# Metal Stamping/Metal Forming Industry Products

- Punch Press Clutch/Brake & Automation Controls
- Pneumatic & Hydraulic Control Systems
- Production Monitoring to Create OEE
- Machine Safeguarding Systems

Resolver Based
Clutch/Brake Controls

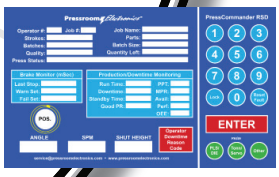

Punch Press
Automation Controls

Rotary Cam Based
Clutch/Brake Controls

Customized
Clutch/Brake Controls

Pressroom Electronics™

Clutch/Brake
Retrofit Modules




Production
Monitoring
(Create OEE)


Time Based Brake Monitors
Stopping Performance Monitors

Die Protection Controls

Complies with OSHA & ANSI
and International Design Standards

**www.pressroomelectronics.com**

**Distributor Manual**

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## Pressroom Electronics Catalog



Pressroom Electronics™

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## Pressroom Electronics Catalog



Pressroom Electronics™

# Pressroom Electronics Products Overview

## Resolver Based “PressCommander” Platform Press Controls

### PressCommander PCS-2000


Exceeds OSHA 1910.217 & ANSI B11.1-2009, “Control Reliable Design,” with dual logic power supplies, heavy duty resolver and cable, System diagnostics and programming in plain English/Spanish which can control up to four sets of operator stations, Major faults such as E-Stop, motion, brake monitor, and sensor faults are handled by two force-guided relays (Form B safety relays), Off--inch--single--continuous, Continuous ARM; top stop, anti-tie down and anti-repeat, SPM Range (1 to 500), Password and supervisory controlled keyed selector switch for security of data entry, Interrupted stroke provision with indicator, Inch mode monitoring, Crank angle and speed readout (SPM), Time-based brake monitor, Built-in motion detector and drift fault, 90° and 270° stop time tester/meter built-in, Built-in hour meter for maintenance, Built-in variable speed compensation, Servo-feed interface built-in, Six optically isolated die protection inputs, Six PLS (programmable limit switch) output relays, 100 job memory, Stroke, batch, quality, and part counters, Batch counter output relay, Die protection output relay, Speed output relay, Auxiliary output relay, Optional Ethernet or DeviceNet and PC Link to allow offline job creation and storage. *(For Custom Programming & Remote Field Upgrades, please consult factory at service@pressroomelectronics.com or (630) 443-9320.)* Optional 10.1” color touchscreen replaces the standard display shown. Touchscreen is shown to the left and includes Production Monitoring.

## Various Available PressCommander Formats (All include features listed above)

### PCS-05 / PCS-08

Switches, push buttons and legend plates available with PCS-08 only.

The Board Only PressCommander Module (Part #PCS-05).The redundant clutch/brake punch press control module with a remote panel mount message display (available in English or Spanish).

The PCS-08 includes the same options as the PCS-05, but also includes the IEC switches, push buttons and legend plates.

Both models comply with section 1910.217 of the Federal Register and ANSI Standard B11.1-2009.

### PCS-10

The compact Model PCS-10 is big in safety and automation control. The redundant clutch/brake punch press control module has a remote panel mount message display (available in English or Spanish). Complies with section 1910.217 of the Federal Register and ANSI Standard B11.1-2009.

### PCS-20

Encompasses all of the features and components of Model PCS-10 plus all of the switches, legend plates, push buttons, and indicator lights for easy mounting into your existing control. Complies with section 1910.217 of the Federal Register and ANSI Standard B11.1-2009.

### PCS-4000

Incorporates all the requirements of OSHA for control reliability and component monitoring. Also includes component and system diagnostics with indicator lights for total press monitoring. When foot actuation is used, a method of guarding the point of operation must be provided. Complies with section 1910.217 of the Federal Register and ANSI Standard B11.1-2009.

**<u>*Optional:</u>** 10.1” color touchscreen replaces the standard display and is available for all models.

# Pressroom Electronics Products Overview

## Rotary Cam Based Platform of Press Controls

### Model 3200SS

The Model 3200SS (Solid State) Control System is completely prewired and ready for installation. System supplied complete with a well marked terminal strip for easy, safe, and accurate electrical interface to the various punch press components. Due to the hybrid design characteristics of the 3200SS, a main power disconnect switch and magnetic motor starters can be supplied in the same control panel. Complies with section 1910.217 of the Federal Register and ANSI Standard B11.1-2009.

### SSM-05 / SSM-08

Switches, push buttons and legend plates available with SSM-08 only.

The Board Only Clutch/Brake Module (Part #SSM-05). The redundant clutch/brake punch press control module with a remote panel mount message display (available in English or Spanish diagnostics).

The SSM-08 includes the same options as the SSM-05, but also includes the IEC switches, push buttons and legend plates.

Both models comply with section 1910.217 of the Federal Register and ANSI Standard B11.1-2009.

### SSM-10

Excellent for the Rebuilder or O.E.M. to install onto existing control panel backplate. The Short Stack Module (Part #SSM-10) is Small in Size -- Big in Safety and Control. The redundant clutch/brake punch press control module has a remote panel mount message display (available in English or Spanish diagnostics). Complies with section 1910.217 of the Federal Register and ANSI Standard B11.1-2009.

### SSM-20

The Short Stack Plus (Part #SSM-20) encompasses all of the features and components of Part #SSM-10 plus all of the switches, legend plates, push buttons, and indicator lights for easy mounting into your existing control panel. The redundant clutch/brake punch press control module has a remote panel mount message display (available in English or Spanish diagnostics). Complies with section 1910.217 of the Federal Register and ANSI Standard B11.1-2009.

### 1500SS

Model 3200SS (Solid State) Control System with Components Included. Mounted in a NEMA 12 (IP 64) steel panel enclosure. Complies with section 1910.217 of the Federal Register and ANSI Standard B11.1-2009.
1500SS Package includes the following components:

- -Dual Solenoid Valve
- -Operator Station
- -Heavy Duty Pressure switch No. 306
- -Filter Regulator Lubricator No. 311
- -Rotary Cam Switch with Drive Check No. 310A

*Please note that when punch press timing signals are generated by Rotary Cam or Limit Switches, it is required to have a “time based brake monitor.” The time based brake monitor is to measure the press stopping time on each stroke. If the subject press that is being updated with controls does not have a time based brake monitor, add the Model BM-1600 Time Based Brake Monitor to the press control.

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# Pressroom Electronics Products Overview

## Punch Press Automation Products

### The Ultimate

The most feature intensive air clutch punch press control available. The control conforms to all current OSHA and ANSI standards for control reliability and component monitoring. System incorporates the PressCam 8 for complete punch press synchronization and flexibility for all peripheral punch press signaling needs such as feeds, die protection, lubrication, blow-offs, etc. All of the electrical timing adjustments for the complete press operation are done at the floor level by the operator. The PressCam 8 system also has a large job memory of 100. This gives the control the ability to remember 100 complete different jobs or die set-ups at the press. The memory concept at the press is an excellent feature due to the tremendous time saved during set-ups of various operations. Additional time is saved by being able to adjust or “fine tune” the stamping process while the press is running, which is an aid in maximizing press utilization.

### BM-1600

The BM-1600 is a time-based brake monitor that utilizes a high resolution rotary encoder and controller to measure the brake stopping time in milliseconds and also the RPM of the press. The rotary encoder is attached to the subject machine and is driven on a 1:1 ratio by the power press crankshaft. The brake stopping time of the machine will be displayed on every stop and can be easily read on the bright red light emitting diode (LED) display on the front panel of the unit. The RPM/ of the machine will be displayed during the machine cycle.

### LT-1900

The LT-1900 is a time-based stopping performance monitor that utilizes a high resolution linear transducer and controller to measure the machine stopping time in milliseconds and also the SPM of the press. The linear transducer is attached to the subject machine and is driven on a 1:1 linear ratio by the machine. The machine stopping time of the machine will be displayed on every stop and can be easily read on the bright red light emitting diode (LED) display on the front panel of the unit. The SPM of the machine will be displayed during the machine cycle.

### PressCam 8

PressCam 8 is a “control reliable” resolver based programmable cam switch (PLS), time-based brake monitor, die protection system, multiple counters, and much more in one package. The system contains two 16-bit computers that are configured to cross check each other and the resolver. The dual computers are interfaced with a full view 8” (203mm) diagonal LCD computer screen for viewing and programming ease. This large operator screen supplies operators and front line supervisors production data without the need of cumbersome menu and program access codes. 100 job memory.

### PressCam 8 Junior

The PressCam 8 Junior is a resolver-based press automation controller that incorporates a programmable cam limit switch (PLS), timed-based brake monitor, servo feed control, four counters, and a die protection system The PressCam 8 Junior is controlled by a 16-bit computer that constantly checks the resolver for accuracy. 100 job memory.

### Remote Die Box

The six (6) channel remote die box allows you to quickly change out the die sensors by using either plug connectors or Banana jacks. Provides +24VDC power to active sensors and monitors the status (PNP or NPN). Part number 53-450 six (6) channel Remote Die Box includes individual channel indicators, 45’ quick disconnect cable (12 conductor) minimizes wiring installation time and power supply included to power sensors - 24VDC at 2.5 AMP.

# Pressroom Electronics Products by Category and Function

## Resolver Based Clutch/ Brake Controls with Automation Functions

- PressCommander (PCS)
- Small Form Package PressCommander
- PCS-05
- PCS-08
- PCS-10
- PCS-20
- PCS-2000
- PCS-4000
- The Ultimate
- Optional 10.1" color touchscreen display is available for all PCS models and replaces the standard display.

## Punch Press Automation Controllers (Resolver Based)

- PressCommander
- PressCam 8
- PressCam 8 Junior

## Time Based Brake Monitor (Rotary Based)

- BM-1600
- PressCommander (PCS)
- PressCam 8
- PressCam 8 Junior

## Time Based Stopping Performance Monitor (Linear Based)

- LT-1900

## Programmable Limit Switches (PLS), Timers, Counters

- PressCommander (PCS)
- PressCam 8
- PressCam 8 Junior

## Shut Height Indicator

- PressCommander (PCS)

## Die Protection Systems

- PressCommander (PCS)
- PressCam 8
- PressCam 8 Junior
- Die Protection Sensor Interface Remote Die Box

## Servo Feed Interface

- PressCommander (PCS)
- PressCam 8
- PressCam 8 Junior

## Tonnage Monitoring

- PressCommander (PCS)
- PressCam 8

## Signature Tonnage Analysis

- Requires PressCommander (PCS) with Touchscreen and signature tonnage option.

## Production / Downtime Monitoring

- Requires PressCommander (PCS) with Touchscreen option for generating OEE (Overall Equipment Efficiency.)

## Rotary Cam Based Clutch/ Brake Controls

- Model 3200SS
- SSM-05
- SSM-08
- SSM-10
- SSM-20
- Control Package 1500SS

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# Punch Press Controls

## Advanced Design Criteria
## Safer, More Productive and Easier to Use

The following descriptive writing is the base design criteria for the Pressroom Electronics' punch press control systems. The inherent design features are superb for enhancing production and safety. Please note that options are available within each individual system or package to aid in production.

**DESIGN CRITERIA**—Complete self-checking dual logic microprocessor-based punch press control with two independent running control channels and a comparison circuit. The comparison circuit assures that both channels agree as the punch press control sequence occurs. The preprogrammed dedicated inelastic control system prevents in field alterations to the safety features of the control. The control incorporates a control reliable redundant design concept to assure a higher level of safety and reliability.

**CONTROL RELIABILITY "CONTROL COMPONENT FAILURE"**—The Pressroom Electronics' Punch Press Control meets or exceeds all OSHA 1910.217 and ANSI B11.1-2009 standards for control reliability. Control reliability standards require that clutch/brake circuits be designed and constructed so that a single failure or fault within the system does not prevent the normal stopping action from being applied to the press when required, or does not create an unintended stroking action, but does prevent initiation of a successive stroke until the failure is corrected.

**REDUNDANT DESIGN CONCEPT—**
The Punch Press Control system utilizes the redundant design concept. This gives the clutch/brake control system a higher level of redundancy and control reliability.

**DIAGNOSTIC MESSAGE DISPLAY**—
Standard on the solid state Pressroom Electronics' Punch Press Control System is the "Diagnostic Message Display" mounted with the operator controls at a customer designated location on the control panel. The alphanumeric message display informs the user of any faults, failures, and the current operating status of the punch press control system. The messages are in plain English and will give the press operator and front line supervisor information quickly and safely. The "Diagnostic Message Display" system is so advanced that it will immediately inform the user of such problems as pressure switch faults, failed output relays, or rotary cam mis-adjustment. The system will also pinpoint internal printed circuit board faults for immediate replacement. This self-diagnostic feature will save maintenance dollars and will enhance machine uptime measurably due to the units captive troubleshooting ability. Best of all, this information is supplied without even opening the control panel door. Additionally, a complete series of LED's (light emitting diodes) are mounted on the clutch/brake module for visual status of all inputs and outputs related to the machine cycle status.

**Optional:** 10.1" color touchscreen replaces the standard display and is available for all models.

**SYSTEM LOGIC AND COMPONENT DIAGNOSTICS—**
A combination of LED's and the alphanumeric plain English message display will enhance infield troubleshooting greatly. The advanced design can even troubleshoot itself and advise the user if a printed circuit board is defective and if it needs to be replaced or repaired. Diagnostics are for both the control system logic and for punch press component monitoring. Twenty-nine different messages can appear on the message display.

**REDUNDANT CAPTIVE CONTACT SAFETY RELAYS—**
Redundant relays assure safety if an output relay should fail. The system utilizes safety relays which have forceguided contacts. This is a configuration where the contacts are mechanically locked together so that if one set of contacts weld, the other contacts cannot change state. If one should fail, the message display will identify which relay has faulted and what state the relay should be in (on/off).

**MICROPROCESSOR DESIGN OF SOLID STATE PUNCH PRESS CONTROLS—**
Incorporates "cross checking, self-checking, and redundancy" (to assure an ultra-safe design) with control reliability.

**INTERRUPTED STROKE PROVISIONS WITH INDICATOR—** If the punch press is in the "single stroke" or "continuous" mode and the press stops before the completion of a full stroke, the Interrupted Stroke Provision is activated. The control will automatically switch to the "inch" mode and the palm buttons must be used to return the ram to the top of the stroke. When back at the top, the control automatically switches back to the original operational mode setting and the operator may resume normal production. The Interrupted Stroke Provision improves productivity and safety significantly by eliminating the need for the operator to make mode selection adjustments on interrupted strokes.

**MICRO-INCH (OPTIONAL)—** Controlled by keyed selector switch on/off on the control panel, Micro-Inch provides ram movement for a predetermined amount of time. Micro-Inch is actuated by the palm buttons and the amount of ram movement is controlled by a Micro-Inch timer inside the control panel. Micro-Inch also indexes the ram in increments that eases set-up in high speed or short stroke press operations.

**AUTOMATIC EXTERNAL TRIP (OPTIONAL)—**
Controlled by a keyed selector switch (on/off) on the control panel. This option enables a punch press to be cycled by a signal from a robot or feeding device one stroke at a time.

# Resolver Based Punch Press Controls

## Operator controls & Punch Press Automation functions that are completely integrated and supplied standard with clutch/brake control.


Pressroom Electronics™

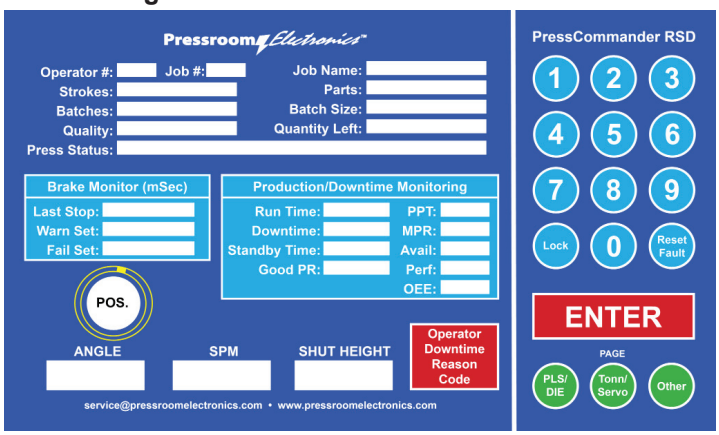
# The Resolver Based PressCommander Clutch/ Brake OSHA Control with Complete Press Automation Built-In (shown with Standard Display)

**The User Friendly PressCommander ™ (shown above with Standard Display) Available in <u>any</u> control panel layout or retrofits easily into an existing control panel.**

**Standard Safety / Automation Features:**

- Exceeds OSHA 1910.217 & ANSI B11.1-2009
- Quick and Easy Installation
- Control Reliable Design (Triple CPU Redundancy)
- Incorporates dual logic power supplies
- Heavy duty resolver with self-checking input on every press cycle with 30' of resolver cabling supplied standard
- Complete system diagnostics and programming in plain English/Spanish by a four line by twenty character vacuum fluorescent display
- Optional: 10.1" color touchscreen display replaces the standard display shown.
- Can control up to four sets of operator stations
- Operates at 24VDC, 110VAC, or 240VAC / 440VAC
- Major faults such as E-Stop, motion, brake monitor, and sensor faults are handled by two force-guided relays (Form B safety relays)
- Modes of operation: off--inch--single--continuous
- Continuous ARM; top stop, anti-tie down and anti-repeat
- System start/stop functions
- SPM Range -1 to 500
- Password and supervisory controlled keyed selector switch for security of data entry
- Interrupted stroke provision with indicator
- Inch mode monitoring
- Crank angle and speed readout (SPM)
- Time-based brake monitor
- Built-in motion detector and drift fault
- 90º and 270º stop time tester/meter built-in
- Built-in variable speed compensation
- Servo-feed interface built-in
- Six optically isolated die protection inputs that can be either AC or DC (sourcing or sinking) (Expandable)
- Six limit switch outputs can be set to cycle (non-timed) two times per crank rotation by setting an open/close crank angle (Expandable)
- The last three limit switch outputs can be set for timed, non-timed, delay, hold, or cycle two times per crank revolution.
- Six PLS (programmable limit switch) output relays are small, high speed, and high capacity. These outputs can be controlled by the press crank angle position, dwell time, number of strokes or any combination of the above. (Expandable)
- Optional "Expander" board provides an additional six Die Inputs and six Programmable Outputs.
- 100 job memory (removable)
- Stroke, batch, quality, and part counters
- Batch counter output relay
- Die protection output relay (opens when there is a fault)
- Speed output relay (opens when press speed falls out of the max/min parameters)
- Auxiliary output relay (customer assigned usage)
- Optional Ethernet or CAN network
- Remote monitoring with Ethernet
- PC Link to allow offline job creation and storage
- Optional Tonnage Monitoring
- Two-year warranty
- Made in the USA

**<u>Optional</u> - 10.1" Touchscreen replaces Standard Display shown above left. Includes Production Monitoring to create OEE.**




*(For Custom Programming & Remote Field Upgrades, please consult factory at service@pressroomelectronics.com or (630) 443-9320.)*

# PressCommander Options - Resolver Based

## Utilizes the Standard Display

**Additional Die Protection Inputs and PLS (programmable limit switch outputs)**

Expander Board #52-279 adds additional 6 Die inputs and 6 Dry relay contact outputs (At time of order) - Increases the PressCommander die protection from six (6) to twelve (12) station die protection. Also increases the PressCommander programmable limit switch capacity from six (6) to twelve (12) programmable limit switches with mechanical relay (dry) outputs.

Expander power supply board #52-280 (At time of order) - Power Supply Board that stacks under the PressCommander Expander Board (52-279) and is required to power the Expander Board functions. **Request Both Part Numbers (52-279 and 52-280) at time of order if expansion is desired.**

**Main Power Disconnects**

Fused main power Disconnect (IEC or NEMA)

Refer to *Component* section of this catalog for voltage, sizing and part numbers for starters and main power disconnects.

**Magnetic Motor Starters**

Magnetic Motor Starters are available in IEC or NEMA design formats

Fwd/Rev switchgear with Motor start/stop pushbuttons and legend plates included with Reversing Starter purchase.

Motor start/stop pushbutton and legend plate included with Non-Reversing Starter purchase.

Refer to Component section of this catalog for voltage, sizing and part numbers of the appropriate size starter.

**Remote Master Control Station** (Free standing operator control station) PressCommander Standard Display Extender System.

Moves all the switchgear and the standard display unit into a separate 12” x 14” x 8” box that can be placed closer to the operator. The control boards, optional starter(s), optional disconnect remain in a separate Control panel whose size is dictated by the size of the starter(s) & disconnect.

NOTE: Cables are available in 15’, 25’, 35’, and 50’ lengths. These cables should never be cut between the Remote Master Control Station and Control panel. 15’ cable is supplied standard for the Standard Display remote mater control station.

**Extension Cables for Remote Master Control Stations located over 15’ (4.5m) with Standard Display from control panel.**

Part# 53-456 is a 25’ Remote Standard Display Extender System (when the Standard Display unit is located 25’ from the PressCommander Board Stack)

Part# 53-457 is a 35’ Remote Standard Display Extender System (when the Standard Display unit is located 35’ from the PressCommander Board Stack)

Part# 53-458 is a 50’ Remote Standard Display Extender System (when the Standard Display unit is located 50’ from the PressCommander Board Stack)

**Part #35-111 Ethernet option for the PressCommander Standard Display**

Options continued on next page.

# PressCommander Options - Resolver Based

Micro-Inching Function (includes key switch on/off)

Light Guard on/off supervisory controlled key switch (up to four curtains)

Multiple operator station control key switch

Bar Turnover Function (includes key switch on/off)

Die Block receptacle outlet

Shutdown timer (software based)

110VAC outlet or 220 VAC outlet (specify load)

NEMA style indicators & switchgear on control panel to replace IEC style supplied standard

**SHUT HEIGHT INDICATOR:**

Provides the capability to read the shut height to within .001 inch and will display the position of the slide. Each tool/die setting is saved under the job number. Shut Height Monitoring requires a shut height interface board (Part# 52-298) and a linear sensor for slide position measurement.

**Choose a length below: A magnet and two mounting brackets are supplied standard with all linear sensors.**

Size

4" - Part# 40-009

8" - Part# 40-010

12" - Part# 40-011

16" - Part# 40-012

24" - Part# 40-013

**AUTOMATIC EXTERNAL TRIP:**

PCS-10 without IEC switchgear (at time of purchase)
PCS-20 with IEC switchgear (key switches & push buttons)

30-012 24vdc @ 2.2A power supply (90-260vac In) 3.9" L x 3.8" W x 1.4" H (99.1mm x 96.5mm x 35.6mm) for powering sensors or other auxiliary devices

**CONTINUOUS ON DEMAND:**

PCS-10 without IEC switchgear (at time of purchase)
PCS-20 with IEC switchgear (key switches & push buttons)

Custom Software Programming (one time fee).

**REMOTE MONITORING:** (internet based)

Ethernet 100baseT with built in Web page Server (with downtime monitor and logging)

Wireless Ethernet (Wi-Fi) Bridge - Part # 39-154

**GUARDING:**

Safety Light Curtain (up to four sets of pylons, specify size) (Visit www.pinnaclesystems.com for models available)

**HYDRAULIC OVERLOAD:**

Press will stop when output opens, then allows the press to be moved in the inch mode with the input still open.

**CUSTOMIZED SOFTWARE PROGRAMMING:**

Software can be upgraded in the field with a laptop computer.

Options continued on next page.

# PressCommander Options - Resolver Based

**CLUTCH-BRAKE TIME DELAY HUB OPTION:**
Provides the press control with a separate relay for the CLUTCH and a separate relay for the BRAKE to allow for a time delay between each, and to be control reliable.
Consists of the following:

1 - Safety HUB (Part# 53-448) running the Clutch-Brake program
1 - 24VDC Power Supply (Part# 30-012)
2 - Safety Relays for HUB channel D (Part # 52-278)

**PEAK TONNAGE MONITORING: (add suffix T1,T2,T3,or T4 to Presscommander Model#)**
T1 - One channel monitoring with strain sensor and cable
T2 - Two channel monitoring with strain sensor and cable
T3 - Three channel monitoring with strain sensor and cable
T4 - Four channel monitoring with strain sensor and cable

**SIGNATURE TONNAGE ANALYSIS MONITORING (Requires 10.1" Touchscreen - Part # 39-151)**

Add suffix: T1-S, T2-S, T3-S, T4-S to the PressCommander Model.

T1-S - One channel monitoring with strain sensor and cable
T2-S - Two channel monitoring with strain sensor and cable
T3-S - Three channel monitoring with strain sensor and cable
T4-S - Four channel monitoring with strain sensor and cable

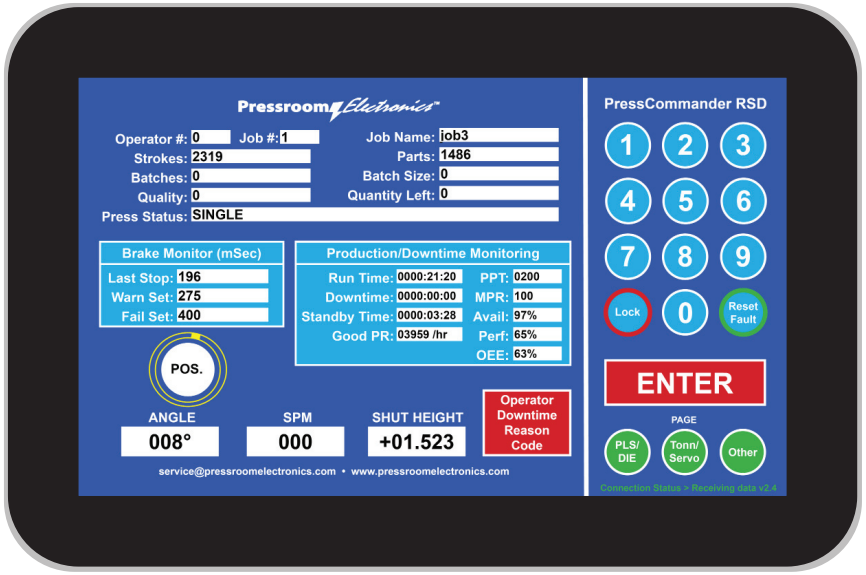
| | |
|---|---|
| Part# 39-151 | 10.1" color touchscreen replaces the Standard PressCommander four line vacuum fluorescent display mounted onto NEMA 12 (IP 64) control panel. Includes Production Monitoring to create OEE. |

**Remote Master Control Station with 10.1" color touchscreen**
Moves all the switchgear and the touchscreen until into a separate 12" x 14" x 8" box that can be placed closer to the operator. The control boards, optional starter(s), optional disconnect remain in a separate control panel whose size is dictated by the size of the starter(s) and disconnect. This requires the Ethernet option to be installed on the Touchscreen.

| | |
|---|---|
| Part# 43-027 (Required) | Ethernet cable to connect the Remote Master Control 10.1" color touchscreen to the control panel that contains the control boards, optional starters and disconnects. Specify length needed in feet. |

Optional Touchscreen features and capabilities on the following pages.

# Optional: PressCommander Touchscreen





The 10.1” color touchscreen (Part #39-151) option replaces the standard PressCommander alpha-numeric four line by twenty character display (shown above right) of the resolver based PressCommander Press Control.

