

MAGNETYCZNY SYSTEM POMIARU LINIOWEGO LI20 Z PIERŚCINIEM MAGNETYCZNYM RI20

Inkrementalny, magnetyczny system pomiarowy

LI20.1121.2020
LIMES 0,025mm, push-pull



- Odporne na wstrząsy i wibracje
- Łatwe do instalacji
- Wysoka rozdzielczość
- Wysoki stopień ochrony IP67

OPIS PRODUKTU

Obrotowy magnetyczny system pomiarowy ma zastosowanie wszędzie tam, gdzie występują trudne warunki przemysłowe (kurz, wilgoć, itp). Będzie również użyteczny w aplikacjach, w których wymagana jest mała głębokość zabudowy. System ten posiada wiele zalet. Wysoki stopień ochrony IP67 umożliwia pracę w bardzo ciężkich warunkach przemysłowych, a bezstykowe sprzężenie pierścienia i czujnika zapewnia bardzo wysoką odporność na uderzenia i wibracje. Brak jakichkolwiek łożysk nie tylko obniża koszty wykonania enkodera, ale również umożliwia pracę przy bardzo dużych prędkościach obrotowych. Taki układ jest niezwykle kompaktowy – zajmuje jedynie 16mm głębokości i jest bardzo prosty w montażu – wystarczy przykręcić pierścień do osi i ustawić czujnik nad powierzchnią magnetyczną.

Pierścienie dostępne są na wał o średnicy 8-30 mm. Średnice pierścienia: 31 mm, 41,2 mm i 45 mm.

Odległość pomiędzy pierścieniem a czujnikiem powinna wynosić 0,1 do 1,0 mm (rekomendowane 0,4 mm). Dla czujnika magnetycznego, nachylenie nie może przekraczać $\pm 3^\circ$, obrót nie może przekraczać $\pm 3^\circ$ i przesunięcie nie może przekraczać ± 1 mm.

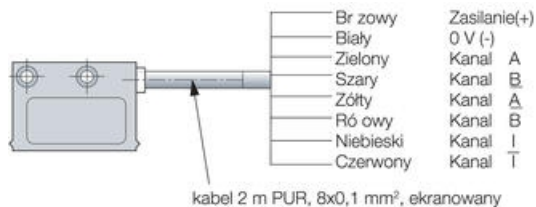
Poniższe informacje są wymagane, aby wybrać właściwą kombinację:

- rozmiar pierścienia
- max. prędkość obrotowa wału

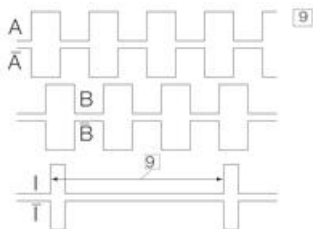
Impulsów/obrot	Pierścień magnetyczny	Czujnik magnetyczny	Max. prędkość (obr/min)
250	RI20.031.XXXX	LI20.11X1.2005	12000
1000	RI20.031.XXXX	LI20.11X1.2020	2400
2500	RI20.031.XXXX	LI20.11X1.2050	3900
1024	RI20.041.XXXX	LI20.11X1.2016	7000
360	RI20.045.XXXX	LI20.11X1.2005	12000
3600	RI20.045.XXXX	LI20.11X1.2050	2700

DANE TECHNICZNE

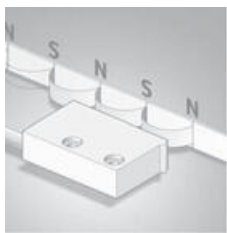
Wyjście	Push/Pull	RS422
Napięcie zasilania	4,8-30 V DC	4,8-26 V DC
Obciążenie/kanal, max. długość przewodu	± 20 mA, max. 30m	120 Ohm, RS422 standard
Pobór prądu	typ. 25 mA, max. 60 mA	
Wyjścia	A, B i i wyjścia zanegowane	



