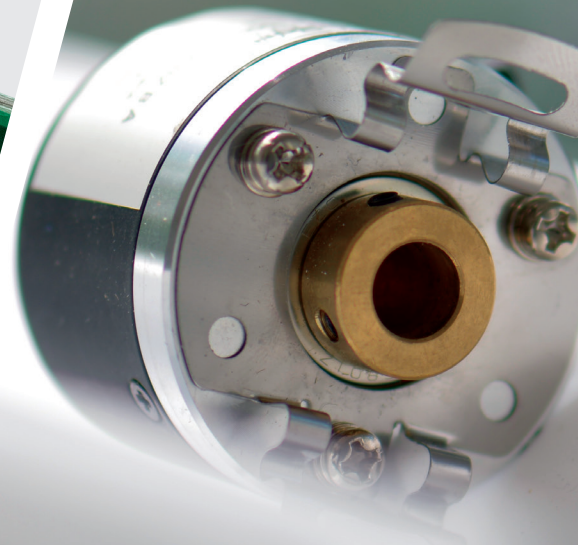
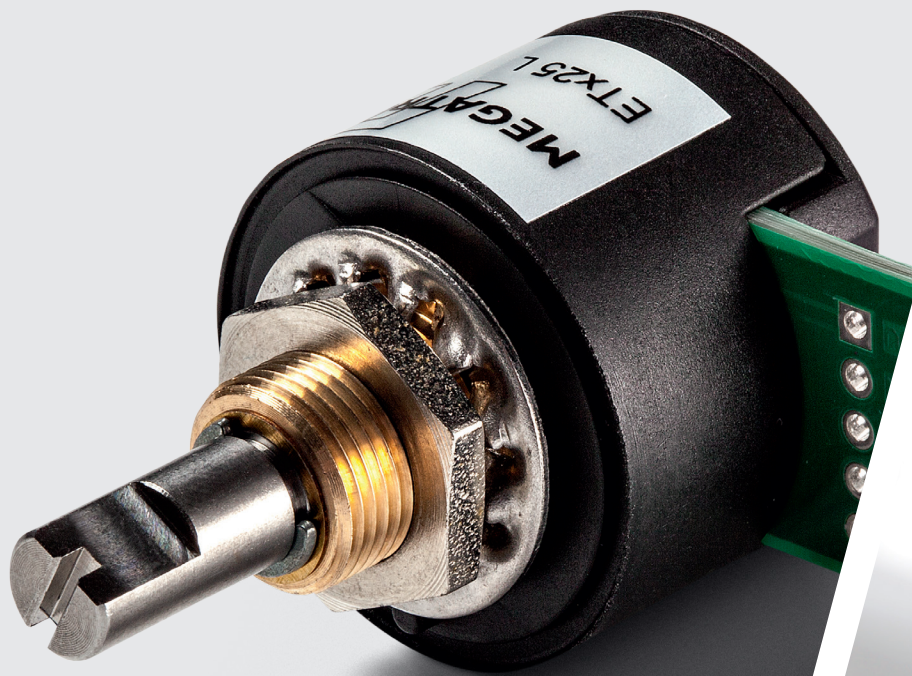




Precision for your Design



# ANGLE SENSORS

Precision Potentiometers, magnetic and optical  
Rotary Encoders



# MEGATRON

## Our success story

MEGATRON is a specialist for mechatronic components for more than 50 years. In keeping with our motto "Precision for your Design," we offer a wide range of sensors, components, input devices and industrial joysticks.

Our products are deployed throughout a wide variety of applications across almost any area of the processing industry and we are leaders in selected market segments. The guiding principle for all our actions is to find the best possible solution regarding functionality and economic efficiency together with our customers. The development of this ideal "design-in" is deeply rooted in our company culture and can be seen in our flexibility, in our distinct know-how on the application and product level as well as in our efficient processes.

We put great emphasis on long-term cooperation and support you over the course of your application's entire life span. Our products and services are marketed worldwide by our approximately 60 Munich-based employees and partly by our distribution partners.



# Conductive Plastic Potentiometers

MP21/20



## Ideal customizable potentiometer

MP21/20 conductive plastic potentiometer in Ø22 mm housing with or without mech. stop, radial connections and many options

The MP21 series is used as set point adjuster (with mechanical end stop) or MP20 as a precise sensor (without mechanical end stop). The potentiometer is the ideal product in many applications because of its adaptability and many options.



Related series  
MP22/23  
in metal housing  
and  
axial connections

- Linearity tolerance  $\pm 1\%$  ( $\pm 0.5\%$ )
- Life span >10 million revolutions due to high-quality Comolded conductive plastic technology
- Options: Tandem / multiple arrangement of up to 10 potentiometers, rear shaft, front shaft sealing (IP65), center tap, numerous shaft modifications
- Measuring range: 320°
- Output: Analog (ratiometric)
- Protection: Up to IP65
- Ø shaft: 6.00, 6.35 mm
- Ø housing: 22 mm
- Housing depth: 12 mm
- Connection type: Soldering lugs

## Industrial standard potentiometer

MPA20/21 conductive plastic potentiometer in Ø22 mm housing with wide spread standard dimensions

The conductive plastic potentiometers of the MPA20/21 series (MPA21 with mechanical end stop) convince with their accuracy and long life span due to the high-quality Comolded conductive plastic technology.



