

XL200 Series Standard Closed Loop Inputs & Outputs, all Versions, 2.00 and Higher

Revised October 18, 2024

ALL MODELS except XL270CL and XL208CL

IO#	Inputs	Outputs
1	Jog Forward Jog Die 1 Fwd	Fast Uncut Length
2	Jog Reverse Jog Die 1 Rev	Slow Stopping
3	Run	Reverse Press Stopped
4	Emergency Stop (E-Stop)	Run
5	Setup Lockout	Item Complete
6	Manual Shear	Drive Enable
7	Manual Punch	Print Flush/Encoder
8	Tail Out (Inverted Sheet Detect)	Print Trigger
9	Press 0 Complete (Shear)	Press 0 Down (Shear)
10	Press 1 Complete Press X Up Comp	Press 1 Down Gag 1
11	Press 2 Complete Press X Up Comp	Press 2 Down Gag 2 Press X Up/Boost
12	Press 3 Complete Press X Up Comp	Press 3 Down Gag 3 Press X Up/Boost
13	Press 4 Complete Press X Up Comp	Press 4 Down Gag 4 Press X Up/Boost
14	Press 5 Complete Press X Up Comp	Press 5 Down Gag 5 Press X Up/Boost
15	Press 6 Complete Press X Up Comp	Press 6 Down Gag 6 Press X Up/Boost
16	Press 7 Complete Press X Up Comp	Press 7 Down Gag 7 Press X Up/Boost
17	Press 8 Complete Press X Up Comp	Press 8 Down Gag 8 Press X Up/Boost
18	Press 9 Complete Press X Up Comp Test Part ⁸ Jog Die 2 Fwd	Press 9 Down Gag 9 Press X Up/Boost Mister ⁸ Horn ¹⁶
19	Press 10 Complete Scrap Material Loop Full Jog Die 2 Rev	Press 10 Down Gag 10 Press X Up/Boost Dump Trigger ⁸
20	Press 11 Complete Manual Stacker ¹⁹ Slow Run ¹⁹ Die Home 2 ¹⁹	Press 11 Down Gag 11 Press X Up/Boost Scrap Dump ⁸
21	Press 13 Complete Asynchronous Print Detect	Shear Up (CLF Models Only) Continuous Stroke Mode
22	Feed Ready Die Home	Stacker
23	Slow Run ^{17, 19} Die Home 2 ¹⁹ Weld Detector ¹⁹	Short Part Scanner Verify
24	Hole Detect	Very Short Part Horn Drive Enable 2
49	PLC Remote	PLC Remote
50	Test Part	Dump Trigger ²¹
51	Scrap ^{8,20}	Scrap Dump ²¹
52	Slow Run ¹⁸	Mister ²²
53	Manual Stacker ¹⁹	Not Used

Notes:

1. The maximum number of presses and/or gags allowed for each model is as follows (this includes the shear press):

Models	Max Presses (Including Shear)
XL200CL-SPD	1
XL200HCL	2
XL200CL, XL202CLF, XL202HCLF	2
XL244CL	5
XL244HCL	5
XL206CL, XL206CLF, XL206HCLF	6
XL212CL, XL212CLF, XL212HCLF	12

2. Gag outputs are only available on models **XL202CL, XL206CL, XL212CL**, all “**CLF**” models, and all “**HCLF**” models. The number of available gag outputs is equal to the maximum number of presses allowed for that model **minus** the number of active presses configured by the dip-switch. The Exp. Gag Board option is only available on model **XL212CL**.

3. Each model (except those noted below) will provide Press Down and Press Up outputs for the number of presses configured by the dip-switch. For models **XL200CL** and **XL200HCL**, Press Up outputs begin at output #11. For models **XL202CL, XL202CLF, XL202HCLF, XL206CL, XL206CLF, and XL206HCLF**, the first Press Up output follows the last Gag output. If no gags are configured, the first Press Up output follows the last Press Down output. No Press Up outputs are provided for models **XL244CL, XL244HCL, XL212CL, XL212CLF, and XL212HCLF**.

4. The Hole Detect input is only available on models with an “H” suffix in their name.

5. The “Feed Ready” and “Slow Run” inputs are available only in Feed-to-Stop mode. The “Die Home” input is available only in Die Accelerator mode.

6. The “Short Part” and “Very Short Part” outputs are only available on models with “Brake & Hump (U)” option.

7. The Scanner Verify, and Horn outputs are only available when the “Dietrich IO (D)” option is set. The “Dietrich IO” option can not be used at the same time as the “Brake & Hump” option.

8. The following inputs and outputs are available only when the “Tube Mill (T)” is set:

- Scrap Input
- Test Part Input
- Mister Output
- Dump Trigger Output
- Scrap Dump Output

9. The Manual Stacker input is not available when the base model is an **XL212CL** and the controller is configured for twelve presses since this input is already defined as the Press 11 Complete input. The Stacker output is still available in this configuration.

