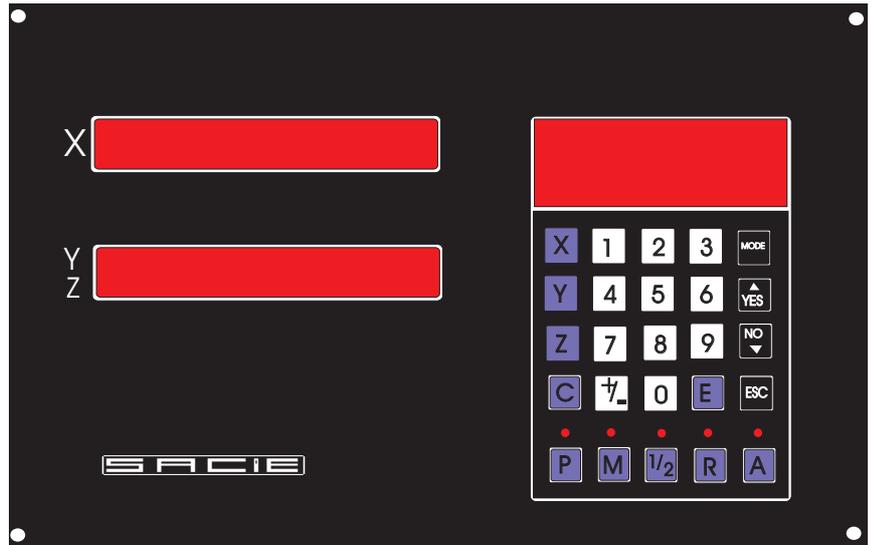


OPERATING INSTRUCTIONS FOR DIGIREAD SEP 80208 CONTROLLER

Technical specifications:

Supply 220VAC 15VA
Transducer input RS 422 Line Receiver
Outputs 8 x 24 VDC 0.2A
Inputs 16 x 24 VDC 0.01A
Size 281x205x90 WxHxD
Cutout Size 258.5 x 198.5
Hole Sizes 269x193 holedia 5mm
X axis PID closed loop
Z axis angle display and control
Memory for 50 programs with 9 bends
(angle and backstop positions).
MDI function
Tool memory

PRE802_7 09-04-99 PRESSBRAKE Promecam Page 1



MODES OF OPERATION:

MANUAL/AUTO SELECTOR IN POSITION MANUAL

PROGRAMMING MODE:



Press P on the keyboard and the light next to the P key will light up. The alphanumeric display will read "Enter CODE ". Enter the Code (Password) and press E. If the password is correct the alphanumeric display will read "Enter Prog.No ". Enter a number between 1 and 50. If a number > then 50 is entered an error message "Prog.No ERROR " is displayed. If a correct program number f.ex 8 is entered the axis display will read P.08. The alpha numeric display will show the previously programmed block. If a M function has been programmed it is displayed on the keyboard display.

Press E to advance to the next block or C to edit the block. If C is pressed the alpha numeric display will read "ENTER RETRACT". The keyboard display will display the Retract size. To accept the size press E or C to clear the size and then enter a new size. Press E to enter. The alpha numeric display will show the programmed block. Press E to advance to the next block or C to edit the block again.

The axis display will change to P.08.01. The next block is displayed on the alpha numeric display. Press E to advance or C to edit. To go back a block press YES ^. If C has been pressed the alpha numeric display will read "ENTER ANGLE" and the keyboard display will display the angle in absolute degrees f.ex. 90.0 degrees. Press the E key to accept the size or C to clear and then enter a new size. Press E to enter. The alpha numeric display will read "ENTER ANG. ADJ" and the keyboard display will contain the value. The adjustment value is relative with a maximum value of +/- 12.7 degrees. This value can be used to compensate for springback and differences in material without changing the programmed bending angle. To edit the value press C otherwise press E to accept the present value. The complete block is displayed.

