

EXM Configuration Tool

EXM System Configuration Instructions



CONFIGURE THE EXM SYSTEM

NOTE: EXM systems using CAN communication and consisting of a monitor and one controller (panel mount or OEM interface) do not require configuration. EXM monitors and controllers come factory set for CAN termination. A Position Feedback Display can also be used without the need for configuration; as long as it is connected to the main CAN line (using a CAN Connector Kit) between the monitor & controller. The monitor & controller must be at the extreme ends of the main CAN line to provide CAN termination.

In addition to this document, you may also download the *CAN 101 – Can Communication Guide* (P/N 98317020) for additional help.

Obtaining the EXM Configuration Tool

To obtain the latest EXM Configuration Tool go to www.elkhartbrass.com. Starting from the homepage, go to the *Downloads* drop-down menu and select *Product Aids*. On the *Product Aids* page scroll down to the *Monitors* section, and find the EXM Configuration Tool. Download & install it to your computer.

Termination Points

When using CAN communication within the EXM system, **two and ONLY two components MUST be terminated** to ensure proper communication along the CAN line. Termination points act to direct information along the CAN line smoothly between various system components. If there have been no physical termination points installed within your system, two termination points MUST be selected during configuration. Termination points are not used in RF only systems. To maximize the efficiency of communication in your CAN network, terminate the two components at the extreme ends of your CAN line.

EXM System Groups

When configuring a custom EXM system, **only one group may be configured at a time**. A group is one complete EXM system containing at least one monitor and one input controller. A group may contain multiple input controllers, one valve, and one Position Feedback Display. Group numbers make it possible to combine two different EXM systems onto one CAN line while preventing the systems' messages from being crossed.

EXM Valves

EXM valves all have a particular valve ID which is used to communicate with the rest of the EXM system. The default valve ID is zero for all EXM systems. The only time when the valve ID must be changed is when two EXM systems, or groups, are to be connected on the same CAN line. Valve IDs have a similar function as that of EXM system group numbers.



Important: Only one valve should be connected to the CAN line when configuring the EXM system group. If multiple valves are connected during configuration, all valves will share the same ID, and the EXM system will not work properly.

USB Drives

It is recommended that a blank flash drive be used for all EXM configurations, firmware updates, and diagnostic file writing. If one of the previously mentioned processes fails persistently, it is possible that the flash drive being used is not compatible with the EXM system.

RF/CAN Gateways

Some EXM devices can be setup as Gateways. This means they communicate using both RF and CAN communication, and convert RF signals to CAN signals & vice versa. This does not mean both types of communication must be used by the device; one or both may be used. **Only one Gateway may be used per CAN communication string (CAN line).** EXM monitors are always setup as Gateways. So when an EXM monitor is in the system, no input controllers should be made into Gateways.

CONFIGURATION STEPS

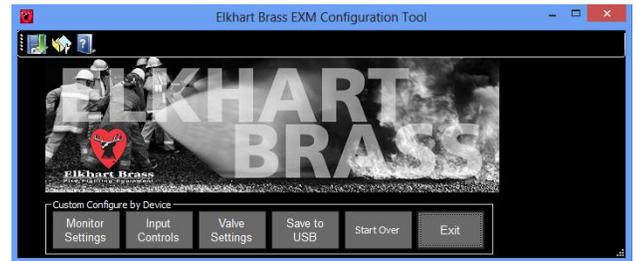
1. Program Start (a):

After installation, start the Configuration program by double-clicking on the desktop icon shown to the right. You will see the splash screen shown to the right when the program is loading. (Version shown may not match current version of the configurator)



2. Program Start (b):

When the Configuration Tool starts you will see the screen shown to the right. The settings chosen during this process will be the default settings for the system.

