T55x7 Writer
Setup & Instructions

Driver Installation:

The T55x7 Writer communicates with the host computer using a virtual COM Port interface. This serial interface utilizes a Prolific PL2303 XA/HXA USB to Serial converter chip. In order for this interface to function the appropriate driver software must be installed prior to plugging the unit into the host computer.
The driver files are located on the installation CD. Follow the instructions provided in the PL2303 Installation Manual.
The driver software can also be downloaded from the following website:
http://www.prolific.com.tw/us/showproduct.aspx?p_id=225&pcid=41

Software Installation:

The T55x7 Writer software application does not require any formal installation procedure. Simply copy the following program and library files to the directory of your choice:

t55x7_writer.exe – Main Application
t55x7_writer.tkn
T55x7_Writer_Instructions.pdf – This set of installation/operating instructions
vbas31w.sll
vgui31w.sll
voflr31w.sll
vthk31w.dll
vtk1631w.dll

vtk3231w.dll
vvm31w.dll
vvmt31w.dll

Hardware Installation:

After the software driver has been successfully installed, the T55x7 Writer unit can be plugged into an available USB port on the host PC. The “Red” LED on the top of the unit will be lit to signify that power has been applied. The unit should now show up in the Windows Devices list as “Prolific USB-to-Serial Comm Port ”. The COM Port number that has been assigned by Windows will be required in the section to open up the appropriate serial communication path between Windows and the T55x7 Writer unit.

T55x7 Writer Startup:

To start the software application, simply run the “t55x7_writer.exe” file. A program window similar to the one shown below should be visible.

