will lose all created keys and access to data encrypted by
    those keys.
    Press F12 or Volume Up to clear the TPM
    Press ESC or Volume Down to reject this request and
    continue.
    ```

14. Press the Volume Up button to clear the TPM and continue. The unit restarts, displays the splash screen, and then starts loading the OS.
15. Perform the Out-Of-Box configuration of the Tablet E-Series 8 or E-Series 11 Operating System image.

Recovering the Tablet E-Series from the Recovery Partition

This section describes how to restore the Tablet E-Series 8 or E-Series 11 from the internal recovery partition.

Requirements

The device is currently running Windows Embedded 8.1 Pro.

Procedure

1. Swipe left on the touchscreen or move the mouse pointer to the upper left of the Start Screen, and then select **Settings**.
2. Select **Change PC Settings**.
3. Select **Update and Recovery**.
4. Select **Recovery**, and then select the **Get Started** button under the **Remove everything and reinstall Windows** section at the center of the screen.
5. Select **Next** to begin.
6. Select **Fully clean the drive**.
7. Select the **Reset** button to start the recovery process.

Creating or Updating the Tablet E-Series USB Recovery Flash Drive

The Tablet E-Series USB Recovery Flash Drive is the primary means of recovering or updating the Windows Embedded 8.1 Industry Pro images on the Tablet E-Series 8 and Tablet E-Series 11 devices.

You have the option of purchasing the Tablet E-Series USB Recovery Flash Drive(s) with the image pre-installed and ready to use, or using the procedure below, provide a USB Flash Drive and build it yourself using a tool provided with the E-Series 8 or E-Series 11 Recovery Image ZIP file.

Pre-configured Tablet E-Series USB Recovery Flash Drives are available from MICROS in kit form using the following part numbers:

- PN 000218-410 - Recovery Kit, Tablet E-Series 8, 16GB USB Flash Drive, Windows Embedded 8.1 Industry Pro, /w Micro USB Adapter.
- PN 000218-411 - Recovery Kit, Tablet E-Series 11, 16GB USB Flash Drive, Windows Embedded 8.1 Industry Pro.

Each is ready to use and contains the current Windows Embedded 8.1 Industry Pro image version. Should the image become out-of-date, it can be updated to the latest image version using the procedure below.

The procedure below describes how to convert a standard USB Flash Drive into the Tablet E-Series USB Recovery Flash Drive using a utility supplied with the recovery image. The Tablet E-Series 8 and E-Series 11 each use a different hardware configuration and require unique images. If supporting both devices, we recommend creating a separate E-Series USB Recovery Flash Drive for each device.

The Tablet E-Series USB Recovery Flash Drive(s) are not compatible with the Tablet R-Series.

Requirements

- A USB Flash Drive with a minimum of 4GB available.
- A host PC to create or update the Tablet E-Series USB Recovery Flash Drive.
- The Tablet E-Series USB Recovery Image, in the form of a ZIP File. Currently, the image files are named:
  - Tablet E-Series 11 - ES11_RecoveryDisk_RX.X.ZIP. (X.X = Version)
  - Tablet E-Series 8 - ES8_ RecoveryDisk_RX.X.ZIP. (X.X = Version)

Procedure

1. Obtain the E-Series 8 or E-Series 11 Recovery Image ZIP file described above, place on the host PC, and then extract the ZIP file.
2. Connect the USB Flash Drive to the host PC and determine the drive letter assigned to the USB Flash Drive. It can vary based on the number of fixed drives, partitions, and removable drives attached. Using the incorrect drive letter can format the wrong device.
3. Open a command window and navigate to the recovery image folder.
4. Using the drive letter assigned to the USB Flash Drive you want to convert, execute `MakeRecoveryFlashDrive.cmd <USB Flash Drive Letter>.`
5. When prompted, select **Y** to proceed. It will take several moments to partition the USB Flash Drive and copy the files.

Using the Tablet E-Series Recovery Controls

This section points out the Tablet E-Series 8 and E-Series 11 Power and Volume controls and where to attach the USB Recovery Flash Drive on each device. The optional MSR Sleeve must be removed to use the USB Recovery Flash Drive.

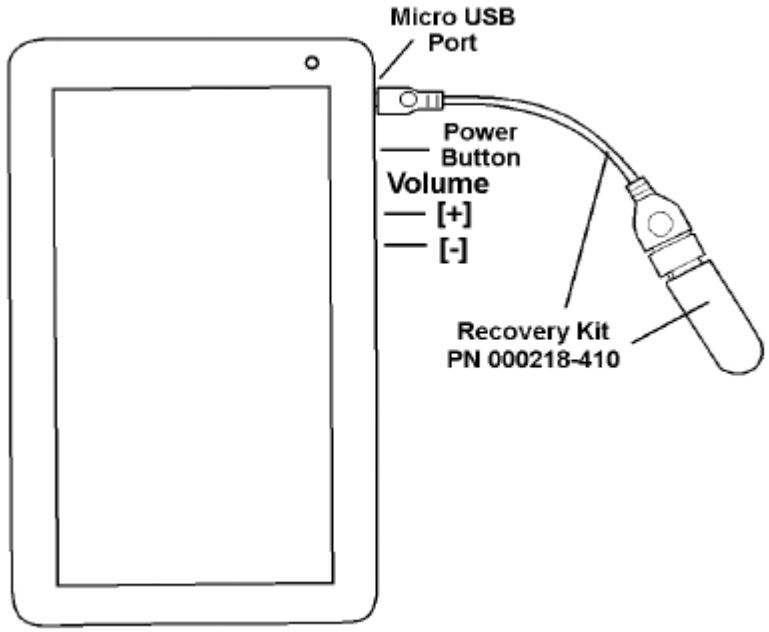


Figure 3-10 Using the USB Recovery Flash Drive - Tablet E-Series 8

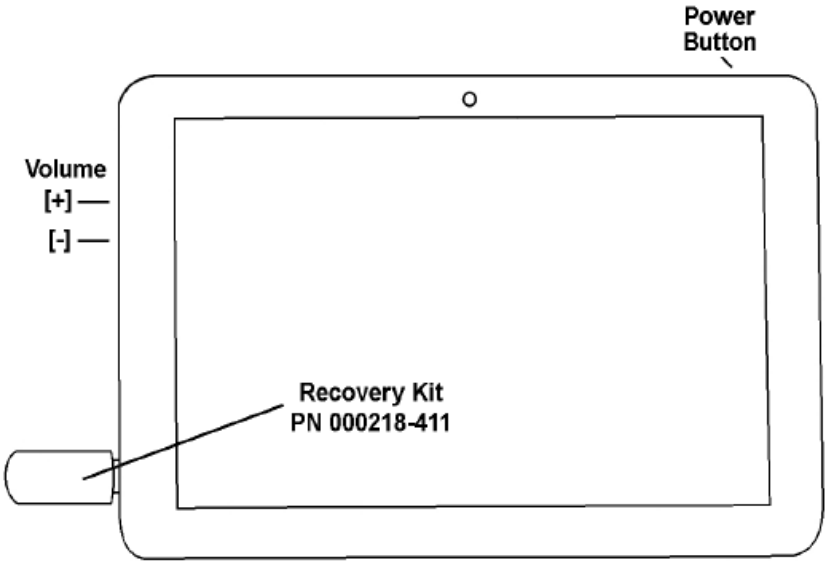


Figure 3-11 Using the USB Recovery Flash Drive - Tablet E-Series 11

Windows Embedded 8.1 Industry Pro - Lockdown Features

Windows Embedded 8.1 Industry Pro adds a new management tool called the Embedded Lockdown Manager (ELM). This tool can be accessed from the Applications Name List - Administrative Tools - Embedded Lockdown Manager. A sample of the Embedded Lockdown Manager screen is shown below.

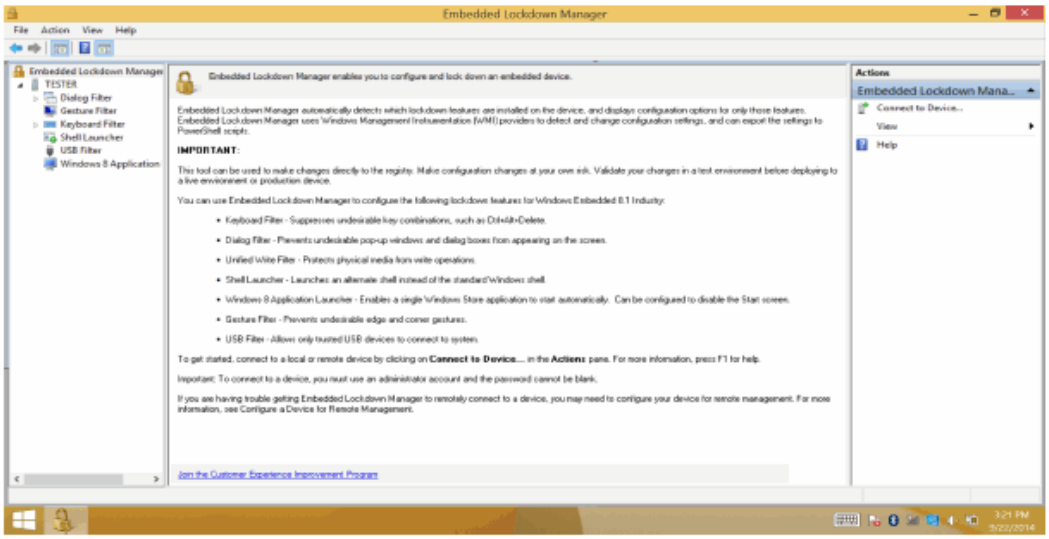


Figure 3-12 Embedded Lock Down Manager

The ELM can be used to configure the following lockdown features:

- Gesture Filter - Prevents undesirable edge and corner gestures.
- Dialog Filter - Prevents unwanted pop-up windows and dialog boxes from appearing on the screen.
- Keyboard Filter - Suppresses unwanted key combinations such as Ctrl+Alt+Delete.
- Unified Write Filter - Protects physical media from write operations.
- USB Filter - Allows only trusted USB devices to connect to the system.
- Windows 8 Application Launcher - Enables a single Windows Application to start automatically.

Currently, the Windows Embedded 8.1 Industry Professional images supplied with Tablet E-Series 8 or E-Series 11 do not implement the Embedded Lockdown Manger.

