SYSTEM CONTROL AND DATA ACQUISITION

SCADA systems are central to a company's ability to collect data from their manufacturing processes, interpret that data and react to what the data is telling the SCADA room personnel. SCADA systems are used in a broad variety of industrial and commercial settings.

Chemical and food manufacturing industries, heavily dependent on processing raw materials, utilize SCADA systems to monitor a number of parameters: temperatures, pressures, air flow rates, pump outputs etc.

Large scale transportation systems use SCADA to monitor activities across their complex networks to maintain schedules, protect human safety and monitor transit lines for possible emergency situations.

Sprawling operations that are spread out over a large area such as water treatment plants and wastewater control facilities use SCADA networks to oversee and manage operations of a number of satellite buildings from a centrally located SCADA control room.

The benefits of SCADA systems are as varied as the industries that use them. A few of the most commonly recognized benefits are:

• **Efficient use of Personnel** - one SCADA room operator can simultaneously monitor numerous operations

• **Safety Improvement** – SCADA allows the remote monitoring of processes that involves potentially hazardous chemicals

• **Inventory Control** – SCADA monitoring of processes that require a constant influx of raw materials can be programmed to anticipate when critical inventory levels are reached and allow replenishing of required materials.

• **Security** – for 24/7 operations where staffing is only present during daylight hours, SCADA operations can be IP enabled, allowing remote monitoring-control-alarm capabilities.

All SCADA systems are comprised of a few key elements:

1. **Remote Terminal Units** (RTU)– collect data through the use of sensors which in turn create a series of data signals

2. **Programmable Logic Controller** (PLC) - takes the data signals created by the sensors and through specific software programs can be made to control other operations.

3. **Human Interface** – personnel are required to monitor, control and interpret data gathered by SCADA operations.

4. **Connectivity** of sensors, PLCs, video output screens and other monitoring devises from potentially hundreds of process operations across numerous buildings all have to be connected to the centrally located SCADA control centre. Connectivity could be with copper or fibre optic cabling or it can be done wirelessly. Without appropriate, reliable connectivity, SCADA operations are not possible.

Key elements of successful SCADA network design include **scalability, flexibility, power/pathway redundancy and environmental considerations** to name a few. A Registered Communications Distribution Designer (RCDD) is the professional of choice when designing SCADA communications systems. The RCDD designation is your assurance that the SCADA communications system for your business is well-designed, specified for maximum performance and installed professionally according to manufacturer's best practices.

For more information on SCADA infrastructure design and how Fancom can help with your SCADA network design, please call us at **905-990-4845** or send an email to **info@fancomni.com** indicating "SCADA" in the subject line.