

# Adding two buttons for L/R SID selection instead of one in mbSID v2

## Overview

Using two buttons to select the L/R SID is pretty easy, just follow the step-by-step procedure described below.

Difficulty level:

- easy 0-1 **2** 3-4-5-6-7-8-9 hard

Required actions:

- Search/insert
- Compile

Affected files [2]:

- src/cs\_menu\_buttons.inc
- setup\_\*.inc

## Step-by-Step description

### 1. Adding the button

- Open setup\_\*.asm.
- Find CS\_MENU\_DIN\_TABLE
- After this line insert:

```
DIN_ENTRY    CS_MENU_BUTTON_SID_R,    4,    2    ; direct
access to L/R toggling
DIN_ENTRY    CS_MENU_BUTTON_SID_L,    4,    3    ; direct
access to L/R toggling
```

- Make sure the SR pins are set correctly according to where your buttons are connected (here 4, 2 and 4, 3)
- If you don't have status LEDs for this function - you're done already.

## Before the mod:

```
DIN_ENTRY_EOT MACRO
    dw    0x0000, 0x0000
ENDM

CS_MENU_DIN_TABLE
;;      Function name      SR#    Pin#
DIN_ENTRY    CS_MENU_BUTTON_Dec,    1,      ; only valid if rotary
encoder not assigned to these pins
DIN_ENTRY    CS_MENU_BUTTON_Inc,    1,    1    ; (see mios_tables.inc)
and CS_MENU_USE_INCDEC_BUTTONS == 1
```

## After the mod:

```
DIN_ENTRY_EOT MACRO
    dw    0x0000, 0x0000
ENDM

CS_MENU_DIN_TABLE
;;      Function name      SR#    Pin#
DIN_ENTRY    CS_MENU_BUTTON_SID_R,    4,    2    ; direct access to L/R
toggling
DIN_ENTRY    CS_MENU_BUTTON_SID_L,    4,    3    ; direct access to L/R
toggling
DIN_ENTRY    CS_MENU_BUTTON_Dec,    1,      ; only valid if rotary
encoder not assigned to these pins
DIN_ENTRY    CS_MENU_BUTTON_Inc,    1,    1    ; (see mios_tables.inc)
and CS_MENU_USE_INCDEC_BUTTONS == 1
```

## 2. Adding the LEDs

- Find CS\_MENU\_DOUT\_TABLE
- After this line insert:

```
DOUT_ENTRY    TMP4, 6,    1, 6    ; LEFT Sid LED
DOUT_ENTRY    TMP4, 7,    1, 7    ; RIGHT Sid LED
```

- Be sure to change the pins (here 1, 6 and 1, 7) according to where you wired your two status

## LEDs

**Before the mod:**

```

DOUT_ENTRY_EOT MACRO
    dw    0x0000, 0x0000
ENDM

CS_MENU_DOUT_TABLE
;;      Register and bit          SR#   Pin#   Description
DOUT_ENTRY    CS_MENU_SELECTED_SID_FLAGS, ,    1,      ; SID1 LED
(Note: Pin #0 is the D7 output of first SR)
DOUT_ENTRY    CS_MENU_SELECTED_SID_FLAGS, 1,    1,      1      ; SID2
LED
DOUT_ENTRY    CS_MENU_SELECTED_SID_FLAGS, 2,    1,      2      ; SID3
LED
DOUT_ENTRY    CS_MENU_SELECTED_SID_FLAGS, 3,    1,      3      ; SID4
LED

```

**After the mod:**

```

DOUT_ENTRY_EOT MACRO
    dw    0x0000, 0x0000
ENDM

CS_MENU_DOUT_TABLE
;;      Register and bit          SR#   Pin#   Description
DOUT_ENTRY    TMP4, 6,            1,      6      ; LEFT Sid LED
DOUT_ENTRY    TMP4, 7,            1,      7      ; RIGHT Sid LED
DOUT_ENTRY    CS_MENU_SELECTED_SID_FLAGS, ,    1,      ; SID1 LED
(Note: Pin #0 is the D7 output of first SR)
DOUT_ENTRY    CS_MENU_SELECTED_SID_FLAGS, 1,    1,      1      ; SID2
LED
DOUT_ENTRY    CS_MENU_SELECTED_SID_FLAGS, 2,    1,      2      ; SID3
LED
DOUT_ENTRY    CS_MENU_SELECTED_SID_FLAGS, 3,    1,      3      ; SID4
LED

