

## Safety Direct Joystick Configuration

### Introduction

The Safety Direct has scaling and permanent adjustments for the joysticks. Changes to the default parameters can be made by connecting to the USB-serial console.

The following table shows their addresses and assignments

```
I2CRead(0xA0, 0x102, 2, (char*) &joy1Center, 4); //0x102 4 Joystick Cal
I2CRead(0xA0, 0x106, 2, (char*) &joy2Center, 4); //0x106 4 Joystick Cal
I2CRead(0xA0, 0x10A, 2, (char*) &joy3Center, 4); //0x10A 4 Joystick Cal
I2CRead(0xA0, 0x10E, 2, (char*) &joy4Center, 4); //0x10E 4 Joystick Cal
I2CRead(0xA0, 0x112, 2, (char*) &joy1Dead, 4); //0x112 4 Joystick Cal
I2CRead(0xA0, 0x116, 2, (char*) &joy2Dead, 4); //0x116 4 Joystick Cal
I2CRead(0xA0, 0x11A, 2, (char*) &joy3Dead, 4); //0x11A 4 Joystick Cal
I2CRead(0xA0, 0x11E, 2, (char*) &joy4Dead, 4); //0x11E 4 Joystick Cal
I2CRead(0xA0, 0x122, 2, (char*) &joy1Range, 4); //0x122 4 Joystick Cal
I2CRead(0xA0, 0x126, 2, (char*) &joy2Range, 4); //0x126 4 Joystick Cal
I2CRead(0xA0, 0x12A, 2, (char*) &joy3Range, 4); //0x12A 4 Joystick Cal
I2CRead(0xA0, 0x12E, 2, (char*) &joy4Range, 4); //0x12E 4 Joystick Cal
I2CRead(0xA0, 0x132, 2, (char*) &BrakeScale, 4); //0x132 4 Brake Full Scale
I2CRead(0xA0, 0x136, 2, (char*) &ThrottleScale, 4); //0x136 4 Throttle Full Scale
I2CRead(0xA0, 0x13A, 2, (char*) &SteerScale, 4); //0x13A 4 Steering Full Scale
```

When displaying the menu Inputs/Outputs on the menu screen, joy1 to joy4 are left to right joyXCenter is the value of resting center. It is subtracted from joyX to obtain a bipolar value joyXDead is the deadband of the joystick, below the absolute of this value, the joystick reports 0 joyXRange is the full unipolar analog range value of joystick. It is used to scale against the fixed limits of the joystick Steering fixed limit is +-450, Brake fixed limit is 0-100, throttle fixed limit is 0-1000.

### Procedure

The following commands can be used to modify the joystick configuration:

```
devices mem readlong {addr} //Read long value (4 bytes) from SEEPROM
devices mem writelong {addr}{value} //Write long value to EEPROM
menu cmd {*function} //Execute menu function command, list in code if
needed. Function can be save or load
```

### Default Values

```
joy1Center=0x340;
joy2Center=0x350;
joy3Center=0x340;
joy4Center=0x350;
```

```
joy1Dead=20;
joy2Dead=20;
joy3Dead=20;
joy4Dead=20;
```

```
joy1Range=850;
joy2Range=850;
joy3Range=850;
joy4Range=850;
```

```
BrakeScale = 100;  
ThrottleScale = 1000;  
SteerScale = 450;
```

## Examples

Read the Joy1Center setpoint:

```
devices mem readlong 0x102
```

Update the Joy1Center setpoint to 832 decimal:

```
devices mem writelong 0x102 832
```

Update the Joy2Center setpoint to 0x340 hexadecimal

```
devices mem writelong 0x106 0x340
```

Save joystick calibration changes:

```
menu cmd *save
```

Reload joystick calibration changes:

```
menu cmd *load
```

## Example Script

Note: The following commands should be sent before changing one of the settings for the first time. This will assure that all values have sane values assigned.

```
devices mem writelong 0x102 0x340  
devices mem writelong 0x106 0x350  
devices mem writelong 0x10A 0x340  
devices mem writelong 0x10E 0x350  
devices mem writelong 0x112 20  
devices mem writelong 0x116 20  
devices mem writelong 0x11A 20  
devices mem writelong 0x11E 20  
devices mem writelong 0x122 850  
devices mem writelong 0x126 850  
devices mem writelong 0x12A 850  
devices mem writelong 0x12E 850  
devices mem writelong 0x132 100  
devices mem writelong 0x136 1000  
devices mem writelong 0x13A 450  
menu cmd *save  
menu cmd *load  
devices mem dump 0x100 0x40
```

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## Contact Information:

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