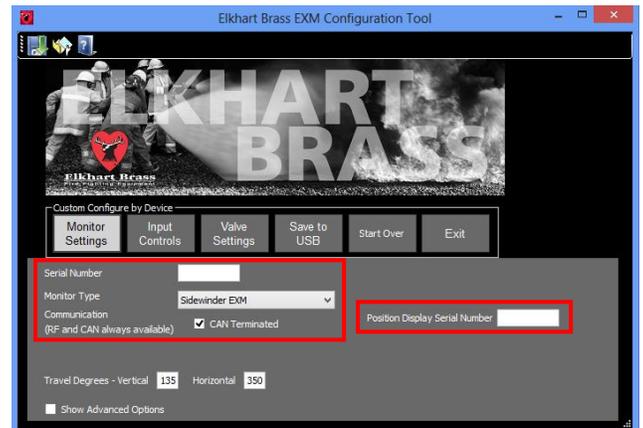


3. Monitor Settings Tab (a):

Enter the 6-digit serial number of the monitor being configured in the top serial number box. The serial number can be found on the monitor control module (black box attached to the monitor). In the drop down menu, select the monitor type.

The checkbox shown here is the first opportunity to terminate any of the CAN operated EXM components within your system. For more information on system termination, refer to the explanation on page 2.

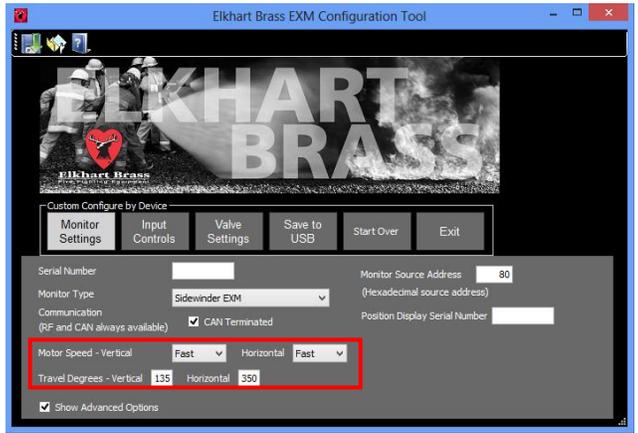
In the serial number box on the right, enter the serial number of the position display being used. If you are not using a position display leave this box blank.



4. Monitor Settings Tab (b: Advanced Options):

Default settings regarding the Speed and Range of rotation of your EXM monitor can be set. If desired, motor speeds can be changed after system configuration is complete.

Enter the maximum desired vertical and horizontal travel in degrees (if other than default). The vertical travel value entered here will limit how far the monitor discharge will lower from the vertical calibration point. The horizontal travel value entered here will be divided equally between left and right to limit how far the monitor will travel from the horizontal “zero” position.

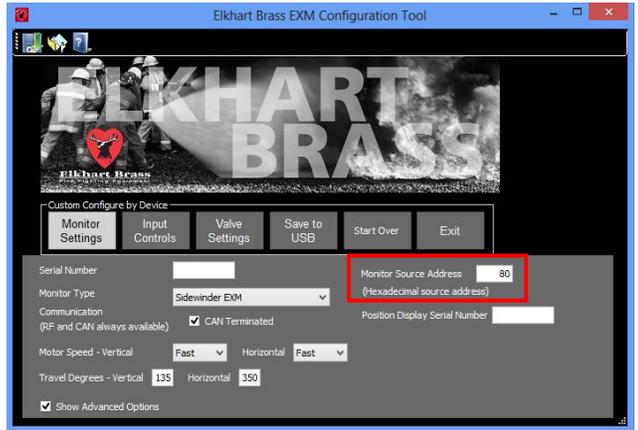


Travel amount **may be decreased** after system configuration, but **may NOT be increased** further than what are set as defaults during system configuration.

5. Monitor Settings Tab (c: Advanced Options):

The Monitor CAN Source Address can be set. This does not need to be changed for normal operation. However, Monitor Source Addresses should be different for each monitor that is on the CAN line. If a Group number is changed, the Monitor Source Address will be automatically changed by the program so this number does not typically need to be changed.

The ability to change the Monitor Source Address is provided for customers who use custom CAN devices to control EXM monitors.





