

Willtec

Messtechnik



Displays and Counters

Indicate

Measure

Control

Sensors

Mechanics

Accessory



Willtec Messtechnik

The company Willtec Messtechnik eK is a family business in the Black Forest, where precision is well known all over the world for many decades. Our main principles are:

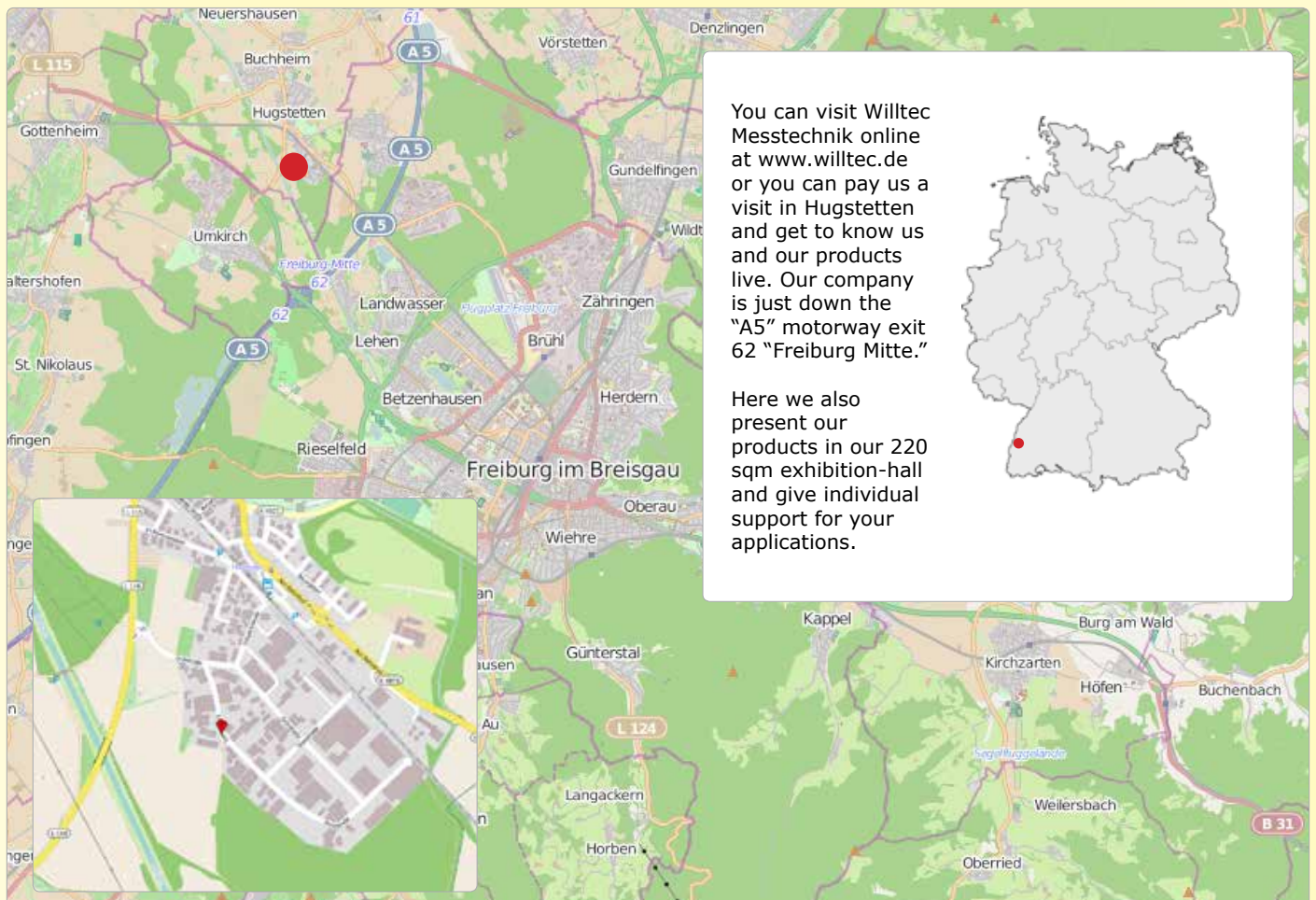
- Proximity to our customers and delivery reliability
- Practice oriented solutions with mature technique
- Complete packages with selected components
- Convenient price-performance ratio through an economic administrative process

„...all around mechanical engineering“

We provide solutions for measurement technology all around mechanical engineering and distinguish ourselves through fast and flexible solutions for our local customers.

