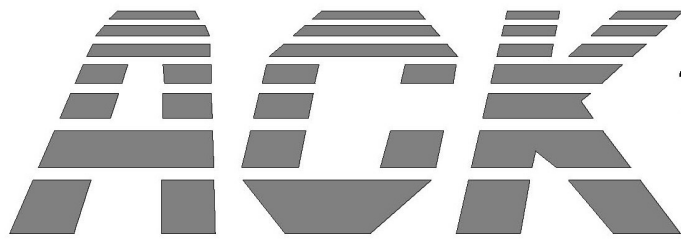


WARNING: Once an ELT is programmed from the default Serial Number format, it can not be programmed back to Serial Number format except by the factory.



**TECHNOLOGIES
INC**

MANUFACTURER OF AVIONICS FOR
GENERAL AND COMMERCIAL AVIATION

MODEL E-04 121.5/406 MHz ELT PROGRAMING MANUAL



REVISION 1.2 December 4th 2017

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Minimum System Requirements

- 2 GHz Processor
- 512 MB Ram
- 640x480 Display
- 10 Megabytes Available Hard Drive Space
- USB Port

Supported Operating Systems

- Windows 10, 8, 7
- Windows XP Service pack 3 or higher

E-04.PK Programming Package includes:

- Programming Operation / Installation Manual
- Programming Dongle (part # E-04.PRГ Version 3.0)
- USB Extension Cable
- 3/32" Hex Driver
- Software CD (version 3.0)

Additional Equipment (required to be purchased separately)

- Brother QL-700 Label Printer
- Brother Yellow Film Tape (Part # DK-2606)

Required Equipment

P/N E-04.PK



**Brother Printer and Labels
To be Purchased Separately**



Model E-04 Programming Overview

The ACK programming process itself is quite simple and may be accomplished in a matter of minutes however programming the Model E-04 121.5/406 MHz ELT requires a basic understanding of the COSPAS/SARSAT coding protocols and the requirements of various countries throughout the world and their specific requirements.

COSPAS/SARSAT provides for a number of programming protocols the Model E-04 used standard location ELT protocols. The standard location protocol provides the most accurate GPS location coordinates to the authorities responsible for search and rescue.

There are three standard location protocols allocated for ELT's. The Model E-04 has the capability to be programmed for each of these protocols.

Standard Location Serial Number Protocol

All Model E-04 ELT's are factory programmed with this protocol and have USA (country code 366) as the country code. This protocol uniquely identifies the ELT by the manufacturers Type Acceptance Number assigned to the manufacturer by COSPAS and its COSPAS serial number. These numbers are factory programmed and may not be changed and will remain the same throughout the life of the ELT. The only change allowed to the programming in this protocol is the country code which indicates which country the ELT is registered. This is the most simplified form of programming and we recommend using it whenever it is allowed.

