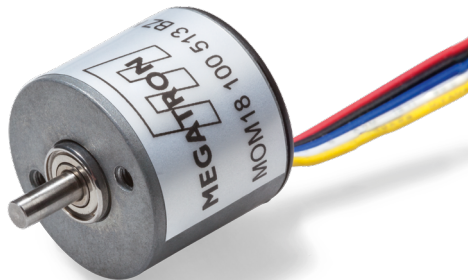


# Data Sheet for Angle Sensors

## Optical incremental Encoder

## Series MOM18



- Compact high quality encoder
- Only 18 mm housing diameter and 15.5 mm housing depth
- 2,5 mm shaft diameter
- Ball bearing
- Up to 1600 pulses per revolution
- 2 channels with reference impulse
- Open collector or line driver electronics
- Supply voltage 5 V (5...12 V Open Collector)
- Incl. signal cable with HIROSE connector ex works

The MOM18 attracts attention due to its first class and compact design and the powerful price structure. This makes it ideal for applications with demands to a high-quality design in combinations with often tight cost structures. The choice of optical resolutions >1000 pulses per revolution and the signal cable with HIROSE connector ex works round off the powerful overall picture.

Electrical Data	Open Collector	Line Driver
Output signal	A, B, Z	
Number of pulses	100..1600 pulses per rev.	
Output voltage high	-	≥ 2.5 V
Output voltage low	0.5V	
Limit frequency	< 400 Imp./U 120 kHz / > 500 Imp./U 240 kHz	
Supply voltage	4.5..13.2 VDC	5 VDC ± 10 %
Power consumption (no load)	≤ 30 mA	
Output capacity	20 mA	
Max. pull-up voltage	20 V	-
Insulation voltage 1.)	250 VAC 1 min	
Insulation resistance 1.)	50 MOhm @ 500 VDC	
Output electronics	Open Collector	Line Driver
Switch-on delay	max. 1 µs	max. 100ns

## Mechanical and Environmental Data, Miscellaneous

Mechanical angle of rotation /stroke 1.)	360° without stop
Bearing	Ball bearing
Max. operational speed	6000 rpm.
Shaft acceleration	1x10 <sup>-5</sup> rad/s <sup>2</sup>
Moment of inertia	1x10 <sup>-8</sup> Kg • m <sup>2</sup>
Operational torque @ ambient temperature 1.) 2.)	≤ 0.49 Nmm
Operating temperature range	-10..+85 °C
Storage temperature range	-30..+85 °C
Protection grade standard (IEC 60529)	IP50
Vibration (IEC 68-2-6, Test Fc)	10 bis 55 Hz / 1.5 mm X, Y, Z each 2h
Shock (IEC 68-2-27, Test Ea)	490m/s <sup>2</sup> , 11 mm X, Y, Z each 3 times

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## Mechanical and Environmental Data, Miscellaneous

Housing diameter	18 mm
Housing depth	15.5 mm
Shaft diameter	2.5 mm
Shaft type	Solid shaft
Max. radial load	< 2.94 N
Max. axial load	< 4.9 N
Connection type	Flatband cable with HIROSE connector
Connection position	Axial (optional radial)
Sensor mounting	Thread screws M2, deep 4
Mass	app. 20 g
Fastening parts included in delivery	None
Material shaft	Stainless steel
Material housing	Zinc alloy (ZDC2)
Material disc	Metal
Immunity ESD, human body model (MIL-STD-883, Method 3015.8)	±4 kV (contact) ±8 kV (air)

1.) According IEC 60393

2.) Determined by climatic conditions according to IEC 68-1, para. 5.3.1 without load collectives

