



A3-06-2824-1 Handheld Programmer



Operations Manual

Y1-03-0272-1 Rev. C

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Revision History

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A	RELEASE	01/06/2014
B	ECO #15605 CORRECT CROSS-REFERENCE ON PAGE 33 FOR INFORMATION ON PRINTING LABELS AND REPORTS.	07/14/2014
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1. Introduction

The Handheld Programmer and beacon reader module, installed in an Aceeca Meazura™ MEZ1500 unit using Palm/Garnet OS™, is designed to program any Artex 406 MHz Emergency Locator Transmitter, as well as decode and display the encoded 406 MHz message. When used as a reader, the programmer can be connected directly to the ELT or monitored "over the air" using the whip antenna, if allowed by local and/or national regulations. The reader will decode any 406 MHz aviation protocol for ELTs.

All instructions contained herein refer to Artex ELTs only. Familiarity with Palm™ devices and/or the Palm/Garnet OS™ software is highly recommended. The words "Meazura™ MEZ1500" are used throughout this document to describe the base Palm™ unit.

NOTE: The Artex Handheld Programmer does not program or decode Personal Locator Beacons (PLBs) or Emergency Position-Indicating Radio Beacons (EPIRBs).

NOTE: When connecting directly to an ELT, to prevent damage to the test unit, be sure to use the attenuator supplied as optional equipment. (Reference subsection 11.2)

1.1 Application

The Handheld Programmer performs the functions of the Artex A3-06-2825 ELT Test Set, with the added capability of programming ELTs. In all instances where existing and/or previous Artex documentation makes reference to a 453-0131 Test Set, SARSAT Beacon Test Set, 453-1000, 453-2000 or A3-06-2825 ELT Test Set, the Artex Handheld Programmer P/N A3-06-2824-1 may be used as a direct substitute.

Follow the general directions for testing the 406 MHz signal, as directed in the applicable Artex ELT manual, using the operational instructions for the Handheld Programmer as outlined in this manual. Screen views depicted in ELT manuals for the previous testers (453-0131 or 453-1000) differ significantly from the Handheld Programmer. Refer to the screen views shown in this manual and the actual display on the Handheld Programmer when using documentation that refers to the 453-0131, 453-1000 or A3-06-2825 tester.

NOTE: The Handheld Programmer uses entirely new and distinct software and will not interface with the previous Artex Programming Software.

NOTE: This manual does not describe other functions of the Meazura™ MEZ1500/Palm™ platform or other Palm™ based applications that may be used. Contact Aceeca at www.aceeca.com for details and user guides.

1.2 Differences

The primary differences between the Sartech test set (ARG 5410 or Artex P/N 453-0131) and the Handheld Programmer are:

- Ability to program the ELT, not just read it (except for P/N A3-06-2825)
- Ease of use

- Rapid signal acquisition and processing
- Display of all ELT 406 MHz message information on one screen
- Position data (when present) displayed in degrees, minutes, seconds
- Use of in-line attenuation not required
- Rechargeable long life battery
- Does not require periodic calibration

The primary differences between the previous Artex Programming Software (510-0406) with Level Shifter (500-0232) and the Artex software used in the Handheld Programmer are:

- Ease of use
- Portability
- Support of additional programming protocols
- Retention of programming information
- Rechargeable long life battery

NOTE: The Artex Handheld Programmer does **not** interface with the previous Artex Programming Software (510-0406) or Level Shifter (500-0232).

1.3 Features

The A3-06-2824-1 Handheld Programmer (Figure 1) has the following features and capabilities:

- Ability to program all Artex 406 MHz ELTs with supported protocols
- All 406 MHz aircraft protocols decoded
- International Protection (IP) 67 standard rating
- Ruggedized case
- Internal database of received messages and programming
- Desktop application for database storage and review
- Long life rechargeable battery
- Built-in Radio Frequency (RF) attenuator

1.4 Functionality

The heart of the Handheld Programmer is the Meazura™ MEZ1500 manufactured by Aceeca International, Ltd of Christchurch, NZ. The Meazura™ MEZ1500 uses the Palm/Garnet OS™ operating system.

Artex has customized operation of the Meazura™ MEZ1500 by utilizing the MZIO™ interface inside the Meazura™ MEZ1500 unit. The "off-the-shelf" Meazura™ MEZ1500 combined with a custom module containing the Artex programming hardware interface comprises the Artex Handheld Programmer.

CAUTION: AS DELIVERED BY ARTEX, THE MZIO™ INTERFACE IS NOT ACCESSIBLE BY THE USER WITHOUT VOIDING THE ARTEX WARRANTY.

NOTE: Aceeca International, Ltd refers to the Meazura™ MEZ1500 as an RDA™, which stands for "Rugged Digital Assistant". This terminology is encountered on the Aceeca web site and in their literature.

Additional operating information can be found in the Aceeca documents MEZ1500 Quick Reference User Guide and MEZ1500 HotSync Configuration Guide available free for download from Aceeca at www.aceeca.com



Figure 1: A3-06-2824-1 Handheld Programmer

2. Hardware

The Handheld Programmer allows communication with any Artex 406 MHz ELT. It inverts and raises the data signal from the ELT to an RS-232 signal level. This enables the ELT to “talk” to the Handheld Programmer for programming and diagnostic purposes.

2.1 Overview

The following subsections provide an overview of the Handheld Programmer hardware.

2.1.1 Connections

The Handheld Programmer is fitted with two connectors (Figure 2):

- A quick connect/disconnect circular connector for connecting the programming cables. This connector is push-on/pull-off type.

CAUTION: DO NOT TWIST THE CONNECTOR.

The built-in lock/release mechanism securely locks the mated connectors, while allowing quick disconnection by simply pulling on the plug release collar. Molded-in grooves prevent hand slippage when pulling on the connector.

Three cables are supplied with the Handheld Programmer to facilitate connection to current Artex 406 MHz ELT models. The cables are:

- 611-0112 – For ME406 Series and ELT 345/1000
- The ELT reader portion of the Handheld Programmer uses a Bayonet Neill-Concelman (BNC) connector to allow connection of a 110-418 antenna or a direct-connect coax cable. See 9.2 Optional Equipment.



Figure 2: Handheld Programmer Connectors (for reference only) Controls

The Meazura™ MEZ1500 is controlled with the buttons shown in Figure 3.

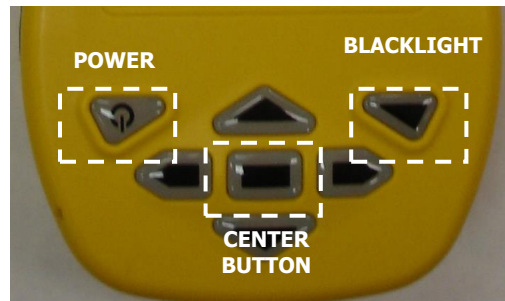


Figure 3: Controls

- The Power button is used to turn the unit off and on and, when pressed with the Backlight button, for reset functions described later in this manual.
- Center button usage is discussed in detail later in the manual. The Arrow keys are used for vertical and horizontal scrolling.
- Operation of Palm/Garnet OS® functions are described in greater detail in the Aceeca Meazura™ MEZ1500 "User's Guide" (www.aceeca.com).

2.2 Battery

The Meazura™ MEZ1500 comes with a custom, rechargeable Lithium Ion battery pack that can only be purchased from Aceeca or Artex.

2.2.1 Warnings

- Do not heat or throw the battery into a fire.
- Do not use or store the battery close to fire or where the ambient temperature may be over 60°C.
- Do not put the battery in your pocket or in a bag together with metal objects. Do not store the battery with such objects.
- Do not short circuit the (+) and (-) terminals with a metal object.
- Do not pierce the battery with a sharp object.
- Do not hit with a hammer, step on, throw, drop, or allow the battery to undergo any strong shock.
- Do not disassemble or modify the battery.
- Do not solder the battery directly to the terminals.
- Do not use a battery that is severely scarred or deformed.

