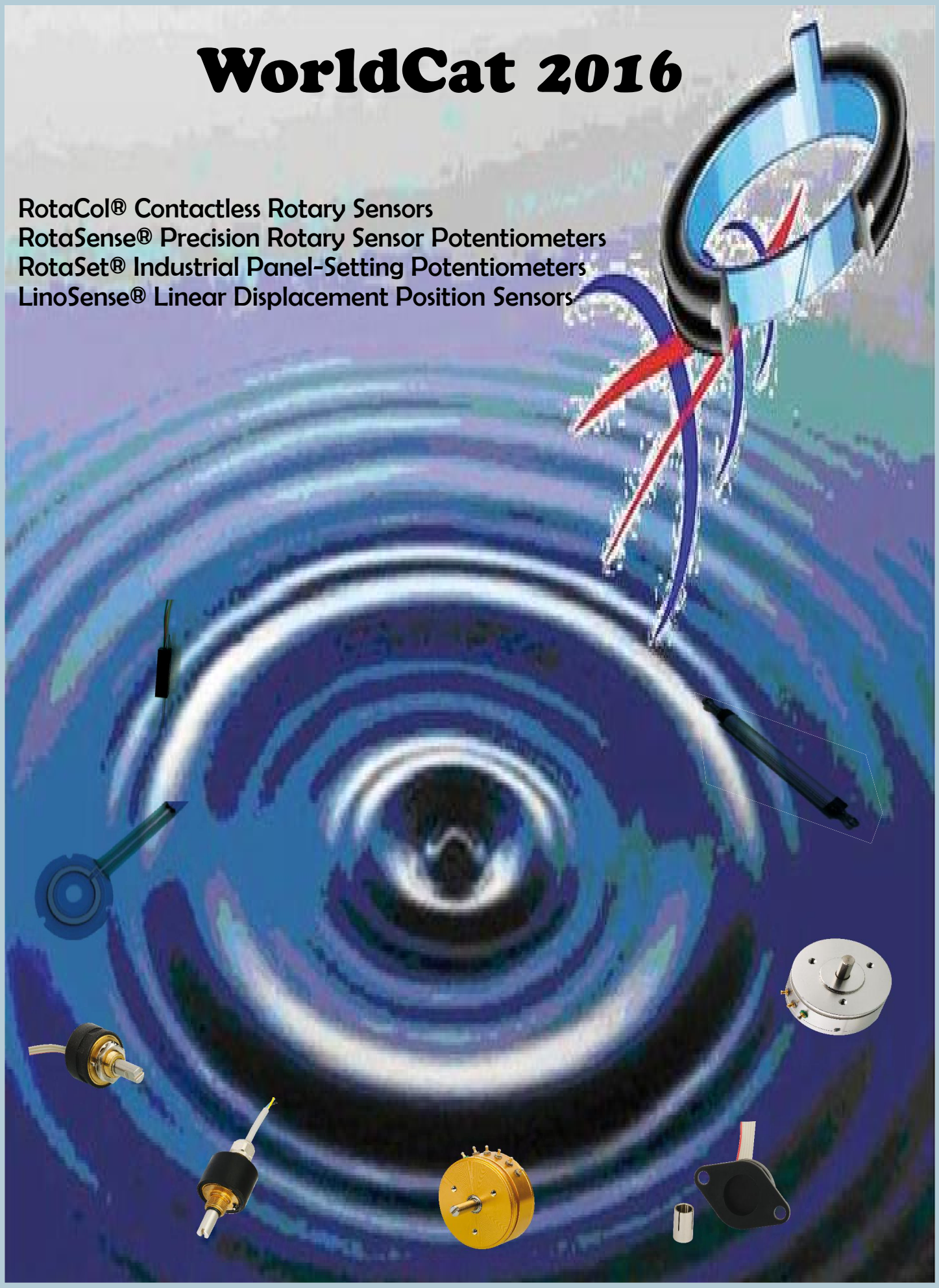
WorldCat 2016

RotaCol® Contactless Rotary Sensors
RotaSense® Precision Rotary Sensor Potentiometers
RotaSet® Industrial Panel-Setting Potentiometers
LinoSense® Linear Displacement Position Sensors



MegAuto

Everything in Position Sensing ....

SensAll

RotaCol® Contactless Hall Rotary Sensors + Encoders

Contactless magnetic rotary sensors replace more and more optical encoders and precision potentiometers. Software instead of hardware provide together with state of art (modern) semiconductors with integrated RISC processor a large variety of standard and customized output signals for position control feedback applications and any conversion of a rotary movement into an electrical signal.

RotaCol® Multi-Interface

Our RotaCol sensors are available with a variety of integrated interfaces. The main advantage is that it offers inbuilt interfaces for the end user. The following interfaces are available with Analog, Incremental, Absolute digital SPI and SSI. A new series using additionally an intelligent controller which provide also I²C & single wire are in preparation. Maximum mechanical speed data depends on the type of bearing. Electrical speed data are different for each interface and depends on Update rate. Generally the Update rate in Analog ~ 1 milli sec (1 KHz), Incremental ~ 10 KHz, SPI ~ 5 KHz, SSI ~ 10 KHz. If the resolution is 1° then the maximum speed because of electrical reason is as follows ;
Analog ~ 160 rpm, Incremental ~ 1600 rpm, SPI ~ 800 rpm, SSI ~ 1600 rpm.

Analog Interface

At the output of sensor a variable voltage or variable current is provided proportionally to the position of shaft / axis over a complete angle range of 360° or a subrange. The contactless sensor electronic guarantees a steady signal level and a low linearity error of ± 0.3%. Supply voltages of 5VDC ± 10% ; 9 - 30 VDC & 15 - 30 VDC and output signals of 0 - 5VDC (ratiometric) ; 0 - 5VDC ; 0 -10VDC; 0 - 20 mA & 4 - 20 mA are provided. A pulse width modulation (PWM) signal can be generated by the analog interface.

Incremental Interface A - B - Z

A and B are quadrature signals, shifted by 90° and signal Z is a reference mark. One revolution generates N pulses of signal A or B. The reference mark signal is produced once per revolution. The width of the Z pulse is 1/4th of quadrature signal period and is matched with A high and B high. The optical incremental encoders can be directly replaced by magnetic incremental encoders. They provide additional features and can much easier be adjusted to customer requirements. Contrary to optical incremental encoders the RotaCol series provides an absolute sensor information by counting the number of pulses which matches with the actual absolute angle. Everything between 2 to 128 ppr is already now software programmable. Higher resolution upto 2048 ppr software programmable will be available soon.

SPI Interface

The Serial Peripheral Interface (SPI) is a bus system for a serial synchronous data transmission between different integrated circuits. The bus consists of 3 lines MOSI (Master Out --> Slave In), MISO (Master In <-- Slave Out), SCLK - (Serial Clock, output from master) and SS - Slave Select (active low; output from master). By these signal lines the master selects the slave for communication. This is done because the master sets the SS line from high to low. The angular informations are calculated all 350µs and are available for the master on demand. There is no fixed protocol for the SPI bus. Nevertheless many microcontroller IC`s have a SPI input. By programming this microcontroller IC many SPI suitable sensors can be managed by one microcontroller.

SSI Interface

With the SSI interface the absolute angular position is provided serially and synchronous to a receiving electronic which has an input (PLC indicator etc.). The main advantage of the SSI interface is that long cable distances can be overcome by very few data lines. The actual angle of position is provided in 2 byte WORD Grey code with 12 bit over 360°. The receiving electronic provides pulse sequences and thus determines the transmission rate. With the first following signal of the pulse sequence the angular position is detected and kept. The following rising ramps control the bit-wise transmission of the data word. After a small pause a new angular value can be transmitted.

RotaSet® - Setting Potentiometers RotaSense® - Rotary Position Sensors

RotaSet® includes rotary manual setting devices and rotary position sensors for simple applications. Being very economical they meet industrial requirements without having exaggerated specifications. Single turn and multiturn potentiometers of the RotaSet family use proven designs and in most cases they meet industrial standards. Inspite of new developments, these components are still required because they offer best price performance ratio for standard applications. Wirewound RotaSet potentiometers are very suitable for applications with higher wiper current and special resistance values. RotaSet conductive plastic potentiometers are mainly used for position control applications. Carboplast formulation for resistance element offers a good operating life. They are very suitable for low curent applications. For applications where shock and vibration exist or special interfaces other than ohms are required our RotaCol contactless Hall position sensors are recommended.

RotaSense® precision servo potentiometers correspond fully to international standards. They are used for rotary position feedback applications where a very long rotational life is required. Metal housings with ball bearings and stainless steel shafts, combined with excellent electrical data, make it suitable for any automation and control application. They meet international standardised dimensions. Generally all standard types without modifications in standard resistance values are available.

All technical data have been established under laboratory conditions with great care and are for information only. As a guideline international standard IEC 60393 has been used. Because of different conditions properties cannot be assured and every user has to ensure by himself that the product as it is, is suitable for his applications. No responsibility for any damages is assumed. Data can be changed without notice.

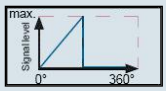
Electrical Options For Analog Versions For Rotacol® Series

Non-effective Electrical Angle (PE1) - Delta 1/2

By default the electrical angle is 360°. With this option if the electrical effective angle is programmed smaller than 360°, the remaining electrical non-effective angle is divided in two equal parts : high level & low level - Delta 1/2 (Price Adder).

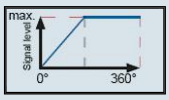
Low level (PE2)

If the electrical effective angle is programmed smaller than 360°, after reaching the maximum, the signal level falls to low level (Price Adder).



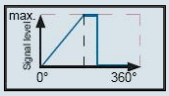
High level (PE3)

If the elecrical angle is programmed smaller than 360°, the signal level remains high after reaching the full level (Price Adder).



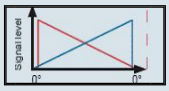
Variable level (PE4)

If the electrical angle is programmed smaller than 360°, remaining electrical non effective angle can be divided into high and low level in any ratio according to customer request (Price Adder).



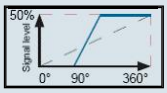
Direction of Rotation (CW/CCW)

By default the direction of rotation is clockwise (CW). With this option it is also possible to change the direction from clockwise (CW) to counter clockwise (CCW - Price Adder).



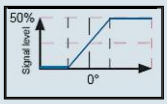
Zero point Programming (POZ)

Mechanical zero point is aligned with marking on the sensor housing. Electrical zero point can be aligned to mechanical zero point. Zero point can be programmed at any offset (Price Adder).