With us the experience of many years of measurement technology in mechanical engineering is successfully continued and expanded. The focus is both mechanical as well as electronic measurement systems. Through self-production, supplemented with leading industry representatives, Willtec measurement eK offers varied solutions for standard or customer-specific measuring tasks.

Our new spacious premises in March / Hugstetten enable next to a large warehouse and a large 220sqm showroom. Here, customers can get an idea of our products and applications locally. The excellent transport links right on the A5 in the border region near Freiburg, employees as well as suppliers offers a perfect connection.



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- Battery-supply



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- Accessories / fixtures



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- Mechanic analog position indicators
- Mechanic digital position indicators



Electronic Displays



Willtec's digital readouts are designed for multiple industrial applications. They are made for high performance and reliability even in rugged environment. We offer the perfect solution for your application, as our displays come with multiple functions and in different designs. They are made to read different sensor signals and can even send readouts via Ethernet.



260s Series



EP2

Signal Inputs

- Digital Inputs TTL/HTL
- Digital Inputs SSI
- Analogue Inputs 1Vss
- Analogue Inputs U-V-I
- Magnetic Sensors

Displays

- LED 7,5 mm / 9,6 mm / 14 mm
- LCD 7,5 mm / 9,6 mm / 14 mm

Available Standard Sizes

- 36 x 48 mm
- 36 x 72 mm
- 48 x 72 mm
- 48 x 96 mm
- 72 x 96 mm

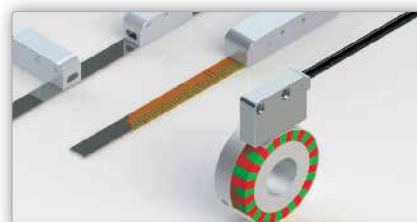
Systems Components



Optical Scales



Rotary Encoders



Magnetic Sensors

Displays - Battery Powered with Magnetic Sensors

Our battery-powered displays are specifically made for magnetic sensors. Display and sensor come together as one complementary unit and directly display the measured value.

Advantages are:

- Flexible Application
- Easy small fitting
- High precision
- Realtime measurements
- Wearfree scanning
- Ruggedness against dirt, dust, liquids and vibrations
- Simple installation



C10

Technical principle: The increments on the magnetic scale are alternating north and south poles. The magnetic sensor is detecting this increments contact free. The sensor is generating one sinus and one cosine wave (360°) per increment. The course of the sinus and cosine wave is



F7 with Magnetic Scale

electronically interpolated. The interpolation factor together with the pole pitch and sensor resolution determine the interpolation accuracy.

This interpolated sinus signal is transformed into a rectangular signal. This signal is compatible to conventional systems for rotary encoders or optical scales.

For absolute systems, a magnetic scale with three

tracks is used. One track is incremental and the other two tracks are encoded for absolute measurement.

Features

- Accuracy 0,01 bis 1 mm
- Resolution 0,001 bis 1 mm



F7-P Built-In Version



Vision MS-L

Our magnetic encoder system consists of sensor head and either magnetic ring or scale.

