

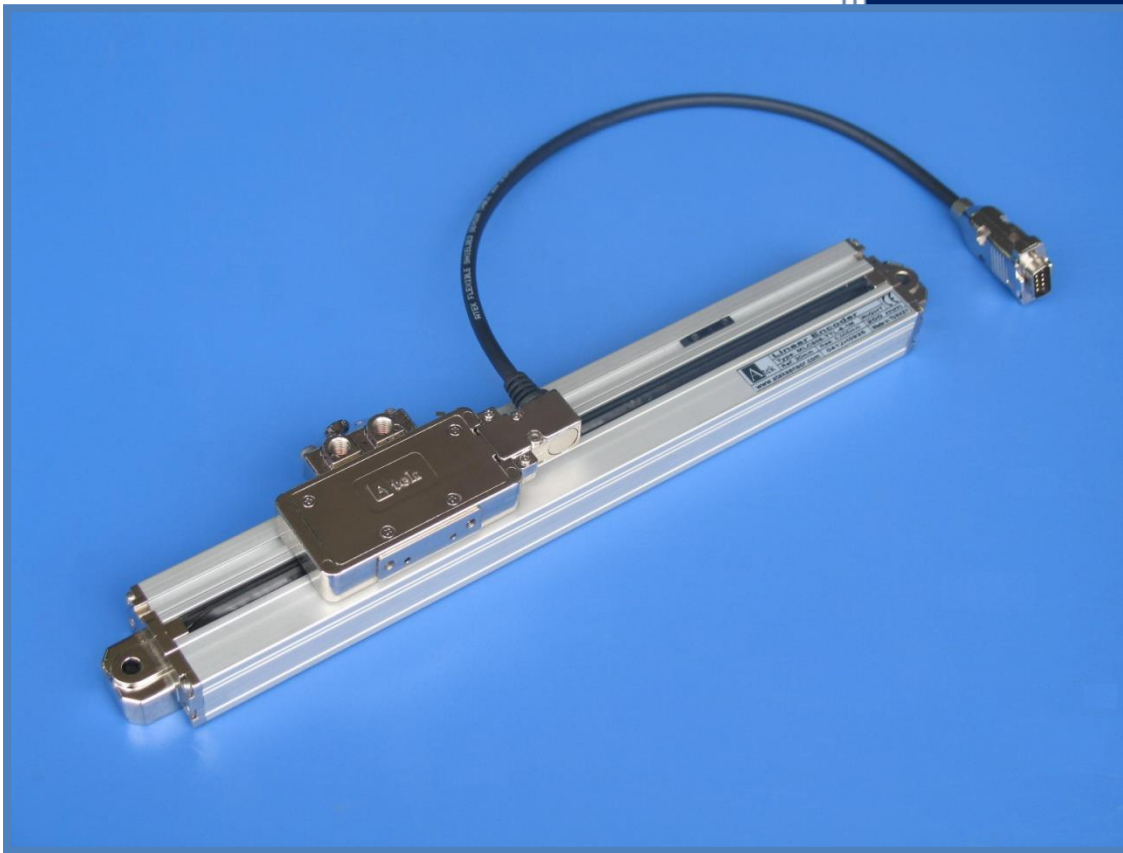


MLC 420

PORTABLE

REFERENCE POINT

MAGNETIC LINEAR SCALES



- NON-CONTACT BEARING INTEGRATED SYSTEM
- HIGH RESOLUTION THAT STARTS FROM 0,005 MM
- PORTABLE REFERENCE POINT
- HIGH PROTECTION AGAINST VIBRATION
- IP67 HIGH PROTECTION CLASS
- PERFECT STABILITY
- SOLID BODY STRUCTURE