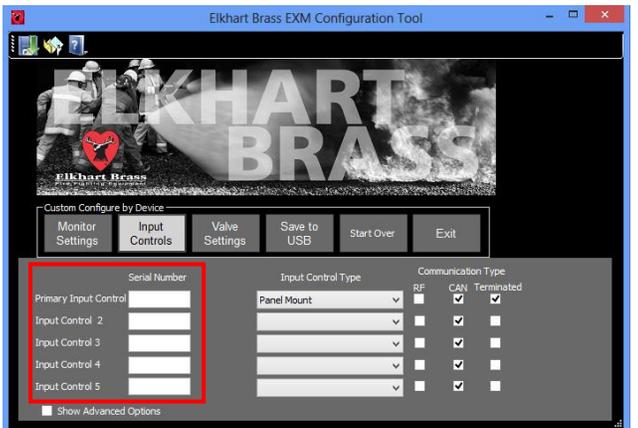
Important: Elkhart Brass does NOT provide technical support for configuring or troubleshooting custom controllers that directly use the CAN line to interface with EXM devices. It is recommended to use the 7070 OEM Interface Module for setting up custom monitor controls.

6. Input Controls Tab (a):

Enter the 6-digit serial numbers of all input controllers in your EXM system. The serial number is located on the side label of the input controller.

The top line is designated for the **Primary Input Controller**. The Primary will override all commands given to the system from Secondary controllers.

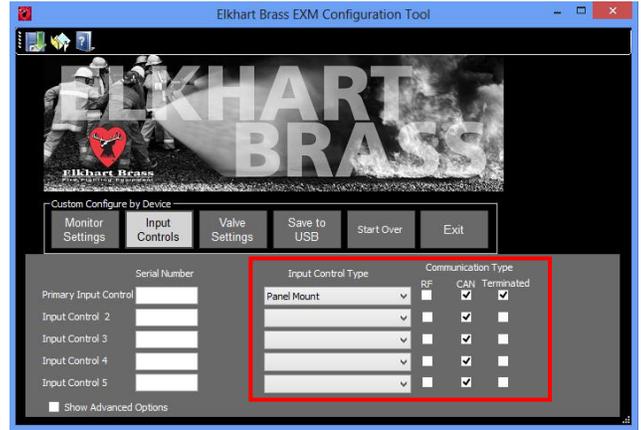
(The serial number entered for an Elkhart Brass OEM-Joystick (7030) should be the one listed on the side of the 7070 OEM Interface Module, not the Joystick)



7. Input Controls Tab (b):

In the drop down menu select each input controller type for each controller in the system.

- **Panel Mount:** Choose for Elkhart 7010 Panel Mount Controller.
- **OEM – Switch Ground:** OEM Interface Module configured for use with external switches that switch to ground.
- **OEM – Switch Power:** OEM Interface Module configured for use with external switches that switch power.
- **OEM – Joystick (7030):** OEM Interface Module configured for use with an Elkhart 7030 Joystick.
- **Handheld (RF ONLY):** Choose for Elkhart Handheld Controller that can only be configured for RF communication.



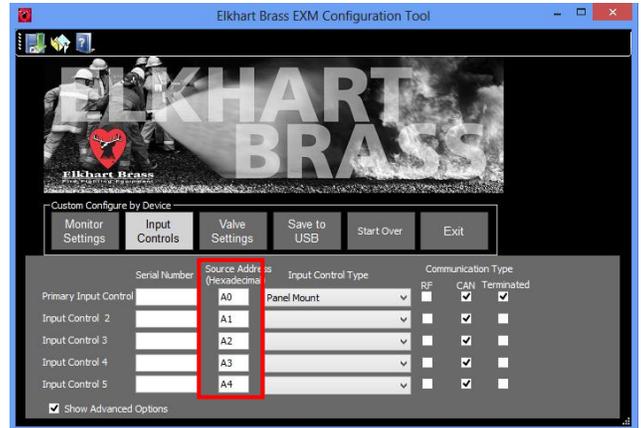
In the boxes to the right of the drop down menu, choose the type of communication that each controller will use. Choosing both RF and CAN will make a controller a Gateway. For more information on Gateways refer to page 2.