- Linearity tolerance  $\pm 1\%$  ( $\pm 0.5\%$ )
- Life span >10 million revolutions due to high-quality Comolded conductive plastic technology
- Options: Front shaft sealing (IP65), center tap
- Measuring range: 340° (320° with stop)
- Output: Analog (ratiometric)
- Protection: Up to IP65
- Ø shaft: 6.00, 6.35 mm
- Ø housing: 22 mm
- Housing depth: 10.6 mm
- Connection type: Soldering pins



## Servo flange potentiometer with robust ball bearings

MPS20 conductive plastic potentiometer in Ø22 mm housing with radial connections

MPS20



Related series  
MPAS20  
industrial standard  
potentiometer with  
axial connections

The MPS20 series is used as set point adjuster or as a precise sensor. It is the ideal product in many applications because of its adaptability.

- Linearity tolerance  $\pm 1\%$  ( $\pm 0.5\%$ )
- Life span >10 million revolutions due to high-quality Comolded conductive plastic technology
- Options: Rear shaft, center tap, numerous shaft modifications
- Measuring range:  $320^\circ$
- Output: Analog (ratiometric)
- Protection: IP40
- $\varnothing$  shaft: 6.00, 6.35 mm
- $\varnothing$  housing: 22 mm
- Housing depth: 18 mm
- Connection type: Soldering lugs

## Very precise and robust precision potentiometer with outstanding life span

MCP40 conductive plastic potentiometer in Ø37 mm housing

MCP40



MCP50  
even more precise!



MCP30 in  
compact design

The MCP40 series is designed to meet high accuracy and reliability requirements. It has excellent linearity and life span characteristics. In closed loop control systems, the conductive plastic potentiometers are advantageous, because as passive components they do not cause dead times due to signal propagation times, and the signal is continuously available.

- Linearity tolerance up to  $\pm 0.1\%$
- Servo flange housing
- 2 precision ball bearings
- Life span >50 million revolutions due to high-quality Comolded conductive plastic technology
- Metal housing
- Options: Tandem / multiple arrangement, rear shaft, front shaft sealing (IP65), center tap, numerous shaft modifications
- Measuring range:  $340^\circ$
- Output: Analog (ratiometric)
- Protection: IP40
- $\varnothing$  shaft: 6.00, 6.35 mm
- $\varnothing$  housing: 37 mm
- Housing depth: 18 mm
- Connection type: Soldering pins



# Conductive Plastic Potentiometers

**NEW!**

MHP32



## Compact hollow shaft potentiometer for backlash-free coupling and very small installation depth

MHP32 conductive plastic potentiometer in Ø32 mm housing

Thanks to the flattened hollow shaft hub and the anti-rotation pin, the conductive plastic hollow shaft potentiometer MHP32 allows easy mounting and aligning the zero point. An integrated spring plate in the hub ensures a backlash-free connection with an external shaft.

**NEW!**

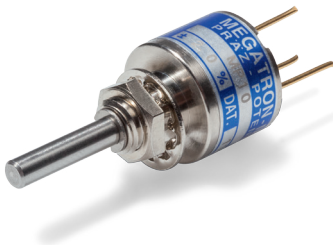


Related series  
MHP24 for 6 mm  
shaft

- High-quality conductive plastic element with multifinger wiper
- Space-saving design (Ø32 x 8 mm)
- Measuring range: 340°
- Output: Analog (ratiometric)
- Protection: IP40
- Ø shaft: 8.00 mm
- Ø housing: 32 mm
- Housing depth: 8 mm
- Connection type: Soldering pads

## Miniature potentiometer in rugged Ø13 mm metal housing

MP10/11 conductive plastic potentiometer



The precision potentiometers MP10/11 (MP11 with mechanical end stop) in Ø13 mm miniature housing are ideally suited for applications with limited space. Rear shaft extension or center tap are optionally available. In addition, the sensor convinces with its life span due to the high-quality Comolded conductive plastic technology.

- Linearity tolerance  $\pm 2\%$  ( $\pm 1\%$ )
- Life span >5 million revolutions due to high-quality Comolded conductive plastic technology
- Metal housing
- Options: Rear shaft, front shaft sealing (IP65), center tap
- Measuring range: 300°
- Output: Analog (ratiometric)
- Protection: Up to IP65
- Ø shaft: 3.00, 3.175 mm
- Ø housing: 13 mm
- Housing depth: 10 mm
- Connection type: Soldering pins



# Wirewound singleturn Potentiometers

RP19/20



## Compact potentiometer with highly effective electrical angle of rotation and many options

RP19/20 wirewound potentiometer with radial connections in Ø22 mm housing

The potentiometer series RP19/20 (RP19 with mechanical end stop) is an all-rounder that can be adapted to a wide variety of applications and is often used as a feedback sensor in valve control systems. In addition, the sensor convinces of its good accuracy.



