



## Topics to cover – Serial Communication / Vision / HMI

### Serial Communication

1. Why it's useful
  - a. Control from user interface
  - b. Communicate system data on a network
  - c. System feedback to user interface
  - d. Communicate between controllers
  - e. Obtain information from a vision system
  - f. Communicate with other devices (i.e. scanners, scales, etc.)
2. What we offer
  - a. Teach Port
  - b. SELNET
  - c. 2ch RS232c
3. Teach Port
  - a. Uses RS232 Serial Communication Protocol
  - b. Talks directly to the CPU using ASCII strings
  - c. Don't need programs or points in the controller
  - d. Don't need to know our SEL language
  - e. No fail-safe, so must have correct string
  - f. Cannot write to variables
  - g. Serial Communication same as software/teach pendant
  - h. Peripherals must develop driver
  - i. Exists on all controllers
  - j. Same protocol for DS, SEL E/G, A/B, and SCARA
  - k. 9600 baud only
4. SELNET
  - a. Must have an SEL program running to control communications
  - b. Very flexible and open-ended protocol
  - c. Higher baud rates
  - d. Requires SEL programming knowledge
  - e. Peripheral companies don't necessarily need a driver developed
  - f. Still RS232
5. 2-ch. RS232c Option

- a. Same communication method as SELNET
- b. 9-pin connector vs. molex connector
- c. Same hardware internally as SELNET
- d. Available on SELG-EU, SELG and SCARA

## **Vision Systems**

### 1. DVT

- a. Moderately priced vision system
- b. Communicate w/ Teach Port or SELNET
- c. Good for simple to somewhat advanced calculations
- d. Has already been integrated w/ SCARA, SuperSEL, DS, etc.
- e. Primarily used to send position data, offsets or deviations
- f. Used for both data acquisition and motion control
- g. Great user interface software kit
- h. <http://www.dvtsensors.com>

### 2. Cognex

- a. High-priced, high-end vision system
- b. Communicate w/ Teach Port or SELNET
- c. Will do everything needed
- d. Parts inspection, motion control, high-speed acquisition
- e. No front-end software, user must write code
- f. Commonly used with Visual Basic, Visual C++, etc.
- g. Learning curve higher due to complexity
- h. <http://www.cognex.com>

### 3. Other companies

- a. Keyence (<http://www.keyence.com>)
- b. Omron (<http://www.omron.com>)
- c. Sharp
- d. Many smaller competitors

### 4. Summary

- a. DVT is the most integrated company w/ IAI
- b. Usually a cost and complexity issue

## **Touchscreen / Touchpanel / HMI Interfaces**

1. EXOR
  - a. Touchscreen / Touchpanel
  - b. Good software for screen design
  - g. Driver could be improved
  - h. SELNET (preferred) or Teach Port
  - i. Has had issues with SELG-EU (Distech)
  - j. <http://www.exor-rd.com/>
2. Red Lion Controls (Paradigm Series)
  - a. Teach Port only
  - b. Touch panel only
  - c. Very nice low-cost solution
  - d. Gibson Engineering
  - e. Integrated with DS, SuperSEL and SCARA
  - f. <http://www.redlion-controls.com/>
3. Cimrex
  - a. Newest addition both w/ IA and in the US
  - b. Teach Port only
  - c. Lower cost touchpanels up to higher-end touchscreens
  - d. Ethernet capability, effectively giving IA Ethernet capability
  - e. Soon will have Web-based monitoring and control
  - f. Very innovative and excellent software
  - g. Driver could be improved on
  - h. <http://www.cimrex.com/>
4. Kepware
  - a. HMI interfaces, plus a data server for OLE and DDE
  - b. Very good software and interface
  - c. Teach Port only on KepServer for now
  - d. Has been integrated w/ SuperSEL, DS and SCARA
  - e. One of the more complete Teach Port drivers
  - f. <http://www.kepware.com/>
5. Summary
  - a. Teach-Port-only interfaces are limiting themselves
  - b. Future lies in remote monitoring and panel emulation