Standard Location 24-Bit Address Protocol

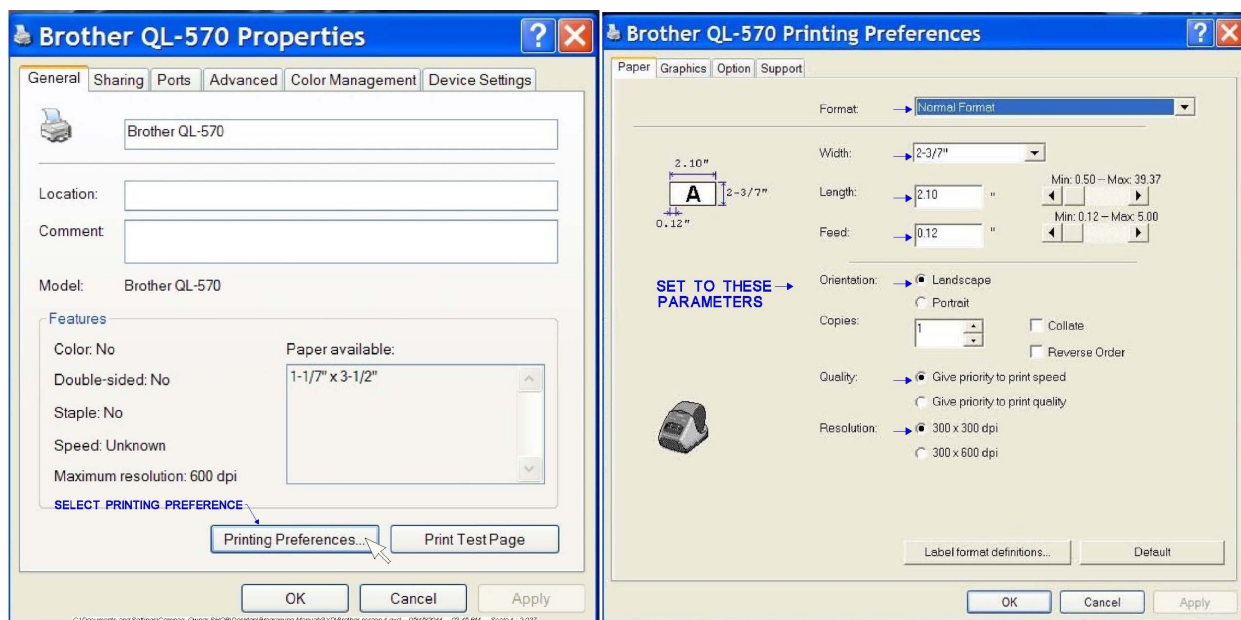
This protocol uses the aircraft 24-Bit IACO address to uniquely identify the ELT. This code is commonly referred to as the Mode S Code. Most countries have a civil aircraft registration data base which allows you to enter a aircraft tail number and find the IACO or Mode S code. Most countries use the HEX format for this code however some use Binary or other formats. The 24-Bit programming instructions that follow will further elaborate on this.

Standard Location Operator Designator and Serial number Protocol

This protocol uses the aircraft fleet operators 2 or 3 character designator as assigned by IATA or IACO along with the operators requested serial number to uniquely identify the ELT. The operator should provide the designator code and the serial number for each ELT to be programmed.

Install Brother QL-700 Printer

- 1.) **Install the Brother QL-700 printer follow the manufacturers installation instructions.**
- 2.) **Load the DK-2606 label tape in the printer.**
- 3.) **Open the “Start” menu, select control panel.**
- 4.) **Open “Printers and Faxes” in control panel.**
- 5.) **Right click on Brother QL-700, then click on “properties”.**
- 6.) **On properties screen click on “Printing Preferences”**
- 7.) **Set Parameters as shown below.**



SOFTWARE INSTALLATION

Windows 7, 8, 10

- 1.) **Do not plug in the programming dongle until all steps have been completed.**
- 2.) **Place E-04 software Ver 3.0 CD in CD drive**
- 3.) **Open “Start Menu” click on “My Computer” and open the CD drive.**
- 4.) **Click on the “ACK E-04 ELT Programmer (VAR)” application and follow the on screen installation instructions.**
- 5.) **Anytime a warning appears on screen that the application is unverified and asks if you want to continue answer yes and continue.**
- 6.) **After the software has loaded plug the dongle in and the computer will say “Found New Hardware” the driver will begin to load and may take a couple of minutes to complete when done the software and driver have been loaded and the system is ready for programming.**

Windows XP Service Pack 3



Follow steps 1 through 5 above. After software installation remove the CD and plugin the dongle. A dialog box should appear saying “Found New Hardware”. It should say if you have a installation CD insert it now. Insert the CD and the system should load the driver. If the driver fails to load or you have Service Pack 1 or 2 open file XP Driver Installation on the CD and follow the installation instructions.

