

# POSITION CONTROL SENSORS and MEASUREMENT INSTRUMENT

Magnetic Linear Encoders Systems

Optical Linear Encoder Systems

Potentiometric Linear Scales

Measuring Control Instruments

Pressure Transmitters

Melt Pressure Transmitters

Rotary Encoders

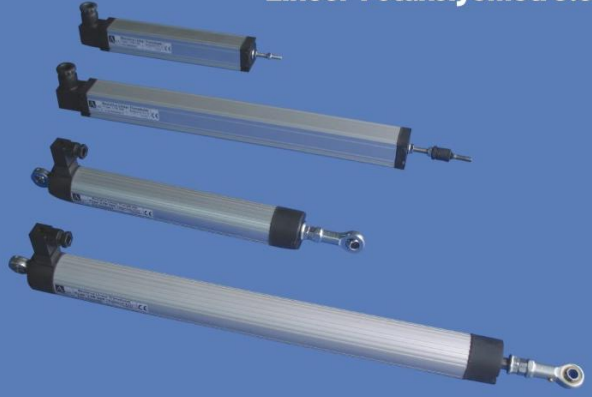
Digital Readout Systems

Couplings

**Lineer Encoderlar**



**Lineer Potansiyometreler**



**Rotary Encoderlar**



**Basınç Transmitterleri**



**Optik ve Manyetik Lineer Cetveller**



**Dijital Ölçü ve Kontrol Cihazları**



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## INNOVATIVE SOLUTIONS from ATEK SENSOR

The MRS (Magnetic Rotary System) is developed to enable precise arc and angle measurements on the circumference of a rotating circular object, e.g. rotary tables. In contrary to the classical measurement systems utilizing rotary encoders, MRS is free from measurement uncertainties caused by the angular deviations at the circumference as the diameter of the table gets larger. MRS is easy to install, simple to use. The system comprises magnetic tape, twin sensors, a controller with a display and accessories for installation. The system works contactless, thus free from any mechanical wear and vibrations or jamming.

## MRS – MAGNETIC ROTARY SYSTEM



### SPECIAL FEATURES

- High degree of reliability
- Angle Measuring
- High Durability
- High Accuracy with double Sensor
- Magnetic measuring process
- Clockwise / Anticlockwise Inkremental Measur
- Various diameters  
100mm – 10.000mm

**MRS Series are mainly used in ;**

- Indexing Table
- Testing Machines
- Printing Machinery
- Telescopes
- Wind and Solar Panel Systems
- All Angle Process

## Potentiometric Linear Transducers

LTM	( Body Clamp Mounting )	4
LTP	( Twin bearing actuating rod )	5
LTC	( Square body Twin bearing actuating rod )	6

## Magnetic Linear Encoders

MLS1	( Reader Sensor )	8 - 9
B5 Magnetic Tape		
MLS2	( Reader Sensor + PS2 Profile )	10
MLS3	( Sensor Head in slide carrier with sealed high aluminium profile)	11
MLS4	( Self-Aligned System )	12
LTS	( Twin-bearing Magnetic Linear Incremental Position Sensors )	7

## Rotary Encoders & Couplings

ARS5 Series	( Magnetic System 50mm body )	13
HT and HC Series	( Helical & Aluminium Body )	13

## DRO – Digital ReadOut Systems

ALS	( Optical Linear Scales )	14-15
ALS4 Series ( 50mm – 450mm )		
ALS5 Series ( 150mm – 1000mm )		
ALS6 Series ( 1100mm – 12000mm )		
ADR10 Digital Readout Display		16

## Measurement Instruments

ALC Series Digital Counters		17
ALC44C Up / Down Counter	48 x 48mm	
ALC77C Up / Down Counter	72 x 72mm	
ALC77B Batch Counter	72 x 72mm	
ALC77T Tachometer	72 x 72mm	
ALC94UNI Universal Counter	96 x 48mm	
ALP Series Analog Input		18
ALP44 P Potentiometric	48 x 48mm	
ALP44 A 4-20mA Input	48 x 48mm	
ALP44 V 0-10VDC Input	48 x 48mm	
ALP77 P Potentiometric	72 x 72mm	
ALP77 A 4-20mA Input	72 x 72mm	
ALP77 V 0-10VDC Input	72 x 72mm	
ALP94UNI Universal	96 x 48mm	

## Pressure Transmitters

BT210	Industrial Series ( 0-10VDC or 4-20mA )	19
BT214	Industrial Series ( 0-10VDC or 4-20mA )	19

## Melt Pressure / Temperature Transmitters

MPT4B	Rigid Stem ( Analog Out 0-10VDC , 4-20mA , 3,33mV/V )	19
BT214	Flexible Stem ( Analog Out 0-10VDC , 4-20mA , 3,33mV/V )	19

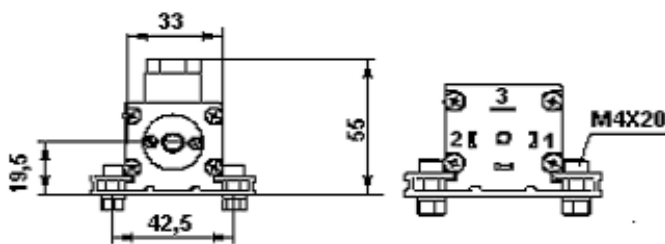


LTM is a high precision potentiometric industrial linear motion transducer with a long lasting conductive track suitable for absolute position measuring in control and Measurement applications. Designed for the direct, absolute measurement of displacement or length in control regulation and measuring applications.

High resolution (0.01 mm) combined with a stroke length of up to 1000 mm permits the accurate measurement of linear displacement.

**LTM Series Potentiometric Linear Transducers are mainly used in ;**

- Press brake Machines
- Horizontal Band Saw Machines
- Transfer Machines
- Hydraulic Machines
- Sheet metal working machines
- Bending presses
- Plastic & Metal Injection Machines
- Textile Machines
- Robotics/materials handling
- Profile Cutting Machines
- CNC Pipe Twisting Machines



Type	Stroke (mm)	Type	Stroke (mm)	Type	Stroke (mm)
L T M	50	L T M	250	L T M	600
L T M	75	L T M	275	L T M	650
L T M	100	L T M	300	L T M	700
L T M	125	L T M	360	L T M	750
L T M	150	L T M	400	L T M	800
L T M	175	L T M	450	L T M	900
L T M	200	L T M	500	L T M	1000
L T M	225	L T M	550		

## SPECIAL FEATURES

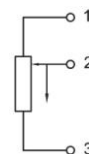
- Potentiometric measuring stroke up to 1000 mm
- Resolution 0,01mm
- Very long life up to 100 million movements
- High operating speed 5 m/s
- The grooves provide an excellent alternative to the usual system of
- Excellent Linearity
- Pivoting sleeve bearing
- Optional rod joint