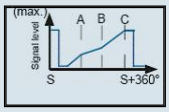
Center Point Programming (POC)

Effective electrical angle is aligned with the mechanical zero point in such a way that equal effective angles in both rotating directions are achieved. Center point can be programmed at any offset (Price Adder).



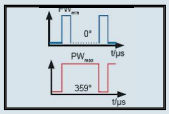
Multi Point Programming (POM)

Output characteristics : 3 to 6 rising or falling linear segments. Minimum and maximum signal level can be defined within the total electrical angle. First and last linear segment (min./max.) is always horizontal 1 to 3 setable calibration points (Price Adder).



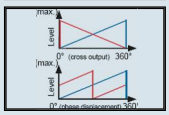
Pulse Width Modulation (PWM)

PWM provides a constant carrier frequency which defines high to low ratio. The ratio between high & low corresponds to the signal characteristics. It is in a fixed relation to the angle. Generally, for further signal processing, no A/D converter is required because many microcontrollers already have PWM input (Valid only for 0505 output) (Price Adder).



2 Channel Redundant Output (2C)

This is realized by a Hall sensor chip consisting of 2 galvanically separated sensing elements. One magnet provides a magnetic field simultaneously for both elements. Both elements can be programmed identically, or channel 2 can also be programmed independently from channel 1. Valid only for 0505, DC05 and 2410 outputs (See separate type in the Price List) .



Electrical Options For Incremental Versions For Rotacol® Series

Number of Pulses & Direction (XXX CW/CCW)

As a unique feature any number of pulses from 2 - 128 pulses per revolution (ppr) can be programmed in a 3 channel configuration. Above 128 ppr the following resolutions are possible as standard option: 256, 512, 1024 ppr (in preparation 2048 ppr). **Default is 1024 ppr. The default direction of rotation is clockwise (CW)**. With this option it is also possible to change direction from clockwise(CW) to counter clockwise (CCW - Price Adder).

Start Up Performance

In the basic default version, when the sensor is switched on, first the output A-B pulses are received only if the shaft rotates. After reaching the Z pulse it is used for resetting the counter (identical to optical encoders). In this option, when the electronic is switched on, the A and B output pulses are received automatically till the Z pulse is reached. Then the counter can be reset without rotating the shaft. From his point, the A, B and Z outputs are received corresponding to the shaft rotation (Price Adder).

Zero Positioning (POZ)

It is possible to position the Z Pulse in line with the marking on the shaft and the bushing. Also any offset to this marking is possible (Price Adder).

Z Pulse

A counter which is connected to the sensor is reset once per revolution by the Z - pulse. Within one rotation a simulation of non-true power on encoder is possible. In the default type the counter is reset manually (Price Adder).

Push Pull Function (POP)

In an open collector mode the driver current is limited by pull up resistor. In push-pull mode the driver current goes up to 300 mA. Longer distances and faster switching are possible (Only for Diamondline) (Price Adder).

Inverted Signal (POI)

The channels A and B can be inverted or not inverted independent of each other. The default type is not inverted (Price Adder).

Electrical Options For SPI / SSI Versions For Rotacol® Series

Zero Point Programming (POZ)

The electrical zero point is at the beginning of the signal rise. If a shaft marking is brought in line with the housing marking, the electrical zero point can be set to that position. Beside that, it is also possible to position the zero point at any position within the mechanical angle. In any case it is necessary to have a reference to the shaft marking (Price Adder).

Direction of Rotation (CW / CCW)

The default direction of rotation is clockwise (CW). It is also possible to change the direction of turning to counter clockwise mode (CCW - Price Adder).

2 Channel Output (2C)

The sensor provides 2 operating modes:
1) Redundancy i.e. channel one and channel two are identical. If one channel fails the other channel remains active.
2) It is also possible to have 2 different programs in the 2 channels. For this, additional functions can be obtained.
(Valid for SPI version)
(See separate type in the Price List).

Standard And Customized Mechanical Options And Accessories

Standard Mechanical Options (SM)

Standard mechanical options (SM) = Deviation from list price version. All RotaCol and Megauto products are manufactured in batch production. If premanufactured components or changed processes can be used, no minimum quantity orders apply. A surcharge as adder according to the list price is applicable.

Customized Mechanical Options (CM) (Price Adder)

If special parts are not in stock, or no standard process can be changed, a MOQ (Minimum Order Quantity) and surcharge applies.

Type / Series	Standard Mechanical Options (Price Adder)	Customized Mechanical Options
22/28 ERCB	Low / High torque (no bearings) ; Endstop at 90°, 180°, 270°, 320°	Special shaft length ; Special cable
25 / 30 RS B	Low / High torque (no bearings) ; Endstop at 90°, 180°, 270°, 320°	Special shaft length ; Special endstop angle
22 M/Z SL RCB	Low torque (LT) ; High torque (HT)	Special shaft length
22 M/Z SL RCBB	OCTA, OCTR [OCG, OCM (Larger housing dia of 25 mm - see 25 RSB)]	Special shaft length
22 M/Z SL RCS	OCTA, OCTR [OCG, OCM (Larger housing dia of 25 mm - see 25 RSB)]	Special shaft length
36 M/Z SL RCS	Cable gland (OCG) ; Terminal block (OCT) ; Miniature connector (OCM)	Special shaft length and shape ; Special cable
50 MSL RCS	Cable gland (OCG) ; Terminal block (OCT) ; Miniature connector (OCM)	Special shaft length and shape ; Special cable
40 DRCW	Cable gland (OCG) ; Terminal block (OCT) ; Miniature connector (OCM)	Special Connector ; Special cable
50 DRCW	Cable gland (OCG) ; Terminal block (OCT) ; Miniature connector (OCM)	Special Connector ; Special cable
58 DRCW	Cable gland (OCG) ; Terminal block (OCT) ; Miniature connector (OCM)	Special Connector ; Special cable
58 DRCS	Cable gland (OCG) ; Terminal block (OCT) ; Miniature connector (OCM)	Special Connector ; Special cable

Interconnections

Inorder to make the assembly for our customer as easy as possible, we have created certain interconnections possibilities for different series.

Default Interconnections (No surcharge) - Standard Version

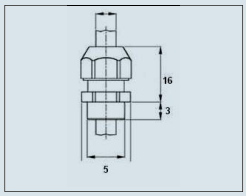
22 / 28 ERC (B) (F) (K) 3,5,6 core flat cable 0.15 m. (*Ecoline* ERC 22/28 mm ø with bush, flange, kit)
25 / 30 RS (B) (F) (K) - Cable gland, miniature connector , terminal block axial & radial (*Ecoline* speed connect 25/30 mm ø with bush, flange, kit)
22 M/Z SL RCB / 22 M/Z SL RCBB - 3, 5, 6 core flat cable 0.15 m. (*Silverline* 22 mm ø Bush mounting with sleeve or 1 ball bearing)
22 M/Z SL RCS - 3,5,6 core flat cable 0.15 m. (*Silverline* 22 mm ø Servomount)
36 M/Z SL RCS - 3,5,6 Pins in metal housing. (*Silverline* 36 mm ø Servomount)
50 MSL RCS - 3,5,6 Pins in metal housing. (*Silverline* 50 mm ø Servomount)
40 DRCW - 3,5,6 core round cable 2.5 m. (*Diamondline* 40 mm ø Screw Flange mount)
50 DRCW - 3,5,6 core round cable 2.5 m. (*Diamondline* 50 mm ø Screw Flange mount)
58 DRCW - 3,5,6 core round cable 2.5 m. (*Diamondline* 58 mm ø Clamping Flange mount)
58 DRCS - 3,5,6 core round cable 2.5 m. (*Diamondline* 58 mm ø Servo Flange mount)

Other standard SPEED CONNECT Interconnections (With Surcharge)

In the following drawings only the interconnections themselves are shown, with dimensions

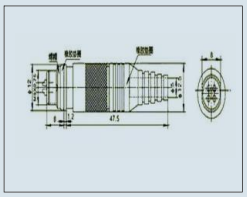
Cable gland (OCG)

3,5,6 core cable of 1 m length according to interface



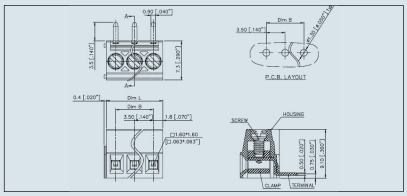
Miniature connector (OCM)

3,5,6 pin in integrated socket with plug according to interface



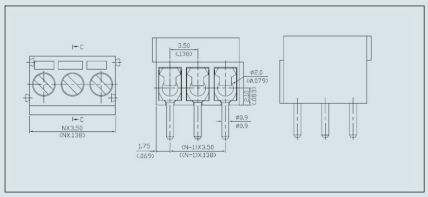
Terminal block - Axial - (OCTA)
Wires leaving axial to shaft axis

3,5,6 sockets according to interface



Terminal block Radial - (OCTR)
Wires leaving radial to shaft axis

3,5,6 sockets according to interface



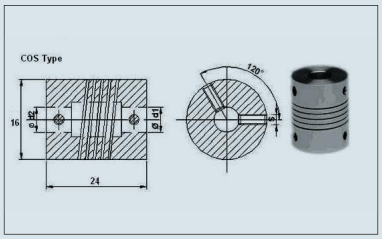
Note:The speed connect surcharge is not applicable for 25/30 *Ecoline* RS series. They are available in all interconnections such as cable gland(OCG),miniature connector (OCM), terminal block axial (OCTA) & radial (OCTR).(Refer the Price List).

Accessories - Spiral Couplings

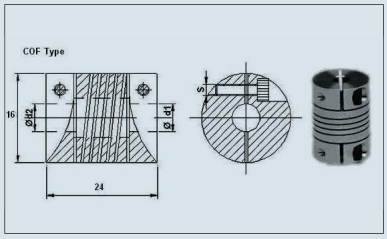
Whenever the shafts of the sensors are available only in metric (mm) or radial force is expected on the shaft, we recommend our precision machined metal spiral couplings with set screws or clamp fixing. There are two dimensions in stock. One side for 6 mm dia shaft and other side either 1/4th inch or 1/8 inch shaft dia. These can be used to connect metric and non-metric devices. All *Silverline* - RotaCol sensors are as a standard also available with non-metric (inch) shafts.