Opis działania



Aplikacje



NUMERY KATALOGOWE

Nr katalogowy	opis
RI20.031.0800	Pierścień magnetyczny RI20, średnica zewnętrzna 31 mm, średnica otworu 8 mm
RI20.031.1000	Pierścień magnetyczny RI20, średnica zewnętrzna 31 mm, średnica otworu 10 mm
RI20.031.1200	Pierścień magnetyczny RI20, średnica zewnętrzna 31 mm, średnica otworu 12 mm
RI20.031.1500	Pierścień magnetyczny RI20, średnica zewnętrzna 31 mm, średnica otworu 15 mm
RI20.031.2000	Pierścień magnetyczny RI20, średnica zewnętrzna 31 mm, średnica otworu 20 mm
RI20.041.0800	Pierścień magnetyczny RI20, średnica zewnętrzna 41.2 mm, średnica otworu 8 mm
RI20.041.1500	Pierścień magnetyczny RI20, średnica zewnętrzna 41.2 mm, średnica otworu 15 mm
RI20.045.0800	Pierścień magnetyczny RI20, średnica zewnętrzna 45 mm, średnica otworu 8 mm
RI20.045.1200	Pierścień magnetyczny RI20, średnica zewnętrzna 45 mm, średnica otworu 12 mm
RI20.045.1500	Pierścień magnetyczny RI20, średnica zewnętrzna 45 mm, średnica otworu 15 mm
RI20.045.1800	Pierścień magnetyczny RI20, średnica zewnętrzna 45 mm, średnica otworu 18 mm
RI20.045.2500	Pierścień magnetyczny RI20, średnica zewnętrzna 45 mm, średnica otworu 25 mm
RI20.045.3000	Pierścień magnetyczny RI20, średnica zewnętrzna 45 mm, średnica otworu 30 mm
LI20.1121.2005	Czujnik magnetyczny LI20, Push/pull, przewód 2 m PUR

LI20.1121.2016	Czujnik magnetyczny LI20, Push/pull, przewód 2 m PUR
LI20.1121.2020	Czujnik magnetyczny LI20, Push/pull, przewód 2 m PUR
LI20.1121.2050	Czujnik magnetyczny LI20, Push/pull, przewód 2 m PUR

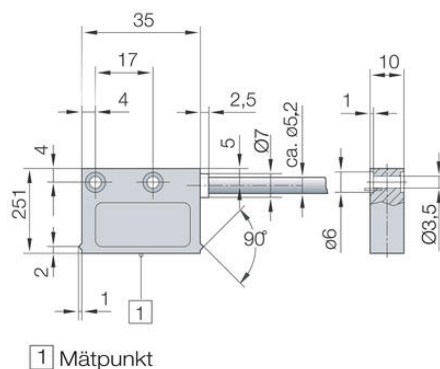
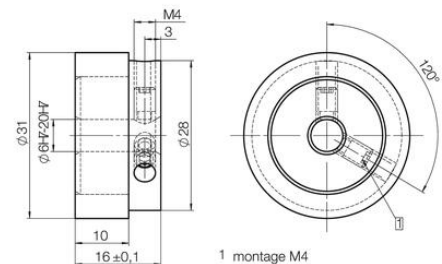
SPECYFIKACJA TECHNICZNA

1637_Speed max	12000 rpm
Masa	40 g
Materiał obudowy czujnika	Cynk
Max. temperatura pracy	80 °C
Min. temperatura pracy	-20 °C
Napięcie zasilania DC max.	30 V DC
Napięcie zasilania DC min.	4,8 V DC
Obciążalność prądowa	0,02 A
Powtarzalność	1 %
Rotation Max	3
Slope Max	3
Stopień ochrony IP	IP67
System Accuracy	0,03
Zakres detekcji	1 mm

Order code	8.LI20	X1	XXX	2	XXX
Sensor head Limes LI20	Type	Ø	Ø	Ø	Ø
Model	1 = IP67 standard	2 = IP68 / (P/NH and humidity tested acc. to EN 60959-2-30, EN 60959-2-31)	Type of connection	1 = cable, 2 = 20-307 PUR	A = radial cable, special length PUR *)
Output signal / power supply	1 = RS422 / 4...20 V DC	2 = Push/pull / 4...20 V DC	Reference signal	1 = Index potential	2 = Index potential
			Interpretation factor	000, 010, 020, 050	000, 010, 020, 050
			Stock type	8.LI20.1111.2005	8.LI20.1111.2020
				8.LI20.1121.2005	8.LI20.1121.2020
				8.LI20.1121.2050	8.LI20.1121.2050