When started, the ELM detects which lockdown features are enabled on the device, and displays configuration options for only those features.

The ELM tool can make changes directly to the system registry. Therefore, make configuration changes at your own risk. We recommend that you validate your changes in a test environment before deploying in a live environment.

Basic Operation of the Base Station E-Series

Front and rear views of the Base Station E-Series are shown below. It is designed specifically for the Tablet E-Series 11. It features an adjustable locking tray to secure the Tablet E-Series 11, a pair of LED indicators for status, and the Rotate Button to change the orientation.

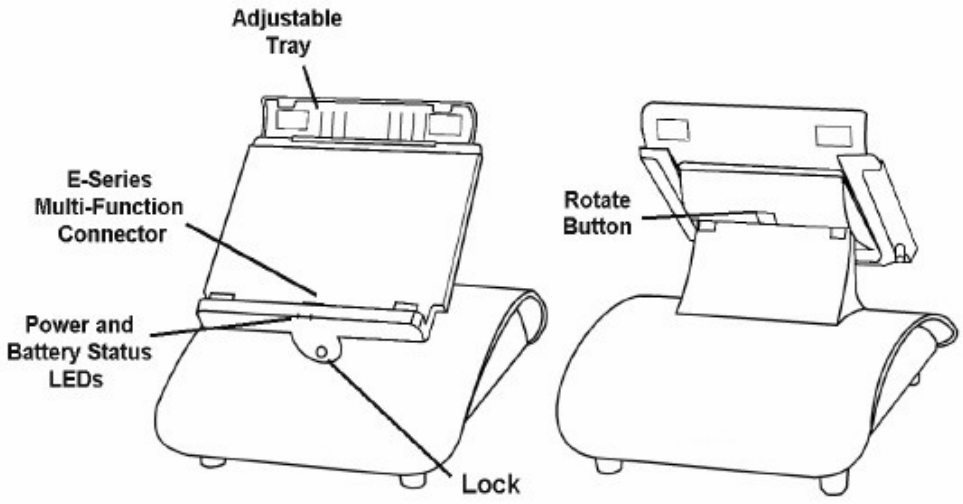


Figure 3-13 Front and Rear views of the Base Station E-Series Base

Pressing and holding the Rotate Button allows you to change the orientation as required. The figure below shows an example of the adjustable tray in the Portrait position.

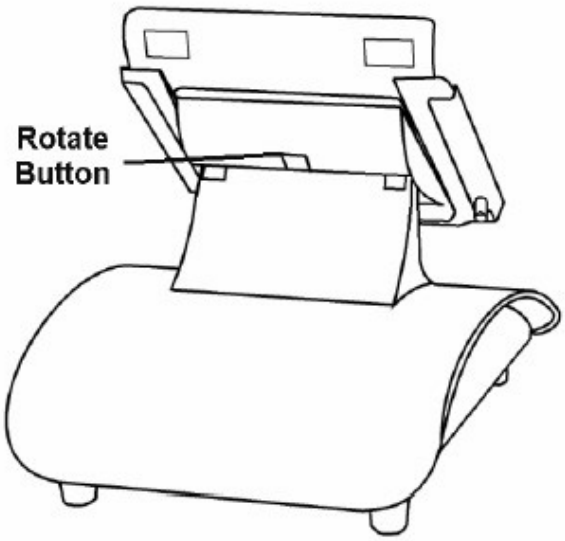


Figure 3-14 Base Station E-Series Rotate Button

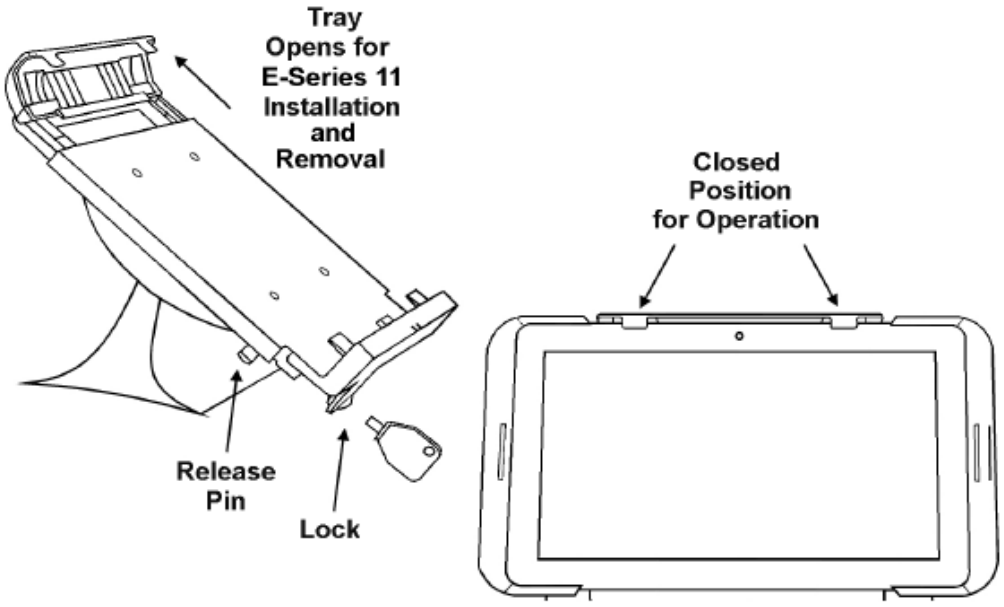


Figure 3-15 Base Station E-Series 11 Tray Retention Mechanism

Details of the tray retention mechanism are shown above. The left side points out the location of the Release Pin that allows the tray to be lifted for installation and removal. After installation, the E-Series 11 tray can be secured using the provided One Way key.

The Base Station E-Series includes two LEDs located at the base of the tray as shown in the Figure below. The Power LED displays Green when the E-Series 11 is installed. The Battery LED displays the charge and discharge status of the optional Smart Battery.

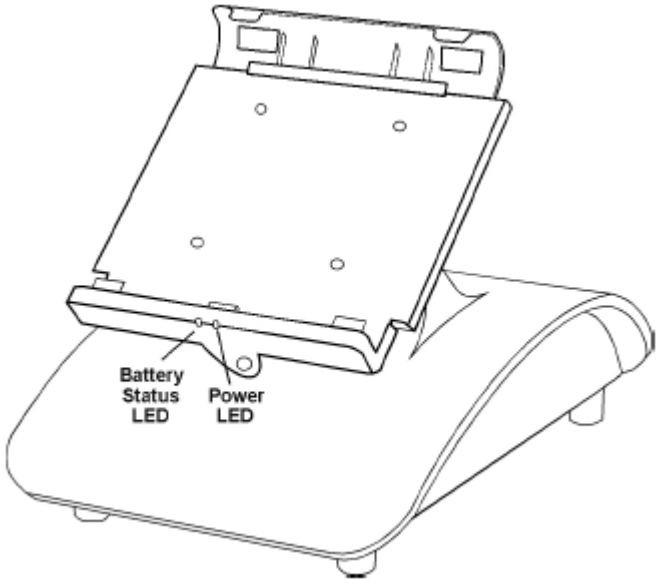


Figure 3-16 Base Station E-Series Base Station LEDs

Like the R-Series, the Base Station E-Series base does not include an AC power switch. When connected to AC Power, it remains in a low power sleep mode.

Installing the Tablet E-Series 11 wakes up the Base Station E-Series through the multi-function docking connector. The Base Station Power LED turns Green to indicate that the Base Station is on.

When docked on the Base Station, the Tablet E-Series 11 Power Button controls both devices.

Removing the Tablet E-Series 11 causes the Base Station E-Series to shut down within 30 seconds unless the optional Base Station E-Series battery is charging. In this case, the Power LED turns off, but the Battery LED remains on to indicate the charge level. When the battery is fully charged, the Battery LED turns off.

Installing the Optional Base Station E-Series Smart Battery

The optional Base Station smart battery is an 11.1V, 7200mAH Li-Ion battery pack, Totex DR202I. The pack consists of nine rechargeable 18650 form factor Li-Ion cells arranged in a 3S3P (3-Serial, 3-Parallel) configuration.

The battery pack complies with the Smart Battery Data Specification SBS 1.1 communicating with the Base Station MCU over the System Management Bus (SMBus). It can be used in both the Base Station E-Series and Base Station R-Series.

1. Remove the thumbscrew that holds the battery compartment cover.
2. Install the battery as shown in the figure below.

Figure 3-17 Installing the optional Base Station Battery Pack

3. Reinstall the battery compartment cover.
4. (Optional) Install a 2mm hex head screw as shown to secure the battery compartment cover.

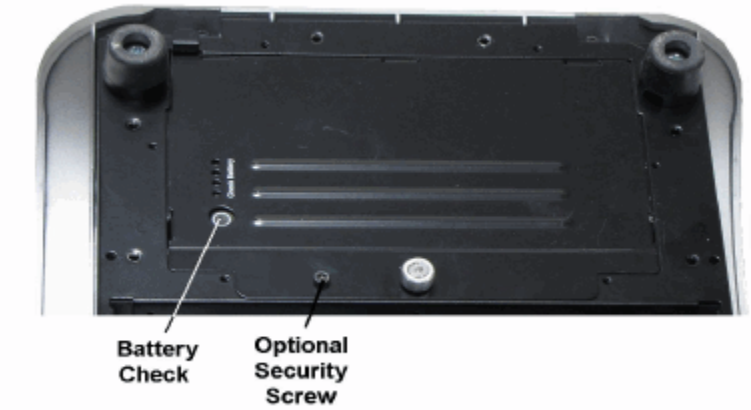


Figure 3-18 Securing the Battery Compartment Door and Battery Check

The Battery Check button provides a quick indication of the charge level. Four LEDs indicate the battery charge as shown below.

Table 3-1 Base Station Battery Charge Levels

1 LED	2 LEDs	3 LEDs	4 LEDs
0% - 25%	26% - 50%	51% - 75%	76% - 100%

To charge the optional internal battery, connect an AC Power cable to the Base Station. The Tablet does not need to be docked to charge the optional battery.

Docking the Tablet E-Series 11 onto the Base Station Tray

The Tablet E-Series 11 can be docked on the Base Station tray in portrait or landscape mode.