2.2.2 Storage

Unlike NiCad (Nickel Cadmium) batteries or NiMH (Nickel-metal Hydride) batteries, lithium-ion batteries should be charged early and often. Never use battery maintenance software to maintain your battery as this can reduce the life of your battery. Li-ion batteries should be kept cool. They should not be subjected to freezing temperatures. Aging will occur much faster at high temperatures and will reduce the

life of your battery.

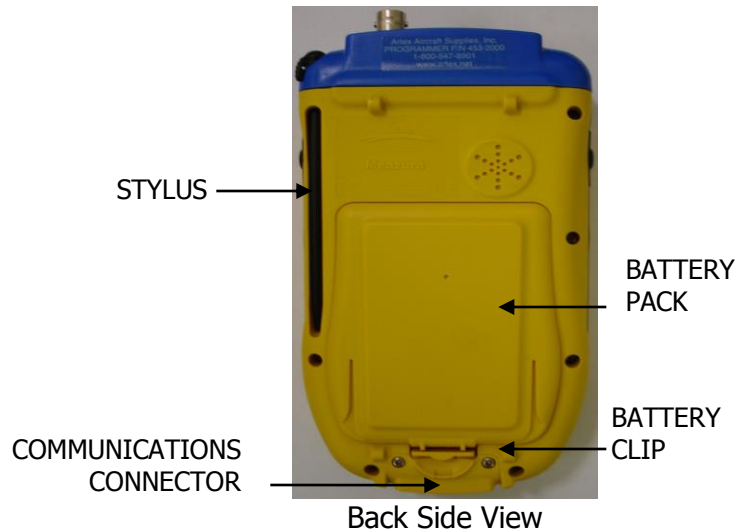
Purchase a Li-Ion battery pack only when you need a replacement, to ensure you receive a fresh battery pack.

- Stop using the battery if it exhibits abnormal heat, odor, color, deformation or is in an abnormal condition.
- Keep away from fire immediately when leakage or foul odor is detected.
- If liquid leaks onto your skin or clothing, immediately wash your skin with clean water for 15 minutes.
- If liquid leaking from the battery gets into your eyes; do not rub your eyes. Immediately wash out your eyes with clean water for 15 minutes and consult a doctor.
- Before using the battery, be sure to thoroughly read the user's manual and cautions on handling.
- For information on installing and removing the battery from equipment, thoroughly read the user's manual for the specific equipment.
- Batteries have life cycles, so if the time that the battery is powering the equipment becomes much shorter than usual, the battery life is at an end. Replace the battery with a new one.
- Immediately remove a battery whose life cycle has expired from the equipment.
- When the battery is discarded, make it non-conducting by applying vinyl tape to the (+) and (-) terminals. The battery must either be discarded as specified by local regulations or put it in the recycling box of a store that is cooperating in the recycling of rechargeable batteries.
- When not using the battery for an extended period, remove it from the equipment and store it in a place with a low humidity and low temperature.

2.2.3 Installation

(Reference Figure 4)

1. Place the battery pack with the top end in first.
2. Push down on the bottom end of the battery ensuring that it is firmly in place.
3. Push the clip firmly towards the bottom of the test set until it clicks into place.
4. Charge the battery in accordance with Subsection 2.2.4.



2.2.4 Charging

The lithium-ion battery can provide between 300-500 charge/discharge cycles. The lithium-ion battery is different from most other rechargeable batteries as charging from a partially charged battery keeps the battery in great condition. Other batteries prefer to be fully discharged each time before recharging. Fully discharging the lithium-ion battery should be avoided wherever possible.

For most users, charging the battery at the end of each day would be the ideal choice. The lithium-ion battery pack typically lasts about 2-3 years, but potentially longer if cared for correctly.

When charging the battery, use a dedicated charger and follow the specified conditions.

- Do not use or charge the battery close to fire or inside a car in which the temperature may exceed 60° C.
- Stop charging the battery if charging is not completed within the specified time.
- Thoroughly read this manual before charging the battery.
- The battery can be charged within a 0° C to 45° C temperature range.
- Use the battery only in the specified equipment.
- Do not charge the battery in a place where static electricity is generated, or let the battery touch something that is statically charged.

Charge the battery as follows:

1. Connect the charger cable to the communications cable (Figure 4).
2. Connect the communications cable to the unit (Figure 4).
3. Charge for a minimum of 2 hours, but no more than 3 hours.

CAUTION: DO NOT OVERCHARGE.

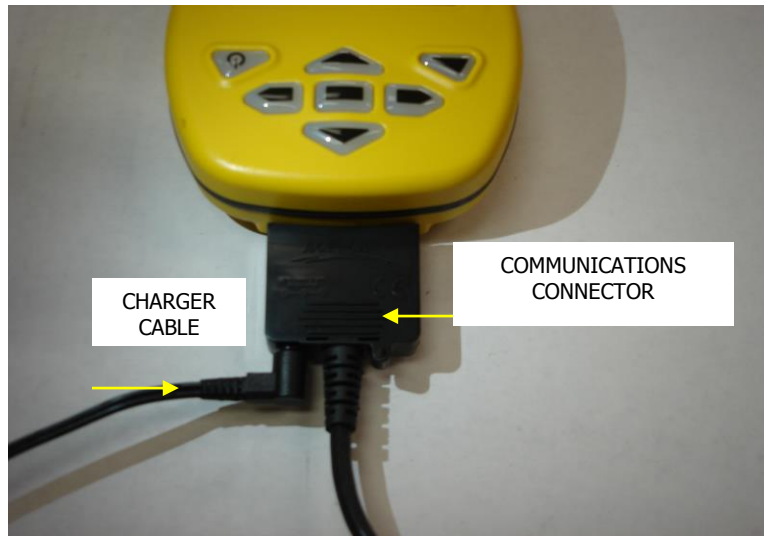


Figure 4: Charging Connection

2.2.5 Recycle and Disposal Methods

Lithium ion batteries, like all rechargeable batteries, are recyclable and should be recycled.

CAUTION: IF A BATTERY IS DAMAGED, OR IF IT NO LONGER HOLDS A CHARGE, DISPOSE OF IT PROMPTLY AND PROPERLY. DO NOT DISPOSE OF IT ALONG WITH GENERAL WASTE. CALL YOUR LOCAL WASTE DISPOSAL AGENCY OR ENVIRONMENTAL AGENCY FOR ADVICE ON BATTERY DISPOSAL.

2.3 Unit Initialization

1. Turn the unit on by pressing the power button.
2. Follow the on-screen instructions for initialization and setting the date and time.

NOTE: The initialization routine is very important to ensure proper function of the stylus.

3. Refer to the Meazura™ MEZ1500 User's Guide for greater details on initialization.

3. Palm™ Desktop Software

To obtain the Palm™ Desktop Software, follow these instructions:

1. Open desktop browser and go to www.aceeca.com.
2. Select options in the following order:
3. Unzip file folder **SFW_WINX32_PALM-DESKTOP_V4.1_20110322.ZIP**.
 - **Support**
 - **Downloads**
 - **Desktop Software**
 - **Palm/Garnet Desktop for Windows PC**
 - **Download Now**
4. Open file folder **Palm Desktop Installation**.
5. Double click **setup.exe** and follow prompts.
 - **Install Shield Wizard** will open. Select **Next**.
 - Read the **SOFTWARE LICENSE AGREEMENT**.
 - Select **Existing User** or **Create New User**.
 - When asked about **Connections**, select **USB**.
 - Select **Install**, then **Finish**.
6. Open Palm Desktop.