10. Material Loop Full input is available only when the “C” continuous press option is enabled.

11. Continuous Stroke Mode output is available only when the “C” continuous press option is enabled

12. The Uncut Length output is available only when the “U”, Brake and Hump, option is enabled and the controller is configured for Feed-to-Stop operation.
13. Die Home 2, Drive Enable 2, Jog Die 2 Fwd and Jog Die 2 Rev inputs are only available on models that support two Die Accelerators and only when both Die Accelerators are configured.
14. Jog Forward and Jog Reverse inputs become Jog Die 1 Fwd and Jog Die 2 Rev when two Die Accelerators are enabled.
15. Press Stopped is available only when the “C” continuous press option is enabled.
16. With Dietrich IO on any of the rotary controller models.
17. Active on Closed Loop Feed to Stop Only
18. Active On Non-Stop applications only.
19. When the Welded Coils feature is enabled, the Weld Detector input is required and if needed, replaces the Die Home 2 or Slow Run input on input 23. Die Home 2 or Slow Run will move to input 20 and replace the Manual Stacker input. If the Manual Stacker input has been displaced, it can be executed using an on-screen push button in the Diagnostic, Manual Operations screen or through MODBUS using Expanded IO.

20. Available to Hole Count Controllers

21. Available on Non-Stop Shear application and Non Tube Mill (T option)

22. Available on Non Tube Mill (T option).

XL200 Series Standard Closed Loop Switch Settings, all Versions, 2.00 and Higher

Models: XL200CL, XL200HCL, XL200CL-SPD

Switch #	OFF	ON
1	CW Encoder 1 Direction	CCW Encoder 1 Direction
2	CW Encoder 2 Direction	CCW Encoder 2 Direction
3	Normal Analog Voltage Polarity	Inverted Analog Voltage Polarity
4	Disable Punch	Enable Punch ¹
5	See Below	See Below
6	See Below	See Below
7	Punch Material Motion (See Note 5)	Punch Material Motion (See Note 5)
8	NOT USED – MUST BE OFF	NOT USED – MUST BE OFF
9	CRT Disabled	CRT Enabled
10	NOT USED – MUST BE OFF	NOT USED – MUST BE OFF
11	Front Shear Blanking Mode Disabled	Front Shear Blanking Mode Enabled ⁶
12	Normal Closed Loop	Selective Closed Loop ⁸
13	Open Loop Shear OFF	Open Loop Shear Enabled ⁷
17	Single Line Encoder	Second Line Encoder Enabled ⁹
30	Welded Coils Disabled	Welded Coils Enabled
31	Synchronous Welded Coils	Reserved
Switch 5	Switch 6	Description
OFF	OFF	Feed-to-Stop, One Encoder ²
ON	OFF	Feed-to-Stop, Two Encoders ²
OFF	ON	Single-Speed Die Accelerator ³
ON	ON	Two-Speed Die Accelerator

Notes for Models **XL200CL** and **XL200HCL**:

1. For model **XL200CL**, Version 2.02 or earlier, the punch press can only be enabled in the Feed-to-Stop mode. Later versions allow the punch press to be enabled in the Die-Accelerator mode also.
2. Feed-to-Stop mode is NOT allowed on the **XL200HCL** model.
3. When the Tube Mill (T) option is active, the controller must be configured as a Single-Speed Die-Accelerator.
4. Encoder Ports are defined as follows:

Model	Port 1	Port 2	Port 3
XL200CL Feed to Stop	Motor Encoder (Feeder)	Line Encoder (when 2-encoder option is used)	Second Line Encoder (When enabled by Switch 17)
XL200CL Feed to Stop, Selective Closed Loop	Line Encoder	Not Used	Second Line Encoder (When enabled by Switch 17)
XL200CL, XL200HCL Die Accelerator	Line Encoder	Motor Encoder (Die Accelerator)	Second Line Encoder (When enabled by Switch 17)

5. Starting with versions 3.44.00 and 4.07.00, when configured as a Die Accelerator, if switch 4 is on and switch 7 on, the press will be enabled as a two-speed Feed-to-Stop press. If switch 4 and 6 are NOT ON switch 7 should be OFF. If the alternating punch option is Enabled, both alternating presses will be configured for Feed-to-Stop.
6. Front Shear Blanking Mode is only possible when the Punch is enabled. For obvious reasons this option is only available on versions 4 and higher.
7. Enabling Open Loop Shear is self-descriptive. If Open Loop Shear is ON, the Punch must be enabled and the XL must be configured as a Die Accelerator. Open Loop Shear is not allowed when Front Shear Blanking is enabled
8. Only Valid with Single Encoder Feed to Stop. Selectively, based on the state of the Tail Out input, the controller operates in Open Loop or Closed Loop. Closed Loop operation requires the material to be present based on the state of the Tail Out input.
9. Enables a second Line Encoder input and Encoder Resolution. Cannot be used with Selective Closed Loop or Single Encoder Feed to Stop.