Related series  
RP22/23 in metal  
housing and axial  
connections

- With or without mechanical stop
- High effective electrical angle of rotation  $355^\circ \pm 5^\circ$  (RP20)
- Compact sensor with low installation depth
- Options e.g. tandem or multi ganged, rear shaft, center tap and much more
- Measuring range:  $355^\circ$  ( $320^\circ$  with stop)
- Output: Analog (ratiometric)
- Protection: Up to IP65
- Ø shaft: 6.00, 6.35 mm
- Ø Housing: 22 mm
- Housing depth: 12 mm
- Connection type: Soldering lugs

## Very compact and economical potentiometer

MUP wirewound potentiometer in Ø22 mm housing

The MUP potentiometers in 22 mm housing are suitable for applications where the economy of the sensor with compact dimensions without loss of quality is important. There are versions with different electrical rotation angle:  $320^\circ$  (MUP1300 / 1350) and  $270^\circ$  (MUP1307).



- Economical and universal potentiometer
- Compact with very low installation depth
- With mechanical end stop ( $320^\circ$  /  $270^\circ$ )
- Energy saving control device in compact mobile applications
- Measuring range:  $320^\circ$  /  $270^\circ$  with stop
- Output: Analog (ratiometric)
- Protection: Up to IP65
- Ø shaft: 6.00 mm
- Ø Housing: 22 mm
- Housing depth: 8.6 mm
- Connection type: Soldering lugs



# Wirewound multiturn Potentiometers

## Economical and ideally customizable multiturn sensor with optionally robust bearing and many options

AL17/19 multiturn wirewound potentiometer in Ø22 mm housing

The AL17/19 series is used as a low-cost, precise multiturn sensor and precise set point adjuster. The ALI versions allow operation with radial shaft load up to 4N. The versions AL(I)R have an integrated slipping clutch, which protects the potentiometer against destruction by overriding the end stops.



- Rotation angle 1,2,3,4,5,6,7, 10-turn
- Linearity tolerance  $\pm 0.25\%$  ( $\pm 0.1\%$ )
- Options e. g. tandem or multi ganged version, shaft seal (IP65), slipping clutch, reinforced bearing, rear shaft, integrated plug, center tap and much more
- Measuring range:  $360^\circ..3600^\circ$
- Output: Analog (ratiometric)
- Protection: Up to IP65
- $\varnothing$  shaft: 6.00, 6.35 mm
- $\varnothing$  housing: 22 mm
- Housing depth: 19 mm
- Connection type: Plug, soldering lugs

## Smallest multiturn potentiometer in the world Ø10.5 mm

SMT multiturn wirewound potentiometer

The potentiometers of the SMT series in Ø10.5 mm housing are suitable for applications where a miniaturized and precise multiturn potentiometer is required.



- Rotation angle 5, 10-turn
- Only Ø10.5 mm robust metal housing
- Options: Rear shaft, improved linearity
- Measuring range:  $1800^\circ, 3600^\circ$
- Output: Analog (ratiometric)
- Protection: IP40
- $\varnothing$  shaft: 4.00 mm
- $\varnothing$  housing: 10.5 mm
- Housing depth: 9.2 mm 5-turn, 25.5 mm 10-turn
- Connection type: Soldering lugs

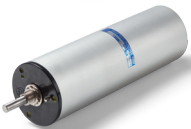




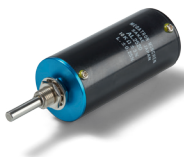
46 10-turn



46 20-turn



Related series  
AL25  
up to 20-turns



## Very precise potentiometer with up to 20 turns, rated load capacity up to 10W and many options (e.g. limit switches)

Series 46 multiturn wirewound potentiometer in Ø46 mm housing

The 46 series is an „all-rounder“ for applications that require outstanding linearity for up to 20-turns. The optionally integrable limit switches can be factory-configured within the electrically effective angle of rotation or within the signal plateau. As an alternative to the 46 series, the AL25 series with limit switches in Ø25 mm housing is available.

- Rotation angle 3..20-turn
- Linearity tolerance  $\pm 0.3\%$  ( $\pm 0.1\%$ )
- Resistance values from 10 Ohms to 500 kOhms
- Options: Limit switch (CW, CCW), rear shaft, shaft seal (IP65), tandem version, center tap, up to 30-turn (on request)
- Measuring range: 1080°..7200°
- Output: Analog (ratiometric)
- Protection: Up to IP65
- Ø shaft: 6.00, 6.35 mm
- Ø housing: 46 mm
- Housing depth: 39..95 mm depending on number of turns
- Connection type: Soldering lugs

## Robust multiturn sensor with many options

AC multiturn wirewound potentiometer in Ø20 mm housing

The enclosure of the AC series is completely encapsulated and ideal for applications where a rugged, precise and economical multiturn potentiometer is required.

- Rotation angle 3, 5, 10-turn
- Linearity tolerance  $\pm 0.2\%$  ( $\pm 0.1\%$ )
- Options e. g. tandem or multi ganged, shaft seal (IP65), center tap, rear shaft, for PCB mounting, limit switch and much more
- Measuring range: 1080°, 1800°, 3600°
- Output: Analog (ratiometric)
- Protection: Up to IP65
- Ø shaft: 6.35 mm
- Ø housing: 20 mm
- Housing depth: 18..25.5 mm depending on turns
- Connection type: Soldering lugs



# Hybrid-Potentiometers

## High-resolution and durable multiturn potentiometer with very low signal noise and many options

HH17/19 hybrid potentiometer

The HH17/19 series features a wirewound resistor element finished with a conductive plastic layer. Thus, it eliminates the so-called winding jumps and the resolution is almost infinite. Due to the smooth surface of the resistance element, the hybrid potentiometer has a much longer life span - that's why it qualifies as position feedback sensor in closed loop control systems. The HHI versions allow operation with radial shaft load up to 4N. The versions HH(I)R have an integrated slipping clutch, which protects the potentiometer against destruction by passing over the limit stops.