OPERATION

MANUAL

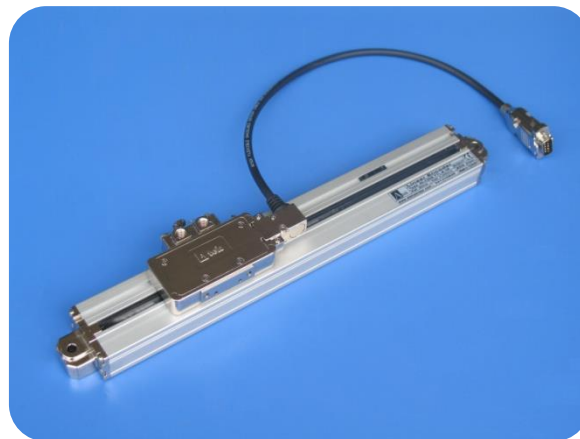
1. WARNINGS

1. Connection should be done by responsible personnel as security warnings should be taken in the accounted.
2. Follow the instructions and warnings in the operation manual during the connections and using stages.
3. Please be careful about the side of the supply and voltage in order not to damage the sensor (For TTL sensor max. 5V, for PPL sensor max. 30V) the energy should not be given without the whole connection be done.
4. The distance between sensor and control unit should be as short as possible. If it is not necessary, the add shouldn't be done without suitable connector.
5. Sensor cable should keep away from the inductive and capacitive noise sources like powerful energy cables and contactors, motor and switching power supply.
6. Sensor cables' braided (screening) bit must be connected to ground.
7. The magnetic band that is in reading should be keep away from all magnetic area.
8. Tape's operation structure is broken down when the comparators or the devices that has the similar magnetic effects approach to the close profile where the tape is located.
9. Make the scale connection without energy, never attend or remove the connections under the energy.
10. In the scale there is no part that can be changed by the user or repaired in any fault, under these circumstances please call the services.



2. GENERAL INFORMATION

These scales are used to achieve the best performance until the measurement up to 2040 in high speed and vibrotary area. Thanks to the it's montage point and design, the faults that are appear due to temperature variation are minimized. On the other hand, the all precautions that is caused by machine are taken. Thanks to the Ergonomic design , cable output don't block the scale and works in a stability.



Thanks to the reference point, the side of the MLC 420 that is send by production as a left or right can be changed by user.

PRODUCT CODE

	Magnetic tape		Power supply voltage and output	Cable lenght	Measuring distance																	
	B5 B2		TTL : 5VDC ± %5 power supply voltage 5 VDC TTL RS422 Line Driver signal output PP : 24 VDC ± %20 power supply voltage, 24 VDC Push-Pull Signal output HTL : 24 VDC ± %20 power supply voltage 5 VDC TTL RS422 Line Driver Signal output	3M : 3 Meter 5M : 5 Meter 8M : 8 Meter 10M: 10 Meter * between 5-50 meter optional	Optional, User-defined (between 50 – 2.000 mm)																	
MLC420	-	X	X	-	X	X	-	X	X	X	-	X	-	X	X	-	X	X	X	mm	-	X
Model			Resolution			Signal output type			Sensor/Cable Type			Right/Left										
			01 : 1µm 05 : 5µm 10 : 10µm 25 : 25µm 62 : 62,5µm 80 : 80µm 100: 100µm			2 : A, B 3 : A, B, Z 4 : A, /A, B, /B 6 : A, /A, B, /B, Z, /Z Standard, each 5mm Z Signal Optional, in the beginning point one Z reference signal			C : with cable S : with Spiral			L : left R : right										

3. TECHNICAL SPECIFICATION

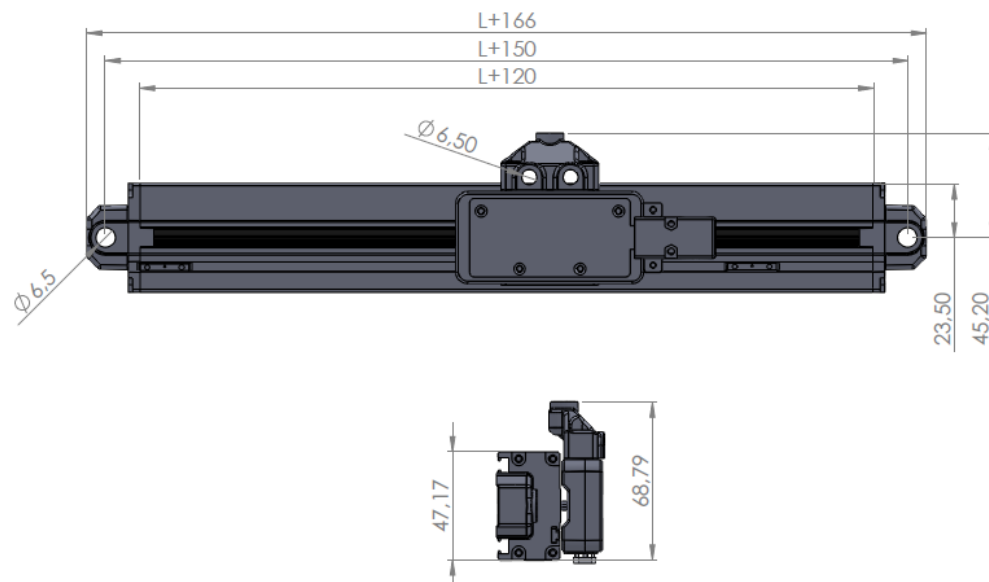
Technical Specification

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

ELEKTRICAL SPECIFICATIONS

Power Supply	5 Vdc, +10 Vdc...+30Vdc
Current Supply	50 mA Nominal
Output Type	TTL, Push Pull Line Driver
Output Signal	A, /A, B, /B, Z, /Z
Output Current	100 mA max. (EACH CHANNEL)
Immunity	EN-61000-6-2:2005