Order code	8.RI20	XXX	XXXX	111
Magnetic ring RI20	Type	Ø	Ø	Ø
Outer diameter	031 = 31 mm (1.22")	061 = 61.2 mm (2.41")	081 = 81.2 mm (3.2")	101 = 101.2 mm (4")
Bore diameter	000 = 8 mm (0.31")	100 = 10 mm (0.39")	150 = 15 mm (0.59")	200 = 20 mm (0.79")
	050 = 5 mm (0.19")	120 = 12 mm (0.47")	250 = 25 mm (0.98")	300 = 30 mm (1.18")
	060 = 6 mm (0.24")	130 = 13 mm (0.51")	260 = 26 mm (1.02")	310 = 31 mm (1.22")
	070 = 7 mm (0.28")	140 = 14 mm (0.55")	270 = 27 mm (1.06")	320 = 32 mm (1.26")
	080 = 8 mm (0.31")	160 = 16 mm (0.63")	280 = 28 mm (1.1")	330 = 33 mm (1.3")
	090 = 9 mm (0.35")	170 = 17 mm (0.67")	290 = 29 mm (1.14")	340 = 34 mm (1.34")
	100 = 10 mm (0.39")	180 = 18 mm (0.71")	300 = 30 mm (1.18")	350 = 35 mm (1.38")
	110 = 11 mm (0.43")	190 = 19 mm (0.75")	310 = 31 mm (1.22")	360 = 36 mm (1.42")
	120 = 12 mm (0.47")	200 = 20 mm (0.79")	320 = 32 mm (1.26")	370 = 37 mm (1.46")
	130 = 13 mm (0.51")	210 = 21 mm (0.83")	330 = 33 mm (1.3")	380 = 38 mm (1.5")
	140 = 14 mm (0.55")	220 = 22 mm (0.87")	340 = 34 mm (1.34")	390 = 39 mm (1.54")
	150 = 15 mm (0.59")	230 = 23 mm (0.91")	350 = 35 mm (1.38")	400 = 40 mm (1.57")
	160 = 16 mm (0.63")	240 = 24 mm (0.94")	360 = 36 mm (1.42")	410 = 41 mm (1.61")
	170 = 17 mm (0.67")	250 = 25 mm (0.98")	370 = 37 mm (1.46")	420 = 42 mm (1.65")
	180 = 18 mm (0.71")	260 = 26 mm (1.02")	380 = 38 mm (1.5")	430 = 43 mm (1.69")
	190 = 19 mm (0.75")	270 = 27 mm (1.06")	390 = 39 mm (1.54")	440 = 44 mm (1.73")
	200 = 20 mm (0.79")	280 = 28 mm (1.1")	400 = 40 mm (1.57")	450 = 45 mm (1.77")
	210 = 21 mm (0.83")	290 = 29 mm (1.14")	410 = 41 mm (1.61")	460 = 46 mm (1.81")
	220 = 22 mm (0.87")	300 = 30 mm (1.18")	420 = 42 mm (1.65")	470 = 47 mm (1.85")
	230 = 23 mm (0.91")	310 = 31 mm (1.22")	430 = 43 mm (1.69")	480 = 48 mm (1.89")
	240 = 24 mm (0.94")	320 = 32 mm (1.26")	440 = 44 mm (1.73")	490 = 49 mm (1.93")
	250 = 25 mm (0.98")	330 = 33 mm (1.3")	450 = 45 mm (1.77")	500 = 50 mm (1.97")
	260 = 26 mm (1.02")	340 = 34 mm (1.34")	460 = 46 mm (1.81")	510 = 51 mm (2.01")
	270 = 27 mm (1.06")	350 = 35 mm (1.38")	470 = 47 mm (1.85")	520 = 52 mm (2.05")
	280 = 28 mm (1.1")	360 = 36 mm (1.42")	480 = 48 mm (1.89")	530 = 53 mm (2.09")
	290 = 29 mm (1.14")	370 = 37 mm (1.46")	490 = 49 mm (1.93")	540 = 54 mm (2.13")
	300 = 30 mm (1.18")	380 = 38 mm (1.5")	500 = 50 mm (1.97")	550 = 55 mm (2.17")
