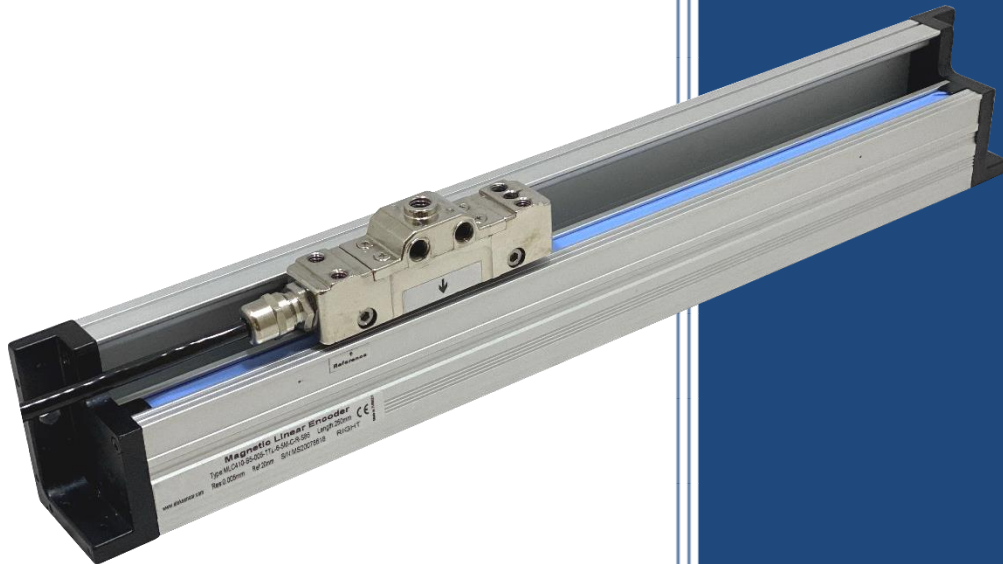


MLC 410

SELF ALIGNED SYSTEM

MAGNETIC LINEAR ENCODERS



- Self-bearing integrated ball system
- Magnetic measurement
- Contactless / non-friction system
- High tolerance to vibration and shocks
- Easy mounting with wide mounting tolerances
- Stroke up to 4 meters
- Resistant to dust, oil and moisture
- Robust aluminum body
- Excellent Stability
- IP67 Protection Class

OPERATIONAL MANUAL

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. Avoid additions except the suitable connector unless it needs.
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. The proximity of the band with comparator, magnet or similar instruments having a magnetic effect, disrupts the working structure of the band.
9. Don't make any connection when the scale energized.
10. Please call the service for any problem about the scale.
11. Transport and storage should be at their original packaging and an ambient temperature of -25°C / +85°C in such a way that they will not be exposed to dust, humidity, impact, vibration, falling or water.
12. Chemicals such as alcohol, thinner etc. should not be used for cleaning the product. The product should be wiped with a damp cloth.
13. The product may be damaged and may become unusable if used outside of the specifications in the user manual. In this case, the product will be out of warranty.



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

															Power Supply and Output			Cable Length						
															TTL : 5VDC Supply Voltage, 5 VDC TTL RS422 Line Driver Signal Output PP : 10...30 VDC Supply Voltage, 10...30 VDC Push-Pull Signal Output HTL : 10...30 VDC Supply Voltage, 5 VDC TTL RS422 Line Driver Signal Output HPL : 5...30 VDC Supply Voltage, 5...30 VDC Push-Pull Signal Output			3M : 3 meters 3.5M : 3,5 meters 4M : 4 meters 5M : 5 meters 6M : 6 meters 7M : 7 meters 8M : 8 meters 9M : 9 meters 10M : 10 meters 15M : 15 meters * Please ask for other options						
															Magnetic Tape			Measuring Stroke						
															B5			See standard stroke lengths table, contact for other stroke lengths.						
MLC410	-	X	X	-	X	X	-	X	X	X	-	X	-	X	X	-	X	-	X	X	X	mm	-	X
Model	Resolution											Signal Output Type			Sensor Type			LEFT / RIGHT						
	05 : 5µm 10 : 10µm 25 : 25µm 50 : 50µm 62 : 62,5µm 100: 100µm											2 : A, B 3 : A, B, Z 4 : A, /A, B, /B 6 : A, /A, B, /B, Z, /Z Standard: One Z Reference Signal Optional: Z Signal at every 5 mm			C : PUR Cable S : Spiral			L : Left R : Right						