Notes for Model **XL200CL-SPD**:

- a. Can only be configured as Shear Only Die Accelerator.

**Models: XL202CL, XL206CL, XL212CL,
 XL202CLF, XL206CLF, XL212CLF,
 XL202HCLF, XL206HCLF, XL212HCLF,
 XL202CLF-MHA, XL206CLF-MHA, XL212CLF-MHA**

Switch #	OFF	ON		
1	CW Encoder 1 Direction	CCW Encoder 1 Direction		
2	CW Encoder 2 Direction	CCW Encoder 2 Direction		
3	Normal Analog Voltage Polarity	Inverted Analog Voltage Polarity		
4	Single Speed One Encoder ¹	Two Speed Two Encoders ¹		
5	See Below	See Below		
6	See Below	See Below		
7	See Below	See Below		
8	See Below	See Below		
9	CRT Disabled	CRT Enabled		
10	NOT USED – MUST BE OFF	NOT USED – MUST BE OFF		
11	Normal Closed Loop	Selective Closed Loop ⁶		
12	Continuous Press Continuous Feed OFF (Note 4)	Continuous Press Continuous Feed ON (Note 4)		
14	Continuous Press on Press 0 (Note5)	Continuous Press on Press 1 (Note5)		
17	Single Line Encoder ⁷	Second Line Encoder Enabled ⁷		
30	Welded Coils Disabled	Welded Coils Enabled		
31	Synchronous Welded Coils	Reserved		
Switch 5²	Switch 6²	Switch 7²	Switch 8²	Number of Presses
OFF	OFF	OFF	OFF	1
ON	OFF	OFF	OFF	2
OFF	ON	OFF	OFF	3
ON	ON	OFF	OFF	4
OFF	OFF	ON	OFF	5
ON	OFF	ON	OFF	6
OFF	ON	ON	OFF	7
ON	ON	ON	OFF	8
OFF	OFF	OFF	ON	9
ON	OFF	OFF	ON	10
OFF	ON	OFF	ON	11
ON	ON	OFF	ON	12

Notes for Models **XL202CL, XL206CL, XL212CL, XL202CLF, XL206CLF, XL212CLF, XL202HCLF, XL206HCLF, XL212HCLF, XL202CLF-MHA, XL206CLF-MHA, XL212CLF-MHA:**

1. Switch 4 configures Single/Two Speed on all “CLF”, “HCLF” and “CLF-MHA” models. Switch 4 configures One/Two Encoders on all “CL” models.
2. “CLF” and “CLF-MHA” models can be configured for a maximum of 6 presses.
3. Encoder Ports are defined as follows:

Model	Port 1	Port 2	Port 3
All “CLF”, “HCLF” and “CLF-MHA”	Line Encoder	Motor Encoder (Die Accelerator)	Second Line Encoder (When

			enabled by Switch 17)
XL202CL, XL206CL, XL212CL	Motor Encoder (Feeder)	Line Encoder (when 2-encoder option is used)	Second Line Encoder (When enabled by Switch 17)
XL202CL, XL206CL, XL212CL (Selective Closed Loop)	Line Encoder	Not Used	Second Line Encoder (When enabled by Switch 17)

4. DIP switch 12 only used when Continuous Press Option is enabled.
5. DIP 14 only used when Continuous Press Option is enabled. Not compatible with DIP 12 ON or only a single press enabled. **Only valid for "CL" feed to stop models.**
6. Only Valid with Single Encoder Feed to Stop. Selectively, based on the state of the Tail Out input, the controller operates in Open Loop or Closed Loop. Closed Loop operation requires the material to be present based on the state of the Tail Out input.
7. Only Valid on Non-Stop CLF controllers or Feed-to-Stop controllers that have both a Motor and Line Encoder already defined.