# Data Sheet for Angle Sensors

Optical incremental Encoder

Series MOM18

## Order Code

Description	Selection: standard=black/bold, possible options=grey/cursive						
<b>Series</b>	<b>MOM18</b>						
<b>Shaft diameter, shaft length:</b> <b>Standard: Ø2.5 x 7 mm</b> <i>Option shaft length in mm</i> <i>Option shaft diameter in mm (≤2,5 mm)</i>		-					
		<i>Ax,xx</i>					
		<i>DMx,xx</i>					
<b>Resolution in pulses per revolution:</b> <b>Standard: 100 ppr.</b> <i>Option 160 ppr.</i> <i>Option 200 ppr.</i> <i>Option 300 ppr.</i> <b>Standard: 360 ppr.</b> <i>Option 400 ppr.</i> <b>Standard: 500 ppr.</b> <i>Option 800 ppr.</i> <i>Option 1000 ppr.</i> <i>Option 1024 ppr.</i> <b>Standard: 1600 ppr.</b>							
				<b>100</b>			
				<i>160</i>			
				<i>200</i>			
				<i>300</i>			
				<b>360</b>			
				<i>400</i>			
				<b>500</b>			
				<i>800</i>			
				<i>1000</i>			
				<i>1024</i>			
				<b>1600</b>			
<b>Supply voltage:</b> <b>Standard: 4,5..13.2 V (only for open collector)</b> <i>Option 5 V (only for line driver)</i>					<b>513</b>		
					<i>5</i>		
<b>Output signal:</b> <b>Standard: A+B+Z (index)</b>						<b>BZ</b>	
<b>Output electronics:</b> <b>Standard: Open collector</b> <i>Option line driver</i>							<b>K</b> <i>N</i>
<b>Electrical connection:</b> <b>Standard: Flatband cable with HIROSE connector axial 150 mm</b> <i>Option flatband cable with HIROSE connector radial 150 mm</i>  <i>Option cable length:</i> <i>User defined cable length [x,xx m] with HIROSE connector</i>							- <i>CVR</i>
							<i>x,xx</i>

## Order example MOM18

### Requirement:

Shaft diameter 2,5 mm, shaft length 7 mm, 1600 pulses per revolution, supply voltage 4,5...13,2 V, 2 channels + index, open collector electronic, flatband cable with HIROSE connector

**Example for order coder:** MOM 18 1600 513 BZ K

## For higher quantities or on-going demand, additional options are available as described below

For example:

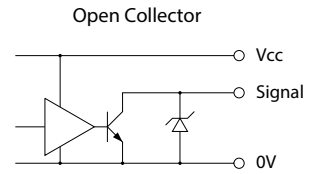
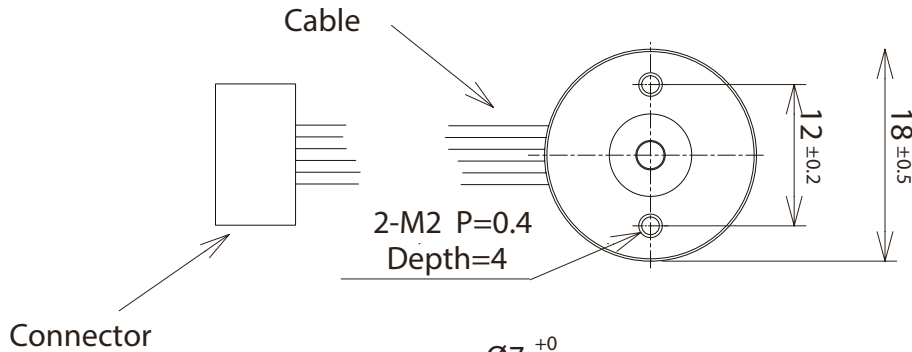
- Other resolutions
- Specials shaft design
- Special connector and cable design
- Other operational torque

