

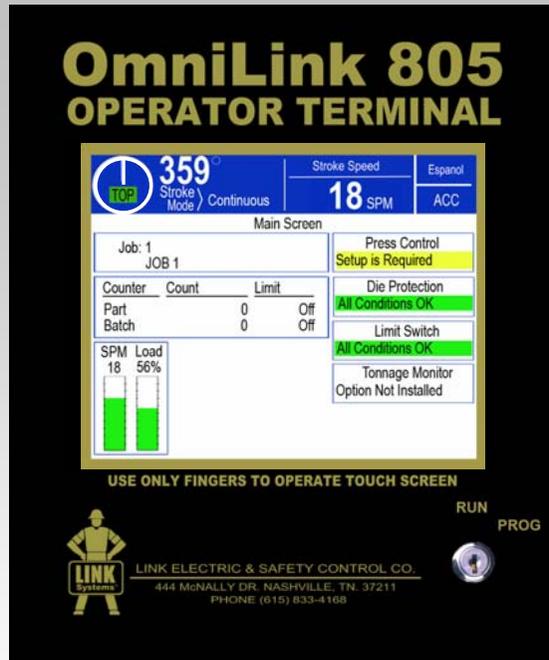
OmniLink System 5100-MPC Press Controls

A NEW DIMENSION IN AFFORDABLE RESOLVER/ENCODER BASED INTELLIGENT PRESS CONTROLS FOR MANUALLY FED AND MODERATELY AUTOMATED PRESSES

Link's custom engineered OmniLink System 5100-MPC part revolution mechanical power press controls provide unmatched features and flexibility to achieve the ultimate in pressroom productivity and safety at modest cost.

These integrated press controls use the OmniLink 805 Operator Terminal, System 5100 card rack, 5000 Resolver/Encoder, and optional System 5100 components with disconnects, transformers, motor controls, and pneumatic components to control motors, clutch/brake, auxiliary press systems, automation sequence and interface, and to provide die protection and tonnage monitoring.

Have it your way with control hardware and software that can be configured and packaged to meet your press production system requirements.



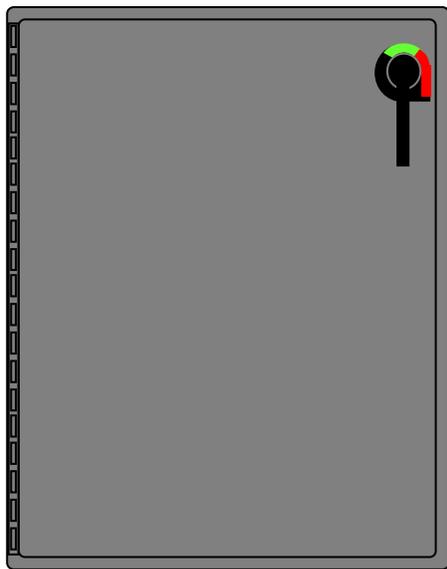
Lasting value with rugged modular design and Link technical support for a long product life and the ability to add future system features and functions as you need them..

Superior safety with powerful diversely redundant cross-checked dual micro-processor logic systems design that goes beyond current and anticipated OSHA, ANSI, and CSA safety standards requirements.

Ease of operation with 5.7 inch VGA color LCD touch screen that displays all system information in English or Spanish and provides quick settings and selections.

Increase productivity and reduce downtime with job storage and recall to provide quick, consistent set-ups. Intelligent diagnostics keep you up and running. Use the optional LinkNet pressroom information system to schedule jobs, record and report downtime, track die information and find and solve production problems.

Protect press and dies and reduce scrap with die protection and optional tonnage monitor.



Link Electric & Safety Control Co.

444 McNally Drive • Nashville, TN 37211
Phone: (615) 833-4168 FAX: (615) 834-1984
www.linkelectric.com

The most comprehensive line of press and press automation controls available

Unmatched Features and Flexibility Produce Ultimate Productivity and Safety

OmniLink 805 Operator Terminal: The user friendly OmniLink 805 Operator Terminal uses a Color 5.7" LCD TFT with 640x480 pixel resolution and touch screen. The terminal:

- Integrates all system functions into a single operator interface.
- Displays crankshaft position graphically and numerically and stroking speed numerically.
- Displays all system information in either English or Spanish
- Provides detailed process, settings, and diagnostic information.
- Provides ease of setting, storing and recalling parameters
- Provides a Communication Card option for serial feed interface
- Allows the user four different methods of access control with key and/or passwords to restrict which personnel can change settings, reset faults or enter values for the control.

