

# Laser Loop E-Z Setup

*Blake Bourque*

Coil Control

## *Contents*

### [E-Z Setup](#)

[Calculating Tight Loop, Highest & Lowest distances](#)

[How to change the Tight Loop Distance](#)

[How to change the Highest Operating Point](#)

[How to change the Lowest Operating Point](#)

[How to change to 4-20mA](#)

[How to change the units](#)

[Emergency Reset](#)

# E-Z Setup

Your Coil Control Laser Sensor comes preconfigured for a common press feeding operation. The typical setup as depicted in Figure 1, assumes a straightener pulls material off of a stock reel, followed by a loop then a press feeder.

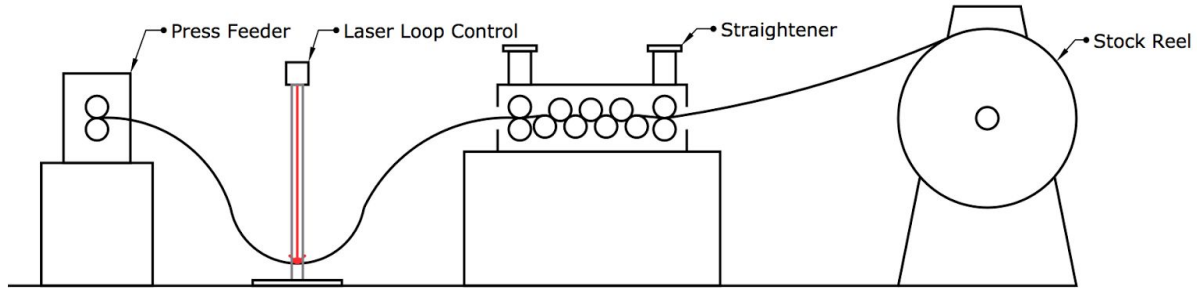


Figure 1: Press Feed Line

Coil Control's Laser Loop Control is shipped configured for a loop whose deepest point is [ 48" ] and whose shallowest operating point is [ 24" ] from the laser sensor. At [ 39" ] the sensor triggers the tight loop interlock which can be used to disable the feeder and the press.

Table 1: Settings as configured when shipped to customer

Setting Name	Setting Abbreviation	Value
Units	UNi <i>Uni</i>	Inch
Tight Loop Interlock	SP1 <i>SP 1</i>	18"
Analog Output Type (4-20mA or 0-10VDC)	OU2 <i>OU2</i>	0-10VDC
Analog Start Point (Deepest) (4mA / 0VDC) (ZERO Speed of the Straightener)	ASP <i>ASP</i>	48"
Analog End Point (Shallowest) (20mA / 10VDC) (FULL Speed of the Straightener)	AEP <i>AEP</i>	24"

In the event that the above values do not conform to your existing press feed operation, the Laser Loop Control provides a simple interface to alter the settings. The following sections will describe how to change the various settings.

# Calculating Tight Loop, Highest & Lowest distances

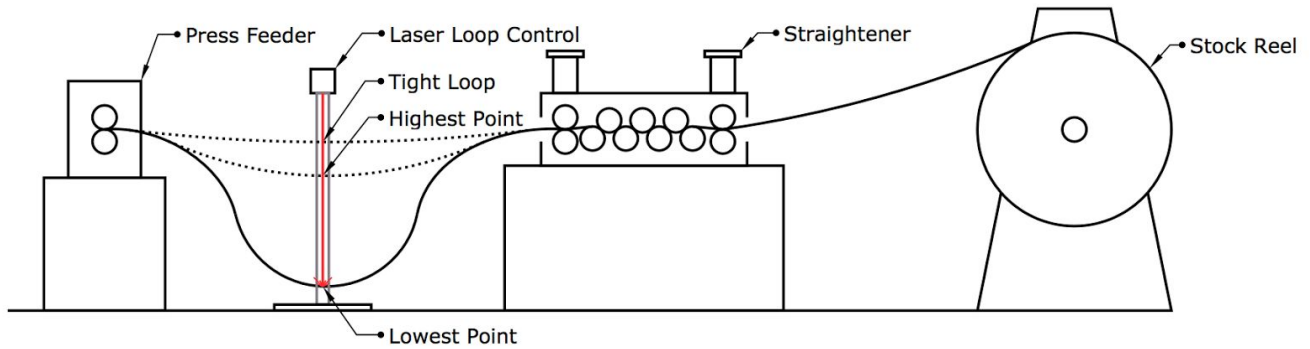
The following calculations assume the Laser Loop Sensor is positioned over the deepest part of material loop.

