

Introduction

PS200-DS is a photosensor board that automatically controls the LCD screen luminance as the ambient illumination changes. Its characteristics are fine tuned especially for Digital Signage applications.

The front side of the PS200-DS board has a photosensing cell that detects the ambient light level and outputs an appropriate voltage to control the LCD screen luminance. On the backside of the board, a trimmer pot fine tunes the dimming characteristics for various ambient lighting conditions.

The PS200-DS photosensor can be used with all Landmark VHB LCDs designed for Digital Signage applications

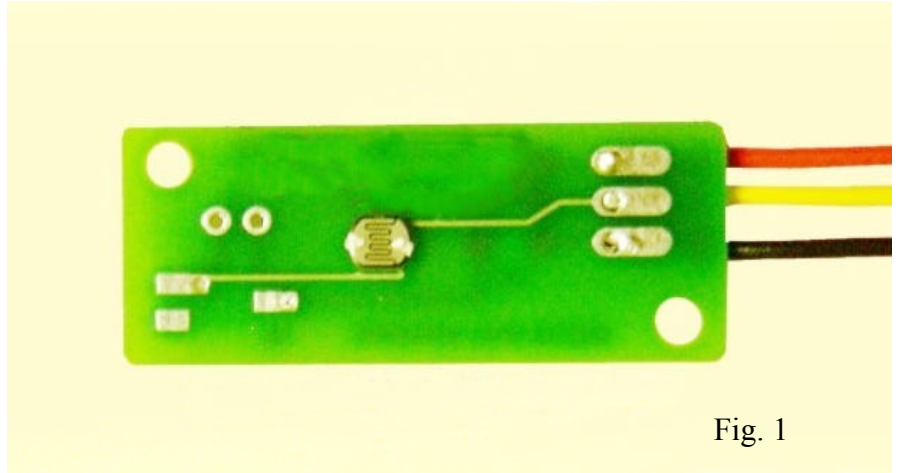


Fig. 1

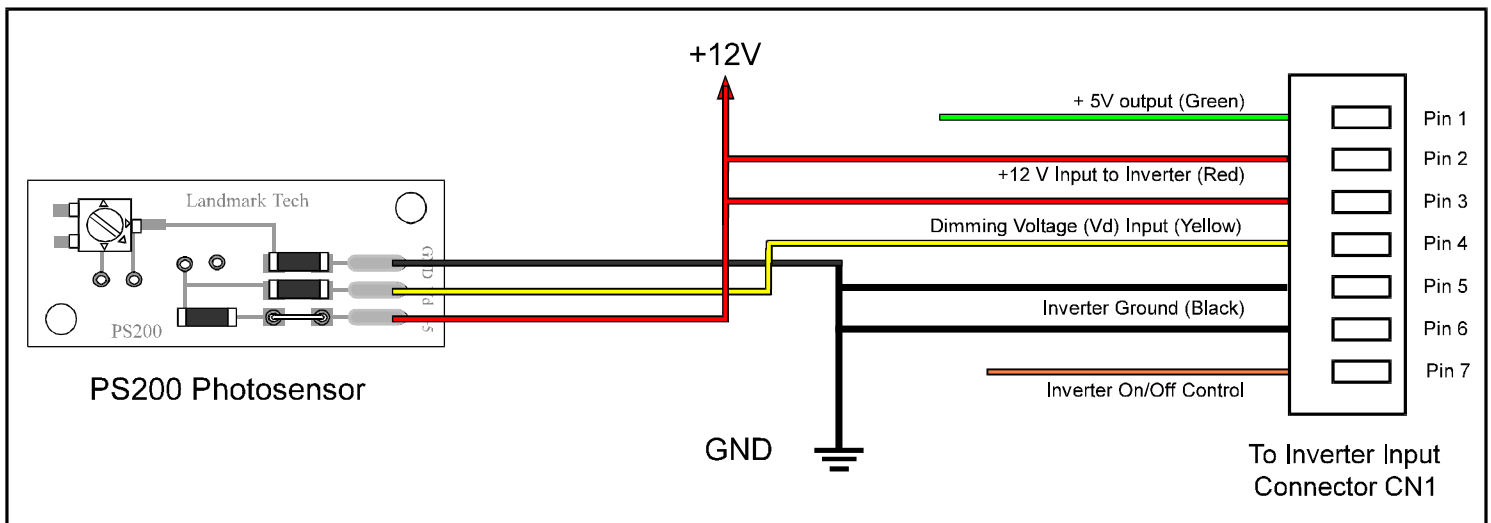
Connecting to the Inverter

There are three wire connections on the PS200-DS photosensor board:

