



## 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**

*VS*

**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