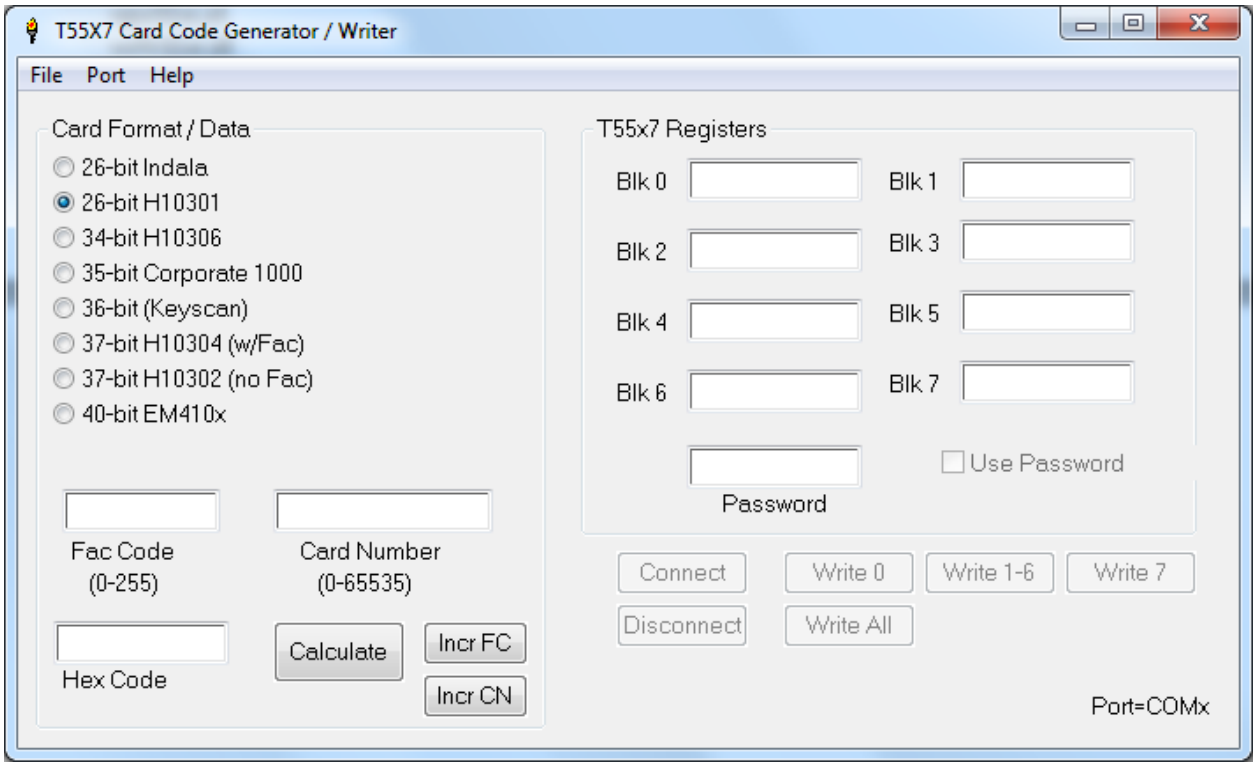


Figure 1. T55x7 Writer Main Window

To establish communications between the T55x7 Writer and the PC, the correct serial COM port must be selected and enabled as follows:

1. Click the “Port” menu option.
2. Select the appropriate COM port that Windows has assigned to the unit.
   The selected COM port should now be displayed on the lower right side of the main program window.
3. Press the “Connect” button.
   The unit should emit a beep and the LED should go “Green” if properly connected.

Functional Overview:

The T55x7 writer has been designed to program Temic and Atmel versions of the popular T55x7 / ATA55x7 RFID Identification transponder chips used in numerous 125Khz access cards. These chips are capable of emulating most of the 125Khz proximity card products that are currently being used throughout the world today.
These cards employ a series of hardware registers that must be correctly programmed in order for the transponder to operate with the proper modulation and data encoding schemes that make each vendors credential products unique.
This software application is used to simplify the card programming process by allowing the user to enter the appropriate card parameters (e.g. card format, facility code, and card number) and then have the software automatically calculate the appropriate register values that are required to make the card function as desired.
The eight 55x7 registers can also be directly specified by the user (if desired) to allow new or unsupported card formats to be programmed.

Card Code Calculation:

Before a card can be written/programmed, the correct 55x7 register values must first be calculated using the following procedure:

1. Select the preferred card format using one of the “Radio” style buttons.
2. Enter a valid facility code for the selected format.
3. Enter a valid card number for the selected format.
4. Press the “Calculate” button to calculate the correct register settings for the data that was entered
   NOTE: If the selected format is “HID” or “Keyscan” then the Manchester encoded raw hex code for the card will also be generated and displayed.

Two additional buttons are also provided if the user desires to increment either the facility code or the card number. Pressing either of these buttons will cause the selected value to be incremented and the 55x7 register values to be automatically re-calculated for the new value.

As stated earlier, the user always has the option of modifying the 55x7 registers directly. The data values shown in the register blocks are what is used to program the credential regardless of whether they were calculated by the software or directly modified by the user.

Credential Programming:

There are several options available for programming a credential. These options affect which registers are to be programmed and are selected by using one of the four “Write” buttons whose functions are described below:

Write 0 – This button causes only Block 0 of the 55x7 to be programmed. This can be used when you want to change the operating parameters of the credential without modifying the data that is transmitted.

Write 1-6 – This button causes Blocks 1 through 6 to be programmed. This can be used when you want to change the data on a card that has already been programmed but you do not want to modify its modulation or data encoding parameters or its Block 7 password value (if used).

Write 7 – This button causes Block 7 to be programmed. This can be used if you are trying to setup a new password or modifying an existing password and you don’t want to modify any other operating parameters or credential data.

Write All – This button causes all eight 55x7 registers to be programmed. This option would normally be used when programming a new or uninitialized credential. DO NOT use this option when programming a credential that already has the password feature enabled or the password

value could potentially be overwritten.

