**INTELLIGENT END DEVICE (IED)**

Similar to a PLC, an intelligent end device (IED) can establish communication between remote sensors and controllers and the communications network. An IED differs from a PLC in that a single IED can control several different aspects of a piece of equipment, so that the entire piece of equipment works in harmony with the rest of the needs of the system and within established design parameters. IED is a relatively new term and has come about in part because of confusion between remote *telemetry* units, with the acronym (RTU) and remote *terminal* unit, also with the acronym RTU. To help solve this issue, the industry has begun to call these more sophisticated interface and controller units, IEDs.

A key difference between the remote terminal unit (RTU) and the IED, is the same as that of the RTU and PLC, and it is illustrated in the figure below. In this figure, note that the machine language, and hence the data, moves in <u>both</u> directions, thus allowing for not only data acquisition, but also control.
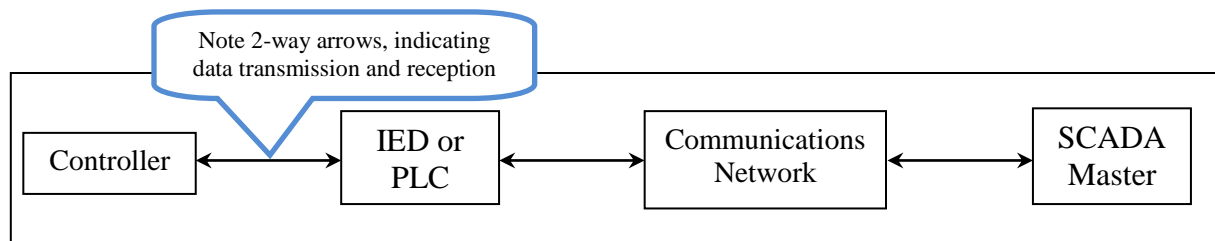
Simplified Illustration of PLC or IED Function in a SCADA System

It is important to note that specific instructions for equipment automation are stored locally, in the PLC or the IED. This is usually due to the fact that over most Communication Networks, there is a limited bandwidth, thus limiting the actual control to that which is "pre-programed" into the PLC or IED. As communication networks and the technology that SCADA is based on continues to improve, there will no doubt be a day when unlimited control can be exerted from the SCADA Master to the desired equipment. (Bentley, 2004)