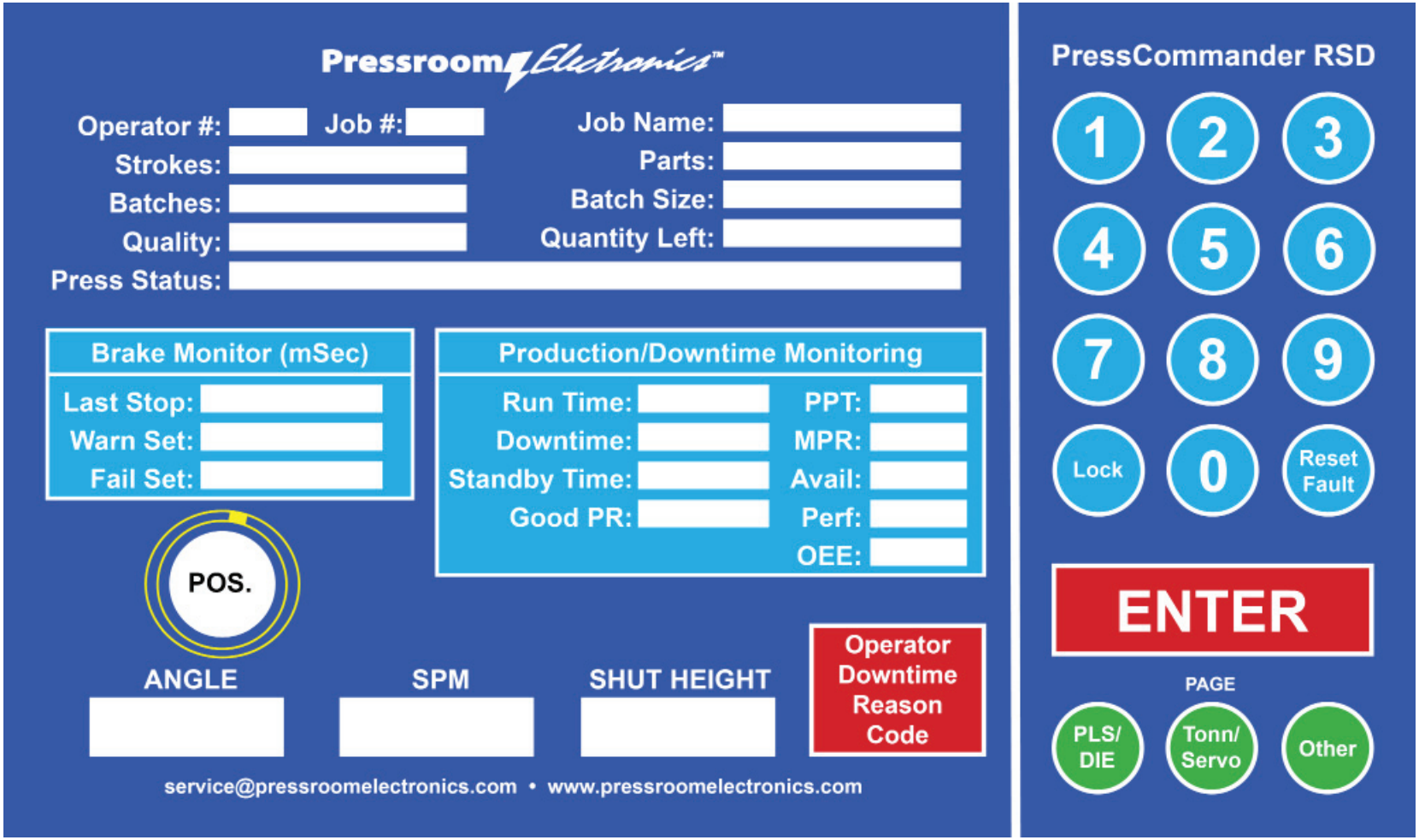
The color touchscreen provides full programming capability for the PressCommander operational features such as timers, counters, die protection, tonnage monitoring (peak or signature), PLS (programmable limit switches) and Downtime Production Monitoring. Standard features and function listing can be found on page A2 of this catalog. The color touchscreen features also incorporate a Windows Operating Systems and 32 GB of memory.

The optional PressCommander Touchscreen provides simple connectivity with the built-in wireless Windows operating system. This will provide the operator and front line supervisor with the press operational status information. This can also provide automatic population of press data into Excel spreadsheet formats if desired via log files for the machine’s production status and Downtime reasons.

The following pages will illustrate the functional layout of the various pre-programmed (yet customizable) screens. This will provide the user with a simple format for accessing the various built-in features for enhancing machine utilization and ease of operation from the production machine.

# Actual Size of PressCommander Touchscreen

## Operator Screen




The Operator Screen displays the pertinent press information for the job that is running on the press. Also shown is the Production/Downtime section, which updates automatically in real time the production and downtime status of the press. This management tool is calculated automatically and produces the OEE (Overall Equipment Effectiveness) of the press. Excellent information for the press operator and front line supervisor which is calculated on the production floor “at the machine” and easily transmitted to the production office where the information is stored and data is shared globally by all team members, if desired by the management team.

## PRODUCTION/DOWNTIME MONITORING DEFINITIONS:

| | |
|---|---|
| **Run Time** | Actual time spent making parts. |
| **Downtime** | Actual time spent on Operator Downtime (i.e. Reason Code) or Press Fault Code (i.e. Brake Fault, Die Fault). |
| **Standby Time** | Idle Time (i.e. breaks, lunch) or Operator did not specify Reason Code. |
| **Good PR** | Actual Part Rate (defined as Parts/Hour that are good). |
| **PPT** | (user entry) Planned Production Time - This is the standard maximum amount of time (in minutes) the machine should operate each Shift (subtracting breaks, lunch, etc.) |
| **MPR** | (user entry) Maximum Production Rate - This is the Maximum Part Rate (in Parts per Minute) that you would expect based on normal operation (this takes into account aging equipment, tools and substandard material). |
| **Avail** | (Availability %) - Actual Operating time / SPT (defined as what percentage of available time does the Press make parts). |
| **Perf** | (Performance %) - Actual Parts / Actual Operating time / MPR (defined as what percentage of parts did you make compared to the Maximum parts you could make). |
| **OEE** | Overall Equipment Effectiveness = Availability x Performance x Quality |

Note: All of these values also appear in the log file as well. You can also change the DRIVE location of the LOG files (i.e. Remote Hard Drive Server) which provides access to the LOG files even when the Press is OFF.

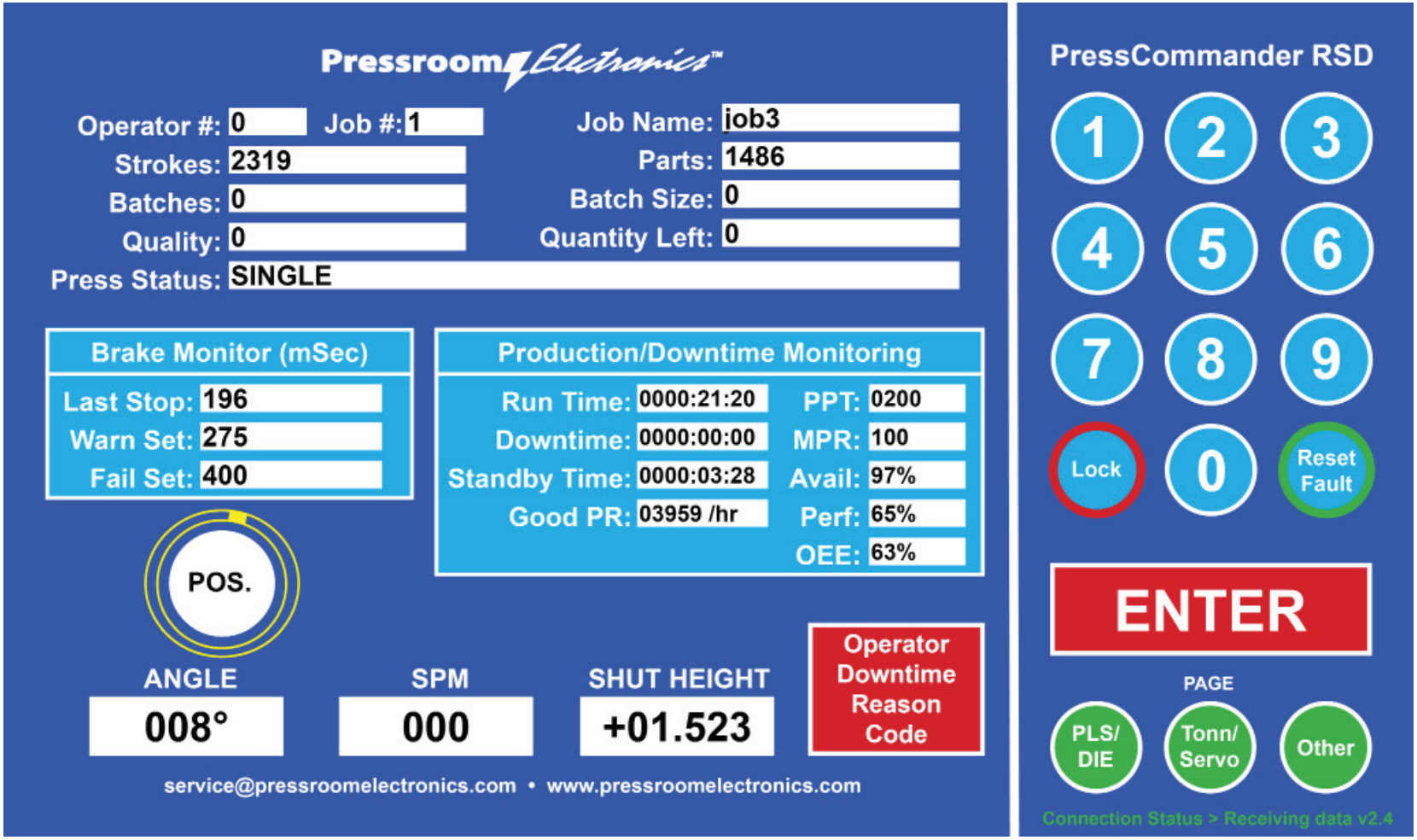
## TOUCHSCREEN DOWNTIME & PRODUCTION MONITORING FOR OVERALL EQUIPMENT EFFECTIVENESS (OEE).

Requires Touchscreen Part# 39-151
20 Downtime Codes - Downtime codes are user programmable and customized to need. Downtime codes can be activated either by manually touching the appropriate touchscreen button **OR**
Automatically via the machine circuit signal that caused the machine to stop. This capability provides an exceptional granular fault cause for machine operational analysis.

If machine induced automatic signalling is desired to activate a specific downtime code (such as die protection, tonnage monitoring, shortfeed, misfeed etc.) One of the following input/output interface boards are required.

| | |
|---|---|
| Part# 52-320 | Provides the capability for six (6) downtime codes to be activated automatically by existing machine control electrics. |
| Part# 52-321 | Provides the capability for sixteen (16) downtime codes to be activated automatically by existing machine control electrics. |
| Part# 52-320 and 52-321 | Also include six (6) dry contact relays that can be used to signal stack lights, alarms etc.<br>Relay Ratings: 5A @ 250 VAC • 5A @ 30 VDC • Coil: 12 VDC |

# Operator Screen




**Real Time Press data (Production/Downtime Monitoring) including Parts & Batch Count, Crank Angle, along with Downtime Monitoring recorded into Excel Spreadsheet files automatically.**

# Die Protection/PLS Screen

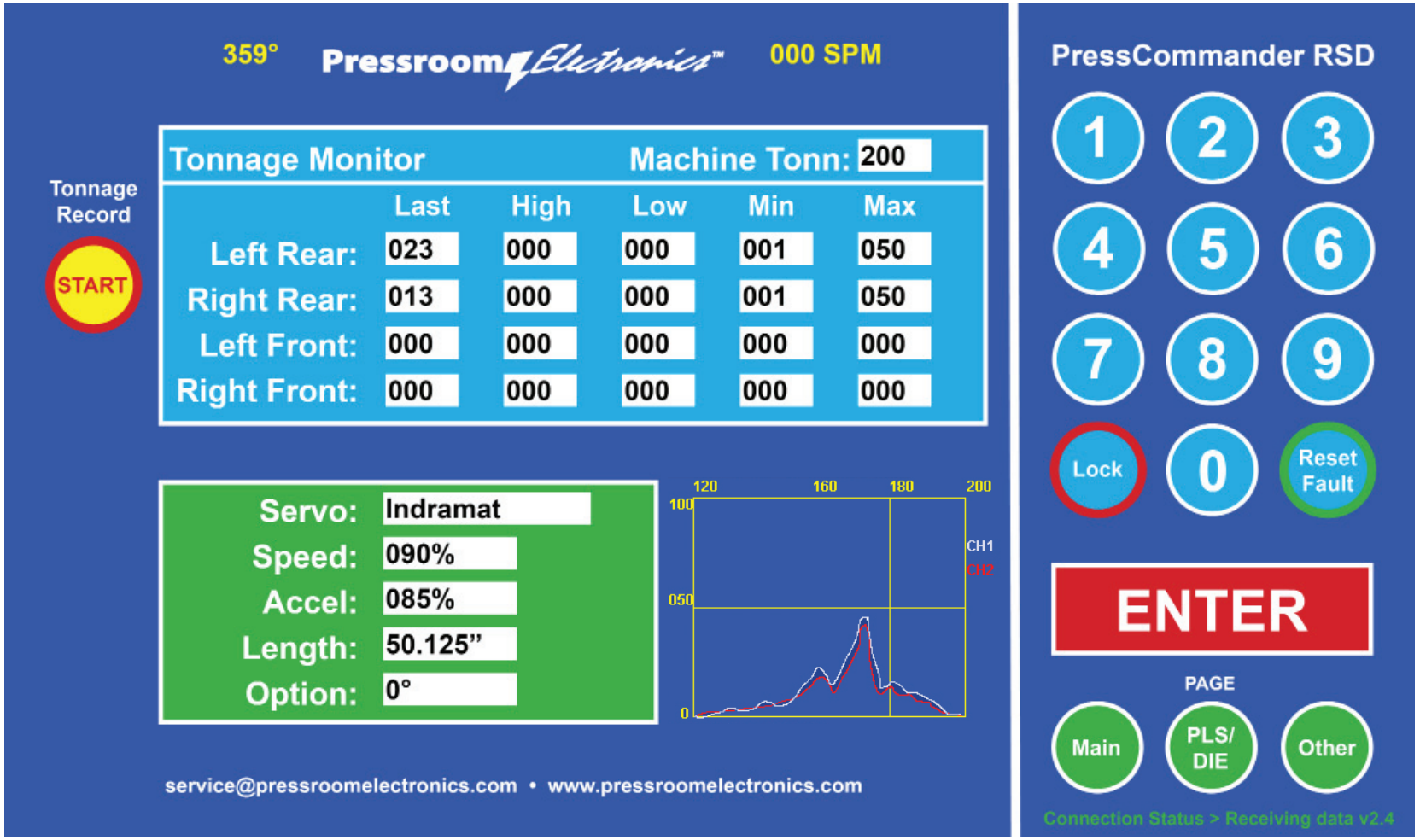

**6 Programmable Outputs (PLS) and 6 Programmable Inputs (Die Protection) supplied standard.**

**Optional:** Expander Board #52-279 adds additional 6 Die inputs and 6 Dry relay contact outputs (At time of order) - Increases the PressCommander die protection from six (6) to twelve (12) station die protection. Also increases the PressCommander programmable limit switch capacity from six (6) to twelve (12) programmable limit switches with mechanical relay (dry) outputs.

Expander power supply board #52-280 (At time of order) - Power Supply Board that stacks under the PressCommander Expander Board (52-279) and is required to power the Expander Board functions.

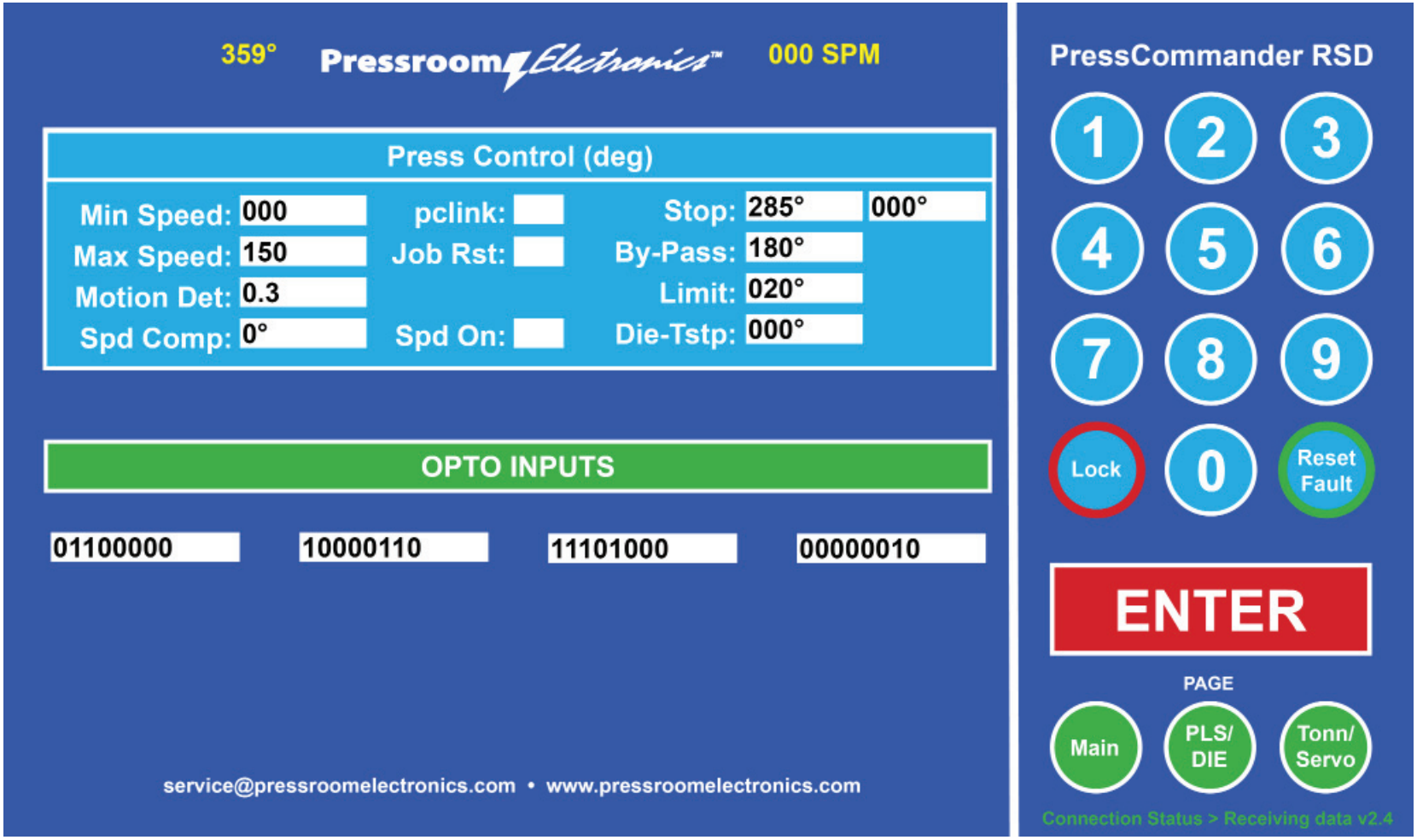
**Request Both Part Numbers (52-279 and 52-280) at time of order if expansion is desired.**

# Servo Control/Tonnage Monitoring Screen



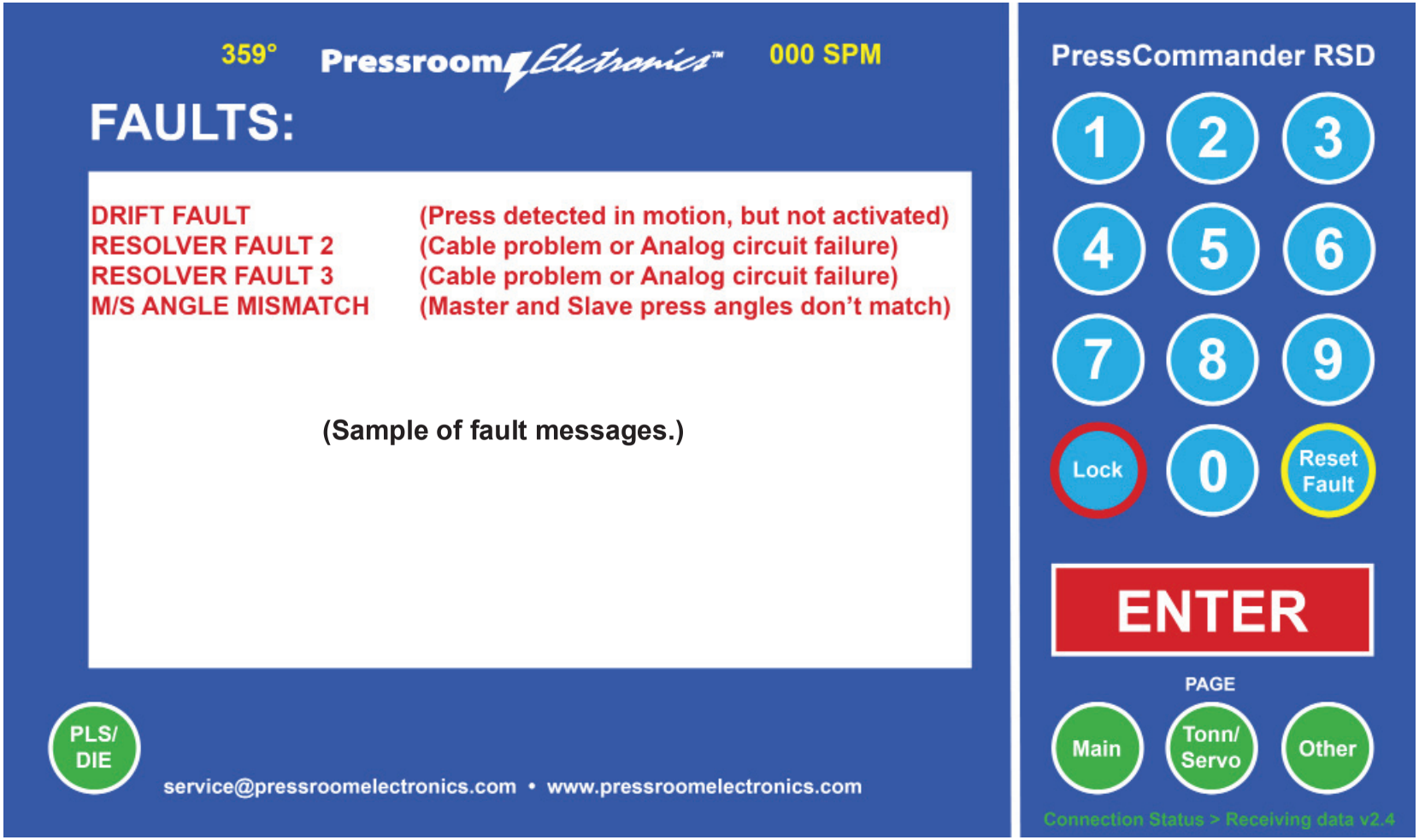

**Displayed is the Servo Control. Optional 2 or 4 channel Peak Tonnage Monitoring or Signature Analysis shown above. All data can be recorded into log files.**

# Press Set-up Screen




Press setup parameters

# Fault Message Screen




**Fault monitoring messages can be recorded into Excel spreadsheet files automatically.**

# Downtime and Production Monitoring Screen


The operator can manually select a Reason which is automatically entered into the LOG file.
The Reason is declared over when the Press RUNS or the Downtime Over button is selected (and is logged).

# Downtime and Production Monitoring Screen


During operation the user can add and edit 24 Reason Codes (up to 30 characters in length).
The reasons are stored on the users computer in a log file. System is capable of manual or automatic machine input of downtime reason(s). Downtime codes can be recorded automatically into Excel spreadsheets, Pareto charts or Pivot tables.

# Production / Downtime Monitoring
# Features, Benefits & Implementation

The Pressroom Electronics Production & Downtime Monitoring System (PDMS) represents an invaluable shop floor control and management tool. Through diligent use of the system, the management team can achieve significant gains to the overall operating performance of the plant. Indices related to Productivity, Throughput, Rework, Order Fulfillment, and Quality are common areas of impact.

Typically, there are four (4) phases to the implementation of the system:

- Understanding the Mechanics: As with anything new, the users will go through a short period of time to understand the inputs to and the resultant outputs from the system.

- Interpretation of the Data: The supervisors and management team acquire a unified understanding of the data and the indices of performance from the reporting elements of the system.

- Use of the Data: The supervisors and management team begin to use the data to manage the day to day operations and to improve the performance of the plant.

- Continuous Improvement (CI): The system is used as a key component to establish budgets, long term plans relative to capacity constraints and for CI projects.

# Production / Downtime Monitoring
# Features, Benefits & Implementation Cont.

As a value added service, Pressroom Electronics offers on-site consultants who provide assistance in augmenting and accelerating the rate of implementation of the Production & Downtime Monitoring System. Among the services offered:

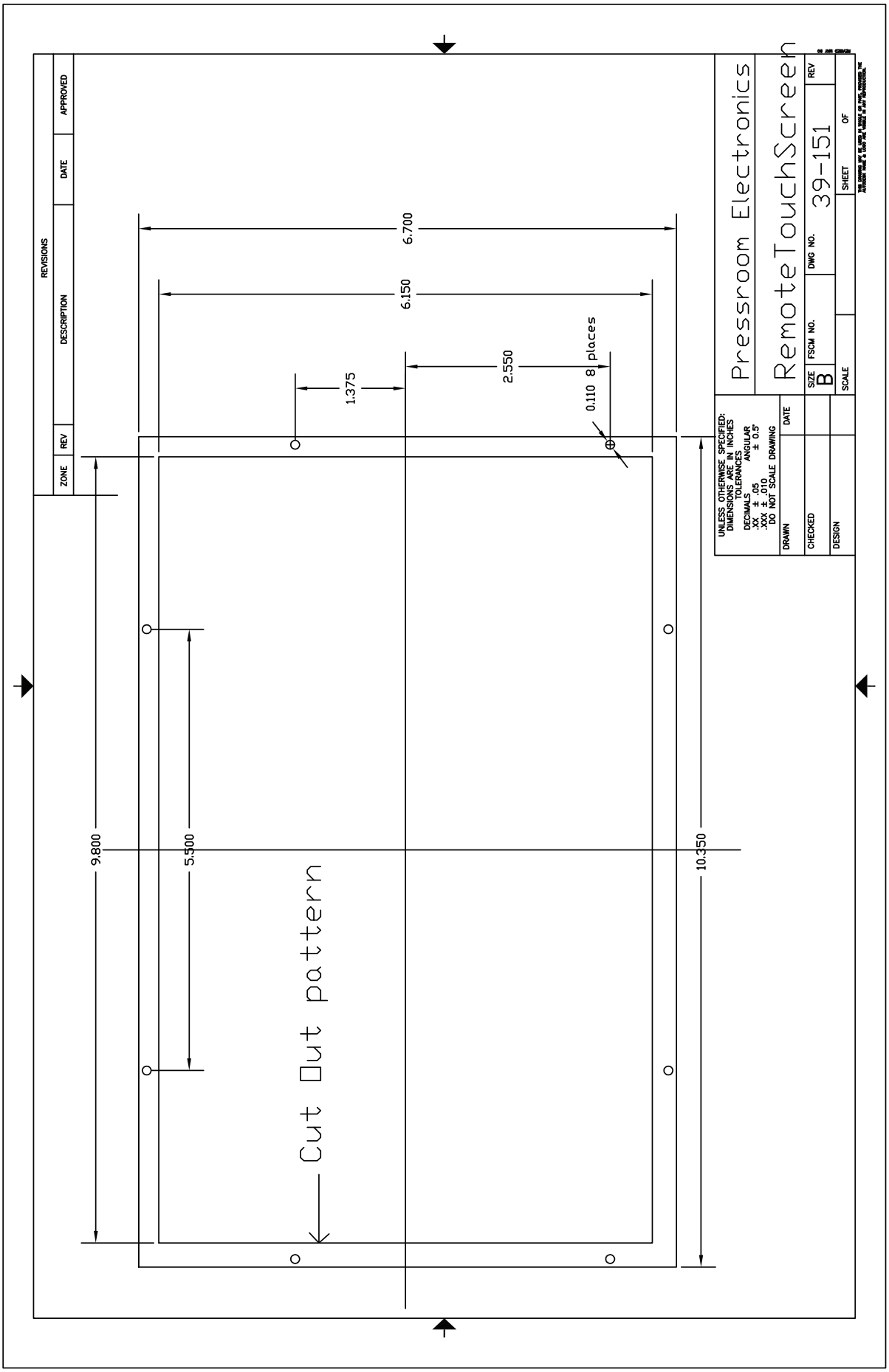
- Shop Floor Coaching: Time spent directly with the Supervisor/ Manager coaching them on the mechanics and use of the System as well as the indices of performance. This process accelerates the individual(s) understanding of the system and ensures a unified understanding of the data and indices of performance among the management team.