The last column of boxes is the second place to terminate components within your EXM system. For more information on system termination, refer to the explanation on page 2.

8. Input Controls Tab (c: Advanced Options):

The Input Controls CAN Source Address can be set. As shown, the Input Controls CAN Source Addresses default to unique addresses. The addresses only need to be changed if:

- The default addresses conflict with other OEM-supplied devices on the same CAN line.
- There are more than 5 input controllers and this configuration is only for the new controllers.
- Other special circumstances.



For a CAN-only system or for a system that incorporates a single RF-enabled controller, Input Controls Source Addresses are named with unique addresses to prevent communication conflicts. Input Control Source Address changes are not normally needed.

For a system with more than one RF-enabled controller, each Input Control CAN Source Address needs to be set such that it is different from other Input Controller addresses used in the system. This needs to be done for the CAN-only controllers as well as the RF-enabled controllers in the system.

9. Valve Settings Tab (a):

Select the type of valve in your system from the drop down menu. (If you are not using a valve, leave “no valve” selected and go to step 11)

The checkbox on the right is the third opportunity to terminate components within your EXM system. For more information on system termination, refer to the explanation on page 2.

In the Valve ID box, the ID of the valve in your system can be changed. The default valve ID is zero for all EXM systems. Please refer to the Valve ID explanation from the beginning of the manual for more information on valve IDs and their proper use.

10. Valve Settings Tab (b):

Auto Close Before Stowing – Checking this box will move your valve to the closed position before the monitor is moved into its set Stow Position.

Full Open/Close on OPEN/CLOSE Push – Checking this box will cause your valve to fully open or close when the OPEN or CLOSE valve buttons are pressed once.

To enter a preset valve position while in this mode, press and hold the PRESET button for 10 seconds, move the valve to the desired position, and then press the PRESET button once more to set the position.

11. Save to USB Tab:

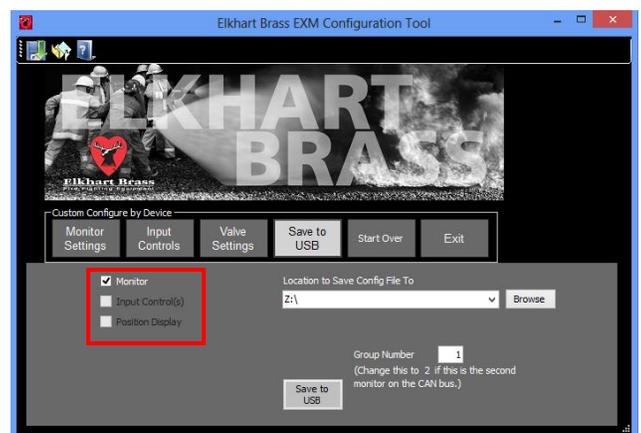
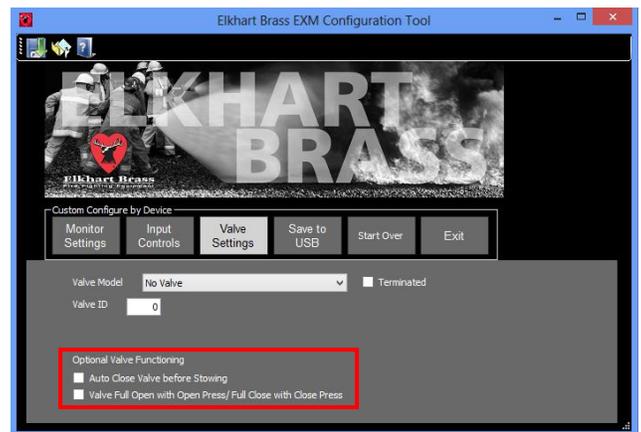
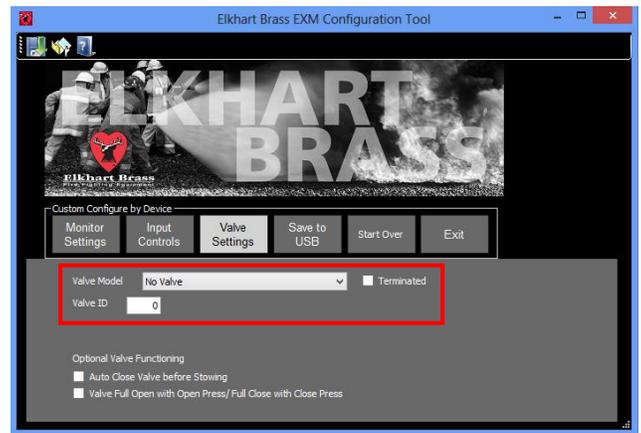
The checkboxes allow you to configure your systems components separately or as a group. If this is your first time, you will need to check all available boxes.