## Technical Specifications

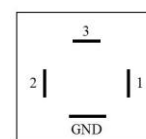
Resistance Element	Conductive plastic
Defined electrical range	50mm to 1000mm
Mechanical Fixing	Clamps
Independent Linearity	0.2 %
Rod Material	Stainless Steel
Temperature Range	-30...+100 °C
Operating Speed	5 m/s max.
Mechanical Life	100 million movements
Resistance $\pm 20\%$	5 or 10 KOhm
Maximum Input Voltage	42 V ( Only LTM Series)
Power Supply ( V and A Series )	24VDC
Protection Class	IP 65
Vibration	10 g

## LTM Series

- LTM Series : Potentiometric  
 LTM – V Series : 0...10VDC Analog Output  
 LTM – A Series : 4...20mA Analog Output



POTENTIOMETRIC



ANALOG OUTPUTS

1. +24VDC Supply
2. Analog Output
3. 4...20mA Current Out
4. 0...10VDC Voltage Out
5. GND
6. SHEILD

## Included in Delivery

- 1 Connector / 4 pin Socket
- 2 Quantity Fixing Clamps
- 4 Quantity Screw

## Recommended accessories

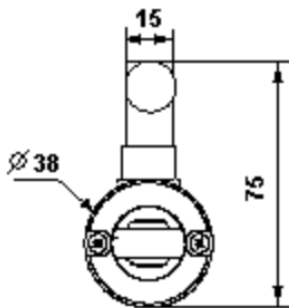
- Pivot head
- Process-controlled indicators
- ALP... with display Signal



LTP is a high precision potentiometric industrial linear motion transducer with a long lasting conductive track suitable for absolute position measuring in control and Measurement applications. Mountable over back-lash free pivot heads angle of free movement. Mechanical fixing and self-aligning linkage using 2 ball-joints. Maximum angular movement angle is up to  $\pm 30^\circ$

LTP Series Potentiometric Linear Transducers are mainly used in ;

- Press brake Machines
- Horizontal Band Saw Machines
- Transfer Machines
- Hydraulic Machines
- Sheet metal working machines
- Bending presses
- Plastic & Metal Injection Machines
- Textile Machines
- Robotics/materials handling
- Profile Cutting Machines
- CNC Pipe Twisting Machines
- Tention Control
- Marble Machines



Type	Stroke (mm)	Type	Stroke (mm)	Type	Stroke (mm)
LTP	50	LTP	250	LTP	600
LTP	75	LTP	275	LTP	650
LTP	100	LTP	300	LTP	700
LTP	125	LTP	360	LTP	750
LTP	150	LTP	400		
LTP	175	LTP	450		
LTP	200	LTP	500		
LTP	225	LTP	550		

Other lenghts on request

## SPECIAL FEATURES

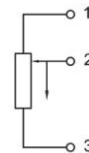
- Potentiometric measuring stroke up to 750 mm
- Twin bearing actuating rod
- Mountable over back-lash free angle of free movement pivot heads  
Max. movement up to  $\pm 30^\circ$
- Very long life up to 100 million movements
- Protection Class IP 65
- High operating speed 5 m/s
- Excellent Linearity
- The grooves provide an excellent alternative to the usual system of

## Technical Specifications

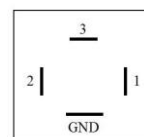
Resistance Element	Conductive plastic
Defined electrical range	50mm to 750mm
Mechanical Fixing	2 ball-joints
Independent Linearity	0.2 %
Rod Material	Stainless Steel
Temperature Range	-30...+100 °C
Operating Speed	5 m/s max.
Mechanical Life	100 million movements
Resistance $\pm 20\%$	5 or 10 KOhm
Maximum Input Voltage	42 V ( Only LTM Series)
Power Supply ( V and A Series )	24VDC
Protection Class	IP 65
Vibration	10 g

## LTP Series

LTP Series : Potentiometric  
LTP – V Series : 0...10VDC Analog Output  
LTP – A Series : 4...20mA Analog Output



POTENTIOMETRIC



ANALOG OUTPUTS

1. +24VDC Supply
2. Analog Output
3. 4...20mA Current Out
4. 0...10VDC Voltage Out
5. GND
6. SHEILD

## Included in Delivery

1 Connector / 4 pin Socket

## Recommended accessories

Process-controlled indicators  
ALP... with display Signal





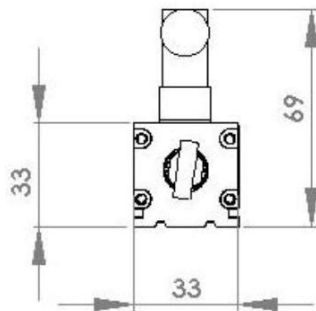
LTC is a high precision potentiometric industrial linear motion transducer with a long lasting conductive track suitable for absolute position measuring in control and Measurement applications.

Mountable over back-lash free pivot heads angle of free movement. Mechanical fixing and self-aligning linkage using 2 ball-joints. Maximum angular movement angle is up to  $\pm 30^\circ$

High resolution (0.01 mm) combined with a stroke length of up to 500 mm permits the accurate measurement of linear displacement.

**LTC Series Potentiometric Linear Transducers are mainly used in ;**

- Press brake Machines
- Horizontal Band Saw Machines
- Transfer Machines
- Hydraulic Machines
- Sheet metal working machines
- Bending presses
- Plastic & Metal Injection Machines
- Textile Machines
- Robotics/materials handling
- Profile Cutting Machines
- CNC Pipe Twisting Machines



Type	Stroke (mm)	Type	Stroke (mm)
L T M	50	L T M	250
L T M	75	L T M	275
L T M	100	L T M	300
L T M	125	L T M	360
L T M	150	L T M	400
L T M	175	L T M	450
L T M	200	L T M	500
L T M	225		

Other lengths on request

## LTC SPECIAL FEATURES

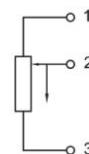
- Stroke up to 500 mm
- Potentiometric or Analog Outputs  
0...10VDC or 4...20mA
- Resolution 0,01mm
- Very long life up to 100 million movements
- Protection Class IP 65
- High operating speed 5 m/s
- Excellent Linearity
- Max. angular movement up to  $\pm 30^\circ$
- Mechanical fixing and self-aligning linkage using 2 ball-joints

## Technical Specifications

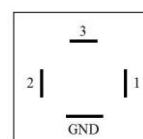
Resistance Element	Conductive plastic
Defined electrical range	50mm to 500mm
Mechanical Fixing	2 ball-joints
Independent Linearity	0.2 %
Rod Material	Stainless Steel
Temperature Range	-30...+100 °C
Operating Speed	5 m/s max.
Mechanical Life	100 million movements
Resistance $\pm 20\%$	5 or 10 KOhm
Maximum Input Voltage	42 V ( Only LTM Series)
Power Supply ( V and A Series )	24VDC
Protection Class	IP 65
Vibration	10 g

## LTC Series

- LTC Series : Potentiometric  
LTC – V Series : 0...10VDC Analog Output  
LTC – A Series : 4...20mA Analog Output