**NEW!**

With plug

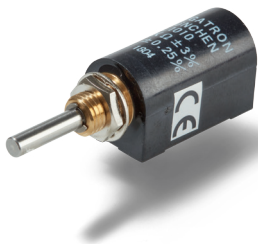
With reinforced bearing series HHI17/19

- Rotation angle 3, 5, 10-turn
- Linearity tolerance  $\pm 0.25\%$  ( $\pm 0.1\%$ )
- Options e. g. tandem or multi ganged, shaft seal (IP65), slipping clutch, reinforced bearing, rear shaft, integrated plug and much more
- Measuring range: 1080°, 1800°, 3600°
- Output: Analog (ratiometric)
- Protection: Up to IP65
- $\varnothing$  shaft: 6.00, 6.35 mm
- $\varnothing$  housing: 22 mm
- Housing depth: 19 mm
- Connection type: Plug, soldering lugs

## Miniature multiturn potentiometer with very low signal noise and high durability

AL11 hybrid potentiometer in  $\varnothing 13$  mm housing

The precision potentiometers of the AL11 series have a very compact design. The high-quality hybrid technology ensures a life span of more than 10 million revolutions. Due to the very good accuracy, the multiturn potentiometer is used for example, in measuring machines or in semiconductor manufacturing.



- Rotation angle 10-turn
- Very precise sensor
- Long life span >10 million revolutions
- Compact construction
- Versions for PCB mounting
- Measuring range: 3600°
- Output: Analog (ratiometric)
- Protection: Up to IP65
- $\varnothing$  shaft: 3.17 mm
- $\varnothing$  housing: 13 mm
- Housing depth: 25.5 mm
- Connection type: Soldering lugs, soldering pins





## High-resolution and long-lasting multiturn potentiometer with very low signal noise in Ø20 mm servo flange housing and 2 x ball bearings

HH21 hybrid potentiometer

The high-resolution precision potentiometers of the HH21 series have a wire resistance element that is finished with a conductive plastic layer. Thus, it eliminates the so-called winding jumps and the resolution is almost infinite. Due to the smooth surface of the resistance element, hybrid potentiometers have a much longer life span.

- Very high resolution with clean signal due to hybrid technology
- 2 x precision ball bearings
- Options: Rear shaft, tandem versions, center tap, limit switch
- Measuring range: 1800°, 3600°
- Output: Analog (ratiometric)
- Protection: IP40
- Ø shaft: 3.17 mm
- Ø housing: 20 mm
- Housing depth: 24.5 mm 5-turn, 32 mm 10-turn
- Connection type: Soldering lugs

## Very compact and accurate multiturn potentiometer with long life span in Ø13 mm housing

AL14 hybrid potentiometer

The precision potentiometers of the AL14 series have a very compact design. The high-quality hybrid technology and the ball-bearing guarantee a life span of more than 10 million revolutions. Due to the very good accuracy, the multiturn potentiometer is used for example, in measuring machines or in semiconductor manufacturing.



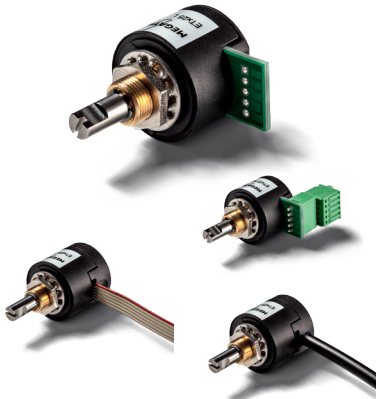
- Very precise sensor
- Long life span >10 million revolutions
- Compact construction
- Measuring range: 1800°, 3600°
- Output: Analog (ratiometric)
- Protection: IP40
- Ø shaft: 3.17 mm
- Ø housing: 13 mm
- Housing depth: 28.2 mm
- Connection type: Soldering lugs, soldering pins



# Magnetic singleturn Encoders

## Rotary encoder with numerous connection options and sleeve bearing in Ø25 mm housing

ETx25 Hall effect encoder with analog (ETA25), incremental (ETI25), serial (ETS25) or PWM output (ETP25)



The ETx25 family is characterized by high reliability and life span. Due to the numerous connection and electronic versions, this rotary encoder series can be used for many applications. On request, further adaptations are available already in small series - like modified shaft geometry or other operating torque. For safety-critical applications, a galvanically insulated redundant electronics is available.

