



Deklin Technologies

DT100

**ANALOG
TELEPHONE
HANDSET**

Installation and Operations Manual

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REVISIONS

| REV | DESCRIPTION | DATE | APPROVAL |
|-----|------------------------------------|------------|----------|
| 1.0 | Initial Release | Oct 2005 | JAD |
| 1.1 | Increased Warranty | 1/5/2007 | TJD |
| 1.2 | Powering Up Unit | 5/31/2007 | TJD |
| 1.3 | Software Update v1.31 & New Cradle | 5/9/2008 | TJD |
| 1.4 | Operational Changes v1.35 | 12/31/2008 | TJD |

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Section I General Information

INTRODUCTION

This manual contains information regarding the physical, mechanical, and electrical characteristics, plus, the installation requirements for the DT100 Analog Telephone Handset.

SCOPE

This manual provides detailed installation and operational instructions for the DT100 Analog Telephone Handset.

EQUIPMENT DESCRIPTION

The Deklin Technologies, Inc. DT100 is an analog telephone handset for 1 line using a standard Tip/Ring interface also referred to as POTS (Plain Old Telephone Set). The DT100 Analog Telephone Handset can be used with any telephone system that provides a standard Tip/Ring analog interface.

The DT100 standard functions:

- 2 wire analog (POTS) interface.
- 21-33 VDC input (27.5 Nominal)
- Lighted keypad
- Flash (600ms)
- Mute
- Selectable Ring Tones
- Volume Level Control
- Memory Numbers
- FAR25.853 Conformity

SPECIFICATIONS

General Specifications

| | |
|-------------------------------------|---|
| Case Material: | Flame Retardant ABS, Polyac [®] PA-766 |
| Flame Retardant Test Qualification: | FAR25.853 Part 1, (a),(1),(v) |
| Dimensions w/Locking Base: | 7.51" x 1.85" x 2.47" (192mm x 47mm x 63mm) |
| Dimensions w/Cradle: | 8.71" x 2.36" x 2.54" (221 x 60 x 65mm) |
| Operating Temperature: | -5F to 105F (-20C to +40C) |
| Survival Temperature: | -40F to + 158F (-40C to +70C) |
| Humidity: | 95% |
| Altitude: | 35,000ft Max |
| Weight: | 0.8 Lbs (0.36 kg) w/Base & Cord |
| Connectors: | RJ11/6 Jack OR 9 Pin D-Sub Connector |

Input Specifications

| | |
|----------------|--------------------------|
| Input Voltage: | 22-33VDC (27VDC Nominal) |
| Current: | 0.5A (Nominal) |
| Fuse Rating: | 1A |

Interface Specifications

| | |
|------------------------|-----------------------------------|
| Telephone Line Inputs: | 1 |
| Telephone I/F: | 2 Wire Analog POTS |
| Distortion: | < 5% |
| Ring Voltage: | 90VAC±15V (no load) |
| On Hook Voltage: | -48VDC (with respect to airframe) |
| Off Hook Voltage: | -5VDC (with respect to airframe) |
| Flash: | 600ms |

EQUIPMENT SUPPLIED

DT100-1XX

| | | |
|---|------|---|
| 1 | each | DT100 Handset with Locking Base |
| 1 | each | 6' Coil Cord with RJ11/6 both ends |
| 1 | each | IK100 Install Kit - ARJ11 RJ11 Jack, Black Bezel, Ivory Bezel, Shim |

OR

DT100-2XX

| | | |
|---|------|--|
| 1 | each | DT100 Handset with Locking Base |
| 1 | each | 6' Coil Cord with RJ11/6 one end, D-Sub 9 Male one end |
| 1 | each | IK200 Install Kit - D-Sub 9 Female w/Locking Hardware |

OR

DT100-3XX

| | | |
|---|------|--|
| 1 | each | DT100 Handset with Locking Base |
| 1 | each | 6' Coil Cord with RJ11/6 one end, D-Sub 9 Male one end (16" pigtail) |
| 1 | each | IK200 Install Kit - D-Sub 9 Female w/Locking Hardware |

EQUIPMENT REQUIRED BUT NOT SUPPLIED

| | | |
|---|------|---|
| 1 | each | 1 amp circuit breaker/Fuse |
| 1 | each | Airborne Telephone System with 2 wire Tip/Ring (POTS) interface |

Section II - Installation

GENERAL INFORMATION

Scope

This section provides detailed installation and interconnection instructions for the DT100 Analog Telephone Handset. Please read this manual carefully before beginning any installation to prevent damage and post installation problems. Installation of this equipment requires special knowledge and tools.