POTENTIOMETRIC



ANALOG OUTPUTS

1. +24VDC Supply
2. Analog Output  
4...20mA Current Out  
0...10VDC Voltage Out
3. GND
4. SHEILD

## Included in Delivery

1 Connector / 4 pin Socket

## Recommended accessories

Process-controlled indicators  
ALP... with display Signal

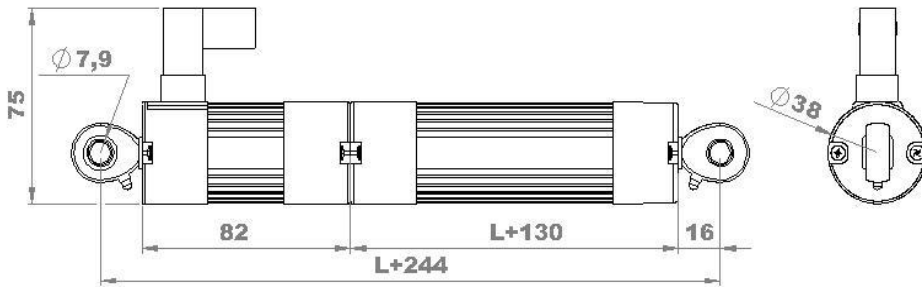


### Features

- Stroke up to 750 mm
- Encoder Signal Outputs
- A , B Signals
- Non Contacting Incremental System
- Resolution 0,005mm - 0,010 mm – 0,025mm or 0,080
- Protection Class IP 65
- High operating speed 5 m/s
- Max. angular movement up to  $\pm 30^\circ$
- Mechanical fixing and self-aligning linkage using 2 ball-joints

### Technical Specifications

Stroke	50mm to 750mm
Resolution Types	5 , 10 , 25 , 62,5 or 80 micron
Output Signals	Standart A , B Channel
Output Circuit	Push Pull ( PPL ) yada TTL RS422 Line Driver
Power Supply	5VDC or 24 VDC
Mechanical Life	Infinite
Mechanical fixing	Twin bearing 2 ball-joints .
Protection class	IP67
Repeatability %	<0.01



## Model No

LTS

### Output Signals

2 = A, B

### Stroke = Lengths

50 = 50 mm

300 = 300 mm

750 = 750 mm

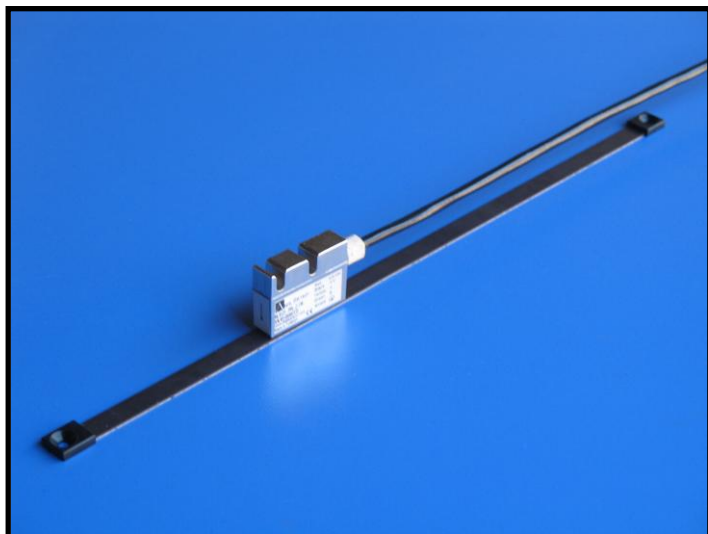
**L T S - 8 0 - P P L - 2 - 1 0 0**

### Resolution

05 = 5  $\mu$ m  
 10 = 10  $\mu$ m  
 25 = 25  $\mu$ m  
 62 = 62,5  $\mu$ m  
 80 = 80  $\mu$ m

### Power Supply and Output

PPL : 24 VDC  $\pm$ 20% Power Supply  
 : 24 VDC Push-Pull Output  
 TTL : 5 VDC  $\pm$ 5% Power Supply  
 : 5 VDC TTL RS422 Line Driver Output  
 Option : 24 VDC  $\pm$ 20% Power Supply  
 : 5 VDC TTL RS422 Line Driver Output  
 Please on request !



### SPECIAL FEATURES

- High resolution up to 0,001 mm resolution
- Sturdy metal case
- Best technology in compact dimensions
- Shielded metal enclosure
- Easy mounting by gluing
- Contact-less and wear free system
- High resistance to vibrations
- Protection class IP67
- Resistant to humidity
- High accuracy
- Reliability reading transducer
- Measuring lengths of up to 100 m.
- Connection cable up to 20 m.

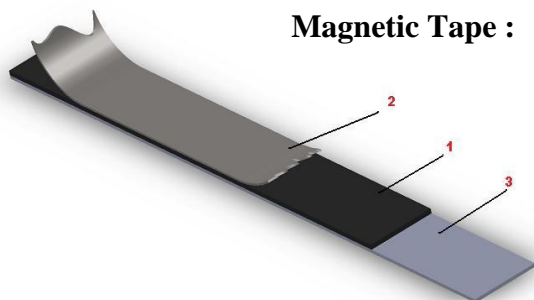
### MLS-1 Magnetic Linear Encoder Systems:

The purpose of these sensors is to measure linear displacements on industrial machines & automation systems. High precision Magnetic Linear Encoder MLS-1 System operates with incremental principle. It consists of a sensing head and a magnetically encoded tape. Magnetic tapes are commonly made from a magnetic tape itself made from Strontium ferrite merged into a plastic or rubber (elastomer) matrix which is then bonded onto a steel support. The sensing head glides over the tape, with a gap up to 2,5 mm. Thus, since the system works on the principle of magnetism, in contrary optical systems it is highly immune to contamination from oils, dust etc. The tape has alternating magnetic north/south poles at a certain distance called the pole pitch. As the sensor is moved along the magnetic tape it detects the displacement and produces an output signal equivalent to that of an incremental encoder or a linear scale. Resolution is up to 1  $\mu$ m. Distance (gaps) of up to 2,5 mm (approx. 50 % of the pole width) above the magnetic tape are permitted. Also, accuracy classes of  $\pm 5 \mu$ m is achieved. These properties make it ideal for use in harsh, dusty industrial environments such as wood industry.

#### MLS1 Sensor HEAD Technical Specifications

Resolution Types	5 $\mu$ m , 10 $\mu$ m , 25 $\mu$ m and 62,5 $\mu$ m or on request
Output Circuit	Push-Pull or TLL RS 422 Line Driver
Output Signals	A, /A, B, /B, Z, /Z
Input Current	Max. 40mA per channel
Power Supply	10...30VDC $\pm$ %20 or 5VDC $\pm$ %5
Dimension	See drawing
Housing Material	Aluminium
Connections	Up to 100m cable length on request
Gap between tape and sensor	Up to 2.5mm ( Depend on pole pitch )
Travel Velocity	3 m/s
Magnetic Tape Type	B5 nitrile rubber temperature magnetic tape
Measure Accuracy	See Magnetic Tape
Repetability	$\pm 1$ Increment
Operating temperature range	-25...+85°
Protection Class	IP67

### Magnetic Tape :



The magnetic band is supplied with a non-magnetic stainless steel cover for physical protection; for its fixing an adhesive tape is pre-mounted.

