OMNILINK II
Press Automation Control

The most advanced modular press automation system available with control, sequencing, monitoring, job storage, diagnostic and communication functions to increase productivity and quality in press production processes to new levels for global competitiveness.

The OmniLink II Automation Control:
- Integrates press, feed, and auxiliary systems functions
- Increases ease of operation for complex press production systems
- Increases productivity and reduces downtime
- Enhances quality control
- Reduces scrap parts
- Protects presses and dies
- Records and reports production information
- Provides job and PM scheduling
- Provides paperless recordkeeping

Link Systems designs, develops, and manufactures electronic controls, monitors, and safety devices for the metal stamping and fabrication industry. We are an engineering company committed to providing practical solutions to our customer’s needs for automation, productivity, quality, safety, and shop floor information storage and retrieval.

Our product line is flexible enough to provide a specific control or monitoring function or to provide integrated systems for your presses. Link supplies products and systems to both the retrofit and OEM markets. We also provide engineering consultation, installation, and repair services for our systems.

Our control products provide the latest reliable technology to increase safety and productivity and reduce setup time.

Our light curtain safety devices protect against hazards while allowing accessibility and visibility for the operator.

Our monitoring systems can help prevent machine and tooling damage and reduce production of scrap parts.

Let Link Systems help your company achieve your goals.
Analog Signal Monitor Option

Monitor part features with in-die sensors for in-process quality verification. Monitor individual forces on punches in die to detect critical die damage that leads to bad parts.

Adding the optional analog signal monitor board to the Tonnage and Analog Signal Module provides 4 analog sensor inputs for in-die part measurement and other analog process monitoring. Sensors can be strain gages, analog proximity sensors, analog optic sensors, LVDT sensors, pressure sensors, thermal sensors, etc. The inputs can be configured for sensors with strain gage, 4-20mA and various voltage span outputs. When only two channels of the tonnage monitor are used, the remaining two channels will appear on the analog monitor screen for use as strain gage only inputs, giving a total of 6 analog channels.

This option also provides four output drive signals to actuate measurement fixtures or devices at the user selected position in the press stroke. An isolated input is also provided so that an external signal can specify when a measurement is to be taken.

Easy setup for analog monitoring channels is done on a single screen, with help notes that appear as each item is selected. High and low limit setpoints and high and low warning set-points for the analog monitor can be set manually or stored and recalled from job memory. Limits can be set to apply to highest, lowest, average, or every value measured in the measurement window. Individually set the action taken when each limit is exceeded. Choices include None, Top Stop, Cycle Stop, Intelli-Stop, Show Status and Mark Bad.

A system that grows with you

Because of the modular design of the system using distributed processing, additional modules are easily added to the system as needed. Simply mount the module, connect it to power and the system high speed serial bus, and configure the operator terminal to recognize the module.
Diurnal Die Protection and Process Monitor Modules

Never before has it been so easy to monitor your production process to protect dies and detect process faults affecting quality.

Digital Die Protection and Process Monitor modules provide interface for 8 or 16 digital sensor inputs each and provide power for sensors and various programmable logic modes for each channel to monitor stripper plates, parts ejection, short and long feed, transfer, end of stock, part in position, and other die and process items. For applications that require more than 16 inputs, additional modules (up to a total of 5) can be added, providing up to 80 inputs. Sensors can be wired individually to the module through cords or collectively through a multi-conductor cable from a junction box on the die to a quick connect receptacle on the module. When a fault is sensed, press stroking is stopped to protect press and dies.

The main Die Protection screen shows the status of channels at a time. Next page and previous page softkeys are used to view multiple groups of 8 channels. One of the unique features on this screen that permits instant identification of timing problems is a circular display that shows the angular position for cyclic events in blue and the real-time capture of the sensor signal for the highlighted channel in black.

Program all settings for a die protection channel on one screen. The Die Protection Channel Settings screen uses help and explanation notes that appear as a setting is selected and allows quick and easy channel configuration. A broad selection of channel logic types, including a custom type that can be specified by the user allows versatile monitoring of the production process.

The Die Protection Diagnostic Screen uses a graphic and tabular history of last 64 sensor transitions. Help notes aid in setting up channels to perform desired monitoring.