Superior Safety Design: OmniLink System 5100-MPC Press Controls are designed to meet all functional safety requirements of current and anticipated OSHA 29 CFR 1910.217, ANSI B11.1, and CSA Z142 standards, and to provide safety features in addition to these standards when properly applied, adjusted, installed and used.

- Dual separately powered diverse microprocessor logic systems perform safety logic and cross-check each other.
- Crankshaft angle and stroking speed is provided to both microprocessor logic systems by a rugged resolver/encoder unit so that any failure within either the resolver or encoder circuits can be detected and press stroking stopped and inhibited.
- Input modules provide dual tracking asynchronously pulsed inputs with short circuit and cross-connection detection for E-Stop Buttons, Safety Blocks, Light Curtains, and other protective inputs such as interlocked barriers.
- Clutch/Brake outputs are controlled by up to four monitored safety relays and the wires that connect to dual air valve solenoids for clutch/brake operation are monitored for any combination of shorts or inadvertent cross connections.

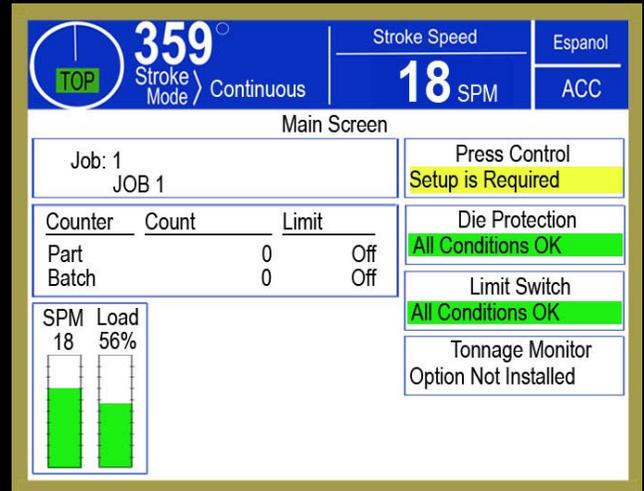
Stopping Time Performance (Brake) Monitor, Motion Detection, Clutch Engagement Time Monitor: System 5100 - MPC controls incorporate a unique time based brake monitor into control logic with two set-point limits. Since the stopping time in the middle of the down stroke is often longer than the stopping time at top of stroke, two setpoint limits are provided, one for top stopping and the other for stopping at other places in the stroke. This allows relatively tight limits to be set at the top of the stroke to be a sensitive indicator of increasing stopping time in the normal top stops during production without causing the brake monitor to trip out at longer mid-stroke stops, which apply the separate mid-stroke limit to the stop time. A stop time measurement stroking mode allows the stop time to be consistently checked at mid down stroke.

Motion Detector logic checks to ensure that the System 5100 MPC Resolver/Encoder connected to the press crankshaft turns when the press clutch is engaged, issuing a stop signal if the Resolver/Encoder should become decoupled from the crankshaft.

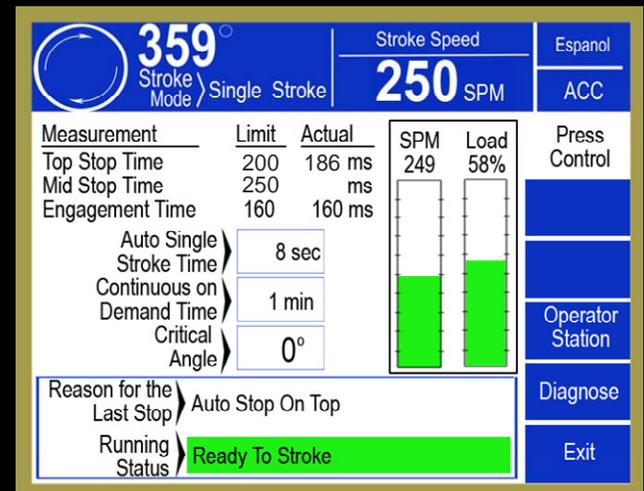
The Clutch Engagement Time Monitor compares the time from control signal to stroke till the crankshaft actually starts to turn with a pre-set limit. This is extremely useful for diagnosing clutch wear as indicated by increased clutch engagement time.