Press E to advance to the next block. The axis display will change to P.08.02. The block is displayed on the alpha numeric display. To edit press C. The alpha numeric display will read "ENTER POSITION". The keyboard display will contain the position in absolute. Press E to accept the displayed size or press C to clear and then enter a new size. Press E to enter. The alpha numeric display will read "ENTER BEND ADJ". The keyboard display will contain the value. The value is relative with a maximum value of +/- 12.7 mm. This value can be used to compensate for the difference in the programmed size and the bending size due to the bending process. To edit the size press C or E to accept the size.

The alpha numeric display will read "ENTER M FUNC.". The keyboard display will display the M function. Enter 16 if the backstop has to retract at pinch point. Enter 8 for a double bend. Enter 32 for the end of program or 33 for end of program and a retract after the last bend to the home position. Press E to accept or C to clear and then enter a new M function. The values for the M functions have been chosen so they can be added together to give a wide choice of functions.

The axis display will change to P.08.03. The alpha numeric display will show the next angle. To edit press C or E to advance to the next program block. Continue until all sizes, angles and M functions have been entered. The M function of the last block has to be 32 or 33 to detect the end of the program. If 33 is entered the backstop will retract to the reference position after the last bend.

The maximum number of blocks per program is 18. If block 18 does not end with M32 or M33 (or M40, M48, M56, M57) the error message "MEMORY ERROR " is displayed. Press C to clear and enter 32 or 33 (or M40, M48, M56, M57) for the M function. The program is complete and the light next to P key goes off.

To edit the program press P and enter the program number. Press E until the correct block is displayed and do the changes by clearing the old value with the C key. Enter a new value and press E. Advance to the end with the E key. The program alternates between bending angle and backstop position. A maximum of 9 bends can be programmed per program.

OPERATING INSTRUCTIONS FOR DIGIREAD SEP 80208 CONTROLLER Page 2

PRE802_9 14-02-99 PRESSBRAKE Page 2

MANUAL OPERATION: If no operation is selected on the keyboard the backstop can be moved forward and backward with the Jog buttons. The actual backstop position is shown on the top axis display. If the forward or backward software limit is reached a error message " X LIMIT " is displayed. Move the backstop off the limit with the opposite Jog button. The bending angle is displayed on the center axis display in degrees. The maximum stroke is defined by entering the tool sizes and the Vee depth. A error message " Z LIMIT " is displayed if this size is exceeded. Move the Z axis off the limit with the opposite Jog button.

TOOL SETUP V SIZE
 Press MODE on the keyboard to enter or edit the tool setup. The alphanumeric display will read " EDIT TOOL ". Press E to edit the tool sizes or ESC to exit. Enter the size of the top tool. Press E to enter or C to clear the old value. Press E to accept. The display will change to " ENTER BOT.TOOL ". Enter the size for the bottom tool. The display will change to " ENTER V SIZE ". Enter the width of the Vee. The display will change to " ENTER V DEPTH ". Enter the depth of the Vee. This size is used to calculate the minimum angle for the tool. The display will change to " ENTER MATERIAL ". Enter the thickness of the material. These values are stored in the memory of the control and are common to all programs until changed.

DOWN LOAD to PC

 Press MODE on the keyboard and then NO to download a program to a PC via the serial port. The alphanumeric display will read " DOWNLOAD ". Press E to download or ESC to exit. The alphanumeric display will read " ENTER PROG. NO ". Enter a valid program number. Press E to accept. The selected program is downloaded to the PC. The alphanumeric display will show the program information. The keyboard display will show the program and block number. Once the End of the program (M32) has been detected the download is complete. Press C to clear the keyboard display.

HOME POSITION

 Select R on the keyboard. The LED above the R key will light up. The alpha display will read " X HOME POSITION ". Press the START button on the operator control panel and the backstop will travel to its home position. The alpha numeric display will change to " Z HOME POSITION ". The tool adjustment will move to the open position until the home position has been reached and then stop. The LED above the R key goes off. The software limits are active after the home position is defined.

