

Application Note 5308

Introduction

There are many motion sensing solutions in the market for the Pan/Tilt/Zoom (PTZ) camera system. They range from expensive absolute encoders to low cost incremental encoders. With absolute encoder, the system is able to obtain the current position at power-up, and the position information will be retained even though the power is turned off. With incremental encoders, the system positions the camera to its home position as the system is initialized during power up. In this application notes, we will discuss a low cost encoder solution for the PTZ camera using the incremental encoder solution.

PTZ Camera Mechanical Mounting

Figure 1 illustrates an example PTZ camera mechanical mount. PTZ camera mounting might vary from one camera manufacturer to another.

Based on Figure 1, the pan-axis motor will move the PTZ camera in pan direction (360°) via gears. The tilt direction (90°) will be controlled by the tilt-axis motor. Each of the motors have a motion sensing device connect to it.

Avago Motion Sensing Solution

Each of the motors requires encoder feedback to tell the current pan and tilt location. Two types of Avago motion sensing devices can be used, either transmissive or reflective. Besides the motion sensing devices, a codewheel must be coupled to the motor shaft. For a transmissive encoder, the optical detector and emitter are directly opposite to each other. With a reflective encoder, the optical detector and emitter as plane. Both solutions are viable and provide a low cost solution for a PTZ camera system.



Figure 1. PTZ Camera Mechanical Mounting Example