1. Position the tray in portrait or landscape orientation.

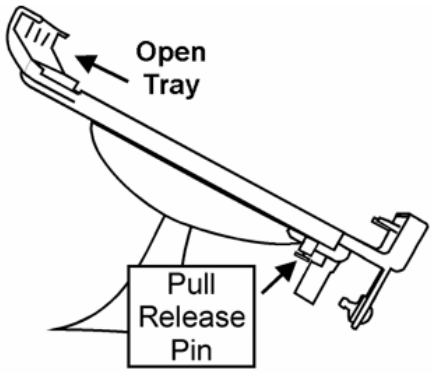


Figure 3-19 Installing the Tablet in Base Station – Position Tray

2. Pull the release pin and lift up on the tray to open it, slide the tablet under the tabs, then push down on the tray, placing the unit on the multi-function connector.

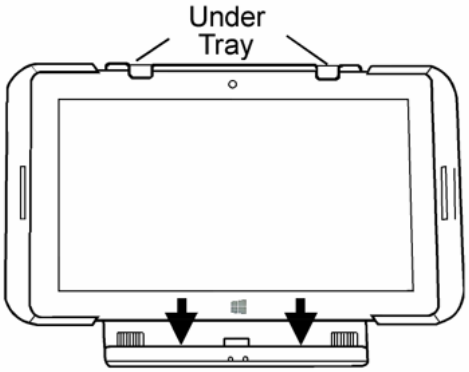


Figure 3-20 Installing the Tablet in Base Station – Placing Tablet in Tray

3. Push down on the tray to the secure the Tablet. If required, you can prevent the tray from opening with the provided key. Turn the key requires one-half turn to lock/unlock.

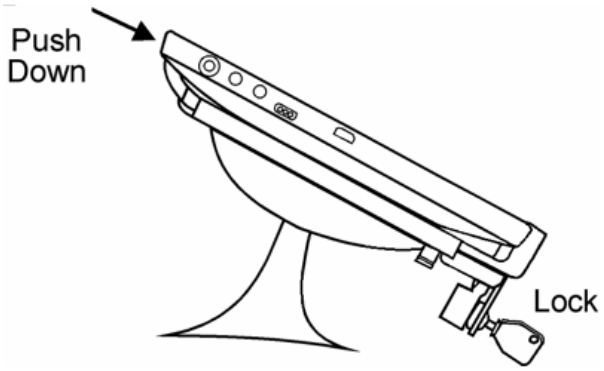


Figure 3-21 Installing the Tablet in Base Station – Securing the Tablet

After installation, the following occurs:

- The Base Station E-Series MCU detects the installation, wakes up, and then enables all power supplies. It can take up to 30 seconds to enumerate and initialize all Tablet E-Series 11 USB and Serial Ports.
- The Power LED turns green to indicate that the Base Station has powered up.
- The Battery LED remains off if the optional Smart Battery is not installed. If the optional battery is installed the Battery LED displays the charge status.
- When the Tablet E-Series 11 is removed from the Base Station, it returns to the sleep mode after 30 seconds and the Power LED turns off.
- If the optional smart battery is charging, it will continue to charge until full as indicated by the Battery LED. After a full charge occurs, the Base Station E-Series enters sleep mode and turns off the Battery LED.

Base Station E-Series Battery Pack Storage Considerations

The optional Lithium-Ion Smart Battery pack capacity will degrade over time. The mechanisms for capacity loss do not require the battery to be charged or discharged; a capacity decrease can also occur during storage.

In general, capacity loss during storage can be minimized by storing the battery pack at room temperature or less.

In all cases, the battery pack should be removed from the Base Station and stored in an environment with low humidity and free from corrosive gases.

- If storing the battery pack for less than 30 days, the ideal temperature is between -10°C (14°F) and 20°C (68°F).
- If storing the battery pack for less than one year, the ideal temperature is -5°C (23°F) and 20°C (68°F).
- When removed from the Base Station and stored at 20°C (68°F) or less, the battery pack should have a minimum shelf life of six months. Should the storage temperature exceed 20°C (68°F) over a six month period, the shelf life can be reduced and we recommend that the battery pack be recharged every sixty days.
- Avoid storing the battery pack for extended periods of time when the temperatures are greater than 45°C (113°F). If the battery is stored at temperatures exceeding 45°C (113°F) for six months, capacity loss can be as great as 10%.

Battery Pack Warnings - Risk of fire, explosion, or burns

- Do not reverse the positive (+) and negative (-) terminals.
- Do not disassemble the battery pack.
- Charge or discharge the battery pack only when installed in the Base Station.
- Do not place the battery pack in temperatures exceeding 100°C (212°F). Examples include direct sunlight or in a closed vehicle in hot weather.
- Do not discard the battery pack in a fire.
- Do not subject the battery pack to mechanical shock.
- If the battery pack gives off an odor, generates heat, the case becomes discolored or deformed, or in any way appears abnormal during use or storage, immediately remove it from the Base Station and stop using it.

Base Station E-Series Peripherals

The figure below shows the locations of the Integrated Customer Display Bracket, the Wireless Scanner Dock, and the Integrated Mini Printer on the Base Station E-Series.

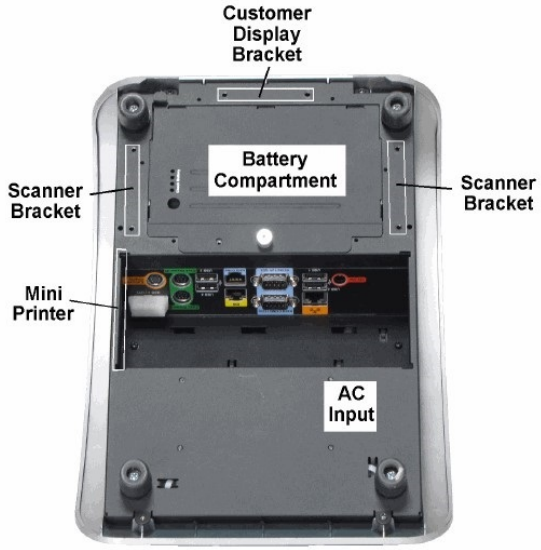


Figure 3-22 Base Station Peripheral Locations

Installing the Series 2 Pole Display Kit

The Series 2 LCD Pole Display Kit is compatible with the Base Station R-Series and E-Series. The kit consists of an 18-inch pole and base, rubber spacer, LCD Customer Display assembly, and the Extension Cable. After installation, test the display using the Tablet Diagnostics in Section 4.

1. Use the base as a template to locate the mounting holes.
2. Install the rubber spacer on the LCD assembly cable so that it fits between the pole bracket and pole.
3. After mounting the pole and base to the counter surface, route the extension cable through the pole and connect it to the LCD assembly cable.
4. Attach the LCD assembly to the pole, position the head in the desired position, and then lock in place with the supplied 1.5mm hex wrench.

5. Remove the AC Power from the Base Station, and then connect the keyed 4-pin DIN connector to the port labeled Customer Display.

Figure 3-23 Assembling the Series 2 Pole Display

Installing the Series 2 Integrated Customer Displays

The Series 2 Integrated 2x20 LCD (left) and the 240x64 LCD (right) are shown below. The Series 2 Customer Displays, introduced with the Base Station R-Series, share an integrated mounting bracket, interface cable, and installation procedure. Each display is compatible with both the Base Station R-Series and Base Station E-Series.

Figure 3-24 Series 2 Integrated Customer Displays

The following procedure applies to the 2x20 Text LCD or 240x64 Graphics LCD Displays as well as the Base Station R-Series and Base Station E-Series.

1. Before installing any Base Station peripheral, remove the Tablet and the AC power cable. If the optional Smart Battery is installed, remove it as well.
2. Place the Base Station E-Series facedown and locate the accessory mounting holes at the rear of the base.
3. Attach the Series 2 Customer Display bracket, and then turn the thumbscrews to secure the bracket to the base.

4. Route the cable to either side of the I/O Panel. Each footer contains a slot to route the interface cable. Remove the appropriate rear foot, place the cable in the slot, and then reinstall the foot.
5. Add the cable guide and screw supplied in the kit to keep the cable secure to the chassis.

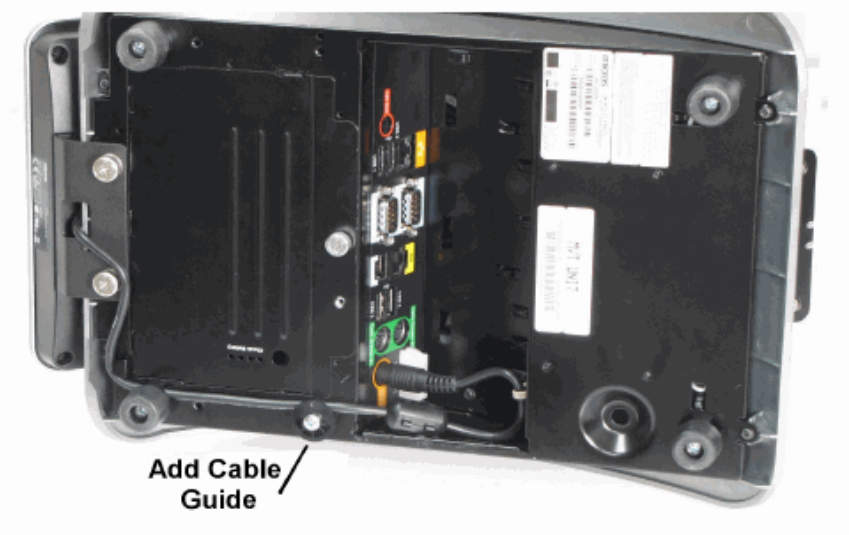


Figure 3-25 Installing the Cable Guide

6. Attach the keyed 4-pin mini-DIN to the I/O panel connector marked Customer Display.

Installing the MICROS Integrated Mini Printer

This section describes how to install the Integrated Mini Printer on the Base Station R-Series or E-Series.

The Integrated Mini Printer can only be installed on the right side of the Base Station chassis. Do not connect the Mini Printer to the Base Station when it is powered on.

1. Before installing, remove the Tablet, AC power cable, and optional battery, if installed.
2. Attach the Printer Bracket so that it is flush with the edge of the I/O Panel and facing the rear of the Base Station.
3. Connect the Mini Printer to COM2. 12V is enabled by default.
4. Attach the Mini Printer Bracket to the Ventilation Slot.