Monitor up to 80 sensor inputs
Sensors may have npn, pnp, or contact outputs
Programmable debounce of sensor inputs
Real time capture of sensor transitions
Observe timing windows and sensor transitions on a circular crankshaft position graph as the press strokes and adjust on the fly.

Choose Cycle Stop, Top Stop, or speed advanced Intelli-Stop, which decides on Top Stop or Cycle Stop.

Signal capture from multiple sensors can be overlaid on timing window graph
Multiple monitoring modes, including a programmable custom mode, increases versatility
Description of items monitored by each channel can be entered by the user for ease of troubleshooting.

OMNIPRO II
Tonnage and Analog Signal Monitor Module

A versatile module that provides a new standard for signature tonnage monitoring and a variety of optional limited automation sequencing and monitoring functions.

The Tonnage and Analog Signal Monitor Module provides up to 4 analog sensor inputs, 4 output drive signals and one isolated digital input. The optional circuit board provides 4 digital die protection inputs and drive signals for 4 programmable limit switch outputs (external relays must be added for PLS outputs). A second optional circuit board provides 4 analog sensor inputs, 4 output drive signals and one isolated digital input. Options also include serial ports for future use and a True Part Count function using sensors to count parts as they go into bins. Parts can be diverted to another bin at count complete.

The Tonnage Graph screen shows the actual signatures of the die, i.e., tonnages created by the die versus crankshaft angle. The graphs update as the press strokes or, if desired, can be overlaid for multiple strokes. Graphs include total tonnage or tonnage of each channel. The setting of data windows and limits is easily done on the onthestroke graph screens as the tonnages created by different die features is clearly shown.

An optional four digital die protection inputs and four PLS outputs make the Tonnage and Analog Signal Monitor Module a great value for presses that need a limited number of die protection and PLS channels. If more die protection and PLS channels are needed at a later time, add Die Protection and Process Monitor and PLS Logic modules to provide additional channels.

Up to four data windows can be set for each job
High limit, low limit, and reverse limit can be set for peak tonnages. Highlighted limit values can be set for each data window
Tonnage limits can be set manually, automatically set after sampling several strokes, or recalled from job storage memory
Graphs of tonnage vs. crankshaft angle for total tonnage and for each channel are updated as the pressure strokes
Reference graphs can be stored for each job
Optional digital die protection and PLS channels are shown and programmed seamlessly on the OmniLink II Operator Terminal with other such channels provided by other modules

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**Auto Setup Module**

Fast and consistent set-up when changing from job to job means more uptime, increased productivity, and more consistent parts quality.

The OmniLink II Auto Setup Module provides recall and automatic adjustment of slide shut height and air pressures of such auxiliary press systems as counterbalances, cushions, and hydraulic overloads for the jobs run in the press. This provides a paperless record of job settings, greatly reduces changeover time between jobs, and provides more consistent setups. Each Auto Setup Module can provide the shut height adjustment for one slide and control two air systems or can control four air systems if no slide adjust option is provided. Up to four Auto Setup Modules can be used with the OmniLink II automation control, providing for numerous slides and air systems.

Each OmniLink II 5100 series Programmable Limit Switch/Logic module provides up to 16 output relays and has the unique feature of 16 associated inputs. These inputs provide unparalleled flexibility for the control, sequencing, and monitoring of feed line, transfer, ejection, and other auxiliary automation on your press. This module not only provides traditional PLS functions, but can use sensors tied to its inputs to verify that the automation action commanded by outputs is performed. These inputs also allow sequential turn on or turn off of outputs by sensors. Up to 6 PLS/Logic modules may be used with the OmniLink II automation control for a maximum of 96 output and input channels.

The PLS Outputs screen shows the status of 8 channels at a time. Next page and previous page softkeys are used to view multiple groups of channel status. A circular display shows the angular timing window for cyclic events in blue. Module status and system status are also shown on the PLS Outputs screen.

The Channel Settings screen allows each PLS channel to be programmed for Always On, Always Off, Angle On - Angle Off, Angle On - Timed Off, Toggle, or Input Driven Only mode. All modes are available for all channels. Certain modes have special actions available. These actions include counted outputs, speed advanced outputs, and On and Off at events detected by sensors connected to the module inputs. On and Off angles can be incremented as the press strokes on this screen.