Wire Color	Connect to
Red	+12V
Yellow	Dimming voltage output to inverter
Black	Ground

Figure 2 below illustrates the connections to the input connector CN1 of a Landmark inverter. Please refer to the Inverter data sheet for the detailed pin assignment of the CN1 connector and the Molex part number of the mating connector.

The maximum current needed from the 12V supply to power the PS200-DS photosensor is about 8 mA.



PS200 - DS Dimming Characteristics

The ambient light levels of various lighting conditions are listed below:

Lighting Conditions	Illumination (Lux)
Near total darkness	0.1 & below
Dark	10
Dim indoor	100
Bright indoor	1,000
Bright outdoor in shade	10,000
Under bright sunlight	100,000

The dimming characteristics of the PS200-DS photosensor are shown in Figure 3. The horizontal axis is the ambient illumination incident on the photosensing cell. The vertical axis is the LCD screen luminance as the percent of its maximum level. There are three curves in Figure 3 corresponding to three trimmer pot resistance (R_t) settings

at 0 (min.), 250 (mid.), and 500 (max.) Ohms respectively. Setting the trimmer pot at 0 Ohm provides the widest LCD luminance adjustable range. For example, if the maximum screen luminance of the LCD is $1,200 \text{ Cd/m}^2$ and the R_t value is set at 0 Ohm, then as the ambient illumination (on the photosensing cell) drops to 1,000 Lux (typical bright indoor ambient), the LCD luminance is reduced to 66% or about 790 Cd/m^2 . At nearly total darkness (0.1 Lux), the LCD luminance is reduced to about 16% or 192 Cd/m^2 . For most of Digital Signage applications, a display at 192 nits is perhaps too dim, and the trimmer pot should be set at a high resistance value to increase the brightness. If the trimmer pot is set at 500 Ohms (max.), then at 1,000 Lux ambient illumination, the brightness of that 1,200 nit LCD is at 85% or 1,020 nits. At nearly total darkness (0.1 Lux), the display brightness is at 34.5% or 415 nits which is more than sufficiently bright in total darkness.