Programming ELT's

**Once you have the software and driver installed you are ready to program ELT's.
To program an ELT follow these steps:**

- 1.) Disconnect Antenna, Remote Control, and GPS cables.**
- 2.) Remove the ELT transmitter head from the battery pack by removing the four screws attaching the transmitter head to the battery pack using the hex driver supplied.**
- 3.) Place ELT in "Off" position.**
- 4.) For Windows 7, 8, 10 type VAR in the search box to locate the VAR program. You can run it from there or make a shortcut to desk top.**

For XP

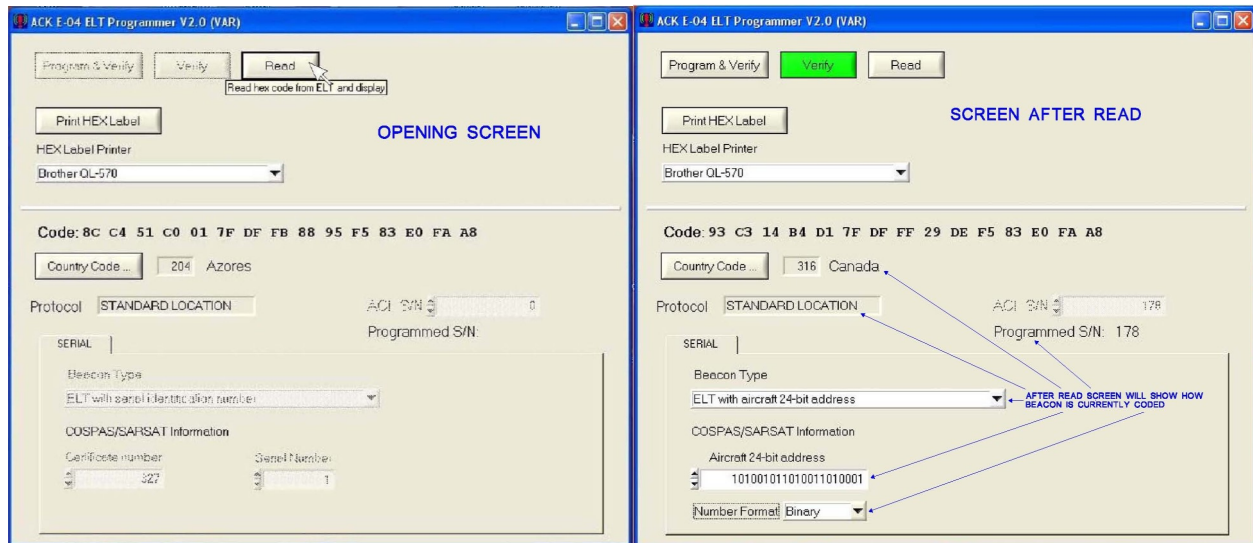
- 1.) Open the "start" menu on Windows Desktop.**
- 2.) Look for the  ACK E-04 ELT Programmer (VAR) icon and click on it to open software.**
- 3.) If it is not listed on the start menu open "All Programs"**
- 4.) Place the cursor on the "ACK E-04 ELT Programmer (VAR) file a menu should appear to the right.**
- 5.) Click on the  icon to open the programming software.**
- 6.) Insert Programming dongle into USB port. Watch for the Green LED on dongle to illuminate indicating proper connection.**
- 7.) Connect programming dongle into jack J2 located on the PC board.**

Make sure the dongle is connected exactly as shown below.



This is the opening screen make sure the dongle is plugged in and the green LED on the dongle is lit. Click on the read button.

After the read is complete the screen indicates how the ELT is currently programmed. After completing this step you may program the ELT.



On the screen click on the “Beacon Type” down icon and the three type of programming appear. Select the type programming you wish to use by placing the cursor over the type of programming and click to select.

You may chose:

Standard Location Serial Number Country Code Protocol

Standard Location with Operator, Designator & Serial Number

Standard Location 24-Bit Address

To determine what protocol to use for a particular country we have compiled a list of countries that have provided the type of programming protocol they require this list may be found in Annex A of this document. Many countries have a number of country codes listed. This list also provides the proper country code to use when programming the E-04 ELT. If the country requires you to apply for a registration card before registering that is noted on the list.