3. TECHNICAL SPECIFICATIONS

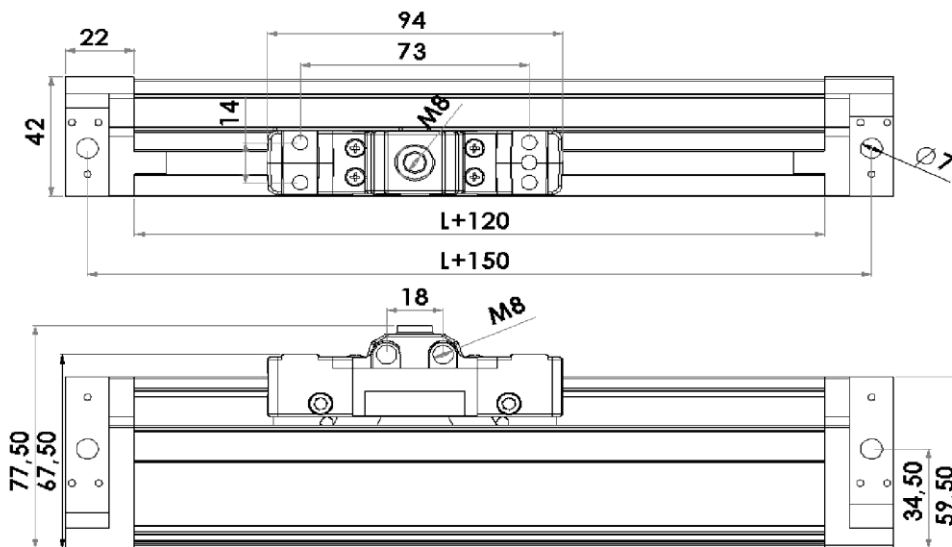
TECHNICAL

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

ELECTRICAL

Power Supply	5 Vdc, +10 Vdc...+30Vdc
Current	40 mA/per channel max.
Output	TTL, Push Pull Line Driver
Output Signals	A, /A, B, /B, Z, /Z
Output Current	40 mA/per channel max.