COS Type

Set Screw Fitting
6 mm (d1) - 1/4" (d2)
6 mm (d1) - 1/8" (d2)



COF Type



Flange Clamping
6 mm (d1) - 1/4" (d2)
6 mm (d1) - 1/8" (d2)

RotaCol® *Ecoline* 22 / 28 ø ERC & 25 / 30 ø SPEED CONNECT RS Series
Bushing (B) / Flange (F) / No Shaft Flange (K)

RotaCol® *Ecoline* ERC is a very economical **Multi-Interface** precision contactless rotary position sensors range available in plastic housings with 22 & 28 mm housing diameter. Also RotaCol RS SPEED CONNECT series is available in 25 & 30 mm housing diameter in multi interface. **Multi-Interface** involves Analog,PWM, Incremental, SPI, SSI. The ERC series has flat cable as default interconnection.The Mounting is possible by single hole bushing (B), flange with 2 screws (F), no shaft with 2 screws flange (K).For interconnection in ***Ecoline* RS SPEED CONNECT;** *Cable gland (OCG), Miniature connector (OCM), Terminal block axial (OCTA), Terminal block radial (OCTR) are available (details see page 4). **All interfaces have different prices.** Because of the wide variety of mechanical & electrical options it is possible to use them in almost any automation and control application where rotary angular sensing is required.

22 / 28 ERCB

Interconnection - Flat cable
Detailed Datasheet :
www.rotacol.info/22aercb.pdf
www.rotacol.info/22iercb.pdf
www.rotacol.info/22percb.pdf
www.rotacol.info/22yercb.pdf
www.rotacol.info/28aercb.pdf
www.rotacol.info/28iercb.pdf
www.rotacol.info/28percb.pdf
www.rotacol.info/28yercb.pdf

Bush Version : 22 / 28 mm Ø ERC Rotary Position Sensor 25 / 30 Ø - RS SPEED CONNECT (OCG-OCM-OCTR-OCTA)

Version	Analog (A)	Incremental (I)	SPI (P)	SSI (Y)
Type	22 / 28 A ERCB 25 / 30 A RSB *OCG/OCM/OCTA/OCTR	22 / 28 I ERCB 25 / 30 I RSB *OCG/OCM/OCTA/OCTR	22 / 28 P ERCB 25 / 30 P RSB *OCG/OCM/OCTA/OCTR	22 / 28 Y ERCB 25 / 30 Y RSB *OCG/OCM/OCTA/OCTR
Electrical angle	20°-360° in 1° steps programmable (standard 360°)	2 to 128, 256, 512, (1024 ppr. std)	0 - 360°	0 - 360°
Supply voltage	5V±10% / 9-30 VDC / 15-30 VDC	5V±10% / 9-30 VDC	5V ± 10%	5V±10%/9-30 VDC
Output signal	0505/0505-2C; 2410/2410- 2C 0 - 20mA ; 4 - 20 mA PWM	5V TTL; 5V / 24V Open collector	Absolute SPI	5V / 24V SSI
Resolution	4096 steps (12 bit)	4096 steps (12 bit)	16383 steps (14 bit)	4096 steps (12 bit)
Mech.speed	800 rpm (max)	800 rpm (max)	800 rpm (max)	800 rpm (max)
Elec. speed	160 rpm (max)	1600 rpm (max)	800 rpm (max)	1600 rpm (max)
Rotary life	~ 10 mil. rotations	~ 10 mil. rotations	~ 10 mil. rotations	~ 10 mil. rotations

25 / 30 RSB

Interconnection - Miniature Push-pull Connector
Detailed Datasheet :
www.rotacol.info/25arsb.pdf
www.rotacol.info/25irsb.pdf
www.rotacol.info/25prsb.pdf
www.rotacol.info/25yrsb.pdf
www.rotacol.info/30arsb.pdf
www.rotacol.info/30irsb.pdf
www.rotacol.info/30prsb.pdf
www.rotacol.info/30yrsb.pdf

22 / 28 ERCF

Interconnection - Flat cable
Detailed Datasheet :
www.rotacol.info/22aercf.pdf
www.rotacol.info/22iercf.pdf
www.rotacol.info/22percf.pdf
www.rotacol.info/22yercf.pdf
www.rotacol.info/28aercf.pdf
www.rotacol.info/28iercf.pdf
www.rotacol.info/28percf.pdf
www.rotacol.info/28yercf.pdf

Flange Version : 22 / 28 mm Ø ERC Rotary Position Sensor 25 / 30 Ø - RS SPEED CONNECT (OCG-OCM-OCTR-OCTA)

Version	Analog (A)	Incremental (I)	SPI (P)	SSI (Y)
Type	22 / 28 A ERCF 25 / 30 A RSF *OCG/OCM/OCTA/OCTR	22 / 28 I ERCF 25 / 30 I RSF *OCG/OCM/OCTA/OCTR	22 / 28 P ERCF 25 / 30 P RSF *OCG/OCM/OCTA/OCTR	22 / 28 Y ERCF 25 / 30 Y RSF *OCG/OCM/OCTA/OCTR
Electrical angle	20°-360° in 1° steps programmable (standard 360°)	2 to 128, 256, 512, (1024 ppr. std)	0 - 360°	0 - 360°
Supply voltage	5V±10% / 9-30 VDC / 15-30 VDC	5V±10% / 9-30 VDC	5V ± 10%	5V±10% / 9-30 VDC
Output signal	0505/0505-2C; 2410/2410-2C 0 - 20mA ; 4-20 mA PWM	5V TTL; 5V / 24V Open collector	Absolute SPI	5V / 24V SSI
Resolution	4096 steps (12 bit)	4096 steps (12 bit)	16383 steps (14 bit)	4096 steps (12 bit)
Mech.speed	3000 rpm (max)	3000 rpm (max)	3000 rpm (max)	3000 rpm (max)
Elec. speed	160 rpm (max)	1600 rpm (max)	800 rpm (max)	1600 rpm (max)
Rotary life	~ 15 mil. rotations	~ 15 mil. rotations	~ 15 mil. rotations	~ 15 mil. rotations

25 / 30 RSF

Interconnection - Terminal block
Detailed Datasheet :
www.rotacol.info/25arsf.pdf
www.rotacol.info/25irsf.pdf
www.rotacol.info/25prsf.pdf
www.rotacol.info/25yrsf.pdf
www.rotacol.info/30arsf.pdf
www.rotacol.info/30irsf.pdf
www.rotacol.info/30prsf.pdf
www.rotacol.info/30yrsf.pdf

22 / 28 ERCK

Interconnection - Flat cable
Detailed Datasheet :
www.rotacol.info/22aerck.pdf
www.rotacol.info/22ierck.pdf
www.rotacol.info/22perck.pdf
www.rotacol.info/22yerck.pdf
www.rotacol.info/28aerck.pdf
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www.rotacol.info/28yerck.pdf

Kit Version : 22 / 28 mm Ø ERC Rotary Position Sensor 25 / 30 Ø - RS SPEED CONNECT (OCG-OCM-OCTR-OCTA)

Version	Analog (A)	Incremental (I)	SPI (P)	SSI (Y)
Type	22 / 28 A ERCK 25 / 30 A RSK *OCG/OCM/OCTA/OCTR	22 / 28 I ERCK 25 / 30 I RSK *OCG/OCM/OCTA/OCTR	22 / 28 P ERCK 25 / 30 P RSK *OCG/OCM/OCTA/OCTR	22 / 28 Y ERCK 25 / 30 Y RSK *OCG/OCM/OCTA/OCTR
Electrical angle	20°-360° in 1° steps programmable (standard 360°)	2 to 128, 256, 512, (1024 ppr. std)	0 - 360°	0 - 360°
Supply voltage	5V±10% / 9-30 VDC / 15-30 VDC	5V±10% / 9-30 VDC	5V ± 10%	5V±10% / 9-30 VDC
Output signal	0505/0505-2C; 2410/2410-2C 0 - 20mA ; 4 - 20 mA PWM	5V TTL; 5V / 24V Open collector	Absolute SPI	5V / 24V SSI
Resolution	4096 steps (12 bit)	4096 steps (12 bit)	16383 steps (14 bit)	4096 steps (12 bit)
Elec. speed	160 rpm (max)	1600 rpm (max)	800 rpm (max)	1600 rpm (max)

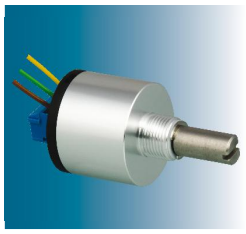
25 / 30 RSK

Interconnection - cable gland
Detailed Datasheet :
www.rotacol.info/25arsk.pdf
www.rotacol.info/25irsk.pdf
www.rotacol.info/25prsk.pdf
www.rotacol.info/25yrsk.pdf
www.rotacol.info/30arsk.pdf
www.rotacol.info/30irsk.pdf
www.rotacol.info/30prsk.pdf
www.rotacol.info/30yrsk.pdf

RotaCol® *Silverline* Multi-Interface Precision Contactless Hall Rotary Position Sensors

Silverline precision contactless Hall Rotary position sensors are not only available with the multi interface output signals such as analog,incremental, SPI,SSI but also in aluminium housing with stainless steel shafts and precision plain or ball bearings. Different mounting methods such as bushing & servo are available in 22 mm housing diameter.Metric shafts 6 mm (MSL) & Inch 1/4" (ZSL) are standard. A large variety of mechanical & electrical options are available (See page 3 & 4). Default interconnection is OCF - Flat cable 0.15m long. Other interconnections such as terminal block axial (OCTA) & radial (OCTR) are available with price adder.Also available in cable gland (OCG) & miniature connector (OCM) with 25mm housing diameter (25 RS).

22A M/Z SL RCB / 22A M/Z SL RCBB — 22 mm Ø Precision Analog Contactless Rotary Position Sensor (Ratiometric 5V, 0 - 10 VDC, 4 - 20 mA, PWM) Bushing - Servo Mount — 22A M/Z SL RCS

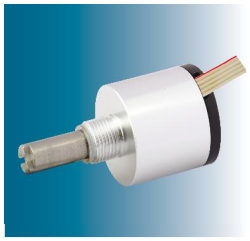


Type	22A MSL/ZSL RCB	22A MSL/ZSL RCBB	22A MSL RCS
Electrical angle	20° - 360° (in 1° steps programmable)		
Signal type	Supply voltage		Output signal
0505/0505 - 2C	5V ± 10%		0 - 5V (ratiometric) / 2 Channel
DC05/DC05 - 2C	9 - 30V		0 - 5V / 2 Channel
2410/2410 - 2C	15 - 30V		0 -10V / 2 Channel
2442	15 - 30V		4 - 20 mA
2420	15 - 30V		0 - 20 mA
PWM	5V ± 10%		PWM
Max.Speed (rpm)	Mech. 1000 / Elec 160	Mech. 4000 / Elec. 160	Mech. 6000 / Elec. 160
Life (rotations)	~ 5 million	~ 15 million	~ 25 million
Standard version	360° elec. angle,12 bit, CW, plain bearing (RCB), 1 ball bearing (RCBB), 2 ball bearings (RCS), flat cable 0.15 m.		