- Long life span
- High variety of variants
- Easy and quick installation
- Optionally redundant
- Versatile programming options ex works
- Plastic housing
- Sleeve bearing
- Made in Germany
- Resolution: ETA with 12 bit, ETS with 14 bit, ETI with pulses 1..128 freely selectable, 256, 512, 1024
- Protection: Up to IP66
- Measuring range: Singleturn
- Output: Analog, serial, incremental, PWM
- Ø shaft: 6.00 mm
- Ø housing: 25 mm
- Connection type: Soldering pads, clamping terminals, flat ribbon cable, round cable

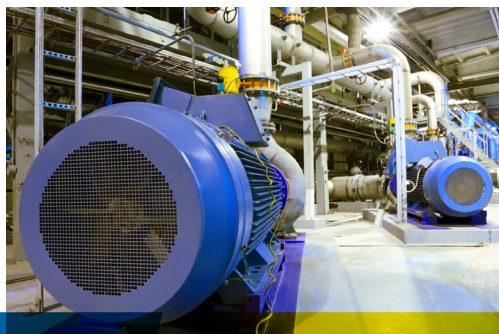
## Rotary encoder with sleeve bearing and flange mounting in Ø22 mm housing

ENA22F Hall effect singleturn encoder with analog output, ENS22F with SPI interface



The ENx22F encoder family closes the price / performance gap between potentiometric sensors and encoders with ball bearings.

- High quality sleeve bearing
- Long-lasting alternative to potentiometers
- Potted electronics
- Life span >25 million revolutions
- Versatile programming options ex works
- Plastic housing
- Made in Germany
- Resolution: Absolute 12 bit
- Protection: Up to IP65
- Measuring range: Singleturn
- Output: Analog, SPI (SSI optional)
- Ø shaft: 6.00 mm
- Ø housing: 22 mm
- Connection type: Flat ribbon cable

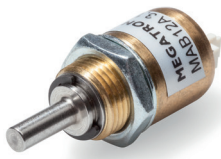




## Robust, durable and high-quality rotary encoder series in metal housing with different housing diameters and ball bearing

The MxB singleturn encoders in metal housing are ideal in applications with harsh environmental conditions and requirements for high speed operations and long life span.

- Very long life span
- Ball bearing
- Made in Germany
- Mounting via threaded bushings or servo flange
- Versatile programming options ex works
- Metal housing
- Resolution: Absolute 12 bit
- Protection: Up to IP67
- Measuring range: Singleturn
- Output: Analog, serial, incremental, PWM
- Ø shaft: 3.175 mm to 6 mm
- Connection type: Round cable, M12 plug



## Miniature encoder in Ø12 mm housing with ball or sleeve bearing

MAB12A Hall effect singleturn rotary encoder with analog or PWM output and Molex connector

This very compact encoder combines high demands on precision and miniaturization. For long life span requirements ball bearing can be chosen.

- 10-bit or 12-bit resolution (PWM only)
- Optionally ball bearing for long life span requirements
- Metal housing
- Resolution: Absolute 10 bit, 12 bit
- Protection: IP40
- Measuring range: Singleturn
- Output: Analog, PWM
- Ø shaft: 3.17 mm, 6.00 mm, 6.35 mm
- Ø housing: 12 mm
- Connection type: Integrated Molex connector



# Magnetic singleturn Kit Encoders

## Kit encoder in Ø22 mm housing with flange mounting

ENx22K Hall effect singleturn kit encoder with analog output (ENA22K) or with SPI interface (ENS22K)



The ENx22K kit encoder family has almost unlimited mechanical lifetime because it works without any bearing. The position magnet is part of delivery.

- No bearing
- Extremely long life span
- Versatile programmable options ex works
- Plastic housing
- Resolution: Absolute 12 bit
- Measuring range: Singleturn
- Output: Analog, SPI (SSI as option)
- Ø shaft: 3.00..12.00 mm
- Ø housing: 22 mm
- Connection type: Flat ribbon cable

## Miniature kit encoder in Ø12 mm housing with clamping ring attachment

MAB12AH Hall effect singleturn kit encoder with analog or PWM output and Molex connector



The kit encoder is particularly suitable especially for use in small installation spaces. Clamping ring, magnet holder and position magnet are part of delivery.

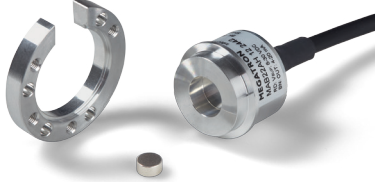
- Very compact design
- No bearing
- Extremely long life span
- Versatile programmable options ex works
- Plastic housing
- Resolution: Absolute 10 bit, 12 bit
- Measuring range: Singleturn
- Output: Analog, PWM
- Ø shaft: 3..6.35 mm
- Ø housing: 12 mm
- Connection type: Integrated Molex connector



## Kit encoder in Ø22 mm metal housing with clamping ring mounting

MAB22x Hall effect singleturn kit encoder

The MAB22x encoders are particularly suitable for use in harsh environmental conditions. Available are analog (MAB22AH) and serial output (MAB22H). Clamping ring and position magnet are part of delivery.



- Wear-free measuring principle
- Ultra long life span
- Metal housing
- Resolution: Absolute 12 bit
- Measuring range: Singleturn
- Output: Analog, SPI (SSI as option)
- Protection: IP67
- Ø shaft: 3.00..12.00 mm
- Ø housing: 22 mm
- Connection type: Round cable



# User programmable magnetic Encoders

## Programmable singleturn encoder with integrated programming interface in Ø25 mm housing

ETA25PS Hall effect singleturn encoder with programming interface (OTP = One Time Programmable) and analog output

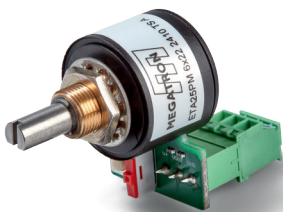


Programming via  
DIP switch

Only one article for different rotation angles - for a comfortable and precise setup of the rotation angle and sense of rotation (CW/CCW) in the application - this saves costs during commissioning and reduces variants in the warehouse.