Counters: Four counters are standard. These are:

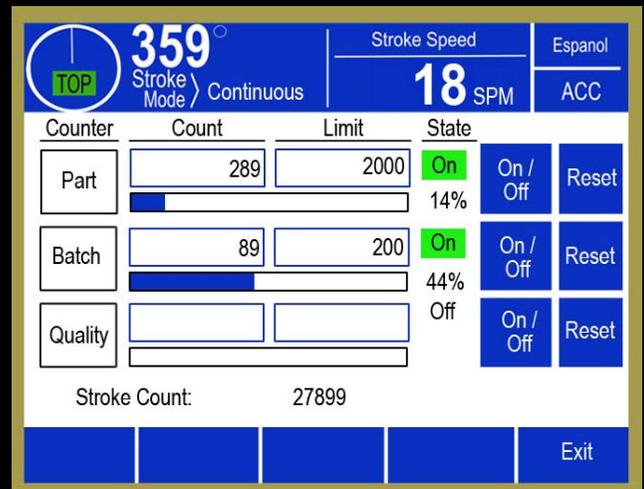
- Nine digit stroke counter
- Nine digit Parts, Batch, and Quality with individual nine digit limits, reset, and Off/On settings are standard.



Main Operator Terminal Screen



Main Press Control Screen with Brake and Clutch Engagement Time Monitors



Counters Screen



Keeping your bottom line in the black with real pressroom productivity solutions

359° TOP Stroke Mode Continuous Stroke Speed 18 SPM Espanol ACC

Ch	Channel Type	Description	State	Die Protection
1	Static N.O.	Buckle Sensor	Low	Protection
2	Static N.C.	End Of Stock	High	
3	In Position	Feed Complete	High	Channel Settings
4	Not Used	-----	Off	

OIT Die Prot. Channel 3

Ch. Status: OK

System status: Module Status: OK

Buttons: Bypass, Diagnose, Reset, Exit

Main Die Protection Screen

273° TOP Stroke Mode Continuous Stroke Speed 18 SPM Espanol ACC

Ch	Mode	Description	State	Limit Switch
1	Normal	Feed Initiate	Off	
2	Normal	Pilot Release	Off	
3	Timed Off	Air Blow Off	On	
4	Normal	Material Spray	On	

Press Control PLS Channel 4

On Angle: 250°
Off Angle: 300°
On Angle 2: 0°
Off Angle 2: 0°

Ch. Status:

System status: Module Status: OK

Buttons: Channel Settings, Exit

Main Programmable Limit Switch Screen

359° TOP Stroke Mode Single Stroke Stroke Speed 0 SPM Espanol ACC

Brake Monitor Alarm Count:	0	Diagnose
Degrees to Stop:	0	
Position at Stop Initiation:	0	
Speed at Stop Initiation:	0.0	
Raw R2D Position:	0xFF6C	
Raw R2D Speed:	0x0000	0.0
R2D Fault Value:	0x0000	0x0000
Raw Speed Input:	0x0000	
Raw Motor Load Input:	0x0000	
Raw Speed Output:		
Input Read Retry Count:	0	0

Buttons: Reset, OIT Diagnostics, Lube Diagnostics, Version Info, Event Log, Exit

Main Diagnostic Menu Screen

Stroking Speed Range. 6-2000 SPM.

Stroking Modes. Off, Inch, Automatic Timed Inch, Setup/Stop Time Test, Single Stroke (Cycle), and Continuous are standard, Automatic Single Stroke (Cycle), Maintained Continuous, and Continuous on Demand are optional. Off is always supplied.

Automatic Top Stop Compensation (Standard). Automatically compensates top stop for speed to stop variable speed presses at top of stroke over the entire speed range.

