Punch Press Automation
PressCam 8 Junior Layout

PressCam 8 Junior

Vacuum
Fluorescent Display
4 lines/20 characters
Alphanumeric

Main Screen | Brake Monitor | Counter | Servo Feed | Press Utility | Limit Switch | Die Input

1 2 3
4 5 6
7 8 9
- 0 +

RUN ∧ < Enter > ∨ PROG

PRESSROOM ELECTRONICS
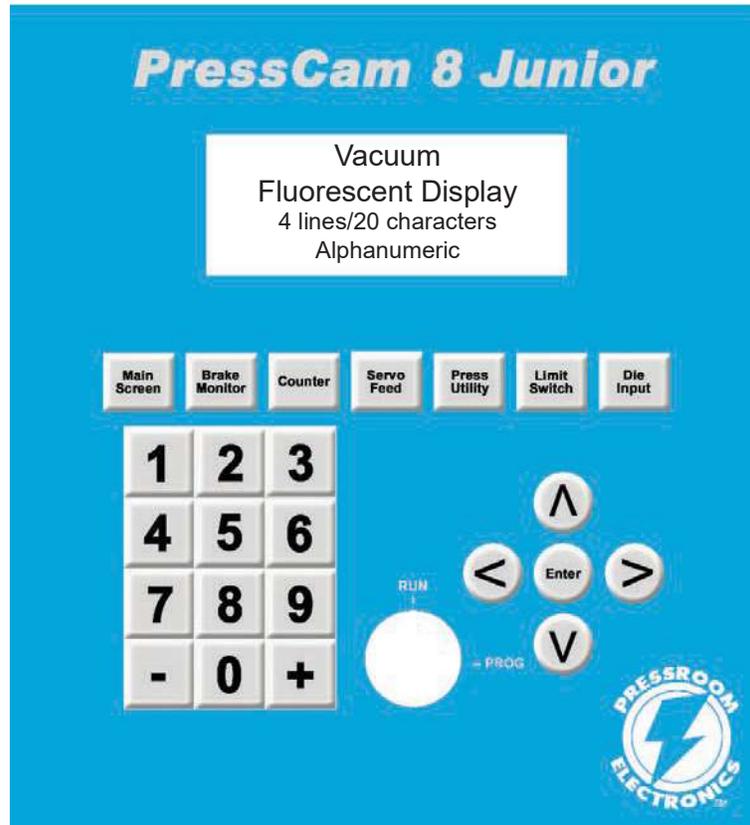
Design Features

• 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.

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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.

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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).

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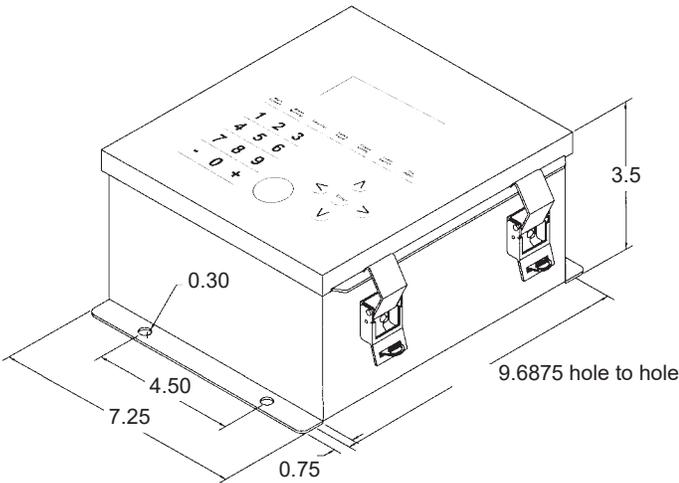
The Die Status Screen allows you to run the press and see when die sensors activate relative to press angle.

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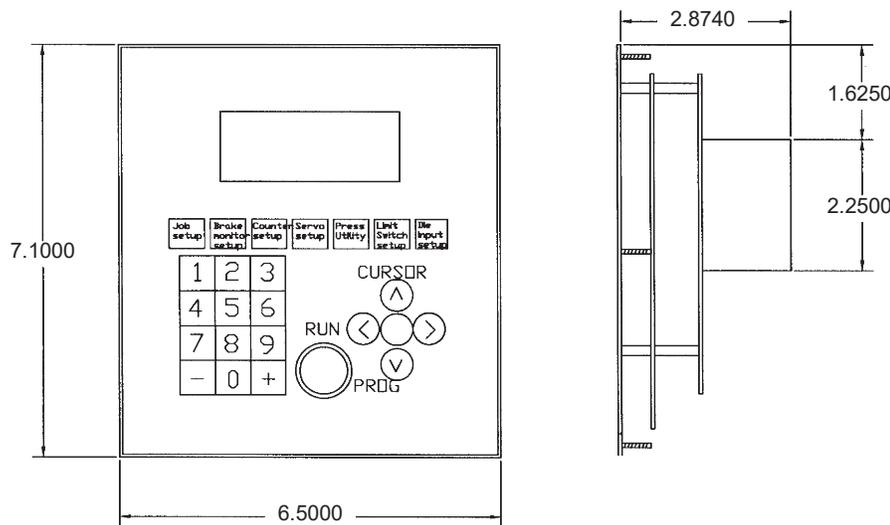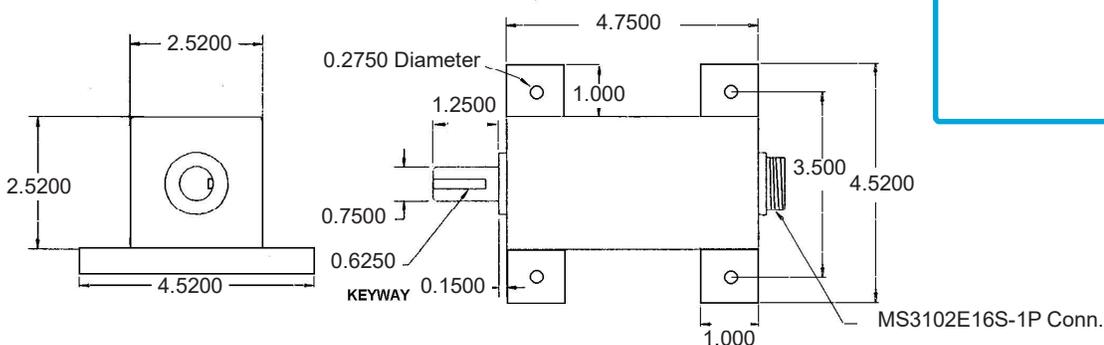
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Dimensions

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

3.5

0.30

4.50

7.25

0.75

9.6875 hole to hole

PressCam 8 Junior
Front Panel Mount
Cut-Out Dimensions

2.8740

1.6250

2.2500

7.1000

6.5000

| Job setup | Brake monitor setup | Counter setup | Servo setup | Press Utility | Limit Switch setup | Die Input setup |

CURSOR

RUN

PROG

1 2 3
4 5 6
7 8 9
− 0 +

Resolver Transducer

2.5200

2.5200

4.5200

0.2750 Diameter

1.2500

0.7500

0.6250

0.1500

KEYWAY

4.7500

1.000

3.500

4.5200

1.000

MS3102E16S-1P Conn.