- Easy and fast setup / logistics
- Customer-programmable rotation angle and sense of rotation (CW/CCW)
- One sensor for all rotation angles
- High reliability >100 million revolutions
- Made in Germany
- Plastic housing
- Sleeve bearing
- Resolution: Absolute 12 bit
- Measuring range: 0..20° to 0..360°
- Output: Analog
- Protection: IP40
- Ø shaft: 6.00 mm
- Ø housing: 25 mm
- Connection type: Soldering pads

**NEW!**



ETA25PM-TS with  
integrated programming  
interface

## Programmable multiturn encoder up to 200 turns (72.000°) with integrated programming device in Ø25 mm housing

ETA25PM-TS Hall effect multiturn encoder with programming interface (up to 10.000 times programmable) and analog output

The ETA25PM with integrated programming interface offers the possibility of a simple, fast and exact adaptation of the encoder to the application - this saves costs during commissioning and reduces variants in the warehouse.

- True power-on in the range of  $\pm 179^\circ$
- Compact multiturn sensor
- Customer-programmable angle of rotation and sense of rotation (CW/CCW)
- High reliability >100 million revolutions
- Made in Germany
- Plastic housing
- Sleeve bearing
- Resolution: Absolute 12 bit
- Protection: Up to IP66
- Measuring range: Multiturn (up to 200-turn)
- Output: Analog
- Ø shaft: 6.00 mm
- Ø housing: 25 mm
- Connection type: Clamping terminals





# Magnetic multiturn Encoders

## User programmable multiturn encoder up to 200 turns (72.000°) in Ø25 mm housing

ETA25PM 200-turn Hall effect encoder with analog output and sleeve bearing



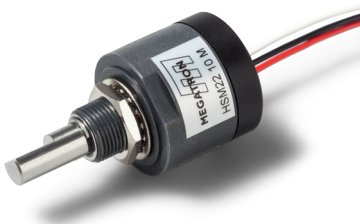
Programming device

The ETA25PM series can be programmed by the customer due to the programming interface. To program the encoder only 2 buttons and one switch must be connected to the rotary encoder. Alternatively an external programming box from MEGATRON can be used for programming.

- True power-on in the range of  $\pm 179^\circ$
- Compact multiturn sensor
- Customer-programmable via interface or ex works
- Rotary angle and direction of rotation via interface user programmable
- High reliability >100 million revolutions
- Made in Germany
- Plastic housing and sleeve bearing
- Resolution: Absolute 12 bit
- Protection: Up to IP66
- Measuring range: Multiturn (up to 200-turn)
- Output: Analog
- $\varnothing$  shaft: 6.00 mm
- $\varnothing$  housing: 25 mm
- Connection type: Flat ribbon or round cable

## 10-turn true power-on encoder in Ø22 mm housing

HSM22 10-turn Hall effect encoder with analog output and sleeve bearing



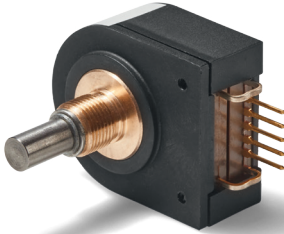
The HSM22 series is a true power-on contactless rotary encoder that fits perfectly in the very common 22 mm multiturn potentiometer applications. Signal plateaus at both ends of the measuring range avoid signal jumps which can be caused by critical mounting tolerances.

- True power-on multiturn
- Signal plateaus at both signal endings
- High reliability >20 million revolutions
- As option with redundant electronics, programmable ex works (e.g. 3- or 5-turn, signal plateaus, etc.)
- Metal housing
- Resolution: Absolute 12 bit
- Protection: Up to IP65
- Measuring range: Multiturn (10-turn)
- Output: Analog
- $\varnothing$  shaft: 6.00 mm
- $\varnothing$  housing: 22 mm
- Connection type: Single strands



# Optical incremental Encoders

**NEW!**

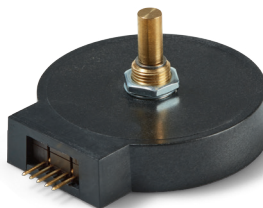


## Reliable optical encoder with different torque options

SPM optical encoder

The SPM series is available e.g. as panel encoder with increased torque or as rotary encoder with low torque. The sleeve bearing made of brass has a life span of more than 100 million shaft revolutions. The encoder can be customized already in small series.