Installation Requirements

The DT100 requires specialized knowledge and tools for an effective installation. An appropriately rated Certified Repair Station must install this equipment in accordance with applicable regulations. Deklin Technologies, Inc warranty is not valid unless installed by an authorized FAA approved repair station. Failure to follow any of the installation instructions, or installation by a non-certified individual or agency, will void the warranty and may result in a non-airworthy installation.

Unpacking and Inspection

Use care when unpacking the equipment. Inspect the unit and all the parts supplied for visible signs of shipping damage. Examine the unit for loose or broken pieces. Verify the correct quantity of components supplied with the list in Section I. If any claim is to be made, save the shipping material and contact the freight carrier. DO NOT return any items damaged in shipping to Deklin Technologies, Inc. If any items show signs of external shipping damage, contact Deklin Technologies, Inc for a replacement. Do not attempt to install a damaged unit. Equipment returned to Deklin Technologies, Inc for any other reason should be shipped in the original packaging, or other UPS approved packaging.

INSTALLATION PROCEDURES

Cooling Requirements

Forced air-cooling is not required for the DT100. However, the equipment should be kept away from heat sources without adequate cooling provided. (i.e. defrost or heating ducts, dropping resistors, heat producing avionics.)

Mounting Requirements

The DT100 must be mounted inside the pressure vessel in a temperature controlled environment unless the aircraft's service ceiling is less than 25,000 feet.

The DT100 must be rigidly mounted to a secure structure in accordance with FAA Advisory Circular AC 43.13-2A. The unit should be mounted in an area with adequate clearance for the unit and associated wiring.

The locking base must be firmly mounted using two 6/32 screws from behind the mounting surface into the pem-nuts of the base. The drop-in cradle is mounted using two 8/32 screws through the base and mounting surface into locking 8/32 nuts or fasteners.

Connector Assemblies

The curly cord assembly comes complete with 2 each RJ11/6 plugs on either end, or, an RJ11/6 on one end and a 9-pin D-Sub connector on the other. It does not require additional assembly.

When using the locking base, the mating RJ11/6 jack or 9-pin D-Sub connector should be mounted in close proximity to the base assembly so as not to cause any tension to the curly cord when the handset is locked into the base assembly.

When using the drop-in cradle, the 9-pin D-Sub connector on the 16" cable pigtail is fed through the mounting surface behind the cradle.

Cable Harness Wiring

Refer to the included wiring diagrams for pin out configurations. All wires must be MIL-SPEC in accordance with current regulations. All 2 conductor shielded wire should be MIL-C-27500 or equivalent (with solder sleeves for shield termination) and must be used where specified. Proper stripping, shielding and soldering techniques must be used at all times.

Refer to FAA Advisory Circular AC 43.13-2A for more information. Failure to use correct techniques may result in improper operation, electrical noise, and/or unit failure. Damage caused by improper installation will void warranty.

Noise

Due to the variety and high power of equipment in today's aircraft, there is a potential for both electrical and conducted noise interference. To minimize the occurrence of noise being introduced into the system, please follow these installation guidelines.

- Do not bundle any lines from this unit with transmitter coax lines.

- Do not bundle any lines from this unit with any other audio or high voltage power lines.

- Do not bundle any lines from this unit with 400 Hz synchro wiring or AC power lines such as strobes or inverters.

- Do not position this unit or route wiring from this unit next to any device with a strong alternating magnetic field such as an inverter.

- Use shielded wire where shown and ground as indicated.

Post Installation Check

After installation wiring is complete, verify power is on pin 1 only and airframe ground on pin 6 only.

Operational Checkout

1. Connect connectors to DT100 and verify handset is locked on base or inserted in cradle.
2. Apply power to aircraft and avionics systems.
3. Lift handset and verify dial tone.

Note: Unusual buzzes, hums or other background noise are symptomatic of multiple grounds, or noisy external systems such as blowers or pumps sharing wiring with the audio system.

4. Dial valid telephone number (*Refer to the Operations Instructions of your telephone system or Network Provider for information on phone number formats.*). When a party answers verify normal telecom operations.
5. Verify all other operation functions (refer to Operating Instructions in Section III).