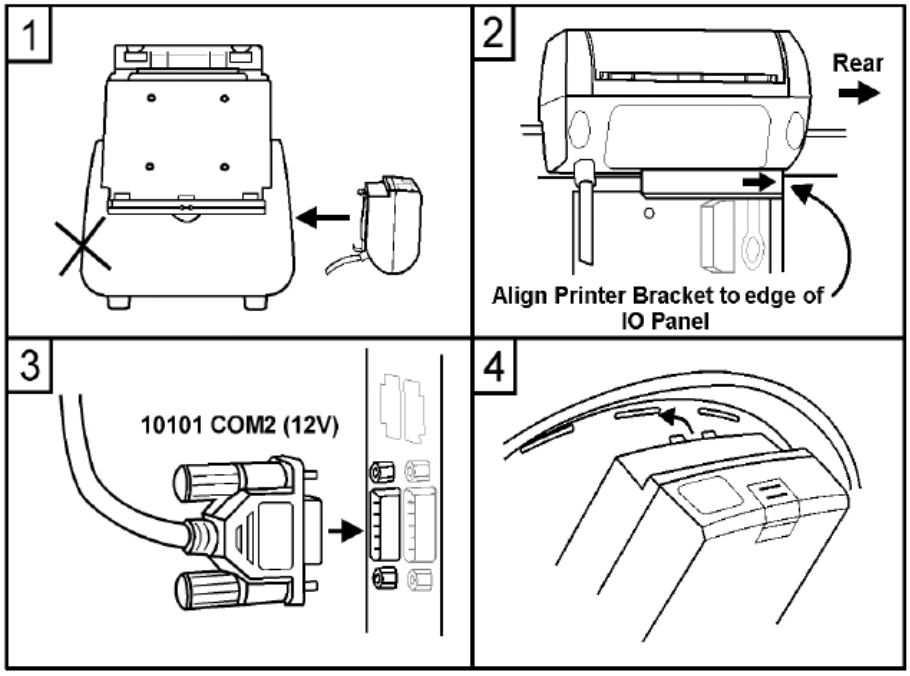


Figure 3-26 Installing the Integrated Mini Printer

The figure below shows a typical Integrated Mini Printer installation.

Figure 3-27 Integrated Mini Printer Installation

Testing the Integrated Mini Printer

The Integrated Mini Printer can be tested with the Diagnostic Utilities supplied on the OS image. The Integrated Mini Printer is not Epson compatible; therefore, the RS232 Print/Loopback tests do not function. See Section 4 for details.

Installing the Base Station Wireless Scanner

The Base Station Wireless Scanner can be installed on Base Station R-Series and E-Series. Installation instructions are provided with the scanner. The Scanner and Dock are paired at the factory and ready to go out of the box.

I/O Panel Overview

The Base Station E-Series I/O Panel is shown in the figure below.

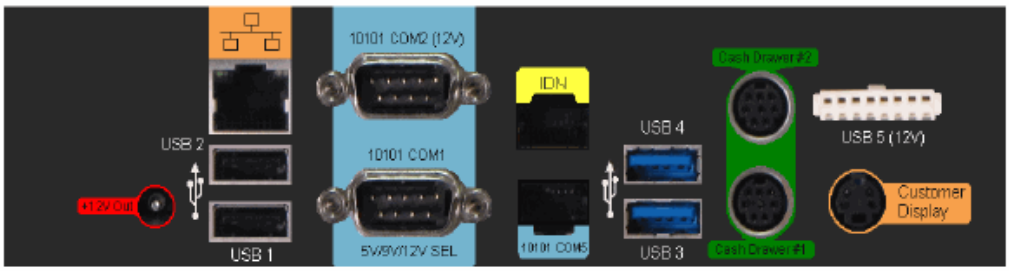


Figure 3-28 Base Station E-Series I/O Panel

- +12V Out

  The Auxiliary Power connector for a peripheral device.

- Ethernet

  The Base Station E-Series includes a 10/100/1000 Ethernet Controller with a UTP Modular connector. The modular connector features an integrated isolation transformer as well as link and status indicator LEDs.

- USB1 - USB4

  In addition to a MICROS powered USB port, the Base Station E-Series I/O Panel includes four standard USB ports labeled USB1 through USB4. USB1 and USB2 are USB 2.0 compatible. USB3 and USB4 are USB 3.0 Compatible denoted by a Blue connector.

  When Tablet E-Series is installed, it can take up to one minute before the Base Station E-Series USB ports become active.

- 10101 COM2 (12V)

  COM2 is a DB9 serial port with 12V available on Pin-9 (RI) of the connector. The MICROS Integrated Mini Printer is designed to use this port.

- 10101 COM1 5V/9V/12V SEL

  COM1 is a DB9 serial port with user selectable voltages of 0V, 5V, 9V, or 12V on Pin-9 (RI) of the connector. The voltage is selected through the Diagnostics Utility.

- IDN

  The IDN port can be configured as a full-duplex RS422 port to support IDN Printing devices. It can also be configured as a simple 2-wire TX/RX RS232 Interface to support a number of peripheral devices.

The IDN Port is functionally identical to those on all current MICROS workstations including the Base Station R-Series, Workstation 5A, Workstation 2015, and KW270.

- 10101 COM5

  COM5 is a full featured modular RS232 Interface. Use RJ45 to RS232 DB9 Adapter Cable, PN 300319-102.

- Cash Drawer #1 - Cash Drawer #2

  The Base Station E-Series cash drawer connectors are based on the 8-pin Mini-DIN connectors. Two of the additional pins are used to establish a serial interface between the Base Station and a future APG Smart Cash Drawer.

  To support existing MICROS cash drawers with the 4-Pin DIN connector, use adapter cable PN 300290-020.

- USB5 (12V)

  USB5 is a MICROS custom powered USB port that supplies 12V, 5V, and USB data, to the Protégé Customer Display System.

- Customer Display

  The Base Station E-Series customer display port supports one integrated or pole mount customer facing display. To connect two customer displays, use Y cable PN 300107-030.

4 Tablet and Base Station E-Series Diagnostics Utilities

This chapter includes basic troubleshooting procedures for the unit and describes how to use the Diagnostics Utilities.

The Diagnostics Utility lets you view information about the Tablet and Base Station, test features to confirm their functional state, and configure peripheral and other optional devices.

Starting the Diagnostics Utility on the Tablet and Base Station E-Series

1. From the Desktop, double tap on the **MICROS Diagnostic Utility** icon. If this icon is not on your desktop, it can be found in the **Apps** menu.
2. To run a specific utility, tap on its icon. The sections below provide details on each utility.
3. To exit an individual test, tap **Home**.
4. To minimize the Diagnostic Utility, tap **Hide**.
5. To exit the Diagnostic Utility, tap **Exit**.

System Information

This utility groups the Tablet's system and Base Station's battery information into one location.

Table 4-1 Diagnostic Utility – System and Battery Information

Field	Description
Diagnostic Version	Displays the version of the Tablet Diagnostics Utility.
PCWS Driver Version	Displays the version of the PCWS Driver.
Base Driver Version	Displays the version of the Base Driver.
MCU Firmware Version	Displays the version of the MCU Firmware. The MCU manages many aspects of the Tablet including battery management and sensors such as the Accelerometer, Automatic Light Sensor, Haptic Motor, and internal temperature sensor.
Hardware Version	Displays the version of the MICROS Tablet system board.
Workstation Model	Displays the workstation model; in this case, the mTablet or MICROS Tablet.
Motherboard Serial Number	Displays the serial number of the MICROS Tablet system board.

MAC Address (Ethernet)	Displays the network Media Access Control (MAC) number assigned to the Ethernet port available in the Base Station.
IP Address	Displays the IP address assigned to the Tablet.
Wireless	Displays the physical address of the WiFi module.
DHCP Server Address	Displays the physical address of the DHCP server.
CAL Version	Displays the current version of the MICROS Client Application Loader.
BIOS Version	Displays the current version of the BIOS.
WINCE Version	Displays the version of the operating system.
MICROS Build Version	Displays the current version of the Windows image on the Tablet.
BOOT Total Size	Displays the total size of BOOT, in bytes. BOOT is composed of a 4GB MMC Flash Memory Device installed on the Tablet's main board. The total size includes all partitions.
BOOT Free Size	Displays the remaining capacity of BOOT, in bytes, of the MMC Memory Device installed the Tablet. BOOT contains the Tablet Platform files including the operating system, drivers, diagnostics, and firmware update utilities.
RAM Space Available	Displays the amount of RAM available on the Tablet.
Manufacture Date	Displays the battery's manufactured date.
Serial Number	Displays the serial number of the battery.
Manufacturer Name	Displays the name of the battery's manufacture.
Device Name	Displays the type of battery.

Customer Display

This test lets you evaluate an integrated or pole 240x64 Customer Display by sending a message, display alternate character sets, and enter raw mode to send commands directly to the Customer Display MCU.

Customer Display EX

This test lets you monitor and check the backlight, display controls, and graphic capabilities of the 240x64 Customer Display.

To see the Firmware version of the Customer Display, tap the **Firmware Info** button.

Customer Display 20x20

This test lets you adjust the LCD and VFD contrast and backlight controls of the 20x20 Customer Display.

To see the Firmware version of the Customer Display, tap the **Firmware Info** button.

Cash Drawer

This test lets you monitor the status of each cash drawer.

When you tap the **Cash Drawer** icon, the Cash Drawer Password Verification window opens.

Apply the following formula to the six-digit number that appears in the **Key** field.

```
Digit 1 x Digit 2 + Digit 4 + Digit 6 = Password
```

For example, if the Key is 532586, the password is 26. (5x3+5+6 = 26).

Enter the password, and the Cash Drawer utility opens.

RS232 Loopback

This test requires two RS232 ports on the Base Station to be connected together for loopback testing. It opens the Output Port and Input Port in RS232 mode and continuously transmits a sequence of characters from the Output Port.

RS232 Print

This test requires the Base Station to be connected to a Serial RS232 Roll Printer. It opens an RS232 port on the Base Station and continuously transmits a sequence of print lines to the Output Port.

IDN Loopback

This test requires the RS422 ports on the Base Station to be connected together for loopback testing. It opens the Output Port in (+) mode and the Input Port in (-) mode and continuously transmits a sequence of characters from the Output Port.