DIMENSIONS

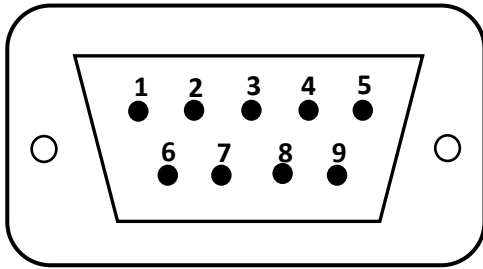


Standard Measuring Lengths *			
100	120	150	170
200	220	250	270
300	320	350	370
400	420	450	470
500	520	550	570
600	650	700	750
800	850	900	950
1000	1100	1200	1300
1400	1500	1600	1700
1800	2000	3000	4000

* measuring distances can be used until the 4.880 mm

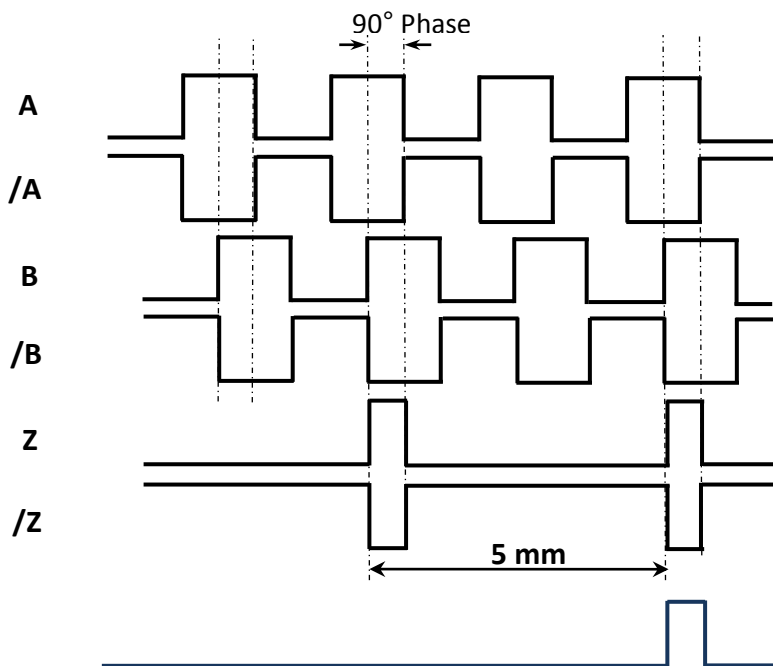
4. CONNECTION

4.1. Pin Connections



In the below table the cable color of the sensor output signals is given. If the control circuit is suitable in the Line Driver sensors the output signal inverts (/A, /B, /Z) must be included in the system. If the control circuit is not suitable for this application /A, /B, /Z signal cables must be immobilized separately isolated. Don't forget that there are also currents on these cables.

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

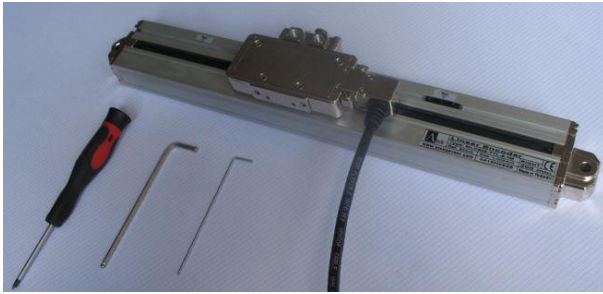


Optional
Each in 5 mm, Z Pulse

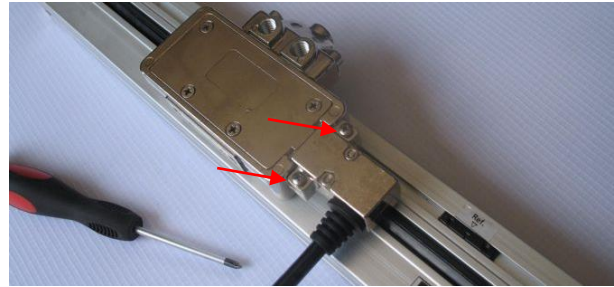
Standard
Only "Z" Reference Signal
(e.g. beginning point)