Models: XL212CLF-MHA2

Switch #	OFF		ON	
1	NOT USED – MUST BE OFF		NOT USED – MUST BE OFF	
2	NOT USED – MUST BE OFF		NOT USED – MUST BE OFF	
3	NOT USED – MUST BE OFF		NOT USED – MUST BE OFF	
4	Single Speed		Two Speed	
5	See Below		See Below	
6	See Below		See Below	
7	See Below		See Below	
8	See Below		See Below	
9	NOT USED – MUST BE OFF		NOT USED – MUST BE OFF	
10	NOT USED – MUST BE OFF		NOT USED – MUST BE OFF	
11	NOT USED – MUST BE OFF		NOT USED – MUST BE OFF	
12	NOT USED – MUST BE OFF		NOT USED – MUST BE OFF	
13	See Below		See Below	
14	See Below		See Below	
15	See Below		See Below	
16	See Below		See Below	
17	Single Line Encoder		Second Line Encoder Enabled	
18	Die 1 – MHA		Die 1 – CLF	
19	Die 2 – MHA		Die 2 – CLF	
30	Welded Coils Disabled		Welded Coils Enabled	
31	Synchronous Welded Coils		Reserved	
Switch 5²	Switch 6²	Switch 7²	Switch 8²	Number of Presses
OFF	OFF	OFF	OFF	1
ON	OFF	OFF	OFF	2
OFF	ON	OFF	OFF	3
ON	ON	OFF	OFF	4
OFF	OFF	ON	OFF	5
ON	OFF	ON	OFF	6
Switch 13⁴	Switch 14⁴	Switch 15⁴	Switch 16⁴	Number of Presses on Second Die
OFF	OFF	OFF	OFF	0
ON	OFF	OFF	OFF	1
OFF	ON	OFF	OFF	2
ON	ON	OFF	OFF	3
OFF	OFF	ON	OFF	4
ON	OFF	ON	OFF	5

Notes for Models **XL212CLF-MHA2**:

1. Switch 4 configures Single/Two Speed.
2. "CLF-MHA2" models can be configured for a maximum of 6 presses.
3. Encoder Ports are defined as follows:

Port 1	Port 2	Port 3	Port 4
Motor Encoder (Die 1)	Motor Encoder (Die 2)	Second Line Encoder (When	Line Encoder

		enabled by Switch 17)	
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4. If any of these switches are on, a second DA is enabled. The number of presses must be defined larger than the number of presses on the second die. The presses for the first die start with the shear press and end at the first press on the second die. The first press for the second die is (Number of Presses – Number of Presses on Second Die + 1)

Models: XL244CL, XL244HCL

Switch #	OFF	ON
1	CW Encoder 1 Direction	CCW Encoder 1 Direction
2	CW Encoder 2 Direction	CCW Encoder 2 Direction
3	Normal Analog Voltage Polarity	Inverted Analog Voltage Polarity
4	Disable All Punches	Enable Punches
Switch 5	Switch 6	Number of Open Loop Punches¹
OFF	OFF	1
ON	OFF	2
OFF	ON	3
ON	ON	4
7	Single Die Accelerator	Dual Die Accelerator enabled ⁴
8	No Gags	Gag Outputs Enabled ⁵
9	CRT Disabled	CRT Enabled
10	NOT USED – MUST BE OFF	NOT USED – MUST BE OFF
13	Closed Loop Shear	Open Loop Shear ⁷
Switch 14	Switch 15	Extra Gags
OFF	OFF	None
ON	OFF	2 Extra ⁶
OFF	ON	4 Extra ⁸
ON	ON	Invalid Configuration
17	Single Line Encoder	Second Line Encoder Enabled
18	1 st OL Press Default Operation	1 st OL Press Feed to Stop ⁹
19	2 ^d OL Press Default Operation	2 ^d OL Press Feed to Stop ⁹
20	3 ^d OL Press Default Operation	3 ^d OL Press Feed to Stop ⁹
21	4 th OL Press Default Operation	4 th OL Press Feed to Stop ⁹
22	Die 1 Normal Operation	Die 1 Multi-Hit Operation ¹⁰
23	Die 2 Normal Operation	Die 2 Multi-Hit Operation ¹⁰
Switch 24	Switch 25	Die 1 Additional Presses¹¹
OFF	OFF	0
ON	OFF	1
OFF	ON	2
ON	ON	3
Switch 26	Switch 27	Die 1 Additional Presses¹¹
OFF	OFF	0
ON	OFF	1
OFF	ON	2
ON	ON	3
28	Die 1 Single Speed	Die 1 Two Speed ²
29	Die 2 Single Speed	Die 2 Two Speed ²
30	Welded Coils Disabled	Welded Coils Enabled
31	Synchronous Welded Coils	Reserved

Notes for Models **XL244CL**, **XL244HCL**:

1. Each Open Loop Punch will have a corresponding boost output. See note 9.
2. Models **XL244CL** and **XL244HCL** were originally defined to function only as a single-speed die-accelerator. In versions 4.85.00 and 5.85.00 Two Speed Operation was added.
3. Encoder Ports are defined as follows:

Model	Port 1	Port 2	Port 3	Port 4 (Ver. 4)
XL244CL , XL244HCL (Single) Die Accelerator	Line Encoder	Motor Encoder (Die Accelerator)	Second Line Encoder (When enabled by Switch 17)	Not Used
XL244CL , XL244HCL (Dual) Die Accelerator	Motor Encoder (Die 1)	Motor Encoder (Die 2)	Second Line Encoder (When enabled by Switch 17)	Line Encoder