For countries that are not listed or require you apply for a registration card you should contact the regularity agency of that country to determine which protocol you should use or apply for a registration card. A list of contacts for each country can be accessed on the COSPAS/SARSAT web site www.cospas.org on the web site go to “Contacts” and select “National Contacts for Beacon Matters (Coding, Registration and Type Approval)” Some countries only list tail number protocol you should contact these countries regulatory agency and inquire as to which of the 3 standard location protocols they will accept and what other requirements must be met.

Programming Serial Number Protocol

In the serial number protocol you are only allowed to change the country code.

- 1.) When selecting this option use the dropdown menu to select the country you wish to program it for.***
- 2.) Click the "Program" button and monitor the progress bars.***
- 3.) After completing programming the "Verify" button highlights yellow, select "Verify" and monitor the progress bars.***
- 4.) If the "Verify" button highlights green it was successfully programmed, and review programmed data in the fields below to make sure it is correct.***
- 5.) make sure to select the Brother QL-700 printer from the drop down list.***
- 5.) Click on the "Print Hex Label" button a box will appear that will allow you to enter up to six lines of text we recommend that you record what aircraft identification number it is programmed for, the facility doing the programming or any other information you would like to include.***
- 6.) Click on the "Print Label" button to print the new Hex label.***
- 7.) Trim the edges of the label to just outside of the black box, remove the old Hex label, and replace it with the new label.***

Standard Location with Operator, Designator & Serial Number

- 1.) When selecting this option use the dropdown menu to select the country you wish to program it for.***
- 2.) Enter the operator designator alpha-numeric code using the up and down buttons.***
- 3.) Enter the serial number of the ELT.***
- 4.) Click the "Program" button and monitor the progress bars.***
- 5.) After completing programming the "Verify" button highlights yellow, select "Verify" and monitor the progress bars.***
- 6.) If the "Verify" button highlights green it was successfully programmed, and review programmed data in the fields below to make sure it is correct.***
- 7.) make sure to select the Brother QL-700 printer from the drop down list.***
- 8.) Click on the "Print HEX Label" button a box will appear that will allow you to enter up to six lines of text we recommend that you record what aircraft identification number it is programmed for, the facility doing the programming or any other information you would like to include.***
- 6.) Click on the "Print Label" button to print the new Hex label.***
- 9.) Trim the edges of the label to just outside of the black box, remove the old Hex label, and replace it with the new label.***

Programming 24-Bit address Protocol

- 1.) When selecting this option use the dropdown menu to select the country you wish to program it for.***
- 2.) Click on the "Select Base Number Format" this option allows you to enter the 24 bit address as a decimal, Hex, Octal or Binary format.***
- 3.) Enter the 24-Bit address in the proper format for the country it is being programmed for.***
- 4.) Click the "Program" button and monitor the progress bars.***

- 5.) After completing programming the "Verify" button highlights yellow, select "Verify" and monitor the progress bars.
- 6.) If the "Verify" button highlights green it was successfully programmed, and review programmed data in the fields below to make sure it is correct.
- 7.) make sure to select the Brother QL-700 printer from the drop down list.
- 8.) Click on the "Print HEX Label" button a box will appear that will allow you to enter up to six lines of text we recommend that you record what aircraft identification number it is programmed for, the facility doing the programming or any other information you would like to include.
- 6.) Click on the "Print Label" button to print the new Hex label.
- 9.) Trim the edges of the label to just outside of the black box, remove the old Hex label, and replace it with the new label.