MDI MODE

 Select M on the keyboard. The LED above the M key will light up. The alpha numeric display will read " ENTER ANGLE ". If an angle smaller than defined by the Vee depth is entered an error message " Z LIMIT " is displayed. Enter the bending angle. The alpha display will read " ENTER POSITION ". Enter the size for the backstop. If a size outside the software limits is entered a error message " X LIMIT " is displayed. Press the START button on the operator control panel and the tool adjustment will move to the programmed angle. The the backstop will travel to the programmed position. Press the footswitch to execute the bend. To execute another bend with the same angle press the footswitch again. To exit the MDI mode press the STOP button and then the C key on the keyboard. The LED above the M key goes off.

MANUAL/AUTO SELECTOR IN POSITION AUTO AUTOMATIC MODE

Switch the selector to the position AUTO. The cycle light lights up. The keyboard display will show P--. The alpha display will read " ENTER Prog.No ". Enter the required program number i.e. 1 and the keyboard display will show P01. (Program 1 line 0). If an incorrect number has been entered the keyboard display will read " PROG. No ERROR ". Clear the message with the C key and enter the correct number.

The alpha numeric display will read " R + 10.0 M " (if a Retract Size of 10.0 mm was programmed).

Press START and the keyboard display will show P.01.02. (Program 1 line 2). Line 1 is not shown as it contained the programmed angle and the program continued to line 2 which contained the backstop position. The centre axis display will display A and the programmed angle, the alpha numeric display will contain the programmed backstop position and the M function. First the tool adjustment will move to the programmed angle then the backstop will travel to the first programmed size.

Press the footswitch and the first bend is executed. If M16 has been programmed (and a switch to detect the pinchpoint is fitted) the backstop will retract as soon as the pinchpoint is reached. The tool will close until the programmed angle has been reached. The tool will go up after the bend has been executed. If M08 has been programmed two bends have to be executed for the same backstop position.

The program display will change to P01.03. (Program 1 line 3) and show the size for the second position. The tool adjustment will move to the programmed angle. After the backstop has reached it's programmed position press the footswitch again and the second bend is executed. Continue until all the program blocks have been executed. The program will jump back to program block P01.01 and position the backstop to the programmed position.

The cycle can be stopped anytime by pressing the STOP button on the operator control panel. The alpha numeric display will read " CYCLE STOP ". The bending tool will move to the open position. Switch the selector to MANUAL and the program is terminated.

If the error message " X HOME POSITION " is displayed switch to MANUAL and clear the message with the C key. Move the backstop to the home position.

If the error message " FEEDHOLD " is displayed the bending tool is not in the open position. Switch to MANUAL and clear the message with the C key.

If the error message " PROGRAM ERROR " is displayed no data has been programmed for the selected program. Select MANUAL and press C to clear the error message.

MANUAL/AUTO SELECTOR IN POSITION AUTO SEMI AUTOMATIC MODE

Switch the selector to the position AUTO. The cycle light lights up. The keyboard display will show P--. The alpha display will read "ENTER Prog.No". Enter the required program number i.e. 1 and the keyboard display will show P01.(Program 1 line 0). If an incorrect number has been entered the keyboard display will read "PROG. No ERROR". Clear the message with the C key and enter the correct number.

The alpha numeric display will read "R +10.0 M " (if a Retract Size of 10.0 mm was programmed).

Press the 1/2 key and the LED above 1/2 key will light up.

Press START and the keyboard display will show P01.02.(Program 1 line 2). Line 1 is not shown as it contained the programmed angle and the program continued to line 2 which contained the backstop position. The centre axis display will display A and the programmed angle, the alpha numeric display will contain the programmed backstop position and the M function.

Select the required program block with the NO key. Press E when the required block is displayed.

