

Unitech Electronics Co., Ltd.

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**Code: MS860**

**Product Design  
Specification** *Version 1.0*



*(Internal Used Only)*

Prepared by Eric  
Date: June 11, 2003

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VP Yuan / SBU

Release to UTA, UTC, UTI, UTT, and APAC

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General Manager Chen / ADC Group

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## **FEDERAL COMMUNICATIONS COMMISSION**

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

### **Note**

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection. This equipment generates, uses and can radiated radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

The antenna(s) used for this transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

## 1. Product Goal and Applications

### 1.1. The Product Goal

This product **MS860** is ready to give a brand new image of handheld gun type Laser scanner with extremely robust design and solid feel holding that incorporates **bluetooth** design. Unitech has moved one step forward to the **wireless scanner** that addresses the need of many applications, giving an additional value to the product when mobility is a must nowadays.

### 1.2. Applications

**2.2.1.** Cash & Retail Application

**2.2.3.** Back Office Inventory

**2.2.4.** Oversized items checkout

**2.2.5.** Document Tracking and Utilities

### **3. Features and Benefits**

- 3.1** Comfortable and solid feel holding for easy use
- 3.2** Wireless design eliminates cables for safer and more reliable scanning
- 3.3** Enables users to format data before it is sent to the host computer eliminating costly modifications to the host software
- 3.4** Fast reading and decoding of all major linear bar codes
- 3.5** High tone beeper and strong illuminating LED
- 3.6** Rechargeable Lithium-ion battery: 10 hours of wireless scanning performance.
- 3.7** Unlicensed radio frequency transmission for maximum application flexibility
- 3.8** Flexible setup using PC utility (Windows based) download, or by scanning a sequence of bar codes
- 3.9** Interface to all major PCs, Apple computer and terminals.

## 4. Specifications

### 4.1 Performance/Optics

**4.1.1 Optical System: Symbol SE 1200WA** Wide Angle Scan Engine

**4.1.2 Light Source:** Visible Laser Diode 650 nm

**4.1.3 Ambient light:** Immune to light exposure in stores and offices, and direct exposure to sunlight

**4.1.4 Scan Rate:** 35 ( $\pm$  5) scans/sec (bi-directional)

**4.1.5 Maximum Resolution:** 0.13mm (5mil)

**4.1.6 Reading Distance:** 0cm – 63.5cm (25’')

**4.1.7 Reading Width:** Up to 52.4cm (20.6’’) on 55mil resolution code and Up to 22cm on the code on local/national tax receipt in Taiwan

**4.1.8 PCS:** Minimum 20%

**4.1.9 Scan Angle:** 53°  $\pm$  2°

**4.1.10 Symbologies:**

CODE 39 Full ASCII	CODABAR	Label Code
CODE 39 Standard	CODE 128	Plessey Code
EAN-13	CODE 93	CODE 11
UPC-A	Standard 2 of 5	China Postal Code (Toshiba Code)
EAN-8	MSI Code	
UPC-E	EAN-128	
Interleaved 2 of 5	CODE 32 (Italian pharmacy)	

## 4.2 Mechanical design

- 4.2.1 Color for main body: Dark Color.
- 4.2.2 Drop Test: Scanner – **1.8m** drop onto concrete over entire temperature range, Cradle – **1m** drop onto concrete over entire temperature range.
- 4.2.3 Housing (scanner and cradle): Rubber and ABS plastic with solid feel holding for demanding work environment
- 4.2.4 Switch (with 1 million time micro switch life)
- 4.2.5 Handle is smoothly contoured to fit all sized hands.
- 4.2.6 A battery compartment located inside of gun grip is required.
- 4.2.7 Battery pack can be replacement

## 4.3 Electrical

- 4.3.1 **Decoder in Scanner:** Unitech Hamster decoder chip for MS860
- 4.3.2 **Decoder in Cradle:** Unitech Hamster decoder chip
- 4.3.3 Indications for Scanner (using one dual color LED and one buzzer): Read (**LED Red**), Good Read and Transmit to Host OK (**LED Green with one beep**), Battery Low (**LED Red flash**), Programming and Configuration Status (**Green LED flashing**), Cable Connection Detection (**10 beeps when cable fall off cradle**), Out of Range and Cradle power off (**3 beeps**)
- 4.3.4 Indications for Cradle (using three LED): Power On (**LED 1 Green**), Scanner Charging (**LED 2 Red**), Charge Complete (**LED 2 Green**), Receive data from Scanner (**LED 3 Red**), Transmit data to Host OK (**LED 3 Green**)
- 4.3.5 **Battery Recharge Time:** below 4.5 hours
- 4.3.6 **Operating Time:** more than 10 hours under per 5 sec scan
- 4.3.7 **Blue Tooth Module:** Built in the Rainsun BT-20 of Scanner and Cradle
- 4.3.8 **Battery type:** 1900mAH / 3.6V SANYO Lithium-ion

**4.3.9 Buzzer (in Scanner and Cradle): 90dB** from 10cm distance measured

#### **4.4 Communications**

**4.4.1 Cradle / Host:** Keyboard Wedge / RS232 / USB for IBM PC or compatible, MAC, and common terminals. (replace the interface cable on cradle without changing H/W or F/W)

**4.4.2 Radio:** unlicensed 2.4GHz **point to point**

**4.4.3 Transmit Power (dBm):** 0 dbm

**4.4.4 Radio Range:** under 30M, line of sight

**4.4.5 Out of Range detection:** error tone indication and scanner doesn't transmit the code decoding

**4.4.6 Cable fall off detection**

#### **4.5 Programming Method**

**4.5.1 User's Manual:** Reading special bar codes. Set up cloning would also be considered

**4.5.2 Scanner Configuration Manager (SCM)**

**4.5.3 Special Features:** Programmable data format (code identification, preambles and postambles, intercharacter and intermessage delays, variable time-out, and data editing)

#### **4.6 Environmental**

**4.6.1 Temperature** Operating: 0 ~ 50 , Storage: -20 ~ 70

**4.6.2 Humidity:** 5% – 95%, no condensing

**4.6.3 ESD Protection:** Meet ESD 8K contact and 12K Air

**4.6.4 Electrical Safety:** Complies with FCC Class A, CE, DGT and BSMI regulations (label format should meet an integrated consideration)

**4.6.5 Laser Safety:** CDRH Laser Class 2

#### **4.7 Cradle and Accessories**

**4.7.1 Cradle and 9V / 2A Power adaptor Unit**

**4.7.2 Cables for cradle:** Current RS232 / USB / Keyboard Wedge cables  
for MS series

**4.7.3 Holster and belt**

**4.7.4 User's Manual**

**4.7.5 Hand Strap**



## **5. Schedule to be defined**

**9.1** DR I: February 14, 2003

**9.2** DR II: February 14, 2003

**9.3** DR III: June 11, 2003

**9.4** DR IV: August 30, 2003

**9.5** DR V :September 30, 2003