As shown above, the B5 magnetic tape is composed by three layers:

#### B5 Magnetic Tape Specifications

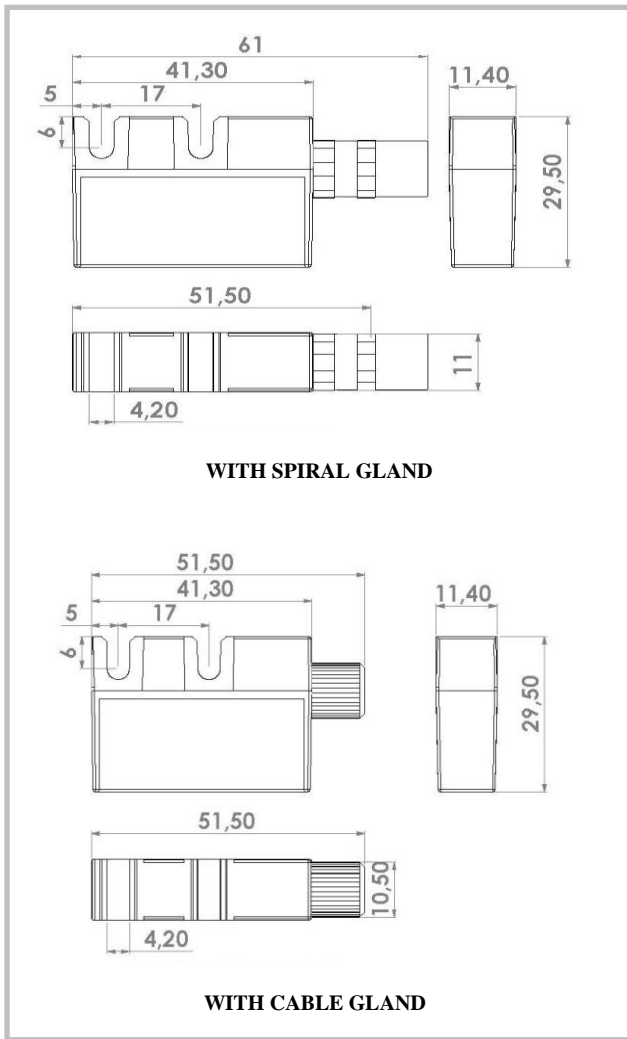
Operating temperature	-40°C to +120°C
Polar Pitch	5 mm , 2mm
Accuracy Class	$\pm 50 \mu$ m /m
Temperature coefficient	11 $\pm 1 \mu$ m /K
Storage temperature	-40°C to +120°C
Water Protection	CrNi 17 7 stainless steel carrier nitrile rubber high temperature magnetic tape

1 - A flexible magnetic tape made of plastic material ( Resistant to debris, liquids and oils )

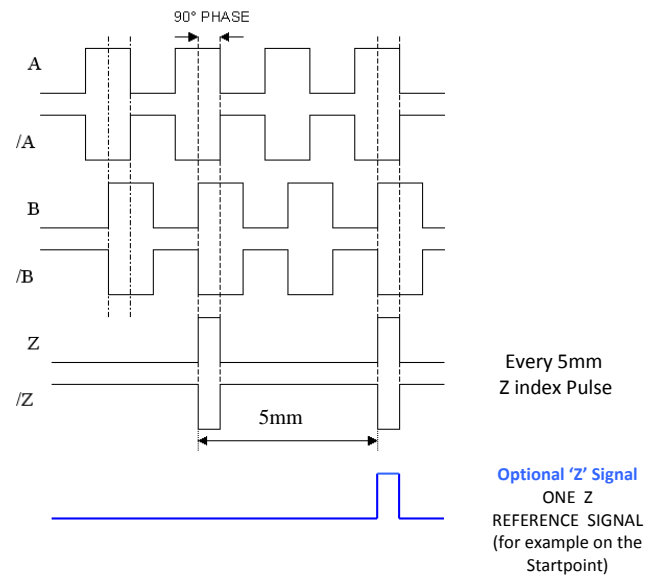
2 – Cover Strip ( Upside ) :A magnetised steel tape used to create a shield against any external magnetic disturb. Although, it's glued to the upper plastic layer in order to supply the correct mechanical consistency to the magnetic tape.

3 - Cover Strip ( Downside ) The third part is the most rigid one and therefore is supplied separately due to transport and application needs. It must be stick to layer 1 by the user. The steel tape is magnetically neutral and employed to mechanically protect the magnetic tape.





Signal Name	Cable Colour	Conn. D-sub, (9 pin) Pin no.
A	YELLOW	1
/B	WHITE	2
5V or 24V	RED	3
0 V	BLACK	4
/A	BLUE	5
B	GREEN	6
/Z	GRAY	7
Z	PINK	8
GROUND	SHIELD	9



## ORDER SPECIFICATIONS

Model No

### Resolution

01	= 1 µm
05	= 5 µm
10	= 10 µm
25	= 25 µm
62	= 62,5µm

### Signal Output Type

2	= A, B
3	= A, B, Z
4	= A, /A, B, /B
6	= A, /A, B, /B, Z, /Z

Z-Signal: Standart = every 5mm  
\* Optional = One Z reference signal

M L S 1

0 5

T T L

4

5 M

### Power Supply and Output

PPL	: 24 VDC ±20 Power Supply
	: 24 VDC Push-Pull Output
TTL	: 5 VDC ±5 Power Supply
	: 5 VDC TTL RS422 Line Driver Output
Option	: 24 VDC ±20 Power Supply
	: 5 VDC TTL RS422 Line Driver Output
	Please on request !

### Cable Length

3M	= 3M
5M	= 5M
8M	= 8M
10M	= 10M

\* optional  
between 5M to 50M



And Ordering the required lenght of the B5 Magnetic Tape ( For Example : 1200mm B5 Magnetic Tap )



### SPECIAL FEATURES

- High resolution up to 0.001 mm
- Use with MLS1 Sensor Head
- Tape in flat and rugged aluminum profile
- Stainless steel cover protect
- Best technology in small dimensions
- Shielded metal enclosure
- Easy mounting
- Contact-less and wear free system
- High resistance to vibrations to knocks
- Protection class IP67
- Resistant to humidity
- High accuracy
- Reliability reading transducer
- Measuring lengths of up to 100 m.
- Connection cable up to 20 m.