## Without a Pit:

$$(SP1) \text{Tight Loop} = (\text{pass line height feeder} + \text{pass line of straightener}) / 2 - 4''$$

$$(AEP) \text{Highest Point} = \text{Tight Loop} - 12''$$

$$(ASP) \text{Lowest Point (0VDC / 4mA output)} = \text{floor} - 4''$$

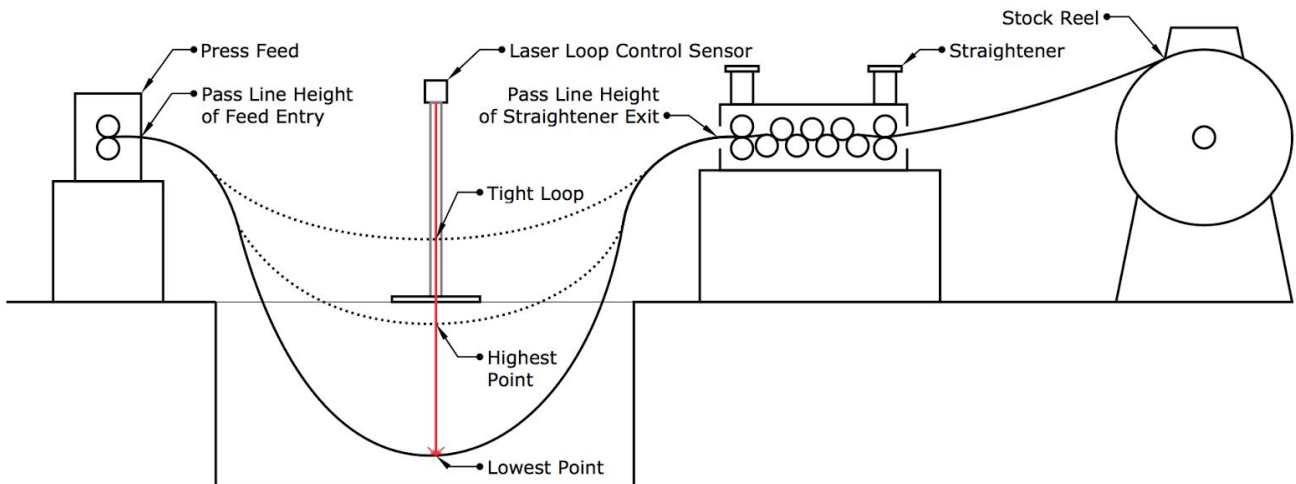


## With a Pit:

$$(SP1) \text{Tight Loop} = (\text{pass line height feeder} + \text{pass line of straightener}) / 2 - 18''$$

$$(AEP) \text{Highest Point} = \text{Tight Loop} - 24''$$

$$(ASP) \text{Lowest Point (0VDC / 4mA output)} = (\text{base of pit}) - 10''$$



# How to change the Tight Loop Distance

The Coil Control Laser Loop sensor provides normally-open (NO) and normally-closed (NC) contacts which can be used as a press feed interlock. In the event that the straightener/uncoiler jams or fails to continue to supply material to the loop, the sensor can provide a signal to the press to cease operation until the issue can be resolved. The sensor is shipped with the tight loop interlock distance(SP1) set to [18.0"] from the sensor. This is ideal for pit-less press feed lines, but can be easily changed to accommodate a variety of setups.

## Configure Tight Loop Interlock Distance from Sensor

1. Press & Release [MODE] until "SP1" appears
2. Press and hold [SET] until it stops blinking
3. Release [SET]
4. Press [SET] until desired SP1 appears
  - a. Note: If you go past, just keep going, when you get to the end of the range, the values will wrap around to the beginning of the range.
  - b. SP1 calculation is described in the [Calculating Tight Loop, Highest & Lowest distances](#) section
5. Press [MODE] once to accept the change

# How to change the Highest Operating Point

The Laser Loop Sensor provides an analog output which provides a full-on signal (20mA / 10VDC) at the Highest Operating Point (AEP) to signal the straightener operate at full speed. The sensor is shipped with the Highest Operating Point (AEP) set to [24"] from the sensor. This is ideal for pit-less press feed lines, but can be easily changed to accommodate a variety of setups.

## Configure Analog Output End Point

1. Press & Release [MODE] until "AEP" appears
2. Press and hold [SET] until it stops blinking
3. Release [SET]
4. Press [SET] until desired AEP appears
  - a. Note: If you go past, just keep going, when you get to the end of the range, the values will wrap around to the beginning of the range.
  - b. AEP calculation is described in the [Calculating Tight Loop, Highest & Lowest distances](#) section
5. Press [MODE] once to accept the change
6. Wait 15 seconds for the device to timeout and return to RUN mode.

# How to change the Lowest Operating Point

The Laser Loop Sensor provides an analog output which provides an off signal (4mA / 0VDC) at the Lowest Operating Point (ASP) to signal the straightener to stop material payout. The sensor is shipped with the Lowest Operating Point (ASP) set to [48"] from the sensor. This is ideal for pit-less press feed lines, but can be easily changed to accommodate a variety of setups.

## Configure Analog Output Start Point

1. Press & Release [MODE] until "ASP" appears
2. Press and hold [SET] until it stops blinking
3. Release [SET]
4. Press [SET] until desired ASP appears
  - a. Note: If you go past, just keep going, when you get to the end of the range, the values will wrap around to the beginning of the range.
  - b. ASP calculation is described in the [Calculating Tight Loop, Highest & Lowest distances](#) section
5. Press [MODE] once to accept the change
6. Wait 15 seconds for the device to timeout and return to RUN mode.