The tool adjustment will move to the programmed angle. Then the backstop will travel to the first programmed size. Press the footswitch and the first bend is executed. If M16 has been programmed (and a switch to detect the pinchpoint is fitted) the backstop will retract as soon as the pinchpoint is reached. The tool will close until the programmed angle has been reached. The tool will go up after the bend has been executed. If M08 has been programmed two bends have to be executed for the same backstop position.

The program display will change to the next program line and show the size for the second position.

Select the block by pressing E or page forward with the NO key and then press E to accept the displayed block.

After the tool adjustment and the backstop have reached their programmed position press the footswitch again and the second bend is executed. Continue until all the program blocks have been executed. The program will jump back to program block P01.01.

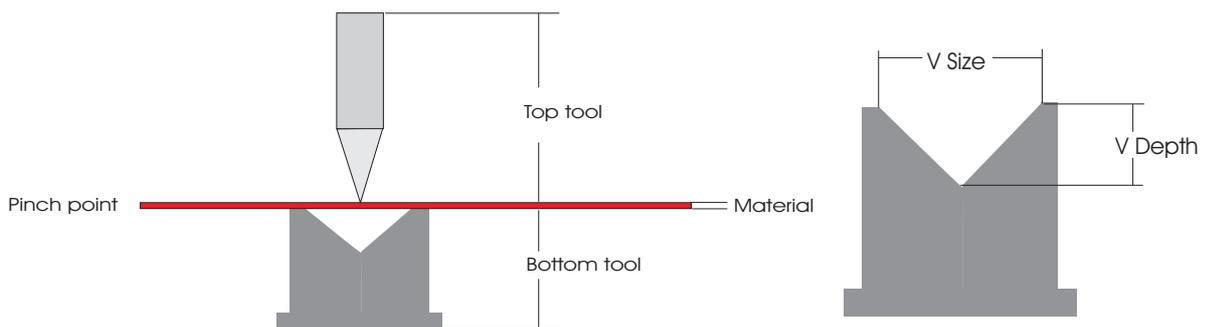
Select the next block as described previously.

The cycle can be stopped anytime by pressing the STOP button on the operator control panel. The alpha numeric display will read "CYCLE STOP". The bending tool will move to the open position. Switch the selector to MANUAL and the program is terminated.

If the error message "X HOME POSITION " is displayed switch to MANUAL and clear the message with the C key. Move the backstop to the home position.

If the error message "FEEDHOLD" is displayed the bending tool is not in the open position. Switch to MANUAL and clear the message with the C key.

If the error message "PROGRAM ERROR" is displayed no data has been programmed for the selected program. Select MANUAL and press C to clear the error message.



	Double Bend	Retract	End of program	Retract to home
■ M08	X			
■ M16		X		
■ M24	X	X		
■ M32			X	
■ M33			X	X
■ M40	X		X	
■ M48		X	X	
■ M56	X	X	X	
■ M57	X	X	X	X
■ Basic M functions. All other M functions are derived from adding M functions together.				

MOUNTING INSTRUCTIONS FOR DIGIREAD SEP 80208 CONTROL

Customer: _____
 Machine: _____
 Date : _____ Remarks: _____

P To view or change the machine parameters press the P key and the LED above the P key will light up. The alpha display will read "ENTER CODE". Enter the code number 805. All LED's will light up. The alpha display will change to "EDIT PARAM.". The axis display will read P.01 for parameter 1. Press E to accept the value. C to clear the old value then enter a new value and store the value with the E key. After all values have been entered the LED above the P key goes off and all displays are cleared.

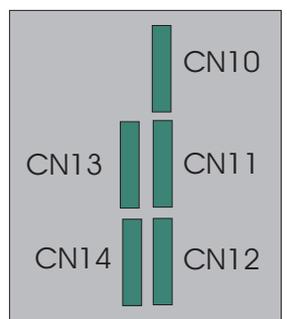
Machine Parameters software ver. SEP2_505.2 axis Press Brake control.
 X axis counter closed loop ,Z axis counter closed loop. NOTE: All sizes are in 0.1mm resolution.