### MLS-2 Magnetic Linear Encoder Profile System:

The MLS-2 Magnetic Linear Encoder Profile System consist of an unguided MLS1 sensor head and B5 magnetic measuring tape in PS2 Aluminium Profile System. They are incremental systems without contact for linear measures. The highly rugged, flexible plastic magnetic tape is applied to a metal support profile. With a special industrial adhesive layered strip, B5 Magnetic Tape is attached to the outside of the profile system. A sturdy stainless steel sheet cover is available for additional protection. Shock-proof, PS2 Profile System (aluminium case for the model **MLS-2**) can be used in many applications easily.

#### Function of the aluminium carrier:

1. Guaranteeing mechanical stability. Thermal expansion is determined by expansion of the steel carrier. This results in optimal adaption for use in machines made from a steel construction.
2. Providing magnetic closing for the magnetic system consisting of the individual poles and the ferromagnetic backing itself. Applying a ferric steel carrier results in up to 30% higher magnetic field. Special care was taken to find the optimum stainless steel alloy for our standard tape.

The MLS-2 Magnetic Linear Encoder Profile Systems are incremental systems without contact for linear measures. The capacity to measure distances longer than a meter, easy assembling, absence of parts that contact/rub, a waterproof transducer and a water-oil-dust-shaving resistant strip make this system suitable for a large number of applications, while taking position measurements of machinery within industries such as: machine tools, automatic-, wood-, marble-, glassworking machinery, etc. The measure transducer integrates in the same device, a sensor sensitive to a magnetic field, an electronic signals conversion circuit, and an output circuit. The sensor running on the magnetic tape produces a signal which, opportunely amplified and worked out, is changed into an incremental position signal for interfacing with displays, PLC, CNC, axes control, etc.

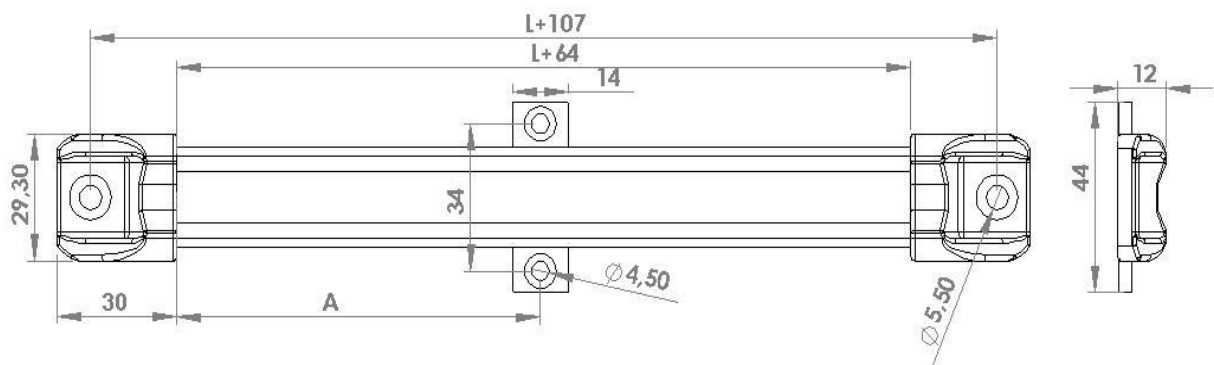


- Masking tape inside Aluminium
- Resistant to moisture and many fluids
- Extensive ruggedness against dust etc.
- The highly rugged, flexible

The highly rugged, flexible plastic magnetic tape can be applied to a machine tool easily. With a special industrial adhesive layered strip, B5 Magnetic Tape can be attached to the outside of the profile system.

The magnetic material is magnetised in defined and even distances and works as a solid measure. The magnetic scale retains its firmness by means of a spring steel base.

### P2 PROFILE MECHANICAL DIMENSION





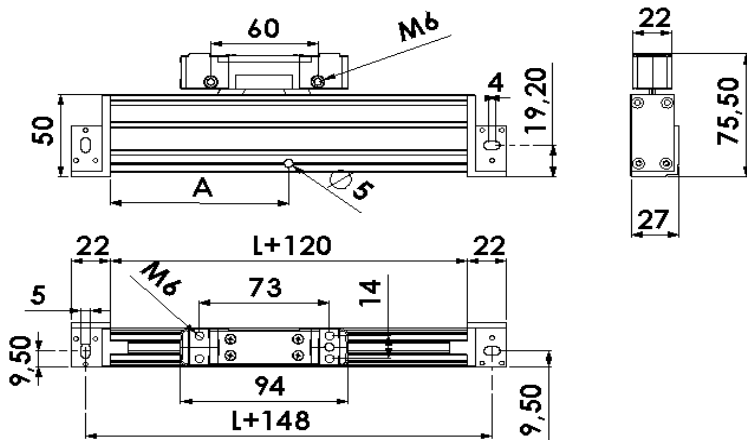
### SPECIAL FEATURES

- Incremental Encoder output A,B
- Contact-less and wear free system
- Robust shielded metal enclosure
- Protection class IP67
- Resistant to dirt, humidity and dust
- Compact design
- Requires no cleaning or Maintenance
- High tolerance to shock and vibration
- Measuring lengths of up to 100 meters

### MLS-3 Magnetic Linear Encoder Scale;

- The encoder forms a compact unit. The scanning unit is guided within the housing along scale.
- Long-life linear motion guide bearing system
- The scale, scanning unit and guide are protected against contamination by an aluminum extrusion and elastic sealing lips.
- The coupling elements between the scanning carriage and transfer web are designed to transfer motion in the measuring direction only. Pitch or other motion of the connecting web in a direction perpendicular to measurement is compensated without affecting accuracy

### MECHANICAL DIMENSION



### APPLICATIONS:

The areas of application for MLS-3 position sensors are wide and varied. Sealed linear encoders are ideal for applications requiring measurement of length with high accuracy and resolution in harsh environments with airborne liquids and particles such as coolants, lubricants, chips and swarf.

Typical areas of application:

- Machining centers
- Lathes, Milling, Drilling, Grinding machines
- Electrical discharge machines
- Sheet metal working machines
- Welding machines
- Bending presses
- Robotics/materials handling
- Measuring machines installed near production equipment
- Linear units/linear drives
- Linear guides
- Marble Machines
- Wood Cutting Machines/PVC Profile Cutting Machines
- Glassworking machinery etc.

### ORDER SPECIFICATIONS

#### Model No

#### Resolution

05	= 5 $\mu$ m
10	= 10 $\mu$ m
25	= 25 $\mu$ m
62	= 62,5 $\mu$ m

#### Cable Length

5M	= 5M
10M	= 10M

\* optional  
between 5M to 50M

M L S 3

0 5

T T L

4

5 M

2 0 0

#### Power Supply and Output

PPL	: 24 VDC $\pm$ 20% Power Supply
	: 24 VDC Push-Pull Output
TTL	: 5 VDC $\pm$ 5% Power Supply
	: 5 VDC TTL RS422 Line Driver Output
Option	: 24 VDC $\pm$ 20% Power Supply
	: 5 VDC TTL RS422 Line Driver Output
	Please on request !

