



# MLC 410

## SELF ALIGNED SYSTEM

### MAGNETIC LINEAR ENCODERS



- CONTACTLESS AND WEAR-FREE SYSTEM
- SELF ALIGNED SYSTEM
- MEASURING LENGTHS OF UP TO 4880 MM
- PROTECTION CLASS IP67
- EXCELLENT STABILITY QUADRATURE OUTPUT
- DOUBLE GASKET PROTECTION
- STAINLESS STEEL COVER PROTECT
- ANODIZED SCALE PROFILE

## OPERATIONAL MANUAL

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## 1. WARNINGS

1. Connections must be completed by only authorized personnel.
2. Consider the warnings when completing the connections and using the scale.
3. Pay attention about the sensors power supply. (For TTL sensor max. 5V, for Push-Pull sensor max. 30V). Don't energize the scale before all connections completed.
4. Distance between sensor and control unit must be short as possible.
5. Be away the sensor cable from high power cables, contactor, engine, or inductive and capacitive noise sources.
6. The screen cable must be connected to the earth line.
7. The magnetic tape must be away from magnetic areas.
8. Don't make any connection when the scale energized.
9. Please call the service for any problem about the scale.



## 2. GENERAL INFORMATION

The large forces required in metal forming operations can provoke machine deformation which in turn puts strain on the linear encoder. This strain will affect the performance of the linear encoder and may lead to a reduction of accuracy or repeatability in the forming operation. In order to solve this problem is designed the MLC 410 incremental linear encoder, especially for press brake applications.



Especially it is recommended for applications with a measuring length of up to 2040 mm in high speed and high vibration environments and small places. The special design of the mounting points minimizes curacy errors due to temperature changes. On the other hand, the MLC 410 series includes a special support that further improves it behavior against the vibrations caused by the machine.

The reader head of this linear encoder has a connector. The linear encoder is supplied as a pre assembled unit. The linear encoder and reader sensor are connected to the aluminum support and it can be connected directly to the machine.

### PRODUCT CODE

#### Magnetic Tape

B5  
B2

#### Power Supply and Output

**TTL** : 5VDC ± %5 Power Supply  
5 VDC TTL RS422 Line Driver Output  
**PP** : 24 VDC ± %20 Power Supply  
24 VDC Push-Pull Output  
**HTL** : 24 VDC ± %20 Power Supply  
5 VDC TTL RS422 Line Driver Output

#### Cable Length

**3M** : 3 Meters  
**5M** : 5 Meters  
**8M** : 8 Meters  
**10M**: 10 Meters  
\* Optional Between  
5m to 50m

#### Measuring Stroke

Optional, User Defined  
(Several Standard  
Lengths from 50mm to  
2.000 mm)

MLC410 - X X - X X - X X X - X - X X - X - X X X mm - X

#### Model

#### Resolution

01 : 1µm  
05 : 5µm  
10 : 10µm  
25 : 25µm  
62 : 62,5µm  
80 : 80µm  
100: 100µm

#### Signal Output Type

2 : A, B  
3 : A, B, Z  
4 : A, /A, B, /B  
6 : A, /A, B, /B, Z, /Z  
\* Optional One Z Reference  
Signal

