

Introduction

PS200 is a photosensor board that automatically controls the LCD screen luminance (brightness) as the ambient illumination changes.

The front side of the PS200 board has a photosensing cell that detects the ambient light 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 photosensor can be used with Landmark BI206, BI200AT, BI224, BI320, and BI330 inverters.

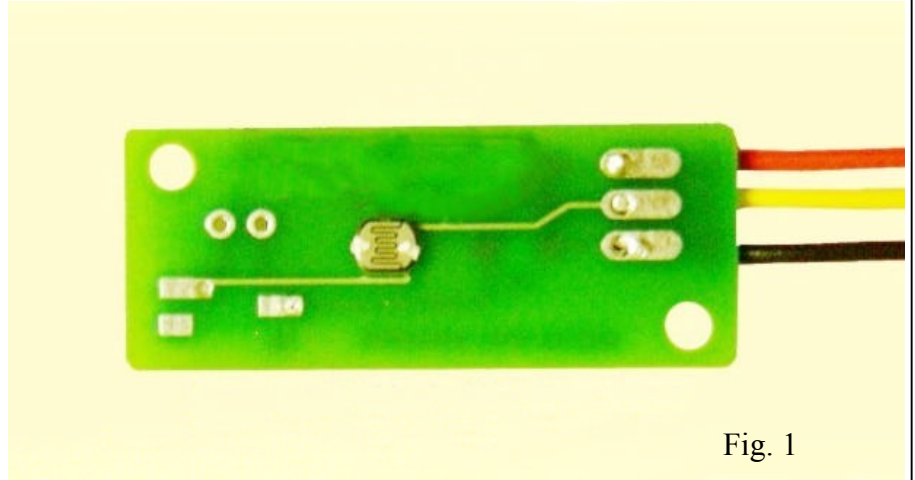


Fig. 1

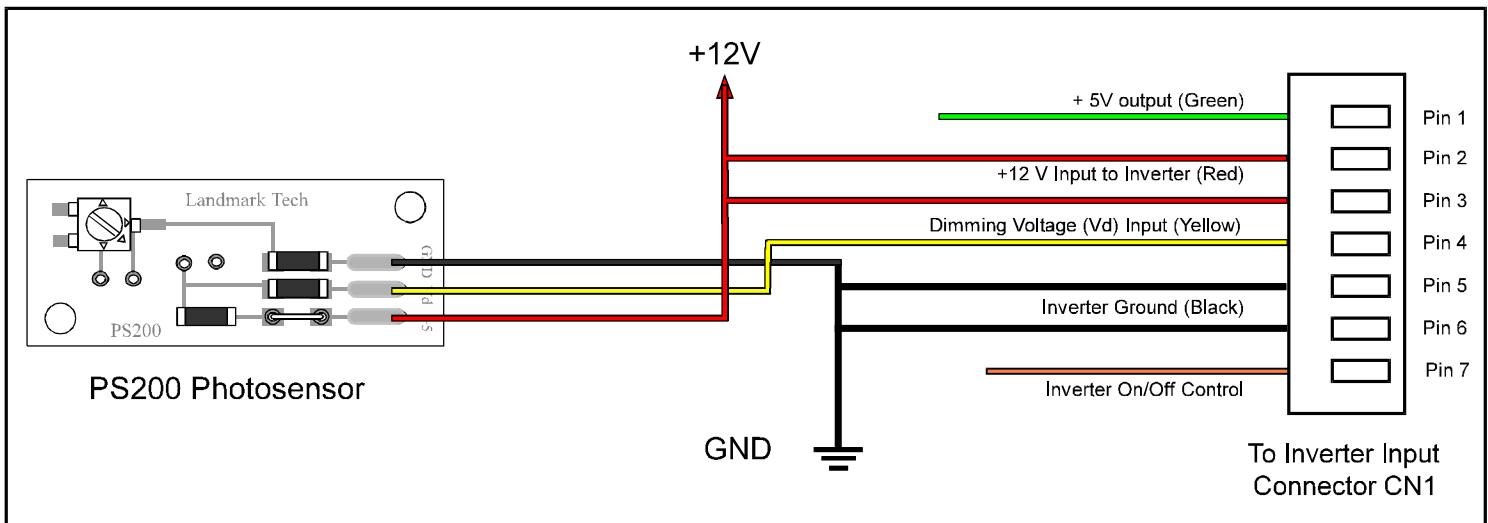
Connecting to the Inverter

There are three wire connections on the PS200 photosensor board:

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

Figure 2 below illustrates the connections to the input connector CN1 of the inverter. Please refer to the Landmark 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 photosensor is about 11 mA.