IDN Print

This test requires the Base Station to be connected to an IDN Roll Printer with an ID of 1. It opens a RS422 (+) port on the Base Station and continuously transmits a sequence of print lines to the Output port.

Battery Status

This test provides details and status information of the Base Station's optional battery pack.

Hardware Monitor

This test determines or sets the COM2 port (DSUB) voltage, checks the optional battery, and enables/disables the USB ports on the Base Station.

To select the DSUB Power voltage, tap the pull down, select the desired voltage (5V, 9V, or 12V), and then tap the **Write** button. COM2 is fixed at 12V to support the MICROS Integrated Mini Printer. To enable or disable, tap the drop-down and select **On** or **Off**.

Other Devices

This test lets you evaluate the MICROS Integrated Mini Printer, the Base Station Scanner, and an additional scanner such as the MSR/Imager/NFC-RFID module.

Printer Status

The Printer Status test is intended for the MICROS Integrated Mini Printer connected to COM2 with 12V available.

The Printer Status consists of a group of 'boxes' each representing an electrical or mechanical test of the printer.

To test the Mini Printer Status, make sure it is connected to COM2, loaded with paper, and powered-up. Press the **Start Monitoring** button. All boxes should show Green.

With the Printer Status test running, open the Mini Printer door and observe the display. Electrical and mechanical tests effected by the door being open will change to red.

Scanner

The Scanner test is used for the Base Station Wireless Scanner.

To use the scanner test, the Scanner and Dock must be paired correctly and the Wireless Scanner Dock must be connected to an I/O Panel USB input.

With the Wireless Scanner and Dock connected to Base Station, tap the **Start getting Scanned Data** button. Scan a UPC barcode and the bar code number appears in the window along with a Carriage Return and Line Feed.

If the COM Port Error occurs when you tap the **Start getting Scanned Data** button, check the USB interface cable to ensure it is connected to the I/O Panel.

NFC and NFC Command

These sections provide basic functional tests for optional NFC-RFID readers.

LEDs

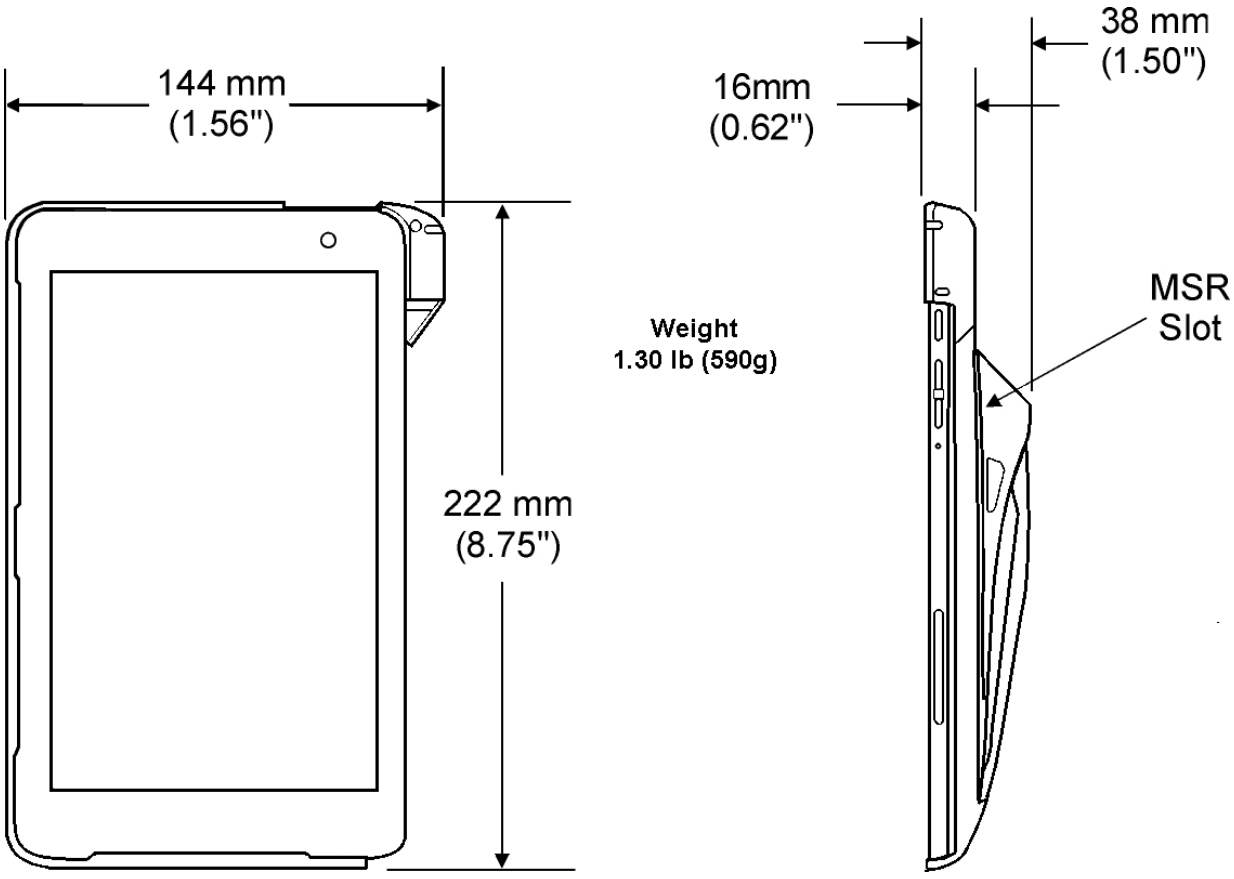
This test lets you monitor and evaluate the Tablet Battery LED or Base Station System LED by entering the Manufacturing Mode.

To begin, tap **Start LED Test**.

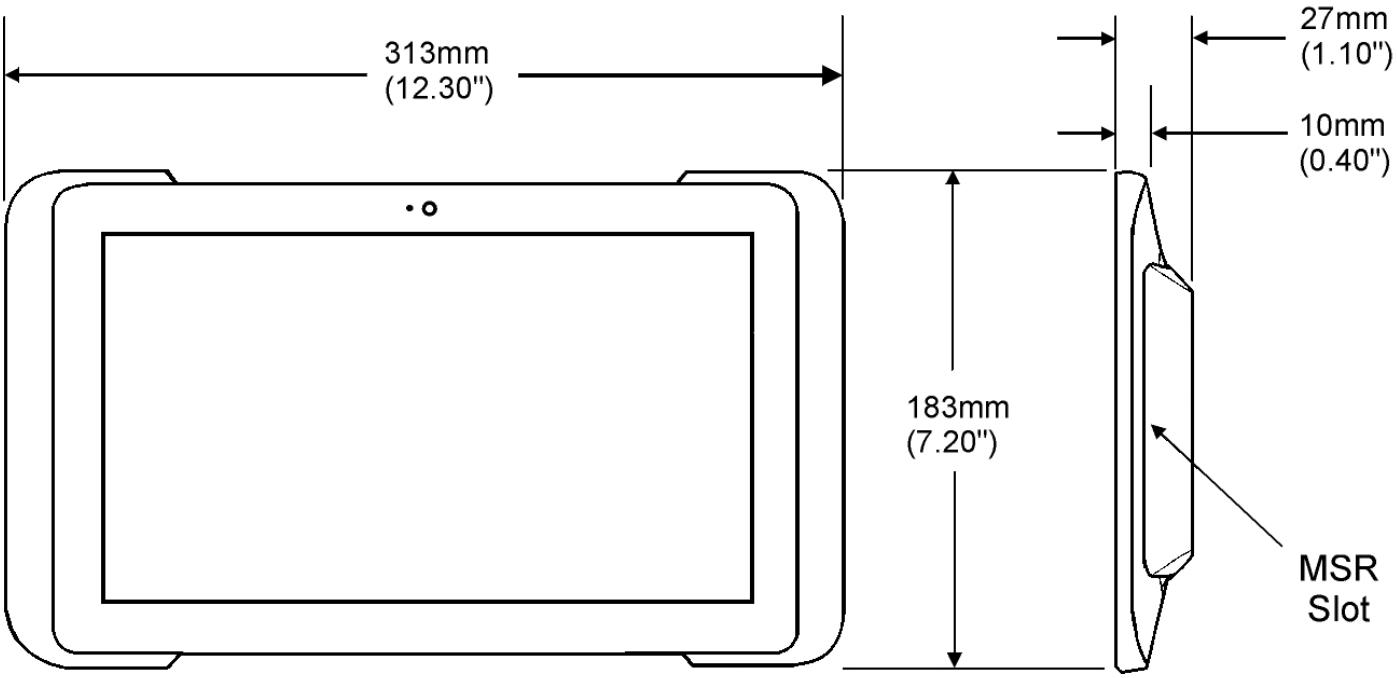
Appendix A: Equipment Dimensions

This appendix includes dimensional drawings for the Oracle MICROS Tablet and Base Station E-Series and peripheral equipment.