4. Version 4 and above only. Punches must be enabled. Disables DIP switches 1,2 and 3. Changes Encoder definitions.
5. Punches must be enabled. A minimum of two gags will be available. Unused press outputs convert to gag outputs.
6. Two extra gags are enabled if switch 14 is ON. Gag 8 will be the highest Gag possible. It may be replaced with a Press output if enough presses are configured.
7. Convert the shear press to a Non-Stop Open Loop Shear with a Boost output. This requires the Enable Punches DIP Switch 4. It shifts Press 1 to be on the first Die Accelerator and, if enabled, Press 2 to be on the second Die Accelerator.
8. Four extra gags are enabled if switch 15 is ON. Gag 10 Gag 8 will be the highest Gag possible. It and other gags may be replaced with a Press output if enough presses are configured.
9. Beginning in V4.84.00 and V5.84.00 there is one Bit for each potential OL press to configure that press to operate in Two Speed Open Loop Feed to Stop mode. If the Open Loop Shear Mode is enabled, the 1st Bit will apply to the shear. If the second Die Accelerator is enabled the 1st Bit becomes disabled unless the OL Shear has been configured. In that case the second Bit becomes disabled.
10. Enabled beginning in versions 4.85.00 and 5.85.00.
11. See note 10, Punches must be enabled and defined. The additional presses on the Die consume open loop presses until the maximum of 4 are consumed.

Model: XL200CL-MDA2

Switch #	OFF	ON
1	NOT USED – MUST BE OFF	NOT USED – MUST BE OFF
2	NOT USED – MUST BE OFF	NOT USED – MUST BE OFF
3	NOT USED – MUST BE OFF	NOT USED – MUST BE OFF
4	NOT USED – MUST BE OFF	NOT USED – MUST BE OFF
5	NOT USED – MUST BE OFF	NOT USED – MUST BE OFF
6	NOT USED – MUST BE OFF	NOT USED – MUST BE OFF
7	NOT USED – MUST BE OFF	NOT USED – MUST BE OFF
8	NOT USED – MUST BE OFF	NOT USED – MUST BE OFF
9	NOT USED – MUST BE OFF	NOT USED – MUST BE OFF
10	NOT USED – MUST BE OFF	NOT USED – MUST BE OFF
11	Front Shear Blanking Mode Disabled	Front Shear Blanking Mode Enabled
17	Single Line Encoder	Second Line Encoder Enabled
30	Welded Coils Disabled	Welded Coils Enabled
31	Synchronous Welded Coils	Reserved

Notes for Model **XL200CL-MDA2**:

1. Models **XL200CL-MDA2** is defined to function only as a single-speed dual die-accelerator, one press per die.
2. Encoder Ports are defined as follows:

Port 1	Port 2	Port 3	Port 4 (Ver. 4)
Motor Encoder (Die 1)	Motor Encoder (Die 2)	Second Line Encoder (When enabled by Switch 17)	Line Encoder

3. Version 4 and higher only

Model XL270CL (Tile Machine Controller)
I/O Definitions

IO#	Inputs	Outputs
1	Jog Forward	Fast
2	Jog Reverse	Slow
3	Run	Reverse
4	E-Stop	Run
5	Setup Lockout	Item Complete
6	Manual Shear	Drive Enable
7	Manual Punch 1	<i>(Future Print Flush)</i>
8	Tail Out	<i>(Future Print Trigger)</i>
9	Press 0 Complete, Shear	Press 0 Down (Shear)
10	Press 1 Complete	Forming Press 1 Down
11	Press 2 Complete ¹	Forming Press 2 Down ¹
12	Press 3 Complete, Entry Shear	Press 3 Down (Entry Shear)
13	Press 1 Forming Tool Complete ² Press 4 Complete (KMF) ³	Press 4 Down (KMF) ³
14	Manual Punch 2 ¹	Press 5 Down (KMF) ³
15	Press 0 Up Complete	Press 0 Up (Shear)
16	Press 1 Up Complete	Forming Press 1 Up
17	Press 2 Up Complete ¹	Forming Press 2 Up ¹
18	Press 3 Up Complete	Press 3 Up (Entry Shear)
19	Stacker Complete	Not Used
20	Manual Stacker	Press 1 Forming Tool
21	<i>(Future Asynchronous Print Detect)</i>	Press 2 Forming Tool ¹
22	Feed OK	Stacker
23	Slow Run	Not Used
24	Press 5 Complete (KMF) ³	Not Used
50	Test Part	Not Used