Accessories



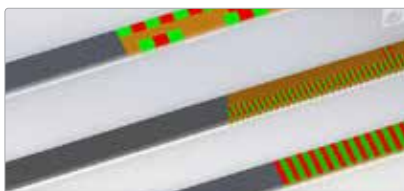
Display Housings



Fork Mountings



Retainers



Magnetic Scales








Magnetic Rings







F7 Ball-head Mountings

Electronic Displays

LED	LCD	0 - 10V	0/4 - 20mA	0 - 100kOhm	PushPull	LineDriver	Sin-Cos	SSI	OC...	Magnetic Sensors	RS485	RS232	Modbus RTU	Switching Output	10-30VDC	15-30VDC	3VDC	Battery powered	24VDC ±10%	230VAC	rpm	Flowrate	counting pices	Distance	Angles	Time counter	
•		•	•	•						•			•	•				•	•				•	•		 AP2-A absolute 48x96x75 mm Ziffern: 6x14 mm	
•		•	•	•						•				•						•				•	•		 EP1 - A absolute 36x72x60 mm Ziffern: 5x10 mm
•					•	•				•	•			•						•		•	•	•			EP1 - I inkremental 36x72x60 mm Digits: 5x10 mm
•					•	•				•	•			•						•		•	•	•			EP1 - S Highspeed inkremental 36x72x60 mm Digits: 8x8 mm
•							•			•	•			•										•	•		EP1 - SinCos 36x72x60 mm Digits: 8x8 mm
•								•		•	•			•										•	•		EP1-SSI absolute 36x72x60 mm Digits: 8x8 mm
•							•			•	•			•					•					•	•		 EP2-A- SSI absolute 48x96x75 mm Digits: 6x14 mm
•					•	•				•	•			•					•	•		•	•	•	•		EP2-I inkremental 48x96x75 mm Digits: 6x14 mm
	•				•			•						•				•	•		•	•	•				 Serie 260 inkremental 36x72x40 mm Digits: 8x10 mm
	•				•			•						•				•	•		•	•					Serie 261 inkremental 36x72x40 mm Digits: 8x10 mm
	•				•			•						•				•	•		•	•	•			•	Serie 262 inkremental 36x72x40 mm Digits: 8x10 mm
	•				•			•						•				•	•		•	•				•	Serie 263 inkremental 36x72x40 mm Digits: 8x10 mm
	•				•			•	•					•				•	•			•		•	•		Serie 265 inkremental 36x72x40 mm Digits: 8x10 mm
	•				•			•	•					•				•	•		•	•	•	•	•	•	Serie 266 inkremental 36x72x40 mm Digits: 8x10 mm
	•			•	•	•							•					•	•	•							 TA absolute + inkremental 32x74x53 mm Digits: 4x10 mm, 4x7,6 mm
	•			•	•	•							•					•	•					•	•		ZD absolute + inkremental 32x74x53 mm Digits: 4x10 mm, 4x7,6 mm

Electronic Displays

LED	LCD	0 - 10V	0/4 - 20mA	0 - 100kOhm	PushPull	LineDriver	Sin-Cos	SSI	OC...	Magnetic Sensors	RS485	RS232	Modbus RTU	Switching Output	10-30VDC	15-30VDC	3VDC	Battery powered	24VDC ±10%	230VAC	rpm	Flowrate	Counting pices	Distance	Angles	Time counter
•				•	•		•			•	•	•	•	•				•				•	•	•		 <div>F1X5 inkremental / absolute 48x96x96 mm Digits: 6x14 mm</div>
•				•	•					•	•	•	•	•				•				•	•	•		 <div>F2X inkremental 48x96x96 mm Digits: 6x14 mm</div>
•		•	•	•									•	•				•	•			•	•			 <div>V3 analog / absolute 48x48x95 mm Digits: 4x10 mm</div>
•		•	•	•									•	•				•				•	•	•		 <div>VE6 Kombi: R/U/I analog 48x96x95 mm Digits: 6x14 mm</div>
•		•	•	•						•	•		•	•				•	•			•	•	•		 <div>P2X analog / absolute 48x96x116 mm Digits: 6x14 mm</div>
•		•	•	•						•	•		•					•	•			•	•	•		 <div>P1X Positioning control inkremental 72x144x162 mm Digits: 6x14 mm</div>
•										•					•			•	•			•	•	•		 <div>P3X Positioning control absolut 96x96x120 mm Digits: 6x14 mm</div>

Displays 3-Axis









Our digital 3-axis displays are designed as readouts for milling-machines, lathes, drilling-machines and grinders. They can readout 2 to 4 axis. We offer a wide range from high-end products with extensive plotting units up to low-budget versions with the most important functions.

Our Displays Support

- Language selection
- Device diagnostic
- Absolute/incremental counting
- mm/inch conversion
- Radius/diameter conversion
- Scale zero reference
- Position reset/preset
- Angular reading
- Axis coupling
- Special functions recall
- 100 tool offsets
- 100 origins of the axes
- Constant pitch
- linear/nonlinear correction
- Midpoint calculation
- Round flange
- Instrument configuration info
- Calculator
- Programming the memory blocks
- Online help
- Enabling the automatic transmission of positions