4.2. Reference Point Changing (Right/ Left Changing)

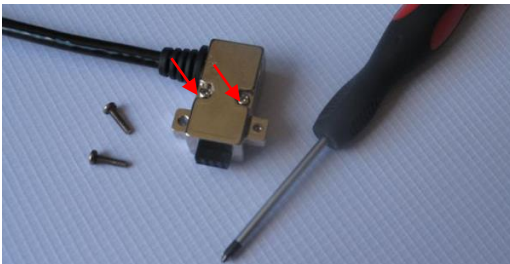
MLC 420, thanks to the movable reference point you can change the factory output directions. For example the scales which is produced as right side can be return to the left side scale.



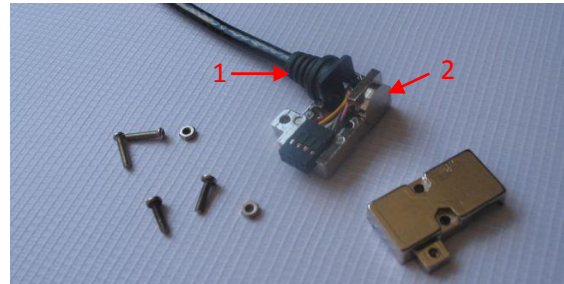
For this operation a phillips screwdriver, a 1,5 mm allen, a 3 mm allen are needed.



The connector is detached by phillips screwdriver.



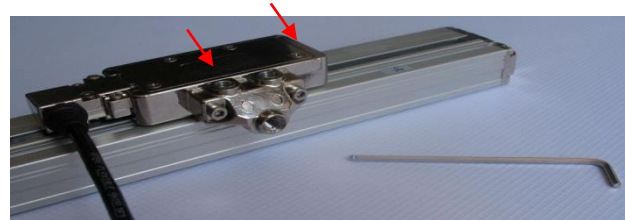
After detaching the connector open it by phillips screwdriver to change the cable direction..



Change the cable (1) and protection cover (2) places. And close the connector.



The connector is put on its place. The screws is closed again by Phillips screwdriver. Anymore the cablo is on the other side.



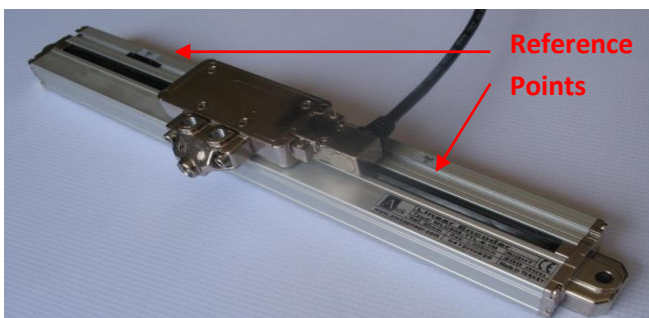
The set screw screwdrivers of top installation head are loosened with 3 mm allen and top connection head is removed.



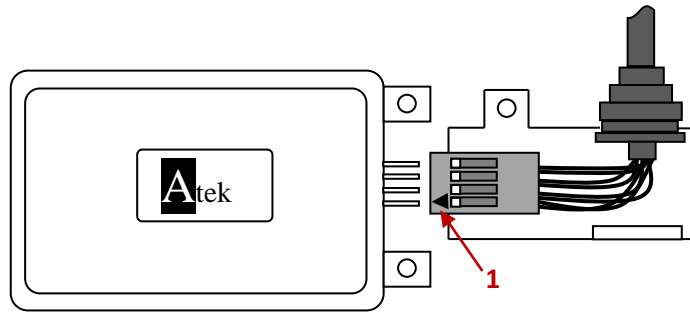
The top installation head that is removed is screwed to the sensor's other side with the help of the allen.



Reference determining's set screw screws are removed to change the reference point with 1,5 mm allen and drifted to the other reference point. Set screw are squeezed again.



Anymore MLC 420 can be used as a left scale.