Analog Speed Control/Load Option. An optional analog card:

- Allows stroking speed for variable speed presses to be set and displayed using the Operator Terminal.
- Allows configuring a low fixed speed for Inch mode.
- Can set minimum and maximum speeds for production modes.
- Allows speed to be recalled by job, if desired.
- Allows Operator Terminal graphical display of motor load.

Die Protection: Four Die Protection/Process Monitoring inputs located in the Operator Terminal. are standard. Nine monitoring modes are available for each die protection input.

PLS Outputs. Either four or eight optional programmable limit switch outputs are available to sequence and time automation with the stroking of the press. Each channel can turn on and off up to two times per stroke at programmable angles or turn on at an angle and off at a programmable time after turn on.

Job Storage and Recall. Parameters for up to 100 jobs can be stored, allowing paperless record keeping and jobs to be recalled for quick setup each time it is run in the press

Diagnostics. The intelligent diagnostics of the OmniLink System 5100-MPC control are displayed in English or Spanish.

- The "Reason for the Last Stop" area of the Operator Terminal displays the exact reason for stop each time the press stops, whether due to normal or fault conditions.
- The "Running Status" area of the Operator Terminal displays any normal or fault condition that prevents stroking.
- The control is designed to have enough inputs to provide an input for each individual input device instead of series multiple devices into a single input, allowing diagnosis of each individual input device.
- The Operator Terminal has screens to display the state of every input, the state of every output, Lube System diagnostics, Operator Terminal diagnostics, the configuration memory of both microprocessor logic channels of the control, and an event log displaying the date, time and reason for the last 256 stops.

Modularity and Ease of Maintenance. The Power Supply/Logic module and the two input modules in the System 5100 card rack can be unplugged from the mother board in the base of the control and replaced for ease of maintenance. Configuration software for both microprocessor systems that is specific to the characteristics and features of a given press is stored in two separate memory elements on a small circuit board that mounts on the control mother board rather than on board Power Supply/Logic board memory. This allows the Power Supply/Logic Module to be replaced without having to change the configuration memory elements, which stay with the mother board.

LinkNet. The optional LinkNet information system allows presses equipped with the OmniLink System 5100 control to be connected with a computer equipped with Link's LinkNet software via a serial communications network. This system can be used to send job schedules to the press, record and report downtime and uptime, view current status of the press, schedule preventative maintenance, track die use, and perform many other functions.



Unmatched Features and Flexibility Produce Ultimate Productivity and Safety

Power Supplies. The System 5100 card rack provides separate isolated power supplies for its two microprocessor logic systems. A 24VDC power supply provides a total of 2A subdivided into multiple current limited 4VDC supplies protected against grounds and inadvertent connection to 120VAC. Each Input Module used with the System 5100 card rack provides eight individually current limited 24VDC outputs (2 with check pulses for Protective inputs) and four 24VDC common connections on its terminal strips in order to provide power for field wiring to the inputs.

Control Input Structure.

- The Power Supply/Logic module provides inputs for the resolver/encoder unit and incoming power. The standard 5100-4A input module provides 56 24VDC inputs for up to two operator stations, OIT operator controls, safety blocks, pressure switches, valve monitoring, motor starter auxiliary contacts and other control inputs. This module also include inputs that are namable and configurable as to type of stop (Top Stop, Immediate Stop, Master Stop) for auxiliary press systems such as lube systems, flywheel brakes, hydraulic overloads, etc. and interface to other press systems.
- The standard 5100-4A provides eight sets of asynchronously pulsed dual tracking protective inputs used for two light curtains (with configurable muting or no muting by mode), E-Stop buttons, Safety Blocks, Interlocked Barrier Guards, etc. Some can be custom named and all can be configured to be either a category 0 Clutch/Brake stop or Master Stop (which removes power from all actuators).
- The optional 5100-4B second input module provides for up to three additional operator stations, eight more configurable dual protective inputs, and twenty-six more namable and configurable inputs.
- All inputs are read by both microprocessors through isolated circuits.
- All inputs are protected against inadvertent connection to 120VAC.