Displays 3-Axis

Product	Display	Resolution [μm]	Interface	Axis
 Vision 900	5,7" Colour-TFT-Touchscreen back-lit	0,1; 0,2; 0,5; 1; 2; 5; 10; 50 100; 0,001° ... 1°	USB, CAN-Bus, RS232	2-4, programmable mathematical functions
 Vision 700-3	3 x LED, red or green	0,1; 0,2; 0,5; 1; 2; 5; 10; 50 100; 0,001° ... 1°	RS232	Displays 3; Inputs 4 mathematical functions
 Vision 700-2	2 x LED, red	0,1; 0,5; 1; 5; 10; 100 0,001° ... 1°	RS232	Displays 2
 ARBAH-L	4 x LED, yellow	1; 5	RS232 / RS485	Displays 2; Inputs 4
 ARBAH-M	4 x LED, yellow	1; 5	RS232 / RS485	Displays 3; Inputs 4
 EP2-AG3	3 x LED, yellow	0,1 ... 1000	RS485	Displays 3; Inputs 4

Accessories

Mountings

A)



B)



C)



D)



E)



F)



G)



H)



Touch Screen Displays



Our touch screen displays in modern design are built to visualize the status of measurements and complex processes. This opens up a new dimension in designing your individual program. There are multiple gestures available for your application such as zooming, fast page down etc. A big advantage of the Vision 900 is the intuitive operation.

Touch Screen Displays

VISION 900

This multi-axis digital readout with touch screen is specially designed for milling machines, lathes, drilling- and grinding machines. 2 to 4 axis can be displayed on the Vision 900.

Especially in connection with optical scale this displays are a simple solution in visualizing the measured length. There are multiple functions for calculation and it is even possible to offset two axis against each other.



Highlights

- Compact design
- Self-diagnostic
- Reading of absolute and incremental encoder signals
- Power supply: 230VAC, 110VAC oder 24VAC
- Resolution up to 0.1µm

Input Signals

- Incremental: 5V PushPull
- Absolute: SSI or CANopen (optional with RB900)

TPAC1006

Based on an ARM9 architecture, the TPAC1006 is a PLC with human-machine interface device with 5.7" touch-screen with 320x240 pixel and 262.000 colours. The TPAC 1006 got digital and analogue I/O's , fieldbus, CANopen, Modbus and a 100 Mbit/s Ethernet interface.

Digital inputs: 8 (0-24VDC)

Digital outputs: 12 (max. current draw per output 500mA@24VDC)

Analogue inputs: 4 (PT100, TCJ, TCK, TCT, 0-10VDC, 4(0)-20mA)

Analogue outputs: 2 (0-10VDC, 4(0)-20mA)

Interfaces: CANopen, Ethernet, USB2, RS485



Touch Screen Displays

TP1057

Based on an ARM9 architecture, the TP1057 is an OPERATOR PANEL with touch-screen 5.7" TFT monitor which integrates the QT graphics libraries. All software have free license.

The TP1057 interfaces the PLC via Modbus RTU Protocol on RS422. The Ethernet interface allows remote management of the device and the USB host port allows the

TP1057 to update the software directly on site without the use of a PC.

Interfaces

- 1 Ethernet port (10/100 Base-T)
- 1 USB 2.0 host port
- 1 RS485 4 wires



TPAC1007

Based on an ARM9 architecture, the TPAC1007 is a PLC with human-machine interface device with 4.3" touch-screen which integrates the QT graphics libraries. All softwares have free license.

The TPAC1007 is equipped with Modbus RTU Protocol on RS485 interface, Modbus TCP and Ethernet interface TCPRTU.

The micro USB port is used as a host for data logging and software update, or as a device for mass storage.

On TPAC1007 a SD memory card with up to 8 GB can be installed, for programs and data.

große SD-Speicherkarte für Programme und Daten verwendet werden.



