# Operational Description

Matrics, Inc. technology makes Radio Frequency Identification (RFID) effective and affordable by offering a combination of low cost, long read range, and a very high read rate unmatched by other RFID systems. A typical Matrics, Inc. RFID system consists of three components:
*Silicon-based RFID tags,
*Reader network components (readers, antennas, cables, power supplies, wire blocks, etc.), and
*Your choice of Host/PC controller with system management software.

Tags can be purchased as thin, flexible smart label inlays that can be incorporated into standard laminated paper or plastic to create inexpensive stick-on or embedded labels. Matrics, Inc. smart labels can uniquely identify items up and down the supply chain, such as products in-process, pallets, boxes, trays, and totes.
With an innovative approach that removes the circuit complexity from the integrated circuit (IC), Matrics, Inc. UHF tags are simple and inexpensive to produce. The ultra lean chip design requires low power and consequently produces powerful read ranges. Each chip is extremely secure and tamperproof, because the unique ID is programmed very early in the manufacturing process and cannot be altered.

The Matrics, Inc. RFID Tag Reader provides all of the RF and control functions required to power and communicate with Matrics, Inc. passive RFID tags. It sends digital data to the tag via the antenna on a pulse width modulated On Off Keyed (OOK) transmitter signal, demodulates the identification signal received from the tag, and then sends the data to a host control device.
The Matrics, Inc. Reader system is structured to allow for flexibility in system configurations and in the arrangement of read points to optimize coverage at a low overall cost. Four high performance antennas can be attached to one reader that support a total of thirty-two (32) low performance antennas.
The system also employs a unique, patented reader-driven interrogation protocol that allows up to one thousand (1,000) tags to be read each second. This powerful read rate supplies the muscle to overcome interference in noisy environment, and to guarantee acceptable read rates at each read point when large numbers of antennas are multiplexed together. Readers can be powered either locally or through the network cable in the event there is not a local power source near by, and to minimize overall network infrastructure costs.