

# 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 Control Package 1500 includes the following: No. 303A Dual Solenoid Valve with Muffer No. 306B heavy duty pressure switch No. 310A Rotary Cam (4) with sprockets and Chain BM-1600 encoder added if BM-1600 is ordered No. 311 Filter, Regulator, Lubricator 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



### 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

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).

#### 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](mailto: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 fve 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)

<p>Qty. <input type="checkbox"/> Board Only Clutch / Brake System (SSM-05)</p> <p><input type="checkbox"/> Board Only Clutch / Brake System (SSM-08) with IEC Switches, push buttons and legend plates</p> <p><input type="checkbox"/> Short Stack (SSM-10)</p> <p><input type="checkbox"/> Short Stack Plus (SSM-20) with IEC switchgear</p> <p><input type="checkbox"/> Model 3200SS (Solid State) Control Systems NEMA 12 Enclosure with IEC switchgear</p>	<p>Qty. <input type="checkbox"/> Control Package 1500SS (Solid State) NEMA 12 Enclosure with IEC switchgear</p> <p><input type="checkbox"/> The Ultimate (Model 3200SS with PressCam8) NEMA 12 Enclosure with IEC switchgear</p> <p><input type="checkbox"/> PressCommander (Resolver Based) NEMA 12 Enclosure with IEC switchgear</p>
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## Customized Control Panel Options

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

<p>Qty. <input type="checkbox"/> Fused Main Power Disconnect Mounted on control panel _____ AMP Choose Style:            IEC            NEMA</p> <p><input type="checkbox"/> 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.</p> <p><input type="checkbox"/> 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.</p>	<p>Qty. <input type="checkbox"/> 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.</p> <p><input type="checkbox"/> Time Based Brake Monitor (front panel mounted)</p> <p><input type="checkbox"/> Micro-Inching Feature</p> <p><input type="checkbox"/> Continuous On Demand</p> <p><input type="checkbox"/> Automatic External Trip</p> <p><input type="checkbox"/> Light Curtain Interface Keyed selector switch on/off mounted on control panel for light curtain.</p>
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# 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**

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## Product Photos and Descriptions

For additional information on all products listed, please visit our website [www.pressroomelectronics.com](http://www.pressroomelectronics.com).



SSM-05



SSM-10



PressCommander  
Resolver Based



The Ultimate



SSM-08



SSM-20



Model 320SS  
Rotary Cam  
Based





## Additional products to achieve your **Total Safety Solution!!!**

- Safety Light Curtains (All Types and Styles)
- Universal Safety Controller HUB / Safety PLC
- 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
- Plant Surveys, Risk Assessment & Installation Services
- Customized Control Panels; Stainless Steel enclosures available for all products

### **Punch Press / Metal Stamping Industry**

- Resolver or Rotary Cam Based Clutch / Brake Controls - OSHA/ANSI Compliant
- Punch Press Automation Controllers
- Time-Based Brake Monitors
- Programmable Limit Switches
- Die Protection & Tonnage Monitoring Systems
- Servo Feed Interfaces

### **Press Brake Guarding and Controls**

- Press Brake Guarding for Mechanical, Air Clutch and Hydraulic Press Brakes
- Press Brake Control Systems



# **Pressroom** *Electronics*™

[www.pressroomelectronics.com](http://www.pressroomelectronics.com)

6DOHDQ0DUNHWLQFH  
P.O. Box 99875  
Pittsburgh, PA 15233

Phone: (412) 262-1115  
Fax: (412) 262-1197

[sales@pressroomelectronics.com](mailto:sales@pressroomelectronics.com)  
[orderentry@pressroomelectronics.com](mailto:orderentry@pressroomelectronics.com)

**Manufacturing and Service Center**  
3715 Swenson Avenue  
Saint Charles, IL 60174

Phone: (630) 443-9320  
Fax: (630) 443-9346

[service@pressroomelectronics.com](mailto:service@pressroomelectronics.com)

We have designed our equipment to the very highest performance and safety standards known to the current technological state of the art, as evidenced by our U.S.A. and foreign patents issued and pending. However, the installation, usage, and ~~any~~ purpose, known or unknown, is interdependent upon the performance of other equipment not manufactured, installed, secured or maintained by Pressroom Electronics.

We cannot and do not accept responsibility for any overall system performance when factors such as these, are beyond our control.