#### Sensor Type

C : Cable  
S : Spiral

#### LEFT / RIGHT

L : Left  
R : Right

### 3. TECHNICAL SPECIFICATIONS

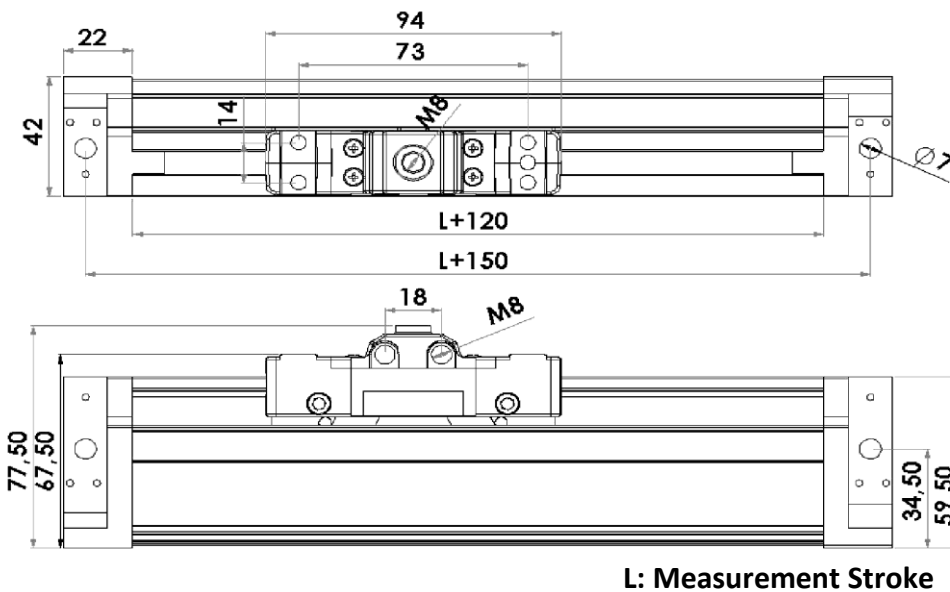
#### TECHNICAL

Operating Temperature	- 25 to 85 °C
Storage Temperature	- 40 to 100 °C
Protection Class	IP67
Body	Aluminum
Magnetic Tape	B5, B2
Tape Reading Distance	1,5 mm
Travel Velocity	3 m/s max.
Connection	D-Sub 9 Pin, 5 or 8 x 0,14 mm <sup>2</sup> screen cable
Accuracy	± 5 µm max
Repeatability	± 1 pulse

#### ELECTRICAL

Power Supply	5 Vdc, +10 Vdc...+30Vdc
Current	50 mA Nominal
Output	TTL, Push Pull Line Driver
Output Signals	A, /A, B, /B, Z, /Z
Output Current	100 mA max. (Every Channel)

#### MECHANICAL DIMENSIONS



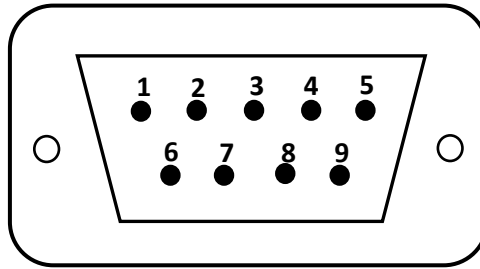
#### Measurement Strokes \*

100	120	150	170
200	220	250	270
300	320	350	370
400	420	450	470
500	520	550	570
600	650	700	750
800	850	900	950
1000	1100	1200	1300
1400	1500	1600	1700
1800	2000	3000	4000

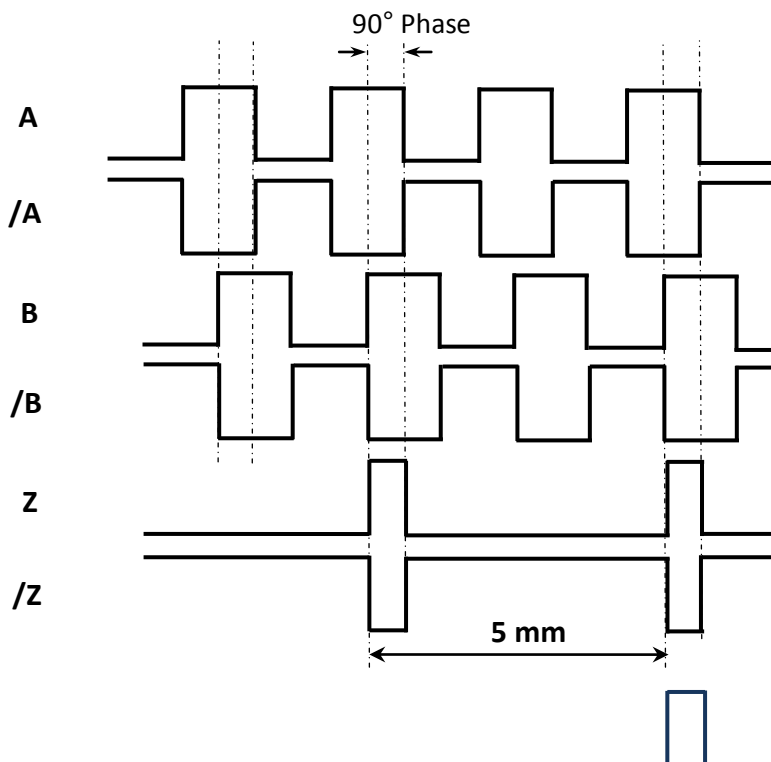
\* Possible between 100 mm to 4.880 mm

## 4. CONNECTIONS

### 4.1. Pin Connections



Pin Number	Cable Color	Signal
1	Yellow	A
2	White	/B
3	Red	POWER SUPPLY
4	Black	0 V
5	Blue	/A
6	Green	B
7	Grey	/Z
8	Pink	Z
9	Shield	GROUND