# Data Sheet for Angle Sensors

Optical incremental Encoder

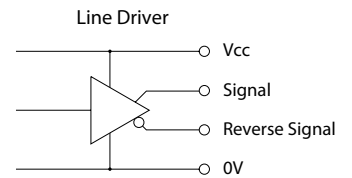
Series MOM18

## Technical Drawing



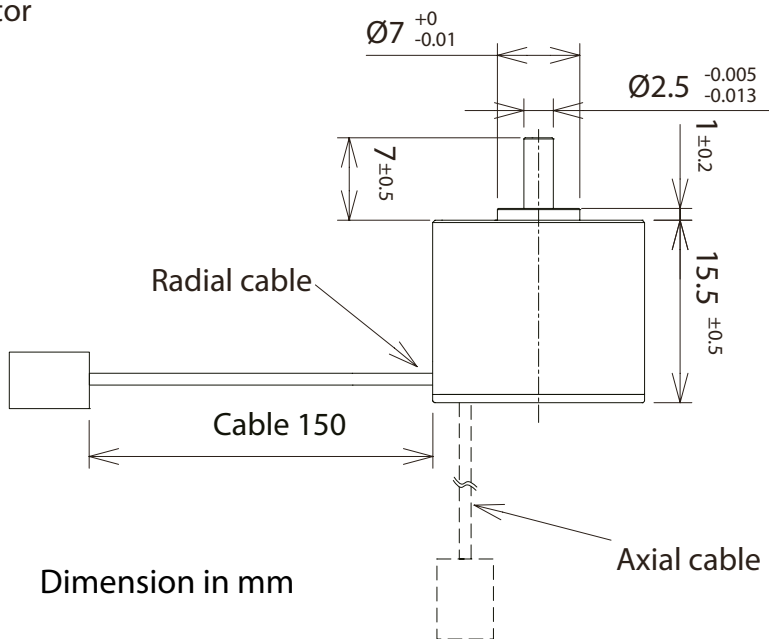
Connector Hirose Electric Co., Ltd.  
DF3-5S-2C

Open Collector		
1	Brown	Vcc
2	Red	0V
3	Orange	Sig A
4	Yellow	Sig B
5	Green	Sig Z

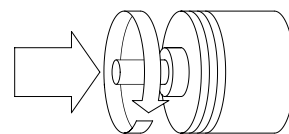
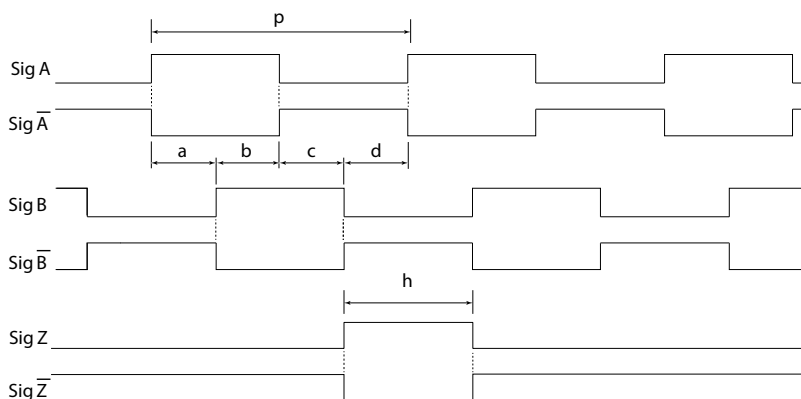


Connector Hirose Electric Co., Ltd.  
DF3-9S-2C

Line Driver		
1	Brown	Vcc
2	Red	0V
3	Orange	Sig A
4	Yellow	Sig $\bar{A}$
5	Green	Sig B
6	Blue	Sig $\bar{B}$
7	Purple	Sig Z
8	Gray	Sig $\bar{Z}$
9	N.C	N.C



Dimension in mm



CW Encoder

$P = 1 / \text{Resolution}$

Line driver output is available for only  $\bar{A}$ ,  $\bar{B}$ ,  $\bar{Z}$  signal.

Signal A,B  $a,b,c,d = (P/4) \pm (P/8)$

Duty =  $(P/2) \pm (P/4)$

Signal Z  $(P/4) \leq h \leq (3P/4)$