The Input Sets screen provides the setup for Track Mode, where sensors tied to the inputs verify that actions commanded by PLS outputs occur within a response time set by the user. It also provides setup for PLS outputs to be turned on or off as the inputs sense that events occur.

When the module is configured for slide shut height control, OmniLink II can automatically provide accurate, repeatable shut height adjustment for each job recalled from memory. A rotary shut height transducer supplied by Link is used to provide slide position information to the control.

By automatically setting the counterbalance and cushion air pressures as a job is recalled, the OmniLink II assures that the pressure is correct for the tooling used. The Auto Setup Module sets the correct pressure for each die, rather than an approximate pressure for a range of die weights.
**OMNILINK II**

**PLS/Logic Module**

The most flexible automation sequencing available with outputs that can be programmed to turn on and off by crankshaft angle, time, or associated input channels.

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**Auto Setup Module**

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Present setpoints and actual measured values are displayed simultaneously, along with any fault conditions and the status of the module. Diagnostics help keep any required troubleshooting time to a minimum.

When the module is configured for slide shut height control, OmniLink II can automatically provide accurate, repeatable shut height adjustment for each job recalled from memory. A rotary shut height transducer supplied by Link is used to provide slide position information to the control.

By automatically setting the counterbalance and cushion air pressures as a job is recalled, the OmniLink II assures that the pressure is correct for the tooling used. The Auto Setup Module sets the correct pressure for each die, rather than an approximate pressure for a range of die weights.

Either 8 or 16 outputs per module for Programmable Limit Switch and other control functions

Available with either electro-mechanical or solid state (ac or dc) output relays

16 inputs per module allow PLS sequencing by event and verifying action of automation sequenced by PLS

PLS may be configured to provide automatic top stop compensation for variable speed presses

Provides Speed Advanced, Timed, and Counted, and Toggle outputs

Channels can be user programmed with a twenty character alpha-numeric description

PLS outputs can be viewed on a circular graph and incrementally adjusted as the press strokes

Status and diagnostic information is displayed for individual channels, the particular module, and the total system

Provides fast, consistent changeover between jobs

Final slide adjustment is always made from one direction to prevent inaccuracies due to clearance in adjusting screw threads

Repeatability of less than .001 inches in slide adjustment setups

Can be configured for English or Metric Units of measurement

Enter either pressure or die weight when initially storing the settings for counterbalance pressure

Automatically adjusts to maintain correct pressures at temperature and other factors that affect pressure change

Adjusts counterbalance pressure for exact die weight, rather than die weight within a range

Set individual tolerances on slide shut height and pressure adjust channels

Either 8 or 16 outputs per module for Programmable Limit Switch and other control functions

Available with either electro-mechanical or solid state (ac or dc) output relays

16 inputs per module allow PLS sequencing by event and verifying action of automation sequenced by PLS

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Digital Die Protection and Process Monitor Modules

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Digital Die Protection and Process Monitor modules provide interface for 8 or 16 digital sensor inputs each and provide power for sensors and various programmable logic modes for each channel to monitor stripper plates, parts ejection, short and long feed, transfer, end of stock, part in position, and other die and process items. For applications that require more than 16 inputs, additional modules (up to a total of 5) can be added, providing up to 80 inputs. Sensors can be wired individually to the module through cords or collectively through a multi-conductor cable from a junction box on the dies to a quick connect receptacle on the module. When a fault is sensed, press stroking is stopped to protect press and dies.

The main Die Protection screen shows the status of 8 channels at a time. Next page and previous page softkeys are used to view multiple groups of 8 channels. One of the unique features on this screen that permits instant identification of timing problems is a circular display that shows the angular position of sensor inputs in blue and the real-time capture of the sensor signal for the highlighted channel in black.

Program all settings for a die protection channel on one screen. The Die Protection Channel Settings screen uses help and explanation notes that appear as a setting is selected ..., allows viewing of any of the settings, viewing of theantu provides a quick overview of the ... security, and monitoring functions.

The Die Protection Diagnostic Screen uses a graphic and tabular display to show the last 64 sensor transitions. This helps you quickly see where your sensor is turning off and on relative to crankshaft position and allows timing windows to be adjusted, even during press stroking.

OMNILINK II Tonnage and Analog Signal Monitor Module

A versatile module that provides a new standard for signature tonnage monitoring and a variety of optional limited automation sequencing and monitoring functions.