**Model XL270CL (Tile Machine Controller)
Switch Settings**

Switch #	OFF	ON
1	CW Encoder 1	CCW Encoder 1
2	CW Encoder 2	CCW Encoder 2
3	Normal Analog Polarity	Inverted Analog Polarity
4	Disable Twin Press Option	Enable Twin Press Option
5	See Below	See Below
6	See Below	See Below
7	See Below	See Below
8	See Below	See Below
9	CRT Disabled	CRT Enabled
10	NOT USED – MUST BE OFF	NOT USED – MUST BE OFF
11	NOT USED – MUST BE OFF	NOT USED – MUST BE OFF
12	KMF presses FTS ⁴	KMF Presses NS ⁴
13	NOT USED – MUST BE OFF	NOT USED – MUST BE OFF
14	Normal Shear Operation ⁵	3D Shear Operation ⁵
17	Single Line Encoder ⁷	Enable Second Line Encoder ⁷
30	Welded Coils Disabled	Welded Coils Enabled
31	Synchronous Welded Coils	Reserved
Switch 5	Switch 6	Motor Type
OFF	OFF	Feed-to-Stop, One Encoder ⁶
ON	OFF	Feed-to-Stop, Two Encoder ⁶
OFF	ON	Reserved
ON	ON	Reserved
Switch 7	Switch 8	Machine Type
OFF	OFF	Formia
ON	OFF	Sen Fung
OFF	ON	Reserved
ON	ON	Reserved

Notes for Model XL270CL (Tile Machine Controller):

1. Inputs/Outputs only available when Twin Press Option is selected via dipswitch configuration.
2. Press 1 Forming Tool Only available when configured as a Sen Fung Machine.
3. The Press 4 and 5 inputs and outputs were added to support the KMF Felt applicator module. They are only added when the Machine is configured for a Formia tile machine. The KMF module only requires Down outputs so, to preserve the remaining outputs for other unforeseen uses, no down outputs are provided.
4. DIP switch 12 is only available for the Formia model and configures the KMF press outputs to NON-Stop operation.

5. 3D Shear operation. Enable this option if a shear operation must be performed prior to the first forming operation to prevent the shear from crushing it.
6. Encoder Ports are defined as follows:

Mode	Port 1	Port 2	Port 3
Feed-to-Stop, Two Encoder	Motor Encoder (Feeder)	Line Encoder (when 2-encoder option is used)	Second Line Encoder (When enabled by Switch 17)
Feed-to-Stop One Encoder	Motor Encoder (Feeder)	Not Used	Not Used

7. Second Line encoder only valid in Feed-to-Stop Two encoder mode.

Model XL208CL I/O Definitions (Version 3 and Higher)

IO#	Inputs	Outputs
1	Jog Forward	Fast Forward
2	Jog Reverse	Slow
3	Run	Reverse
4	Emergency Stop (E-Stop)	Run
5	Setup Lockout	Item Complete
6	Manual Shear	Drive Enable
7	Manual Punch	Print Flush/Encoder
8	Tail Out (Inverted Sheet Detect)	Print Trigger
9	Not Used	Not Used
10	Not Used	Not Used
11	Not Used	Not Used
12	Not Used	Not Used
13	Not Used	Not Used
14	Not Used	Not Used
15	Not Used	Not Used
16	Not Used	Not Used
17	Not Used	Not Used
18	Not Used	Not Used
19	Not Used	Not Used
20	Manual Stacker	Not Used
21	Asynchronous Print Detect	Not Used
22	Die Home	Stacker
23	Not Used	Not Used
24	Not Used	Not Used

Model XL208CL Switch Settings (Version 3 and Higher)

Switch #	OFF	ON
1	CW Encoder 1 Direction	CCW Encoder 1 Direction
2	CW Encoder 2 Direction	CCW Encoder 2 Direction
3	Normal Analog Voltage Polarity	Inverted Analog Voltage Polarity
4	NOT USED – MUST BE OFF	NOT USED – MUST BE OFF
5	See Below	See Below
6	See Below	See Below
7	NOT USED – MUST BE OFF	NOT USED – MUST BE OFF
8	NOT USED – MUST BE OFF	NOT USED – MUST BE OFF
9	CRT Disabled	CRT Enabled
10	NOT USED – MUST BE OFF	NOT USED – MUST BE OFF
Switch 5	Switch 6	Description
OFF	OFF	Invalid
ON	OFF	Invalid
OFF	ON	Single-Speed BOSS
ON	ON	Two-Speed BOSS

Notes for Models **XL208CL**:

- Encoder ports are defined as follows:

Model	Port 1	Port 2
XL208CL	Line Encoder	Motor Encoder (Die)