Section III - Operation

OPERATION

Handset Volume

While on a call the volume of the handset can be adjusted by pressing the ▲ ▼ buttons.

Ringer Volume

To adjust the Ringer Volume press the **MENU** button until “**Ringer Volume**” appears on the screen. Several presses may be required. Use the ▲ ▼ buttons to select the Ringer Volume level.

Ringer Tone

To select a Ringer Tone press the **MENU** button until “**Ringer Tone**” appears on the screen. Several presses may be required. Use the ▲ ▼ buttons to select the Ringer Tone.

Flash

The **FLASH** button provides a 600ms break during an On Hook condition. (*Refer to the Operations Instructions of your telephone system or Network Provider for information on Flash functions if any.*)

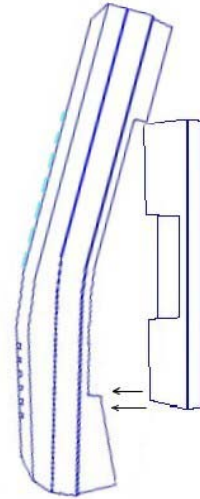


Removing and Replacing Handset on Locking Base

To remove handset from the Locking Base pull firmly from the bottom of the handset. When replacing the handset set the top of the handset on the base and push the bottom firmly into place.

Place Outside Call

Lift handset and listen for a dial tone (The handset should automatically come Off Hook). If the handset is already removed from the locking base but is not currently connected to an outside call then press the **HOOK** button and listen for a dial tone. Dial telephone number. (Refer to the Operations Instructions of your telephone system or Network Provider for information on phone number format



Answering Incoming Call

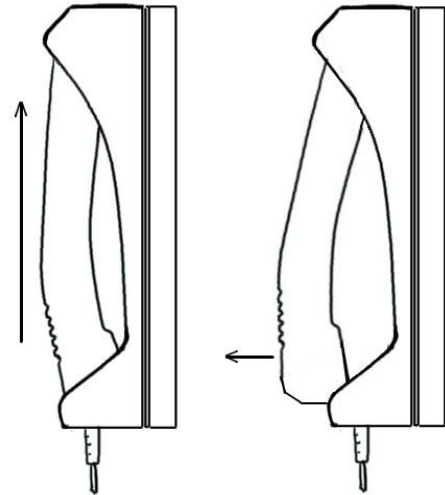
Lift handset. (The handset should come Off Hook. Start conversation.) If the handset is already removed from the locking base but is not currently connected to an outside call (Off Hook), then press the **HOOK** button to connect to the incoming call.

End Call

Replace handset on base, or, press **HOOK** button. .

Removing and Replacing Handset in Cradle

To remove handset from the Cradle push the handset up into the top of the cradle then pull bottom of handset out from cradle. When replacing the handset push the top of the handset into the top of the cradle, then set bottom of handset into cradle and let the handset drop into place.



Place Outside Call

Lift handset and listen for a dial tone (The handset should automatically come Off Hook). If the handset is already removed from the cradle but is not currently connected to an outside call then press the **HOOK** button and listen for a dial tone. Dial telephone number. (*Refer to the Operations Instructions of your telephone system or Network Provider for information on phone number formats.*)

Answering Incoming Call

Lift handset (The handset should come Off Hook). Start conversation. If the handset is already removed from the cradle but is not currently connected to an outside call (Off Hook), then press the **HOOK** button to connect to the incoming call.

End Call

Replace handset on base, or, press **HOOK** button.

PROGRAMMING

Phone Book Numbers

The DT100 will accommodate up to 1000 Phone Numbers and Names.

To add an entry to the Phone Book

Note: At any time during Phone Book Entry mode the user may cancel and revert back to the Logo screen by pressing **MENU**.

1. Press **MEM** to enter Phone Book Entry Mode.
2. Follow instructions on screen. In this case press the '2' key for Add.
3. The handset will then display the name field. Input name using keypad, the **▼** arrow is backspace if you make a mistake. The '0' key or **▲** arrow is a SPACE character. Press **STORE** when done.
4. Now the number can be input using the keypad. Press **STORE** when done.
5. The new entry is now added and user is taken back to logo screen.

To dial a number from the Phone Book:

1. Press **MENU** button until Phone Book is reached.
2. Use **▲** **▼** arrows to select the entry that you wish to dial.
3. Press the **HOOK** button to take the line and dial the number.

To edit an entry currently in the Phone Book:

Note: At any time during Phone Book Entry mode the user may cancel and revert back to the Logo screen by pressing **MENU**.