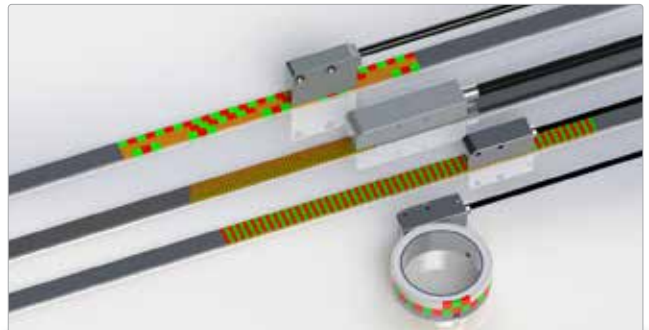
Interfaces

- CANopen
- Ethernet
- USB2
- RS485

System Components



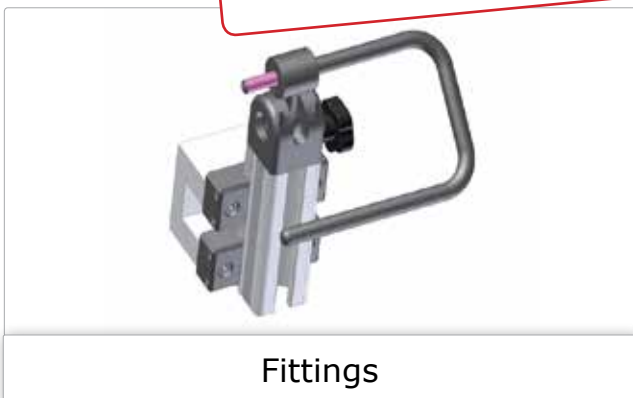
Optical Scales



Magnetic Sensors

Accessories

More fittings on page 9



Fittings



Rotary Encoders

Position Indicators



Positioning spindles are an important part in any industry. Mechanic-digital position indicators are the perfect solution to measure, indicate and adjust linear and rotative movements from a positioning spindle.

Available Types

- Mechanic
- Electronic
- Battery-powered

Industries

- Wood Processing
- Sheet-metal Processing
- Packaging Industry
- Motion Control
- Printing Industry



P100
mechanic-analogue



EP6
12VDC



EP7
battery powered

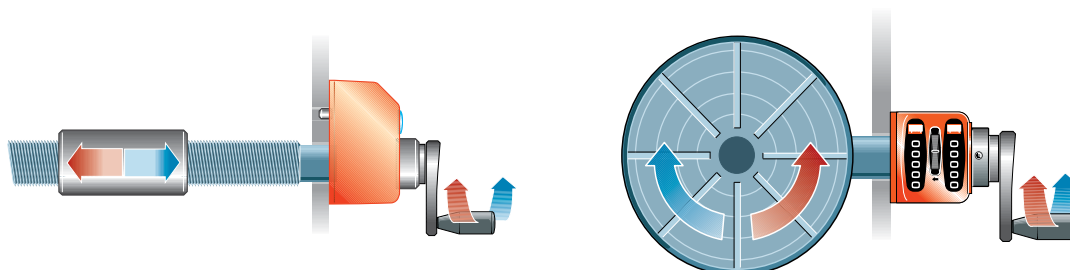


OP3
mechanical digital

Mechanical Position Indicators - Basics

Function

The counter is connected to a hollow-shaft. When turning the positioning spindle a precise gearbox is giving the value to either a mechanic or electronic digital counter. The screw pitch will be individually adjusted. A pin on the back of the housing keeps the counter from turning with the shaft.



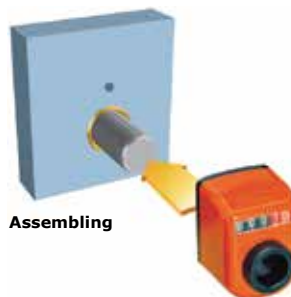
Simple Mounting



Marking out + Punching



Drilling

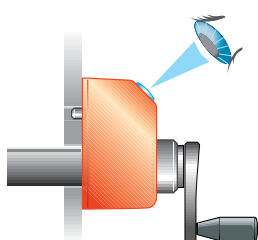


Assembling

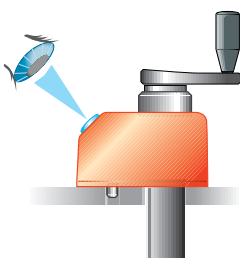


Clamping

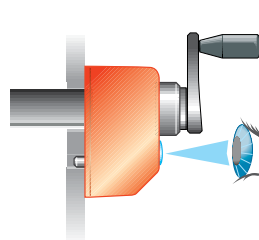
Reading Positions



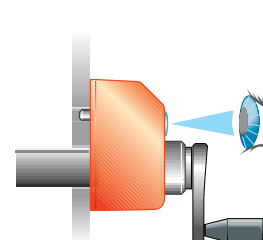
View A
Horizontal Axis
oblique view from the top



View B
Vertical Axis
view from the side

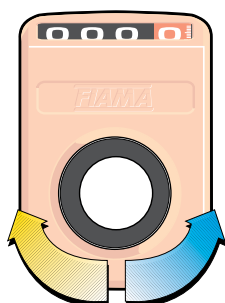


View C
Horizontal Axis
Front view from the bottom



View D
Horizontal Axis
Front view from the top

Flexible Display



- DX** increasing value when turning clockwise
 decreasing value when turning anti-clockwise
- SX** increasing value when turning anti-clockwise
 decreasing value when turning clockwise

Mechanical Digital Position Indicators



Your profit: cost-efficient reduction of setup times

The mechanical digital indicators from the OP-series, are a hallmark of our partner FIAMA since many decades. The approved and reliable technique warranty for the precise set-up of your machines. Easy mounting and reliable function makes it a indispensable solution for economic productions. OP's are available with individual spindle pitches and various designs which often proved to be the perfect solution and became an important alternative to hand-wheels with position indicators.