NOTE: The Palm desktop software works most amiably if a single Meazura™ (Palm) device is associated with a single computer. It is possible to use more than one Meazura™ device with the same computer, but attention must be given to selection of appropriate user names when transferring data to and from different units.

The Palm™ software identifies the User Name when the Palm™ Desktop application is installed on a PC. Only one User Name can be used with the Artex applications.

3.1 Hot Sync

Once installed and configured, the Palm™ Desktop software allows installation of additional software applications, as well as performing the hot sync function to transfer data to and from the Handheld Programmer (Meazura™ MEZ1500). ACR/ARTEX provides a USB cable (452-0103) to connect to a PC.

The hot sync function is accessed by tapping the HotSync icon on the main Meazura screen as shown in Figure 5. The hot sync operation is described in greater detail in the Aceeca "HotSync Guide" available free for download at www.aceeca.com.

1. Connect tester to PC using Sync Cable. Windows may not recognize the device and will require a driver.
2. Open desktop browser and go to www.aceeca.com.
3. Select options in the following order:
 - **Support**
 - **Downloads**
 - **Drivers**
 - **64 bit USB Windows Driver for Palm/Garnet OS or 32 bit USB Windows Driver for Palm/Garnet OS.**
 - **Download Now**
4. Unzip file folder **DVR_WINX64_USB_GN4_GN5_20110322.ZIP**.
 - Follow instructions found in **64 bit USB Driver Installation Guide 20110607**.
5. Ensure Palm Desktop is open.
6. Select the **Hotsync** icon on tester. Select Hotsync icon  on second screen.
7. The tester will make a series of beeps.
 - Select **USER** on PC, then **OK**.
 - **Hotsync** is now complete.

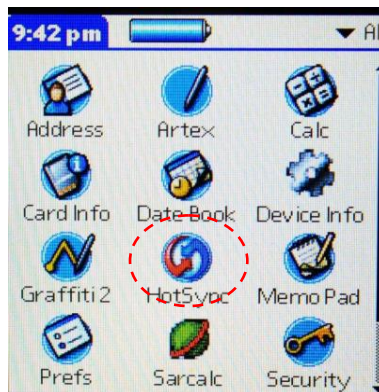


Figure 5: Hot Sync Icon

4. Artex Programming Software

The following subsections describe the functionality and operation of the Artex programming software.

4.1 Overview

The Artex software is a custom package designed to simplify reading and programming data to and from Artex ELTs. The Artex software builds a custom 406 MHz hex message for the user from simple data input provided by the user. This data is then programmed into the ELT. The Artex software allows the user to print the 406 MHz hex message and its decoded breakdown for record keeping.

When shipped, the "Artex" and "Sarcalc" software will need to be loaded from the website after training is completed and the agreement signed.

To open the Artex software:

1. Tap the "Artex" icon on the home screen.
2. The Artex main screen is shown in Figure 6.

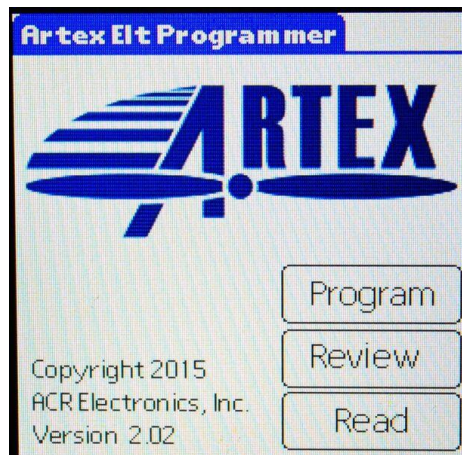


Figure 6: Artex Software Main Screen

4.2 Selecting Preferences

The Artex software has several preferences that may be selected prior to use.

1. Tap the upper left-hand corner of the Artex main screen (Artex ELT Programmer header) to get the Screens drop-down menu.

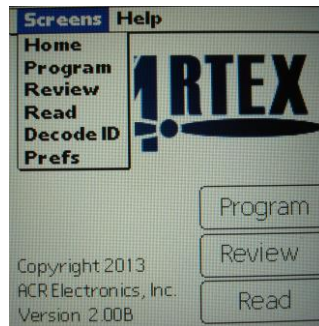


Figure 7: Screens Drop-Down Menu

2. Tap "Prefs" on the drop-down menu and select the following preferences, as applicable:
 - 24-Bit Address Format – Select either Octal or Hex
 - Clear Database – Erases all saved programming messages
3. Tap "Done" when finished to return to main menu.

4.3 Programmer Database

The Handheld Programmer retains up to 1000 records of programmed ELTs.

NOTE: The programming operation must be successfully completed in order for the record to be stored in the database.

- The database may be deleted at any time by accessing the "Prefs" drop-down menu and selecting "Clear Database" (Subsection 4.2).
- Stored records may be viewed by tapping "Review" on the main screen (Subsection 4.1).
- Stored records may also be programmed into an ELT following the instructions given herein.
- The stored programming may also be viewed using Sarcalc Desktop V3.01 See Subsection 5.2 for a detailed description of this function.

4.4 ELT Programming

IMPORTANT: When working with any ELT, keep a 121.5 MHz receiver nearby, on, and at adequate volume. This is necessary to catch and deactivate an ELT that may accidentally be left on.

The ELT being programmed must properly perform all operations described in this set of instructions. An ELT that fails any portion must be rejected and repaired.

1. For ME406, set the baud rate to 9600 ELT.
2. For an ELT 345/1000, programming will remain the same as ME406, except that there are two baud rates to choose from:
 - 9600 for default or A/B protocol (aviation out)
 - 4800 for National Marine Electronics Association (NMEA) Protocol
 - The ME406 can be programmed without a battery installed. The ELT 345/1000

must have a battery installed. If a 406 MHz burst takes place during programming, there is a possibility that the programming will fail.

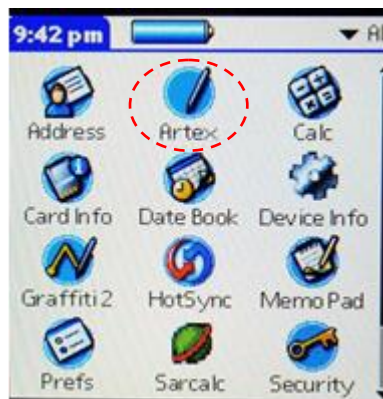
3. Plug the programming cable into the ELT
4. Connect the cable to the Handheld Programmer.

Table 1 provides data for programming ELTs with certain protocol types. This information is not used in all protocol types; hence, programming software may not ask for this information.

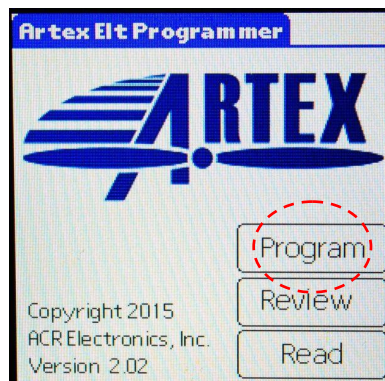
The Artex Programming Software divides the Models based on baud rates into the following families:

- 9600 baud ELT
- ELT 345/1000

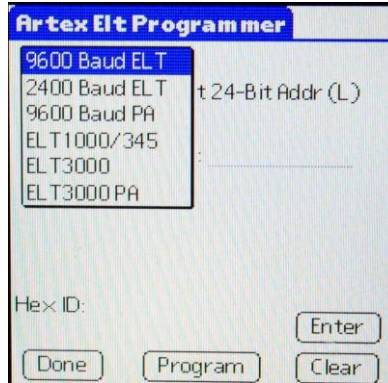
To program, select "Artex" from the Main Screen and then "Program" from the Artex Software Main Screen.