PS200 - DS Photosensor Typical Characteristics

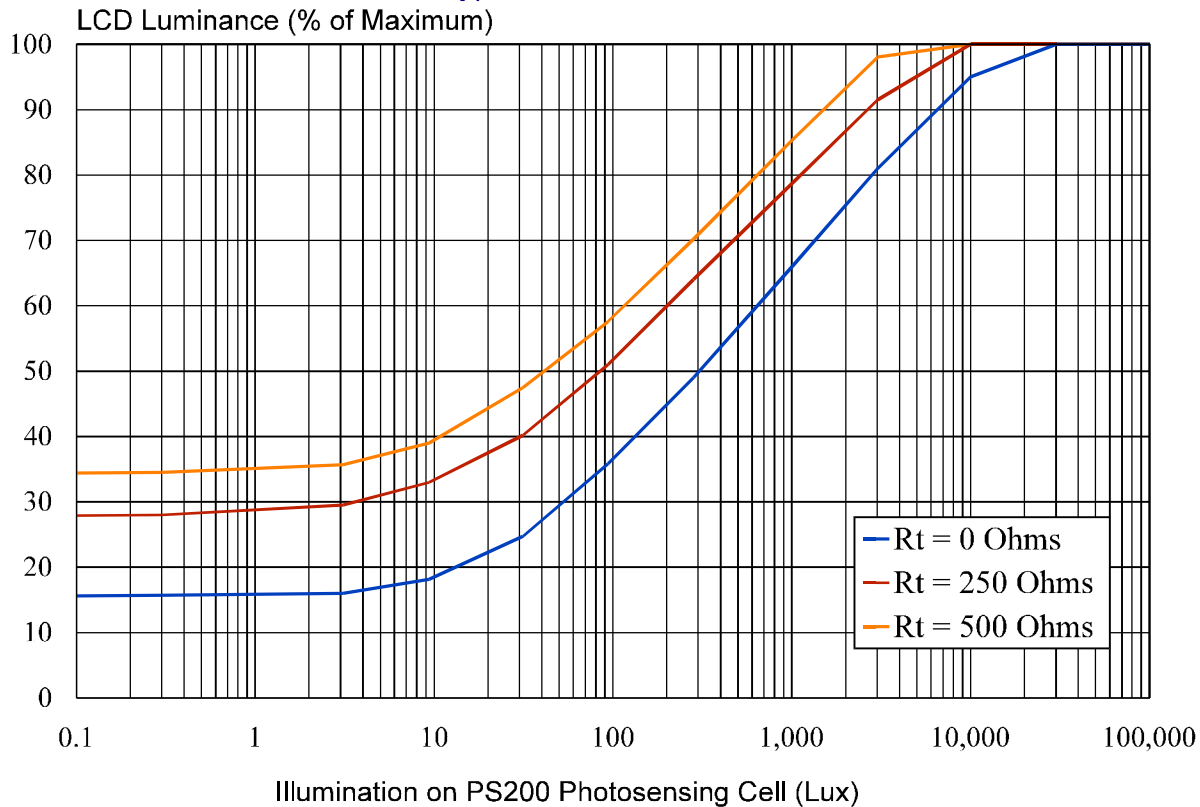


Fig. 3

Mechanical Dimensions

The mechanical dimensions of the PS200-DS photosensor board is shown in Figure 4 on the right.

Installation

The PS200 photosensor can be installed on the front side of the display face plate slightly outside the LCD area. The photosensing cell should be aligned with an opening or window on the face plate to sense the ambient light level. If the arrangement of the photo cell on the PS200 board does not match the design of the display face plate well, please call Landmark Technology to discuss alternative ways to arrange the photosensing cell.

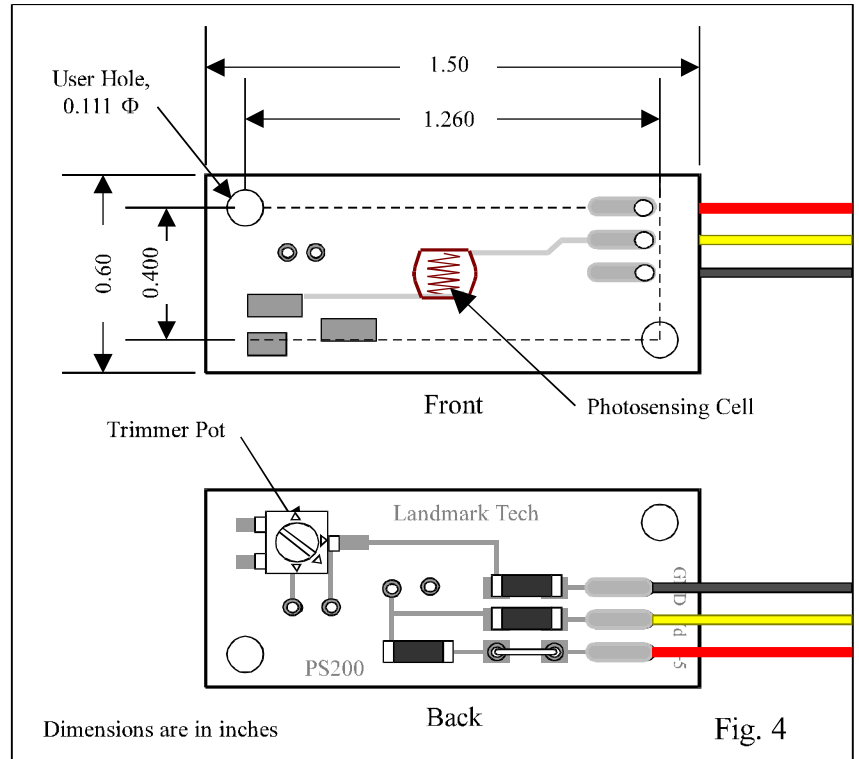


Fig. 4