#### Signal Output Type

Standart	2 = A, B
	3 = A, B, Z
	4 = A, /A, B, /B
	6 = A, /A, B, /B, Z, /Z

Z-Signal: Standart = every 5mm

\* Optional = One Z reference signal

#### Measuring Stroke

200 = 200mm

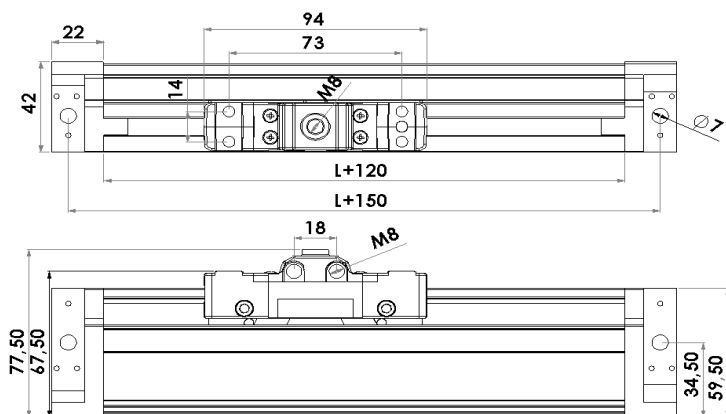


### SPECIAL FEATURES

- Incremental Encoder output A, B, Z, /A, /B, /Z
- RS422 differential quadrature output
- Excellent stability of the signals
- Contact-less system
- Robust shielded metal enclosure
- Fully Sealed, Protection class IP67
- Resistant to dirt, humidity and dust
- Withstands shock and vibration
- Single reference marker
- Magnetic system with no optics to fail or become contaminated
- Self-adjustment of the clearance between the guide and the carriage.
- Compressed air inlet at the scale end blocks
- Shielded and armoured power cable with a stainless steel braid
- Double protection along the sliding side (four lip seals)

The MLS-4 linear encoders are specifically designed to meet the strenuous demands of the press brake industry. MLS-4 cost-effective encoders offer unsurpassed durability with high resistance to shock, vibration and contamination. In this new encoder, the four ball bearings of the carriage are guided along in the aluminum housing. The combination of these two high quality materials makes for excellent wear resistance.

### MECHANICAL DIMENSION



### MLS-4 Self-Aligned System is designed for press brake and bending machine applications;

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 MLS-4 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 accuracy errors due to temperature changes. On the other hand, the MLS-4 Series includes a special support that further improves its 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 head are connected to the aluminum support and it can be connected directly to the machine.

### ORDER SPECIFICATIONS

#### Model No

#### Resolution

05	= 5 µm
10	= 10 µm
25	= 25 µm
62	= 62,5µm

#### Cable Length

5M	= 5M
10M	= 10M

\* optional  
between 5M to 50M

M L S 4 0 5 T T L 6 5 M 2 0 0

#### Power Supply and Output

PPL	: 24 VDC ±%20 Power Supply
	: 24 VDC Push-Pull Output
TTL	: 5 VDC ±%5 Power Supply
	: 5 VDC TTL RS422 Line Driver Output
Option	: 24 VDC ±%20 Power Supply
	: 5 VDC TTL RS422 Line Driver Output
	Please on request !

#### Signal Output Type

2	= A, B
3	= A, B, Z
4	= A, /A, B, /B
Standart 6	= A, /A, B, /B, Z, /Z

Z-Signal: Standart = every 5mm  
\* Optional = One Z reference signal

#### Measuring Stroke

200 = 200mm

LEFT = Left  
RIGHT =Right



## SPECIAL FEATURES

- Industrial Rotary Encoder
- Incremental or Absolute System
- Small and Economical Encoder
- Magnetic measuring process
- High and Various resolution
- Various solid shaft diameter
- High Speed

Our manufacturing facility is uniquely equipped to produce small quantities of a wide range of products. The result: high performance, low cost encoders. Small economical shaft encoder series. Suitable application uses include; Industrial machines, elevators, robots, plotters, cutting machines, injection moulding machines, rotary x-y table, NC machine and other position or angle measurement.

### ARS Series Technical Specifications

Resolution pulse / revolution	2 – 4 – 8 - 12,5 – 25 - 32 – 40 - 50 – 64 - 62,5 - 80 -100 -120- 125 - 200 – 250 -256 - 400 - 500 – 512 - 800 - 1000 - 1024 - 2048 – 4096
Output Circuit	Push-Pull or TLL RS 422 Line Driver
Output Signals	AB , ABZ , AB /A /B , ABZ /A /B /Z
Input Current	Max. 60mA per channel
Power Supply	10...30VDC ±%20 or 5VDC ±%5
Dimension	See drawing
Housing Material	Aluminium
Connections	Up to 100m cable length on request
Operating temperature range	-25°...+85°
Shaft diameter	6 - 8 - 10mm
Frequency response	50 – 300KHZ
Maximum Speed	6000 RPM
Protection Class	IP54

### COUPLINGS



HT and HC series helical couplings and couplers are a high quality helical design coupling that will handle the most demanding applications.

## SPECIAL FEATURES

- HT Integral Clamp / HC Series Set Screw
- Helical Aluminium Body
- Shaft sizes from 6mm to 10mm

### ORDER SPECIFICATIONS

#### Model No

#### Resolution

2	= 2 pulse
512	= 512 pulse
1024	= 1024 pulse
4096	= 2048 pulse

#### Signal Output Type

2	= A, B
3	= A, B, Z
4	= A, /A, B, /B
6	= A, /A, B, /B, Z, /Z

A R S

1 0 2 4

T T L

4

5 M

#### Included in Delivery

- 1 Unit Mounting Bracket
- 1 Unit Aluminium Coupling
- 3 Units Bolts

#### Power Supply and Output

PPL	: 24 VDC ±%20 Power Supply
	: 24 VDC Push-Pull Output
TTL	: 5 VDC ±%5 Power Supply
	: 5 VDC TTL RS422 Line Driver Output
Option	: 24 VDC ±%20 Power Supply
	: 5 VDC TTL RS422 Line Driver Output
	Please on request !

#### Cable Length

2M	=2M
5M	= 5M
10M	= 10M

\* optional  
between 5M to 50M





### SPECIAL FEATURES

- Optical Incremental Encoder output A,B,Z
- 5 V TTL / RS422 Line Driver Output
- Two square wave signals. TTL output with 90 deg. phase difference
- Robust shielded metal enclosure
- Accuracy:  $\pm 5 \mu\text{m/m}$ ,  $\pm 10 \mu\text{m/m}$
- With single/double sealing technologies resistant to dirt, humidity and dust
- Compact design, easy mounting
- High Resolution: 0,001 mm, 0,005 mm
- High tolerance to shock and vibration
- Measuring lengths: 50 mm up to 12000 mm
- 60 m/min traversing speed
- Reference mark every 50 mm

### ALS Optical Linear Encoder Systems:

ALS Series sealed Optic Linear Encoder Scales are protected from dust, chips and splash fluids and are ideal for operation on machine tools. An aluminum housing and elastic sealing lips protect the scale, scanning carriage and guideway from chips, swarf, dirt and splashwater. The scanning carriage travels in a low-friction guide within the scale unit. It is connected to the external mounting block by a coupling that compensates unavoidable misalignment between the scale and the machine guideways.