Artex Main Screen



ELT 1000 will Display Baud Rates



Baud Rate Screen Drop-Down Menu



ELT 1000 Baud Rate Screen Drop-Down Menu

Refer to Table 1 as instructed to complete programming sequences. For Table 1, protocols are defined as follows:

Std Location = Aircraft 24 Bit Address (Long) and ELT Serial (Long)

Aviation User = Tail Number (Short)

Serial User = Aircraft 24 Bit Address (Short), Aircraft 24 Bit / National (Short), ELT / COSPAS (Short) and Aircraft Operator (Short)

National Location = ELT Serial (Long)

User Location = Aviation User / Tail Number / Location (Long)

Table 1: ELT Data

ELT Part Number	Description	Baud Rate	COSPAS-SARSAT #	Programmed Serial #	Supported Protocols	Model #	Sequence # Range	Production # Range
ME406 SERIES								
453-6603	ME406	9600	See Note 2	See Note 2	Aviation User Serial User	8	0-16383	0-9
453-6604	ME406HM	9600	See Note 2	See Note 2	Aviation User Serial User	8	0-16383	0-9
453-6611	ME406P	9600	See Note 2	See Note 2	Aviation User Serial User	8	0-16383	0-9
ELT Series								
A3-06-2880	ELT 345	4800 9600	267	Same as label (8-digit)	Std Location Aviation User Serial User User Location National Location	10	0-16383	0-9
A3-06-2749-1	ELT 1000	4800 9600	251	Same as label (8-digit)	Std Location Aviation User Serial User User Location National Location	9	0-16383	0-9

NOTE 1: When entering data into the programming software, most fields not filled with the maximum allowable number of characters will fill the unused portion with zeros to the left of the data entered. Exceptions to this are noted in the appropriate subsections below.

NOTE 2: The COSPAS-SARSAT 15-digit ELT Identifier allows manufacturers 16,383 possible serial numbers. Artex has reached that limit with the ME Series and ELT 345/1000. For ELTs that pass serial number 16,383 and move on to a 3-digit prefix, different COSPAS-SARSAT numbers will be assigned to that ELT. See Table 2.

Table 2: ELT Serial Number Continuations

ELT Series	COSPAS-SARSAT #	Manufacturing Serial #	ELT Programmed Serial #
ME	152	00001 to 16383	00001 to 16383
	188	188-00001 to 188-16383	00001 to 16383
	197	197-00001 to 197-16383	00001 to 16383
	242	242-00001 to 242-16383	00001 to 16383
345	267	267-00001 to 267-16383	00001 to 16383
	TBD	TBD-00001 to TBD-16383	00001 to 16383
1000	251	251-00001 to 251-16383	00001 to 16383
	TBD	TBD-00001 to TBD-16383	00001 to 16383

Because a different COSPAS-SARSAT # is used when the serial numbers reset after 16,383, the 15-digit ELT Identifier remains unique.

4.5 Country Code Database

The Handheld Programmer is loaded at Artex with a Country Code Database to be used with the Artex software. This database contains all listed countries assigned a three-digit Maritime Identification Digit (MID) by the International Telecommunications Union (ITU) and International Civil Aviation Organization (ICAO).

The database may be sorted either in alphabetical order (by country name) or in numerical order (by country code). The complete list can be seen by scrolling. Use your stylus and the scroll bar to the right of the screen. See examples in Figure 14.



Figure 14: Alphabetical and Numerical Sorting Examples

For country codes not listed, "Manual Entry" may be used.

NOTE: Many countries have multiple country codes assigned by the International Telecommunications Union (ITU). Artex has verified the required or preferred country code for as many countries as possible.

The list contained in the Handheld Programmer represents our best efforts and lists only one option for each country listed. If a conflict arises with your national authority, please contact Artex so that we may update our information.

4.6 Protocols

The desired programming protocol must be selected. Consult with local aviation authorities for possible programming protocol exceptions/additional rules that may apply for particular countries.

In the protocol field, select the type of programming desired by tapping on the drop-down menu to show the protocol options. Refer to Table 1 to determine which ELTs are "Short Message" ELTs and which are "Long Message" ELTs. Short message ELTs accept short message protocol programming only. Long message ELTs may use either long message or short message protocol programming. The protocols are:

- Aviation User / Tail Number (Short)
- Serial User / ELT / COSPAS (Short)
- Serial User / Aircraft 24-Bit Addr (Short)
- Serial User / Aircraft 24-Bit/Ntl (Short) Not available for use.

- Serial User / Aircraft Operator Designator (Short)
- Serial User / Aircraft 24-Bit Loc (Long) **ELT 345/ELT 1000 only**
- Serial User / ELT / Cospas Loc (Long) **ELT 345/ELT 1000 only**
- Serial User / Aircraft Operator Loc (Long) **ELT 345/ELT 1000 only**
- Aviation User / Tail Number / Location (Long)
- Std Location / Aircraft 24-Bit Address (Long)
- Std Location / ELT Serial (Long)
- Ntl Location / ELT Serial (Long)

NOTE 1: For the ELT 345 and ELT 1000, the baud rate must be set manually.

- In the top right corner, select "Options" once. It will change to "Get Options".
- Select "Get Options"; quickly place ELT switch in test mode and release. (*Quickly is <1 second).
- If successful, the programmer will read the currently programmed baud rate and show 4800 or 9600. If the baud rate is correct, select "Return". If not, change the baud rate. Momentarily hold ELT in test mode; quickly tap on "Set", and release. Programmer should state "Successfully programmed speed". Select "Return".
- If failed, programmer will state "Failed to read GPS speed". If failed, select "Return" and start again at the beginning of NOTE 1.

NOTE 2: ME406 will only accept short message protocols.

4.6.1 Aviation User / Tail Number (Short)

NOTE: For the ELT 345/1000, the baud rate must be set manually.

- In the top right corner, select "Options" once. It will change to "Get Options".
 - Momentarily hold ELT in test mode; quickly tap on "Get Options", and release.
 - If successful, the programmer will read the currently programmed baud rate and show 4800 or 9600. If the baud rate is correct, select "Return". If not, change the baud rate. Momentarily hold ELT in test mode; quickly tap on "Set", and release. Programmer should state "Successfully programmed speed". Select "Return".
 - If failed, programmer will state "Failed to read GPS speed". If failed, select "Return" and start again at the beginning of NOTE 1 on page 18.
1. Select ELT 9600 Baud rate or ELT 345/1000.
 2. Select Protocol.
 3. Select Country Code.
 4. Go to Graffiti screen and tap on letter/numbers.
 5. Enter the tail number of the aircraft, which is up to seven alphanumeric characters.
 - Acceptable characters are letters (A-Z), numbers (0-9), a hyphen (-), a

- space (), and a slash (/).
 - If fewer characters are entered, that will be reflected in the final hex code.
 - Spaces are automatically filled in on the left of the data.
6. Tap "Done" when finished.
 7. Tap "ENTER" button on Program screen. The 24-digit hex code is shown at the bottom of the screen, with the abbreviated 15-digit hex code below it.
 8. **For ELT 345s or ELT 1000s only:** tap "Program"; quickly place ELT switch in the test mode and release. (Quickly is <1 second).
 9. Tap the "Program" button to program the ELT.
 10. Ensure that screen shows "Programming Successful".
 11. Verify ELT using "Sarcalc", as described in Subsection 5.2.

