After initialization the SPI peripheral on the PIC32, there are three settings that must be sent to the FT812 to turn on the screen light.

1. Set BACKLIGHT PWM frequency
2. Set BACKLIGHT PWM duty cycle
3. Set (logic 1) the DISP pin, which also enables BACKLIGHT

4.5.1 Backlight Control Pin

The backlight dimming control pin (BACKLIGHT) is a pulse width modulated (PWM) signal controlled by two registers: *REG_PWM_HZ* and *REG_PWM_DUTY*. REG_PWM_HZ specifies the PWM output frequency, the range is 250-10000 Hz. REG_PWM_DUTY specifies the duty cycle; the range is 0-128. A value of 0 means that the PWM is completely off and 128 means completely on.
The BACKLIGHT pin will output low when the DISP pin is not enabled (i.e. logic 0).

4.5.2 DISP Control Pin

The DISP pin is a general purpose output that can be used to enable, or reset the LCD display panel. The pin is controlled by writing to Bit 7 of the REG_GPIO register, or bit 15 of REG_GPIOX.

First, REG_PWM_HZ should be set to some number greater than 120Hz. It defaults to 250, so we should just be able to leave it.

Next, REG_PWM_DUTY should be set to some number less than 128. 64 will allow for a 50% duty cycle.

Lastly, BIT_15 (the 16th/highest bit) REG_GPIOX must be set to 1, as it defaults to zero. This will turn on the DISP output pin, which also enables the backlight PWM.

Address (hex)	Register Name	Bits	r/w	Reset value	Description
3020D0h	REG_PWM_HZ	14	r/w	250	BACKLIGHT PWM output frequency (Hz)
3020D4h	REG_PWM_DUTY	8	r/w	128	BACKLIGHT PWM output duty cycle 0=0%, 128=100%
30209Ch	REG_GPIOX	16	r/w	0080h	Extended GPIO read/write