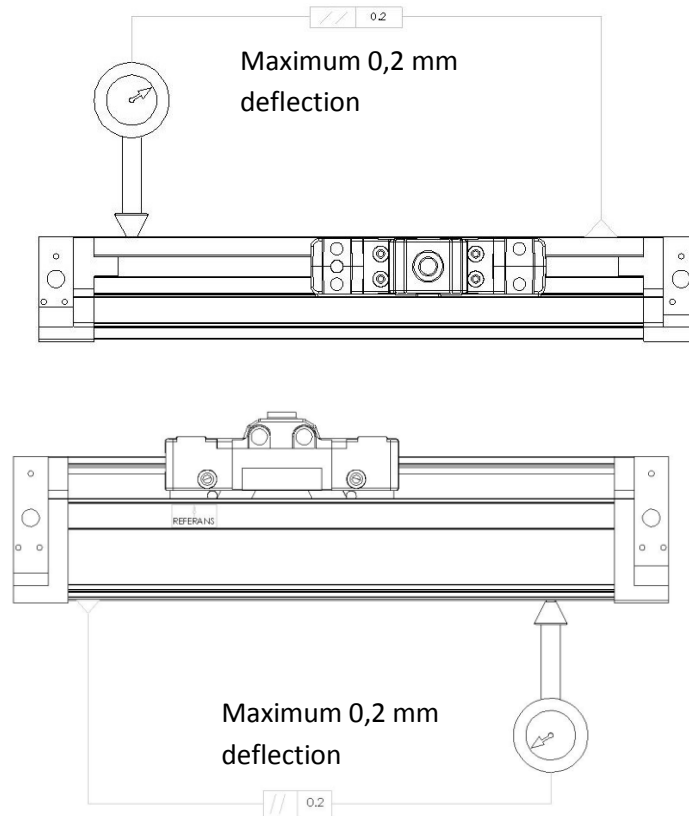


**Opsiyonel**  
Every 5 mm, Z Pulse

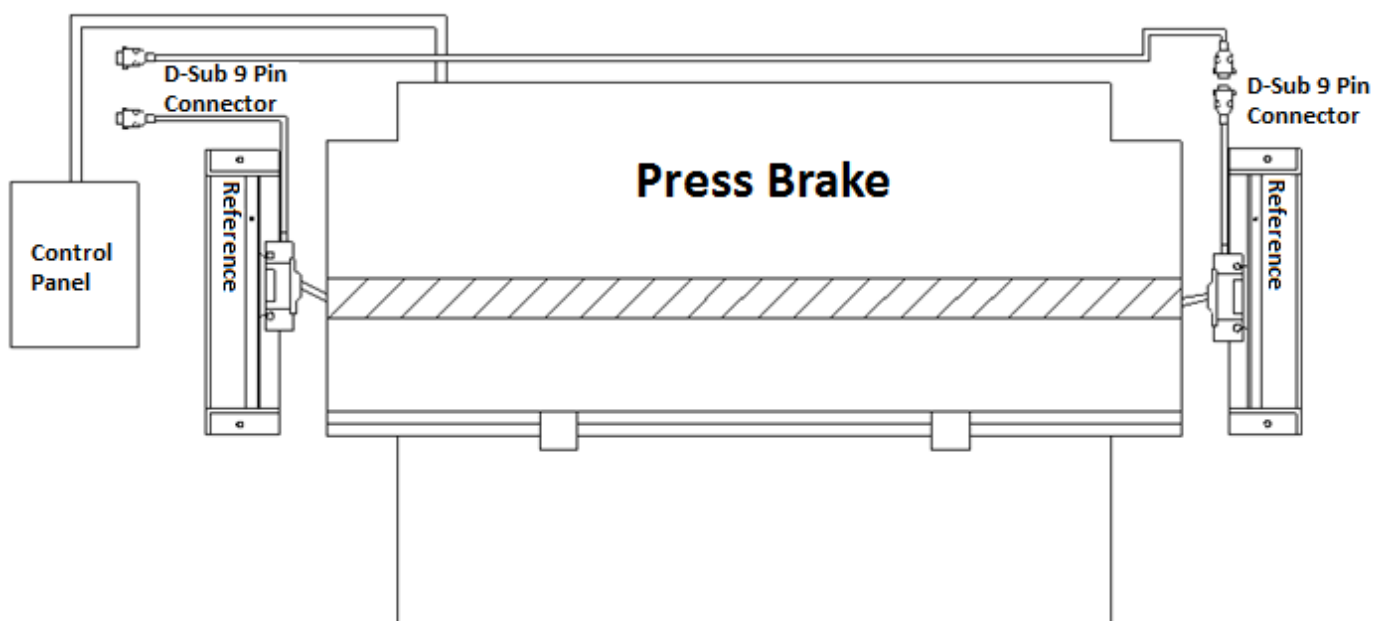
**Standard**  
One "Z" Reference Signal

## 4.2. Installing

The proper installation of MLC 410 is very important issue in terms of the system work properly. The proper installation is shown down. Up surface of the sensor must be down for negative factors. Reader sensor and profile must be parallel for all the stroke. Comparator must be used when installing the scale.



### EXAMPLE MLC 410 R&L (RIGHT AND LEFT) SENSOR APPLICATION





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