Communicator® Applications

I. AUTOMOTIVE

1.) A large southern automotive manufacturer
   ▪ Purchased an automated monorail crane assembly system from a crane OEM
   ▪ System is used as part of the rear axle assembly for 2 and 4 wheel drive trucks
   ▪ Four “transporters” utilized a tool attached to the hoist which grabs the axle assembly
   ▪ On command, the transporter then carried the assembly from station to station
   ▪ Each hoist and trolley “transporter” is controlled with a SLC 500
   ▪ As the transporters travel around the oval monorail system, wireless Communicator® modules maintain “Traffic Management” – verify position information of all four (4) transporters
   ▪ Flags / triggers are placed along the monorail at each station – each at a different distance away from the monorail – used to activate proximity sensors for position
   ▪ Four (4) proximity sensors are mounted to each transporter in a line
   ▪ Prox sensor (1) corresponds to station (1), Prox sensor (2) corresponds to station (2), etc.
   ▪ A master Communicator® module monitors all positions and gives commands to move
   ➢ Increases productivity resulting in higher production rates

2.) A large midwestern automotive manufacturer
   ▪ Mainframe managed several transfer carts during the loading of car bodies and interiors into tractor trailers
   ▪ As tractor trailers moved into dock – bar code information initialized loading of components automatically throughout the trailer
   ▪ System was configured with one (1) master and eight (8) remote Communicator® modules
   ➢ A fast and reliable mechanism to send control information from the mainframe to the carts is required
   ➢ RF modems have proven to be inadequate – latency issues with underterministic control

3.) Nuclear equipment manufacturer
   ▪ Provided Command Chief™ systems for existing cranes – TK6 with AB SLC based receiver
   ▪ Provided automatic control characteristic change based on position of crane
     - Automatically limit speed of motions in designated areas to maintain safety levels
   ➢ Establishes a more familiar system for maintenance personnel – reduction in maintenance costs
   ➢ Allows for safer use of crane system preventing accidents
II. POWER PLANTS

1.) Coal burning power generation facility
   - Provided a wireless control network between master PLC to the tripper PLC & coal loader
   - Allowed for monitoring and control of conveyor speeds and tripper controls from coal unloading area
   - Distance of approximately 1/2 mile
   - Communications capable where none could have previously been made available
   - Incorporates into existing AB equipment

2.) Nuclear power generation site fuel handling crane
   - Sold to crane OEM for handling drums of nuclear waste
   - Utilized multiple RF techniques
   - Weigh scale data brought into AB SLC via RF incorporated into scales
   - Remote panelview linked to AB SLC via RF – modems from Control Chief
   - Wireless remote control with portable TK6 transmitter
     - Data from transmitter brought directly into image table via Communicator® module
   - OEM familiar with utilization of AB SLC – Control Chief provided only core components
     - TK6 Transmitter / 450R Communicator® module / Safety Watchdog module
   - Allows OEM to reduce cost of system
     - Smaller control package
     - Less intermediate wiring
     - OEM / Integrator can directly utilize the data from the RF System as standard inputs
     - RF data is brought directly into the backplane – eliminates input modules
     - Utilization of a SLC eliminates relay logic
     - Reduces installation time
     - FLEXIBILITY – RF data is utilized with standard RS Logix
     - OEM INCREASES PROFIT MARGINS

3.) Large Nuclear Power Plant
   - Crane OEM required to provide radio remote control with feedback from the crane to the transmitter
   - OEM utilized AB SLC for basis of crane control
   - Custom system utilized an AB micro view on transmitter for monitoring information
     - Wind speed information, load cell, etc.
   - System utilized two (2) radio techniques – Licensed 450MHz for control and unlicensed 2.4GHz for monitoring
   - The Control Chief system directly interfaces to existing SLC
   - Interface wiring and installation costs are reduced
   - Utilizing a familiar AB product for monitoring will allow the OEM to program and adjust feedback information with standard AB programming tools
   - OEM is more competitive and is not tied to remote control vendor for changes to programming
III. MARINE

1.) Large Container Shipping Organization
- Utilized remote operation of barge thrusters
- Utilized the Communicator® module for integration of wireless control into existing SLC
- Tug will control bow thrusters on barges during transportation and docking
- Base modules at tug have the ability to change network and address configurations ‘on the fly’ – allows for tug to wirelessly “log on” to the different barges
  - Provides cost effective solution with decreased latency and tight PLC integration
  - Unlicensed radio eliminates FCC costs associated with current product

2.) Coast Guard - buoy tending cranes on ships
- Controls Integrator designed crane control around SLC
- Remote control system consisted of three (3) main components – transmitter, 450MHz receiver Communicator® module, and Safety Watchdog module
  - Controls Integrator has ability to utilize RF data with standard RS Logix
  - Provides simple cost effective system – eliminating intermediate wiring from separate receiver
  - Utilizes multiple frequency selection of the Communicator® receiver module via the TK6 transmitter

IV. MINING

1.) P&H Mining blast hole drilling machine
- Allowed operator to safely and more effectively setup the machines
  - Existing SLC for control of machine allows direct interface of Safety Watchdog module and receiver modules for wireless remote control
  - Increases safety and productivity
  - With the ability to select different machines, cost of manpower is reduced
  - OEM now advertises this system as a standard option

V. WASTE WATER AUTHORITIES

- Control, status, and alarm indication of remote pumping stations back to a central control office
- Networking of stations throughout water authority network back to main office with separation distances upwards of a few miles
  - Provides unlicensed wireless control link eliminating
    - The need to run expensive runs of wiring between points
    - Renting fees of land line phone access
  - Decreases time of installation and maintenance costs
VI. SHIP LOADER / UNLOADER

- Operator has control of ship loading crane as well as feedback of conveyor status to the transmitter
- Transmitter incorporates MicroView 300 to display data
  - Transmitter incorporates two RF links
    - Dedicated link for control separate from data monitoring link
  - Ease of integration into PLC allows for significantly reduced installation time
  - Eliminates need for expensive & maintenance intensive control slip rings

VII. TARGET APPLICATIONS

- Wireless control utilizing the 2.4GHz Communicator® and Safety Watchdog module with hard-wire interface to E-Stop (MLC) circuits
  - The use of slip rings, festooning, conductor bar, flex cable, land lines, etc.

- Mobile machine or process control
  - Stacker cranes, gantry cranes, monorail cranes, turntables, etc.
  - Conveyor systems used for production or material handling
    - Product manufacture – food producer, component transfer
    - Material transfer – rock quarry mining
  - Networking between facilities
    - Provides immediate installation of network
    - Eliminates cost of hard wiring

- ShipLoaders / UnLoaders
  - Grain facilities, chemical plants, cement, etc.
  - Typically uses an Allen Bradley PLC for control
  - Need for radio remote control? – allows for direct integration of Communicator®
    - TK6, 450MHz Communicator® receiver, and Safety Watchdog module
  - Need for large amounts of I/O control transfer? – typically use slip rings are used for communication