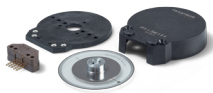
- 2 channels + index
- 5 V supply power
- TTL or line driver output
- Installation depth 18.7 mm
- Option Molex compatible connector with latch
- Made in Germany
- Plastic housing
- Resolution: 50..5000 ppr.
- Protection: Up to IP55M / IP66S
- Measuring range: Singleturn
- Output signal: Incremental
- Ø shaft: 6.00 mm, 6.35 mm
- Case dimensions: 30 x 35 mm
- Connection type: Soldering pins, also compatible for Molex plug



## Very high resolution optical encoder with sleeve or ball bearing

OP optical encoder

The OP encoder series offers an optical resolution up to 10.000 ppr. The ball bearing allows operating speeds up of 10.000 rpm. These features are ideal for applications with the need for fast and very exact positioning.

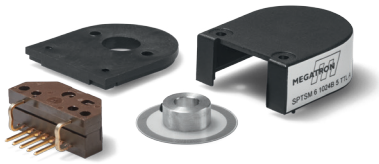


Related series  
OPTS  
kit encoder

- 2 channels + index
- 5 V supply power
- TTL or line driver output
- Installation depth 12.6 mm
- Plastic housing
- Resolution: 4000..10.000 ppr.
- Protection: IP40
- Measuring range: Singleturn
- Output signal: Incremental
- Ø shaft: 6.00 mm, 6.35 mm
- Case dimensions: 56 x 61 mm
- Connection type: Soldering pins, plug connection



**NEW!**



## Allround kit encoder with optical resolution up to 5000 ppr.

SPTSM optical kit encoder

With especially developed mounting tools the assembly of the kit could be done very precisely and easily in the application. These tools guarantee best functionality of the encoder, which means among others that the signal jitter remains low even at high operating speeds. For long shafts there is a through hole in the rear housing available.

- 2 channels + index
- 5 V supply power
- TTL or line driver output
- Installation depth 15 mm
- Option Molex compatible connector with latch
- Made in Germany
- Plastic housing
- Resolution: 50..5000 ppr.
- Protection: IP30
- Measuring range: Singleturn
- Output signal: Incremental
- Ø shaft: 4..8 mm
- Case dimensions: 30 x 35 mm
- Connection type: Soldering pins, also compatible to Molex plug



## Very flat kit encoder with up to 60.000 rpm in Ø22 mm housing

SPEH optical kit encoder

The SPEH kit encoder impresses with its compact housing dimensions, max. operating speed of up to 60.000 rpm. and max. 360 ppr. optical resolution. Optional for long shafts there is a through hole in the rear housing available.

- 2 channels
- 5 V supply power
- TTL or line driver output
- Installation depth only 10.5 mm
- Plastic housing
- Resolution: 100..360 ppr.
- Protection: IP40
- Measuring range: Singleturn
- Output signal: Incremental
- Ø shaft: 2..6.35 mm
- Ø housing: 22 mm
- Connection type: Integrated Molex connector



# Optical incremental Encoders

## High-quality encoder for high life span requirements in Ø40 mm housing

MOL40 optoelectronic encoder with shaft



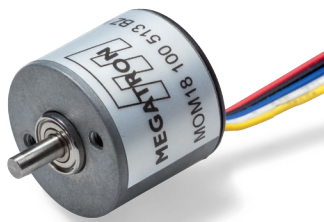
Related series  
MHL40 with  
hollow shaft

The versatile incremental encoder MOL40 with its high-quality ball bearing enables a reliable operation also at high speeds of up to 5000 rpm. The numerous electrical output variants make this encoder compatible to a wide range of applications.

- 2 channels and index
- Push-pull, voltage output, open collector, line driver output
- Ball bearings for max. life span
- 5 V or 12..24 V supply power
- Metal housing
- Resolution: 10..3600 ppr.
- Protection grade: IP50
- Measuring range: Singleturn
- Output signal: Incremental
- Ø shaft: 6.00 mm, 8.00 mm
- Ø housing: 40 mm
- Connection type: Round cable

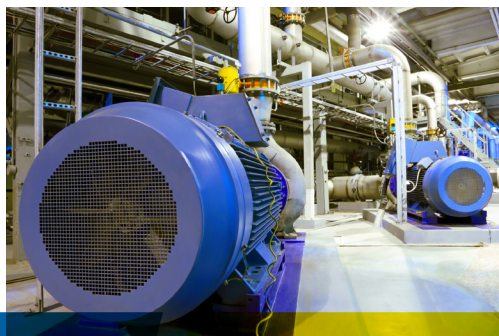
## Space-saving and solid encoder in Ø18 mm housing

MOM18 optoelectronic encoder



The MOM18 is characterized by its high resolution of up to 1600 ppr. in combination with a small Ø18 mm housing. Due to the solid construction in conjunction with a powerful price structure, the encoder is used in a wide variety of applications. The signal cable incl. Hirose plug ex works allows an quick and easy installation and service.

- 2 channels and index
- Open collector or line driver outputs
- 5 V or 4.5...13.2 V supply power
- Ball bearing for max. life span
- Housing depth only 15.5 mm
- Metal housing
- Resolution: 100..1600 ppr.
- Protection: IP50
- Measuring range: Singleturn
- Output: Incremental
- Ø shaft: 2.50 mm
- Ø housing: 18 mm
- Connection type: Single strands with Hirose plug



## Compact rotary encoder in Ø22 mm housing with ball or sleeve bearing and different torque options

SPE optoelectronic encoder

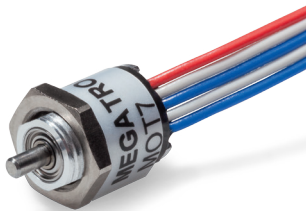


The variants of the series SPE with low torque are used mainly as rotary encoders. The encoders with increased torque are used as panel encoders. The integrated Molex connector simplifies installation and service.