The Tonnage and Analog Signal Module provides up to 4 channel signature tonnage monitor and a power supply capable of powering sensors for options that can be added. One optional circuit board for the module provides 4 digital die protection inputs and drive signals for 4 programmable limit switch outputs (external relays must be added for PLS outputs). A second optional circuit board provides 4 analog sensor inputs, 4 output drive signals and one isolated digital input. Options also include serial ports for future use and a True Part Count function using sensors to count parts as they go into bins. Parts are diverted to another bin at count complete.

The Tonnage screen provides detailed at-a-glance status for each channel. Present tonnage, alarm status, and high and low limits are shown graphically and numerically. Limits are applied to peak tonnage for each channel and 4 data windows allow limits to be set for tonnages in up to four different crankshaft regions to monitor different die features. These Data windows allow better detection of wear of different punch areas in the die and out of limit hits that can affect part quality and damage dies.

The Tonnage Graph screen shows the actual signatures of the die, i.e., tonnages created by the die vs. crankshaft angle. The graphs update as the press strokes or, if desired, can be overlaid for multiple strokes. Graphs include total tonnage or tonnage of each channel. The setting of data windows and strokes. Graphs include total tonnage or tonnage of each channel. The setting of data windows and limit windows allow better detection of wear of different punch areas in the die and out of limit hits that can affect part quality and damage dies.

An optional four digital die protection inputs and four PLS outputs make the Tonnage and Analog Signal Monitor Module a great value for presses that need a limited number of die protection and PLS channels. If more die protection and PLS channels are needed at a later time, add Die Protection and Process Monitor and PLS Logic modules to provide additional channels.

Reference graphs can be stored for each job.

Optional digital die protection and PLS channels are shown and programmed seamlessly on the Omnilink II Operator Terminal with other such channels provided by other modules.

Monitor up to 80 sensor inputs
Sensors may have npn, pnp, or contact outputs
Programmable debounce of sensor inputs
Real time capture of sensor transitions
Observe timing windows and sensor transitions on a circular crankshaft position graph as the press strokes and adjust on the fly
Choose Cycle Stop, Top Stop, or speed advanced Intell-Stop, which decides on Top Stop or Cycle Stop
Signal capture from multiple strokes can be overlaid on timing window graph
Multiple monitoring modes, including a programmed custom mode, increases versatility
Description of items monitored by each channel can be entered by the user for ease of troubleshooting
Help notes aid in setting up channels to perform desired monitoring
Provides graphic and tabular history of last 64 sensor transitions

OMNILINK II
Digital Die Protection and Process Monitor Modules
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This option also provides four output drive signals to actuate measurement fixtures or devices at the user selected position in the press stroke. An isolated input is also provided so that an external signal can specify when a measurement is to be taken.

Easy setup for analog monitoring channels is done on a single screen, with help notes that appear as each item is selected. High and low limit setpoints and high and low warning set-points for the analog monitor can be set manually or stored and recalled from job memory. Limits can be set to apply to highest, lowest, average, or every value measured in the measurement window. Individually set the action taken when each limit is exceeded. Choices include None, Top Stop, Cycle Stop Intelli-Stop, Show Status and Mark Bad.

The analog signal monitor main screen shows the measurements made vs. limits on color coded bargraphs for each channel. Force, pressure, distance, temperature, and other sensor type and application. Some applications allow distance measurements within a ten-thousandth of an inch resolution.

The analog signal monitor diagnostic screen shows the graph (signature) of the measured quantity vs. crankshaft angle. This graph can be used to analyze conditions that affect the measurement. To obtain the best measurement consistency, the user may choose to apply the limits to the highest, lowest, average, or every value of the measured quantity within the measurement window.

The analog monitor provides for English, Metric, or dimensionless units of measurement.

Provides user programmable 20 Character description for digital die protection, PLS, and analog signal channels.

User programmable analog monitor window sets crankshaft region where each channel measures and compares measurements with limits. Alternatively, an input is available for external measurement trigger.

High and low limits, and high and low warning set-points for the analog monitor can be set manually or stored and recalled from job memory.

Measure part features to ten thousands of an inch with proper choice of sensor and application.

The analog monitor provides for English, Metric, or dimensionless units of measurement.
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