XL212CL-SGF Switch Settings

Switch #	OFF		ON	
1	Feeder		End Gripper Functionality	
2	NOT USED – MUST BE OFF		NOT USED – MUST BE OFF	
3	NOT USED – MUST BE OFF		NOT USED – MUST BE OFF	
4	One Encoder ¹		Two Encoders ¹	
5	See Below		See Below	
6	See Below		See Below	
7	See Below		See Below	
8	See Below		See Below	
9	CRT Disabled		CRT Enabled	
10	NOT USED – MUST BE OFF		NOT USED – MUST BE OFF	
Switch 5	Switch 6	Switch 7	Switch 8	Number of Presses
OFF	OFF	OFF	OFF	1
ON	OFF	OFF	OFF	2
OFF	ON	OFF	OFF	3
ON	ON	OFF	OFF	4
OFF	OFF	ON	OFF	5
ON	OFF	ON	OFF	6
OFF	ON	ON	OFF	7
ON	ON	ON	OFF	8
OFF	OFF	OFF	ON	9
ON	OFF	OFF	ON	10
OFF	ON	OFF	ON	11
ON	ON	OFF	ON	12

Notes:

- Encoder ports are defined in the Table below:

Model	Port 1	Port 2
XL212CL-SGF Feeder	Motor Encoder (Feeder)	Line Encoder (when 2-encoder option is used)
XL212CL-SGF End Gripper	Motor Encoder (Gripper)	Invalid. Single Encoder must be used.

XL212CL-SGF IO

IO#	Inputs	Outputs
1	Feed Ready	Output 1
2	Slow Run	Stopping
3	Run	Output 3
4	Emergency Stop (E-Stop)	Run
5	Setup Lockout	Item Complete
6	Input 6	Drive Enable
7	Buggy Home	Print Flush
8	Input 8 Tail Out ¹	Print Trigger
9	Press 0 Complete (Shear)	Press 0 Down (Shear)
10	Press 1 Complete	Press 1 Down Gag 1
11	Press 2 Complete	Press 2 Down Gag 2
12	Press 3 Complete	Press 3 Down Gag 3
13	Press 4 Complete	Press 4 Down Gag 4
14	Press 5 Complete	Press 5 Down Gag 5
15	Press 6 Complete	Press 6 Down Gag 6
16	Press 7 Complete	Press 7 Down Gag 7
17	Press 8 Complete	Press 8 Down Gag 8
18	Press 9 Complete	Press 9 Down Gag 9
19	Press 10 Complete	Press 10 Down Gag 10
20	Press 11 Complete	Press 11 Down Gag 11
21	Asynchronous Print Detect	Gripper Clamp ²
22	Future Hole Detect Functionality	Output 22
23	Weld Detect ¹ Gripper Material Sensor ²	Output 23
24	Part Detect	Output 24
33	Jog Forward	Output 33
34	Fog Reverse	Output 34
35	Manual Part Reference	Part Referencing
36	Manual Shear	Output 36
37	Manual Punch	Output 37
38	Manual Buggy Reference ²	Buggy Referencing ²
39	Manual Part Grip ²	Part Grip Function ²
40	Manual Part Drop ²	Dropping Part ²
41	Stationary Part Grip ²	Part Drop Completed ²
42	Punch Verify Mode	Part Flip ²
43	Punch Skip	Stopped
44	Punch Allow	Uncut Length
45	Input 45	Entry Guides Closed ²
46	Input 46	Exit Guides Closed ²
47	Input 47	Punch Verify Mode
48	Input 48	Output 48

Notes:

- 1) Not with End Gripper DIP switch.
- 2) With End Gripper DIP switch only

Models: XL200CL-RE

Switch #	OFF	ON
1	CW Encoder 1 Direction	CCW Encoder 1 Direction
2	CW Encoder 2 Direction	CCW Encoder 2 Direction
3	Normal Analog Voltage Polarity	Inverted Analog Voltage Polarity
4	Disable Punch	Enable Punch ²
5	See Below	See Below
6	See Below	See Below
7	NOT USED – MUST BE OFF	NOT USED – MUST BE OFF
8	NOT USED – MUST BE OFF	NOT USED – MUST BE OFF
9	CRT Disabled	CRT Enabled
10	NOT USED – MUST BE OFF	NOT USED – MUST BE OFF
11	Default Reference Switch Transition ⁵	Reversed Reference Switch Transition ⁵
12	NOT USED – MUST BE OFF	NOT USED – MUST BE OFF
13	Open Loop Shear OFF	Open Loop Shear Enabled ³
14	Reference Switch Bug ⁴	Reference Switch Bug ⁴
17	Single Line Encoder	Enable Second Line Encoder
30	Welded Coils Disabled	Welded Coils Enabled
31	Synchronous Welded Coils	Reserved
Switch 5	Switch 6	Description
OFF	OFF	Invalid
ON	OFF	Invalid
OFF	ON	Single-Speed
ON	ON	Two-Speed
Switch 7	Switch 8	Description (Die Config)
OFF	OFF	BOSS(Crank) (XL208CL)
ON	OFF	Rotary
OFF	ON	Standard Linear
ON	ON	Eccentric(Viper)