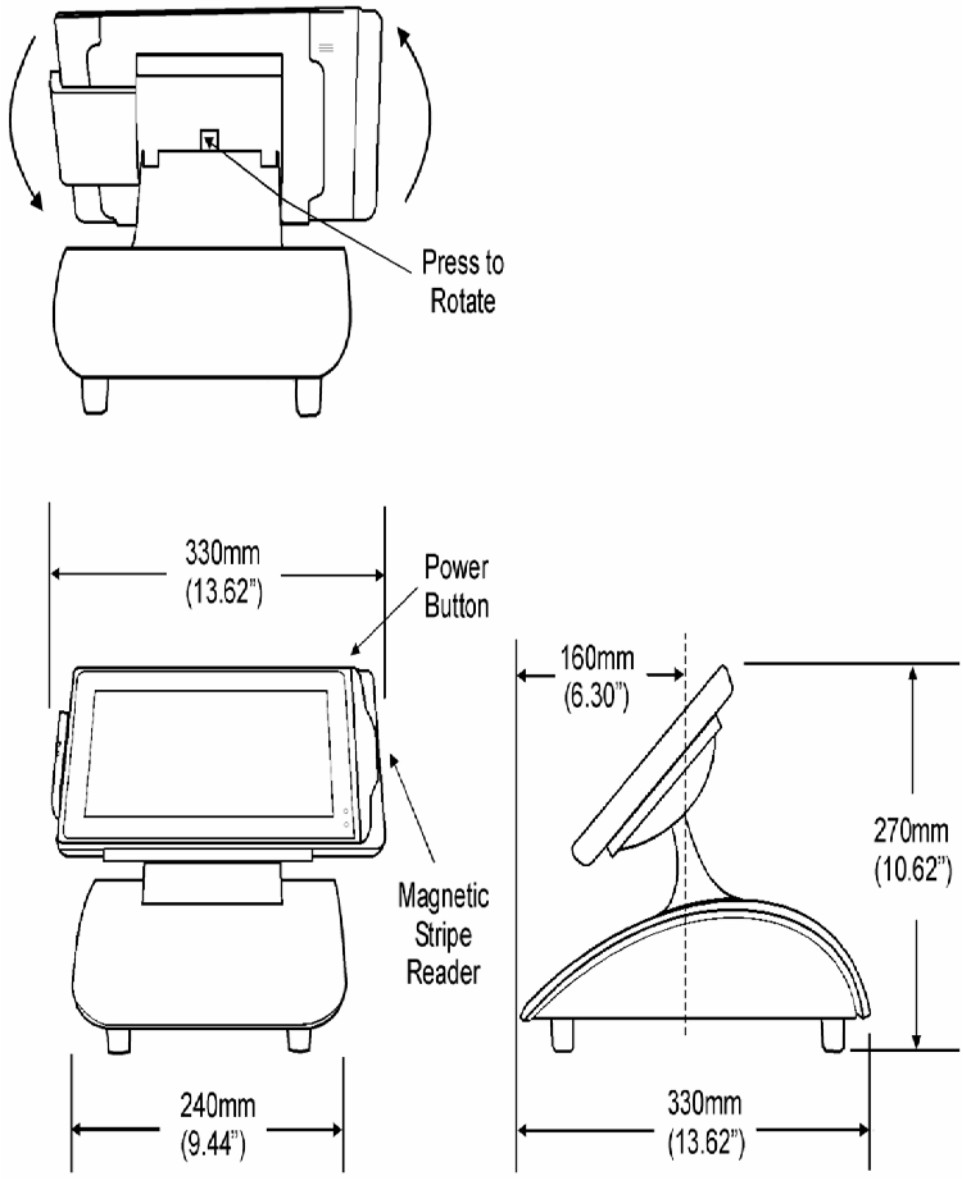
MICROS Tablet E-Series 8



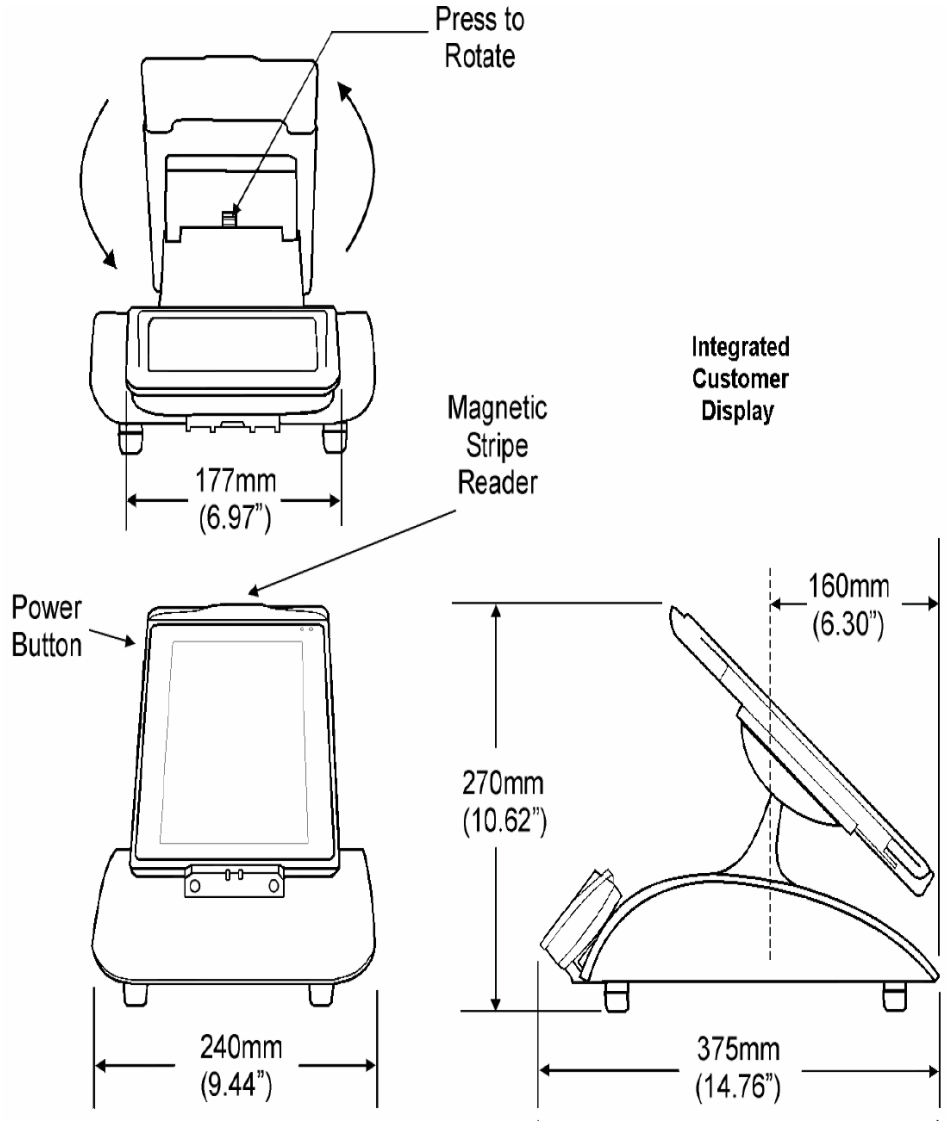
MICROS Tablet E-Series 11



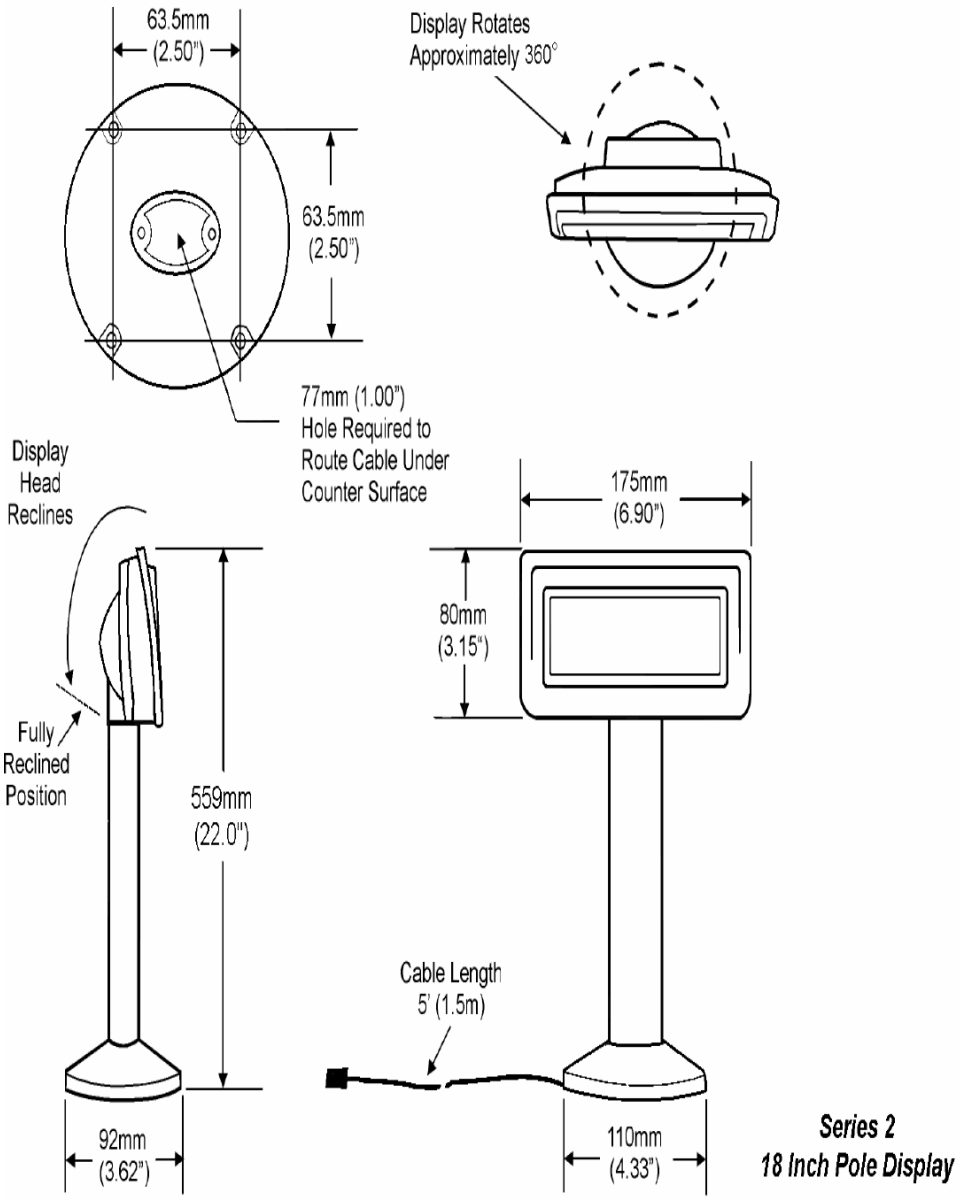
MICROS Tablet and Base Station E-Series



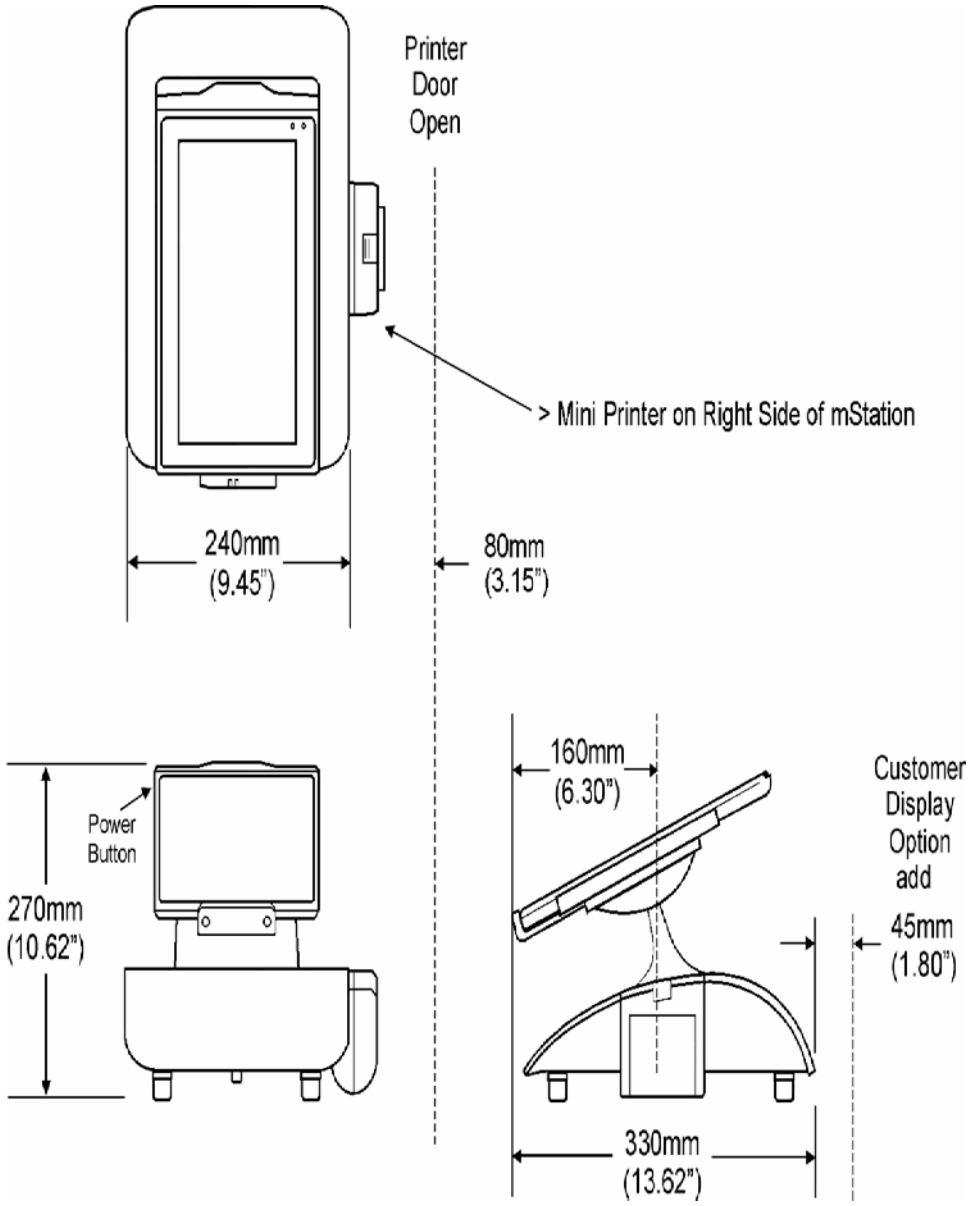