4.6.2 Serial User / ELT / COSPAS (Short)

1. Select ELT 9600 Baud rate or ELT 345/1000.
2. Select Protocol.
3. Select Country Code.
4. Go to Graffiti screen and tap on letter/numbers.
5. Enter the serial number, which matches the serial number seen on the product label, or a number that was designated for use by the competent national authority.
6. Enter the COSPAS-SARSAT TAC number.
7. Tap "Done" when finished.
8. Tap "ENTER" button on Program screen. The 24-digit hex code is shown at the bottom of the screen, with the abbreviated 15-digit hex code below it.
9. **For ELT 345s or ELT 1000s only:** tap "Program"; quickly place ELT switch in the test mode and release. (Quickly is <1 second).
10. Tap the "Program" button to program the ELT.
11. Ensure that screen shows "Programming Successful".
12. Verify ELT using "Sarcalc, as described in Subsection 5.2.

4.6.3 Serial User / Aircraft 24-Bit Addr (Short)

1. Select ELT 9600 Baud rate or ELT 345/1000.
2. Select Protocol.

NOTE: Country Code will be blank. It will automatically be selected by entry of a valid 24-Bit Aircraft Address.
3. Select the desired number system (Octal: 8 digits from 0-7 or Hex: 6 digits from 0-9 or A-F) to match the format of the 24-bit address provided.

4. Go to Graffiti screen and tap on letter/numbers.
5. Enter the 24-bit address.
NOTE: The 3-digit country code is automatically determined from the country data encoded in the 24-bit address.
6. Enter the COSPAS-SARSAT Type Allocation Code number.
7. Enter number of additional ELTs.
 - This particular number field represents the number of additional ELTs on board an aircraft, beyond the primary ELT.
 - Enter "0" if there is only one ELT on-board, and "1", "2", etc., corresponding to the number of additional ELTs installed on the aircraft.
8. Tap "Done" when finished.
9. Tap "ENTER" button on Program screen. The 24-digit hex code is shown at the bottom of the screen, with the abbreviated 15-digit hex code below it.
10. **For ELT 345s or ELT 1000s only:** tap "Program"; quickly place ELT switch in the test mode and release. (Quickly is <1 second).
11. Tap the "Program" button to program the ELT.
12. Ensure that screen shows "Programming Successful".
13. Verify ELT using "Sarcalc", as described in Subsection 5.2.

4.6.4 Serial User / Aircraft 24-Bit Addr/Ntl (Short)

1. Select ELT 9600 Baud rate or ELT 345/1000.
2. Select Protocol.
NOTE: Country Code will be blank. It will automatically be selected by entry of a valid 24-Bit Aircraft Address.
3. Select the desired number system (Octal: 8 digits from 0-7 or Hex: 6 digits from 0-9 or A-F) to match the format of the 24-bit address provided.
4. Go to Graffiti screen and tap on letter/numbers
5. Enter the 24-bit address.
NOTE: The 3-digit country code is automatically determined from the country data encoded in the 24-bit address.
6. Enter the National Use designated number.
7. Enter number of additional ELTs.
 - This particular number field represents the number of additional ELTs on board an aircraft, beyond the primary ELT.
 - Enter "0" if there is only one ELT on-board, and "1", "2", etc., corresponding to the number of additional ELTs installed on the aircraft.
8. Tap "Done" when finished.

9. Tap "ENTER" button on Program screen. The 24-digit hex code is shown at the bottom of the screen, with the abbreviated 15-digit hex code below it.
10. **For ELT 345s or ELT 1000s only:** tap "Program"; quickly place ELT switch in the test mode and release. (Quickly is <1 second).
11. Tap the "Program" button to program the ELT.
12. Ensure that screen shows "Programming Successful".
13. Verify ELT using "Sarcalc", as described in Subsection 5.2.

4.6.5 Serial User / Aircraft Operator Designator (Short)

1. Select ELT 9600 Baud rate or ELT 345/1000.
2. Select Protocol.
3. Select Country Code.
4. Go to Graffiti screen and tap on letter/numbers.
5. Enter Aircraft Operator Designator (three digit assigned code)
6. Enter the COSPAS-SARSAT TAC number.
7. Enter designated serial number (between 0 and 4095).
8. Tap "Done" when finished.
9. Tap "ENTER" button on Program screen. The 24-digit hex code is shown at the bottom of the screen, with the abbreviated 15-digit hex code below it.
10. **For ELT 345s or ELT 1000s only:** tap "Program"; quickly place ELT switch in the test mode and release. (Quickly is <1 second).
11. Tap the "Program" button to program the ELT.
12. Ensure that screen shows "Programming Successful".
13. Verify ELT using "Sarcalc", as described in Subsection 5.2.

4.6.6 Serial User / Aircraft 24-Bit Loc (Long) ****ELT 345/ELT 1000 only****

1. Select ELT baud rate.
2. For the ELT 345 and ELT 1000, refer to NOTE: 1 on page 19 before continuing.
3. Select Protocol.
NOTE: Country Code will be blank. It will automatically be selected by entry of a valid 24-bit Aircraft Address.
4. Select a desired number system (Octal: 8 digits for 0-7 of Hex 6 digits from 0-9 or A-F) to match the format of the 24-bit address provided.
5. Go to the Graffiti screen and tap on letter/numbers.
6. Enter the 24-bit address.
NOTE: The 3-digit country code is automatically determined from the country Data encoded in the 24-bit address.
7. Enter the COSPAS-SARSAT TAC number.

8. Enter number of additional ELTs.
 - This particular number field represents the number of additional ELTs on board an aircraft, beyond the primary ELT.
 - Enter "0" if there is only one ELT on-board, and "1", "2", etc., corresponding to the number of additional ELTs installed on the aircraft.
9. Tap "Done" when finished.
10. Tap "Enter" button on Program screen. The 24-digit hex code is shown at the bottom of the screen, with the abbreviated 15-digit hex code below it.
11. **For ELT 345s or ELT 1000s only:** tap "Program"; quickly place ELT switch in the test mode and release. (Quickly is <1 second).
12. Tap the "Program" button to program the ELT.
13. Ensure the screen shows "Programming Successful".
14. Verify ELT using "Sarcalc", as described in Subsection 5.2.

4.6.7 Serial User / ELT / COSPAS Loc (Long) **ELT 345/ELT 1000 only**

1. Select ELT baud rate.
2. For the ELT 345 and ELT 1000, refer to NOTE: 1 on page 18 before continuing.
3. Select Protocol.
4. Select Country Code.
5. Go to Graffiti screen and tap on letter/numbers.
6. Enter the serial number, which matches the serial number seen on the product label, or a number that was designated for use by the competent national authority.
7. Enter the COSPAS-SARSAT TAC number.
8. Tap "Done" when finished.
9. Tap "ENTER" button on Program screen. The 32-digit hex code is shown at the bottom of the screen, with the abbreviated 15-digit hex code below it.
10. **For ELT 345s or ELT 1000s only:** tap "Program"; quickly place ELT switch in the test mode and release. (Quickly is <1 second).
11. Tap the "Program" button to program the ELT.
12. Ensure that screen shows "Programming Successful".
13. Verify ELT using "Sarcalc", as described in Subsection 5.2.

4.6.8 Serial User / Aircraft Operator Loc (Long) **ELT 345/ELT 1000 only**

1. Select ELT baud rate.
2. For the ELT 345 and ELT 1000, refer to NOTE: 1 on page 18 before continuing.
3. Select Protocol.
4. Select Country Code.
5. Go to Graffiti screen and tap on letter/numbers.
6. Enter Aircraft Operator Designator – (three digit assigned code)
7. Enter the COSPAS-SARSAT TAC number.
8. Enter designated serial number (between 0 and 4095).
9. Tap "Done" when finished.
10. Tap "ENTER" button on Program screen. The 24-digit hex code is shown at the bottom of the screen, with the abbreviated 15-digit hex code below it.
11. **For ELT 345s or ELT 1000s only:** tap "Program"; quickly place ELT switch in the test mode and release. (Quickly is <1 second).
12. Tap the "Program" button to program the ELT.
13. Ensure that screen shows "Programming Successful".
14. Verify ELT using "Sarcalc", as described in Subsection 5.2.