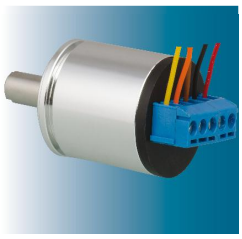
Interconnection - Terminal Block OCTA/OCTR (Price Adder)
Detailed datasheet :
www.rotacol.info/22amslrcb.pdf
www.rotacol.info/22azslrcb.pdf
www.rotacol.info/22amslrcbb.pdf
www.rotacol.info/22azslrcbb.pdf

Interconnection -Flat cable OCF (Standard)
Detailed datasheet :
www.rotacol.info/22amslrcs.pdf
www.rotacol.info/22azslrcs.pdf

22I M/Z SL RCB / 22I M/Z SL RCBB — 22 mm Ø Precision Incremental Contactless Rotary Position Sensor (5V TTL, 5V / 24V Open collector) Bushing - Servo Mount — 22I M/Z SL RCS



Type	22I MSL/ZSL RCB	22I MSL/ZSL RCBB	22I MSL/ZSL RCS
Electrical angle	0° - 360°		
Resolution	4096 steps (12 bits)		
Supply voltage	5V ± 10% / 9 - 30 VDC		
Output signal	5V TTL, 5V / 24V Open collector		
Pulses	2 to 128, 256, 512, 1024 ppr		
Max.Speed (rpm)	Mech. 1000 / Elec.1600	Mech. 4000 / Elec.1600	Mech. 6000 / Elec.1600
Life (rotations)	~ 5 million	~ 15 million	~ 25 million
Standard version	360° elec.angle,1024 ppr, CW, plain bearing (RCB), 1 ball bearing (RCBB), 2 ball bearings (RCS), flat cable 0.15 m		



Interconnection -Flat cable OCF (Standard)
Detailed datasheet :
www.rotacol.info/22imslrcb.pdf
www.rotacol.info/22izslrcb.pdf
www.rotacol.info/22imslrcbb.pdf
www.rotacol.info/22izslrcbb.pdf

Interconnection -Terminal Block OCTA/OCTR (Price Adder)
Detailed datasheet :
www.rotacol.info/22imslrcs.pdf
www.rotacol.info/22izslrcs.pdf

22P M/Z SL RCB / 22P M/Z SL RCBB — 22 mm Ø Precision SPI Digital Contactless Rotary Position Sensor (5V SPI) Bushing - Servo Mount — 22P M/Z SL RCS

Type	22P MSL/ZSL RCB	22P MSL/ZSL RCBB	22P MSL/ZSL RCS
Electrical angle	0° - 360°		
Resolution	16383 steps (14 bits)		
Supply voltage	5V ± 10%		
Output signal	Absolute SPI		
Max.Speed (rpm)	Mech. 1000 / Elec. 800	Mech. 4000 / Elec. 800	Mech. 6000 / Elec.800
Life (rotations)	~ 5 million	~ 15 million	~ 25 million
Standard version	360° elec. angle, 14 bit, CW, plain bearing (RCB), 1 ball bearing (RCBB), 2 ball bearings (RCS), flat cable 0.15 m.		

Interconnection -Flat cable OCF (Standard)
Detailed datasheet :
www.rotacol.info/22pmslrcb.pdf
www.rotacol.info/22pzslrcb.pdf
www.rotacol.info/22pmslrcbb.pdf
www.rotacol.info/22pzslrcbb.pdf

Interconnection -Flat cable OCF (Standard)
Detailed datasheet :
www.rotacol.info/22pmslrcs.pdf
www.rotacol.info/22pzslrcs.pdf

22Y M/Z SL RCB / 22Y M/Z SL RCBB — 22 mm Ø Precision Digital Serial Synchronous Absolute Contactless Rotary Position Sensor (5V / 24V SSI) Bushing - Servo Mount — 22Y M/Z SL RCS

Type	22Y MSL/ZSL RCB	22Y MSL/ZSL RCBB	22Y MSL/ZSL RCS
Electrical angle	0° - 360°		
Resolution	4096 steps (12 bits)		
Supply voltage	5V ± 10% / 9 - 30 VDC		
Output signal	Digital serial synchronous (SSI) 5V/24V		
Max.Speed (rpm)	Mech. 1000 / Elec. 1600	Mech. 4000 / Elec.1600	Mech. 6000 / Elec.1600
Life (rotations)	~ 5 million	~ 15 million	~ 25 million
Standard version	360° elec. angle, 12 bit, CW, plain bearing (RCB), 1 ball bearing (RCBB), 2 ball bearings (RCS), flat cable 0.15 m.		

Interconnection -Flat cable OCF (Standard)
Detailed datasheet :
www.rotacol.info/22ymslrcb.pdf
www.rotacol.info/22yzslrcb.pdf
www.rotacol.info/22ymslrcbb.pdf
www.rotacol.info/22yzslrcbb.pdf

Interconnection -Flat cable OCF (Standard)
Detailed datasheet :
www.rotacol.info/22ymslrcs.pdf
www.rotacol.info/22yzslrcs.pdf

RotaCol® *Silverline* Multi-Interface Precision Contactless Hall Rotary Position Sensors

Silverline product range of Rotacol precision multi-interface contactless rotary position sensors in 22, 36 & 50 mm housing diameter synchro size 15+20 are available. They have two precision ball bearings and are available in 3 mounting methods; Threaded holes for screw fixing and standardised servo mount size 09,15 & 20. Multiinterface is possible with Analog, Incremental, PWM, SPI and SSI outputs.Shaft diameter is available in Metric(M) with 6 mm and inch type(Z) with 1/4"&1/8" (See page 4). Default interconnection is with soldering pins (OCP). Other interconnections cable gland(OCG), miniature connector(OCM), terminal block axial (OCTA) & radial (OCTR) are available in 36 & 50 mm housing diameter with price adder. A large variety of mechanical & electrical options are available.

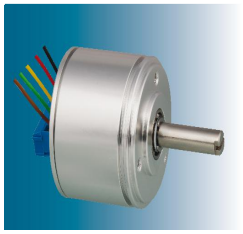
36A M/Z SL RCS — 36/50 mm Ø Rotacol Analog Precision Rotary Position Sensor (Ratiometric 5V, 0 - 10 VDC, 4 - 20 mA, PWM) Servo Mount — 50A MSL RCS

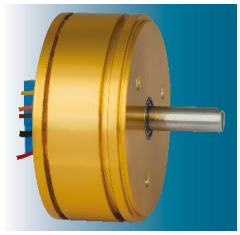
Type	36A MSL/ZSL RCS (Synchro 15)	50A MSL RCS (Synchro 20)
Electrical angle	20° - 360° (in 1° steps programmable)	
Signal type	Supply voltage	Output signal
0505/0505-2C	5V ± 10%	0 - 5V (ratiometric) / 2 Channel
DC05/DC05-2C	9 - 30V	0 - 5V / 2 Channel
2410/2410-2C	15 - 30V	0 -10V / 2 Channel
2442	15 - 30V	4 - 20 mA
2420	15 - 30V	0 - 20 mA
PWM	5V ± 10%	PWM
Resolution	4096 step (12 bit)	
Max.Speed (rpm)	Mechanical 8000 / Electrical 160	Mechanical 9000 / Electrical 160
Life (rotations)	~ 35 million	~ 40 million
Standard Version	360° electrical angle , CW ,12 bit, 2 ball bearings, Metric shaft, Soldering pins (OCP) - 3 pins	

Interconnection - 3 soldering pins OCP (Standard)
Detailed Datasheet :
www.rotacol.info/36amslrcs.pdf
www.rotacol.info/36azslrcs.pdf

Interconnection - 3 soldering pins - OCP (Standard)
Detailed Datasheet :
www.rotacol.info/50amslrcs.pdf

36I M/Z SL RCS — 36/50 mm Ø Rotacol Incremental Precision Rotary Position Sensor (5V TTL, 5V / 24V Open collector) Servo Mount — 50I MSL RCS





Type	36I MSL/ZSL RCS (Synchro 15)	50I MSL RCS (Synchro 20)
Electrical angle	0° - 360°	
Supply voltage	5V ± 10% / 9 - 30 VDC	
Output signal	5V TTL, 5V / 24V Open collector	
Pulses	2 to 128, 256, 512, 1024 ppr	
Resolution	4096 step (12 bit)	
Max.Speed (rpm)	Mechanical 8000 / Electrical 1600	Mechanical 9000 / Electrical 1600
Life (rotations)	~ 35 million	~ 40 million
Standard version	360° elec. angle, CW, 2 ball bearings, 1024 ppr, Metric shaft, 12 bit, Soldering pins (OCP) - 5 pins	

Interconnection - Radial terminal block OCTR - (Price Adder)
Detailed Datasheet :
www.rotacol.info/36imslrcs.pdf
www.rotacol.info/36izslrcs.pdf

Interconnection - Radial terminal block OCTR - (Price Adder)
Detailed Datasheet :
www.rotacol.info/50imslrcs.pdf

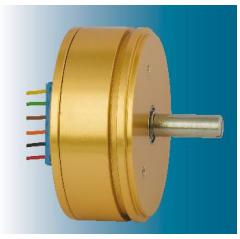
36P M/Z SL RCS — 36/50 mm Ø Rotacol SPI Precision Rotary Position Sensor (5V SPI) Servo Mount — 50P MSL RCS

Type	36P MSL/ZSL RCS (Synchro 15)	50P MSL RCS (Synchro 20)
Electrical angle	0° - 360°	
Supply voltage	5V ± 10% / 9 - 30 VDC	
Output signal	Absolute SPI	
Resolution	16383 step (14 bit)	
Max.Speed (rpm)	Mechanical 8000 / Electrical 800	Mechanical 9000 / Electrical 800
Life (rotations)	~ 35 million	~ 40 million
Standard version	360° elec. angle, CW, 2 ball bearings, 5 V SPI, Metric shaft, 14 bit, Soldering pins (OCP) - 5 pins	

Interconnection - Cable gland with 1 m cable OCG- (Price Adder)
Detailed Datasheet :
www.rotacol.info/36pmslrcs.pdf
www.rotacol.info/36pzslrcs.pdf

Interconnection - cable gland with 1m cable OCG- (Price Adder)
Detailed Datasheet :
www.rotacol.info/50pmslrcs.pdf

36Y M/Z SL RCS — 36/50 mm Ø Rotacol SSI Precision Rotary Position Sensor (5V / 24V SSI) Servo Mount — 50Y MSL RCS



Type	36Y MSL/ZSL RCS (Synchro 15)	50Y MSL RCS (Synchro 20)
Electrical angle	0° - 360°	
Supply voltage	5V ± 10% / 9 - 30 VDC	
Output signal	Digital Serial synchronous (SSI) 5V/24V	
Resolution	4096 steps (12 bit)	
Max.Speed (rpm)	Mechanical 8000 / Electrical 1600	Mechanical 9000 / Electrical 1600
Life (rotations)	~ 35 million	~ 40 million
Standard version	360° elec. angle, CW , 2 ball bearings, 5 V SSI, Metric shaft , 12 bit, Soldering pins (OCP) - 6 pins	

Interconnection - 6 soldering pins - (standard)
Detailed Datasheet :
www.rotacol.info/36ymslrcs.pdf
www.rotacol.info/36yzslrcs.pdf

Interconnection - axial terminal block OCTA- (Price Adder)
Detailed Datasheet :
www.rotacol.info/36imslrcs.pdf

AnaCol® Analog Precision Cost-effective Contactless Rotary Position Sensor

The AnaCol ® product range was created to provide very economical rotary position sensors with single analog interface, with small dimensions, and a variety of different mechanical mounting possibilities. To keep the price reasonable, the most popular electrical and mechanical features have been selected and NO modifications like with our other types are available. Analog outputs such as 0-5 V (ratiometric), 0-10 V and 4-20 mA are standard. Because of limited number of technical versions, stock might be held by our international distributors or technical centres.