- Engineered Standards: This involves the establishment of Engineered Standards which are a key component to the integrity and effective use of the data and indices derived from the system.

- Facilitate Daily Review Meetings (DRM): Establish the timing, attendance and agenda for this important daily review meeting. Involves the facilitation of the meetings based on the data and downtime reported from the system and the training of the chairperson for perpetuity. This enables the ongoing and effective execution of these important daily corrective action meetings.

- Performance Measurement Reporting: Involves the custom design of the Daily Operating Report and the Weekly Management Report, including performance trend graphs. Targets the Key Performance Indicators (KPI) and other pertinent data that can be derived from the system. This enables timely, accurate and meaningful performance reporting.

# Touchscreen Cutout Pattern



# Punch Press Controls Overview

## Resolver Based "PressCommander" Punch Press Control

### For press speed range 1-500 Strokes Per Minute (SPM)

Exceeds OSHA 1910.217 & ANSI B11.1-2009, "Control Reliable Design," with dual logic power supplies, heavy duty resolver, System diagnostics and programming in plain English/Spanish which can control up to four sets of operator stations, Major faults such as E-Stop, motion, brake monitor, and sensor faults are handled by two force-guided relays (Form B safety relays), Off--inch--single--continuous, Continuous ARM; top stop, anti-tie down and anti-repeat, SPM Range (1 to 500), Password and supervisory controlled keyed selector switch for security of data entry, Interrupted stroke provision with indicator, Inch mode monitoring, Crank angle and speed readout (SPM), Time-based brake monitor, Built-in motion detector and drift fault, 90° and 270° stop time tester/meter built-in, Built-in hour meter for maintenance, Built-in variable speed compensation, Servo-feed interface built-in, Six optically isolated die protection inputs, Six PLS (programmable limit switch) output relays, 100 job memory, Stroke, batch, quality, and part counters, Batch counter output relay, Die protection output relay, Speed output relay and Auxiliary output relay.

**Optional:** Ethernet or DeviceNet and PC Link to allow offline job creation and storage.

**Optional:** 10.1" color touchscreen replaces the standard display shown. (Includes Production Monitoring to create OEE.)

**Optional**: Expander Board (52-279) - Increases the die protection to 12 stations and the programmable limit switches (PLS) to twelve.

| **Part Number** | **Description** (Resolver and resolver cable are included with all models). |
|---|---|
| **PCS-05** | **PressCommander (Boards Only) Clutch/Brake System with remote standard display** |
| **PCS-08** | **PressCommander (Boards Only) Clutch/Brake System with remote standard display, IEC switches, push buttons and legend plates** |
| **PCS-10** | **PressCommander mounted on panel backplate with remote standard display** |
| **PCS-20** | **PressCommander mounted on panel backplate with remote standard display, IEC switches, push buttons and legend plates** |
| **PCS-2000** | **PressCommander NEMA12 (IP64) control panel with IEC Components** |
| **PCS-2000-SFP** | **PressCommander Small Form Package**<br>The Small Form Package comes in a 12" x 14" x 8" NEMA 12 Control box and is the same price as a base PCS-2000 unit. It is based on a standard PCS-2000 which comes in a 20" x 20" x 8" box (going up in size depending on options). The SFP does not come with the step-down transformer and is not for customers who require additional options (i.e. Starter(s) , Disconnect, etc.). The SFP is for customers who already have a Panel for high voltage/high current equipment, and want the Controls to be closer to the operator.<br>NOTE: There is no cable length limitation between the SFP and the high voltage equipment. |
| **PCS-4000** | **PressCommander NEMA12 (IP64) control panel & IEC components**<br>Model #PCS-4000 control panel includes the following components:<br>No. 303A Dual Solenoid Valve with Muffler<br>No. 306 Heavy duty pressure switch<br>52-227 Heavy duty brushless Resolver transducer (formerly 40-003)<br>No. 311 Filter, regulator, lubricator<br>No. UL-501 operator station |

***Optional**: 10.1" color touchscreen replaces the standard display and is available for all models listed above.

**Note** -- IEC switchgear supplied standard (NEMA optional). Adder to replace standard IEC switchgear with NEMA switchgear.

# Punch Press Controls Overview

## Resolver Based "PressCommander" Punch Press Control

### "High Speed" For press speed range above 500 Strokes Per Minute (SPM)

Exceeds OSHA 1910.217 & ANSI B11.1-2009, "Control Reliable Design," with dual logic power supplies, heavy duty resolver, System diagnostics and programming in plain English/Spanish which can control up to four sets of operator stations, Major faults such as E-Stop, motion, brake monitor, and sensor faults are handled by two force-guided relays (Form B safety relays), Off--inch--single--continuous, Continuous ARM; top stop, anti-tie down and anti-repeat, SPM Range (500 and above), Password and supervisory controlled keyed selector switch for security of data entry, Interrupted stroke provision with indicator, Inch mode monitoring, Crank angle and speed readout (SPM), Time-based brake monitor, Built-in motion detector and drift fault, 90° and 270° stop time tester/meter built-in, Built-in hour meter for maintenance, Built-in variable speed compensation, Servo-feed interface built-in, Six optically isolated die protection inputs, Six PLS (programmable limit switch) output relays, 100 job memory, Stroke, batch, quality, and part counters, Batch counter output relay, Die protection output relay, Speed output relay and Auxiliary output relay.

**Optional:** Ethernet or DeviceNet and PC Link to allow offline job creation and storage.

**Optional:** 10.1" color touchscreen replaces the standard display shown. (Includes Production Monitoring to create OEE.)

**Optional**: Expander Board (52-279) - Increases the die protection to 12 stations and the programmable limit switches (PLS) to twelve.

| Part Number | Description (Resolver and resolver cable are included with all models). |
|---|---|
| **PCS-05-OPTO** | **High Speed PressCommander (Boards Only) Clutch/Brake System with remote standard display** |
| **PCS-08-OPTO** | **High Speed PressCommander (Boards Only) Clutch/Brake System with remote status standard display, IEC switches, push buttons and legend plates** |
| **PCS-10-OPTO** | **High Speed PressCommander mounted on panel backplate with remote standard display** |
| **PCS-20-OPTO** | **High Speed PressCommander mounted on panel backplate with remote standard display, IEC switches and push buttons** |
| **PCS-2000-OPTO** | **High Speed PressCommander NEMA12 (IP64) control panel with IEC Components** |
| **PCS-4000-OPTO** | **High Speed PressCommander NEMA12 (IP64) control panel & IEC components**<br>Model #PCS-4000-OPTO control panel includes the following components:<br>No. 303A Dual Solenoid Valve with Muffler<br>No. 306 Heavy duty pressure switch<br>52-227 Heavy duty brushless Resolver transducer (formerly 40-003)<br>No. 311 Filter, regulator, lubricator<br>No. UL-501 operator station |

**Important Ordering Information for the PCS OPTO**: The Programmable relay outputs (PLS1- 6) are normally a mechanical (dry contact) relay with 5A contacts. The PCS-OPTO replaces the PLS1-6 with Solid-State relays. The customer has the choice of replaceable Solid-State outputs PN# 37-045 3.0A @ 24VDC only, OR PN# 37-047 0.5A @ 120VAC/DC. The customer must specify which type of output at the time of order. (no difference in cost)

***Optional**: 10.1" color touchscreen replaces the standard display and is available for all models listed above.

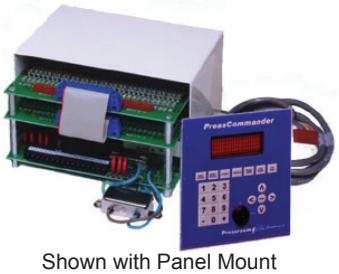
**Note** -- IEC switchgear supplied standard (NEMA optional). Adder to replace standard IEC switchgear with NEMA switchgear.

# Various Models of PressCommander

## Resolver Based Punch Press Controls

Touchscreen is optional for all models.

## PCS-05*



Shown with Panel Mount Message Display

**The Board Only Commander Module**
The redundant clutch/brake punch press control module with a remote panel mount message display (available in English or Spanish).

**Resolver Transducer**
Shown with 30' connector cabling supplied standard

**Model PCS-05 includes:**
- Master Board
- Slave Board
- Power Supply Board
- Diagnostic Message Display
- Connecting Cables
- Cover/Hardware
- Software (Master) microprocessor
- Software (Slave) microprocessor

## PCS-08*

The redundant clutch/brake punch press control module with a remote panel mount message display (available in English or Spanish). Also included are all of the switches, legend plates, push buttons, and indicator lights for easy mounting into your existing control.

**Model PCS-08 includes:**
- Master Board
- Slave Board
- Power Supply Board
- Diagnostic Message Display
- Connecting Cables
- Cover/Hardware
- Software (Master) microprocessor
- Software (Slave) microprocessor

**Resolver Transducer**
Shown with 30' connector cabling supplied standard

**Push buttons & legend plates for:**
- System start
- System stop
- Automatic continuous set-up

**Indicators & legend plates for:**
- System on
- Ground fault
- Brake monitor
- Interrupted stroke provision

## PCS-10*

Shown with Panel Mount Message Display

The compact Model PCS-10 is big in safety and automation control. The redundant clutch/brake punch press control module has a remote panel mount message display (available in English or Spanish).

**Resolver Transducer**
Shown with 30' connector cabling supplied standard

**Model PCS-10 includes:**
- Control reliable design (triple CPU redundancy)
- Diagnostic Message Display
- Fused transformer
- Control Module pre-wired to terminal strip
- Pressure clamp terminal strip
- Mounted on an 18” (457mm) x 18” (457mm) backplate
- Wiring diagram and complete installation instructions supplied
- Modes of operation off - inch - single - continuous
- Continuous ARM
- Top stop
- Anti-tie down and anti-repeat
- System start/stop functions
- SPM Range - 1 to 500
- Interrupted stroke provision with indicator
- Inch mode monitoring
- Control module provides anti-tie down and concurrency function for up to four sets of operator stations
- Light curtain mute-out on upstroke standard
- Clutch/brake module designed to fit into tight spaces.
- Printed circuit board dimensions; only 6.5’ (165mm) x 5” (127mm) x 4” (102mm) including standoff.
- Control systems are captively designed, manufactured and supported.
- Self-contained plain English message display
- Self-diagnostic system
- The control module monitors the signals and circuits as specified by OSHA and ANSI standards.
- Control incorporates dual logic power supplies
- Two-year warranty on control modules and resolver

# Various Models of PressCommander

## Resolver Based Punch Press Controls

## PCS-20*

Model PCS-20 encompasses all of the features and components of Model PCS-10 plus all of the switches, legend plates, push buttons, and indicator lights for easy mounting into your existing control.

**Resolver Transducer**
Shown with 30' connector cabling supplied standard

**Model PCS-20 includes:**
**Keyed selector switches and legend plates for:**
- Hand/foot mode
- Off/inch/single/continuous

**Push buttons and legend plates for:**
- System start
- System stop
- Automatic continuous set-up

**Indicators and legend plates for:**
- System on
- Ground fault
- Brake monitor
- Interrupted stroke provision

Touchscreen is optional for all models.

## PCS-2000*


The Model PCS-2000 Control System is completely prewired and ready for installation. System supplied complete with a well marked terminal strip for easy, safe, and accurate electrical interface to the various punch press components. Due to the hybrid design characteristics, a main power disconnect switch and magnetic motor starter can be supplied in the same control panel.

Customer to specify operator control location (photo on the left displays operator controls on panel door).

Our ordering/proposal form will allow you to configure your system exactly how you want it.

**Resolver Transducer**
Shown with 30' connector cabling supplied standard

**Model PCS-2000 includes:**
- NEMA 12 Enclosure

- System Start Guarded Push Button (Air and Power Interlock)

- System Stop Unguarded Push Button

- System On Indicator Light

- Plain English messages for status and system self-diagnostics

- Automatic Continuous Set Up Push Button - This prior action push button must be operated to set-up the press for continuous operation. Once depressed, the operator has a preset length of time in which to depress both palm buttons concurrently to initiate operation in the continuous mode.

- Time-Based Brake Monitor

- Ground Fault Detector - Oil tight push to test type wired to continuously monitor press grounding whenever control power is on.

- Continuous Arm Timer

- Fused Secondary Pressure Clamp Terminals

- Hand/Foot Mode Two position keyed selector for hand or foot mode initiation.

- Transformer To reduce voltage from 480/240VAC to 120VAC secondary. Consult factory for 208 or 550 volt system.

- Interrupted stroke provision

- Keyed Mode Selector Off-Inch-Single- Continuous Four position keyed lock selector switch for supervised selection of mode of operation of the press. When in the inch mode, the operator cannot hold or tie one run button down and use the other button to inch the press with one hand operation. Both buttons must be depressed concurrently. Microinching and Automatic External Trip optional.

# PCS-4000 Resolver Based Punch Press Control & Components

Touchscreen is optional.

## PCS-4000*

Incorporates all the requirements of OSHA for control reliability and component monitoring. Also includes component and system diagnostics with indicator lights for total press monitoring. Complies with section 1910.217 of the Federal Register and ANSI Standard B11.1-2009.

When foot actuation is used, a method of guarding the point of operation must be provided.

Refer to the PressCommander Options in this catalog for a complete listing of the PCS-4000 features.

***Includes the same features as the PressCommander listed on page A9. Each model varies slightly in it's packaging. See individual product descriptions for details.**

## PCS-4000 includes the following:

**Dual Solenoid Valve**
The dual solenoid valve is monitored and contains a pressure controlled spool in an assembly mounted between the pilot and valve body assemblies. Pressure signals are applied to each end of the monitor spool. If these signals differ by more than a built-in design limit, they cause the spool to shift to a latched position. The spool movement causes the pilots to be exhausted and pilot supply air to be vented to the atmosphere, thus rendering the valve inoperable. The monitor must be reset by unlatching the spool before another valve cycle can be initiated.

**Operator Station**
No. UL-501 Two UltraTouch modules mounted on a NEMA 12 operator station run bar with a red mushroom emergency stop button located in the center and a yellow mushroom top stop button located off center. This style assembly is ideal for the metal stamping/metal fabrication industry. All the modules are mounted in accordance to OSHA, ANSI, and CSA standards in regards to run button spacing.

**Heavy Duty Pressure switch No. 306**
This NEMA 12 oil-tight and dust-tight switch is adjustable from 1 to 115 PSI.

**Filter Regulator Lubricator No. 311**

**Industrial Grade Brushless Resolver Transducer** Part No. 40-003
Heavy duty brushless resolver transducer which replaces the current mechanical rotary cam switch. Resolver Cabling 30' Part No. 45-020

# PressCommander Proposal/Ordering Guide

## Resolver Based Controls (All Models/Styles)

*Please complete the form on the next two pages and email it to the Pressroom Sales Department at sales@pressroomelectronics.com. You may also fax the form to (412) 262-1197. We also have an electronic version of this form available on our website www.pressroomelectronics.com.*

Name _____ Email _____

Company _____ Punch Press Manufacturer _____

Address _____ Model # _____ Serial # _____

City _____ Shop # _____ Press Speed (SPM) _____

State _____ Zip _____ Voltage _____ Cycle _____ Phase _____

Phone _____ Fax _____

*All PressCommander Models include clutch/brake and integrated automation control capability, standard display, resolver and 30' (9.1m) of connector ended resolver cable.

☐ **PCS-05**

*Components as stated above.

☐ **PCS-08**

*Components plus switches, legend plates, indicators and push buttons.

☐ **PCS-10**

*Components mounted on a blackplate. Prewired to terminal strip.

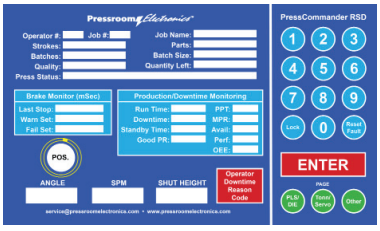
☐ **PCS-20**

*Components mounted on a backplate and prewired to terminal strip. Includes all switches, legend plates, indicators and push buttons.

☐ **PCS-2000**

*Components housed in a NEMA 12 (IP64) steel control panel. Prewired to terminal strip.

☐ **Optional Touchscreen Display**




Replaces standard display in all PCS Models. Part #39-151.

# PressCommander Proposal/Ordering Guide

## Resolver Based Controls with Standard Display (All Models/Styles)

**1 to 500 SPM Press Speed**

Qty.

☐ **PCS-05**

☐ **PCS-08**

☐ **PCS-10**

☐ **PCS-20**

☐ **PCS-2000**
Specify Operator Control Location on Control Panel:
☐Left End ☐Panel Door ☐Right End

**Above 500 SPM Press Speed**

Qty.

☐ **PCS-05-OPTO**

☐ **PCS-08-OPTO**

☐ **PCS-10-OPTO**

☐ **PCS-20-OPTO**

☐ **PCS-2000-OPTO**
Specify Operator Control Location on Control Panel:
☐Left End ☐Panel Door ☐Right End

☐ **PCS-2000-SFP PressCommander Small Form Package**
The PCS-2000-SFP comes in a 12" x 14" x 8" NEMA 12 Control box and is the same price as a base PCS-2000 unit. It is based on a standard PCS-2000 which comes in a 20" x 20" x 8" box (going up in size depending on options). The SFP does not come with the step-down transformer and is not for customers who require additional options (i.e. Starter(s) , Disconnect, etc.). The SFP is for customers who already have a Panel for high voltage/high current equipment, and want the Controls to be closer to the operator.
NOTE: There is no cable length limitation between the SFP and the high voltage equipment control panel.

☐ **PCS-4000 (1 to 500 SPM Press Speed)** **or** ☐ **PCS-4000-OPTO (Above 500 SPM Press Speed)**

Specify Operator Control Location (for either model):
☐Left End ☐Panel Door ☐Right End

☐ **Fused Main Power Disconnect** - Refer to Main Power Disconnect Section
Mounted on control panel _____ AMP
Choose Style: ☐IEC ☐NEMA Part#_____

☐ **Main Motor Magnetic Motor Starter** - Refer to Main Power Disconnect Section
Choose Style: ☐IEC ☐NEMA
Choose: ☐Rev ☐Non-Rev
_____ HP _____ Full Load Amps Part#_____
Includes on/off push buttons and keyed selector switch forward/reverse when applicable.

☐ **Ram Adjust Magnetic Motor Starter** - Refer to Main Power Disconnect Section
Choose Style: ☐IEC ☐NEMA
_____ HP _____ Full Load Amps Part#_____
Includes up/down push buttons and keyed selector switch forward/reverse when applicable.

☐ **Accessory Magnetic Motor Starter** - Refer to Main Power Disconnect Section
Choose Style: ☐IEC ☐NEMA
Choose: ☐Rev ☐Non-Rev
_____ HP _____ Full Load Amps Part#_____
Includes on/off push buttons and keyed selector switch forward/reverse when applicable.

# PressCommander Proposal/Ordering Guide

## Resolver Based Controls with Standard Display (All Models/Styles)

Qty.

☐ **Micro-Inching Feature**

☐ **Automatic External Trip**

☐ **Continuous On Demand**

☐ **Light Curtain On/Off Key Switch**
Supervisory controlled for maintenance or set-up.

☐ **Multiple Operator Stations Control**
Keyed selector switch on/off mounted on control panel to turn additional operator stations on/off.

☐ **Bar Turnover Function**
Permits manual rotation of the flywheel with the clutch engaged for die setting. Controlled by keyswitch on/off.

☐ **Open Space Inside Control Panel**
For mounting additional customer supplied components.
Specify desired space:
_____ X _____

☐ **Console Mounted Controls**
Consult factory for specifics.

☐ **Die Block Receptacle Outlet**
Female receptacle for an electrical interlock on a die block.

☐ **110VAC Outlet**
Panel mounted 110VAC outlet for powering lights, press auxiliary equipment etc.

☐ **220VAC Outlet**
Panel mounted 220VAC outlet for powering lights, press auxiliary equipment etc.

☐ **Shut Down Timer**
Automatically shuts off the punch press when not in use. Length of time is customer adjustable.

☐ **Hydraulic Overload**
Press will stop when output opens, then allows the press to be moved in the inch mode with the input still open.

☐ **Part# 30-012**
24VDC @ 2.2 A power(90-26 VAC in)
3.9” Long x 3.8” Wide x 1.4” High (99 mm x 96 mm x 35.6 mm) for powering sensors, or other auxiliary devices.

Qty.

☐ **Clutch-Brake Time Delay HUB Option**
Provides the control with a separate relay for the CLUTCH and a separate relay for the BRAKE to allow for a time delay between each, and to be control reliable. Consists of the following:
(1) Safety HUB (Part# 53-448 running the Clutch-Brake program
(1) 24VDC Power Supply (Part#30-012)
(2) Safety Relays for HUB channel D (Part# 52-278)

☐ **Peak Tonnage Monitoring (check option below)**
- ☐ **T1** - One channel monitoring with strain sensor and cable.
- ☐ **T2** - Two channel monitoring with strain sensors and cables.
- ☐ **T3** - Three channel monitoring with strain sensors and cables.
- ☐ **T4** - Four channel monitoring with strain sensors and cables.

☐ **Signature Tonnage Analysis Monitoring**
**Requires Touchscreen Part #39-151 (check option below)**
- ☐ **T1-S** - One channel monitoring with strain sensor and cable.
- ☐ **T2-S** - Two channel monitoring with strain sensors and cables.
- ☐ **T3-S** - Three channel monitoring with strain sensors and cables.
- ☐ **T4-S** - Four channel monitoring with strain sensors and cables.

☐ **Safety Light Curtain**
Model SS Solid State Outputs Safety Light Curtain
Specify Size - 4” (101mm) to 64” (1625mm) guarded zone in 4” (101mm) increments.

☐ 4 ☐ 8 ☐ 12 ☐ 16 ☐ 20 ☐ 24

☐ 28 ☐ 32 ☐ 36 ☐ 40 ☐ 44 ☐ 48

☐ 52 ☐ 56 ☐ 60 ☐ 64

☐ **Shut Height Monitor**
Requires interface board Part# 52-298
Choose a length below: A magnet and two mounting brackets are supplied standard with all linear sensors.

Size
- ☐ 4” - Part# 40-009
- ☐ 8” - Part# 40-010
- ☐ 12” - Part# 40-011
- ☐ 16” - Part# 40-012
- ☐ 24” - Part# 40-013

Consult factory for longer lengths.

# PressCommander Proposal/Ordering Guide

## Resolver Based Controls (For Standard Display models)

**Additional Die Protection Inputs and PLS (programmable limit switch outputs) for all models.**

☐ **Expander Board #52-279**

Adds additional 6 Die inputs and 6 Dry relay contact outputs (At time of order) - Increases the Press Commander die protection from six (6) to twelve (12) station die protection. Also increases the PressCommander programmable limit switch capacity from six (6) to twelve (12) programmable limit switches with mechanical relay (dry) outputs.

☐ **Expander power supply board #52-280 (At time of order)**

Power Supply Board that stacks under the PressCommander Expander Board (52-279) and is required to power the Expander Board functions.

**Request Both Part Numbers (52-279 and 52-280) at time of order if expansion is desired.**

**For Models that utilize the Standard Display**

☐ **Remote Master Control Station**

(Free standing operator control station) PressCommander Standard Display Extender System. Moves all the switchgear and the standard display unit into a separate 12" x 14" x 8" box that can be placed closer to the operator. The control boards, optional starter(s), optional disconnect remain in a separate control panel whose size is dictated by the size of the starter(s) & disconnect.
NOTE: Cables are available in 15', 25', 35', and 50' lengths. These cables should never be cut between the Remote Master Control Station and control panel. 15' cable is supplied standard for the Standard Display remote master control station.

☐ **Extension Cables for Remote Master Control Stations located over 15' (4.5m) with Standard Display from control panel.**

- ☐ Part# 53-456 is a 25' Remote Standard Display Extender System
  (when the Standard Display unit is located 25' from the PressCommander Board Stack)
- ☐ Part# 53-457 is a 35' Remote Standard Display Extender System
  (when the Standard Display unit is located 35' from the PressCommander Board Stack)
- ☐ Part# 53-458 is a 50' Remote Standard Display Extender System
  (when the Standard Display unit is located 50' from the PressCommander Board Stack)

☐ **Part #35-111 Ethernet option for the PressCommander Standard Display**

# PressCommander Proposal/Ordering Guide

## Resolver Based Controls (For Touchscreen Display models)

☐ **Part# 39-151**

10.1" color touchscreen replaces the Standard PressCommander four line vacuum florescent display. Available for all PressCommander models. Includes Downtime and Production Monitoring System.

☐ **Remote Master Control Station with 10.1" color touchscreen**

Moves all the switchgear and the touchscreen until into a separate 12" x 14" x 8" box that can be placed closer to the operator. The control boards, optional starter(s), optional disconnect remain in a separate control panel whose size is dictated by the size of the starter(s) and disconnect. This requires the Ethernet option to be installed on the Touchscreen.

☐ **Part# 43-027 (Required)**

Ethernet cable to connect the Remote Master Control 10.1" color touchscreen to the control panel that contains the control boards, optional starters and disconnects.
Specify length needed in feet. _____

**Touchscreen Downtime and Production Monitoring for Overall Equipment Effectiveness (OEE).**

☐ **Requires Touchscreen Part# 39-151**

20 Downtime Codes - Downtime codes are user programmable and customized to need. Downtime codes can be activated either by touching the appropriate touchscreen button **OR** Automatically via the machine circuit signal that induced the machine to stop. This capability provides an exceptional granular fault cause for machine operational analysis.
Production Monitoring is supplied standard with the Touchscreen.