P.01	Deceleration point 1	X axis	_____	_____	SEP505PA.CDR
P.02	Deceleration point 2	X axis	_____	_____	
P.03	Overshoot	X axis	_____	_____	
P.04	Backlash	X axis	_____	_____	
P.05	Scaling factor * 1000	X axis	_____	_____	
P.06	Reference offset	X axis	_____	_____	
P.07	Position Window	X axis	_____	_____	
P.08	Password		_____	_____	
P.09	Max. Velocity		_____	_____	
P.10	Reference speed fast		_____	_____	
P.11	Reference on -off		_____	_____	
P.12	Tool open LMT 1 =n/o 0=n/c		_____	_____	
P.13	Reference speed slow		_____	_____	
P.14	Software limit X+		_____	_____	
P.15	Software limit X-		_____	_____	
P.16	Z axis mm 1 =on 0=off		_____	_____	
P.17	Pulse in msec for Z relay		_____	_____	
P.18	Z pulse 1 =on 0=off		_____	_____	
P.19	Retract on off		_____	_____	
P.20	Deceleration point 1	Z axis	_____	_____	
P.21	Deceleration point 2	Z axis	_____	_____	
P.22	Overshoot	Z axis	_____	_____	
P.23	Backlash	Z axis	_____	_____	
P.24	Scaling factor*1000	Z axis	_____	_____	
P.25	Reference offset	Z axis	_____	_____	
P.26	Positioning window	Z axis	_____	_____	
P.27	Software limit Z+	Z axis	_____	_____	
P.28	Software limit Z-	Z axis	_____	_____	
P.29	Bending comp. Obtuse in %		_____	_____	
P.30	Bending comp. Acute in %		_____	_____	

9 pin sub D RS 422 transducer input.
 1 >----- channel A
 2 >----- channel A
 3 >----- +5 V DC
 4 >----- 0 V DC
 5 >----- channel B
 6 >----- channel B
 7 >----- channel R
 8 >----- channel R
 9 >----- screen

P.19=0 NO RETRACT
 P.19=1 RETRACT LMT NC
 P.19=2 RETRACT LMT NO
 P.19=4 FAST RETRACT ON
 P.19=8 ANALOG FEEDBACK
 P.19=16
 P.19=32
 P.19=64
 P.19=128

P.11=1 X REF OFF
 P.11=2 Y REF OFF
 P.11=4 Z REF OFF
 P.11=8
 P.11=16
 P.11=32 Z AXIS OFF
 P.11=64 SER TEST ON
 P.11=128 PLC DISPLAY ON



CN 10
 1 >---
 2 >---
 3 >---
 4 >---
 5 >---
 6 >---
 7 >---
 8 >---
 9 >---

CN 11 output
 1 >--- IN POSITION X
 2 >--- +24VDC in
 3 >--- DIR X- OUT
 4 >--- +24VDC in
 5 >--- DIR X+ OUT
 6 >--- +24VDC in
 7 >--- +24VDC in
 8 >---
 9 >--- S2 IND X/Z

CN 12 input
 1 >--- AUTO
 2 >--- START
 3 >--- STOP
 4 >---
 5 >---
 6 >--- TOOL OPEN LMT
 7 >--- RETRACT LMT
 8 >---
 9 >--- 0V DC

CN 13 output
 1 >--- IN POSITION Z
 2 >--- +24VDC IN
 3 >--- DIR Z- OUT
 4 >--- +24VDC IN
 5 >--- DIR Z+ OUT
 6 >--- +24VDC IN
 7 >--- +24VDC IN
 8 >--- S1 IND X/Z
 9 >---

CN 14 input
 1 >--- X+ JOG
 2 >--- X- JOG
 3 >--- 24V on
 4 >---
 5 >--- REF. X
 6 >--- Z+ JOG
 7 >--- Z- JOG
 8 >--- REF. Z
 9 >--- 0V DC