12A AC MS — 12 / 15 mm ø Analog Rotary Sensor - Metal case - Ball bearing — 15A AC MF

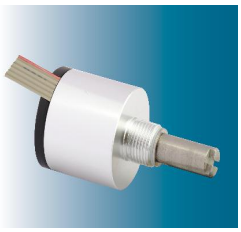
Type	12A AC MS (Servo)	15A AC MF (Flange)
	Supply voltage	Analog Output Signal
12A AC MS 0505 / 15A AC MF 0505	5V± 10%	0 - 5 V (ratiometric)
Linearity Tolerance(IEC60393)	± 0.3%	
Resolution	4096 steps (12 bit)	
Max. Speed (rpm)	Mech 3000 ; Elec 160 (update rate)	
Life (rotations)	~ 10 million	
Standard version	0 -360° elec. & mech. angle, CW , 12 bit, 1 ball bearing, 12 bit, metric shaft, No modifications possible	

Detailed datasheet : www.anacol.info/12aacms.pdf

Detailed datasheet : www.anacol.info/15aacmf.pdf

22A AC PB — 22 mm ø Analog Contactless Rotary Sensor - Low cost - Bushing — 22A AC MB

Type	22A AC PB (Plastic)	22A AC MB (Metal)
	Supply voltage	Analog Output Signal
22A AC PB 0505 / 22A AC MB 0505	5V± 10%	0 - 5 V (ratiometric)
22A AC PB 2410 / 22A AC MB 2410	15-30 V	0 -10 V
22A AC PB 2442 / 22A AC MB 2442	15-30 V	4 - 20 mA
Linearity Tolerance(IEC60393)	±0.3%	
Resolution	4096 steps (12 bit)	
Max. Speed (rpm)	Mech 1500 ; Elec 160 (update rate)	
Life (rotations)	~ 4 million	~ 7 million
Standard version	0 -360° elec. & mech. angle, CW , 12 bit, metric shaft, No modifications possible	

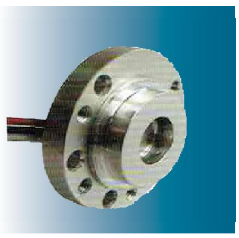


Detailed datasheet : www.anacol.info/22aacpb.pdf

Detailed datasheet : www.anacol.info/22aacmb.pdf

22A AC MF — 22 mm ø Analog Contactless Rotary Sensor - Flange - Shaftless — 22A AC MH

Type	22A AC MF (Flange)	22A AC MH (Shaftless)
	Supply voltage	Analog Output Signal
22A AC MF 0505 / 22A AC MH 0505	5V± 10%	0 - 5 V (ratiometric)
22A AC MF 2410 / 22A AC MH 2410	15-30 V	0 -10 V
22A AC MF 2442 / 22A AC MH 2442	15-30 V	4 - 20 mA
Linearity Tolerance(IEC60393)	±0.3%	
Resolution	4096 steps (12 bit)	
Max. Speed (rpm)	Mech 5000 ; Elec 160 (update rate)	
Life (rotations)	~ 3 million	
Standard version	0 - 360° elec. & mech. angle, CW , 12 bit, metric shaft (MF), no shaft (MH), No modifications possible	



Detailed datasheet : www.anacol.info/22aacmf.pdf

Detailed datasheet : www.anacol.info/22aacmh.pdf

22A AC MS — 22 / 36 mm ø Analog Contactless Rotary Sensor - Servo mount — 36A AC MS

Type	22A AC MS (Synchro 09)	36A AC MS (Synchro 15)
	Supply voltage	Analog Output Signal
22A AC MS 0505 / 36A AC MS 0505	5V± 10%	0 - 5 V (ratiometric)
22A AC MS 2410 / 36A AC MS 2410	15-30 V	0 -10 V
22A AC MS 2442 / 36A AC MS 2442	15-30 V	4 - 20 mA
Linearity Tolerance(IEC60393)	±0.3%	
Resolution	4096 steps (12 bit)	
Max. Speed (rpm)	Mech 5000 ; Elec 160 (update rate)	
Life (rotations)	~ 8 million	~ 15 million
Standard version	0 - 360° elec. & mech. angle, CW , 12 bit, 1 ball bearing, 12 bit, 6 mm shaft, No modifications possible, Output connection - pins	

Detailed datasheet : www.anacol.info/22aacms.pdf

Detailed datasheet : www.anacol.info/36aacms.pdf

Rotacol® *Diamondline* Multi-Interface Precision Heavy Duty Contactless Rotary Position Sensors

For heavy duty applications, the ***Diamondline*** is the best choice. Larger housing diameters 40 mm, 50 mm & 58 mm with 8 mm ø & 10 mm ø shafts and also without shaft in semi hollow version. Complex bearings allow the use in construction machines, railways & trucks. Multi- interfaces such as Analog, Incremental, SPI, SSI are available. Electrically there is no difference between the Silverline, only the ruggedness is substaintially larger.

40/50A DRCW — 40/50 mm ANALOG Precision Rotary Position Sensor — 50A DRCH

Type	40/50 A DRCW (8 mm ø shaft)	50 A DRCH (Hollow shaft)
Electrical angle	20° - 360° (in 1° steps programmable)	
Signal type	Supply voltage	Output signal
0505/0505-2C	5V ± 10%	0 - 5V (ratiometric) / 2 Channel
DC05/DC05-2C	9 - 30V	0 - 5V / 2 Channel
2410/2410-2C	15 - 30V	0 -10 / 2 Channel
2442	5 - 30V	4 - 20 mA
2420	15 - 30V	0 - 20 mA
PWM	5V ± 10%	PWM
Resolution	4096 steps(12 bit)	
Max. Speed	5000 rpm (mech); update rate 2 KHz (160rpm)	
Life (rotations)	~ 75 million	
Standard Version	360° elec. & mech. angle, CW , 2 ball bearings, 12 bit, 8 mm Ø shaft (40/50 DRCW), no shaft (50 DRCH), 2.5 m cable	

Detailed datasheet :
www.rotacol.info/40adrcw.pdf
www.rotacol.info/50adrcw.pdf

Detailed datasheet :
www.rotacol.info/50adrch.pdf

40/50I DRKW — 40/50 mm INCREMENTAL Precision Rotary Position Sensor — 50I DRKH

Type	40 I DRKW (8 mm ø shaft)	50 I DRKH (Hollow shaft)
Electrical angle	0 - 360°	
Supply voltage	5V ± 10% / 8 - 24 VDC	
Output signal	5V TTL, 5V / 24V Open collector, Line driver, High line driver	
Pulses	2 to 128, 256, 512, 1024 ppr, A, B, Z or $\overline{A}$, $\overline{B}$, $\overline{Z}$ Channels	
Max Speed	5000 rpm (mech); limit freq. 10KHz	
Life (rotations)	~ 75 million	
Standard Version	360° elec. & mech. angle, CW , 2 ball bearings, 1024 pulses, 12 bit, 8 mm Ø shaft (40/50 DRCW), no shaft (50 DRCH), 2.5 m cable	

Detailed datasheet :
www.rotacol.info/40idrkw.pdf
www.rotacol.info/50idrkw.pdf

Detailed datasheet :
www.rotacol.info/50idrkh.pdf

40/50P DRCW — 40/50 mm SPI Precision Rotary Position Sensor — 50P DRCH

Type	40 P DRCW (8 mm ø shaft)	50 P DRCH (Hollow shaft)
Electrical angle	0 - 360°	
Supply voltage	5V ± 10% / 9 - 30 VDC	
Output signal	Absolute SPI	
Resolution	16383 step (14 bit)	
Max Speed	5000 rpm (mech); update rate 5 KHz (800rpm)	
Life (rotations)	~ 75 million	
Standard Version	360° elec. & mech. angle, CW , 2 ball bearings, 14 bit, 8 mm Ø shaft (40/50 DRCW), no shaft (50 DRCH), 2.5 m cable	

Detailed datasheet :
www.rotacol.info/40pdrcw.pdf
www.rotacol.info/50pdrcw.pdf

Detailed datasheet :
www.rotacol.info/50pdrch.pdf

40/50Y DRCW — 40 / 50 mm SSI Precision Rotary Position Sensor — 50Y DRCH

Type	40 Y DRCW (8 mm ø shaft)	50 Y DRCH (Hollow shaft)
Electrical angle	0 - 360°	
Supply voltage	5V ± 10% / 9 - 30 VDC	
Output signal	Digital Serial Synchronous (SSI) 5V / 24V	
Resolution	4096 steps (12 bit)	
Max Speed	5000 rpm (mech); update rate 10 KHz (1600rpm)	
Life (rotations)	~ 75 million	
Standard version	360° elec. & mech. angle, CW , 2 ball bearings, 12 bit, 8 mm Ø shaft (40/50 DRCW), no shaft (50 DRCH), 2.5 m cable	

Detailed datasheet :
www.rotacol.info/40ydrcw.pdf
www.rotacol.info/50ydrcw.pdf

Detailed datasheet :
www.rotacol.info/50ydrch.pdf

Rotacol® *Diamondline* Multi-Interface Precision Heavy Duty Contactless Rotary Position Sensors

For heavy duty applications, the ***Diamondline*** is the best choice. Large housing diameter 58 mm with 10 mm ø stainless steel shaft, Synchro flange(DRCS) or Clamping flange (DRCW) and complex bearings allow the use in construction machines, railways & trucks. Multi-interfaces such as Analog, Incremental, SPI, SSI are available. Electrically there is no difference between the Silverline, only the ruggedness is substaintially larger.