If machine induced automatic signalling is desired to activate a specific downtime code (such as die protection, tonnage monitoring, shortfeed, misfeed etc.) One of the following input/output interface boards are required.

☐ Part# 52-320

Provides the capability for six (6) downtime codes to be activated automatically by existing machine control electrics.

☐ Part# 52-321

Provides the capability for sixteen (16) downtime codes to be activated automatically by existing machine control electrics.

*Note - Part# 52-320 and 52-321
Includes six (6) dry contact relays that can be used to signal stack lights, alarms etc.
Relay Ratings: 5A @ 250 VAC • 5A @ 30 VDC • Coil: 12 VDC

**Additional Die Protection Inputs and PLS (programmable limit switch outputs) for all models.**

☐ **Expander Board #52-279**

Adds additional 6 Die inputs and 6 Dry relay contact outputs (At time of order) - Increases the Press Commander die protection from six (6) to twelve (12) station die protection. Also increases the PressCommander programmable limit switch capacity from six (6) to twelve (12) programmable limit switches with mechanical relay (dry) outputs.

☐ **Expander power supply board #52-280 (At time of order)**

Power Supply Board that stacks under the PressCommander Expander Board (52-279) and is required to power the Expander Board functions.

**Request Both Part Numbers (52-279 and 52-280) at time of order if expansion is desired.**

# Replacement Parts for PressCommander Resolver Based Controls
(All Models/Styles)

## REPLACEMENT PARTS LISTING

| Part Number | Description |
|---|---|
| 11-157 | Panel Mount (with Gasket) |
| 11-167 | Shield cover for Display unit |
| 11-168 | Shield cover for master/slave/power board stack |
| 20-022 | 1A Slo-Blo nano SMF fuse |
| 20-023 | 5A Fuse (white nano) |
| 26-091 | Display Overlay |
| 30-009 | Tonnage Controller (3 or 4 channel) |
| 30-010 | Tonnage Sensor & 35' of cable |
| 30-013 | Tonnage Controller (1 or 2 channel) |
| 32-002 | Output Relay (black G6B-1174P) |
| 32-006 | Output Relay (black G6B-2114P) |
| 32-101 | 4 pole 12 VDC (clear KACO safety relay) |
| 35-111 | Ethernet Module with software (factory installed & replaced) |
| 35-065 | EEPROM Job memory chip (100 jobs) (59 jobs with optional expander board) |
| 35-120 | Job memory chip for the PressCommander only (150 jobs) (100 jobs with optional expander board) |
| 37-040 | Solid State output relay (factory installed and replaced) |
| 39-151 | 10.1" color touchscreen |
| 39-084 | RUN/PROG keyswitch, key, and cable |
| 45-020 | Resolver cable (30') with connectors |
| 45-027 | Display data/power cable (6' standard size) |
| 45-029 | Display data/power cable (15' extended length for remoting Display unit) |
| 52-227 | Resolver unit (no cable) (formerly 40-003) |
| 52-245 | PCS Display board (with job memory and VFD display) |
| 52-246 | PCS Master board |
| 52-247 | PCS Slave board |
| 52-248 | PCS Power supply / Relay output board (with relays and fuses) |
| 52-251 | Ribbon Cable Assembly |
| 52-271 | Master/Slave 9 conductor Input Cable (4.5') |
| 52-279 | Expander Board (requires DeviceNet Plug on back of Display Unit) |
| 52-280 | Expander Power supply (stacks under Expander board) |

# Custom Programming & Remote Field Upgrades

The entire Pressroom Electronics product mix has the capability to have our factory personnel create special programs or functions for your unique machine application. Additionally, when your customized program or function is completed, we simply send you an encrypted electronic file to download into your Pressroom Electronics product via the onboard USB port provided. This simple, easy, cost efficient procedure will enhance your machine utilization, and most importantly, it's safe.

Consult your Pressroom Electronics distributor or our factory to turn your customized application in to a reality. You may contact our factory direct through the contact information below.

Phone: (630) 443-9320
Email: service@pressroomelectronics.com

## NOTES

# Rotary Cam Based Punch Press Controls

## This platform of punch press controls utilizes a rotary cam limit switch with drive check for the machine's position and timing signals.

Pressroom Electronics™

# Rotary Cam Based Punch Press Controls Overview

The Model 3200SS (Solid State) Control System is completely prewired and ready for installation. System supplied complete with a well marked terminal strip for easy, safe, and accurate electrical interface to the various punch press components. Due to the hybrid design characteristics of the 3200SS, a main power disconnect switch and magnetic motor starters can be supplied in the same control panel. Complies with section 1910.217 of the Federal Register and ANSI B11.1-2009.

Utilizes a rotary cam limit switch (shown) for the machine timing signals.

All of the listed SSM products below meet or exceed 1910.217 of the Federal Register and ANSI B11.1-2009.

| Part Number | Description |
|---|---|
| **SSM-05** | **3200SS (Boards Only) Clutch/Brake System with remote status display** |
| **SSM-08** | **3200SS (Boards Only) Clutch/Brake System with remote status display, IEC switches, push buttons and legend plates** |
| **SSM-10** | **3200SS control boards mounted on panel backplate with remote status display** |
| **SSM-20** | **3200SS control boards mounted on panel backplate with remote status display, switches, push buttons** |
| **3200SS** | **3200SS control boards with NEMA12 (IP64) control panel with IEC switchgear** |
| **3200SS with 1500 Package** | **3200SS with NEMA12 (IP64) control panel with IEC switchgear and control package 1500**<br>Control Package 1500 includes the following:<br>No. 303A Dual Solenoid Valve with Muffler<br>No. 306B heavy duty pressure switch<br>No. 310A Rotary Cam (4) with sprockets and Chain<br>BM-1600 encoder added if BM-1600 is ordered<br>No. 311 Filter, Regulator, Lubricator<br>No. UL-501 Operator Station |

## ROTARY CAM LIMIT SWITCHES

| Part Number | Model Number | Description |
|---|---|---|
| 21-082 | 310A | 4 Cam, Rotary Cam Limit Switch (with drive check) |
| 21-089 | 310E | 6 Cam, Rotary Cam Limit Switch (with drive check) |
| 21-090 | 310G | 8 Cam, Rotary Cam Limit Switch (with drive check) |
| 21-091 | 310A-MD | 4 Cam, Rotary Cam Limit Switch (with drive check & encoder) |
| 21-092 | 310E-MD | 6 Cam, Rotary Cam Limit Switch (with drive check & encoder) |
| 21-093 | 310G-MD | 8 Cam, Rotary Cam Limit Switch (with drive check & encoder) |

**Note** -- IEC switchgear supplied standard (NEMA optional). Adder to replace standard IEC switchgear with NEMA switchgear.

*Please note that when punch press timing signals are generated by Rotary Cam or Limit Switches, it is required to have a “time based brake monitor.” The time based brake monitor is to measure the press stopping time on each stroke. If the subject press that is being updated with controls does not have a time based brake monitor, add the Model BM-1600 Time Based Brake Monitor to the press control.

# Various Models of the Rotary Cam Based Punch Press Controls

## SSM-05

The Board Only Clutch/Brake Module (Part #SSM-05). The redundant clutch/brake punch press control module with a remote panel mount message display (available in English or Spanish). Please see the design criteria and system description writing. Complies with section 1910.217 of the Federal Register and ANSI B11.1-2009.

**Part #SSM-05 includes:**
- Master Board
- Slave Board
- Power Supply Board
- Diagnostic Message Display
- Connecting Cables
- Cover/Hardware
- Software (Master) microprocessor
- Software (Slave) microprocessor

## SSM-08

The redundant clutch/brake punch press control module with a remote panel mount message display (available in English or Spanish). Please see the indepth design criteria and system description writing. Complies with section 1910.217 of the Federal Register and ANSI B11.1-2009. Also included are all of the switches, legend plates, push buttons, and indicator lights for easy mounting into your existing control.

**Part #SSM-08 includes:**
- Master Board
- Slave Board
- Power Supply Board
- Diagnostic Message Display
- Connecting Cables
- Cover/Hardware
- Software (Master) microprocessor
- Software (Slave) microprocessor

**Push buttons & legend plates for:**
- System start
- System stop
- Automatic continuous set-up

**Indicators & legend plates for:**
- System on
- Ground fault
- Brake monitor
- Interrupted stroke provision

## SSM-10

Small in Size -- Big in Safety and Control
Excellent for the Rebuilder or O.E.M. to install into existing control panel
The redundant clutch/brake punch press control module has a remote panel mount message display (available in English or Spanish). Please see the in-depth design criteria and system description writing. Complies with section 1910.217 of the Federal Register and ANSI B11.1-2009.

## SSM-20

The Short Stack Plus (Part #SSM-20) encompasses all of the features and components of the SSM-10 (see page 24 for complete list of features) plus all of the following switches, legend plates, push buttons, and indicator lights for easy mounting into your existing control panel. Complies with section 1910.217 of the Federal Register and ANSI B11.1-2009.

**Part #SSM-20 includes:**
**Keyed selector switches and legend plates for:**
- Hand/foot mode
- Off/inch/single/continuous

**Push buttons and legend plates for:**
- System start
- System stop
- Automatic continuous set-up

**Indicators and legend plates for:**
- System on
- Ground fault
- Brake monitor
- Interrupted stroke provision

# Various Models of the Rotary Cam Based Punch Press Controls

## 3200SS


The Model 3200SS (Solid State) control system is completely pre-wired and ready for installation. System supplied complete with a well marked terminal strip for easy, safe and accurate electrical interface to the various punch press components. Complies with section 1910.217 of the Federal Register and ANSI B11.1-2009.

Due to the hybrid design characteristics of the 3200SS, a main power disconnect switch and magnetic motor starters can be supplied in the same control panel.

Customer to specify operator control location (photo below displays operator controls on panel door).

**NEMA 12 Enclosure**

**System Start**
Guarded Push Button
(Air and Power Interlock)

**System Stop**
Unguarded Push Button

**System On**
Indicator Light

**Message Display**
Plain English messages for status and system self-diagnostics

**Continuous Arm Timer Fused Secondary Pressure Clamp Terminals**

**Hand/Foot Mode**
2 Position Keyed Selector for Hand or Foot Mode Initiation

**Interrupted Stroke Provision with Indicator**
If the punch press is in the single stroke or continuous mode and the press stops before the completion of a full stroke, the Interrupted Stroke Provision is activated. The control will automatically switch to the inch mode and the palm buttons must be used to return the ram to the top of the stroke. When back at the top, the control automatically switches back to the original operational mode setting and the operator may resume normal production. The Interrupted Stroke Provision improves productivity and safety significantly by eliminating the need for the operator to make mode selection adjustments on interrupted strokes.

**Automatic Continuous Set Up Push Button**
This prior action push button must be operated to set-up the press for continuous operation. Once depressed, the operator has a preset length of time in which to depress both palm buttons concurrently to initiate operation in the continuous mode.

**LED Diagnostics**
Punch Press Components and System Diagnostics with LED Indicator Lights, on printed circuit boards for all inputs and outputs.

**Brake Monitor--Top Stop Indicator**
Oil tight indicator light to detect top stop overrun, this light is tied into the rotary cam to provide an electro-mechanical brake monitoring system. Time-based brake monitoring optional.

**Ground Fault Detector**
Oil tight push to test type wired to continuously monitor press grounding whenever control power is on.

**Transformer**
To reduce voltage from 480/240V to 120 VAC secondary. Consult factory for 208 or 550 volt system.

**Keyed Mode Selector Off-Inch-Single Continuous**
4 position keyed lock selector switch for supervised selection of mode of operation of the press. When in the inch mode the operator cannot hold or tie one run button down and use the other button to inch the press with one hand operation. Both buttons must be depressed concurrently. Micro-Inching and Automatic External Trip optional.

**Feature Listing for SSM-10 and SSM-20:**

- Control reliable redundant control module
- Diagnostic Message Display
- Fused transformer
- Control module pre-wired to terminal strip
- Pressure clamp terminal strip
- Mounted on a 17" (432mm) x 18" (457mm) backplate
- Wiring diagram and complete installation instructions supplied
- Modes of operation off – inch – single – continuous
- Continuous ARM
- Top stop
- Anti-tie down and anti-repeat
- System start/stop functions
- SPM Range - 1 to 500
- Control reliable design
- Interrupted stroke provision with indicator
- Inch mode monitoring
- Control module provides anti-tie down and concurrency function for up to four sets of operator stations
- Light curtain mute-out on upstroke standard
- Clutch/brake module designed to fit into tight spaces. Printed circuit board dimensions; only 6.5" (165mm) x 5" (127mm) x 4" (102mm) including standoff.
- Control systems are captively designed, manufactured, and supported.
- Self-contained plain English message display
- Self-diagnostic system
- The control module monitors the signals and circuits as specified by OSHA and ANSI standards
- Control incorporates dual logic power supplies
- Two-year warranty on control module

# Rotary Cam Based Punch Press Controls with Components

## 1500SS Package

Incorporates all the requirements of OSHA for control reliability and component monitoring. Also includes component and system diagnostics with indicator lights for total press monitoring. Complies with section 1910.217 of the Federal Register and ANSI B11.1-2009.

When foot actuation is used, a method of guarding the point of operation must be provided. Refer to OSHA/ANSI requirements.

**Features**
- Model 3200SS Control Panel
- Expandable
- Brake Monitor
- Two Hand Anti-Tie Down
- System Control Reliability
- Single Stroke
- Self-diagnostic system
- Self-contained message display for system status and diagnostics
- Non-Resumption of interrupted stroke
- Provisions for Auxiliary Equipment
- PSDI Presence Sensing Device Initiation
- Two-Year Warranty

The control panel 3200SS is included in the 1500SS Package.

### 1500SS Package includes the following components:

**Dual Solenoid Valve**
The dual solenoid valve is monitored and contains a pressure controlled spool in an assembly mounted between the pilot and valve body assemblies. Pressure signals are applied to each end of the monitor spool. If these signals differ by more than a built-in design limit, they cause the spool to shift to a latched position. The spool movement causes the pilots to be exhausted and pilot supply air to be vented to the atmosphere, thus rendering the valve inoperable. The monitor must be reset by unlatching the spool before another valve cycle can be initiated.

**Operator Station**
No. UL-501 Two Ergonomic UltraTouch modules mounted on a NEMA 12 operator station run bar with a red mushroom emergency stop button located in the center and a yellow mushroom top stop button located off center. This style assembly is ideal for the metal stamping/metal fabrication industry. All the modules are mounted in accordance to OSHA, ANSI, and CSA standards in regards to run button spacing.

**Heavy Duty Pressure switch No. 306**
This NEMA 12 oil-tight and dust-tight switch is adjustable from 1 to 115 PSI.

**Filter Regulator Lubricator No. 311**

**Rotary Cam Switch with Drive Check No. 310A**
This NEMA 12 rotary switch provides limit switch functions required by control system. Spring-loaded mounting absorbs shock and will stop the press should the drive chain break. Cams are easily adjusted with tool provided.

# Rotary Cam Based - Punch Press Controls Options

**Description**

- Fused main power Disconnect (IEC or NEMA)
- Magnetic motor starters (IEC or NEMA)
- Rotary Cam Limit Switches
- 54-003 - Model BM-1600 Time Based Brake Monitor mounted in a control panel (with encoder)
- Micro-Inching function
- Light Guard on/off supervisory controlled key switch (IEC)
- Multiple operator station control key switch (IEC)
- Bar Turnover function (IEC)
- Die Block receptacle outlet
- Shutdown timer
- 110VAC outlet
- 220VAC outlet (specify load)
- 5 Digit resettable LCD counter (battery powered) 2.8” x 1.5” (Part Number 39-026)
- Remote Operator Interface Panel
- NEMA Style Indicators & Switch gear on control panel to replace IEC Style
- Automatic External Trip
  SSM-10 without IEC switchgear (at time of purchase)
  SSM-20 with IEC switchgear (key switches & push buttons)
- Continuous on Demand
  SSM-10 without IEC switchgear (at time of purchase)
  SSM-20 with IEC switchgear (key switches & push buttons)

*(For Custom Programming & Remote Field Upgrades, please consult factory at service@pressroomelectronics.com or (630) 443-9320.)*

**GUARDING:**
Safety Light Curtain (up to four sets of pylons, specify size)
(see Pinnacle Systems, Inc. website for models)

# Rotary Cam Based - Punch Press Controls Replacement Parts

| Part Number | Description |
|---|---|
| 11-072 | Steel master/slave/power/relay stack cover (white) |
| 20-001 | 1A Slo-Blo glass 3AG fuse |
| 20-018 | 1A Fuse (plastic standup micro, in 24vdc output) |
| 20-022 | 1A Slo-Blo nano SMF fuse |
| 26-016 | Diagnostics Status Display label (overlay) |
| 30-012 | 24vdc @ 2.2A power supply (90-260vac In) 3.9” L x 3.8” W x 1.4” H (99.1mm x 96.5mm x 35.6mm) |
| 32-101 | 4 pole 12 VDC (clear KACO safety relay) |
| 39-026 | Standalone five digit counter with reset. |
| 42-004 | Master software Chip (please note rectangular or square) |
| 42-005 | Slave software Chip (please note rectangular or square) |
| 52-032 | Diagnostics Status Display unit |
| 52-071 | Ribbon cables |
| 52-093 | Master/Slave 12 conductor Input Cable (52”) Double ended female |
| 52-119M | Master computer board (no CPU) |
| 52-119S | Slave computer board (no CPU) |
| 52-120 | Power supply/Relay board (with relays) |

# Rotary Cam Based Punch Press Control Ordering Guide

*Please complete the form on the next two pages and email it to the Pressroom Sales Department at sales@pressroomelectronics.com.*
*You may also fax the form to (412) 262-1197. We also have an electronic version of this form available on our website www.pressroomelectronics.com.*

Name _____ Email _____

Company _____ Punch Press Manufacturer _____

Address _____ Model # _____ Serial # _____

City _____ Shop # _____ Press Speed (SPM) _____

State _____ Zip _____ Voltage _____ Cycle _____ Phase _____

Phone _____ Fax _____

## Rotary Cam Based OEM and Rebuilder Clutch / Brake Controls

*Please provide quantity next to desired option(s).*

**Specify operator control location. Please check one:**

☐ **Left End (LE)** ☐ **Panel Door (PD)** ☐ **Right End (RE)**

**Qty.**

☐ **Board Only Clutch / Brake System (SSM-05)**

☐ **Board Only Clutch / Brake System (SSM-08) with IEC Switches, push buttons and legend plates**

☐ **Short Stack (SSM-10)**

☐ **Short Stack Plus (SSM-20) with IEC switchgear**

☐ **Model 3200SS (Solid State) Control Systems**
NEMA 12 Enclosure with IEC switchgear

**Qty.**

☐ **Control Package 1500SS (Solid State)**
NEMA 12 Enclosure with IEC switchgear

☐ **The Ultimate (Model 3200SS with PressCam8)**
NEMA 12 Enclosure with IEC switchgear

☐ **PressCommander (Resolver Based)**
NEMA 12 Enclosure with IEC switchgear

## Customized Control Panel Options

*Using Model 3200SS Control System as a base. Please provide quantity next to desired option(s).*

**Qty.**

☐ **Fused Main Power Disconnect**
Mounted on control panel _____ AMP
Choose Style: IEC NEMA

☐ **Main Motor Magnetic Motor Starter**
Choose Style: IEC NEMA
Choose: Rev Non-Rev
_____ HP _____ Full Load Amps
Includes on/off push buttons and keyed selector switch forward/reverse when applicable.

☐ **Ram Adjust Magnetic Motor Starter**
Choose Style: IEC NEMA
_____ HP _____ Full Load Amps
Includes up/down push buttons and keyed selector switch forward/reverse when applicable.

**Qty.**

☐ **Accessory Magnetic Motor Starter**
Choose Style: IEC NEMA
Choose: Rev Non-Rev
_____ HP _____ Full Load Amps
Includes on/off push buttons and keyed selector switch forward/reverse when applicable.

☐ **Time Based Brake Monitor (front panel mounted)**

☐ **Micro-Inching Feature**

☐ **Continuous On Demand**

☐ **Automatic External Trip**

☐ **Light Curtain Interface**
Keyed selector switch on/off mounted on control panel for light curtain.

# Rotary Cam Based Punch Press Control Ordering Guide

Qty.

☐ **Multiple Operator Stations Control**
Keyed selector switch on/off mounted on control panel to turn additional operator stations on/off.

☐ **Bar Turnover Function**
Permits manual rotation of the flywheel with the clutch engaged for die setting. Controlled by keyswitch on/off.

☐ **Open Space For Inside Control Panel**
Four mounting additional customer supplied components.
Specify desired space: _____ x _____

☐ **Remote Master Control Station**
Moves all the switchgear and Display unit into a separate 12" x 14" x 8" box that can be placed closer to the operator. The control boards, optional starter(s), optional disconnect remain in a separate Control panel whose size is dictated by the size of the starter(s) & disconnect. NOTE: There is a 15' cable length limitation between the Remote box and Control panel.

☐ **Model BM-1600**
Time Based Brake Monitor

☐ **Custom Programming & Remote Field Upgrades**
Email service@pressroomelectronics.com or call (630) 443-9320.

☐ **Additional Options**
Please specify additional options that are desired, but not listed.

_____

_____

_____

Qty.

☐ **Console Mounted Controls**
Consult factory for specifics.

☐ **Die Block Receptacle Outlet**
Female receptacle for an electrical interlock on a die block.

☐ **110 VAC Outlet**
Panel mounted 110 VAC outlet for powering lights, press auxiliary equipment etc.

☐ **220VAC Outlet**
Panel mounted 220VAC outlet for powering lights, press auxiliary equipment etc.

☐ **Shutdown Timer**
Automatically shuts off the punch press when not in use. Length of time is customer adjustable.

☐ **Counter**
Resettable five digit numerical counter mounted on control panel.

☐ **Safety Light Curtain (SLC)**
Model SS Solid State Outputs
Specify Size - 4" (101mm) to 64" (1625mm) guarded zone in 4" (101mm) increments.

☐ 4 ☐ 8 ☐ 12 ☐ 16 ☐ 20 ☐ 24

☐ 28 ☐ 32 ☐ 36 ☐ 40 ☐ 44 ☐ 48

☐ 52 ☐ 56 ☐ 60 ☐ 64

**Additional Comments or Questions**

_____

_____

_____

## Product Photos and Descriptions

*For additional information on all products listed, please visit our website www.pressroomelectronics.com.*

**SSM-05**

**SSM-10**

**SSM-08**

**SSM-20**

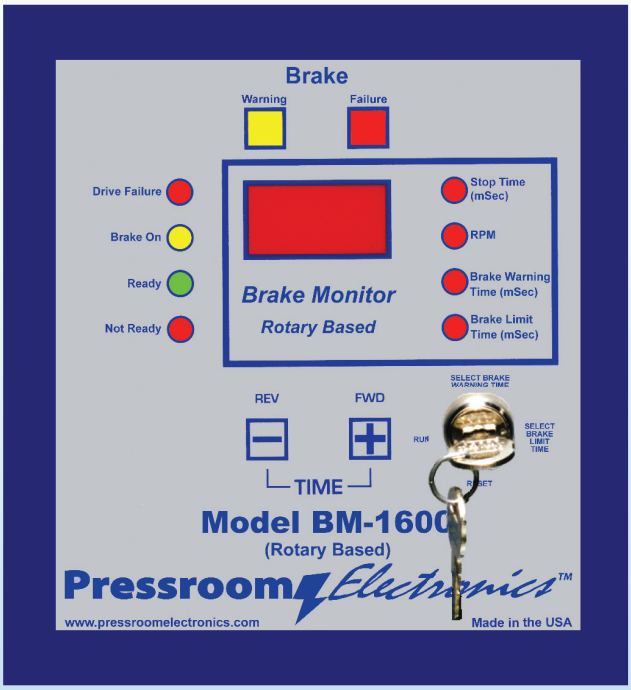
**PressCommander Resolver Based**

**Model 3200SS Rotary Cam Based**

**The Ultimate**

## NOTES

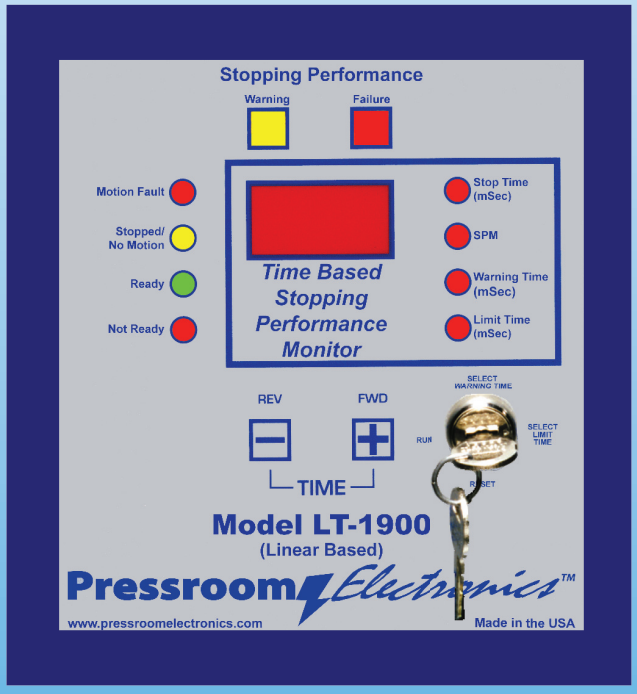
# Time Based Brake Monitoring
# and
# Time Based Linear Stopping Performance Monitors




Front Panel Mounting Shown

## For Rotary Applications

Model BM-1600 incorporates a rotary encoder for rotating shaft based machinery such as air clutch/brake power presses. Complies with OSHA 29 CFR 1910.217 and ANSI B11.1-2009 safety requirements for brake monitoring of mechanical power presses.




Front Panel Mounting Shown

## For Linear Applications

Model LT-1900 incorporates a linear transducer for measuring the stopping time of pneumatic and hydraulic presses and machinery. Complies with ANSI B11.2-2013 requirements for hydraulic and pneumatic power presses and complies with ANSI B11.3-2012 stopping performance monitoring requirements for power press brakes.

