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A Bespoke Pump Motor for the ECC Ozonesonde

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The historical pump motor for the ECC ozonesonde has been adapted from other applications. With the need for better tracking of housekeeping parameters in the ozonesonde, a new motor has been secured, specifically designed for the ECC ozonesonde pump, which will monitor the pump speed. The motor employs a tachometer, monitoring the motor RPM and providing this information to the speed control feedback, as well as having the speed information output at the connector as RS-232 or as a pulse per revolution. In addition there is a monitor output, which changes state if the motor speed is not maintained. Over a period of 2 days running the motor on the bench, the speed variation is +/- 2 rpm for the entire period. A limited number of flights have been conducted with this motor, employing a special monitor to output the motor speed in the data packet. This showed the same small variation in RPM as the bench tests. Data from dual flight comparisons will be shown with one sonde using the historical motor and another using the new motor. Another advantage of this new motor is the increased efficiency and reduced current draw. Typical for the new motor the current is 55-60 ma, often compared with 70 ma or more for the motor used historically. Testing for EMI interference from the new motor on the InterMet radiosonde and ECC sonde interface have shown no interference.