

Technology to prevent image shake in consumer video cameras

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<Introduction>

As video movies become more widespread, they are becoming smaller and lighter. While smaller and lighter cameras and higher zoom magnifications bring convenience to consumers, they also increase image vibration. Image vibration prevention technology is becoming increasingly important. Automatic image stabilizer (AIS) devices using rotary gyro sensors have already been put to practical use in the military, broadcasting stations, movie shooting, and other commercial fields. However, rotary gyros, which require ultra-high speed rotation and precision machining, are expensive, and this has been one of the barriers to the practical use of consumer AIS. On the other hand, vibration gyros are small and light, but have the problem of a large zero-point offset voltage. However, this does not affect handheld camera applications. Focusing on this point, we developed and introduced a vibration gyro. First, subjects were gathered to conduct an evaluation experiment on image vibration, and the specifications that consumer AIS should satisfy were clarified. Next, an observer was used to eliminate the effects of disturbance loads. Finally, we developed a new shooting mode discrimination algorithm that analyzes the behavior of the camera body and distinguishes the photographer's intentional camera operation. By carrying out control according to the results of this discrimination, good operability was achieved even when the image shake suppression rate was set high. This image shake prevention technology is introduced below.