58A DRCW — 58 mm ø ANALOG Precision Rotary Position Sensor — 58A DRCS

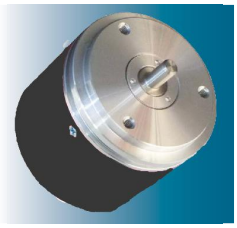
Type	58 A DRCW (Clamp.flange + 3 screws)	58 A DRCS (Synchro Flange)
Electrical angle	20° - 360° (in 1° steps programmable)	
Signal type	Supply voltage	Output signal
0505/0505-2C	5V ± 10%	0 - 5V (ratiometric) / 2 Channel
DC05/DC05-2C	9 - 30V	0 - 5V / 2 Channel
2410/2410-2C	15 - 30V	0 -10V / 2 Channel
2442	15 - 30V	4 - 20 mA
2420	15 - 30V	0 - 20 mA
PWM	5V ± 10%	PWM
Resolution	4096 steps (12 bit)	
Max Speed (rpm)	5000 rpm (mech); update rate 2 KHz (160rpm)	
Life (rotations)	~ 75 million	
Standard version	360° elec. & mech. angle, CW , 2 ball bearings, 12 bit, 10 mm shaft, 2.5 m cable	

Detailed datasheet : www.rotacol.info/58adrcw.pdf

Detailed datasheet : www.rotacol.info/58adrcs.pdf

58I DRKW — 58 mm ø INCREMENTAL Precision Rotary Position Sensor — 58I DRKS

Type	58 I DRCW (Clamp.flange + 3 screws)	58 I DRKS (Synchro Flange)
Electrical angle	0 - 360°	
Supply voltage	5V ± 10% / 8 - 24 VDC	
Output signal	5V TTL, 5V / 24V Open collector, Line driver, High line driver	
Pulses	2 to 128, 256, 512, 1024 ppr , A, B, Z or $\overline{A}$, $\overline{B}$, $\overline{Z}$ Channels	
Max Speed (rpm)	5000 rpm (mech); limit freq. 10KHz	
Life (rotations)	~ 75 million	
Standard version	360° elec. & mech. angle, CW , 1024 pulses ,2 ball bearings, 12 bit, 10 mm shaft, 2.5 m cable	



Detailed datasheet : www.rotacol.info/58idrkw.pdf

Detailed datasheet : www.rotacol.info/58idrks.pdf

58P DRCW — 58 mm ø SPI Precision Rotary Position Sensor — 58P DRCS

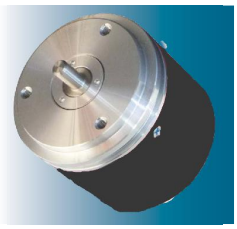
Type	58 P DRCW (Clamp.flange + 3 screws)	58 P DRCS (Synchro Flange)
Electrical angle	0 - 360°	
Supply voltage	5V ± 10% / 9 - 30 VDC	
Output signal	Absolute SPI	
Resolution	16383 step (14 bit)	
Max Speed (rpm)	5000 rpm (mech); update rate 5 KHz (800rpm)	
Life (rotations)	~ 75 million	
Standard version	360° elec. & mech. angle, CW , 2 ball bearings, 14 bit, 10 mm shaft, 2.5 m cable	

Detailed datasheet : www.rotacol.info/58pdrcw.pdf

Detailed datasheet : www.rotacol.info/58pdrcs.pdf

58Y DRCW — 58 mm ø SSI Precision Rotary Position Sensor — 58Y DRCS

Type	58 Y DRCW (Clamp.flange + 3 screws)	58 Y DRCS (Synchro Flange)
Electrical angle	0 - 360°	
Supply voltage	5V ± 10% / 9 - 30 VDC	
Output signal	Digital Serial Synchronous (SSI) 5V/24V	
Resolution	4096 steps (12 bit)	
Max Speed (rpm)	5000 rpm (mech); update rate 10 KHz (1600rpm)	
Life (rotations)	~ 75 million	
Standard version	360° elec. & mech. angle, CW , 2 ball bearings, 12 bit, 10 mm shaft, 2.5 m cable	



Detailed datasheet : www.rotacol.info/58ydrcw.pdf

Detailed datasheet : www.rotacol.info/58ydrcs.pdf

RotaSense® RSS Series High Resolution Precision Rotary Sensor Potentiometers

Aluminium housing, ball bearings, precision stainless shafts, servo mount and close electrical tolerances are the outstanding features for this highest class in potentiometric rotary sensors. Because of volume production, prices are reasonable. Because of the analog 0 - 5K ohm output, the interface is easy. Precision potentiometers as rotary position sensing and setting devices are since more than 50 years used in PLC, industrial computers and for other automation applications. Multi sections with rear shaft extensions are available in Synchro size 07, 09, 15 and 20. Conductive plastic resistance elements allow very long rotational life. For applications with shock and utilization of different interfaces we recommend our contactless series RotaCol.

RSS22

22 mm ø Single Turn Conductive Plastic Long Life Sensor Potentiometer Size 09 Metal Housing, 20 Million Shaft Rotations, Continuous Rotation

2RSS22

- Aluminium housing - 2 ball bearings.
- Synchro type 09 + screw fixing.
- Long life, co-moulded element.
- Very good linearity tolerance.
- **Options:** Single, Tandem, Rear shaft.

Suitable for all rotary position sensing, speed control & feedback applications in machine automation, navigational equipment or fire guidance system.

Resistance range (Ω)	1K, 5K
Resistance tolerance (%)	± 15
Linearity tolerance (%)	± 1 ; ± 0.5
Power rating (Watt)	0.5
Effective electrical angle (°)	340 ± 4
Mechanical angle (°)	360
Rotational life (approx.)	20 million
Operating temperature (° C)	- 55 to +105

Detailed datasheet :
www.megauto.de/en/rss22.pdf

RSS36

36 mm ø Single Turn Conductive Plastic Long Life Sensor Potentiometer size 15, Tandem Version and Rear Shaft Extension, Continuous Rotation

2RSS36RA

- Aluminium housing - 2 ball bearings.
- Synchro type 15 + screw fixing.
- Long life, co-moulded element.
- Very good linearity tolerance.
- International standard servo flange 33.4 mm
- **Options:** Single, Tandem, Rear shaft.

Suitable for all rotary position sensing, speed control & feedback applications in machine automation, navigational equipment or fire guidance system.

Resistance range (Ω)	1K, 5K, 10K
Resistance tolerance (%)	± 15
Linearity tolerance (%)	± 0.5; ± 0.1
Power rating (Watt)	2
Effective electrical angle (°)	90,180 345 ± 5
Mechanical angle (°)	360
Rotational life (approx.)	30 million
Operating temperature: (° C)	-55 to +125

Detailed datasheet :
www.megauto.de/en/rss36.pdf

RSS45

45 / 50 mm Ø Single Turn Conductive Plastic Long Life Sensor Potentiometer 25 Million Shaft Revolution Continuous Rotation

RSS50

- Aluminium housing - 2 ball bearings.
- Synchro type 20
- Long life, co-moulded element.
- Very good linearity tolerance.
- International standard servo flange 47.5 mm
- **Options:** Single, Tandem, Rear shaft.

Suitable for all rotary position sensing, speed control & feedback applications in machine automation, navigational equipment or fire guidance system.

Resistance range (Ω)	1K, 5K
Resistance tolerance (%)	± 15
Linearity tolerance (%)	± 0.5; ± 0.1
Power rating (Watt)	2
Effective electrical angle (°)	90, 180, 345, 352 ± 5
Mechanical angle (°)	360
Rotational life (approx.)	30 million
Operating temperature (° C)	-55 to +125

Detailed datasheet :
www.megauto.de/en/rss45.pdf

Detailed datasheet :
www.megauto.de/en/rss50.pdf

RotaCon® Precision Conductive Plastic Single Turn Rotary Potentiometers

Rotacon® range of precision conductive plastic rotary potentiometers offers wide range of low to medium priced potentiometers. The resistance track is manufactured by modern screen printing technology. Special resistive pastes are applied on carrier, after printing the paste is hardened in the special conveying oven. These potentiometers are available in 12, 22 & 36 mm housing diameter.Potentiometers with small 12/22 mm housing diameters are available in bushing as well as servo mounting. Hollow shaft precision conductive plastic pots are available in 24 & 32 mm housing diameters.These RotaCon type of potentiometers are designed according to IEC60393.These are used in applications where not very close linearity tolerances are required.

CP12B

12 mm ø Precision Bushing & Servo Mount Single Turn Conductive Plastic Potentiometer

CP12S

Detailed datasheet :
www.megauto.de/en/cp12b.pdf

- Miniature type
- 12 mm Ø, Shaft length 17 mm.
- Good linearity tolerance and lifetime
- Precision bearings
- Operating temperature : - 40° to +85°C
- Suitable for mobile sensor, medical equipment & industrial applications.

Type	CP12B (Bush)	CP12S (Servo)
Housing diameter (mm)	12	
Shaft dia X length (mm)	3.17 ø x 17	3.17 ø x 12
Resistance range (Ω)	1k,5k,10k	
Resistance tolerance	± 20%	
Linearity tolerance	± 2%	
Power rating (Watt)	0.7	0.2
Elec./Mech.angle (°)	300±5 /360	340±10 /360
Life (rotations)	~ 3 million	~ 5 million

Detailed datasheet :
www.megauto.de/en/cp12s.pdf

JSM22B

22 mm ø Precision Bushing & Servo Mount Single Turn Conductive Plastic Potentiometer

JSS22S

Detailed datasheet :
www.megauto.de/en/jsm22b.pdf

- Very Economical.
- Servo type
- Rotational torque : 0.2 - 2 Ncm
- Operating temprature: -55°C - +105°C
- Can be used in feedback application.