4.6.9 Aviation User / Tail Number / Location (Long)

1. Select ELT 9600 Baud rate or ELT 345/1000.
2. Select Protocol.
3. Select Country Code.
4. Go to Graffiti Screen and tap on letter/numbers
5. Enter the tail number of the aircraft, which is up to seven alphanumeric characters.
6. Acceptable characters are letters (A-Z), numbers (0-9), a hyphen (-), a space (), and a slash (/).
7. If fewer characters are entered, that will be reflected in the final hex code.
8. Spaces are filled in on the left of the data.
9. Tap "Done" when finished.
10. Tap "ENTER" button on Program screen. The 32-digit hex code is shown at the bottom of the screen, with the abbreviated 15-digit hex code below it.
11. **For ELT 345s or ELT 1000s only:** tap "Program"; quickly place ELT switch in the test mode and release. (Quickly is <1 second).
12. Tap the "Program" button to program the ELT.

13. Ensure that screen shows "Programming Successful".
14. Verify ELT using "Sarcalc", as described in Subsection 5.2.

4.6.10 Std Location / Aircraft 24-Bit Address (Long)

1. Select ELT 9600 Baud rate or ELT 345/1000.
2. Select Protocol.
3. Select the desired number system (Octal: 8 digits from 0-7 or Hex: 6 digits from 0-9 or A-F) to match the format of the 24-bit address provided.
4. Enter the 24-bit address.
5. You may then click the other number system selection to see the converted value (Octal or Hex).

NOTE: The 3-digit country code is automatically determined from the country data encoded in the 24-bit address.

6. Go to Graffiti screen and tap on letter/numbers.
7. Enter aircraft 24-bit address.
8. Tap "Done" when finished.
9. Tap "ENTER" button on Program screen. The 32-digit hex code is shown at the bottom of the screen, with the abbreviated 15-digit hex code below it.
10. Tap the "Program" button to program the ELT.
11. Ensure that screen shows "Programming Successful".
12. Verify ELT using "Sarcalc", as described in Subsection 5.2.

4.6.11 Std Location / ELT Serial (Long)

1. Select ELT 9600 Baud rate or ELT 345/1000.
2. Select Protocol.
3. Select Country Code.
4. Go to Graffiti screen and tap on letter/numbers.
5. Enter the serial number, which matches the serial number seen on the product label, or a number that was designated for use by the competent national authority.
6. Enter the COSPAS-SARSAT TAC number.
7. Tap "Done" when finished.
8. Tap "ENTER" button on Program screen. The 32-digit hex code is shown at the bottom of the screen, with the abbreviated 15-digit hex code below it.
9. Tap the "Program" button to program the ELT.
10. Ensure that screen shows "Programming Successful".

11. Verify ELT using "Sarcalc", as described in Subsection 5.2.

4.6.12 National Location / ELT Serial (Long)

1. Select ELT 9600 Baud rate or ELT 345/1000.
2. Select Protocol.
3. Select Country Code.
4. Go to Graffiti screen and tap on letter/numbers.
5. Enter the serial number, which matches the serial number seen on the product label, or a number that was designated for use by the competent national authority.
6. Tap "Done" when finished.
7. Tap "ENTER" button on Program screen. The 32-digit hex code is shown at the bottom of the screen, with the abbreviated 15-digit hex code below it.
8. Tap the "Program" button to program the ELT.
9. Ensure that screen shows "Programming Successful".
10. Verify ELT using "Sarcalc", as described in Subsection 5.2.

4.7 Programming a Different Country Code for use with a Specific 24-Bit Address

1. Follow the instructions for the 24-bit address method being used (short or long). Refer to Subsection 0, 0, or 0, as appropriate.
2. After using "Enter" button function, go to the top of the screen and tap on "Artex ELT Programmer bar".
3. Tap on "Options".
4. Select "Defaults".
5. Tap in "Country" entry space and go to numbers selection on Graffiti screen.
6. Enter required country code.
7. Tap "Done" when finished.
8. Tap "Return" on the Override default screen.
9. Tap "Program" on the Programmer screen.
10. After programming successfully, launch Sarcalc and verify programmed information, as described in Subsection 5.2.

4.8 Programming Conclusion

After programming an ELT with any of the protocols listed in Subsection 4.6, the "Programming Successful" screen will be displayed.

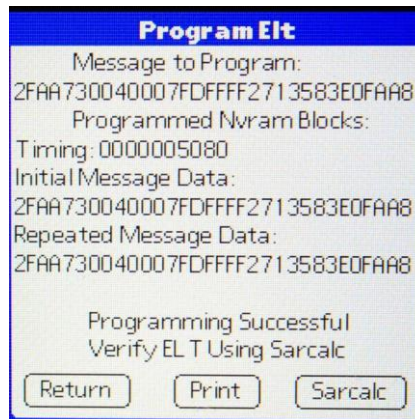


Figure 8: Programming Successful Screen

Proceed to Section 5, Programming Verification. The programming may be printed now, but it is recommended the ELT be verified first.

The Artex programming software provides the means to determine battery usage and total battery activations.

NOTE: The software routine logs battery life in 30-second increments for the ME406. A minimum of 30 seconds is added to the battery usage total each time the ELT is activated and de-activated. If the ELT is left activated beyond the first 30 seconds, additional time is added in 30-second increments.

ELT 345/1000

Battery usage is given in hours and minutes, plus total number of activations (count) is also provided. To read the battery data:

1. Tap the Artex icon on the Home screen.
2. Tap the upper left-hand corner of the Artex main screen (Artex ELT Programmer header) to get the Screens drop-down menu.
3. Select "Read" in the drop-down menu.
4. Tap the "Down" arrow.
5. Momentarily hold ELT in test mode; quickly tap "set", read "batt", and release.

ELT ME406

1. Tap the Artex icon on the Home screen.
2. Tap the upper left-hand corner of the Artex main screen (Artex ELT Programmer header) to get the Screens drop-down menu.
3. Select "Read" in the drop-down menu.
4. Tap the "Down" arrow, and read "batt".

5. Programming Verification

Artex requires that a verification test as described in the following subsections be performed. All testing should be done inside some type of metal enclosure that will attenuate any radio frequency emissions. It is possible for the 406 MHz transmission to reach a SAR satellite if the signal is not attenuated or shielded.

5.1 ELT Testing Precautions

CAUTION: PERFORM ALL ELT TESTING IN ACCORDANCE WITH LOCAL OR NATIONAL REGULATIONS. IF REQUIRED, TERMINATE ELT INTO A 50-OHM LOAD OR PERFORM TESTING IN AN RF SHIELDED ENVIRONMENT.

ELTS WITH 121.5/243 MHZ TRANSMITTERS MUST BE TESTED WITHIN 5 MINUTES AFTER THE HOUR (US/CANADA). LIVE TRANSMISSIONS OF THE 406 MHZ SIGNAL MUST BE LIMITED TO ELTS THAT TRANSMIT A "SELF-TEST" USING TEST FRAME SYNCHRONIZATION. EXTENDED TESTING OF THE 406 MHZ ELT SIGNAL MUST BE PERFORMED DIRECTLY CONNECTED TO THE PROGRAMMER WITH PROPER SIGNAL ATTENUATION AND/OR RF SHIELDING. SEE "OPTIONAL EQUIPMENT".

5.2 ELT Reader Function (Sarcalc)

The ELT Reader function of the Handheld Programmer uses a separate software program called "Sarcalc". This software must be opened and run separately from the Artex Programming software.

NOTE: The ELT read function does not detect or verify the presence of 121.5 MHz; this is a 406 MHz reader only.