```

### 3. Adding the button handler

- Open `src/cs_menu_buttons.inc`
- Find `CS_MENU_BUTTON_SID_LR`
- Right before this line insert:

```
;; -----  
CS_MENU_BUTTON_SID_L  
    movlw    0x01  
    goto    CS_MENU_BUTTON_SID_TOGGLE  
;; -----  
CS_MENU_BUTTON_SID_R  
    movlw    0x02  
    ;; goto    CS_MENU_BUTTON_SID_TOGGLE  
CS_MENU_BUTTON_SID_TOGGLE  
    ;; do nothing if button has been depressed  
    btfsc   MIOS_PARAMETER2,  
    return  
    ;; exit with message if SID player mode enabled and SID1 selected  
    BRA_IFSET SID_STAT, SID_STAT_SIDPLAYER_CS_DISABLE, ACCESS,  
CS_MENU_BUTTON_SP_IgnoreMsg  
    ;; toggle L/R  
    xorwf   CS_MENU_SELECTED_SID_LR, 1  
    bsf    CS_STAT, CS_STAT_DISPLAY_UPDATE_REQ  
    return
```

#### Before the mod:

```
    bsf    CS_STAT, CS_STAT_DISPLAY_UPDATE_REQ  
    return  
  
;; -----  
CS_MENU_BUTTON_SID_LR  
    ;; do nothing if button has been depressed  
    btfsc   MIOS_PARAMETER2,  
    return  
    ;; exit with message if SID player mode enabled and SID1 selected  
    BRA_IFSET SID_STAT, SID_STAT_SIDPLAYER_CS_DISABLE, ACCESS,  
CS_MENU_BUTTON_SP_IgnoreMsg  
  
    ;; toggle L/R  
    incf   CS_MENU_SELECTED_SID_LR, W  
    andlw  0x03  
    skpnz
```

```

addlw    1
movwf   CS_MENU_SELECTED_SID_LR

bsf     CS_STAT, CS_STAT_DISPLAY_UPDATE_REQ
return

;; -----
CS_MENU_BUTTON_Sync
;; do nothing if button has been depressed
btfsc   MIOS_PARAMETER2,

```

### After the mod:

```

bsf     CS_STAT, CS_STAT_DISPLAY_UPDATE_REQ
return

;; -----
CS_MENU_BUTTON_SID_L
movlw   0x01
goto    CS_MENU_BUTTON_SID_TOGGLE
;; -----
CS_MENU_BUTTON_SID_R
movlw   0x02
;; goto CS_MENU_BUTTON_SID_TOGGLE
CS_MENU_BUTTON_SID_TOGGLE
;; do nothing if button has been depressed
btfsc   MIOS_PARAMETER2,
return
;; exit with message if SID player mode enabled and SID1 selected
BRA_IFSET SID_STAT, SID_STAT_SIDPLAYER_CS_DISABLE, ACCESS,
CS_MENU_BUTTON_SP_IgnoreMsg
;; toggle L/R
xorwf   CS_MENU_SELECTED_SID_LR, 1
bsf     CS_STAT, CS_STAT_DISPLAY_UPDATE_REQ
return

;; -----
CS_MENU_BUTTON_SID_LR
;; do nothing if button has been depressed
btfsc   MIOS_PARAMETER2,
return
;; exit with message if SID player mode enabled and SID1 selected
BRA_IFSET SID_STAT, SID_STAT_SIDPLAYER_CS_DISABLE, ACCESS,
CS_MENU_BUTTON_SP_IgnoreMsg

;; toggle L/R
incf    CS_MENU_SELECTED_SID_LR, W

```

```
andlw    0x03
skpnz
addlw    1
movwf    CS_MENU_SELECTED_SID_LR

bsf      CS_STAT, CS_STAT_DISPLAY_UPDATE_REQ
return

;; -----
CS_MENU_BUTTON_Sync
;; do nothing if button has been depressed
btfsc    MIOS_PARAMETER2,
```

## 4. Recompile

- Now recompile the setup\_\*.asm
- Send it to your mbSID via MIOSSstudio
- You're all done!

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