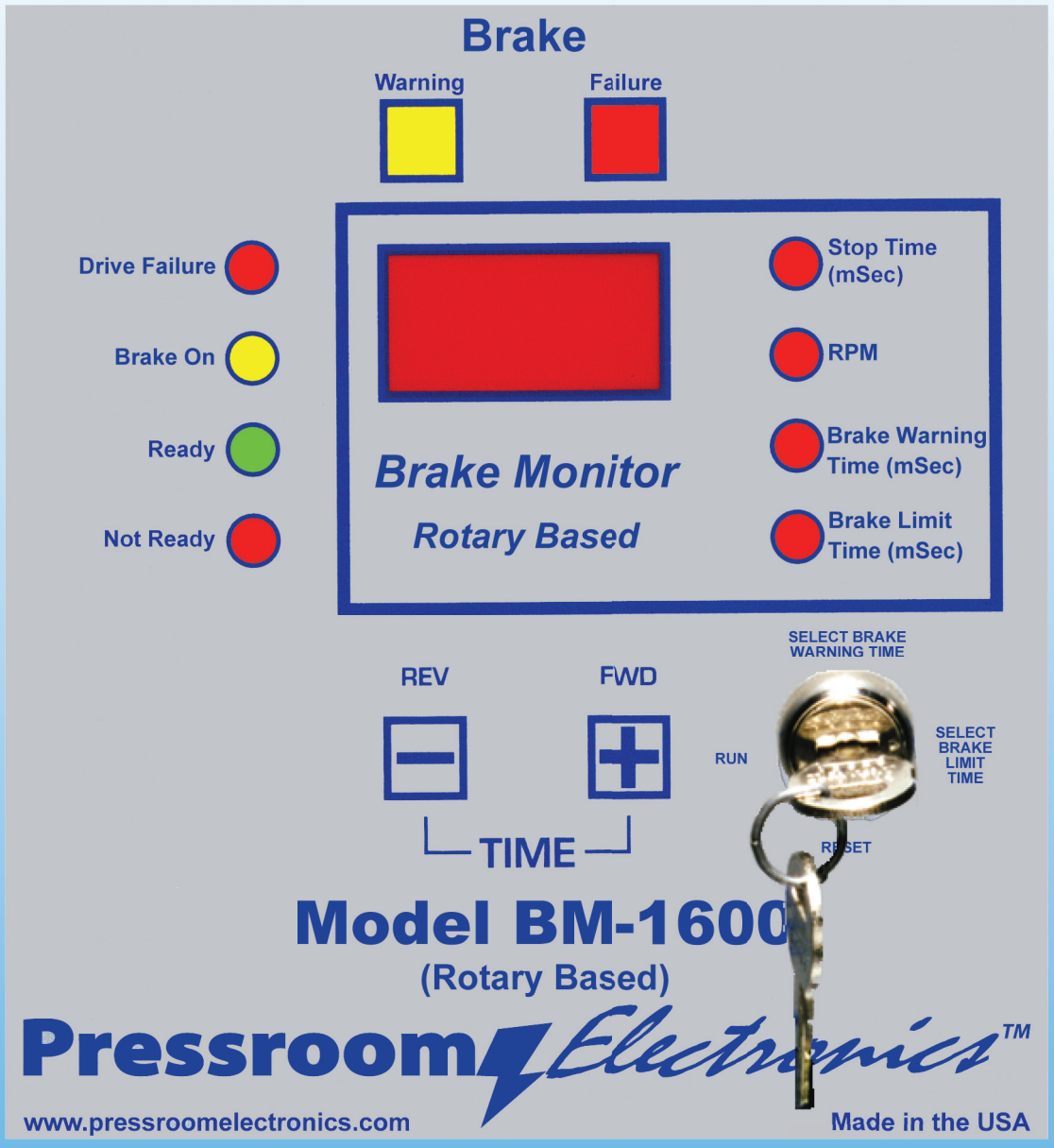
Pressroom Electronics™

www.pressroomelectronics.com

## NOTES

# Time Based Brake Monitor

## Model BM-1600 with Rotary Encoder for Air Clutch/Brake Power Presses




Pressroom Electronics™

# Time Based Brake Monitor/Stopping Performance Monitor

## Model BM-1600 (Rotary Encoder Based)

**Brake Warning Indicator**
Yellow light illuminates when the setpoint is exceeded. Excellent input for the press operator and for maintenance.

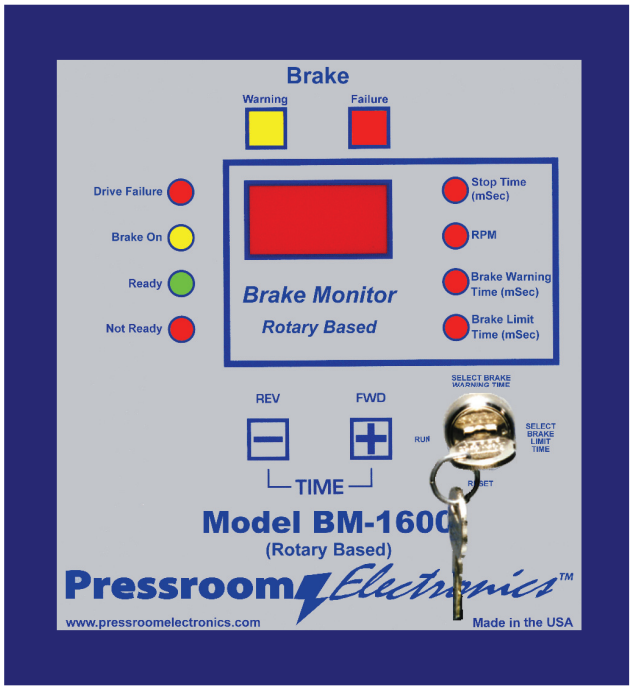
**Drive Failure**
Red LED illuminates when the pulses from the encoder disappear while the brake remains released.

**Brake On**
Yellow LED illuminates when power to the dual solenoid valve drops out.

**Ready**
Green LED illuminates when all systems are go.

**Not Ready**
Red LED illuminates when the brake monitor safety relays have dropped out (i.e., drive failure, internal failure, etc.)

**+/- Pushbuttons**
The +/- pushbuttons are used to set the time values in milliseconds for the brake warning and the brake limit setpoints.




**Brake Failure Indicator**
Red LED illuminates when the actual brake stopping time exceeds the programmed brake limit setpoint.

**Stop Time**
Displayed in milliseconds after every stop in machine cycle and the red LED is illuminated.

**RPM/SPM**
Displayed during each press cycle when the red LED is illuminated.

**Brake Warning Time**
Displayed in milliseconds when the red LED is illuminated.

**Brake Limit Time**
Setpoint is displayed in milliseconds when the red LED is illuminated.

**System Programming Security and Safety**
Keyed selector switch controls:

- Brake Warning Time Setpoint
- Brake Limit Time Setpoint
- System Reset
- System Run

# How the BM-1600 Brake Monitor Works

The BM-1600 is a time based brake monitor that utilizes a high resolution rotary encoder and controller to measure the brake stopping time in milliseconds and also the RPM/SPM of the press. The rotary encoder is attached to the subject machine and is driven on a 1:1
ratio by the power press crankshaft.
The brake stopping time of the machine will be displayed on every stop and can be easily read on the bright red light emitting diode (LED) display on the front panel of the unit. The RPM/SPM of the machine will be displayed during the machine cycle.
Individual LED indicators are visible and easily define the existing status of the unit during the press cycle (shown above). All system programming and diagnostics are front panel mounted and controlled which will minimize downtime while enhancing operator safety and press maintenance. All operating mode selections are supervisory controlled by a keyed selector switch which meets all OSHA and ANSI standards for mode selection supervisory control.
To program the Brake Warning Time and the Brake Limit Time setpoints, the user inserts the programming key into the lock and turns to the desired position (status LED illuminates). By depressing the +/- buttons
to the desired time setting and turning the key back to the Run position, the new warning/failure time setpoints are saved. All errors and time value setpoints are permanently stored in the EEPROM memory which does not require a battery backup. The user cannot change or reprogram the Brake Warning or Brake Limit setpoints while the encoder is in motion, which is an additional safety feature.
The dual force-guided captive contact safety output relays of the BM-1600 are always de-energized when the programming key is not in the Run position. When the key is in the Run position, the safety output relays are always energized as long as there are no internal or external faults detected. When a fault is detected, it is recorded within the system in non-volatile memory along with the last stopping time. If the power to the Brake Monitor System is removed and reapplied, the last error to occur will come back up and prevent any further use until the programming key is used. Only the key turned to the reset position can clear a fault. If no fault occurred but the programming key is moved into the reset position, the output relays will de-energize as a safety feature. Motion detection will still be monitored while in the Reset position even if the encoder is turning.

# Time Based Brake Monitor/Stopping Performance Monitor

## Model BM-1600 (Rotary Encoder Based)

**OSHA/ANSI Compliance**

The BM-1600 system complies with OSHA code 29 CFR 1910.217 and ANSI Code B11.1-2009 for brake monitoring and control reliability standards. The unit will automatically prevent the activation of a successive stroke if the stopping time deteriorates beyond the brake limit setpoint. Required on any press that has a single stroke mode and uses either a two-hand control, light curtain or type B gate system.

**Non-volatile EEPROM Memory**

All diagnostic faults and brake setpoints are permanently saved in non-volatile memory which does not require battery backup. Information is retained indefinitely after a power loss or machine shutdown.

**Advanced Design**

The advanced circuitry and user friendly design on the BM-1600 allows both programming and status monitoring to be performed from the front of the compact panel. There is no need to enter the control panel to adjust switches or thumbwheels which will enhance both safety and productivity.

**System Self Diagnostics**

Control displays status and system fault codes are on the LED display. A detailed definition, cause, and cure listing is supplied within each installation and operation manual.

**Predictive Maintenance Diagnostic Tool**

The unique "brake warning" feature on the BM-1600 allows for predictive maintenance to be scheduled on the machine, which will minimize downtime. Factors which will be monitored and affect stopping time: machine cycle speed, counter-balance air supply, tooling weight, clutch air supply, exhaust restrictions, brake wear adjustment, and clutch wear adjustment.

**90º and 270º Stop Time Measurement Built-In**

The built-in 90º press stop feature initiates a stop signal at the 90º and the 270º position in the downstroke. This is required information when calculating the location of point of operation guarding systems or palm button assemblies.

**Complete Package Supplied**

Everything you need to install and operate the BM-1600 is supplied.

- BM-1600 Brake Monitor Controller
- Model E-160 Encoder
- 20' (6m) of encoder cable
- Dimensional and technical data
- Installation and operation manual

## Standard Features

- Control reliable design
- Dual captive contact safety relays
- Bright red LED display
- Non-volatile EEPROM memory
- Flat unobtrusive design
- Drive failure detection
- Motion detector
- Automatic 90º and 270º press stop
- Programming security with keyed selector switch
- Very easy to program and to adjust limits
- System self-diagnostics with display codes
- External diagnostic display
- System status indicators (LED's)
- Solid state indicators - No incandescent bulbs to burn out
- Designed specifically for the rigorous metal stamping/metal forming industry
- Interfaces easily with all types of press controls; solid state or relay logic
- Installs with ease on OEM, retrofit, or rebuild projects
- Front panel mount for installation into an existing control panel
- Made in USA

## Specifications

**Controller**

*Power Requirements* - 120 +/- 10% VAC, 50-60 Hz
24 VDC +/- 10% (optional)
*Power Consumption* - 8 watts (Relays on)
*Temperature Range* - 0º to 50º Celsius
*Relay Configuration* - Dual self-checking force-guided captive contact safety relays
*Relay Contact Rating*
8 amps @ 250VAC resistive for safety relays
4 amps @ 250VAC resistive for alarm relay
*System Accuracy* - +/- 1 millisecond
*Setpoints* - Drive Failure (1 to 25 tenths of a second)
Brake Warning (1 to 999 milliseconds)
Brake Failure (1 to 999 milliseconds)
*Enclosure* - NEMA 12 (IP 64) Steel

*Indicators:*

| | |
|---|---|
| Brake Fault - Red LED | Brake Warning - Yellow LED |
| Drive Failure - Red LED | Brake ON - Yellow LED |
| Ready - Green LED | Not Ready - Red LED |
| Stop Time Display - Red LED | RPM - Red LED |
| Brake Warning Setpoint - Red LED | Brake Limit Setpoint - Red LED |

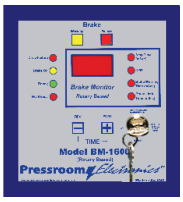
*NEMA 12 Enclosure Dimensions* -
8" (203mm) Height x 7" (178mm) Width x 4" (102mm) Depth

*Front Panel Mount* - 8" (203mm) Height x 7" (178mm) Width x 4" (102mm) Depth

**Encoder** (Part # E-160 — CW or CCW Rotation Capable)
*Cable* - 20' (6m) supplied standard; 100' (30m) max.
Gauge: 20 AWG - 3 connectors plus drain
Rating: 300 VAC @ 60 C
*Shaft Loading* - Radial: 35 lbs; Axial: 40 lbs.
*Temperature Range* - 0º to 50º Celsius
*Dimensions* - 5.5" (140mm) Height x 3.75" (95mm) Width x 3-9/16 (90mm)

# Time Based Brake Monitor/Stopping Performance Monitor

## Model BM-1600 (Rotary Encoder Based)



The BM-1600 is a time-based brake monitor that utilizes a high resolution rotary encoder and controller to measure the brake stopping time in milliseconds and also the RPM of the press. The rotary encoder is attached to the subject machine and is driven on a 1:1 ratio by the power press crankshaft. The brake stopping time of the machine will be displayed on every stop and can be easily read on the bright red light emitting diode (LED) display on the front panel of the unit. The RPM/ of the machine will be displayed during the machine cycle.

BM-1600 Brake Monitor System includes:

- BM-1600 controller (BM)
- E-1600 Encoder (supplied standard)
- 20' (6m) encoder cable
- Dimensions and technical data
- Installation and operation manual

BM-1600D Brake Monitor System and Dual-Shaft Encoder System includes:

- BM-1600D controller (BMD)
- EN-1600D Dual-Shaft Encoder
- 20' (6m) encoder cable
- Dimensions and technical data
- Installation and operation manual

BM-1600 in NEMA 12 (IP 64) steel enclosure.

### ORDERING PROCEDURE FOR BM-1600

1. Select **BM** or **BDM** for encoder style
2. Specify Mounting Style
   - **F** ..... Front Panel Mounting to be installed in an existing control panel.
   - **C** ..... Stand alone NEMA12 (IP 64) steel enclosure.
3. Specify Controller input power
   - **1** ..... 24VDC
   - **2** ..... 120VAC 50-60Hz
   - **3** ..... 240VAC 50-60Hz
4. Specify Clutch/Brake Valve Coil Voltage
   - **1** ..... 24VDC
   - **2** ..... 120VAC 50-60Hz
5. Encoder Connector Cable
   20' (6m) is supplied standard. If additional length is needed, specify in feet. 100' (30m) max.

### EXAMPLE PART NUMBER

| BM | - | C | - | 2 | - | 2 | - | 20 |
|---|---|---|---|---|---|---|---|---|
| BM-1600 or BMD for dual shaft encoder. | | Mounting Style | | Input Power | | Clutch/Brake Valve Voltage | | Encoder Cable (in feet) |

# Time Based Brake Monitor/Stopping Performance Monitor

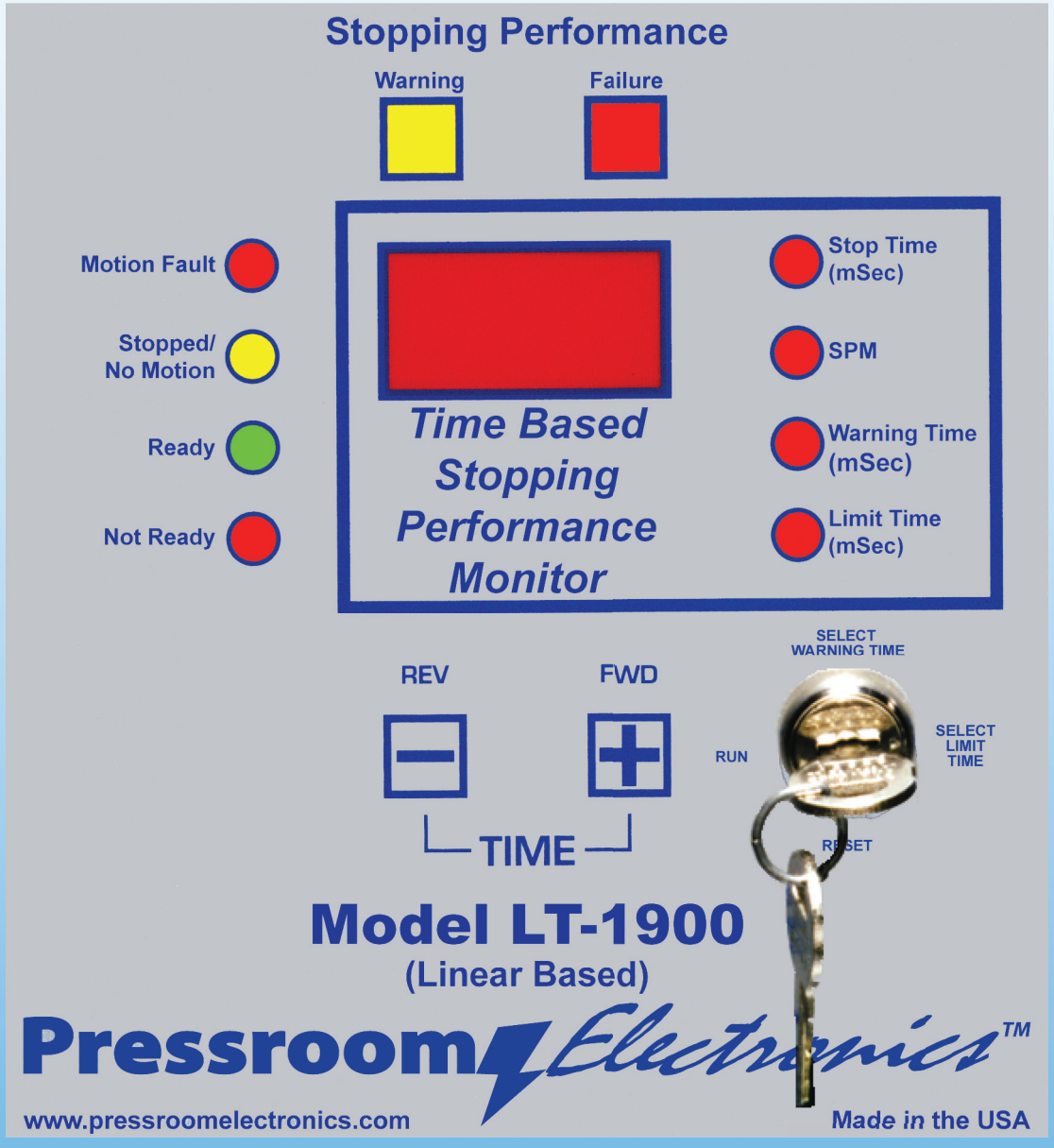
## Model BM-1600 (Rotary Encoder Based) Replacement Parts

### REPLACEMENT PARTS LISTING OF MODEL BM-1600

| Part Number | Description |
|---|---|
| 11-001 | Metal box enclosure (with gasket) |
| 11-073 | Metal panel mount (with gasket) open frame for brake monitor |
| 20-001 | 1A Slo-Blo glass 3AG fuse |
| 20-022 | 1A Slo-Blo nano SMF fuse |
| 21-053 | Encoder Wheel (brass) |
| 26-020 | Front panel overlay (BM-1600) |
| 42-001 | Software microprocessor chip (specify square or rectangular) |
| 43-004 | Encoder cable (20') |
| 52-002 | Display board |
| 52-003 | Computer / Power supply / Relay board (with CPU) |
| 52-084 | Ribbon Cable |
| 52-202 | Encoder board |
| 53-004 | E-1600 Encoder with single-ended shaft (supplied standard) |
| 53-451 | EN-1600D Encoder with double-ended shaft |

## NOTES

# Time Based Linear Stopping Performance Monitor Model LT-1900

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# Time Based Stopping Performance Monitor

## Model LT-1900 (Linear Based)

**Warning Indicator**
Yellow light illuminates when the setpoint is exceeded. Excellent input for the machine operator and for maintenance.

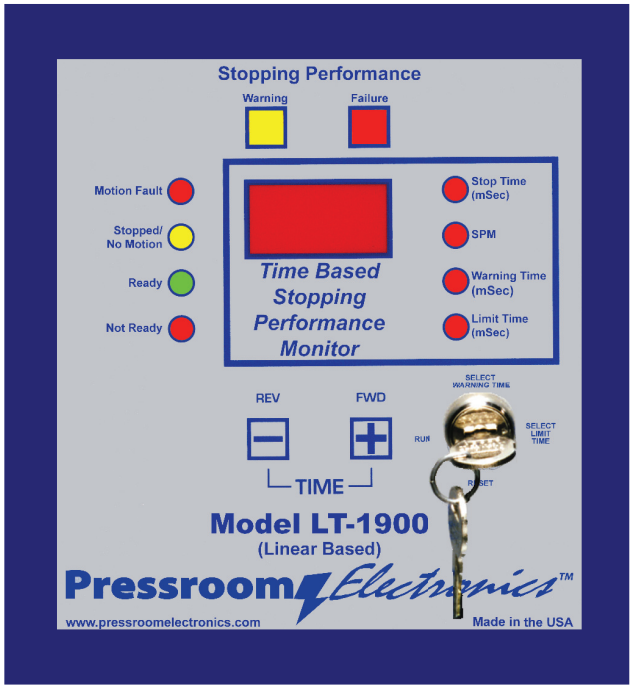
**Motion Failure**
Red LED illuminates when the pulses from the failure disappear.

**Stopped/No Motion**
Yellow LED illuminates when power to the valve drops out.

**Ready**
Green LED illuminates when all systems are go.

**Not Ready**
Red LED illuminates when the monitor safety relays have dropped out (i.e., drive failure, internal failure, etc.)

**+/- Pushbuttons**
The +/- pushbuttons are used to set the time values in milliseconds for the stopping performance warning and the limit setpoints.




**Failure Indicator**
Red LED illuminates when the actual stopping time exceeds the programmed stop limit setpoint.

**Stop Time**
Displayed in milliseconds after every stop in machine cycle and the red LED is illuminated.

**SPM**
Displayed during each machine cycle when the red LED is illuminated.

**Stopping Performance Warning Time**
Displayed in milliseconds when the red LED is illuminated.

**Stopping Performance Limit Time**
Setpoint is displayed in milliseconds when the red LED is illuminated.

**System Programming Security and Safety**
Keyed selector switch controls:

- Warning Time Setpoint
- Limit Time Setpoint
- System Reset
- System Run

## How the LT-1900 Stopping Performance Monitor Works

The LT-1900 is a time based stopping performance monitor that utilizes a high resolution linear transducer and controller to measure the machine stopping time in milliseconds and also the SPM of the machine. The linear transducer is attached to the subject machine and is driven on a 1:1 linear ratio by the machine. The stopping time of the machine will be displayed on every stop and can be easily read on the bright red light emitting diode (LED) display on the front panel of the unit. The SPM of the machine will be displayed during the machine cycle. Individual LED indicators are visible and easily define the existing status of the unit during the machine cycle (shown above). All system programming and diagnostics are front panel mounted and controlled which will minimize downtime while enhancing operator safety and machine maintenance. All operating mode selections are supervisory controlled by a keyed selector switch which meets all OSHA and ANSI standards for mode selection supervisory control.

To program the Warning Time and the Limit Time setpoints, the user inserts the programming key into the lock and turns to the desired position (status LED illuminates). By depressing the +/- buttons to the desired time setting and turning the key back to the Run position, the new warning/failure time setpoints are saved. All errors and time value setpoints are permanently stored in the EEPROM memory which does not require a battery backup. The user cannot change or reprogram the Warning or Limit setpoints while the machine is in motion, which is an additional safety feature.

The dual force-guided captive contact safety output relays of the LT-1900 are always de-energized when the programming key is not in the Run position. When the key is in the Run position, the safety output relays are always energized as long as there are no internal or external faults detected. When a fault is detected, it is recorded within the system in non-volatile memory along with the last stopping time. If the power to the LT-1900 Monitor System is removed and reapplied, the last error to occur will come back up and prevent any further use until the programming key is used. Only the key turned to the reset position can clear a fault. If no fault occurred but the programming key is moved into the reset position, the output relays will de-energize as a safety feature. Motion detection will still be monitored while in the Reset position even if the linear transducer has motion.

# Time Based Stopping Performance Monitor

## Model LT-1900 (Linear Based)

**OSHA/ANSI Compliance**

The LT-1900 system complies with OSHA code 29 CFR 1910.217 and ANSI Codes B11.3-2012 and B11.2-2013 for monitoring and control reliability standards. The unit will automatically prevent the activation of a successive stroke if the stopping time deteriorates beyond the brake limit setpoint.

**Non-volatile EEPROM Memory**

All diagnostic faults and setpoints are permanently saved in non-volatile memory which does not require battery backup. Information is retained indefinitely after a power loss or machine shutdown.

**Advanced Design**

The advanced circuitry and user friendly design on the LT-1900 allows both programming and status monitoring to be performed from the front of the compact panel. There is no need to enter the control panel to adjust switches or thumbwheels which will enhance both safety and productivity.

**System Self Diagnostics**

Control displays status and system fault codes are on the LED display. A detailed definition, cause, and cure listing is supplied within each installation and operation manual.

**Predictive Maintenance Diagnostic Tool**

The unique "warning" feature on the LT-1900 allows for predictive maintenance to be scheduled on the machine, which will minimize downtime. Factors which will be monitored and affect stopping time: machine cycle speed, air supply, tooling weight, exhaust restrictions, wear adjustment and pressure.

**Stop Time Measurement Built-In**

The built-in stop feature initiates a stop signal in the downstroke. This is required information when calculating the location of point of operation guarding systems or operator palm button assemblies.

**Complete Package Supplied**

Everything you need to install and operate the LT-1900 is supplied.

- LT-1900 Controller
- Linear Transducer and Brackets
- Magnet
- 40' (12m) of transducer cable
- Dimensional and technical data
- Installation and operation manual

# Standard Features

- Control reliable design
- Dual captive contact safety relays
- Bright red LED display
- Non-volatile EEPROM memory
- Flat unobtrusive design
- Drive failure detection
- Motion detector
- Automatic 90º and stop time tester press stop
- Programming security with keyed selector switch
- Very easy to program and to adjust limits
- System self-diagnostics with display codes
- External diagnostic display
- System status indicators (LED's)
- Solid state indicators - No incandescent bulbs to burn out
- Designed specifically for the rigorous metal stamping/metal forming industry
- Interfaces easily with all types of machine controls; solid state or relay logic
- Installs with ease on OEM, retrofit, or rebuild projects
- Front panel mount for installation into an existing control panel
- Made in USA

# Specifications

**Controller**

*Power Requirements* - 120 +/- 10% VAC, 50-60 Hz
24 VDC +/- 10% (optional)
*Power Consumption* - 8 watts (Relays on)
*Temperature Range* - 0º to 50º Celsius
*Relay Configuration* - Dual self-checking force-guided captive contact safety relays
*Relay Contact Rating*
8 amps @ 250VAC resistive for safety relays
4 amps @ 250VAC resistive for alarm relay
*System Accuracy* - +/- 1 millisecond
*Setpoints* - Drive Failure (1 to 25 tenths of a second)
Warning (1 to 999 milliseconds)
Failure (1 to 999 milliseconds)
*Enclosure* - NEMA 12 (IP 64) Steel
*Front Panel Mount* - 8" (203mm) Height x 7" (178mm) Width x 4" (102mm) Depth

*Indicators:*

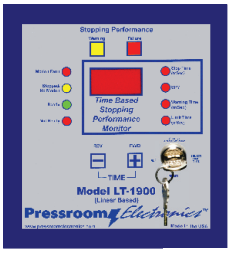
| | |
|---|---|
| Fault - Red LED | Warning - Yellow LED |
| Motion Fault - Red LED | Stopped/No Motion - Yellow LED |
| Ready - Green LED | Not Ready - Red LED |
| Stop Time Display - Red LED | SPM - Red LED |
| Warning Setpoint - Red LED | Limit Setpoint - Red LED |

*Enclosure rating:* NEMA 12, IP 64
*Dimensions* - .34" (8mm) high, 1.1" (28mm) wide (all lengths)
*Active Length* - 4" (101mm) active zone - 10.3" (263mm) total length
*Active Length* - 8" (203mm) active zone - 14.7" (365mm) total length
*Active Length* - 12" (305mm) active zone - 18.4" (467mm) total length
*Active Length* - 16" (406mm) active zone - 22.3" (568mm) total length
*Active Length* - 24" (609mm) active zone - 30.4" (771mm) total length

*Mounting Brackets* - Supplied standard with each linear transducer
*Cable Length* - 40' (12m) supplied standard with each linear transducer

# Time Based Stopping Performance Monitor

## Model LT-1900 (Linear Based)




The LT-1900 is a time-based stopping performance monitor that utilizes a high resolution linear transducer and controller to measure the machine stopping time in milliseconds and also the SPM of the press. The linear transducer is attached to the subject machine and is driven on a 1:1 linear ratio by the machine. The machine stopping time of the machine will be displayed on every stop and can be easily read on the bright red light emitting diode (LED) display on the front panel of the unit. The SPM of the machine will be displayed during the machine cycle.