Type	JSM22B (Bush)	JSS22S (Servo)
Housing diameter (mm)	22	
Shaft dia X length (mm)	6 ø X 15	3.17 ø X 12.7
Resistance range (Ω)	1k,5k,10k	
Resistance tolerance	± 20%	
Linearity tolerance	± 1.5%	
Power rating (Watt)	1	
Elec./Mech. angle (°)	340 /360	340±5/360
Life (rotations)	~ 5 million	~ 8 million

Detailed datasheet :
www.megauto.de/en/jss22s.pdf

JSS28FM

28 / 36 mm ø Conductive Plastic Long Life Sensor Potentiometer

JSS36S

Detailed datasheet :
www.megauto.de/en/jss28fm.pdf

- Sealed,waterproof
- Robust metal housing
- Flange servo
- Special shaft
- International Standard flange
- Operating temprature: -55°C - +105°C

Type	JSS28FM (Flange)	JSS36S (Servo)
Housing diameter (mm)	28	36
Resistance range	1K,5K,10 KΩ	
Resistance tolerance	±20%	
Linearity tolerance	± 1%	
Eff. Elec. angle	320°/340°±5	340° ±5
Mechanical angle	360°	
Power rating (Watt)	1.5	
Life (rotations)	~ 10 million	~ 20 million

Detailed datasheet :
www.megauto.de/en/jss36s.pdf

RH24PC

24 / 32 ø mm Hollow Shaft Precision Conductive Plastic Setting or Sensing Potentiometer

RH32PC

Detailed datasheet :
www.megauto.de/en/rh24pc.pdf

- Easily assembly with adjustment ring
- Usable for position detection, speed control and feedback applications
- Operating temperature: -55°to+105°C
- Mechanical angle: 360°

Type	RH24PC	RH32PC
Housing diameter (mm)	24	32
Hollow shaft dia. (mm)	6 / 3,6 Ø - 5 flat, 3 Ø - 2.5 flat	8 Ø
Resistance range (Ω)	1k, 5k,10k	
Resistance tolerance	± 20%	
Linearity tolerance	± 2%	
Power rating (Watt)	0.5	2
Eff. Electrical angle (°)	340 ± 5	
Life (rotations)	~2 million	~3 million

Detailed datasheet :
www.megauto.de/en/rh32pc.pdf

RotaSet® Semiprecision / Precision Single turn Conductive Plastic Potentiometers

Rotary position sensing & setting potentiometers generally require some rotational life and good resolution. Very low cost carbon potentiometers cannot provide the minimum number of rotations. A new Carboplast formulation gives low cost Semi-Precision potentiometers & improved life performance (~ 500,000 revolutions) at reasonable prices. For longer rotational life (>1million revolutions) complex formulations & precision precious metal wipers are required. (See precision Rotaset, Rotacon or Rotasense potentiometers).

C16P

16 mm Ø Semi - Precision Carboplast Single Turn Potentiometer

Detailed Datasheet :
www.megauto.de/en/c16p.pdf

- Very low cost industrial high resolution setting and sensing potentiometer for limited rotational life.
- A new Carboplast paste formulation for improved operating life.
- Resistance value (Ω) : 1K,5K,10K
- Resistance tolerance : ±20%
- Operating temperature : -10° to 85° C
- Special shaft length & tolerances
- Radial terminals, available with endstop.

Type	C16P
Housing diameter	16 Ø mm
Bushing size	M6 X 0.75
Shaft diameter	3.2 Ø mm
Linearity tolerance	±2%
Eff.Elec. angle	230°±10
Mechanical angle	260°±5
Rated wattage	0.25 Watt
Rotational life	~ 250,000

C24P / C24PS

24 mm Ø Semi Precision Carboplastic Potentiometer without Switch (C24P) & with Switch (C24PS)

Detailed Datasheet :
www.megauto.de/en/c24p.pdf

- Low cost industrial high resolution setting and sensing potentiometer for limited rotational life.
- Switching circuit with Integrated S.P.D.T. switch at starting point (for C24PS).
- A new carboplast paste formulation for improved operating life.
- Resistance value (Ω) : 1K,5K,10K
- Resistance tolerance : ±20%

Type	C24P	C24PS
Housing dia.	24 Ø mm	
Bushing size	M9 X 0.75	
Linearity Tol.	±2%	
Shaft diameter	6 Ø mm	
Eff. elec. angle	270°±10	230°±10
Mech.angle	300° ±5	
Rated wattage	0.5 Watt	
Rotational life	~ 600,000	

Detailed Datasheet :
www.megauto.de/en/c24ps.pdf

R22P/PC / R23P/PC

22 / 23 mm Ø Precision Single Turn Conductive Plastic Potentiometer with Endstop (R22P/R23P) &without Endstop (R22PC/R23PC)

Detailed Datasheet :
www.megauto.de/en/r22p.pdf
www.megauto.de/en/r22pc.pdf

- Low cost precision potentiometer
- Industrial standard for setting and sensing applications.
- Almost infinite resolution available
- Resistance value (Ω) :1K,5K,10K
- Resistance tolerance : ±20%
- Power rating :1 Watt
- Operating temperature: -55° to 105°C
- Center tap, special torque.
- Many options

Type	R22P/PC	R23P/PC
Housing material	Metal	Plastic
Eff.Electrical angle (°)	340 (R22P) 340 (R22PC)	320 (R23P) 340 (R23PC)
Mechanical angle (°)	340(R22P) 360(R22PC)	330(R23P) 360 (R23PC)
Antirotation pin (mm)	1.5 Ø X1.5	2 Ø X1.5
Linearity tolerance	±2%	
Rotational life	~ 3 million	

Detailed Datasheet :
www.megauto.de/en/r23p.pdf
www.megauto.de/en/r23pc.pdf

JSP22B / JSP23B

22 / 23 mm Ø Precision Single Turn Conductive Plastic Potentiometer without Endstop (JSP22B) & with Endstop (JSP23B)

Detailed Datasheet :
www.megauto.de/en/jsp22b.pdf

- Resistance value (Ω) : 1K,5K,10K.
- Resistance tolerance : ±20%.
- Operating life : ~ 4 million.
- Rated wattage : 1 Watt
- Operating temperature : -55° to 105°C
- Special shaft lengths & tolerances.

Type	JSP22B	JSP23B
Housing diameter	22 mm	
Bushing Size	M10 X 0.75	
Shaft diameter	6 / 6.35 mm Ø	
Linearity tolerance	±1.5%	
Eff. elec. angle	340°±5	320°±5
Mechanical angle	360 °	320°±5
Rotational life	~ 4 million	~ 20 million

Detailed Datasheet :
www.megauto.de/en/jsp23b.pdf

RotaSet® Industrial Precision Single & 10 Turn Wire Wound Panel Potentiometers

Rotaset® wirewound single & multiturn potentiometers can be used as preset & rotary position sensing devices.Wirewound potentiometers have a long tradition & are mostly used when a higher wiper current is required. Single turn wirewound potentiometers have many options such as special electrical & mechanical angles, endstops etc. Other features are standard. Precision multiturn potentiometers are generally available with 3 turn (1080°), 5 turn (1800°), 10 turn (3600°) electrical & mechanical angles. The advantage is that with special dial (see below) a very accurate setting is possible. They have an excellent electrical and mechanical resolution. Because of the large production in the world, today they are very economical. Especially our Combipot- a combination of Model 22TW & dial such as RLD22-15.

R22W/WC — 22 / 25 mm Ø Wirewound Single Turn Precision Potentiometer — MRT25W/WC

Detailed Datasheet :
www.megauto.de/en/r22w.pdf

- Wire wound - mandrel winding
- Bush mounting
- Very flexible, low cost
- Special shaft length
- 270 ° electrical angle (optional)
- Rear shaft extension
- 1 - 4 sections (R22W/WC)

Types	R22W/WC	MRT25W/WC
Resistance range (Ω)	100,200,500,1k,2k,5k,10k	
Resistance tolerance (%)	± 5	± 10
Linearity tolerance (%)	± 0.5	± 1
Mechanical angle (°)	320(W) 360(WC)	
Eff.Electrical angle (°)	320 ± 5	
Power rating (Watt)	1.5	

Detailed Datasheet :
www.megauto.de/en/mrt25w.pdf

R25W/WC — 25 / 40 mm Ø Wirewound Single Turn Precision Potentiometer — R40W/WC

Detailed Datasheet :
www.megauto.de/en/r25w.pdf

- Wire wound - card winding
- Bush mounting
- Very low cost
- Immediate delivery
- Industrial panel component
- Designed for manual setting
- Electrical angle 270°
- Manual operation with 270° endstop & 360° without endstop

Types	R25W/WC	R40W/WC
Resistance range (Ω)	100, 500, 1K, 2K, 5K, 10K	
Resistance tolerance (%)	± 10	
Linearity tolerance (%)	± 0.5, 1, 1.5	
Power rating (Watt)	1	3
Mechanical angle (°)	285(W) 360(WC)	
Rotational life	~ 100,000	

Detailed Datasheet :
www.megauto.de/en/r40w.pdf

TW22 — 22 mm Ø Wirewound Precision 10 Turn Potentiometer — R22M

Detailed Datasheet :
www.megauto.de/en/tw22.pdf

- Very economical
- Bush mounting
- High resolution and close tolerances
- According to industrial standard
- Various mechanical options available
- Combipot - a combination of model 22TW & dial such as RLD22-15

Types	TW22	R22M
Resistance range (Ω)	100,500,1k,5k,10k,50k	
Resistance tolerance (%)	± 10	±10
Linearity tolerance (%)	± 0.5	± 1
Power rating (Watt)	2	
Electrical/Mechanical angle (°)	3600	3600
Rotational life	~ 250,000	~ 100,000

Detailed Datasheet :
www.megauto.de/en/r22m.pdf

RLD22-15 — 22 mm Ø Dials for Multiturn Potentiometers - 10/15 Turns — RCD22-10

Detailed datasheet:
www.megauto.de/en/rld22.pdf

- High resolution setting
- Resolution: 1°
- Used with multiturn devices.
- With fixing brake and slip proof design.
- Operating temprature : -55 - +70°C

Types	RLD22-15	RCD22-10
Number of turns	15	10
Resolution/increments	100 / rotations	
Front panel thickness	2 - 6 mm	
Shaft diameter (mm)	3.17, 4 , 6, 6.35 Ø	
Lock system	Brakes	
Nut space (mm)	9.65	

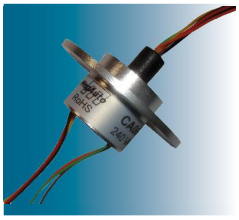
Detailed datasheet:
www.megauto.de/en/rcd22.pdf

SLIP RING - Electrical Analog and Digital Signal Transmission

Slip rings are used in electrical – mechanical systems where an interruptible current or signal transmission from a static to a rotating object has to be processed. The encapsulated slip rings are integrated into a metal (plastic) housing, which avoids influence of interfaces. Different numbers of signals can be transmitted. The special construction of slip rings enlarges the contact surfaces, reduces current noises and improves life time performances. The operational life is depending on the rotating speed, working temperatures, environmental conditions (shock, vibration etc) The slip rings are available for data bus protocols, Ethernet, USB, CAN etc.Typical applications for our slip rings are rotary sensors, robotic systems, process control equipment, indexing tables, camera systems (video TV signals) etc.