MICROS Tablet and Base Station E-Series with Integrated LCD Customer Display



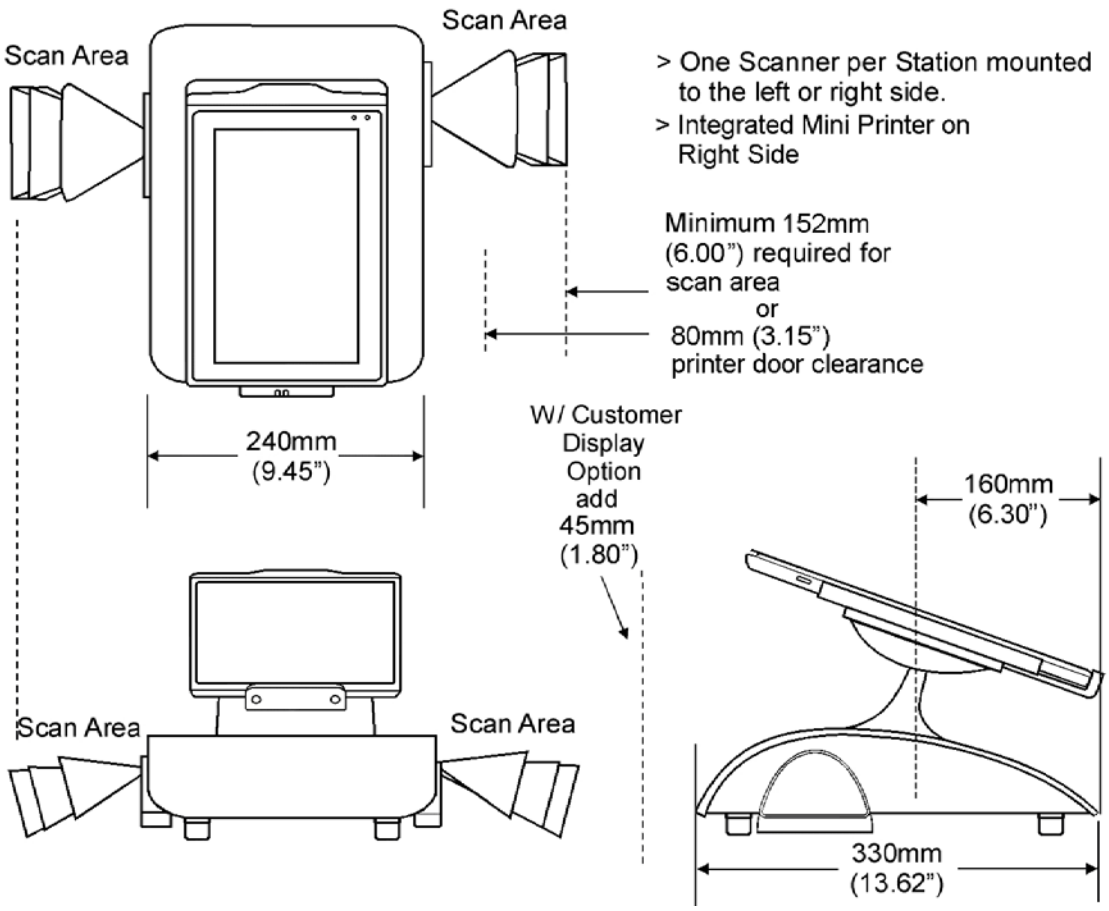
MICROS Tablet and Base Station E-Series LCD Customer Pole Display



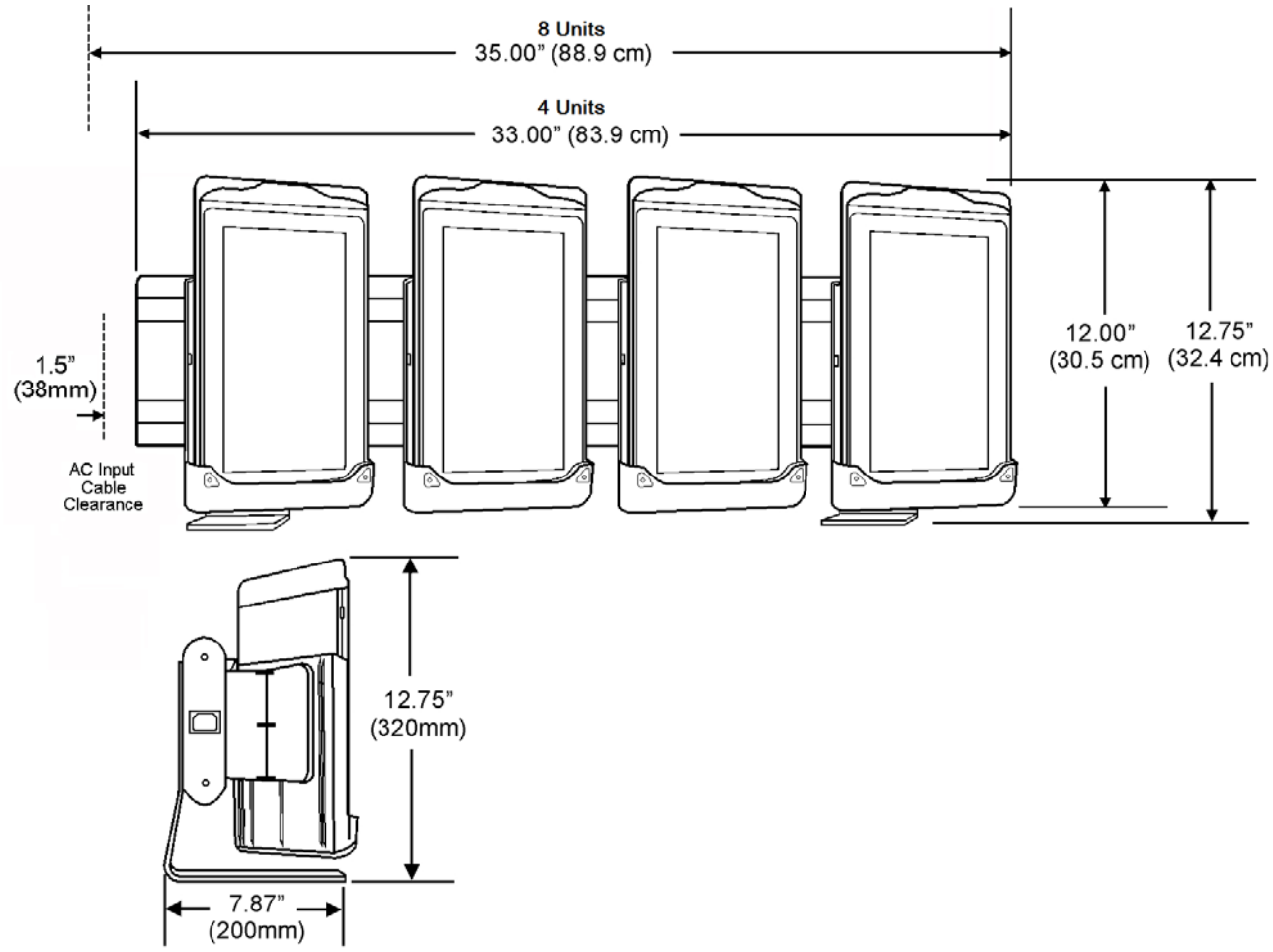
MICROS Tablet and Base Station E-Series with Integrated Mini Printer