Sealed linear encoders are available with full-size scale housings for high resistance to vibration up to 12000 mm measuring length.

Series	Measurement Strokes	Protecting
ALS-4	50 mm – 450 mm	Single Sealing
ALS-5	50 mm – 1000 mm	Single Sealing
ALS-6	1100 mm – 12000 mm	Single Sealing

### Special Design Features:

- Scale and scanning unit protected by aluminum housing
- Scanning unit guided on scale 5 via ball bearings
- Coupling between scanning unit and mounting block to compensate small errors in machine guideway



#### ALS4 Series

50 mm – 450 mm  
Single Sealing



#### ALS5 Series

50 mm – 1000 mm  
Single Sealing



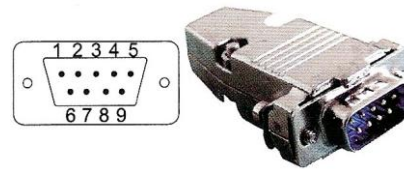
#### ALS6 Series

1100 mm – 12000 mm  
Single Sealing

## ALS TECHNICAL SPECIFICATIONS

Output Circuit	TTL, RS422 Line Driver	
Output signals	A, /A, B, /B, Z, /Z	
Power supply	5VDC	
Dimensions	See drawing	
Housing Material	Aluminium	
Reference Mark	1 reference mark every 50 mm.	
Travel velocity	60 m/min	
Repetability	±1 increments	
Operating temperature	0 to +50 °C	
Storage temperature	-40 to +55 °C	
Protection Class	IP54	
Cable length	50-500 mm scale	3 m armoured cable
	600-2000 mm scale	5 m armoured cable

Signal Name	Cable Colour	Conn. D-sub, (9 pin) Pin no.
A	GREY	1
/B	BROWN	2
+V	RED	3
0 V	BLACK	4
/A	BLUE	5
B	GREEN	6
/Z	YELLOW	7
Z	WHITE	8
GROUND	SHIELD	9



## ORDER SPECIFICATIONS

### Model No

**4** = Recommended for 100 mm to 400 mm applications  
**5** = Recommended for 150 mm to 1000 mm applications  
**6** = Recommended for over to 1000 mm applications  
**7** = Recommended for 100 mm to 900 mm applications **with** double sealing  
**8** = Recommended for over 1000 mm applications **with** double sealing

A	L	S		5		5		2	0	0
---	---	---	--	---	--	---	--	---	---	---

### Resolution

0,001 = 1 µm  
 0,005 = 5 µm  
 S = Sinusoidal

### Measuring Stroke

200 = 200 mm  
 500 = 500 mm  
 1000 = 1000 mm  
 2000 = 2000 mm

### Signal Output Type

6 = A, /A, B, /B, Z, /Z

### Cable Length

3M = 3M

Z-Signal: Standart = every 50mm  
 \* Optional = One Z reference signal



**ADR10-3M** - Milling



**ADR10-2M** Milling



**ADR10-2L** Lathe

## SPECIAL FEATURES

- 2 or 3 Axis Measuring
- Inch/Metric Conversion
- ABS/INC Function (Absolute/Incremental Interchange Operation)
- Find Mechanic Zero Position
- Radius / Diameter Readings
- Zero Reset / Data Preset
- 1/2 - find the center on selected axis
- Recall the last coordinate positions.
- Linear Error Compensation
- Segmented Error Compensation
- Pause/Sleep Mode
- Memory Back-up
- Set scale directions
- Scientific calculator function
- Store 99 sets of datum points
- Simple ARC (R) Function for arc or radius machining
- Bolt Hole Circle (Pitch Circle Diameter) - 5 simple steps to get the co-ordinates for all the holes equally spaced out on the pitch circle
- Lathe Function
- Shrink Function
- Electrical Discharge Machining Depth Control

## APPLICATIONS :

The ADR series has been designed for users requiring either two or three axes. The compact range of ADR Readouts are constructed in a die-cast casing with a clear, easy to read LED digital display. The ADR Readouts controls offers a host of features. The ADR Readouts are mainly used in lathes, milling machines, shrink machines, sheet metal working machines, grinding machines, erosion machines, machining centers etc. with optic or magnetic linear encoder scales ( e.g. ATEK ALS Series or ATEK MLS Series)

## SCALE MODELS



ALS Optical Scales



MLS Magnetic Scales

## ADR TECHNICAL SPECIFICATIONS

Number of axis	2 or 3 axis
Resolution	0.001 mm, 0.005 mm , 0.010 mm
Display Function	8 Digit LED Display; green color
Response Speed	60 m (198.6 feet) / min
Power supply	AC 93-250 V , 30 VA, 50-60 Hz
Dimensions	10.25" x 7.0" x 2.0"/3.0" (260 x 180 x 50/75 mm)
Connections	D-sub (9 pin)
Inputs	Encoders with TTL quadrature square wave output as standard
Quantizing error	±1 counts
Operating temperature range	0 to +40 ° C
Storage temperature range	-20 to +70 ° C

## ORDER SPECIFICATIONS

### Model No

ADR10 - 2 M = for Milling, Bohwerk and etc  
ADR10 - 3 M = for Milling, Bohwerk and etc

ADR10 - 2 L = for Lathe  
ADR10 - 3 L = for Lathe

2 Series = Two Axis  
3 Series = Three Axis



The ALC Series universal programmable impulse counter of signals from Linear Encoder ,Rotary Encdor sensors , NPN -PNP proximity sensors, mechanical switches. Which secures high accuracy, stability and easy operation of the instrument.

