

# Rotary HD video transmission of the future

For transferring video data from a rotating camera, a so called slip ring is needed. The technology used today will not meet the requirements of tomorrow. A new slip ring was developed, designed for the future.

The performance of video surveillance cameras today is constantly increasing with the desire to have higher resolution video - 4K and beyond. Much like a racing car requires more design work than a soap box car, higher data transfer speeds require more design work on the cables and wires that carry the video signal. To push the limits of what is possible with the conventional brush slip ring mechanism, some things needed to be replaced.

The first thing was the cables and wiring that connects to the stationary and the rotary parts of the camera. Wires are flexible and as they change in shape, they change in characteristics. Imagine driving on a road that moves as you drive on it, you would not drive very fast, would you? In the new slip ring, the wires are replaced by copper lanes on a circuit board. This way the wires can be made more compact and easily protected. This has a high impact on signal quality. Secondly, the contacts which were previously used to connect the wires to another circuitry was replaced by a modifiable connector that is easy to adapt.

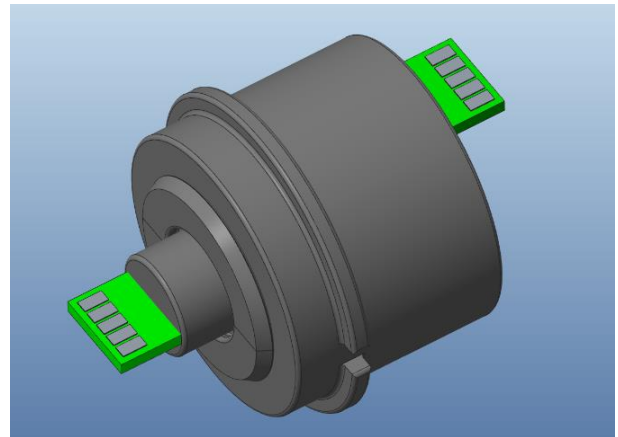


Figure 1: 3D-model of the improved slip ring.

With our new version of the slip ring, shown in Figure 1, it will be possible to transfer data with higher speed but most importantly it leads to better video quality. Imagine yourself you are away for the weekend and have surveillance equipment watching over your house. If the alarm goes off you would want the recordings to be of the highest quality, so the police can get a crisp and clear picture of the burglar.

The master thesis was initiated by a lot of testing. Really, a lot of testing. This phase was very important for us since the results of these tests guided us through the concept development phase that followed. By analyzing the results we could move in the right direction for our product. After spending a lot of hours at the drawing board we got a final concept. By using 3D-printers we could quickly get our designs in our hands and make corrections easily.

When the concept development reached its final stage, we realized that there was big potential within our product. The company we worked for continued the development of the slip ring and will probably implement it in their future cameras. After meetings with the patent department a patent application process was initiated which really excited us. The patent application is now being processed by the European patent office.

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