# How to change to 4-20mA

The Coil Control Laser Loop sensor is shipped with 0-10VDC output as the default. The sensor also supports outputs of 4-20mA.

## To Configure Analog Output Settings

1. Press & Release [MODE] until "OU2" appears
2. Press and hold [SET] until it stops blinking
3. Press [SET] until (choose one of the below)
  - a. "I" is displayed to select 4-20mA
  - b. "U" is displayed to select 0-10VDC
4. Press [MODE] once to accept the change
5. Wait 15 seconds for the device to timeout and return to RUN mode.

## How to change the units

The Coil Control Laser Loop sensor is shipped with inches as the default unit. In the event that an alternate unit is more convenient the sensor allows for [Inches, Meters, Millimeters].

### To set the units

1. Press & Release [MODE] until "EF" appears
2. Press [SET] once. "dS1" will appear
3. Press & Release [MODE] until "Uni" appears
4. Press [SET] once - to select the menu
5. Press and hold [SET] until it stops blinking
6. Press [SET] until (choose one of the below)
  - a. "mm" is displayed to select millimeters
  - b. "m" is displayed to select meters
  - c. "Inch" is displayed to select Inches
7. Press [MODE] once to accept the change
8. Wait 15 seconds for the device to timeout and return to RUN mode.

## Emergency Reset

In the unlikely event that the settings become corrupted, or misconfigured the following steps can be taken to reset and reconfigure the sensor.

### Resetting to Factory Defaults

1. Press & Release [MODE] until "EF" appears
2. Press [SET] to change to the menu EF.
3. Select [rES]
4. Press [SET] and keep it pressed until [----] is displayed.
5. Confirm with [MODE/ENTER].
6. The unit changes to the Run mode.

## Performing Default Configuration

1. To Invert the display (upside down / 180 degrees)
  - a. Press & Release [MODE] until "EF" appears
  - b. Press [SET] once. "dS1" will appear
  - c. Press & Release [MODE] until "diS" appears
  - d. Press [SET] once - to select the menu
  - e. Press and hold [SET] until it stops blinking
  - f. Press [SET] until "rd3" appears
  - g. Press [MODE] once to accept the change
  - h. Wait 15 seconds for the device to timeout and return to RUN mode.
2. To set the units
  - a. Press & Release [MODE] until "EF" appears
  - b. Press [SET] once. "dS1" will appear
  - c. Press & Release [MODE] until "Uni" appears
  - d. Press [SET] once - to select the menu
  - e. Press and hold [SET] until it stops blinking
  - f. Press [SET] until "Inch" appears
  - g. Press [MODE] once to accept the change
  - h. Wait 15 seconds for the device to timeout and return to RUN mode.
3. Configure Tight Loop Interlock type (OU1 = Config. For Output 1 (Hno, Hnc, Fno, Fnc) Set to Hnc)
  - a. Press & Release [MODE] until "OU1" appears
  - b. Press and hold [SET] until it stops blinking
  - c. Press [SET] until "Hnc" is displayed to select a Normally Closed output
  - d. Press [MODE] once to accept the change
  - e. Wait 15 seconds for the device to timeout and return to RUN mode.
4. Configure Tight Loop Interlock Distance (Set to 18.0" from Sensor)
  - a. Press & Release [MODE] until "SP1" appears
  - b. Press and hold [SET] until it stops blinking
  - c. Release [SET]
  - d. Press [SET] until desired SP1 appears (18")
    - i. Note: If you go past, just keep going, when you get to the end of the range, the values will wrap around to the beginning of the range.
    - ii. (Which has to be determined between Pass Line Height of the Straightener Exit & Feeder Entry)"
  - e. Press [MODE] once to accept the change
5. Configure Analog Output Settings
  - a. Press & Release [MODE] until "OU2" appears
  - b. Press and hold [SET] until it stops blinking
  - c. Press [SET] until (choose one of the below)
    - i. "I" is displayed to select 4-20mA
    - ii. "U" is displayed to select 0-10VDC
  - d. Press [MODE] once to accept the change
  - e. Wait 15 seconds for the device to timeout and return to RUN mode.
6. Configure Analog Output Start Point (4mA / 0VDC) (ZERO Speed of the Straightener) (Lowest

part of the loop)

- a. Press & Release [MODE] until "ASP" appears
  - b. Press and hold [SET] until it stops blinking
  - c. Release [SET]
  - d. Press [SET] until desired ASP appears (48")
  - e. Press [MODE] once to accept the change
  - f. Wait 15 seconds for the device to timeout and return to RUN mode.
7. Configure Analog Output End Point (20mA / 10VDC) (FULL Speed of the Straightener) (Highest the material can be without tripping the interlock.)
- a. Press & Release [MODE] until "AEP" appears
  - b. Press and hold [SET] until it stops blinking
  - c. Release [SET]
  - d. Press [SET] until desired AEP appears (24")
  - e. Press [MODE] once to accept the change
  - f. Wait 15 seconds for the device to timeout and return to RUN mode.