1. Press **MENU** to enter Phone Book Entry Mode.
2. Follow instructions on screen. In this case press the '1' key for Edit.
3. Use **▲** **▼** arrows to select the entry you wish to modify and press the **STORE** button when done.
4. The handset will then display the name field for modification. Alter name using keypad. The **▼** arrow is backspace if you make a mistake. The '0' key is a SPACE character. The **▲** arrow key will advance the cursor and add a SPACE character if the position is vacant. Press **STORE** when done. If only the number needs to be modified then just press **STORE** without altering the name.
5. Now the number field may be altered using the keypad. Press **STORE** when done.
6. Entry is now modified and user is taken back to logo screen.

To delete entry in the Phone Book

1. Press **MENU** to Phone Book Entry Mode.
2. Press '1' key for Edit.
3. Use **▲** **▼** arrows to select the entry to be deleted. Press **STORE** when done.
4. When Name field appears press the **▲** **▼** key.
5. The handset will then prompt for confirmation of deletion. Select '1' to confirm.
6. The entry has now been deleted and the user is taken back to the logo screen.

Section IV – Warranty and Service

WARRANTY

Deklin Technologies, Inc. warrants this product to be free from defect in workmanship and material for a period of 24 months from the time of installation or 26 months from the factory shipping date. This warranty is valid only if the equipment is installed in an aircraft by a FAA certified avionics facility (or other ICAO agency).

If during the warranty period this unit should fail it will be at the discretion of Deklin Technologies, Inc to send a replacement unit or repair the original unit. All units must be returned to the factory for repair or replacement.

All shipping and handling charges for the return of a unit to the factory are the responsibility of the purchaser. Domestic UPS Ground shipping charges for sending an exchange or repaired unit to the customer will be the responsibility of Deklin Technologies, Inc. Any additional charges as a result of requested improved delivery time, alternate carrier, insurance, or handling costs are the responsibility of the customer. All freight, handling, insurance, brokerage fees, duties and taxes for shipments outside the continental United States is the responsibility of the customer.

Deklin Technologies, Inc shall not be liable for incidental or consequential damages. This warranty does not cover a defect that has resulted from improper handling, storage or preservation, unreasonable use, or maintenance. This warranty is void if there is any attempt to disassemble this product without factory authorization. This warranty does not cover expenses incurred for the removal and/or installation of this product.

All items repaired or replaced under this warranty are warranted for the remainder of the original warranty period. Deklin Technologies, Inc reserves the rights to make modifications or improvements to the product without obligation to perform like modifications or improvements to previously manufactured products.

FACTORY SERVICE

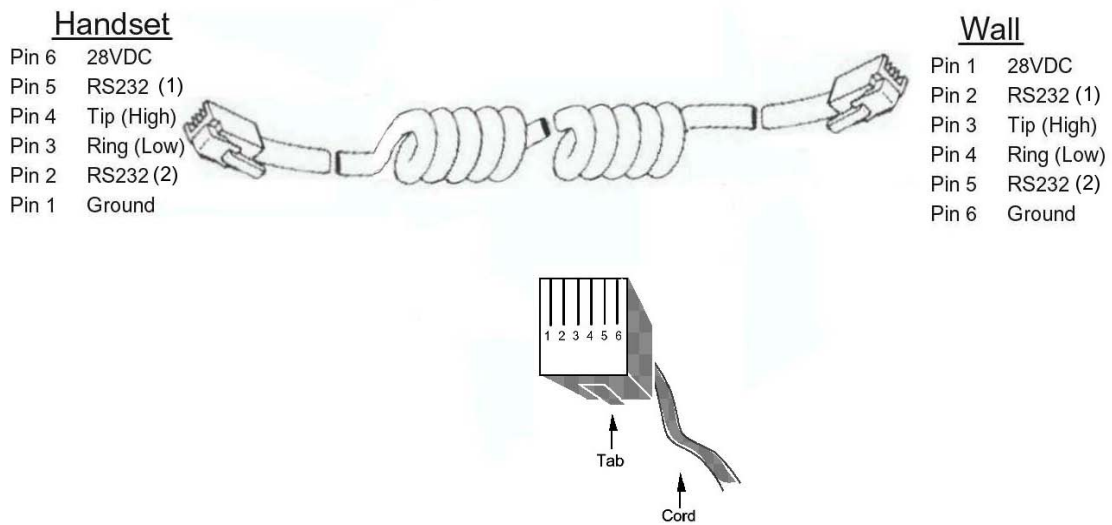
In the event any unit needs to be returned to the factory, contact Deklin Technologies, Inc for a Return Authorization Number prior to returning.