Notes for Models **XL200CL-RE**:

- Encoder ports are defined as follows:

Model	Port 1	Port 2	Port 3
XL200CL-RE	Line Encoder	Motor Encoder (Die)	Second Line Encoder (When enabled by Switch 17)

- Enabled only in Version 4.46 and higher.
- Enabling Open Loop Shear is self-descriptive. If Open Loop Shear is ON, the Punch must be enabled. Not allowed with Alternating Press option
- Software versions 4.48.00 and higher, configured with Eccentric accelerators must have this switch set or an error pops up to inform the user about a bug with referencing that requires their attention to fully fix. They must re-verify their home switch position. SCN 3518 describes the bug fully.
- For default operation, the controller searches for a Reference Switch OFF to ON transition while the die MOTOR (not the die) is moving in the forward direction. Some machines have been designed such that that transition of the sensor would occur while the die is in the metal or they have used a sensor that has inverted operation. This setting causes the controller to look for the ON to OFF transition instead.

Models: XL200CL-MRE2

Switch #	OFF	ON
1	See Below	See Below
2	See Below	See Below
3	See Below	See Below
4	See Below	See Below
5	Disable OL Punch	Enable OL Punch ²
6	NOT USED – MUST BE OFF	NOT USED – MUST BE OFF
7	NOT USED – MUST BE OFF	NOT USED – MUST BE OFF
8	NOT USED – MUST BE OFF	NOT USED – MUST BE OFF
9	CRT Disabled	CRT Enabled
10	NOT USED – MUST BE OFF	NOT USED – MUST BE OFF
11	Die 1 Default Reference Switch Transition ⁴	Die 1 Reversed Reference Switch Transition ⁴
12	Die 2 Default Reference Switch Transition ⁴	Die 2 Reversed Reference Switch Transition ⁴
14	Reference Switch Bug ³	Reference Switch Bug ³
17	Single Line Encoder	Enable Second Line Encoder
30	Welded Coils Disabled	Welded Coils Enabled
31	Synchronous Welded Coils	Reserved
Die 1 Type	Switch 2	Switch 1
Crank(BOSS)	OFF	OFF
Rotary	OFF	ON
Linear	ON	OFF
Eccentric (Viper)	ON	ON
Die 2 Type	Switch 4	Switch 3
Crank(BOSS)	OFF	OFF
Rotary	OFF	ON
Linear	ON	OFF
Eccentric (Viper)	ON	ON

Notes for Model **XL200CL-MRE2**:

- Encoder ports are defined as follows:

Port 1	Port 2	Port 3	Port 4 (Ver. 4)
Motor Encoder (Die 1)	Motor Encoder (Die 2)	Second Line Encoder (When enabled by Switch 17)	Line Encoder

- Enables an OL press, press Id 2.
- Software versions 4.48.00 and higher, configured with Eccentric accelerators must have this switch set or an error pops up to inform the user about a bug with referencing that requires their attention to fully fix. They must re-verify their home switch position. SCN 3518 describes the bug fully.
- For default operation, the controller searches for a Reference Switch OFF to ON transition while the die MOTOR (not the die) is moving in the forward direction. Some machines have been designed such that that transition of the sensor would occur while the die is in the metal, or they have used a sensor that has inverted operation. This setting causes the controller to look for the ON to OFF transition instead. There is one setting defined for each die.

Models: XL204HCLF-SP023-MHA

Switch #	OFF	ON
1	CW Encoder 1 Direction	CCW Encoder 1 Direction
2	CW Encoder 2 Direction	CCW Encoder 2 Direction
3	Normal Analog Voltage Polarity	Inverted Analog Voltage Polarity
4	NOT USED – MUST BE OFF	NOT USED – MUST BE OFF
5	NOT USED – MUST BE OFF	NOT USED – MUST BE OFF
6	NOT USED – MUST BE OFF	NOT USED – MUST BE OFF
7	NOT USED – MUST BE OFF	NOT USED – MUST BE OFF
8	NOT USED – MUST BE OFF	NOT USED – MUST BE OFF
9	NOT USED – MUST BE OFF	NOT USED – MUST BE OFF
10	NOT USED – MUST BE OFF	NOT USED – MUST BE OFF
11	NOT USED – MUST BE OFF	NOT USED – MUST BE OFF
12	NOT USED – MUST BE OFF	NOT USED – MUST BE OFF
14	NOT USED – MUST BE OFF	NOT USED – MUST BE OFF
17	Single Line Encoder	Enable Second Line Encoder

Notes:

1. Encoder ports are defined as follows:

Port 1	Port 2	Port 3
Line Encoder	Motor Encoder (Die Accelerator)	Second Line Encoder (When enabled by Switch 17)