LT-1900 Stopping Performance Monitor System includes:

- LT-1900 controller (LT)
- Linear transducer with mounting brackets and magnet
- 40' (12m) linear transducer cable
- Dimensions and technical data
- Installation and operation manual

LT-1900 in NEMA 12 (IP 64) steel enclosure.

### ORDERING PROCEDURE FOR LT-1900

1. Specify Mounting Style
   - **F** ..... Front Panel Mounting to be installed in an existing control panel.
   - **C** ..... Stand alone NEMA12 (IP 64) steel enclosure.
2. Specify Controller input power
   - **1** ..... 24VDC
   - **2** ..... 120VAC 50-60Hz
3. Specify Hydraulic Valve Coil Voltage
   - **1** ..... 24VDC
   - **2** ..... 120VAC 50-60Hz
4. Specify linear transducer length (must equal or exceed maximum machine stroke length)
   - **04** ..... 4" (101mm) active length
   - **08** ..... 8" (203mm) active length
   - **12** ..... 12" (305mm) active length
   - **16** ..... 16" (406mm) active length
   - **24** ..... 24" (609mm) active length
   - *Over 24" (609mm) stroke required. Consult factory.

### EXAMPLE PART NUMBER

| LT | - | C | - | 1 | - | 1 | - | 1 | - | 08 |
|---|---|---|---|---|---|---|---|---|---|---|
| LT -1900 | | Mounting Style | | Input Power | | Signal Voltage | | Hydraulic Valve Voltage | | Transducer Length (in inches) |

# Time Based Stopping Performance Monitor

## Model LT-1900 (Linear Based) Replacement Parts

| Part Number | Description |
|---|---|
| 11-001 | Metal box enclosure (with gasket) (NEMA 12, IP 64) |
| 11-073 | Metal panel mount (with gasket) open frame for LT-1900 |
| 15-079 | 8 position mini-Euro plug connector (Linear Sensor) |
| 20-001 | 1A Slo-Blo glass 3AG fuse |
| 20-022 | 1A Slo-Blo nano SMF fuse |
| 26-101 | Front panel overlay (LT-1900) |
| 32-101 | Safety relay (4 pole, 12 VDC, clear) |
| 42-001 | Software microprocessor chip (specify square or rectangular) |
| 52-002 | Display board |
| 52-084 | Ribbon Cable |
| 52-202 | Transducer board |
| 52-319 | Computer / Power supply / Relay board (with CPU) |
| 40-009 | 4” (10.7” - 272mm total length, 4.3” - 110mm sensor area) linear transducer with 40’ (12m) cable |
| 40-010 | 8” (14.7” - 372mm total length, 8.3” - 210mm sensor area) linear transducer with 40’ (12m) cable |
| 40-011 | 12” (18.4” - 467mm total length, 12” - 305mm sensor area) linear transducer with 40’ (12m) cable |
| 40-012 | 16” (22.5” - 572mm total length, 16.1” - 410mm sensor area) linear transducer with 40’ (12m) cable |
| 40-013 | 24” (30.4” - 772mm total length, 24.0” - 610mm sensor area) linear transducer with 40’ (12m) cable |
| 40-014 | LT-1900 sensor Magnet (requires 1) |
| 40-015 | LT-1900 Sensor Mounting Bracket (requires 2) |

## NOTES

# Punch Press Automation Controllers

## PressCam 8 Junior and PressCam 8



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# Punch Press Automation

## Feature Comparison of PressCam 8 Junior and PressCam 8

| | PressCam 8™ Junior | PressCam 8™ |
|---|---|---|
| Diagnostic Display | Vacuum Fluorescent (4 lines/20 characters) | Monochrome LCD Display (8" diagonal screen) |
| Ease of Programming | Cursor/Key Pad | Tuning Knob |
| Control Reliable System | No | Yes |
| Limit Switch Outputs | 6 | 11 |
| Die Protection Inputs | 6 | 16 |
| Number of (non-timed) events per crank rotation | 2 | 3 |
| Number of Jobs Stored in Memory | 100 | 100 |
| Memory Chips Removable (sockets) | Yes | Yes |
| Brake and Die Sensor Inputs optically coupled AC or DC (sourcing or sinking) | Yes | Yes |
| Length of Name of Job (characters) | 7 | 13 |
| Motion Detection Lack of (Motion Fault) Unintended (Drift Fault) | Yes | Yes |
| Brake Monitoring (Time-Based) | Yes | Yes |
| SPM Indicator (strokes per minute) | Yes | Yes |
| Servo Feed Interface | Yes | Yes |
| Counters: Stroke, Batch, Quality, and Part | Yes | Yes |
| Password and/or Supervisory Controlled Selector Switch | Yes | Yes |
| PCLink to allow off-line job storage and creation | Yes | Yes |
| Speed Compensation of User Selected Outputs | Yes | Yes |
| Tonnage monitoring | N/A | Optional |
| Resolver & Cable Supplied | Yes | Yes |
| Built-in 90° and 270° stop time tester | Yes | Yes |


PressCam 8 Junior


PressCam 8

For OSHA and ANSI Compliant Clutch/Brake Press Controls, please see the PressCommander.

# Punch Press Automation

## PressCam 8 Junior Layout


## Design Features

- All six Limit Switch Outputs can be set to cycle (non-timed) two times per crank rotation by setting an open / close crank angle.
- The last three outputs can be set for timed, non-timed, delayed, and hold or cycled two times per crank revolution.
- Major faults such as E-Stop, motion, brake, and sensor faults are handled by two force-guided relays (Form B Safety relays).
- The six outputs are small, high-speed, high-capacity relays.
- Brake and die sensor inputs are optically coupled and can be either AC or DC (sourcing or sinking).
- Up to 100 Jobs can be saved using a nonvolatile memory chip. The memory chip is removable for ease of transfer. Each Job Number stores a name and/or number up to 7 characters for easy identification.
- Built-in Brake Monitor will issue a warning when the programmed warning time is exceeded and will issue a failure signal when programmed stop time is exceeded.
- True Motion Detection system checks for lack of motion (Motion Fault) and unintended motion (Drift Fault).
- SPM Indicator (Strokes per Minute).
- Crank angle shown graphically and in large numbers.
- Speed compensation of user selected outputs.
- Servo feed interface.
- Stroke, Batch, Quality, and Part Counters to keep track of operation.
- Password and/or Supervisory Controlled Selector Switch to prevent altering of parameters, except for the counters.
- PCLink to allow offline job creation and storage.
- Built-in 90º and 270º stop time tester.

# Punch Press Automation
PressCam 8 Junior

## Overview


The PressCam 8 Junior is a resolver-based press automation controller that incorporates a programmable cam limit switch, timed-based brake monitor, servo feed control, four counters, and a die protection system. The PressCam 8 Junior is controlled by a 16-bit computer that constantly checks the resolver for accuracy.

The PressCam 8 Junior has a keypad, menu, cursor buttons (for easy navigation and operation), and a four line (20 characters each line) vacuum fluorescent display for easy viewing purposes.

A “RUN/PROG” keyswitch is also provided where, while in the “RUN” mode, you are not able to alter any parameter or job change. The “RUN” mode only allows the user to clear counters and reset die sensor faults. In the PROG mode, the Die Faults do not open up the fault relays which allows for die setups. All other faults will cause the fault relays to open. If the password feature is enabled, you must first enter in the three digit password in order to pass into the PROG mode to allow parameter changes.

## Industrial Grade Brushless Resolver Transducer

The heavy duty brushless resolver transducer replaces the current mechanical rotary cam switch. This unit was designed for hostile industrial environments such as punch press mechanical shock and vibration, extreme temperature and humidity, oil, coolant, and lubrication mists. The resolver transducer features excellent repeatability and gives absolute shaft position feedback. High speed operation along with long transducer cable (runs up to 600 feet/183m) give the resolver transducer wide application ranges. The resolver transducer is a passive device which contains no sensitive electronics and has superb noise immunity.

The resolver mounts easily to an end of a crankshaft and can rotate clockwise or counter-clockwise. Simple connector ended transducer cabling is supplied to connect the resolver to the PressCam 8 Junior controller console. The PressCam 8 Junior’s microprocessor-based control constantly monitors the resolver position and displays both the angular position of the shaft and speed of the machine (tachometer).
3/4” (19 mm) resolver shaft diameter.

# Punch Press Automation

## PressCam 8 Junior

## Specifications

**Input Power:** 3 Voltage Ranges: 24VDC (optional)
120VAC (standard)
240VAC (optional, jumper selectable)
All AC voltages work with 50 or 60 Hz
10 watts with all relays on

**Fuses:**

| | | | |
|---|---|---|---|
| *I/O Board:* | F1 to F8 | LS Outputs | 5A Fast Blow (20-023) |
| | F7 | Power | 1A Slow Blow (20-022) |
| | F9 to F15 | Die Inputs | 5A Fast Blow (20-023) |
| | F35 | 12VDC | 5A Fast Blow (20-023) |
| *Computer:* | F1 | Power | 5A Fast Blow (20-023) |

**Indicators:**

*Computer:* Vacuum Fluorescent 4 lines/20 characters
-5V (GRN) D10

*I/0 Board:* 8 Optically coupled inputs (RED):

| | |
|---|---|
| Power ON | D22 |
| Brake | D21 |
| Die 1-6 | D15-D20 |
| 6 LS Outputs | (GRN) |
| LS1-6 | D1-D6 |

**Set Points:**

| | | |
|---|---|---|
| Stroke Count: | 0 to 999,999 | strokes |
| Batch Count: | 0 to 999,999 | strokes |
| Quality Count: | 0 to 999,999 | parts |
| Part Count: | 0 to 4 | parts/stroke |
| | 0 to 999,999 | parts total |
| Batch Size: | 0 to 999,999 | strokes |
| Limit switch angle: | 0 to 359 | degrees |
| Limit switch timer: | 0 to 9999 | milliseconds |
| Die sensor angle: | 0 to 359 | degrees |
| Speed Compensation | 0 to 99 | degrees |
| Minimum Speed: | 0 to 999 | SPM |
| Maximum Speed: | 0 to 999 | SPM |
| Brake Warning: | 1 to 999 | milliseconds |
| Brake Failure: | 1 to 999 | milliseconds |
| Brake Actual: | 1 to 999 | milliseconds (+/-1 millisecond accuracy) |
| Motion: | 0 to 5.9 | seconds (1/10-sec increments) |
| Drift: | preset to 2 | SPM (1/10 SPM increments) |
| Crank Angle: | 0 to 359 | degrees (1-degree increments) |
| SPM: | 0 to 999 | strokes/minute (+/- 1 SPM accuracy) |

**Construction**

*Stand Alone Unit:*
All 18 gauge painted steel NEMA 12 lockable box with sealed front panel
Dimensions:
7 1/4" (184mm) width; 9"(229mm) height; 3 1/4" (83mm) depth

*Panel Mount Unit:*
All 18 gauge painted steel NEMA 12 with gasket around edge.
Dimensions: 6 1/2" (165mm) width; 7 1/8" (181mm) height

**Temperature Range**

0 to 50ºC

**Resolver**

+/- 1º Resolution up to 600 RPM (+/- 2º Resolution from 601 to 1000 RPM)
Shaft loading: Radial 400 lbs., Axial 200 lbs. - 3/4" (19mm) diameter shaft
Standard cable 30' (9m). Maximum length of 600' (183m).

# Punch Press Automation

## PressCam 8 Junior

**Main Screen**
The Main Screen allows for Job Selection and Naming, Parts, and Batch Count.

```
     Job: 00

   Parts: 000000
Batches: 000000
Angle: 000  SPM: 000
```

**Brake Monitor**
In RUN Mode, the screen displays the Last Stop Time (in mSEC) and Last Dwell angle (in degrees).

```
Last Stop Time= 000
Last Stop Time= 000
```

In PROG mode, the original screen is displayed but with the Dwell angle added to the bottom line of the screen.

```
Warn= 000  Fail= 000
Motion Det= 0.0  sec
90°  -  270°   test
Dwell=     Time= 000
```

**Counter**
The PressCam 8 Junior provides four types of counters: Stroke, Batch, Quality, and Part. When programmed, a counter will increment each time a part is ejected from the machine. When the programmed value is met, the controller will initiate an action.

```
    Strokes: 000000
      Parts: 000000  /1
Batch size: 000000
   Quality: 000000
```

**Servo Feed**
Each PressCam 8 Junior job stores individual Servo Setup information and outputs through the RS-232 every time the unit is powered up, after you exit from the Servo Setup screen and after a job change. The Servo Setup screen can be accessed only while in PROG mode.

```
Speed 1-100: 000
Accel 1-100: 000
MPC   1-100: 000
Feed Len.: 000.000
```

**Press Utility**
This screen allows you to program the following settings: speed compensations, minimum speed, maximum speed, clear job, top dead center, PC link, and set password.

```
Speed comp: 000
Min= 000  Max= 000
ClrJob  SetTDC
PCLink  Pasword 000
```

**Limit Switches**
The following screen monitors the status of all six relay outputs as well as displays the current crank angle.

```
LS1        LS4
LS2        LS5
LS3        LS6
ANGLE: 000   MONITOR
```

*Cyclical Outputs*

```
   S CLS-OPN CLS-OPN
LS1  000-000 000-000
LS2  000-000 000-000
LS3  000-000 000-000
```

```
S CLS-OPN CLS-OPN
LS4  000-000 000-000
LS5  000-000 000-000
LS6  000-000 000-000
```

*Cycle Delay & Hold Outputs*

```
     DLY CY  HLD CY
LS4   000     000
LS5   000     000
LS6   000     000
```

*Timed Outputs*

```
  STRT ANG  HLDmSEC
LS4   000     0000
LS5   000     0000
LS6   000     0000
```

**Die Input**
A unique name can be created for six die sensors (SEN1-SEN6) in the PROG mode while viewing the die monitor screens.

```
      TYPE    BGN END
SEN1  MOM     000-000
SEN2  MOM     000-000
SEN3  MOM     000-000
```

```
    TYPE   BGN END
SEN4  MOM    000-000
SEN5  MOM    000-000
SEN6  MOM    000-000
```

The Die Status Screen allows you to run the press and see when die sensors activate relative to press angle.

```
SEN1  *      SEN4
SEN2         SEN5  *
SEN3  *      SEN6
ANGLE: 000   MONITOR
```

# Punch Press Automation

## PressCam 8 Junior Overview/Ordering Procedure


The PressCam 8 Junior is a resolver-based press automation controller that incorporates a programmable cam limit switch, timed-based brake monitor, servo feed control, four counters, and a die protection system The PressCam 8 Junior is controlled by a 16-bit computer that constantly checks the resolver for accuracy.

PressCam 8 Junior (all styles, Front panel & Stand alone). Includes resolver and cable

### ORDERING PROCEDURE

1. Specify Mounting Style
   - F ..... Front Panel Mounting to be installed in an existing control panel.
   - C ..... Stand alone NEMA12 enclosure
2. Specify Controller input power
   - 1 ..... 24VDC
   - 2 ..... 120VAC 50-60Hz
   - 3 ..... 240VAC 50-60Hz
3. Specify Clutch/Brake Valve Voltage
   - 1 ..... 24VDC
   - 2 ..... 120VAC 50-60Hz
4. Resolver Connector Cabling
   - 30’ (9m) of cable with connectors is supplied standard. If additional length is needed, specify in feet, 150’ (46m) maximum.

### EXAMPLE PART NUMBER

| JR | - | C | - | 2 | - | 1 | - | 30’ |
|---|---|---|---|---|---|---|---|---|
| | | Mounting Style | | Input Power | | Clutch/Brake Valve Voltage | | Resolver Cable |

*(For Custom Programming & Remote Field Upgrades, please consult factory at service@pressroomelectronics.com or (630) 443-9320.)*

| Part Number | Description |
|---|---|
| 30-012 | 24vdc @ 2.2A power supply (90-260vac In) 3.9” L x 3.8” W x 1.4” H (99.1mm x 96.5mm x 35.6mm) for powering die protection sensors or other auxiliary devices |

# Punch Press Automation

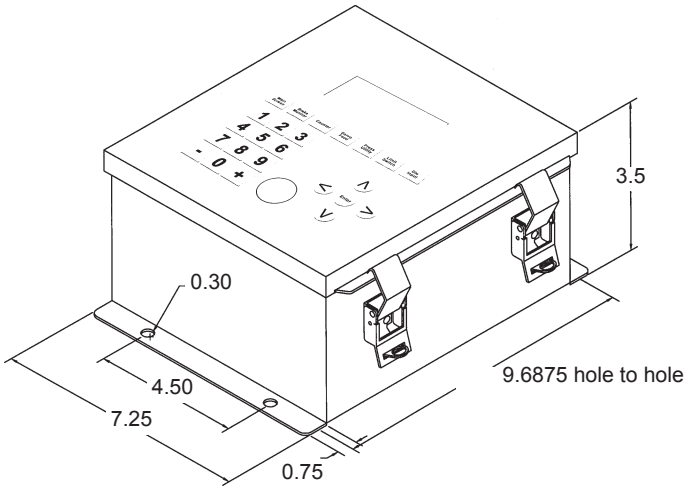
## PressCam 8 Junior

### REPLACEMENT PARTS LISTING

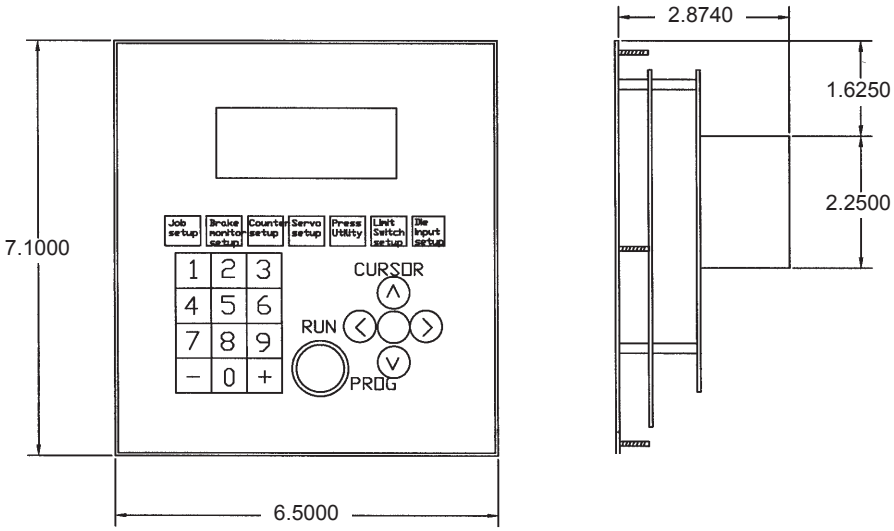
| Part Number | Description |
|---|---|
| 11-157 | Panel Mount (with gasket) |
| 11-158 | Metal Box enclosure (with gasket) |
| 11-160 | Aluminum Shield cover for computer board |
| 18-008 | Vacuum fluorescent display (must be factory installed) |
| 20-022 | 1A Slo-Blo nano SMF fuse |
| 20-023 | 5A Fuse (white nano) |
| 26-084 | Graphic overlay skin |
| 32-002 | Output Relay (black G6B-1174P) |
| 32-006 | Output Relay (black G6B-2114P) |
| 32-101 | 4 pole 12 VDC (clear KACO safety relay) |
| 35-065 | EEPROM Job memory chip (100 jobs) |
| 39-084 | RUN/PROG keyswitch, key, and cable |
| 45-020 | Resolver cable (30') with connectors |
| 52-205 | Junior computer board (with job memory) |
| 52-206 | Junior Power supply / Relay output board (with relays and fuses) |
| 52-227 | Resolver unit (no cable) (formerly 40-003) |

# Punch Press Automation
## PressCam 8 Junior

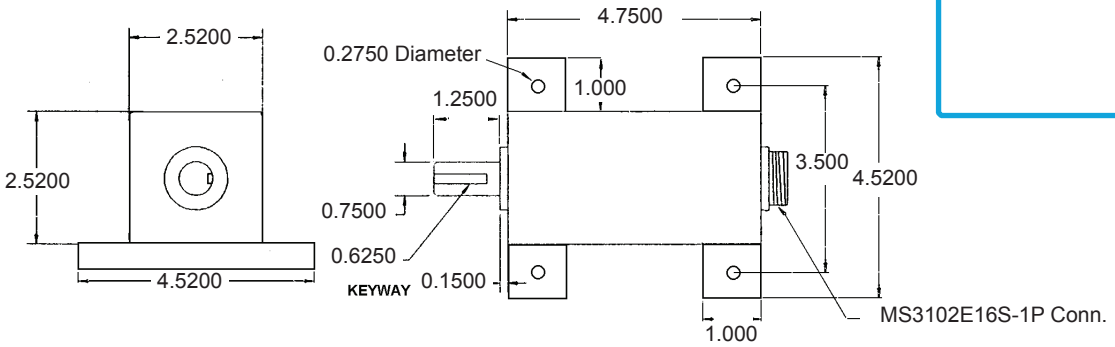
## Dimensions




PressCam 8 Junior shown installed in a stand alone NEMA 12 (IP64) lockable enclosure




PressCam 8 Junior
Front Panel Mount
Cut-Out Dimensions




Resolver Transducer

# Punch Press Automation
PressCam 8

## Design Features

- "Control Reliable" design, utilizing two 16-bit computers, provides ultimate pressroom safety in automation.
- Operator "full view" of system status means no getting lost during programming.
- PressCam 8's two 16-bit computers are configured to cross check each other and the resolver.
- All safety function faults utilize three monitored captive contact safety relays for the outputs related to motion detection, brake monitoring, and system self-checking (Form B safety).
- Non-volatile job memory of 100 stored programs recalled by job die number for all system functions.
- Eleven programmable limit switch outputs with multiple ON/OFFs per press cycle.
- Outputs can be solid state (AC or DC) or mechanical relays.
- Supervisory controlled RUN/PROG keyswitch with password protection.
- Built-in time-based brake monitor can issue warnings or a stop command when actual stopping time exceeds programmed set points.
- Built-in motion detection fault output should the press not start moving within the timed set point after the brake signal is given.
- Built-in drift detection fault output if the press moves when it should not.
- Built-in 90º and 270º stop time tester.
- PressCam 8's cloning feature allows multiple PressCam 8 units to link via RS-232 for job copying.
- Contrast adjustment of the LCD computer screen.
- Automatic offset programming.
- Built-in press tachometer (SPM).
- Optically isolated AC and/or DC inputs (sourcing or sinking).
- Parts counter which can be programmed from 1 - 4 parts per press cycle for multiple out dies.
- Large 8" (203mm) diagonal computer screen (LCD).
- Unique digital programming knob acts like a PC mouse and eliminates keypad programming.


- The "control reliable" PressCam 8 can be used to supply the timing signals for the clutch/brake press control.
- Complete system diagnostics with plain English fault messages on the operator screen enhances productivity.
- PressCam 8 programs can be field upgraded or customized using a PC computer with a standard serial port.
- Four programmable timed limit switch outputs that can be position based or timed from 0 to 9999 milliseconds.
- Four Counters: Strokes, Parts, Batch, and Quality.
- Built-in power supply for input sensors (+12VDC).
- Built-in servo feed interface.
- Crank shaft angle displayed in degrees with a graphic shaft angle clock.
- Utilizes surface mount technology.
- Job memory chips are socketed for easy transfer to other units if desired.
- Programmable minimum and maximum speed limits with captive contact safety relay output (Form B safety).
- Programmable variable speed compensation.
- Punch press clutch/brake timing signals protected from tampering.
- Optional peak tonnage monitoring up to 4 channels.
- Compact in size.


# Punch Press Automation
## PressCam 8

## Overview

PressCam 8 is a “control reliable” resolver-based programmable cam switch, time-based brake monitor, die protection system with multiple counters and much more in one package. The system contains two 16-bit computers that are configured to cross check each other and the resolver. The dual computers are interfaced with a full view 8" (203mm) diagonal LCD computer screen for viewing and programming ease. This large operator screen (shown on the next page) supplies operators and front line supervisors production data without the need of cumbersome menu and program access codes.

All system faults generate descriptive plain English error messages on the computer screen. This provides floor personnel fast and reliable information related to the machine stoppage. The system is also provided with special watchdogs that turn off fault outputs should either computer become erratic. The software and system customization in both computers can be upgraded in the field using a PC computer with a standard serial port.

Programming PressCam 8 is so easy that you do not need a keypad, keyboard, or cumbersome programming techniques.

## Operator Screen

A large 8" (203mm) diagonal LCD computer screen is standard equipment on the PressCam 8. This single component brings the intelligence of the dual computer system to the punch press control panel providing positive system status interaction with the machine operator.

The screen brightness (contrast) is also adjustable so it can be easily read even when installed in dark areas.

## Digital Programming Knob

This innovative device replaces keypads or keyboards for programming the PressCam 8. The programming knob works similar to a computer mouse. Simply turn the knob to the highlighted field or program you desire then push. Your program is accessed with no keystrokes. By turning the knob, the appropriate numbers or letters appear on the highlighted screen to program the specific function you desire. Push again, your programming is completed! Additionally, no information can be programmed if it is not applicable to the specific function or operation.