The value is clearly displayed including decimal values. Different units such as mm, inch or any individual unit can be chosen. FIAMA positioning spindles enjoy a worldwide reputation as the practical aid for adjustments in mechanical engineering.



is








Mechanical Digital Position Indicators

Product	Diameter	Torque Support	Spindle Pitch	Display
 <p>OP2</p>	Ø8H7 mm, Ø10H7 mm or Ø12H7 mm	Ø6 mm, distance 18 mm or Ø6 mm, distance 22 mm	max. 10 mm	3-digits
 <p>OP3</p>	Ø14H7 mm, bushings available	Ø6 mm or Ø10,5 - 12 mm	max. 12 mm	4-digits
 <p>OP5</p>	Ø20H7 mm, bushings available	Ø6 mm	max. 15 mm	5-digits
 <p>OP6</p>	Ø20H7 mm and Ø25H7 mm, bushings available	Ø6 mm or Ø10,5 - 12 mm	max. 20 mm	5-digits
 <p>OP7</p>	Ø20H7 mm and Ø25H7 mm, bushings available	Ø6 mm or Ø10,5 - 12 mm	max. 20 mm	5-digits
 <p>OP9</p>	Ø20H7 mm, Ø30H7 mm and Ø35H7 mm, bushings available	Ø6mm	max. 12 mm	5-digits
 <p>OP10</p>	Ø20H7 mm, bushings available	Ø6 mm	max. 10 mm	2 x 5-digits
 <p>OP12</p>	Ø20H7 mm, bushings available	Ø6 mm	max. 12 mm	2 x 5-digits

Electronical Digital Position Indicators

Our electronical digital positioning spindles are an enhancement of our mechanical digital positioning spindles. They can be freely programmed and are a valuable alternative to our mechanic counters. The programmability opens possibilities for easy set up changes such as positive and negative values and even angle mode. In this way you've got higher process reliability and even shorter setup times.



Product	Diameter	Power Supply	Display	Maximum Speed	Resolution
 EP6	up to 20 mm	7,5 to 9 VDC	LED, Height of Digits 7,6 mm	600 rpm	1500 Pulses per Round
 EP7	up to 20 mm	1 battery 3,6 V	LCD Height of Digits 7,5mm	1000 rpm	4000 Pulses per Round
 EP20-25	up to 20 mm and 25 mm	2 batteries 1,5 V	LCD Height of Digits 10mm	1000 rpm	4000 Pulses per Round
 EP25L	up to 25 mm	2 batteries 1,5V	LCD Height of Digits 10mm	1000 rpm	4000 Pulses per Round
 EP-RS-MAN	up to 20 mm and 25 mm	10 to 25 VDC	LCD Height of Digits 10mm	1000 rpm	4000 Pulses per Round

Applications

Versatile Possible Connections



Variable Mounting Possibilities



Accessories for Position Indicators

Shaft Clamping Flanges



Flange Adapters



Bushings



Adjusting Knobs



Cranks and Handwheels with Folding Handgrip



Flexible Shafts



Hand Wheel Position Indicators




Hand-wheels with positioning displays are an approved set-up aid for positioning spindles in mechanical engineering. Different visualisations are possible, suitable for manual adjustment of axial rotations or length measuring. Versions are available for :

- Linear or non-linear scales
- Analog and digital counters
- Mechanic counters or battery-powered electronic counters (battery lifetime 4 years)

All values can be adjusted exactly and reproducibly.

Scales are individually designed and assure reliable set-up of your machine and therefore high quality production. We've got positioning displays for vertical installation which use the principle of gravity and therefore don't need any torque support. Alternatively we've got the solutions with torque support which can be mounted in any position. Every scale comes with the suitable hand-wheel with the ergonomic suitable size and form for your application and custom designed hub.