Units that arrive without a Return Authorization Number, or telephone number, will be returned un-repaired. Deklin Technologies, Inc is not responsible for items returned via Mail.

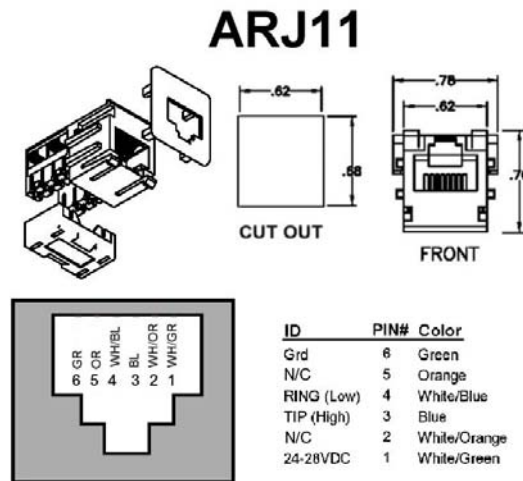
Appendix A

CABLE ASSEMBLIES

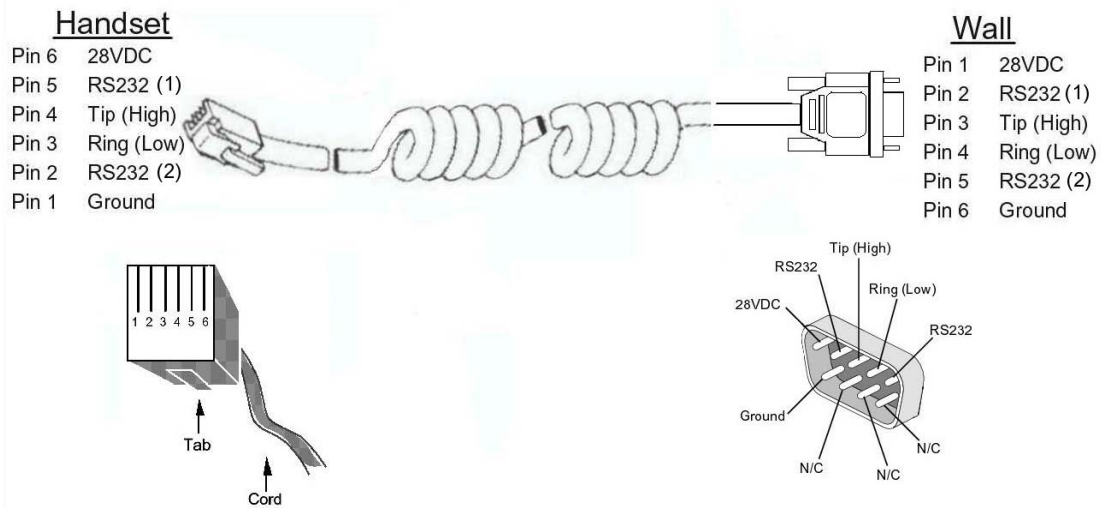
DT100-1XX (w/ RJ11 to RJ11)



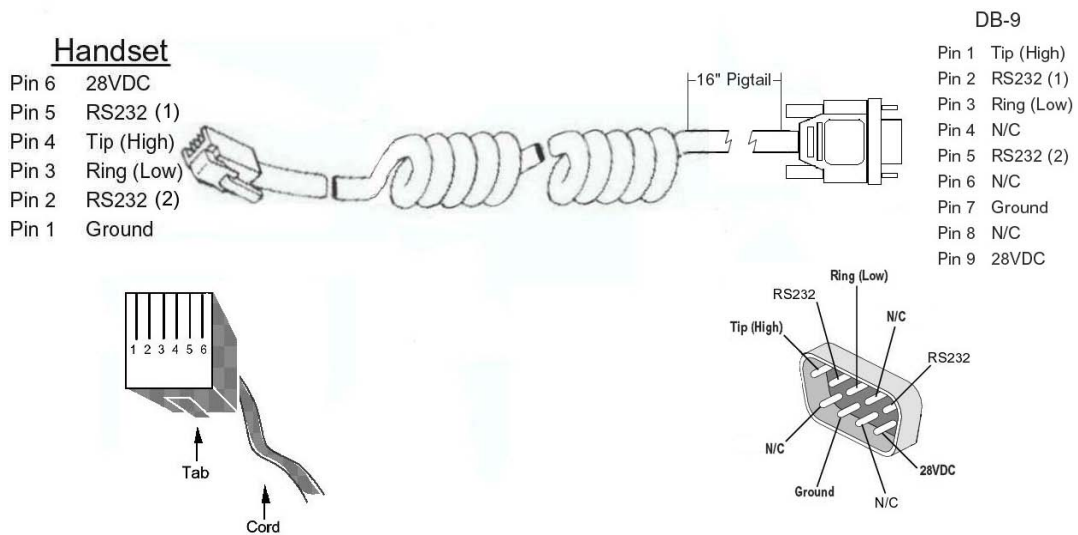
RJ11/6 Mating Connector (ARJ11 View from front)