The Group Number box allows you to set the group number of the components in your system.

Use the “Browse” button to locate your USB drive and click the ‘Save to USB’ button to save the configuration.

The configuration file must be saved in the top level of the chosen USB flash drive. **The name of the configuration file “config.hex” must not be changed.**

To ensure that the configuration file will properly configure the EXM system, use a blank USB flash drive.



12. Load the Configuration File (a):

Ensure that all CAN components are connected and power up all components within the EXM system. Press the AUX button on the Handheld Controller to ensure that it is powered on.

If a valve that is not intended to be configured is connected to the CAN line, disconnect the valve before loading the configuration onto the system.

If no RF input controllers are being used in your system, you may skip step 13 (b).

Continue to step 14 (c).

13. Load the Configuration File (b):

If there are any RF input controllers being used in your EXM system, they will EACH need to be configured once before configuring your system as a whole. This first configuration will setup the RF communication between that input controller and the rest of the system.

Complete configuration steps 14 through 17 for EACH RF input controller in your system; **cycling power after each configuration**. Then choose ANY of the input controllers in your system to configure the system as a whole.

(With 1 RF controller, 2 configurations will be needed. With 2 RF controllers, 3 configurations will be needed. So on and so forth.)

14. Load the Configuration File (c):

Locate the USB port on your chosen input controller.

If using a Handheld or Panel Mount, remove the cover on the top of the controller with a phillips screwdriver. If using an OEM Interface Module, remove the cover with a phillips screwdriver to locate the USB port.

Insert the USB flash drive with the configuration file on it into the USB port.

15. USB Mode:

USB Mode should initiate once a USB flash drive is inserted. If using a Handheld or Panel Mount, a yellow status LED (top right corner) will begin to blink. If using an OEM Interface Module, all valve button LEDs on the Joystick will flash once.

If USB Mode does not start automatically, press and hold the OSC and AUX buttons to enter USB Mode.



16. Configuration Results (a):

Press the CLOSE button once to configure the system. The CLOSE button LED will flash rapidly during the configuration process.

When the configuration process is done, the CLOSE button LED will flash with one of the following patterns:

- 1 Flash every 3 seconds: Configuration process was successful.
- 2 Flashes every 3 seconds: Configuration file was not recognized.
- 3 Flashes every 3 seconds: Configuration process failed.



17. Configuration Results (b):

To leave USB Mode simply remove the USB flash drive. Be sure to replace the USB port and OEM covers, and **cycle power of the system afterwards.**

If the configuration process was unsuccessful, retry the configuration of the system starting from the beginning. **If the configuration continues to result in error, contact Elkhart Brass for assistance.**



Caution: Using input controllers without all covers properly installed will void the warranty and could potentially render the product useless.

SAVE CONFIGURATION OPTION

To save the settings you have entered (monitor type, checkboxes, etc.), click the disk icon in the upper-left corner of the Configuration Tool and save the file to any location. This file can then be used in the future to configure an identical system with the same settings by simply entering the serial numbers of the new components.

To load the saved settings back into the Configuration Tool at a later time click the folder icon and select the text file you saved. All entered settings, excluding serial numbers, will be automatically entered back into the configurator. You can then enter the serial numbers for the components being used in the next system and save the new file to a flash drive.

The question mark icon will display the splash screen that was shown when the program first started. The splash screen displays the Configuration Tool part number and revision number on it.





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