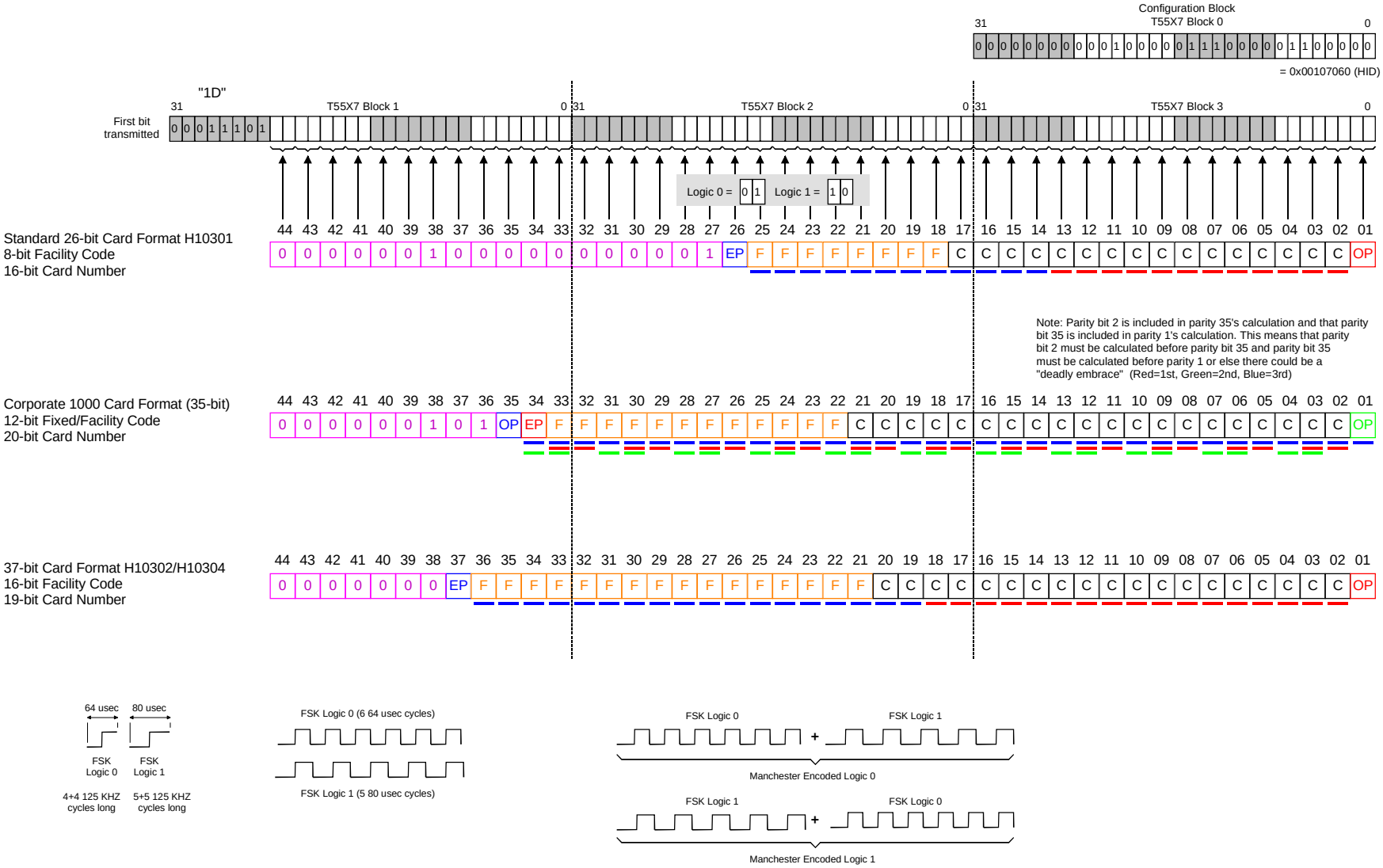
To program a credential, place the card or fob on top of the programmer and press one or more of the buttons defined above. The unit will generate the proper On/Off Key (OOK) Modulation sequence to program the device. The unit will beep to signify that the programming sequence has completed. The credential can then be removed.

Note: *Caution should be exercised when programming Block 0 or Block 7 (when password protection is being used). Writing invalid or incorrect data could potentially render the credential inoperative.*

Password Protection:

If the password protection feature of a credential has been previously enabled (via Block 0) , then the credential can only be modified if the correct 32-bit password value has been entered in the "Password" data field and the "Use Password" checkbox has been selected.
The password feature is typically only used when trying to modify credentials which have already been programmed by an outside vendor. (e.g. HID blank/uninitialized cards/fobs).

If there are any questions or concerns, please contact Carl at info@proxclone.com



Data Stream =(3) Logic 0's + (3) Logic 1's + 45-bits of Manchester coded 1's and 0's
(Note: Tag Transmits all 3+3+45 bits but RFID receiver only outputs last 26,35, or 37 bits dependent on card format)

HID 26-bit, 35-bit, and 37-bit Card Formats