## Industrial Grade Brushless Resolver Transducer

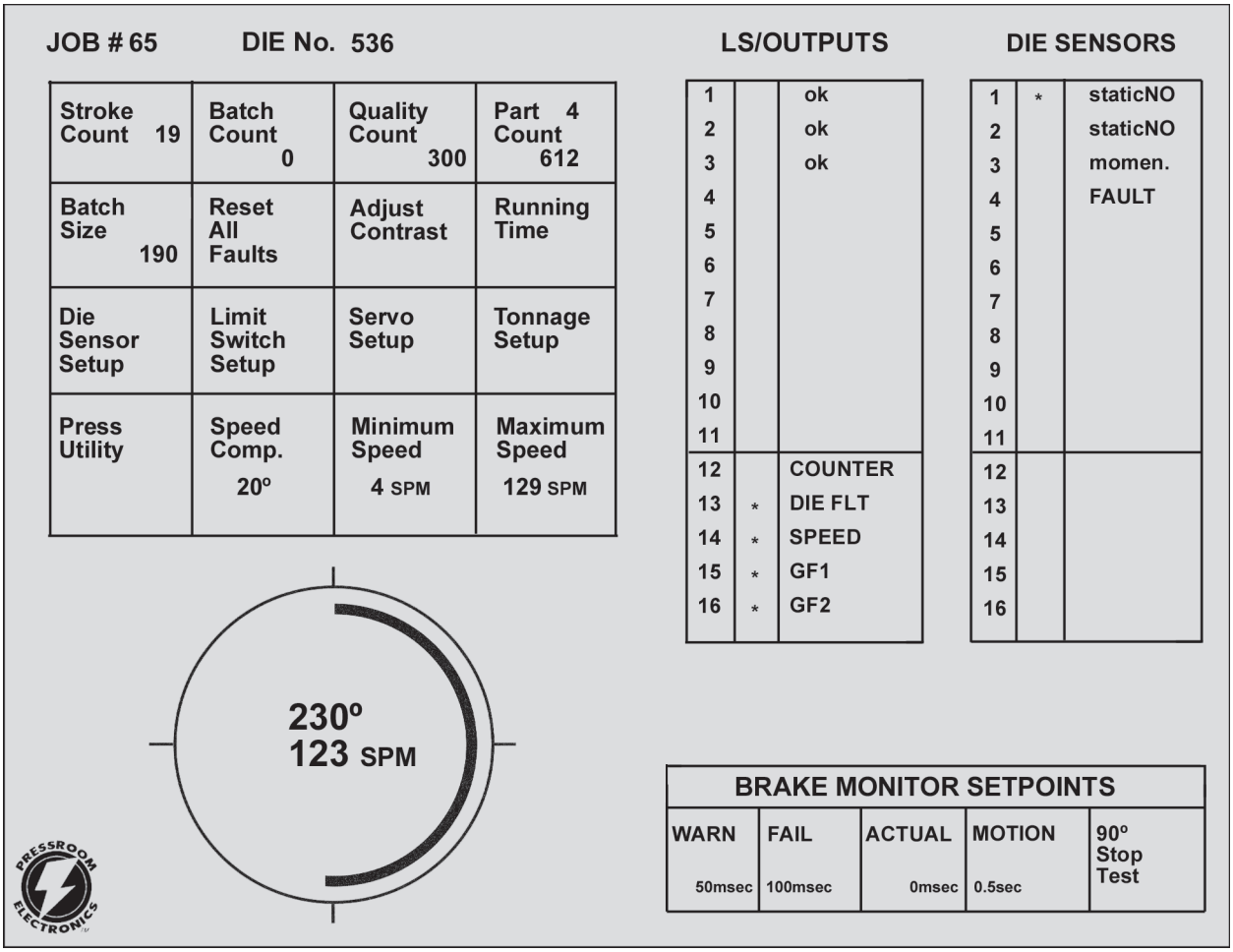
The heavy duty brushless resolver transducer replaces the current mechanical rotary cam switch. This unit was designed for hostile industrial environments such as punch press mechanical shock and vibration, extreme temperature and humidity, oil, coolant and lubrication mists. The resolver transducer features excellent repeatability and gives absolute shaft position feedback. High speed operation along with long transducer cable (runs up to 600 feet/183m) give the resolver wide application ranges. The resolver is a passive device which contains no sensitive electronics and has superb noise immunity.

The resolver mounts easily to an end of a crankshaft and can rotate clockwise or counter-clockwise. Simple connector ended transducer cabling is supplied to connect the resolver to the PressCam 8 controller console. The PressCam’s microprocessor-based control constantly monitors the resolver position and displays both the angular position of the shaft and speed of the machine (tachometer). 3/4” (19 mm) resolver shaft diameter.

# Punch Press Automation

PressCam 8

## Programming Screen




Screen Actual Size

Shown above is the actual screen size and information available to the press operator on the PressCam 8 Programming Screen. No longer is it necessary to scroll through various menus and programming techniques to view data. The Programming Screen also provides an active “tool bar” for your press set-up personnel to quickly access the specific function they so desire. As one can see, a tremendous amount of production data can be obtained by simply viewing this single operator screen.

System simplicity is a dominant feature of the PressCam 8. By viewing the above screen, information can be obtained for four different counters, reset all faults, adjustment for screen contrast, die protection information, programmable limit switch information, shaft angle displayed in degrees, stroke per minute (SPM), and brake monitoring information.

Additionally, system fault messages are displayed in the area above the brake monitor setpoint section when they occur.

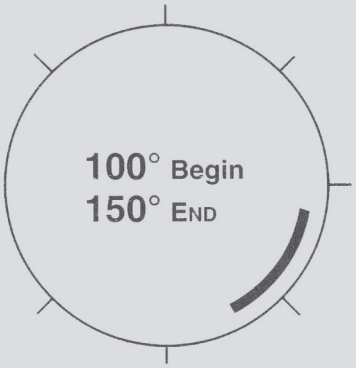
# Punch Press Automation
## PressCam 8

## Die Protection

| Sensor | | | Event Window | |
|---|---|---|---|---|
| Name | Type | on | Begin | End |
| Sen 1 | N.C. | * | | |
| Sen 2 | N.O. | | | |
| Sen 3 | Moment | | 100° | 150° |
| Sen 4 | Maintain N.O. | | | |
| Sen 5 | Maintain N.C. | | | |
| Sen 6 | | | | |
| Sen 7 | | | | |
| Sen 8 | | | | |

| Sensor | | | Event Window | |
|---|---|---|---|---|
| Name | Type | on | Begin | End |
| Sen 9 | | | | |
| Sen 10 | Moment | * | 20° | 301° |
| Sen 11 | | | | |
| Sen 12 | | | | |
| Sen 13 | | | | |
| Sen 14 | | | | |
| Sen 15 | | | | |
| Sen 16 | | | | |

EXIT (return back to main screen)




Crank Angle
300°

DIE SENSOR SETUP

PRESSCAM 8

50° Dwell

Screen Actual Size

The Die Protection Screen shown above is what your programmer will see when entering the die protection program. PressCam 8 provides sixteen different die protection sensor inputs that may be programmed for both cyclic and/or static function monitoring.

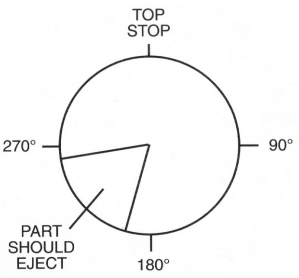
Cyclic function monitoring requires that an input sensor signal occur within a certain programmed shaft angle on each press cycle (e.g., part eject, part transfer).

Static monitoring is used for non-cyclic events such as end of material or stock buckle monitoring.

A fault output will occur if an input transition is not detected between the programmed limit set points (e.g., a part is to be ejected out of the die between 190° and 250° of the machine cycle). If the part is not detected within these parameters, a fault or stop signal is given to stop the machine.

To program, simply turn to “die-sensor set-up” and depress the programming knob. Now you are in the die protection program. Then put in the parameters in degrees when you would want to look for the part to eject or transfer. From 190° to 250° is when the sensor will be looking for the part. That is all there is to programming die protection. If a fault output occurs, simply view the screen and determine from what sensor the fault occurred.

The die protection program can be fine tuned while the machine is in motion along with related peripheral signals such as feeds, lubrication, blowoffs, etc. This is an excellent method of increasing the machines efficiency.



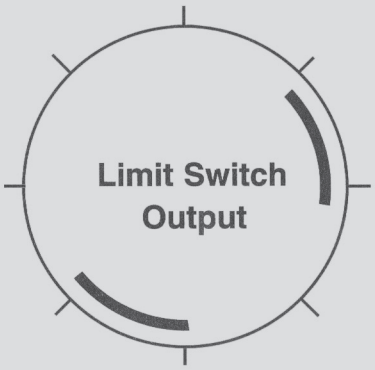
# Punch Press Automation

PressCam 8

## Programmable Limit Switch

| Output | sp | First Close | First Open | Second Close | Second Open | Third Close | Third Open |
|---|---|---|---|---|---|---|---|
| LS1 | * | 300º | 320º | | | | |
| LS2 | * | 200º | 150º | | | | |
| LS3 | | 50º | 100º | 180º | 230º | | |
| LS4 | | | | | | | |
| LS5 | | | | | | | |
| LS6 | | | | | | | |
| LS7 | | | | | | | |

Crank Angle 300º




| | | | | | | Delay Cycle | Hold Cycle | Start Angle | Hold Time |
|---|---|---|---|---|---|---|---|---|---|
| LS8 | | | | | | | | | |
| LS9 | | | | | | | | 100º | 1000 |
| LS10 | | | | | | | | | |
| LS11 | | | | | | | | | |

EXIT

LIMIT SWITCH OUTPUT SETUP SCREEN

Screen Actual Size

Limit switch programming simplicity is a PressCam 8 feature.

PressCam 8 crank angle position is generated by a heavy duty industrial resolver driven by the press crank shaft.

PressCam 8 provides the user with eleven programmable limit switch outputs used to initiate various peripheral equipment. These outputs can be programmed to turn on and off up to three times per press cycle.

The programmable limit switch outputs may be mechanical relay, solid state AC, or solid state DC. The solid state relays may be mixed on the same relay board.

The Delay and Hold cycle feature provides control for lubrication systems, scrap choppers, etc. This provides you with signals when you need events to occur on a pre-programmed intermittent (time) or multiple stroke basis.

Limit switches 1 – 7 can be programmed to turn ON and OFF up to three times per press cycle. Limit switches 8 – 11 can be programmed to turn ON and OFF up to two times per press cycle or may be programmed to turn ON based on angle and OFF based on time. The timed outputs can be programmed from .001 to 10 seconds. Furthermore, these switches may be used with the Delay and Hold cycle feature which provides control for items that need not be initiated on every press cycle but a programmed number of press cycles. Or they can be held ON for a pre-programmed number of press cycles.

A minimum and maximum speed limit setting can be used to monitor optimum running speed versus actual. A deviation outside the programmed parameters will initiate a stop signal.

The system includes a true motion detection system that monitors the press cycle. If you tell the press cycle and it fails to move within the pre-programmed time (.001 to 4 seconds), a fault signal is issued. On the opposite side, if the press starts to cycle without initiation, a fault signal is issued to electrically disconnect all signals.

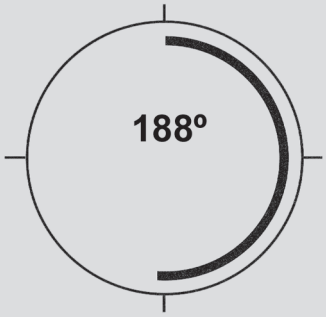
The clutch/brake timing signals can also be password-protected from inadvertent tampering by unauthorized personnel.

# Punch Press Automation
## PressCam 8

## Tonnage Screen

Tonnage capacity: 500

| Sensor Input | Setpoint Min | Setpoint Max | Reading Peak | Reading Counts |
|---|---|---|---|---|
| LR | 0 | 0 | 125 | 512 |
| RR | 0 | 0 | 125 | 512 |
| LF | 0 | 0 | 125 | 512 |
| RF | 0 | 0 | 125 | 512 |
| EXIT | TONNAGE SENSOR INPUT SETUP | | | |




The TLM I/0 load module is designed for critical force measurement applications where accuracy, extreme stability, and dependable noise rejection is essential. The module is a load measurement device without a display or alarms. The TLM is used as an input device to the PressCam 8 providing display and alarm control functions.

The TLM has high sensitivity levels that work well in an electrically “noisy” environment. It has two amplifier gain ranges (span ranges). Therefore, it can accept either weak or strong signals from the load sensor.

**Features**

- Signal conditioning module for strain gauge sensors and load cells
- Four independent channels for accommodating up to eight sensors
- For use with full-bridge sensors from 120 Ohms to 1,000 Ohms
- Plug-in connectors are used for the sensor inputs
- High/low sensitivity span ranges selected with front panel switch
- Automatic zero balance circuits assure accurate measurements
- Power input/output are plug-in connectors
- Built-in automatic peak load memory circuits
- Peak measurements are made with an external trigger device
- Built-in power supply for stable operation and noise rejection
- Compact size to fit almost any location
- Steel enclosure for maximum protection and noise rejection

## Specifications

**Transducers** Full Bridge, 120 Ohms to 1,000 Ohms. One to four channel version available. Maximum of two 350 Ohms sensors per channel.

**Dimensions** 2" (51mm) x 3.1" (79mm) x 8.95" (227mm)

**Balance Range** +/- 1 mV/V of offset

**Gain - Two Ranges** Low = 100 to 1,100 adjustable
High = 1,000 to 11,000 adjustable

**Output Range** Approximately +/- 10VDC at 12VDC excitation

**Circuit Accuracy** Maximum inaccuracy of +/- 1% of full scale

**Circuit Linearity** Maximum non-linearity +/- .1% of full scale

**Auto Zero Time Constant** 10 seconds

**Frequency Response** Flat DC to 1 KHz

**Peak Decay** Less than 1% of full scale in 10 minutes

**Calibration Shunts** 1 Meg Ohm, .1%

**Input Power** 100 to 130VAC 50-60 Hz. Fused at .10 Amp.
200 to 260VAC 50-60 Hz. Fused at .05 Amp.
Input is jumper selectable. Fuses are 5mm x 20mm SLO-BLO.

**Sensor Excitation** Internally excited at +12VDC, .30 Amps maximum

**Sensor Input Connections** Four pin .2” (5mm) centers Phoenix connector

**Peak Output Connections** Six pin .2" (5mm) centers Phoenix connector

**Proximity Probe** 12VDC internally supplied to drive NPN or PNP probes, 50mA max. Input also supports dry relay contacts.

# Punch Press Automation

## PressCam 8

# Specifications

**Input Power:** 3 Voltage Ranges: 1) 24VDC (optional) 2) 120VAC (standard) 50 or 60 Hz
3) 240VAC (optional) 50 or 60 Hz 24 watts with all relays

**Input Control Unit:** Monochrome LCD 8" (203mm) Diagonal Display

**Display**

- LCD BIAS (GRN) D16
- Vpp (YEL) D8
- 5VDC (GRN) D14

**I/0 Board:** +12 VDC (RED) D2
17 Optically Coupled Inputs
13 Solid-State or Mechanical Relay Outputs
3 Force-Guided Monitored Safety Relay Outputs (Form B)

**Relays:**

Mechanical - SPDT Form C
10 AMP @ 260VAC
10 AMP @ 30VDC

AC Solid State - SP N.O.
3 AMP @ 140VAC
12-14VAC
25-70 Hz

Mechanical Captive Contact - Form B
8 AMPS @250VAC

DC Solid State - SP N.O.
3 AMP @ 60VDC
12-60 VDC

**Set Points:**

| | |
|---|---|
| Stroke Count: | 0 to 999,999 strokes |
| Batch Count: | 0 to 999,999 strokes |
| Quality Count: | 0 to 999,999 parts |
| Part Count: | 1 to 4 parts/strokes (programmable)<br>0 to 999,999 parts total |
| Batch Size: | 0 to 999,999 parts |
| Limit Switch Angle: | 0 to 359 degrees |
| Limit Switch Timers: | 0 to 9999 milliseconds |
| Die Sensor Angle: | 0 to 359 degrees |
| Minimum Speed: | 0 to 300 SPM |
| Maximum Speed: | 0 to 300 SPM |
| Brake Warning: | 1 to 999 milliseconds |
| Brake Failure: | 1 to 999 milliseconds |
| Brake Actual: | 1 to 999 milliseconds (+/- 1 ms accuracy) |
| Start Motion: | 0 to 5.9 seconds (1/10 sec increments) |
| Crank Angle: | 0 to 359 degrees (1 degree increments) |
| SPM: | 0 to 300 strokes/minute (+/- 1 SPM accuracy) |

**Components:**

- **PressCam 8 Master Controller Panel Mount**
  10.8" (274mm) W x 11.8" (300mm ) H x 2.5" (64mm ) D
- **PressCam 8 Master Controller mounted in a Stand Alone NEMA 12 Enclosure**
  11" (279mm) W x 13.1" (333mm) H x 5" (127mm) D
- **Resolver Transducer**
  +/- 1º Resolution up to 700 RPM
  +/- 2º Resolution from 701-1000 RPM
  3/4" (19mm) keyed shaft
  *Rated shaft loading:* 200 lbs. axial 400 lbs. radial
  *Weight:* 4 lbs.
  *Vibration:* 20g to 2000 Hz
  *Enclosure:* NEMA 13
  *Rotation:* CW or CCW
  *Shock:* 200 G for 11 msec
  *Operating Temp:* -20º to 125ºC
  *Transducer to master controller:* 600' (183m) max
  *Resolver Cable:* 30' (9m) supplied standard with connectors

**Diagnostics:** Complete system diagnostics on LCD screen

**Enclosure Construction:** 18 gauge painted steel NEMA 12 lockable enclosure with sealed front panel or open frame for panel mounting.


# Punch Press Automation

## PressCam 8 Overview/Ordering Procedure

PressCam 8 is a "control reliable" resolver based programmable cam switch, time-based brake monitor, die protection system, multiple counters, and much more in one package. The system contains two 16-bit computers that are configured to cross check each other and the resolver. The dual computers are interfaced with a full view 8" (203mm) diagonal LCD computer screen for viewing and programming ease. This large operator screen supplies operators and front line supervisors production data without the need of cumbersome menu and program access codes.

*(For Custom Programming & Remote Field Upgrades, please consult factory at service@pressroomelectronics.com or (630) 443-9320.)*

PressCam 8 (all styles, Front panel & Stand alone). Includes resolver and cable

### ORDERING PROCEDURE

1. Specify Mounting Style
   - F ..... Front Panel Mounting to be installed in an existing control panel.
   - C ..... Stand alone NEMA12 enclosure
   - T ..... Stand alone NEMA12 enclosure with room for the Tonnage Module
2. Specify Output Relays (11 maximum)
   - M ..... Mechanical Dry contact relays SPDT 10A@250VAC
   - A ..... AC Solid State - single Pole N.O. 3A@140VAC, 12-140VAC, 25-70Hz
   - D ..... DC Solid State - single Pole N.O. 3A@60VDC, 12-60VDC
3. Specify Controller Input power
   - 1 ..... 24VDC
   - 2 ..... 120VAC 50-60Hz
   - 3 ..... 240VAC 50-60Hz
4. Specify Clutch/Brake Valve Voltage
   - 1 ..... 24VDC
   - 2 ..... 120VAC 50-60Hz
5. Resolver Connector Cabling
   - 30’ (9m) of cable with connectors is supplied standard. If additional length is needed, specify in feet, 150’ (46m) maximum.
6. Specify Tonnage Monitoring (optional)
   - T1 ..... One Channel monitoring with strain sensor and cable
   - T2 ..... Two Channel monitoring with strain sensor and cable
   - T3 ..... Three Channel monitoring with strain sensor and cable
   - T4 ..... Four Channel monitoring with strain sensor and cable

### EXAMPLE PART #

| PC8 | - | C | - | Mechanical | - | AC Solid State | - | DC Solid State | - | 1 | - | 1 | - | 30’ | - | T4 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Style | | Mounting Style | | Output Relays | | Output Relays | | Output Relays | | Input Power | | Clutch/Brake Valve Voltage | | Resolver | | Tonnage |

### TONNAGE MONITORING (OPTIONAL)

**T1** One channel monitor module with strain sensor and cable
**T2** Two channel monitor module with strain sensor and cable
**T3** Three channel monitor module with strain sensor and cable
**T4** Four channel monitor module with strain sensor and cable

| Part Number | Description |
|---|---|
| 30-012 | 24vdc @ 2.2A power supply (90-260vac In) 3.9” L x 3.8” W x 1.4” H (99.1mm x 96.5mm x 35.6mm) for powering die protection sensors or other auxiliary devices. |

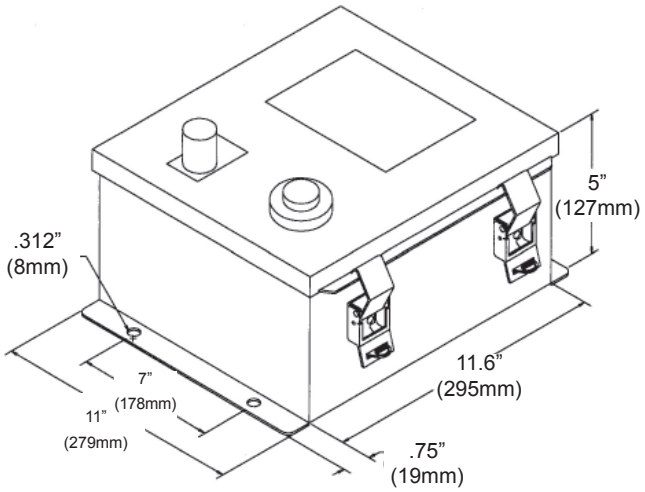
# Punch Press Automation
## PressCam 8

### REPLACEMENT PARTS LISTING

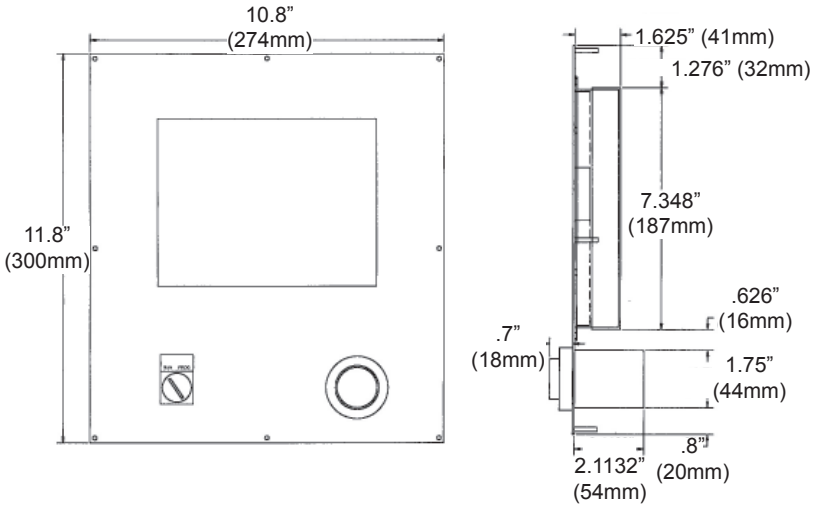
| Part Number | Description |
|---|---|
| 11-131 | Panel Mount (with gasket) |
| 11-132 | LCD mounting bracket (blue) |
| 11-133 | Aluminum Shield cover for computer board |
| 11-134 | Metal Box enclosure (with gasket) |
| 11-135 | Solid State Relay hold-down for I/O board |
| 11-159 | Large Metal Box enclosure (includes space for TTLM module) |
| 18-005 | B/W LCD display panel (with backlight) |
| 18-006 | LCD Backlight power supply |
| 18-007 | LCD Backlight fluorescent tube |
| 20-022 | 1A Slo-Blo nano SMF fuse |
| 20-023 | 5A Fuse (white nano) |
| 21-047 | Tuning Knob (black knob) |
| 21-048 | Tuning Knob (black ring) |
| 26-071 | Graphic overlay skin |
| 30-009 | Replacement Tonnage Controller (3 or 4 channel input unit) |
| 30-010 | Replacement Tonnage Sensors & 35' of cable |
| 30-013 | Replacement Tonnage Controller (1 or 2 channel input unit) |
| 32-038 | Output Module (Solid State AC) |
| 32-039 | Output Module (Solid State DC) |
| 32-041 | Output Relay (G2R-1-S) |
| 32-101 | 4 pole 12 VDC (clear KACO safety relay) |
| 35-065 | EEPROM JOB memory chip (50 jobs) (2 chips are required for 100 jobs) (2 chips are required for 100 jobs) |
| 39-051 | RUN/PROG Keyswitch (with keys and cable) |
| 40-002 | Tuning Encoder device |
| 45-019 | LCD cable (from LCD to Computer board) |
| 45-020 | Resolver cable (30') with connectors |
| 52-115 | Power & I/O board (without output modules) specify solid-state or relay |
| 52-116 | Dual Computer board (with 100 job memory) |
| 52-122 | I/O ribbon cable (from I/O board to Computer board) 2' |
| 52-123 | Power cable (from I/O board to Computer board) 2' |
| 52-227 | Resolver unit (no cable) (formerly 40-003) |
| 52-282 | Serial to Ethernet Board for PressCam 8 |

# Punch Press Automation
## PressCam 8

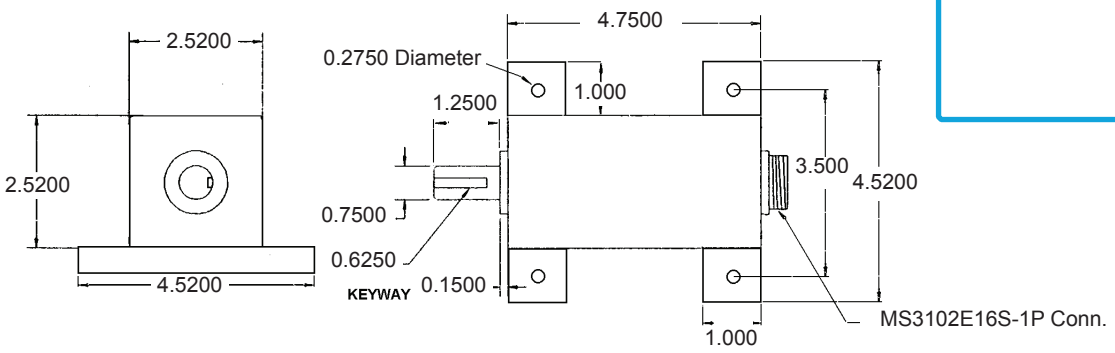
## Dimensions




PressCam 8 shown installed in a stand alone NEMA 12 (IP64) lockable enclosure
Dimensions for the Tonnage version of the PressCam 8 are 14.5” (368mm) W x 13.1” (333mm) H




PressCam 8
Front Panel Mount




Resolver Transducer

# Model FPC Control System

## Open Architecture Multi-function Machine Controls for Fluid Power Safety of Hydraulic or Pneumatic Energy Based Machines

## Design Criteria

- Complies with OSHA and ANSI Codes B11.3-2012 and B11.2-2013 requirements.
- Complies with ANSI (American National Standards Institute) various B11 standards.
- Control reliable design for rotary (resolver or rotary cam) or linear action machines.
- Category 4 Control Category per EN 954.
- Performance Level – PL e per EN/ISO 13849-1.
- The FPC Control has redundant cross-checking microprocessors.
- The FPC Control has redundant DC power supplies.
- The FPC Control has redundant and monitored ram advance with force guided output relays and external relay monitoring.
- The FPC Control monitors faults, including diminished performance faults. The control's fault detection has no dependency on external machine controls.
- The FPC Control returns the machine to a safe position whenever there is loss of pressure or other such event.
- The FPC Control stops the machine operation upon detection of a fault condition until such condition is corrected.
- The FPC Control contains a dedicated specific reset input which prohibits a machine reset by removing or re-applying the pneumatic or hydraulic power.
- The FPC Control requires that the machine reset(s) be operator actuated.
- The advanced platform engineering of the FPC control provides the end user field functionality upgrades or program modifications via an on board USB port for downloads. Ethernet is optional.

## Applications

- Pneumatic or Hydraulic Energy Based Machines
- Also applicable for powder metal presses, multi-slide/four slide machines, forging press controls and specialty or custom machine controls.