MECHANICAL DIMENSIONS



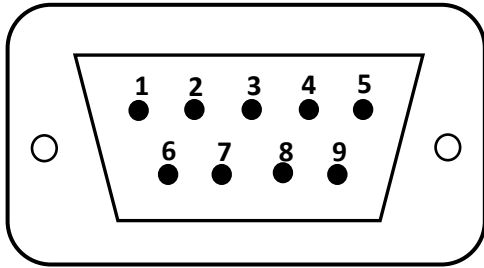
L: Measurement Stroke

Standard Measurement Strokes (L) *

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

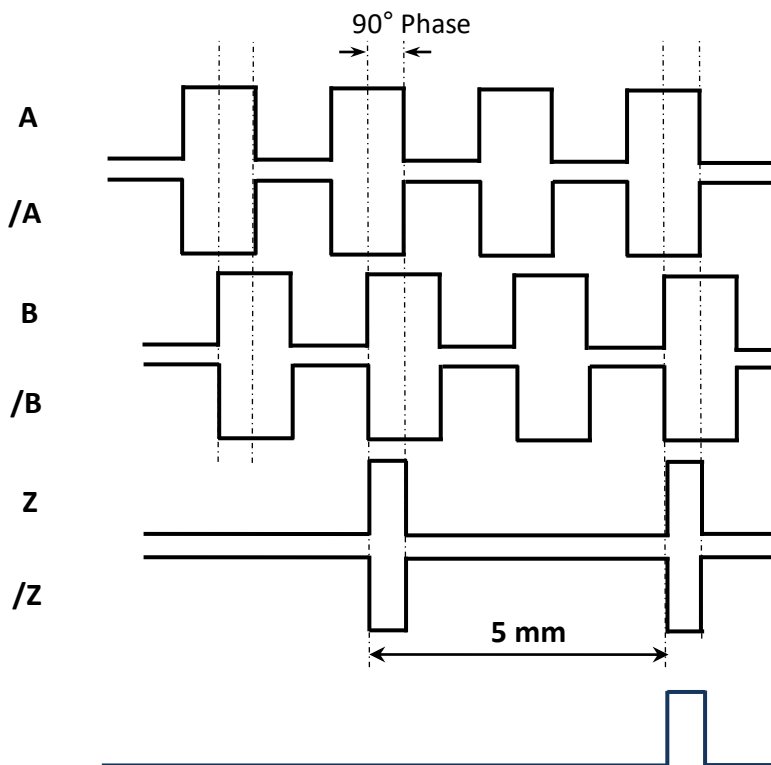
4. CONNECTIONS

4.1. Pin Connections



In the following table the cable colors of sensors output signals are given. If the control circuit is suitable in the Line Driver sensors of the not output signals (/A, /B, /Z) have to be added to the system. If it is not suitable /A, /B, /Z signal cables must be fixed as insulated separately. Don't forget that these edges have electricity too.

