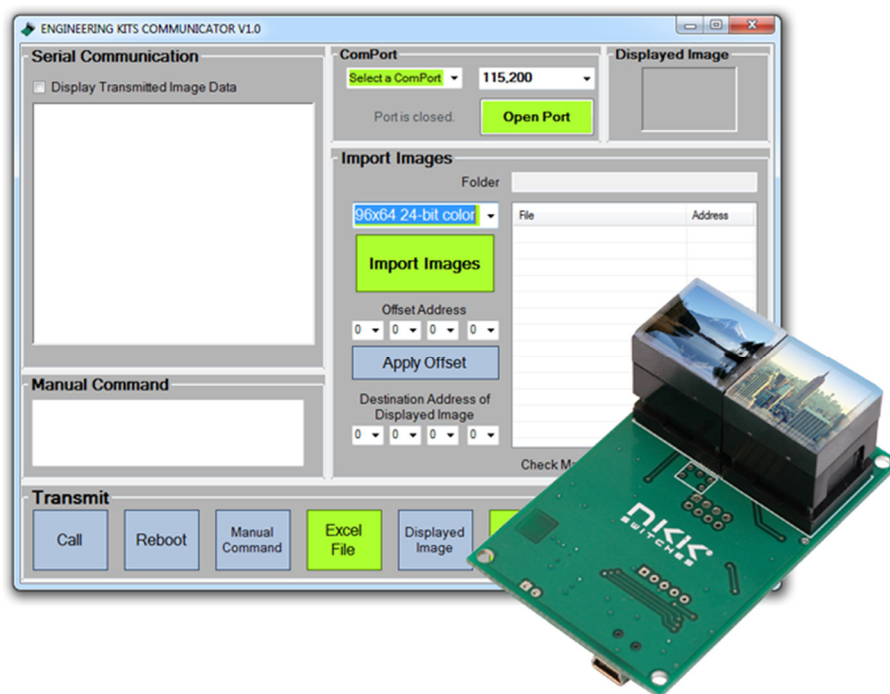


Engineering Kits Communicator User Manual

Revision A

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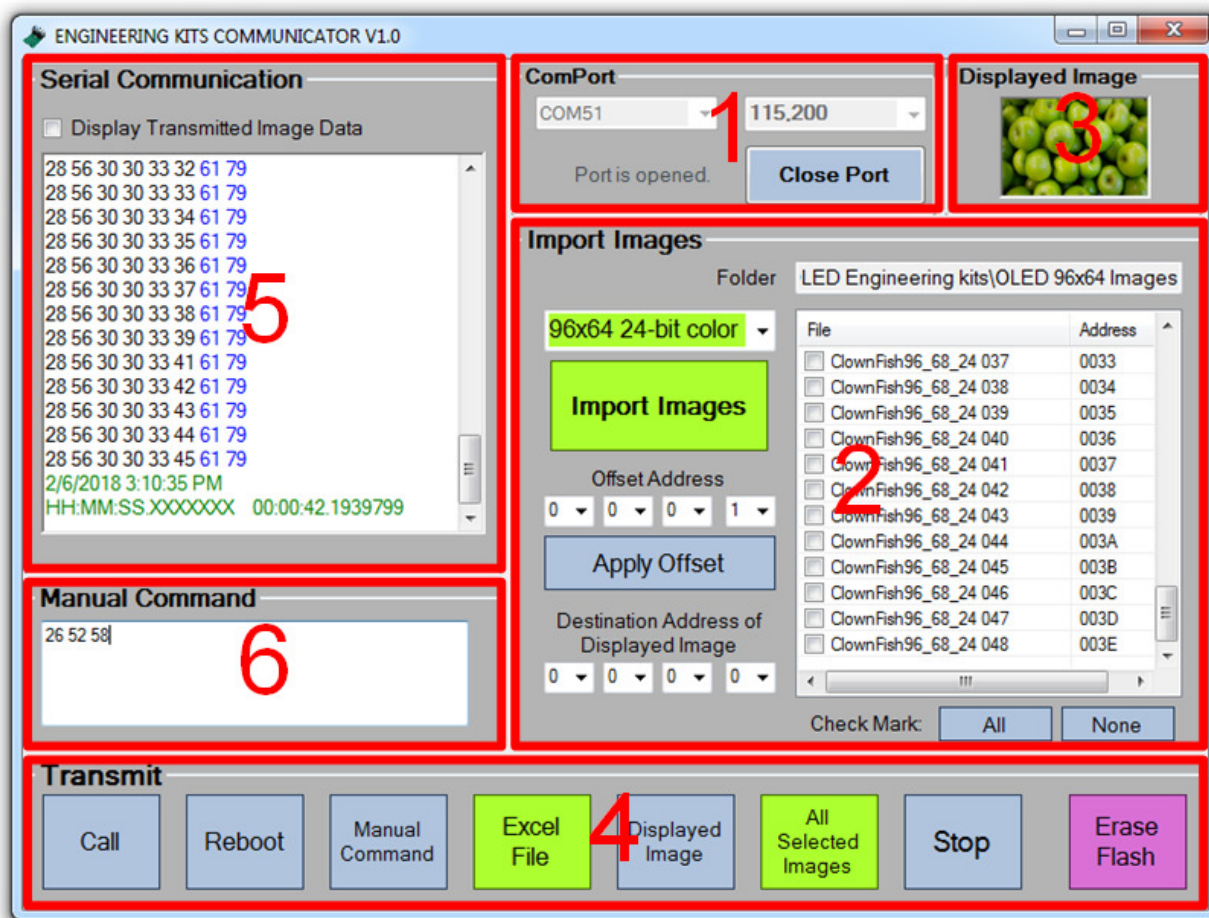
NKK Switches makes no warranty for the use of these products and assumes no responsibility for any errors, which may appear in this document, nor does it make a commitment to update the information contained herein. Smart Switch is trademark of NKK Switches. All Engineering Kits are tested 100% and programmed with the default images and attributes. As the firmware for these kits can be modified by the customer, any damage caused by a customer mistake is not warranted.

The Engineering Kits Communicator is a Windows based software; the purpose of which is to communicate with the SmartSwitch Engineering Kits. In this document the Engineering Kits will be referred to as the controller.

Features:

- Imports bitmap image files from a user selected folder.
- Displays file names and destination addresses for the images to be sent to the controller.
- Downloads the imported images to the controller.
- Downloads attributes from a user-created Excel file to the controller.
- Displays transmit/receive data from the controller.
- Sends a user-created hex string to controller.
- Frequently used commands are displayed as buttons.

For ease of use the user interface of the communicator software is separated into different sections based on their purpose. For this manual the sections are surrounded with red rectangles and numbered for the functional description.



Section 1: ComPort

This section is for selecting and opening the ComPort for communication. A ComPort can be selected from a list of available ports by the “Select a ComPort” drop-down menu. The list of available ports is updated whenever the drop-down menu is selected. The default baud rate for all the Engineering Kits is 115,200. Other baud rate options are provided for custom modification of firmware.

The “Open Port” button opens the communication port and changes to “Close Port” so the communication port can be closed.

Section 2: Import Images

This section is for selecting and importing images. Each SmartSwitch type has rules on what images it can display. The drop-down menu allows a user to select the image type corresponding to a particular SmartSwitch. The type of images to import can be selected by the drop-down menu which, as default, has “96x64 24-bit color” selected.

The “Import Images” button opens File Explorer, so the user can navigate to a folder with desired images. Double clicking on any file in the folder will import only all the images of the specified format. The images are imported sequentially according to their name alphabetically and assigned addresses starting at 0001. The image file names, the assigned addresses, and a check-mark are displayed in the window in the Section 2. The assigned addresses are the addresses that the images will be saved in the controller’s flash memory. The check-marks select which images should be downloaded to the controller. The check-marks can be toggled ON or OFF individually or by the “All” or “None” buttons.