Mechanical Analogue Position Indicators

Product	Diameter	Reduction Ratio	Scale	Maximum Speed
 IP50-80/IF50-80	Ø52 mm bzw. Ø80 mm	2:1, 4:1, 6:1, 10:1, 12:1, 20:1, 24:1, 30:1, 36:1	0-2, 0-4, 0-6, 0-10, 0-12, 0-20, 0-24, 0-30, 0-36	500 rpm
 I60-I60F	Ø57 mm	2:1, 4:1, 6:1, 10:1, 12:1, 20:1, 24:1, 30:1, 36:1, 40:1, 60:1, 100:1, 120:1, 200:1	2-0-2, 0-6, 3-0-3, 0-10, 0-12, 6-0-6, 0-20, 0-24, 0-30, 0-36, 18-0-18, 0-40, 0-50, 0-60, 0-80, 0-100	500 rpm
 I80-IN80	Ø82 mm	2:1, 4:1, 6:1, 10:1, 12:1, 20:1, 24:1, 30:1, 36:1, 40:1, 60:1, 100:1, 120:1, 200:1	0-6, 0-10, 0-12, 0-20, 10-0-10, 20-0-20, 0-24, 0-25, 0-30, 0-36, 0-40, 0-50, 0-60, 0-80, 0-100	600 rpm
 I100-I100P	Ø106 mm	2:1, 4:1, 6:1, 10:1, 12:1, 20:1, 24:1, 30:1, 36:1, 40:1, 60:1, 100:1, 120:1, 200:1, 240:1, 300:1, 400:1	0-10, 0-20, 0-24, 0-30, 0-40, 0-60, 0-100, 0-200	500 rpm
 I90-I90N	Ø86 mm	2:1, 4:1-6:1, 10:1, 12:1, 20:1, 24:1, 30:1, 36:1, 40:1, 60:1, 100:1, 120:1, 200:1	0-6, 0-10, 0-12, 0-20, 10-0-10, 20-0-20, 0-24, 0-25, 0-30, 0-36, 0-40, 0-50, 0-60, 0-80, 0-100	600 rpm

Mechanical Analogue Position Indicators

Product	Diameter	Reduction Ratio	Scale	Maximum Speed
 P100L	Ø100 mm	2:1, 4:1-6:, 10:1, 12:1, 20:1, 24:1, 30:1, 36:1, 40:1, 60:1, 100:1, 120:1, 200:1	0-10, 0-12, 0-20, 0-24, 0-25, 0-30, 0-36, 0-50, 0-60, 0-80	1000 rpm
 P100FL	Ø100 mm	2:1, 4:1-6:, 10:1, 12:1, 20:1, 24:1, 30:1, 36:1, 40:1, 60:1, 100:1, 120:1, 200:1	0-10, 0-12, 0-20, 0-24, 0-25, 0-30, 0-36, 0-50, 0-60, 0-80	unlimited
 P-P_P-F	Ø100 mm bis 200 mm	1:1	0-9, 0-14, 20-0-20	unlimited
 P70-90	Ø74 mm und 93,5 mm	1:1	0-9, 0°-45°	unlimited
 P100-125	Ø100 mm und 125 mm	1:1	0-9, 0-100	unlimited
 P140-160-180	Ø140 mm, 160 und 180 mm	1:1	0-9, 0°-45°	unlimited
 P170-200	Ø170 mm und 200 mm	1:1	0-9, 0°-45°	unlimited

Electronical Digital Position Indicators



EN90

Our product range:

Measure <ul style="list-style-type: none"> Magnetic length and angle measuring systems Optical scales Micropulse transducers Rotary encoders Distance sensors Draw-wire encoders 	Indicate <ul style="list-style-type: none"> Electronical displays Position indicators Displays 3-Axis Touchscreen displays 	Control <ul style="list-style-type: none"> Measuring tables Calipers small Calipers medium Calipers big Presets Meter counter
Sensors <ul style="list-style-type: none"> Inductive sensors capacitive sensors Optical sensors Magnetic/cylindric sensors Ultrasonic sensors Inclinometers Pressure sensors 	Mechanics <ul style="list-style-type: none"> Angular gearbox Flexible shafts Couplings Friction clutches Articulated shafts 	Accessory <ul style="list-style-type: none"> Display housings Angular flanges Measuring wheels Power supply units



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05-2014

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