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

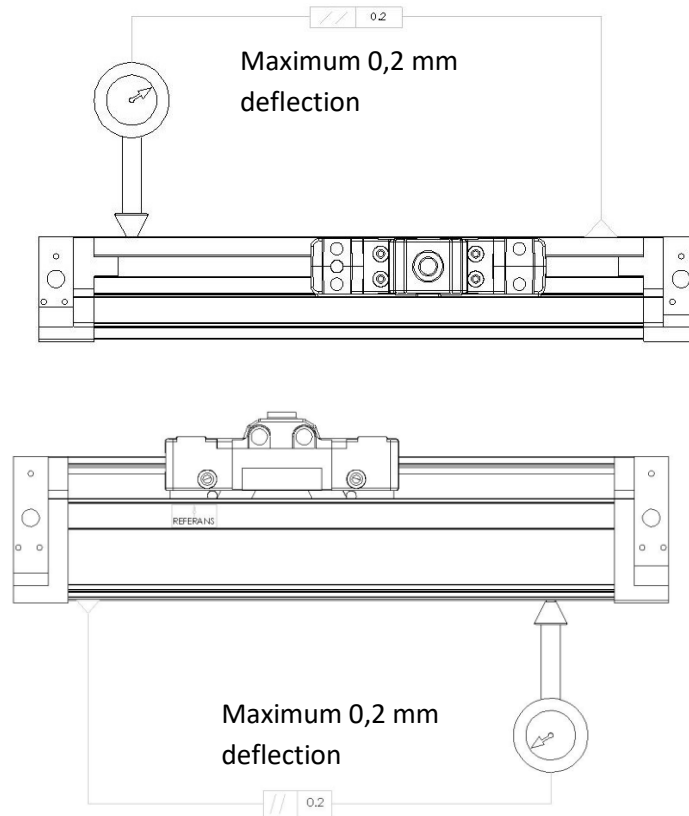


Optional
Every 5 mm, Z Pulse

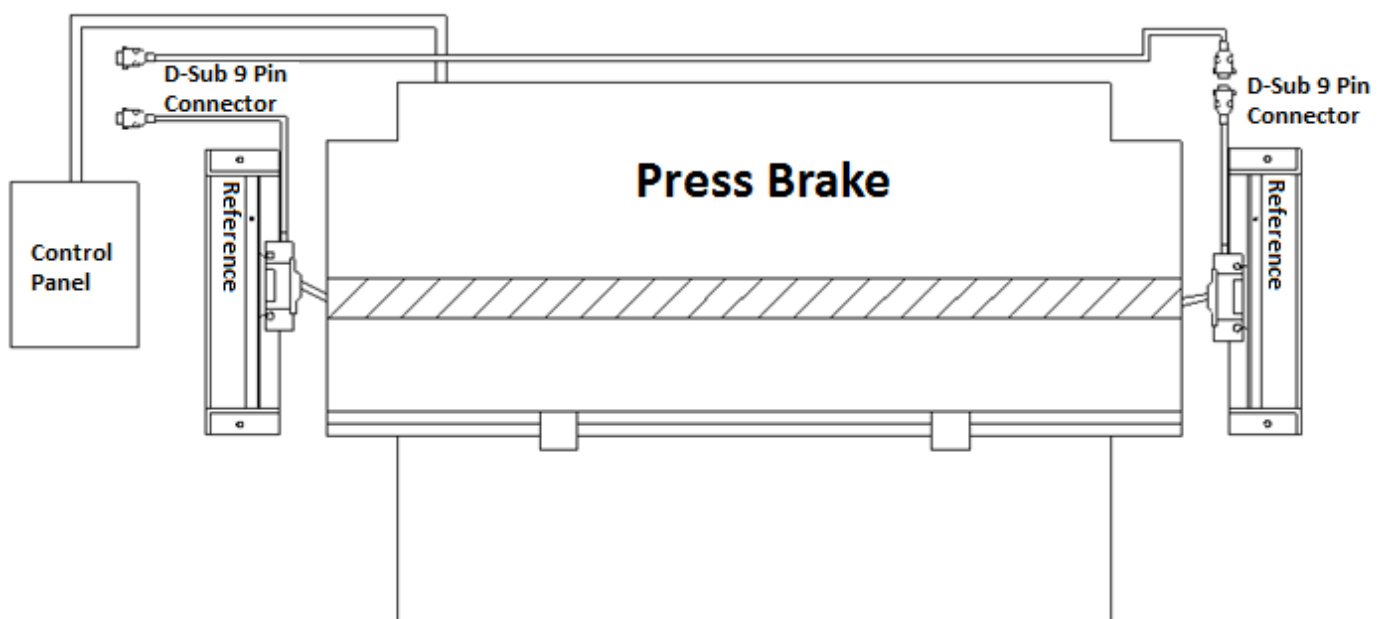
Standard
One "Z" Reference Signal
(for example; at the start point)

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



*Other Socket Connections

S41 Socket

Pin Number	Cable Color	Signal
1	RED	POWER SUPPLY
2	BLACK	GROUND
3	YELLOW	A
4	PINK	Z
5	GREEN	B
6	WHITE	/B
7	GREY	/Z
8	BLUE	/A
9	-	-

S87 Socket

Pin Number	Cable Color	Signal
1	-	-
2	RED	POWER SUPPLY
3	BLACK	GROUND
4	BLUE	/A
5	YELLOW	A
6	WHITE	/B
7	GREY	/Z
8	PINK	Z
9	GREEN	B

S86 Socket

Pin Number	Cable Color	Signal
1	PINK	Z
2	GREEN	B
3	YELLOW	A
4	-	-
5	BLACK	GROUND
6	GREY	/Z
7	WHITE	/B
8	BLUE	/A
9	RED	POWER SUPPLY

S71 Socket

Pin Number	Cable Color	Signal
1	BLACK	GROUND
2	BLUE	/A
3	WHITE	/B
4	GREY	/Z
5	RED	POWER SUPPLY
6	YELLOW	A
7	GREEN	B
8	PINK	Z
9	-	-

S50 ve S58 Socket

Pin Number	Cable Color	Signal
1	PINK	Z
2	GREY	/Z
3	RED	POWER SUPPLY
4	-	-
5	BLACK	GROUND
6	YELLOW	A
7	BLUE	/A
8	WHITE	/B
9	GREEN	B

S42 Socket (SINO CONNECTION)

Pin Number	Cable Color	Signal
1	BLUE	/A
2	BLACK	GROUND
3	WHITE	/B
4	-	-
5	GREY	/Z
6	YELLOW	A
7	RED	POWER SUPPLY
8	GREEN	B
9	PINK	Z


S57 Socket


Pin Number	Cable Color	Signal
1	YELLOW	A
2	BLUE	/A
3	-	-
4	PINK	Z
5	GREY	/Z
6	-	-
7	-	-
8	BLACK	GROUND
9	-	-
10	GREEN	B
11	WHITE	/B
12	-	-
13	-	-
14	-	-
15	RED	POWER SUPPLY


S43 Socket

Pin Number	Cable Color	Signal
1	YELLOW	A
2	BLUE	/A
3	GREEN	B
4	WHITE	/B
5	PINK	Z
6	GREY	/Z
7	-	-
8	-	-
9	RED	POWER SUPPLY
10	-	-
11	BLACK	GROUND
12	-	-
13	-	-
14	-	-
15	SHIELD	GND

ATEK ELEKTRONİK SENSÖR TEKNOLOJİLERİ SANAYİ VE TİCARET A.Ş.

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