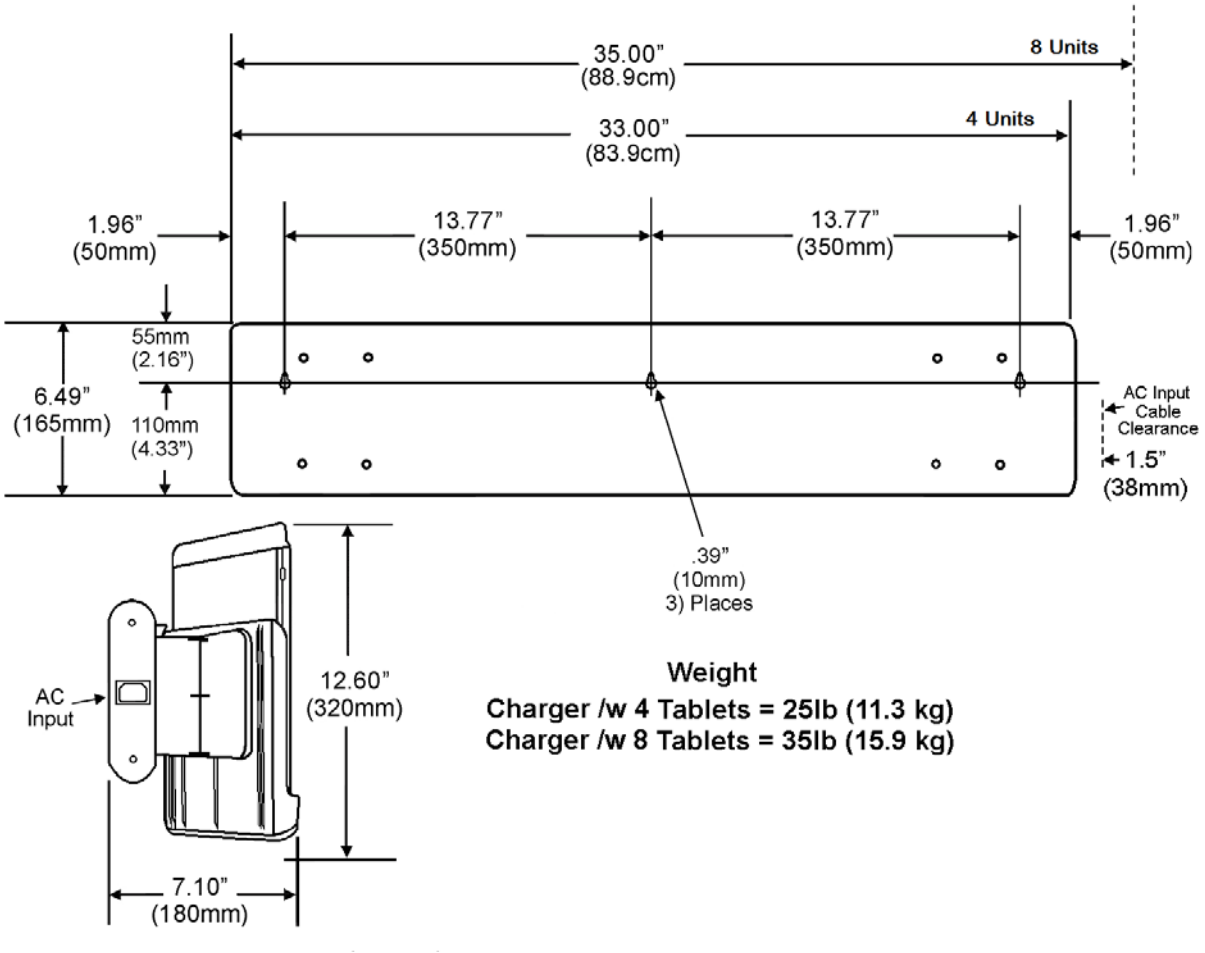
MICROS Tablet and Base E-Series with Integrated Scanner



MICROS Tablet Multi-Unit Charger – Surface Mount



MICROS Tablet Multi-Unit Charger - Wall Mount



Weight

Charger /w 4 Tablets = 25lb (11.3 kg)

Charger /w 8 Tablets = 35lb (15.9 kg)

Appendix B: Connector and Cable Diagrams

This appendix provides an overview of the connectors and cables used to hook-up your POS equipment.

I/O Panel Connectors

The following connectors are located on the Base Station I/O Panel.

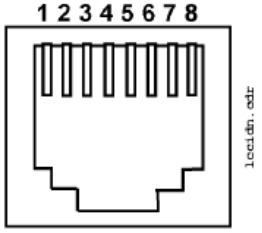
IDN Port

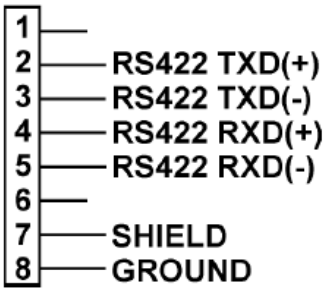
The IDN connector is a combination RS422/RS232 port assigned to COM4. This port is functionally equivalent to the RS422-A and RS422-B ports on the WS4/WS4 LX/KWS4 and the IDN port on all current MICROS workstations. Two configurations are detailed in the following pages, configured through the POS application.

Warning: Do not insert a 6-Pin modular plug into the 8-Pin IDN Port. The 6-Pin plug can push pins 1 and 8 of the connector out of position. These pins are used by the RS232 Interface. Should you wish to use the RS232 Interface at a later time, it may not function. Always use an 8-Pin modular plug to connect an IDN printer to the workstation.

IDN Port - Driving MICROS IDN Printers

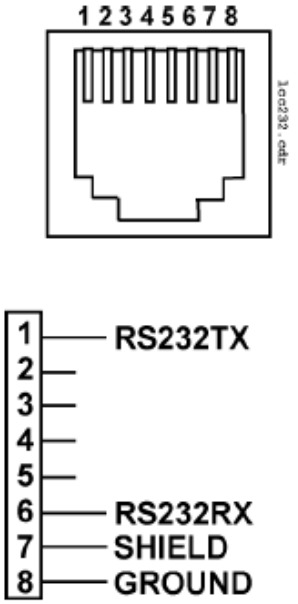
The most popular configuration of the IDN Port is for printing to printers with IDN Modules. Also known as IDN(+), the figure below shows the pin-out for this configuration.





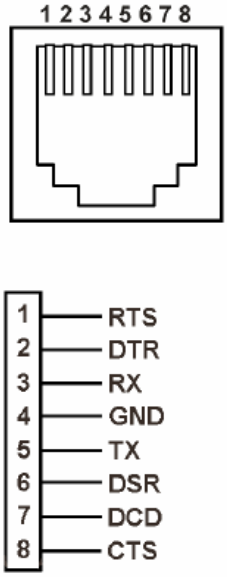
IDN Port - RS232 Peripheral

The figure below shows the IDN port configured as a two wire RS232 interface.



RS232 COM 5

The Base Station includes one full-featured modular COM port assigned to COM5.

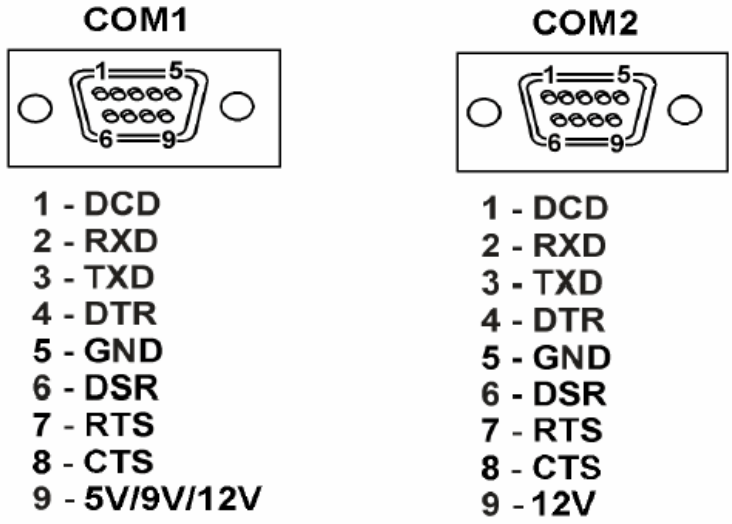


RS232 COM1 and COM2

The Base Station I/O Panel includes two powered RS232 Ports, COM1, and COM2. The pin-outs are shown in the figure below. Fixed or selectable voltages appear on Pin-9, the Ring Indicator pin of each connector.

COM1 supports one of three voltages - 0V, 5V, 9V, or 12V selectable through the Tablet Diagnostics Utility.

COM2 supports a fixed 12V. This port is targeted for use with the MICROS Integrated Mini Printer, a compact thermal printer that receives power and data directly from the Base Station.



Cash Drawer 1 and 2 Connectors

The figure below shows the next generation Cash Drawer connector on the Base Station. The connectors are 8-Pin Mini-DIN and listed in the Figure below. To use MICROS Cash Drawers with traditional 4-pin DIN connectors, use cable P/N 300290-020.

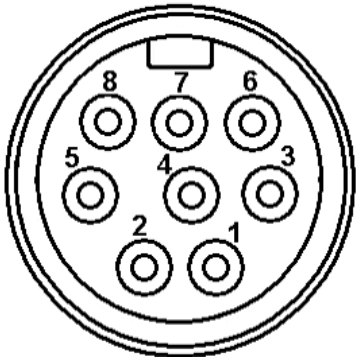


Table B-1 Series 2 Cash Drawer Connector and Signals

Pin Number	Signal Name	Description
1	VCC12 or VCC24	Cash Drawer Power
2	CD_OPEN	Open Drawer

Pin Number	Signal Name	Description
3, 7, 8	Ground	Signal Grounds
4	CD_ST	Input Status from the Cash Drawer
5	MCU_TX_5V	Tx data to Cash Drawer
6	MCU_RX	Rx data from Cash Drawer