When assigning the image-file names, they should be named so they will import in the desired order. Some special characters such as underscore (“_”) used in file names distort the name ordering and should be avoided for the first character.

All color image files to be loaded must be 24-bit color bitmaps with the specified pixel format. All the monochrome image files must be monochrome bitmap with the specified pixel format. The communicator will only import the files according to selected type of image (as per the drop-down menu) in bitmap format.

After importing the images, the assigned flash memory addresses start at 0001. The starting address can be changed by selecting a different address using the “Offset Address” drop-down menu and then clicking on the “Apply Offset” button.

Upon importing the images, the first image will be displayed in the picture window in Section 3. When an image-file name is selected in the list, the image will appear in the picture window.

The image in the picture window can be downloaded individually to any desired address in the controller. The download address of the displayed image can be changed by selecting a different address using the “Destination

Address of Displayed Image” drop-down menu. This is a separate address from the address in the list. Downloading the images will be explained in the Section 4.

Section 3 Displayed Image

This section shows the image that has been manually selected from Section 2. If no image was manually selected, it shows the first image from Section 2.

Section 4 Transmit

This section is for communication. The ComPort must be open before any of these buttons can be used.

1. Call Button

This button is used to check if the controller is connected and active. Clicking on this button sends 01H to controller. The controller shall respond with 61H. This transaction can be seen in the serial communication window (Section 5).

2. Reboot Button

This button is used to reboot the controller. Clicking on this button sends 24H to the controller. The controller shall reboot and respond with 11H indicating it is rebooted and ready for operation. This transaction can be seen in the serial communication window (Section 5).

3. Manual Command Button

This button is used to send the user-typed HEX string in the manual command window in Section 6. The transaction can be seen in the serial communication window (Section 5).

4. Excel File Button

This button is used to send the content of a user-selected Excel file to the controller. Clicking on this button will open File Explorer and allow the selection of an Excel file. The first columns of row one and row two must have “RAW DATA” and “CHARACTER” to be considered acceptable file. If either of these identifiers are not present the program will not download the data.

Data is read from each cell, left to right, until the last populated cell to the right. A semicolon is used to designate a comment. A cell with a semicolon and any cells to the right of it on that row will be ignored.

The area of the data should be assigned as text where the character of each HEX byte value must be typed.

Example: “*” is typed for hex byte 2AH; and “V” is typed for hex byte 56H.

Please check the factory default images’ attribute file for a more detailed example of the Excel file format.

The transaction can be seen in the serial communication window (Section 5). A pop-up window will indicate a successful completion or any problems that arise.

5. Displayed Image Button

This button is used to download the displayed image (Section 3) to the controller address indicated by “Destination Address of Displayed Image” of Section 2. The transaction can be seen in the serial communication window (Section 5). The image data is not displayed unless the check-box in the Section 5 is checked. A pop-up window will indicate a successful completion or any problems that arise. Images must be imported before this button will function.

6. All Selected Images Button

This button is used to download all the images listed in Section 3 that have their check-box checked. The transaction can be seen in the serial communication window (Section 5). The image data is not displayed unless the “Display Transmit Image Data” check-box in the Section 5 is checked. A pop-up window will indicate a successful completion or any problems that arise. Images must be imported before this button will function.

7. Stop Button

This button is only used for stopping when “All Selected Images” download is in process. The download will be terminated when the current image download is finished.

8. Erase Button

This button is used to transmit the erase memory command. All the flash memory data including images and attributes will be erased. The communicator will wait until it receives the completion-of-erase acknowledgment before accepting any other action.

Section 5 Serial Communication

The window in this section displays bytes send to controller in black color font and received from controller in blue color font. The image data (during download) are not displayed unless the “Display Transmit Image Data” check-box is checked.

This window, aside from communication, also displays the time stamps in green color font and other messages in magenta color font.

Section 6 Manual Commands

This section allows the user to manually type in commands that can be transmitted to the controller. The acceptable format is HEX. Spaces are ignored. The example for the Call command is to type “01”. The Query command is “26 52 58”.