	310 = 31 mm (1.22")	390 = 39 mm (1.54")	510 = 51 mm (2.01")	560 = 56 mm (2.21")
	320 = 32 mm (1.26")	400 = 40 mm (1.57")	520 = 52 mm (2.05")	570 = 57 mm (2.25")
	330 = 33 mm (1.3")	410 = 41 mm (1.61")	530 = 53 mm (2.09")	580 = 58 mm (2.29")
	340 = 34 mm (1.34")	420 = 42 mm (1.65")	540 = 54 mm (2.13")	590 = 59 mm (2.33")
	350 = 35 mm (1.38")	430 = 43 mm (1.69")	550 = 55 mm (2.17")	600 = 60 mm (2.36")
	360 = 36 mm (1.42")	440 = 44 mm (1.73")	560 = 56 mm (2.21")	610 = 61 mm (2.4")
	370 = 37 mm (1.46")	450 = 45 mm (1.77")	570 = 57 mm (2.25")	620 = 62 mm (2.44")
	380 = 38 mm (1.5")	460 = 46 mm (1.81")	580 = 58 mm (2.29")	630 = 63 mm (2.48")
	390 = 39 mm (1.54")	470 = 47 mm (1.85")	590 = 59 mm (2.33")	640 = 64 mm (2.52")
	400 = 40 mm (1.57")	480 = 48 mm (1.89")	600 = 60 mm (2.36")	650 = 65 mm (2.56")
	410 = 41 mm (1.61")	490 = 49 mm (1.93")	610 = 61 mm (2.4")	660 = 66 mm (2.6")
	420 = 42 mm (1.65")	500 = 50 mm (1.97")	620 = 62 mm (2.44")	670 = 67 mm (2.64")
	430 = 43 mm (1.69")	510 = 51 mm (2.01")	630 = 63 mm (2.48")	680 = 68 mm (2.68")
	440 = 44 mm (1.73")	520 = 52 mm (2.05")	640 = 64 mm (2.52")	690 = 69 mm (2.72")
	450 = 45 mm (1.77")	530 = 53 mm (2.09")	650 = 65 mm (2.56")	700 = 70 mm (2.76")
	460 = 46 mm (1.81")	540 = 54 mm (2.13")	660 = 66 mm (2.6")	710 = 71 mm (2.8")
	470 = 47 mm (1.85")	550 = 55 mm (2.17")	670 = 67 mm (2.64")	720 = 72 mm (2.84")
	480 = 48 mm (1.89")	560 = 56 mm (2.21")	680 = 68 mm (2.68")	730 = 73 mm (2.88")
	490 = 49 mm (1.93")	570 = 57 mm (2.25")	690 = 69 mm (2.72")	740 = 74 mm (2.92")
	500 = 50 mm (1.97")	580 = 58 mm (2.29")	700 = 70 mm (2.76")	750 = 75 mm (2.96")
	510 = 51 mm (2.01")	590 = 59 mm (2.33")	710 = 71 mm (2.8")	760 = 76 mm (3")
	520 = 52 mm (2.05")	600 = 60 mm (2.36")	720 = 72 mm (2.84")	770 = 77 mm (3.04")
	530 = 53 mm (2.09")	610 = 61 mm (2.4")	730 = 73 mm (2.88")	780 = 78 mm (3.08")
	540 = 54 mm (2.13")	620 = 62 mm (2.44")	740 = 74 mm (2.92")	790 = 79 mm (3.12")
	550 = 55 mm (2.17")	630 = 63 mm (2.48")	750 = 75 mm (2.96")	800 = 80 mm (3.15")
	560 = 56 mm (2.21")	640 = 64 mm (2.52")	760 = 76 mm (3")	810 = 81 mm (3.19")
	570 = 57 mm (2.25")	650 = 65 mm (2.56")	770 = 77 mm (3.04")	820 = 82 mm (3.23")
	580 = 58 mm (2.29")	660 = 66 mm (2.6")	780 = 78 mm (3.08")	830 = 83 mm (3.27")
	590 = 59 mm (2.33")	670 = 67 mm (2.64")	790 = 79 mm (3.12")	840 = 84 mm (3.31")