1. Select the Sarcalc program by tapping the "Sarcalc" icon (Figure 9).

NOTE: The exact location of the Sarcalc icon may vary depending on what other programs or applications are loaded on the Handheld Programmer.

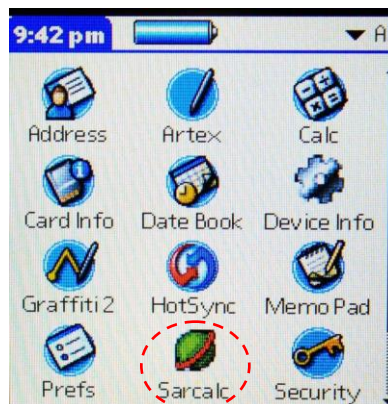


Figure 9: Sarcalc Icon

2. Connect the reader to the ELT directly with a coax cable (no attenuator required for test set) or connect the whip antenna. The reader is now ready to receive and

decode the message.

3. Select "Measure" from "Avionic Tools" screen, as shown in Figure 10.



Figure 10: Avionic Tools Screen

4. The screen will display "Waiting for Data", as shown in Figure 11, until a valid ELT transmission is received.

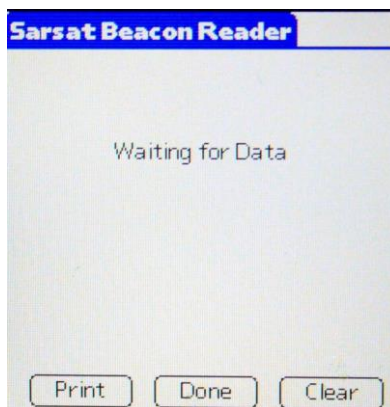


Figure 11: Waiting for Data Screen

5. Perform a "Self-Test" of the ELT by turning the ELT local or remote switch from "OFF/ARMED" to "ON" for no more than 3 sweeps of the 121.5/243 MHz signal and then switch back to "OFF/ARMED". For the ELT 345/1000, place the ELT local switch to the "TEST" position.
6. If the received data is invalid, then "Message Error!" will be displayed. This may indicate excessive distance from the ELT antenna if testing externally.
 - 0-30 feet distance from the ELT antenna is recommended, although distances up to 50 feet are possible (as allowed).
 - The ELT internal 406 MHz oscillator may need to warm up.
7. Repeat the ELT test if necessary.
8. Select "Done" to save the message and proceed. A new message will not over-write the old message. The message will be automatically saved to a database for later review.

9. Press "Clear" or the right arrow key to clear screen for next message.

5.3 Message Display

Once a valid message is received, all encoded data is displayed on the screen as shown in Figure 12.

NOTE: The message will remain on-screen until the "Clear" button is selected.

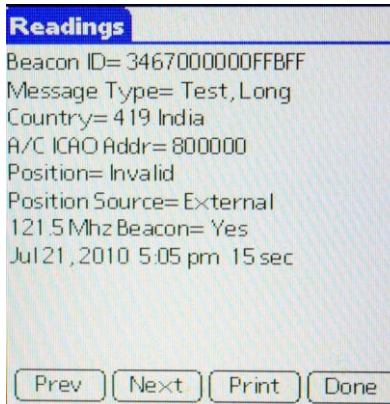


Figure 12: Valid Standard Location Message

If the ELT is encoded with the 24-bit ICAO address and country of registry is USA, then the ICAO address will also be decoded to an 'N' number registration, as shown in Figure 13.

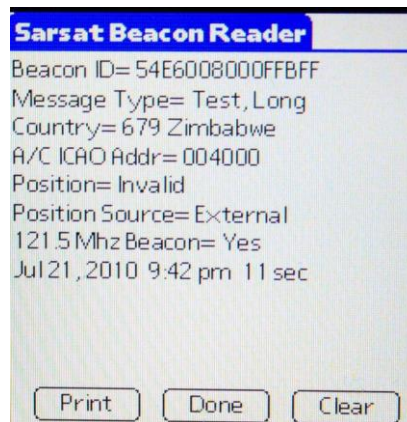


Figure 13: Valid 24-Bit Address Message

Referring to Figure 12 and Figure 13:

- The first line contains the 15-digit Hex ELT ID. This ID is used to register the ELT with the national authorities (National Oceanic Atmospheric Administration (NOAA) in USA).
- The second line indicates the message type: Test or Normal, and Short or Long.
- The third line displays the country of registry code and the country.
- The fourth line contains the ELT identifying data. The ELT identifying data will consist of one of the following: serial number, aircraft 24-bit ICAO address, aircraft registration number.
- If the ELT includes a navigation function, position data will be displayed in

latitude/longitude.

- Position source will be displayed and also any auxiliary locating device (121.5 MHz ELT).
- The received 406 MHz frequency is not displayed.
- The message is time stamped.

5.4 Reader Database

All recorded messages are automatically saved to a database (up to 1000 records).

Select "Review" from the initial Sarcalc screen. The latest message will be displayed with the date and time the message was recorded.

Navigate between older and newer saved messages by selecting "Prev" or "Next". Any displayed message can also be printed (if optional printer software is installed).

The number of records kept can be changed by selecting "Prefs" from the initial Sarcalc screen (Subsection 5.5). The database can be erased by deleting the database "SarcalcDB" from the main Meazura™ screen, as shown in Figure 14.

1. Tap the upper left-hand corner of the main screen to show the "App" drop-down screen.
2. Select "Delete".
3. Select "Sarcalc" to delete. Individual records cannot be erased.



Figure 14: Database Delete Screen Sequence

5.5 ELT Reader Preferences

If "Prefs" is selected from the initial Sarcalc screen (Figure 10), the following items may be selected (Figure 15):

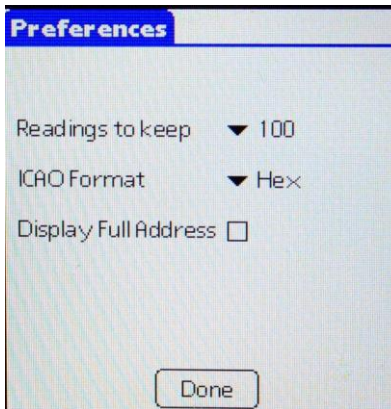


Figure 15: Sarcalc Preferences

- Readings to keep – 10, 20, 100, 1000 (Maximum number of readings to store in the database)
- ICAO Format – Octal, Hex, Decimal (Format of ICAO Address display)
- Display Full Address – checked, unchecked (Check for display of full ELT message, bits 9 –144 (30 Hex digits) or leave unchecked to display only bits 26-85 (15 Hex digits))

5.6 Sarcalc Desktop

The Sarcalc Desktop application SarCalc Desktop V 3.01(or higher) may also be installed on a PC (available as a free download at www.acrartex.com). Once installed, the entire Sarcalc or Artex database can be reviewed.


NOTE: The Meazura™ unit must be Hot Sync'd with the Palm Desktop™ software to load the database from the Meazura™ MEZ1500 to the PC.

Once sync'd, the database can be opened on the PC by starting the SarCalcDesk.exe application and opening the database from the file menu. The Palm HotSync™ will usually store the database file in C:\ProgramFiles\Palm\Artex\Backup\, where Artex is the Meazura™ user name. Be sure to use the "Artex" user name whenever performing a "HotSync". All Artex provided software is loaded to the Meazura using this user name.



The database will be named SarcalcDB.PDB. If the Meazura™ MEZ1500 was set-up on the PC with a different User Name than "Artex", check the folder for that User Name to locate the Backup file to find the Sarcalc and Artex database information.

