



Last Modified: 24 May 2023

## Technical Instruction – Power Supply Selection

### Scope

This technical bulletin discusses considerations when selecting an appropriate power supply.

### Discussion

An often-overlooked aspect during the design and installation of a SCADA system is the requirement to use good quality power supplies. Selection based on cost alone can result in the purchase of a poor-quality power supply, the installation of which can cause a wide range of issues, from poor performance to excessive noise generation, which can interrupt or modify sensor results.

A poor-quality power supply can fail in an unexpected, often dramatic fashion, resulting in anything from fire to catastrophic, systemwide failure and damage of sensors, monitoring systems and other equipment. The price in collateral equipment damage due to failure can easily exceed the cost of a quality power supply several times over.

Likewise, installing multiple cheap power supplies in efforts to reduce costs can introduce enough interference to prevent the sensor and system from communicating. This is much less likely to happen if power to both the monitoring system and sensors is provided by a single, good quality power supply.

### Purchasing a Power Supply

Qualities to look for when researching a power supply are good overcurrent protection, overload protection, overtemperature protection, overvoltage protection, short circuit protection, line regulation, and low voltage ripple. System integrators should also consider local factors when selecting power supplies, such as the type of enclosure the power supply will be installed in and site location (desert, arctic, jungle, marine) as this may determine additional required features, such as operating temperature range or IP rating. Environmentally conscious and off grid users should look for supplies with power factor correction as this will increase system efficiency. A quality power supply can also be your first line of defense against damage to system equipment due to unexpected conditions (such as supply voltage fluctuations).

Supply voltage may also be a consideration. While IMT sensors can operate under a range of supply voltages (12 VDC to 28 VDC for the most popular sensors), it may be advantageous to use a 24 VDC supply (as opposed to a 12 VDC supply) when extending the sensor cables, as systems operating at higher voltages can utilize smaller diameter wire gauge. This can result in both reduced installation expenses and increased resistance to interference.

In our internal testing and from customer testimonials, we have found power supplies from Sola/Hevi-Duty, Phoenix Contact, and Puls to be good quality products. This should not be considered a definitive list of quality power supplies, but rather a starting point for system integrators to begin their research when selecting a new power supply.

### Support

For additional information please contact IMT Solar at (716) 276-8466, [info@imtsolar.com](mailto:info@imtsolar.com), or visit us at [www.imtsolar.com](http://www.imtsolar.com).