SERIES	DIMENSIONS	PROJECTION	INPUT
ALC44 Counter	44 x 44 mm	-999....9999	TTL , Push Pull Encoder, NPN – PNP Proximity
ALC77 Counter	72 x 72 mm	-999999....9999999	TTL , Push Pull Encoder, NPN – PNP Proximity
ALC94UNI Counter	96 x 48 mm	-99999....999999	TTL , Push Pull Encoder, NPN – PNP Proximity
ALC77P Batc Counter	72 x 72 mm	-999999....9999999	TTL , Push Pull Encoder, NPN – PNP Proximity
ALC77T Tachometer	72 x 72 mm	-999999....9999999	TTL , Push Pull Encoder, NPN – PNP Proximity

### Special Design Features:

- 600 Khz High Speed Input Frequency
- 4 Digit programmable projection ALC44
- 6 Digit programmable projection ALC94
- 7 Digit programmable projection ALC77 Series
- Prescale can be adjustable (0,000001 to 9999999)
- Tare, Hold, Reset, Offset , Const, Functions
- Excitation

### ALC44C – ALC77C – ALC94UNI Serisi UP / DOWN COUNTERS



### ALC44 – ALC77 – ALC94UNI Serie Counters

- Linear Encoder Inputs ( A , B , Z Inputs )
- Two Measuring channels ( A , B )
- Measured Unit
  - Linear Encoder
  - Rotary Encoder
  - NPN – PNP Proximity / Mechanical switch
- 2 and 4 relay outputs
- Tare, Hold, Reset, Offset , Conts Functions
- Power Supply 24VA/VDC yada 86 – 265 VAC ( 110 yada 220VAC )
- ALC 94 multifunction Counters

Selectable Input ( Encoder , Tachometers , Batch Counters

### ALC77 Series Other Counter - UP / DOWN COUNTERS



### ALC77 D DOUBLE LINE UP / DOWN COUNTER

### ALC77 B BATCH COUNTER

### ALC77 T TACHOMETER

- 72 x 72 x 96,4mm mechanical dimensions
- Projection "range -9999999...9999999
- Sensör Girişi ( A , B )
- Measured Unit
  - NPN – PNP Proximity / Mekanik switch
- ALC77D : Input Frequency 600 Khz  
ALC77B : Input Frequency 500 Hz  
ALC77T : Input Frequency 5 Khz
- Power Supply 24VA/VDC yada 86 – 265 VAC ( 110 yada 220VAC )



ALP 44

ALP77

ALP94

**ALP Series Instruments**, 4 digit panel programmable measuring displacement and angle by means of linear potentiometers

**ALP-V Series** Measuring instruments for 0...10VDC voltage.

**ALP-A Series** Measuring instruments for 0/4...20mA current.

**ALP94UNI Instruments**, 6 digit panel programmable Multifunction measuring instruments with the option of configuring the type of various analog inputs

SERIES	DIMENSIONS	PROJECTION	INPUT
ALP44	44 x 44 mm	-999....9999	Potentiometric
ALP44 V	44 x 44 mm	-999....9999	0...10VDC Analog
ALP44 A	44 x 44 mm	-999....9999	0 / 4...20mA Analog
ALP77	72 x 72 mm	-999....9999	Potentiometric
ALP77 V	72 x 72 mm	-999....9999	0...10VDC Analog
ALP77 A	72 x 72 mm	-99999....999999	0 / 4...20mA Analog
ALP94 UNI Multifunction	96 x 48 mm	-99999....999999	Potentiometric and Analog 0...10VDC 0 / 4...20mA

### Special Design Features:

- 4 Digit programmable projection ALP44 , ALP77
- 6 Digit programmable projection ALP94
- Tare Function
- Automatic Calibration
- Excitation
- Analog Outputs
- High sampling rate

### ALP44 and ALP77 Series Measuring Instruments



### ALP44 and ALP77 Instruments

- ALP44 : 48 x 48 x 96,4 mm Dimensions  
ALP77 : 72 x 72 x 96,4 mm Dimensions
- Measured Unit  
ALP Linear Potentiometer  
ALP-V Range 0..10 VDC  
ALP-A Range 0...20 mA / 4..20 mA
- Output 2 relay
- Projection range -999...9999
- Power Supply 24VAC , 220VAC , 24 VDC

### ALP94 UNI UNIVERSAL Instruments



- 96 x 48 x 114 mm Dimensions
- Multifunction Inputs in one instruments
  - Linear Potentiometer
  - Voltage 0..10 VDC
  - Current 0...20 mA / 4..20 mA
- Output 4 relay
- Projection range -99999...999999
- Data Output RS232 , SSI
- Power Supply 24VAC , 110 VAC , 220VAC , 24 VDC

### ADP44 Digital Potentiometer



- 48 x 48 x 96,4 mm Dimensions
- Resolution: 10000 step
- Decimal point: 0 ~ 3 digits
- Ramp Function available
- Analog output: 0-10VDC
- Display: One line, 4 digits
- Power Supply 24VAC , 110 VAC , 220VAC , 24 VDC





- Pressure Ranges; 0...1 Bar to 0...2000 Bar
- Excellent Resistance to corrosive
- Stainless Steel Case
- Economical Price
- Output Signals  
**4 - 20 mA and 0 - 10V**

BT214 Flush Diaphragm Series

BT210 Industrial Series

### APPLICATIONS

- Hydraulics
- Pneumatics
- Water Technologies
- Air Conditioning / Heating
- Testing Technology
- Process Control
- Industrial Robot

The pressure transmitter BT is used to measure pressure in liquid or gaseous media, in the hydraulics, pneumatics, in machinery and equipment, as well as the process technology. The stainless steel membrane is completely vacuum-tight, extremely burst-proof and can be used with all standard media. High accuracy and robust and compact structure guarantees a broad range of possible applications.

### Technical Specifications

Pressure Range	0...1 BAR to 0...2000 BAR
Output Signals	0 - 10 VDC , 4 –20 mA
Input Signal	24Vdc (10~36Vdc)
Operating Temperature	-40 ° ~ 125 ° (104°~257°)
Over Pressure	1,5 x FS
Accuracy	0,5 %FS; 0,2 %FS (Optional)
Electrical Connection	Hirschmann Connector
Process Connection	G1/4 , G1/2 and G1
Case	Stainless Steel

# MELT PRESSURE & TEMPERATURE SENSORS

## MPT SERIES



- Good Stability and Anti-Jamming capability
- Economical Price
- Zero and Span Adjustable
- Various Amplified Signals Optional  
4 - 20 mA , 0 - 10V or 3.33mV/V
- Flexible Capillary or Rigid Stem
- Internal 80% Shunt Calibration
- Strain gage Wheatstone bridge
- Diaphragm is 15-5PH stainless steel with TiN coating
- 100bar-1500psi, our diaphragm is 316SS corrugated one

### Technical Specifications

Pressure Range	0...350 BAR or 0..700 BAR standard ( optional 150 – 2000 BAR )
Output Signals	0 -10 VDC , 4 -20mA , 3.33mV/V
Input Signal	24Vdc (10~36Vdc) and 10VDC
Operating Temperature	900°F - 400°C
Over Pressure	1,5 x FS
Accuracy	%FS 0,3
Electrical Connection	6-pin socket ( optional 5 pin or 8 pin )
Process Connection	½" -20 UNF-2A standard, ( optional M14 x 1.5 , M18 x 1.5 )
Case	Stainless Steel
Protection Class	IP 65
Thermocouple	J Type ( FeCu Ni ) or K Type ( NiCr-Ni ) with socket

Melt pressure transmitter convert process into an amplified signal for long distance transmission free of noise interference. It can provide various 4-20mA, 0-10VDC and 3.33mV/V directly input upper control system.

**ATEK SENSOR TECHNOLOGY is  
EVERYWHERE ON THE WORLD**



**ATEK SENSOR**  
Sensing Technology...



**ATEKSENSOR TECHNOLOGY AG**

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