Consult the factory by phone at (412) 262-1115 or by email at sales@pressroomelectronics.com to review your project needs.

# Model FPC Control System Ordering/Proposal Guide

**Name** _____
**Company** _____
**Address** _____
**City, State, Zip** _____
**Phone** _____
**Fax** _____
**Email** _____

## Machine Information

**Manufacturer** _____

**Model #** _____ **Serial #** _____

**Shop #** _____ **Tonnage** _____

**Maximum Stroke of Machine:** _____

**Does Machine have a shut height adjustment?**
☐ N ☐ Y

**What is the Machines Open Height?** _____

**Machine Type:** ☐ Gap ☐ Straight Side
☐ 4 Post ☐ H-Frame

**Maximum Number of Machine Operators:**
☐ 1 ☐ 2 ☐ 3 ☐ 4

**Actuation:** ☐ Hand ☐ Foot

**How does machine operate?**

- Does the ram return when the actuating means (hand or foot) is released? ☐ N ☐ Y
- Does the ram stop at midstroke when the actuating means is released? ☐ N ☐ Y
- Does the ram automatically return when actuating means is held operated? ☐ N ☐ Y
- Does the ram change speed during stroke? ☐ N ☐ Y
- Does ram dwell at the bottom of stroke before returning? ☐ N ☐ Y

**Specify Sequence of Operation for the Machine.**

_____
_____
_____

**Specify Maximum Machine Stroke Length:** _____

## Machine Control

**Machine Input Power** _____ Voltage _____ Cycle _____ Phase

**Location of Operator Controls on the NEMA 12 (IP 64) Control Panel**
☐ Left End ☐ Panel Door ☐ Right End
**OR**
☐ FPC Module only to be installed into an existing control panel. Requires 18" x 18" x 6" space to mount the pre-wired backplate.

**Fused Main Power Disconnect**
Mounted on control panel _____ AMP
Choose Style: ☐ IEC ☐ NEMA

**Main Motor Magnetic Motor Starter**
Choose Style: ☐ IEC ☐ NEMA
Choose: ☐ Rev ☐ Non-Rev
_____ HP _____ Full Load Amps
Includes on/off push buttons and keyed selector switch forward/reverse when applicable.

**Ram Adjust Magnetic Motor Starter**
Choose Style: ☐ IEC ☐ NEMA
_____ HP _____ Full Load Amps
Includes up/down push buttons and keyed selector switch forward/reverse when applicable.

## Machine Cycle Timing Devices

☐ Rotary exposed with 1:1 ratio for resolver
☐ Linear Transducer (install new)
☐ Re-use existing linear cams or limit switches

## Machine Safety Valves

**Safety Valves for Pneumatic Machines**
☐ Machine has a dual safety valve
☐ Machine needs a dual safety valve

**Specify current inlet port size (in)** _____

**Safety Valves for Hydraulic Machines**
☐ Blocking valve (monitored dual valve required)

**Specify voltage of existing Valve**
☐ 24 VDC ☐ 230 VAC
☐ 110 VAC ☐ 460 VAC

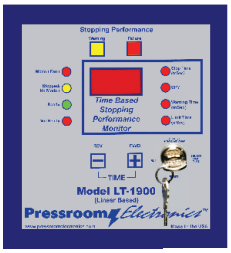
**State inlet flow of Valve** _____ GPM

**State return flow of Valve** _____ GPM

**Email schematics and photos of the hydraulic system to sales@pressroomelectronics.com or fax them to (412) 262-1197.**

# Time Based Stopping Performance Monitor

## Model LT-1900 (Linear Based) - Needed for Hydraulic Based Machines




The LT-1900 is a time-based stopping performance monitor that utilizes a high resolution linear transducer and controller to measure the machine stopping time in milliseconds and also the SPM of the press. The linear transducer is attached to the subject machine and is driven on a 1:1 linear ratio by the machine. The machine stopping time of the machine will be displayed on every stop and can be easily read on the bright red light emitting diode (LED) display on the front panel of the unit. The SPM of the machine will be displayed during the machine cycle.

LT-1900 Stopping Performance Monitor System includes:
- LT-1900 controller (LT)
- Linear transducer with mounting brackets and magnet
- 40' (12m) linear transducer cable
- Dimensions and technical data
- Installation and operation manual


LT-1900 in NEMA 12 (IP 64) steel enclosure.

### ORDERING PROCEDURE FOR LT-1900

1. Specify Mounting Style
   - **F** ..... Front Panel Mounting to be installed in an existing control panel.
   - **C** ..... Stand alone NEMA12 (IP 64) steel enclosure.
2. Specify Controller input power
   - **1** ..... 24VDC
   - **2** ..... 120VAC 50-60Hz
3. Specify Hydraulic Valve Coil Voltage
   - **1** ..... 24VDC
   - **2** ..... 120VAC 50-60Hz
4. Specify linear transducer length (must equal or exceed maximum machine stroke length)
   - **04** ..... 4" (101mm) active length
   - **08** ..... 8" (203mm) active length
   - **12** ..... 12" (305mm) active length
   - **16** ..... 16" (406mm) active length
   - **24** ..... 24" (609mm) active length
   - *Over 24" (609mm) stroke required. Consult factory.

### EXAMPLE PART NUMBER

| LT | - | C | - | 1 | - | 1 | - | 1 | - | 08 |
|---|---|---|---|---|---|---|---|---|---|---|
| LT -1900 | | Mounting Style | | Input Power | | Signal Voltage | | Hydraulic Valve Voltage | | Transducer Length (in inches) |

# 3200SS Clutch/Brake Control with PressCam 8 Built-In

Pressroom Electronics™

# 3200SS Clutch/Brake Control with PressCam 8

## The Ultimate

*The Ultimate* is the most feature intensive air clutch punch press control available. The control conforms to all current OSHA and ANSI standards for control reliability and component monitoring. The system incorporates the Pressroom Electronics' PressCam 8 for complete punch press synchronization and flexibility for all peripheral punch press signaling needs such as feeds, die protection, lubrication, blowoffs, etc. All of the electrical timing adjustments for the complete press operation are done at the floor level by the operator. The PressCam 8 system also has a large job memory of 100. This gives the control the ability to remember 100 complete different jobs or die set-ups at the press. The memory concept at the press is an excellent feature due to the tremendous time saved during setups of various operations. Additional time is saved by being able to adjust or "fine tune" the stamping process while the press is running, which is an aid in maximizing press utilization. Detailed isolated product information on both the PressCam 8 and the 3200SS control system can be seen on the preceding pages of this catalog.

| Part Number | Description |
|---|---|
| 30-012 | 24vdc @ 2.2A power supply (90-260vac In) 3.9" L x 3.8" W x 1.4" H (99.1mm x 96.5mm x 35.6mm) for powering die sensors and auxiliary devices. |

### Standard Features

- Control Panel 3200SS conforms to all current OSHA and ANSI standards.
- Eleven cam programmable limit switch.
- Dual redundant outputs for all faults such as brake monitor, motion detector, etc.
- Built-in motion detector with fast response and dual speed limits.
- Brake Monitor - Time-based brake monitor with a digital display of both the brake stopping time and the brake fault limit setpoints in milliseconds. System also displays a brake fault when stopping times are exceeded.
- Built-in tachometer (SPM) and crank shaft angle in degrees with simultaneous digital display.
- Four built-in counters: stroke, batch, quality, and part.
- Built-in timers, adjustable from 1 ms to 10 seconds.
- Sixteen station die protection system (self-contained cyclic functions and two static functions) built-in with separate timing windows for each station based on the absolute position of the crankshaft. All the die protection timing windows are retained in the memory until the next time a particular die is set-up and run. Die protection timing windows can also be adjusted while the press is in motion.
- All the functions of the system that are timed or signaled through the PressCam 8 system can be retained in memory for 100 different die set-ups.
- All the operator timing adjustments are done at the floor level which eliminates the need for electricians to adjust rotary cam switches and microswitches.
- System self-diagnostics.
- Program security from tampering:
  1. Keyed selector switch for supervisory control
  2. Authorized code for program entry
- Accuracy ± 1° for all timing circuits and can be "fine tuned" while the press is cycling.
- Eases the timing of all types of feeding equipment, AC and DC servo feeds, and air feeds.
- Very easy to program and use.
- System designed specifically for the metal stamping/metal forming industry.
- Main power disconnect and magnetic motor starters can be housed in the same control panel.
- Built-in 90º and 270º stop time tester.
- Tonnage monitoring optional.
- Ordering Procedure - Follow guidelines on Pages B8 - B9.

*(For Custom Programming & Remote Field Upgrades, please consult factory at service@pressroomelectronics.com or (630) 443-9320.)*

# Components for the Metal Stamping / Metal Fabrication Industry

## Components

| Part Number | Model Number | Description |
|---|---|---|
| 52-309 | 300 | Calibrated Switch Actuator |
| 39-021 | 301 | Limit Switch with Actuator |
| 39-120 | 302 | Electric Foot Pedal |
| 21-078 | 304 | Air Cylinder Assembly |
| 21-087 | 305 | Automatic Ram Control Cylinder 3” x 2 1/2” |
| 39-119 | 305A | Automatic Ram Control Cylinder (Extra Heavy Duty) 4” x 2 1/2” |
| 39-020 | 306 | Heavy Duty Pressure Switch |
| 21-082 | 310A | 4 Cam, Rotary Cam Limit Switch (with drive check) |
| 21-089 | 310E | 6 Cam, Rotary Cam Limit Switch (with drive check) |
| 21-090 | 310G | 8 Cam, Rotary Cam Limit Switch (with drive check) |
| 21-091 | 310A-MD | 4 Cam, Rotary Cam Limit Switch (with drive check & encoder) |
| 21-092 | 310E-MD | 6 Cam, Rotary Cam Limit Switch (with drive check & encoder) |
| 21-093 | 310G-MD | 8 Cam, Rotary Cam Limit Switch (with drive check & encoder) |
| 39-114 | 311 | 3/4” Filter, Regulator, Lubricator |
| 39-143 | 311A | 1/2” Filter, Regulator, Lubricator |
| 11-185 | 312 | Run Bar Housing |
| UL-102-2P | | Ergonomic Palm Button |
| UL-501 | 314 | Operator Station |
| 52-308 | 315 | Sprockets & Chain for Rotary Limit Switch |
| 52-307 | 318 | Palm Button (including ring guard) |
| 39-125 | 320D | Emergency Stop Button (30.5mm) 2 N.C. Latching |
| 39-117 | 320DL | Emergency Stop Button (2.25”) 2 N.C. Latching and Lockable |
| 39-115 | 321 | Top Stop Button (Yellow) |
| 39-118 | 331 | Universal Ring Guard only |
| 52-227 | | Resolver unit (no cable) |
| 45-020 | | Resolver cable (30’) with connectors |
| 39-013 | | NEMA only off/inch/single/continuous 4 position key switch |
| 26-037 | | Silver Legend Plate (30.5mm) for AB key switch or button (must specify function) |
| 26-041 | | Silver Legend Plate (22.5mm) for AB key switch or button (must specify function) |

| | |
|---|---|
| 11-069 | Adjustable Pedestal Stand - Model 8500 for #314 Operator Station (Range 32.5” to 47”) |
| 11-067 | Adjustable Pedestal - Model 8000 for Light Curtain or Mirrors - 72” High |
| 11-068 | Adjustable Pedestal - Model 8096 for Light Curtain or Mirrors - 96” High |
| 21-079 | Model 9000 Swing Mount Brackets |

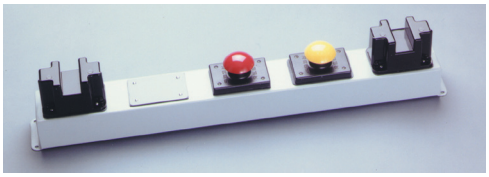
| Part Number | Description |
|---|---|
| 30-012 | 24vdc @ 2.2A power supply (90-260vac In) 3.9” L x 3.8” W x 1.4” H (99.1mm x 96.5mm x 35.6mm) for powering die protection sensor or auxiliary devices. |

Dual Valves, Main Power Disconnects and Magnetic Motor Starters are available on upcoming pages.

For additional accessories and/or replacement parts not listed, please contact the factory directly.

# Punch Press Control System Components

## Operation Station UL-501



**Operation Station No. UL-501**

Includes two run palm buttons and one emergency stop palm button, internally wired.

**Optional**: Yellow top stop button added to operator run bar UL-501 (shown at the left).

## Model Number 301 Part Number 39-021

**Limit Switch with actuating arm**

Oil-tight limit switch contains one set normally-open contacts and one set normally-closed contacts.

## Model Number 302 Part Number 39-120

**Electric Foot Pedal**

An oil-tight foot switch. Contains one set, normally-open contacts, and one set normally-closed contacts. Includes a treadle guard to protect against accidental tripping. “Requires a point of operation guard when used for machine actuation," such as safety light curtains or safety interlock systems.

## Dual Safety Valves See “Dual Safety Valves”

**Dual Solenoid Valve**

A most important aspect of double valve design is the incorporation of two separate 3/2 normally closed valve elements which are interconnected within a common valve body assembly. Each of the two valve elements is operated by its own 3/2 normally closed solenoid pilot valve. When simultaneously energized, both main valve elements are operated simultaneously. The probability of both independent valve elements malfunctioning on the same cycle is extremely remote.

## Model Number 304 Part Number 21-078

**Air Cylinder Assembly**

A 1 1/2" (38mm) bore, 1" (25mm) stroke air cylinder, complete mounting bracket, and clevis.

# Punch Press Control System Components

## Pedestal Mounts Model 8000 & 8500

**Pedestal Mounts**

Painted OSHA yellow and made of heavy angle construction.
***Model 8000:*** used to mount cornering mirrors or safety light curtains off of a machine. Order Part Number 11-067.
***Model 8500:*** used to mount an operator station or palm buttons off of a machine and includes a top plate for mounting.
Both models are supplied with a floor mounting plate that can be lagged to the floor. Order Part Number 11-069.

## Model Number 306 Part Number 39-020

**Heavy Duty Pressure Switch**

NEMA 12 oil-tight and dust-tight switch is adjustable from 1 to 115 PSI.

## Model Number 310A Part Number 21-082

Available with multiple cams and encoders.

**Rotary Cam Switch with Drive Check**

The primary components which make up the Rotating Cam Limit Switch are Snap Action Switches and the Micro-Adjust Cams. The Micro-Adjust Cam Block consists of two cams with 180 degree lobes which can be adjusted relative to the cam shaft by simply rotating the adjusting disc. No tools are required to make this adjustment. The adjusting disc can be manually rotated. The cam block has a self-locking polyurethane gear which automatically locks the cams relative to the cam shaft, when the required contact setting has been obtained. Shown with drive check base.

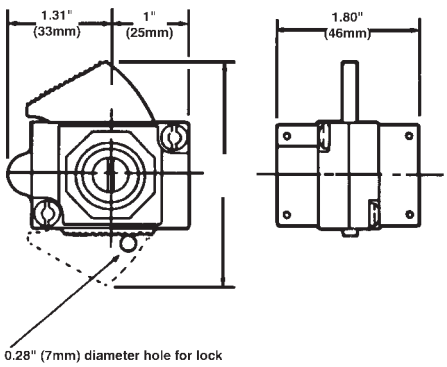
## Model Number 311 Part Number 39-114

**Miniature Regulator, Oiler, Filter**

## Model Number 318 Part Number 52-307

**Palm Button with Ring Guard**
Includes ring guard and mounting enclosure.

## Shut-Off Valve




**Ordering Procedure**

| Part Size PTF | Three-Way Valves Exhaust Downstream Air in Closed Position |
|---|---|
| 1/4" (6mm) | Part #TO8-200-E1PA |
| 3/8" (10mm) | Part #TO8-300-E1PA |
| 1/2" (13mm) | Part #TO8-400-E1PA |

**Materials of Construction**
Body: Zinc Slide: Acetal Plastic
Elastomers: Nitride

# Dual Safety Air Valves for Punch Presses

## DUAL AIR VALVES

### Old Style Dual Air Valves for Replacement

| Part Number | Model Number | Description |
|---|---|---|
| 52-980 | Size 4 | 1/2” NPT Serpar Dual Air Valve (Manual Reset) |
| 52-981 | Size 4 | 3/4” NPT Serpar Dual Air Valve (Manual Reset) |
| 52-982 | Size 8 | 3/4” NPT Serpar Dual Air Valve (Air Reset) |
| 52-983 | Size 12 | 3/4” NPT Serpar Dual Air Valve (Air Reset) |
| 52-984 | Size 12 | 1” NPT Serpar Dual Air Valve (Air Reset) |

### New Style Dual Air Valves for Control Reliable Systems

| Part Number | Model Number | Description |
|---|---|---|
| 52-985 | 303A - Size 4 | 1/2” NPT inlet - 3/4” NPT outlet DM2 Dual Air Valve (Air Reset) |
| 52-986 | 303B - Size 8 | 3/4” NPT DM2 Dual Air Valve (Air Reset) |
| 52-987 | 303C - Size 12 | 1” NPT DM2 Dual Air Valve (Air Reset) |

### Dual Valve Sizing for Air Clutch Punch Presses

**Guideline of Minimum Valve Size to use.**

| Valve Size | Press Tonnage |
|---|---|
| Size 4 | 0 to 90 Ton |
| Size 8 | 100 to 200 Ton |
| Size 12 | 200 to 500 Ton |

For Machines larger than 500 Ton, please consult factory.

## AIR LOCKOUT VALVES

| Part Number | Description |
|---|---|
| 39-145 | Air Lock-Out Valve - 1/4” (6mm) |
| 39-146 | Air Lock-Out Valve - 3/8” (10mm) |
| 39-147 | Air Lock-Out Valve - 1/2” (13mm) |
| 39-136 | Air Lock-Out Valve - 3/4” (19mm) |
| 39-148 | Air Lock-Out Valve - 1” (25.4mm) |

# IEC Style

## Main Power Disconnects and Magnetic Motor Starters

### MAIN POWER DISCONNECTS - IEC STYLE
### All rated at 600 VAC

| Part Number | Model Number | Description | 240 VAC HP | 480 VAC HP |
|---|---|---|---|---|
| 52-911 | ID30 | 0-30 Amp IEC | 7.5 | 15 |
| 52-912 | ID60 | 31-60 Amp IEC | 15 | 30 |
| 52-913 | ID100 | 61-100 Amp IEC | 30 | 60 |
| 52-914 | ID200 | 101-200 Amp IEC | 60 | 125 |
| 52-915 | ID400 | 201-400 Amp IEC | 125 | 200 |

### MAGNETIC MOTOR STARTERS - IEC STYLE
### Conforms to the IEC Standard 947

| Part Number | Description | 240 VAC HP | 480 VAC HP |
|---|---|---|---|
| 52-961-INR-A | Non-Reversing | 2 | 5 |
| 52-962-INR-B | Non-Reversing | 3 | 7.5 |
| 52-963-INR-C | Non-Reversing | 5 | 10 |
| 52-964-INR-D | Non-Reversing | 7.5 | 15 |
| 52-965-INR-E | Non-Reversing | 10 | 20 |
| 52-966-INR-F | | | 25 |
| 52-967-INR-G | Non-Reversing | 15 | 30 |
| 52-968-INR-H | Non-Reversing | 20 | 40 |
| 52-969-INR-I | Non-Reversing | 25 | 50 |
| 52-970-INR-J | Non-Reversing | 30 | 60 |
| 52-971-INR-K | Non-Reversing | 40 | 75 |
| 52-972-INR-L | Non-Reversing | 60 | 150 |
| 52-941-IRR-A | Reversing | 2 | 5 |
| 52-942-IRR-B | Reversing | 3 | 7.5 |
| 52-943-IRR-C | Reversing | 5 | 10 |
| 52-944-IRR-D | Reversing | 7.5 | 15 |
| 52-945-IRR-E | Reversing | 10 | 20 |
| 52-946-IRR-F | | | 25 |
| 52-947-IRR-G | Reversing | 15 | 30 |
| 52-948-IRR-H | Reversing | 20 | 40 |
| 52-949-IRR-I | Reversing | 25 | 50 |
| 52-950-IRR-J | Reversing | 30 | 60 |
| 52-951-IRR-K | Reversing | 40 | 75 |
| 52-952-IRR-L | Reversing | 60 | 150 |

**Note** -- The Main Power Disconnect and Magnetic Motor Starters are priced to automatically include all applicable legend plates, push buttons, key switches (if required), larger control panel and factory installation.

# NEMA Style
## Main Power Disconnects and Magnetic Motor Starters

### MAIN POWER DISCONNECTS - NEMA STYLE
**All rated at 600 VAC**

| Part Number | Description | 240 VAC HP |
|---|---|---|
| 52-906-NED-30 | 0-30 Amp Rating | 7.5 |
| 52-907-NED-60 | 31-60 Amp Rating | 15 |
| 52-908-NED-100 | 61-100 Amp Rating | 30 |
| 52-909-NED-200 | 101-200 Amp Rating | 60 |
| 52-910-NED-400 | 201-400 Amp Rating | 125 |

| Part Number | Description | 480 VAC HP |
|---|---|---|
| 52-901-NED-30 | 0-30 Amp Rating | 15 |
| 52-902-NED-60 | 31-60 Amp Rating | 30 |
| 52-903-NED-100 | 61-100 Amp Rating | 60 |
| 52-904-NED-200 | 101-200 Amp Rating | 125 |
| 52-905-NED-400 | 201-400 Amp Rating | 200 |

### MAGNETIC MOTOR STARTERS - NEMA STYLE

| Part Number | Description | 240 VAC HP | 480 VAC HP |
|---|---|---|---|
| 52-931-NENR-00 | Non-Reversing | 1.5 | 2 |
| 52-932-NENR-0 | Non-Reversing | 3 | 5 |
| 52-933-NENR-1 | Non-Reversing | 7.5 | 10 |
| 52-934-NENR-2 | Non-Reversing | 15 | 25 |
| 52-935-NENR-3 | Non-Reversing | 30 | 50 |
| 52-936-NENR-4 | Non-Reversing | 50 | 100 |
| 52-921-NERR-00 | Reversing | 1.5 | 2 |
| 52-922-NERR-0 | Reversing | 3 | 5 |
| 52-923-NERR-1 | Reversing | 7.5 | 10 |
| 52-924-NERR-2 | Reversing | 15 | 25 |
| 52-925-NERR-3 | Reversing | 30 | 50 |
| 52-926-NERR-4 | Reversing | 50 | 100 |

**Note** -- The Main Power Disconnect and Magnetic Motor Starters are priced to automatically include all applicable legend plates, push buttons, key switches (if required), larger control panel and factory installation.

# Die Protection Sensor Interface
## Remote Die Box

| Part Number | Description |
|---|---|
| 53-450 | Six (6) channel Remote Die Box<br>Includes:<br>Individual Channel Indicators<br>Cable - 45' quick disconnect (12 conductor) minimizes wiring installation time<br>Power Supply included to power sensors - 24VDC at 2.5 AMP |

The six (6) channel remote die box allows you to quickly change out the die sensors by using either plug connectors or Banana jacks. Provides +24VDC power to active sensors and monitors the status (PNP or NPN).


**Enclosure**: NEMA 12, 13, IP54 painted steel (blue)

**Enclosure Dimensions**: 8" (203mm) Height
6" (152mm) Wide
3.5" (89mm) Deep

**45' of 16 Pin Circular Connection Cable:**

| Pin | Wire Color | Description |
|---|---|---|
| 1 | BRN | 120VAC L input |
| 2 | N/C | |
| 3 | RED | Earth Ground |
| 4 | ORG | +24v out (from power supply) |
| 5 | YEL | +24v out (from power supply) |
| 6 | GRN | Die #6 output |
| 7 | Shield | Case Ground |
| 8 | N/C | |
| 9 | BLU | Die #5 output |
| 10 | VLT | Ground |
| 11 | GRY | Die #2 output |
| 12 | WHT | Die #1 output |
| 13 | BLK | Die #3 output |
| 14 | BK/WT | Die #4 output |
| 15 | RD/WT | 120VAC N input |
| 16 | N/C | |

**Indicator LED's**

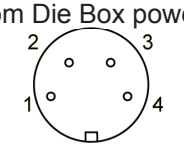
RED = PNP

GREEN = NPN

Banana Jack: Passive GND sensors when used you must jumper Pin 1 to 3 on Lumberg receptacle (female) (i.e. NPN only)

**Active PNP or NPN Sensors**

| Pin | Description |
|---|---|
| 1 | Jumper to Pin 3 if NPN, to Pin 4 if PNP |
| 2 | Sensor Output (NPN or PNP) |
| 3 | +24VDC from Die Box power supply |
| 4 | Ground from Die Box power supply |




Shown view from solder end of Plug

# Machine Safeguarding Products

E-Stop Buttons


Safety Interlock Switches
and Rope Pull Switches

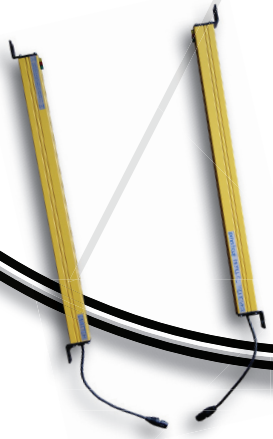
Fencing with
Interlocks

Safety Interface
Modules
Safety PLC's


PINNACLE
SYSTEMS, INC.

Stack Lights

Ergonomic
Palm Buttons



Safety Light Curtains

Safety Mat Systems

- Safety Light Curtains (all types and styles)
- Safety Mat Systems (all types and styles)
- Universal Safety Controller HUB / Safety PLC
- Ergonomic Palm Buttons *UltraTouch*®
- Safety Interlock Switches (explosion proof)
- Fencing with Interlocks
- Stack Lights and E-Stops
- OSHA and ANSI Compliant Controls
- Customized "control reliable" controls for dual solenoid activated pneumatic & hydraulic safety valve applications
- Energy Isolation and Single Point Lockout Systems
- Plant Surveys and Risk Assessment
- Stainless Steel Enclosures Available
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**⚠WARNING** The entire machine safety system must be tested at the start of every shift. Machine testing should include: (1) proper machine operation and stopping capability; and (2) verification of proper installation and settings of all point of operation guards and devices before the operation is released for production.

## CHANGE IN SPECIFICATIONS

Product specifications and accessories may be changed at any time based on improvements and other reasons. It is our practice to change part numbers when published ratings or features are changed, or when significant construction changes are made. However, some specifications of the Product may be changed without any notice. When in doubt, special part numbers may be reassigned to fix or establish key specifications for your application.

Please consult the factory.

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- Safety Mat Systems and Controls
  - Area Guarding Systems
  - NSD Safety Mat Systems
  - STTS Safety Mat Systems
  - Direction of Travel Mats
  - High-Temp Welding Mats
- Ergonomic Palm Buttons
  - UltraTouch Palm Buttons
- Safety Interlock Switches (including explosion proof)
- Customized “control reliable” controls for dual solenoid activated pneumatic and hydraulic valve applications
- Fencing with Interlocks
- E-Stop Buttons
- Stack Lights
- Energy Isolation and Single Point Lockout Systems
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- Customized Control Panels; Stainless Steel enclosures available for all products

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- Press Brake Control Systems

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Part#: PEDM-A-BOAF