	600 = 60 mm (2.36")	680 = 68 mm (2.68")	800 = 80 mm (3.15")	850 = 85 mm (3.35")
	610 = 61 mm (2.4")	690 = 69 mm (2.72")	810 = 81 mm (3.19")	860 = 86 mm (3.39")
	620 = 62 mm (2.44")	700 = 70 mm (2.76")	820 = 82 mm (3.23")	870 = 87 mm (3.43")
	630 = 63 mm (2.48")	710 = 71 mm (2.8")	830 = 83 mm (3.27")	880 = 88 mm (3.47")
	640 = 64 mm (2.52")	720 = 72 mm (2.84")	840 = 84 mm (3.31")	890 = 89 mm (3.51")
	650 = 65 mm (2.56")	730 = 73 mm (2.88")	850 = 85 mm (3.35")	900 = 90 mm (3.54")
	660 = 66 mm (2.6")	740 = 74 mm (2.92")	860 = 86 mm (3.39")	910 = 91 mm (3.58")
	670 = 67 mm (2.64")	750 = 75 mm (2.96")	870 = 87 mm (3.43")	920 = 92 mm (3.62")
	680 = 68 mm (2.68")	760 = 76 mm (3")	880 = 88 mm (3.47")	930 = 93 mm (3.66")
	690 = 69 mm (2.72")	770 = 77 mm (3.04")	890 = 89 mm (3.51")	940 = 94 mm (3.7")
	700 = 70 mm (2.76")	780 = 78 mm (3.08")	900 = 90 mm (3.54")	950 = 95 mm (3.74")
	710 = 71 mm (2.8")	790 = 79 mm (3.12")	910 = 91 mm (3.58")	960 = 96 mm (3.78")
	720 = 72 mm (2.84")	800 = 80 mm (3.15")	920 = 92 mm (3.62")	970 = 97 mm (3.82")
	730 = 73 mm (2.88")	810 = 81 mm (3.19")	930 = 93 mm (3.66")	980 = 98 mm (3.86")
	740 = 74 mm (2.92")	820 = 82 mm (3.23")	940 = 94 mm (3.7")	990 = 99 mm (3.9")
	750 = 75 mm (2.96")	830 = 83 mm (3.27")	950 = 95 mm (3.74")	1000 = 1000 mm (39.37")
	760 = 76 mm (3")	840 = 84 mm (3.31")	960 = 96 mm (3.78")	
	770 = 77 mm (3.04")	850 = 85 mm (3.35")	970 = 97 mm (3.82")	
	780 = 78 mm (3.08")	860 = 86 mm (3.39")	980 = 98 mm (3.86")	
	790 = 79 mm (3.12")	870 = 87 mm (3.43")	990 = 99 mm (3.9")	
	800 = 80 mm (3.15")	880 = 88 mm (3.47")	1000 = 1000 mm (39.37")	
	810 = 81 mm (3.19")	890 = 89 mm (3.51")		
	820 = 82 mm (3.23")	900 = 90 mm (3.54")		
	830 = 83 mm (3.27")	910 = 91 mm (3.58")		
	840 = 84 mm (3.31")	920 = 92 mm (3.62")		
	850 = 85 mm (3.35")	930 = 93 mm (3.66")		
	860 = 86 mm (3.39")	940 = 94 mm (3.7")		
	870 = 87 mm (3.43")	950 = 95 mm (3.74")		
	880 = 88 mm (3.47")	960 = 96 mm (3.78")		
	890 = 89 mm (3.51")	970 = 97 mm (3.82")		
	900 = 90 mm (3.54")	980 = 98 mm (3.86")		
	910 = 91 mm (3.58")	990 = 99 mm (3.9")		
	920 = 92 mm (3.62")	1000 = 1000 mm (39.37")		
	930 = 93 mm (3.66")			
	940 = 94 mm (3.7")			
	950 = 95 mm (3.74")			
	960 = 96 mm (3.78")			
	970 = 97 mm (3.82")			
	980 = 98 mm (3.86")			
	990 = 99 mm (3.9")			
	1000 = 1000 mm (39.37")			