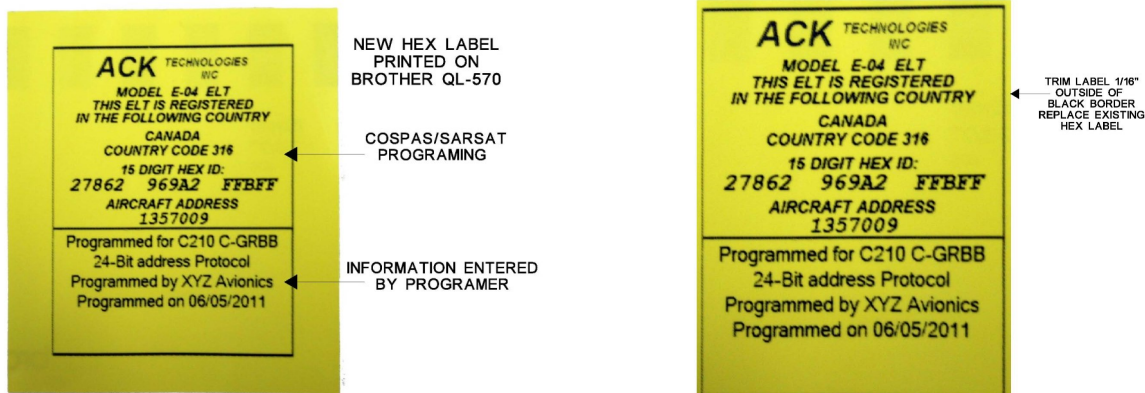
Locating the IACO 24-Bit address

To locate the 24 bit address for a particular aircraft most countries have a registry which is accessible off of the internet that will show the IACO 24-Bit or Mode S address for the aircraft registered in that country. You must determine what format the code is in. The most common coding is the Octal format it is used in the US and many European countries. Canada uses the Binary format to list the codes.

A valuable resource to locate the code is www.airframes.org this free data base allows you to locate by registration number registration information for most of the worlds aircraft. If you use this service we recommend you make a voluntary contribution to help support it.

The easiest way to copy the IACO 24-Bit address from www.airframes.org or various countries registration web sites is to use windows copy and paste to transfer the number. This reduces the chances of miss entering the code it is especially important when registering using the binary number system. If www.airframes.org does not list a IACO code it is most probably in the binary format. Canada uses the binary format so www.airframes.org does not list the IACO code. You must go to the Canadian registration web site and enter the aircraft identification number to locate the IACO address go to: wwwapps2.tc.gc.ca/Saf-Sec-Sur/2/ccarcs/aspscripts/en/quicksearch.asp or search for Canadian Aircraft Registration on the internet to reach the web site.

New Hex Labels



ANNEX A

<i>COUNTRY</i>	Country Code	Standard Location Serialized	Standard Location 24-bit Address	Contact National Authority for Registration Card
Algeria	605			X
American Samoa	559			X
Argentina	701			X
Aruba	307		X	X
Australia	503	X	X	
Austria	203	X	X	
Barbados	314	X	X	
Belgium	205		X	X
Bermuda	310	X		
Botswana	611			X
Brazil	710	X	X	X
Brunei Darussalam	508			X
Bulgaria	207			X
Canada	316		X	
Cayman Islands	319		X	
Chile	725			X
China	412			X
Christmas Island	516			X
Cocos Islands	523			X
Colombia	730			X
Cote d'Ivoire	619	X	X	X
Croatia	238			X
Cyprus	209			X
Czech Republic	270			X
Denmark	219		X	X
Ecuador	735			X
Egypt	622		X	
Estonia	276			X
Faroe Islands	231			X
Finland	230			X
France	227			X
Georgia	213			X
Germany	218	X	X	
Greece	237			X
Greenland	331			X
Hong Kong	477			X
Hungary	243			X
Iceland	251			X
India	419	X	X	
Indonesia	525			X
Ireland	250			X
Italy	247		X	
Japan	431	X		X
Korea	440			X
Latvia	275			X
Lithuania	277			X
Luxembourg	253			X
Madagascar	647			X
Malaysia	533			X
Maldives	455	X		X
Malta	248			X
Marshall Islands	538			X
Mexico	345		X	X
Micronesia	510			X
Moldova	214			X

[illegible]

A list of contacts for each country can be accessed on the COSPAS/SARSAT web site www.cospas.org on the web site go to “Contacts” and select “National Contacts for Beacon Matters (Coding, Registration and Type Approval)”