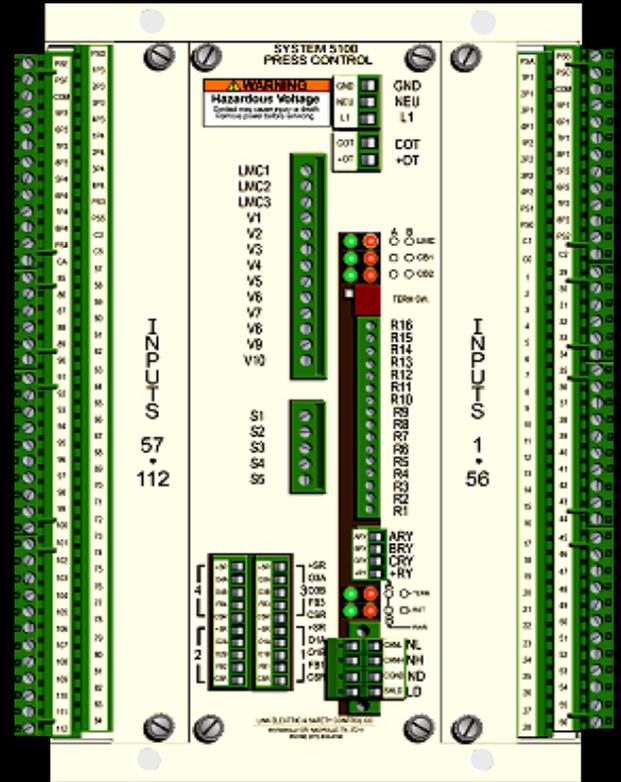
Control Outputs.

- Clutch/Brake dual valve outputs for a single valve (or two valves whose solenoids are driven in parallel) are standard.
- An optional two sets of dual outputs for clutch/brake valves that can be timed relative to turn on and turn off can be provided for separate clutch/brake valves to prevent overlap.
- Up to 24 optional output relays are available in groups of four. these output relays are configurable for specific functions related to lube systems, motor control interface, hydraulic overloads, flywheel brakes, and other press auxiliary systems. They can also be configured to provide press stroking mode information, whether the crankshaft is in motion, and other information to press automation.
- Up to four safety relay outputs are optional. These relays can be used to give automation used with the press production system control reliable stop signals when an emergency stop, light curtain or other protective input stop signal occurs.

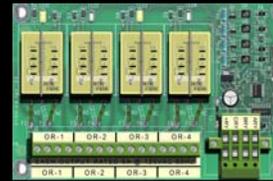
Optional AD1 Angle/Speed Displays. Multiple AD1 displays can be used with the OmniLink System 5100-MPC controls. These displays provide a large graphical circular crankshaft position indicator and digital display of angle or stroking speed for visibility at a distance. They can be provided for panel mount or in their own enclosure.

Link Systems is a leader in the design, development and manufacture of intelligent, integrated press and automation controls, die protection, tonnage and signature monitors, and safety devices for the metal stamping industry. We are an engineering company committed to providing practical solutions to our customers' needs for automation, productivity, quality, safety, and shop floor information.

Our product line is flexible enough to provide a specific control or monitor, or complete integrated systems for your presses. We also provide engineering consultation, free safety surveys, installation, and repair services for our products.



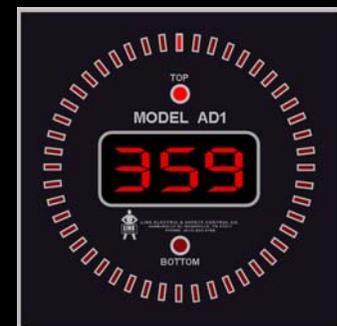
System 5100 Card Rack



5100-2A Output Module for Optional Output Relays



5100-3C Safety Relay Module



Model AD1 Optional Angle/Speed Display

Link has led the way in electronics for press production systems from the 1975 introduction of the first successful solid state press control used in American industry to the first OmniLink II modular integrated press, automation, and monitoring controls using high speed serial network with distributed processing for almost unlimited expansion.

Link's control products increase safety and productivity. Our light curtain safety devices help protect against hazards while allowing accessibility and visibility for operators. Our process monitoring systems help reduce press and tooling damage and reduce scrap.