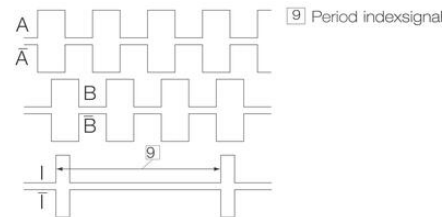
Magnetring 8.RI20.031.XXXX.111, ø 31 mm



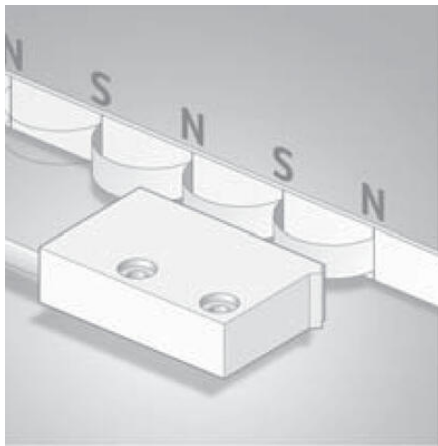
Pin assignment:

Signal	Wire colour
0 V, GND	white
U _B	brown
A	green
A̅	yellow
B	grey
B̅	pink
I	blue
I̅	red

Shield is on the housing



9 Period indexsignal



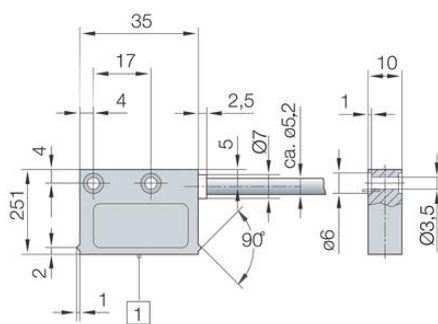
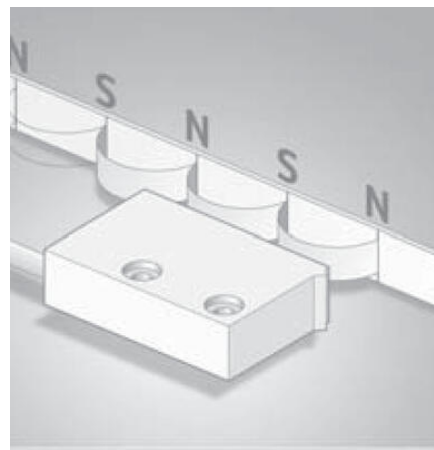
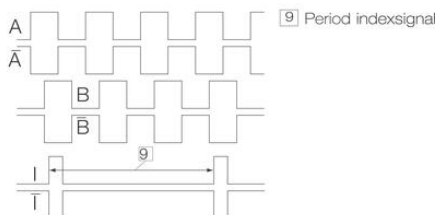
Order code	8.L120	X1XX	2XXX
Sensor head Lines L120	Type		
Model	1 = cable, 2 m (8.961 ft)		
2 = IP68 (IP68) and humidity tested	A = radial cable, special length (P18 *)		
Output circuit / power supply	3, 5, 6, 10, 15, 30, 40, 60, 100, 200, 300, 400, 600, 800, 1000, 2000, 3000 (for cable length 3 m)		
Reference signal	2 = Index periodical		
Interpolation factor	005, 010, 020, 050		
Shield type	0000, 0001, 0005, 0010, 0020, 0050, 0100, 0200, 0500, 1000, 2000, 3000, 4000, 6000, 8000, 10000		

Order code	8.R120	XXX	XXXX	111
Magnetic ring R120	Type			
Outer diameter	0000 = 8 mm (0.31")	0001 = 10 mm (0.39")	0005 = 15 mm (0.59")	0010 = 20 mm (0.79")
Inner diameter	0000 = 6 mm (0.24")	0001 = 8 mm (0.31")	0005 = 12 mm (0.47")	0010 = 16 mm (0.63")
Length	0000 = 10 mm (0.39")	0001 = 15 mm (0.59")	0005 = 20 mm (0.79")	0010 = 25 mm (0.98")
Weight	0.001 g	0.002 g	0.005 g	0.010 g
Material	Aluminum	Aluminum	Aluminum	Aluminum
Surface treatment	Anodized	Anodized	Anodized	Anodized
Temperature range	-40 °C to +125 °C	-40 °C to +125 °C	-40 °C to +125 °C	-40 °C to +125 °C
IP rating	IP68	IP68	IP68	IP68
Humidity	100% RH	100% RH	100% RH	100% RH
Shock	1000 g	1000 g	1000 g	1000 g
Vibration	10 mm/s²	10 mm/s²	10 mm/s²	10 mm/s²
Lead time	1 week	1 week	1 week	1 week
Min. order quantity for non-stock types: 10 pieces				

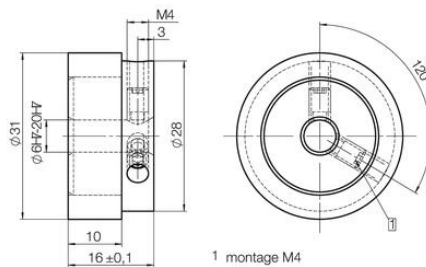
Pin assignment:

Signal	Wire colour
0 V, GND	white
U _B	brown
A	green
A̅	yellow
B	grey
B̅	pink
I	blue
I̅	red

Shield is on the housing



Magnetring 8.R120.031.XXXX.111, ø 31 mm



1 Mät punkt

1 montage M4