TECHNICAL NOTE TNDA18

Title: Erratic Counting When Powering Old and New Style CUB5 Counters

Product(s): CUB5, CUB5R, CUB5B

Problem Description: When powering the CUB5 along with the CUB5B or CUB5R from the same DC power source the reading on the CUB5 will become erratic, typically displaying a much higher reading than desired.

Cause of the Problem: The power supply of the CUB5B and CUB5R is designed differently than that of the CUB5. The CUB5B and CUB5R was designed with a switcher type power supply, making it much more immune to the effects of electrical noise. It does, however, produce more electrical noise than non-switcher type power supplies. The CUB5 power supply produces less electrical noise but is much more susceptible to it. When CUB5B or CUB5R units are powered by the same source as the CUB5, electrical noise generated by the CUB5B and CUB5R power supplies will cause problems on the CUB5 units, primarily at the input. Since there is no isolation between the DC common of the supply voltage and the input common on the CUB5, any noise present on the DC source is also present at the input, generating false counts. These false counts make the display appear to be erratic and much higher than it should be. The CUB5B and CUB5R have isolation between the DC common of the supply voltage and the input common so electrical noise on the supply does not cause a problem at the input.

Corrective Action: There are several corrective actions for this problem. Noise suppression such as Red Lion's LFIL0000 line filter will filter out unwanted noise created by the CUB5B and CUB5R. Place the filter between the incoming supply voltage lines and the CUB5. Supplying power to the CUB5 from a separate source not supplying power to the CUB5B and CUB5R will also eliminate the problem as long as the DC common of each source is isolated from the other. Powering each meter and sensor with an MLPS1 power supply, designed for this purpose, will also eliminate the problem.