DT100-2XX (w/ RJ11 to DB9)



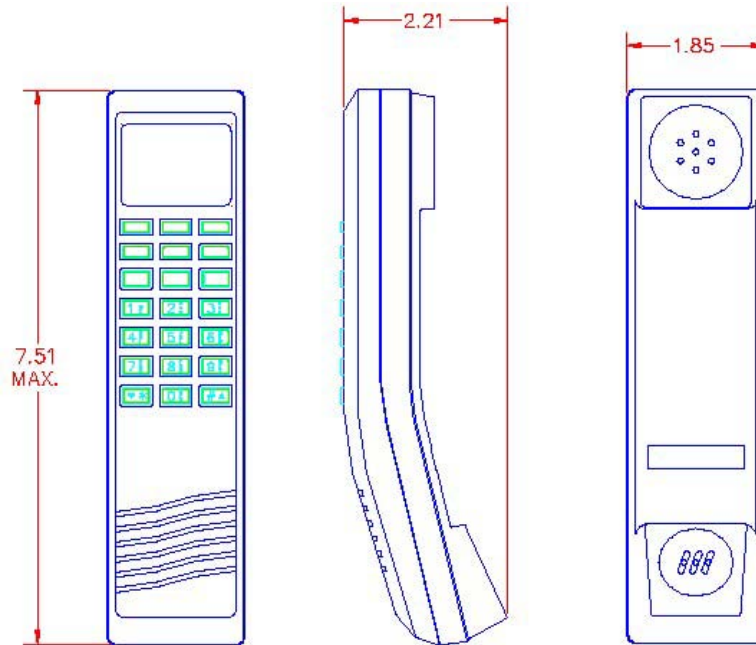
DT100-3XX (w/ RJ11 to DB9)



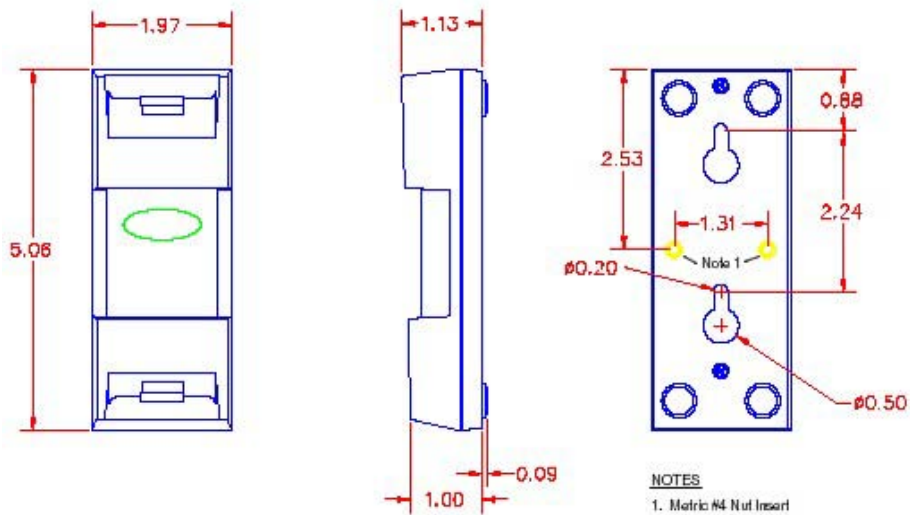
Appendix B

MECHANICAL DRAWINGS

Handset



Locking Base



Cradle