- 2 channels
- TTL or line driver outputs
- 5 V supply power
- Ball bearing for max. life span or sleeve bearing
- Housing depth only 10.5 mm
- Plastic housing
- Resolution: 100..360 ppr.
- Protection: IP40
- Measuring range: Singleturn
- Output: Incremental
- Ø shaft: 3.17 mm, 6.00 mm, 6.35 mm
- Ø housing: 22 mm
- Connection type: Integrated Molex connector

## Economical miniature encoder in Ø7 mm housing

MOT7 optoelectronic encoder

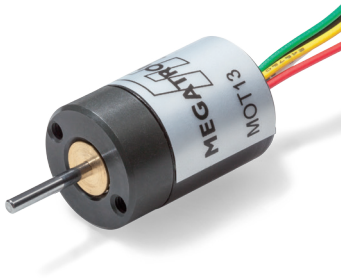


The MOT7 series is particularly suitable for miniaturized applications. Despite precision in the smallest space, the miniature rotary encoder surprises with its powerful price structure.

- 2 channels and index
- Open collector output
- 5 V supply power
- Ball bearing for max. life span
- Housing depth only 8 mm
- Metal housing
- Resolution: 100, 200, 400 ppr.
- Protection: IP50
- Measuring range: Singleturn
- Output: Incremental
- Ø shaft: 1.5 mm
- Ø housing: 7.2 mm
- Connection type: Ribbon cable



# Optical miniature high-end Encoders

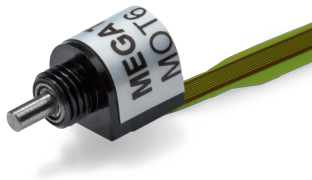


## Ultra-precise miniature high-end encoder with up to 16.000 ppr. in Ø13 mm housing

MOT13 optoelectronic encoder

The MOT13 offers cutting-edge technology in the smallest spaces with very high resolutions. Applications for this special sensor are e.g. placement machines in semiconductor industry or printers for QR codes.

- 2 channels and index
- TTL, open collector, line driver outputs
- 5 V supply power
- Ball bearing for max. life span
- Housing depth 20 mm
- Metal housing
- Resolution: 100..16.000 ppr.
- Protection: IP40
- Measuring range: Singleturn
- Output: Incremental
- Ø shaft: 1.50 mm
- Ø housing: 13 mm
- Connection type: Single strands



## Ultra-compact high-end encoder in top quality with 1024 ppr. in Ø6 mm housing

MOT6 optoelectronic encoder

The MOT6 shows what is currently technically feasible in terms of miniaturization at high resolution in top product quality. Typical applications for this high-end encoder are aircraft, medical robots or miniaturized precision machines.

- 2 channels and index
- Voltage output
- 3.2 V supply power
- Ball bearing for max. life span
- Housing depth 6.1 mm
- Metal housing
- Resolution: 1024 ppr.
- Protection: IP40
- Measuring range: Singleturn
- Output: Incremental
- Ø shaft: 1.50 mm
- Ø housing: 6 mm
- Connection type: Flat ribbon cable incl. FPC connector



## The smallest high-end encoder with 100 ppr. in Ø5 mm housing

MOT5 optoelectronic encoder

MOT5 is the result of years of development and manufacturing know-how. Despite its small size, MOT5 offers an optimum in precision and product quality.

- 2 channels and index
- Voltage output
- 3.2 V supply power
- Ball bearing for max. life span
- Housing depth 7.1 mm
- Metal housing
- Resolution: 64, 100 ppr.
- Protection: IP40
- Measuring range: Singleturn
- Output: Incremental
- Ø shaft: 1.50 mm
- Ø housing: 5 mm
- Connection type: Flat ribbon cable incl. FPC connector



# MEGATRON

your solution – our adjustment

It is one of MEGATRON's specialities to adapt almost every product regarding its function, design and mechanical as well as electrical interfaces to the specific needs of the customer – also for small quantities. This is possible due to our variety of options, our modular product concepts and our flexible organisation.

Therefore, you will receive a functional and economic solution within your existing and desired design. With MEGATRON, you can reduce your costs and realise short development periods. That way, we provide you with an advantage in competition.

MEGATRON Elektronik GmbH & Co. KG is a leading German supplier of precision sensors, industrial joysticks, small plastic parts and electronic housings. Founded in 1960, MEGATRON is an owner-run company based in Putzbrunn near Munich, Germany. It develops, produces and markets its own products as well as those of its longstanding international partners all over the world. MEGATRON works closely with OEM customers to develop individual and economical product solutions. A wide selection of immediately available stock items completes the portfolio.

Edition November 2018

MEGATRON Elektronik GmbH & Co. KG ▪ Hermann-Oberth-Strasse 7 ▪ 85640 Putzbrunn / Munich  
Tel.: +49 89 46094-0 ▪ Fax: +49 89 46094-201 ▪ [info@megatron.de](mailto:info@megatron.de) ▪ [www.megatron.de](http://www.megatron.de)