CA6X4AL / CA36X4AL

6 / 36 rings Encapsulated Slip Rings, Metal Flange , Gold to gold contacts, Precision Ball bearings

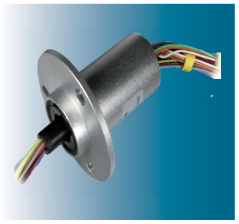


Detailed datasheet :
www.megauto.de/en/ca6.pdf

- Metal housing with flanges.
- Power rings with 1A, 2A, 5A &10A.
- available in different numbers of rings
- Rotational speed : 250 rpm
- Low current noise

Applications:
Rotary indexing table, CCTV pan, tilt video cameras, aviation, instrument & medical equipment, rotary sensors,robotics.

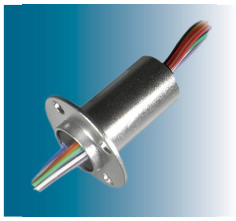
Type	CA6X4AL	CA36X4AL
Current/ring	2 A	
Housing diameter	22 mm	
Voltage	240V AC/DC	
Noise	< 20 mΩ	
Operating temp.	-40 to 85°C	
Life (rotations)	appr. 60 million	
Number of rings	6	36



Detailed datasheet :
www.megauto.de/en/ca36.pdf

MI12X4AL / MC4X6SS

12 Rings Miniature Slip Rings (MI) 4 Rings Micro Slip Rings (MC) , Metal Flange

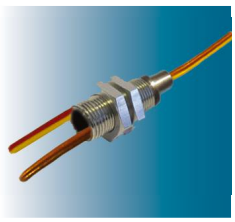


Detailed datasheet :
www.megauto.de/en/mi12x4al.

- Voltage: 240V AC/DC
- Also available in x rings (MI series)
- Gold to gold contacts

Applications:
Rotary indexing table, CCTV pan, tilt video cameras, aviation, instrument & medical equipment, rotary sensors,robotics.

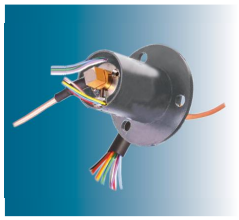
Type	MI12X4AL	MC4X6SS
Rotational Speed	250 rpm	300 rpm
Current/ring	2 A	1A
Housing diameter	15.5	10
Noise	< 20 mΩ	< 5 mΩ
Operating temp.	-40 to +85°C	-25 to 65°C
Life (rotations)	~ 60 million	~ 45 million
Number of rings	12	4
Mounting	Flange	Threaded



Detailed datasheet :
www.megauto.de/en/mc4x6ss.pdf

CA12XCAL / MI01X1CAL

12 Rings High Frequency Co-axial Slip Ring, 1 Ring High Frequency Co-axial Slip Ring, Metal Flange,



Detailed datasheet :
www.megauto.de/en/ca12xcal.pdf

- Power rings with 1A, 2A, 5A &10A
- Transfer of signal over coax cable
- Gold to gold contacts
- Precision ball bearings

Applications:
Rotary indexing table, CCTV pan, tilt video cameras, aviation, instrument & medical equipment, rotary sensors,robotics.

Type	CA12XCAL	MI01X1CAL
Rotational Speed	50 rpm	
Housing diameter	25 mm	
Voltage	240V AC/DC	380 V AC/DC
Frequency range	3 GHz	
Operating temp.	-20 to 55°C	-20 to 60°C
Life (rotations)	~ 45 million	~ 50 million
Number of rings	12	1

Detailed datasheet :
www.megauto.de/en/mi01x1cal.pdf

CA6 / CA12X4HAL

special 6 Rings High Speed Slip Ring, special 12 Rings Hollow Slip Ring , Metal Flange

Detailed datasheet :
www.megauto.de/en/ca6.pdf

- Axial feed through facility CA12X4HAL
- Noise: <20 mΩ
- CA6 0,5 A high speed upto 8000 rpm
- Precision ball bearings

Applications:
Precise Instrument, military weapon system, Communication network Appliance, medical equipment,radar, Exhibit & display equipment.

Type	CA6	CA12X4HAL
Rotational Speed	8000 rpm	200 rpm
Voltage Rating	12V DC	240V AC/DC
Housing diameter	22 mm	25 mm
Operating temp.	-40 to 80°C	-40 to 85°C
Life (rotations)	~ 150 hours	~ 60 million
Number of rings	6	12

Detailed datasheet :
www.megauto.de/en/ca12x4hal.pdf

LinoSense® Precision Linear Motion Transducer

The function of a linear motion transducer is to convert a mechanical displacement into an electrical signal and the signal can be made directly proportional to the mechanical movement. The wiper assembly connected to the mechanical actuator is now moved on the plastic track to make a voltage divider. The track of the potentiometer is connected to a stabilized input DC voltage which allow a small current flow. The signal voltage, when measured between the wiper and the trimmed track is the principle of voltage divider and is directly proportional to the position of the wiper on the track. The use of the potentiometer as a voltage divider minimizes the necessity for accuracy of the total resistance of the track since the temperature fluctuation only affects the changes in resistance and resistance tolerance does not affect the measured result.

LSC

LSC:Linear motion conductive plastic displacement sensor, square shape 33 × 33 mm housing, pull rod, upto 1250 mm, link ball or rod end bearing

SPRA/SPVA/SPCA

Detail Datasheet :
www.megauto.de/en/lsc.pdf

- Linearity tolerance (%) : ± 0.1
- Repeatability (µm) : (typ.) 25 - 50
- Power (watt) : 3 - 10
- Resistance value (Ω) : 5K, 10K
- Operating speed (m/s) : 4 (max.)
- High resolution position sensor
- Operating temprature : -30 to 85°C
- Square shape housing
- Stainless steel rod
- Link ball or rod end bearing
- Recommended for racks & pinion
- Optional inbuilt or external signal conditioner

Type	Output signal	LSC	SPxA
Resistive	5KΩ/10KΩ	LSC	SPRA
Voltage	0-10V	LSCB 2410	SPVA
Current	4-20mA	LSCB 2442	SPCA
Electrical stroke (mm)		50 - 900	30 - 1250
Life cycles		~ 30 million	~ 75 million

Detail Datasheet :
www.megauto.de/en/spra.pdf
www.megauto.de/en/spva.pdf
www.megauto.de/en/spca.pdf

LSR

LSR: Linear motion conductive plastic sensor, robust 38 mm dia housing, with push rod, maximum 0 – 900 mm in 12 ranges, special bearing and shaft for robust applications

SPRC/SPVC/SPCC

Detail Datasheet :
www.megauto.de/en/lsr.pdf

- Linearity tolerance (%) : ± 0.1
- Repeatability (µm) : (typ.) 25 - 50
- Power (watt) : 3 - 10
- Resistance value (Ω) : 5K, 10K
- Operating speed (m/s) : 4 (max.)
- High resolution position sensor
- Operating temprature : -30 to 85°C
- Round shape housing
- Stainless steel rod
- Link ball or rod end bearing
- Recommended for racks & pinion

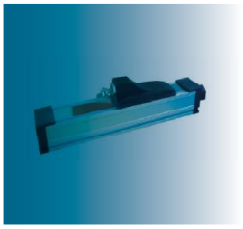
Type	Output signal	LSR	SPxC
Resistive	5KΩ/10KΩ	LSR	SPRC
Voltage	0-10V	LSRB 2410	SPVC
Current	4-20mA	LSRB 2442	SPCC
Electrical stroke (mm)		50 - 900	100 - 700
Life cycles		~ 30 million	~ 75 million

Detail Datasheet :
www.megauto.de/en/sprc.pdf
www.megauto.de/en/spvc.pdf
www.megauto.de/en/spcc.pdf

LSO

LSO:Shaftless precision linear motion conductive plastic displacement sensor 33 x33mm ,Space saving side mount interconnection

SPRB/SPVB/SPCB

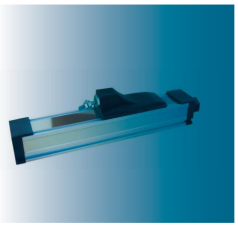


Detail Datasheet :
www.megauto.de/en/lso.pdf

- Linearity tolerance (%) : ± 0.1
- Repeatability (µm) : (typ.) 25 - 50
- Power (watt) : 3 - 10
- Resistance value (Ω) : 5K, 10K
- Operating speed (m/s) : 4 (max.)
- Operating temprature : -30 to 85°C

Universal high resolution linear motion displacement sensor according to international standard,very economical. It includes coupling and mounting elements.

Type	Output Signal	LSO	SPxB
Resistive	5KΩ/10KΩ	LSO	SPRB
Voltage	0-10V	LSOB 2410	SPVB
Current	4-20mA	LSOB 2442	SPCB
Electrical stroke (mm)		50 - 900	100 - 1500
Life cycles		~ 30 million	~ 75 million

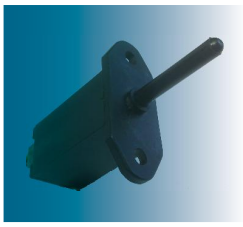


Detail Datasheet :
www.megauto.de/en/sprb.pdf
www.megauto.de/en/spvb.pdf
www.megauto.de/en/spcb.pdf

MKP/PPS

MKP: Conductive plastic, PPS : Hall effect linear sensor, MKS1 : Small stroke very low cost linear motion spring return displacement sensor

MKS1



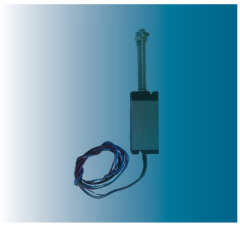
Detail Datasheet :
www.megauto.de/mkp.pdf
www.megauto.de/pps.pdf

MKP & PPS :

- Plastic housing ,Plastic Shaft
- Flange mountable
- Stroke length (mm) :
  10, 20 (MKP)
  5,10, 20. (PPS)
- Analog and PWM output (PPS)
- Resistive output (MKP)
- Spring return
- 12 bit resolution (PPS)
- Easy mounting facility.

MKS1 :

Stroke length (mm)	10,25,45....50
Repeatability (mm)	±0.01
Linearity tolerance (%)	±1
Size	15 X 10
Life (rotations)	~ 20 million
Operating speed (m/s)	3
Resistance value (Ω)	5K



Detail Datasheet :
www.megauto.de/en/mks1.pdf

Agents and Distributors worldwide are available for Technical Information and Quotations

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