PS200 Dimming Characteristics

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

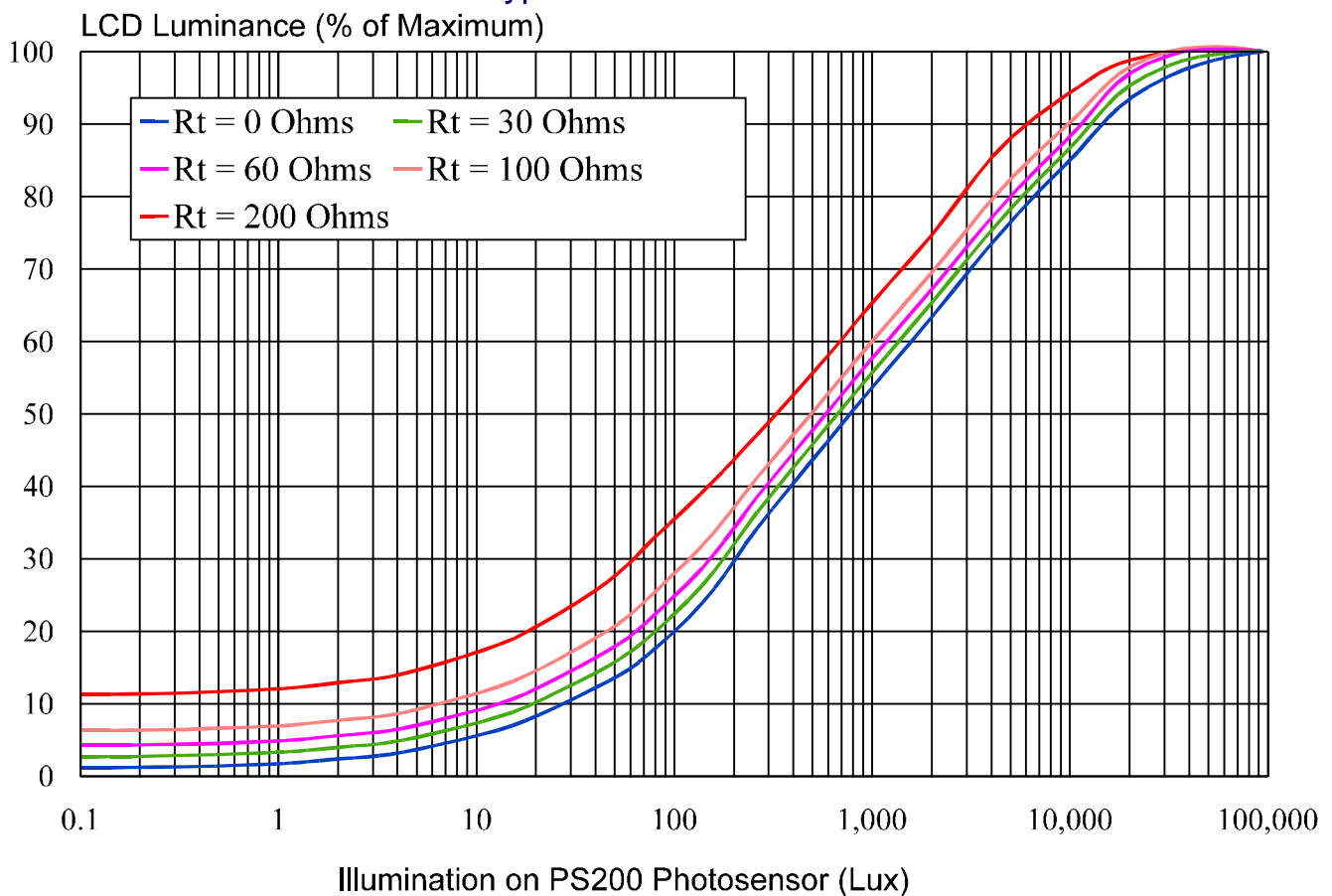
Lighting Conditions	Illumination (Lux)
Near total darkness	0.1 & below
Dark	10
Dim indoor	100
Bright indoor	1,000
Bright outdoor in shade	10,000
Under bright sunlight	100,000

The dimming characteristics of the PS200 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 five curves in Figure 3 corresponding to five trimmer pot resistance (R_t) settings

at 0 (min.), 30, 60, 100, and 200 (max.) Ohms respectively. Setting the trimmer pot at 0 Ohm provides the widest LCD luminance adjustable range. To cite an example, if the maximum screen luminance of the LCD is 1,500 Cd/m² 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 53% or about 800 Cd/m². At nearly total darkness (0.1 Lux), the LCD luminance is reduced to about 1.2% or 18 Cd/m². Therefore, the total dimming range is close to 100:1. On the other hand, if a brighter display is needed at low ambient lighting levels, the trimmer pot can be adjusted to a higher R_t value to increase the LCD screen luminance. For example, when the trimmer resistance is increased to 200 Ohms, the screen luminance at near total darkness is 12.3% or 170 Cd/m².

PS200 Photosensor
Typical Characteristics

Fig. 3



Mechanical Dimensions

The mechanical dimensions of the PS200 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.