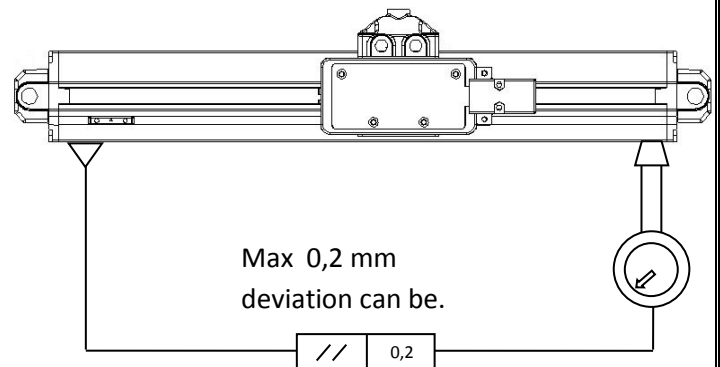
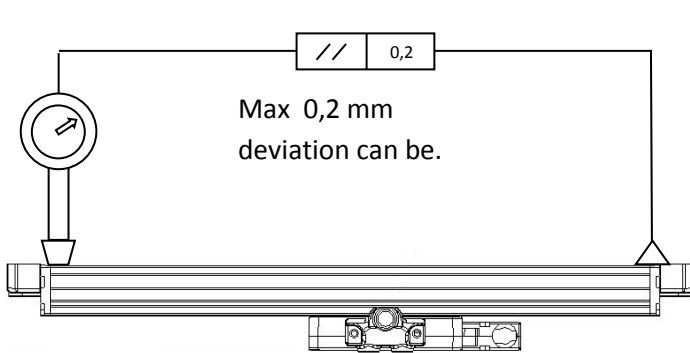


WARNING !!!

When you are changing the cable place, pay attention to the arrow (1) must be like the figure.

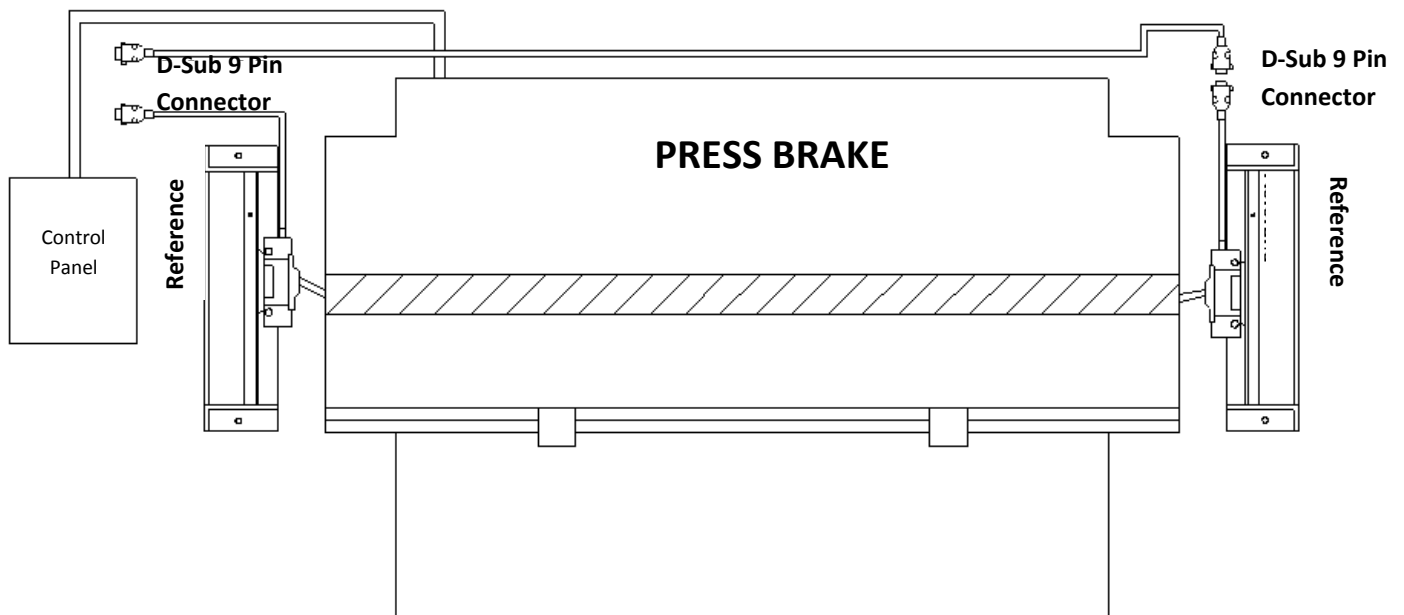
4.3. Montage

Installation the MLC 420 is an important point in terms of the proper system function. The reader head is bearded in the profile, the distance between the profile and reader head is constant. The parallelism between the reader head and profile should stay same during the whole distances. The scale and reader head body should be set with the proper equipments like comparator during the montage stage.



KEEP AWAY FROM THE STRONG MAGNETIC AREA

EXAMPLE OF THE MLC 420 R&L (RIGHT AND LEFT) SENSOR APPLICATION







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