5.7 Printing Messages


To obtain the SarcarcDB.prc and print, follow these instructions:

1. Open desktop browser and go to www.acrartex.com.
2. Select options in the following order:
 - **Support**
 - **Artex Support**
 - Under **Downloads**, select **SARCALC DESKTOP Software**.
3. Open file folder **SARCALC DESKTOP Software**.
4. Select **SarCalcInstall.exe. Setup Wizard** will open.
5. Perform steps below:
 - **Next**
 - Read **License Agreement** and select **I Agree**.
 - Select **Destination Folder** and **Install**.
 - **Finish**
6. Open program **SarCalc Desktop** .
7. There are two methods to obtain the SarcarcDB.prc.

Method 1




1. Open **Palm Desktop** and perform **Hotsync** operation. (Refer to section 3.1)
2. Open **SarCalc Desktop**  and click **Open Folder** icon .
3. Open **Computer/OS (C:)/ProgramFiles(x86)/Palm/"Select Correct**

User"/Backup

- Example: Computer/OS
(C:)/ProgramFiles(x86)Palm/Name/Backup
 - **NOTE:** You will not see the backup folder unless you use **SalCalc Desktop**.
 - Select **Sarcalc.pdb** and **Open**.
4. Tests are found on left side and are listed by date then time.
 5. Select test and then **Print** icon .

Method 2

You will need an SD card up to 4 GB capacity (Max). It must be a standard SD card. You cannot use an SDHC, SDXC, or a Micro SD card (even with an SD card adapter).

1. Install SD card into slot located behind battery pack.
2. Power on unit. Unit may ask to format, select **Yes**.
3. Place stylus on time located at top left of home screen. (example 12:01)
4. Select the following:
 - **Copy**
 - **Copy to: Card**
 - **From: Handheld**
 - **SarcalcDB**
 - **Copy**
5. The following instructions below are extremely important.
 - With the tester ON, press the power button once, then nothing else. The screen will turn off.
 - The tester will turn back on automatically and will state **Updating System Backup...Please Wait**. The tester will turn off again.
6. Remove the battery cover, battery pack and the SD card.
7. Install SD card into PC and open.
8. Open **SarCalc Desktop**  and click **Open Folder** icon .
9. Open **Computer/CARD/PALM/Launcher**.
10. Open **SarcalcDB** and click **Open**.
11. Tests are found on left side and are listed by date then time.
12. Select test and then print icon .

6. Labeling Requirements 345/1000/ME406

Reprogramming any ELT makes the existing 15-digit hex code label obsolete. A new 15-digit hex code label must replace the old one, as ELT labeling must reflect the programming inside.

If reprogramming the ELT also changes the country of origin and 3-digit country code, a new country and country code label must replace the old one before the ELT may be returned to service.

The user must create permanent, weatherproof labeling using indelible ink and a protective layer over the label text. Labeling must meet all regulatory authority requirements.

NOTE: Alteration or replacement of the ELT product label, beyond that described above, must be approved by Artex.

7. Civil Aviation Authority Registration Requirements

After obtaining the proper 15-digit hex code as described in this manual, it is essential the ELT be registered. Registration forms for the US can be obtained from Artex, by contacting NOAA at 1-888-212-SAVE, or by visiting their web site www.sarsat.noaa.gov and click "Register Your Beacon".

If the programming of the 406 MHz ELT in a given aircraft changes, the aircraft owner/operator must update all programming information with the appropriate local aviation authorities. Realize that if a given aircraft's ELT is replaced with one that has identical programming (or an auto-reprogramming function updates the programming to be the same), the registration does not need to change.

If the correct ELT programming is not registered, search and rescue operations may be inefficient or nonexistent. An incorrect false alarm conclusion may be made, or valuable time during a rescue effort may be lost. Proper ELT registration is extremely important. Many foreign ELT registration forms are available on the Artex web site www.acrartex.com.

8. Specifications and Calibration

The following subsections provide specifications and calibration information.

8.1 Meazura™ MEZ1500 Specifications

Operating System:	Palm/Garnet OS™5.4
Memory:	64MB SDRAM, 128MB Flash
Display:	240x320 Color, backlit LED
Communications:	USB (cable provided) Serial (921.6Kbs)
Battery:	7.4V Li-Ion 1700mAh
Sealing:	IP67 – submersible to 1 meter (30 min)
Current Consumption:	60-120mA (depending on screen brightness) unit ON (excluding module) 120mA typical (maximum brightness). 5 mA Sleep mode

Contact Aceeca at www.aceeca.com for more information on the base Aceeca Meazura unit or for additional accessories.

8.2 Handheld Programmer Module Specifications:

406 receiver range:	-60 dBm to +36 dBm (5W)
Power source:	Meazura™ internal battery
Decoding:	Per COSPAS/SARSAT C/S T.001, Issue 3 Rev. 5
Current Consumption:	10 mA unit ON <100 nA Sleep mode

8.3 Calibration

The Handheld Programmer is factory calibrated and does not require periodic re-calibration.

9. Components and Optional Equipment

The following subsections provide information on system component part numbers and optional equipment.

9.1 System Component Part Numbers

The Artex Handheld Programmer is being offered as a complete kit (8715) with the following parts:

1 ea.	A3-06-2824-1	Handheld Programmer Main Assembly
1 ea.	110-418	Antenna, ¼ Wave Flexible Whip 418 MHz
1 ea.	452-0100	Holster, Padded Handheld Programmer
1 ea.	452-0101	Stylus, Handheld Programmer
1 ea.	452-0102	Battery, Handheld Programmer
1 ea.	452-0103	USB Cable, Handheld Programmer
1 ea.	452-0104	Charger, Handheld Programmer
1 ea.	510-1200	Desktop Software for ELT Test Set (CD-ROM)
1 ea.	Y1-03-0272	Manual, Handheld Programmer Operation
1 ea.	611-0112	ELT ME406, ELT 345/1000 Series Programming Cable

Any of the above part numbers may be ordered as a replacement or as a separate line item. Contact the Artex Customer Service department at 1-800-432-0227 or (954) 981-3333 for details.

9.2 Optional Equipment

If national or local regulations require that the ELT be attenuated and/or directly connected to the Handheld Programmer, the following parts may be used:

500-3000	Attenuator, 30 dB
611-6013	Cable, Coax BNC to BNC (For Single Output ELT)

Commercial equivalents of any of these parts may also be used.

10. Troubleshooting

The following subsections provide troubleshooting and technical assistance information.

10.1 Trouble Shooting Guide

The following table provides user troubleshooting guidelines. For problems beyond the scope of this guide, contact Artex for return instructions.

SYMPTOM	LIKELY CAUSE	ACTION
Meazura is "locked" up, programs will not respond	Various	Perform "soft reset" by holding down both the power and backlight keys simultaneously to perform a soft reset; the Meazura stops what it was doing and restarts. All applications and data stored in the handheld are retained.
Meazura will not respond to "soft reset"	Various	Perform "hard reset" by doing a soft reset but keeping the power key held down until the Palm Powered™ logo appears. A confirmation message is displayed asking the user to confirm the hard reset, whereby pressing the UP arrow key will proceed with the process. A hard reset does everything a soft reset does, but also erases all programs, data, patches, and user information.
Meazura will not power on	Dead battery	Charge battery for at least 2 hours
Meazura will not reset (either "soft" or "hard")	Defective Meazura unit	Return unit to Artex
Meazura will not power on with known good battery	Defective Meazura unit	Return unit to Artex

10.2 Technical Assistance

Programming ELTs with the proper information and the proper protocol is not always a straightforward process. **Please be sure to thoroughly read this manual.** If assistance is required, contact Artex in the United States at (954) 981-3333 or send e-mail to service@acrartex.com.

11. Warranty Information

The Handheld Programmer is covered by the Artex Limited Avionics Warranty for 12 months. See "Artex Warranty Statement" on the Artex web site at www.acrartex.com for more details.