

31

## Short description:

- >> 3 short-circuit protected outputs
- >> IP 67 at housing
- >> 5 Vdc or 9...36 Vdc
- >> Shock and vibration protected
- >> Status output for warning indication

## Suitable applications:

- >> Extra rugged design for harsh environments
- >> Forestry applications
- >> Space limited applications

## General information

Encoder data	
Type	MSI 301
Operating temperature	-40°C .. +70°C
Storage temperature	-40°C .. +85°C
Ingress protection class	IP-67 according to IEC 60529
Vibration (55 to 2000Hz)	300 m/s <sup>2</sup> according to IEC 60068-2-6
Shock (6ms)	5000 m/s <sup>2</sup> according to IEC 60068-2-27
Cover material	Aluminium
Weight	Approx. 70g
Accuracy and resolution	
Line count	20, 25, 30, 50, 60, 80, 100, 125, 160, 200, 250, 400, 500,
Other line counts on request	512, 600, 625, 800, 1000, 1024, 1200, 1250
Dividing error	± 50 °el
Channel separation	90 ± 25 °el
Measuring steps	Max 4 x Line count

## Flange option

Flange type	31
Outer diameter	ø30 mm
Mounting holes	3 x M3
Flange material	Aluminium

## Shaft option

Shaft type	Ø6 with face
Axial shaft load	10N
Radial shaft load	10N
Mech. permissible speed	3000rpm (12000rpm)
Shaft material	Stainless steel
Moment of inertia	0,15 x 10 <sup>-6</sup> kgm <sup>2</sup>



### Connection option

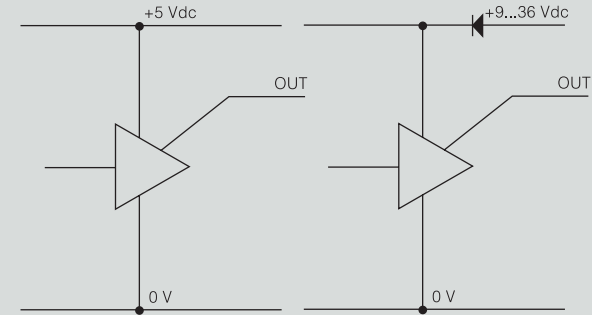
Connector type	Cable PUR 6x0,25mm <sup>2</sup>	8 pin M12	4 pin M8
Function	Colour	PIN	PIN
S00	Yellow	4	4
S90	Green	3	3
Sref	Brown	2	NA
+E Volt	Red	8	1
0 Volt	Blue	7	2
STATUS	Grey	6	NA
Case	Shield	Chassis	Chassis
Connecting direction			
Axial	Yes	Yes	Yes
Radial	Yes	No	No

NA=Not Available

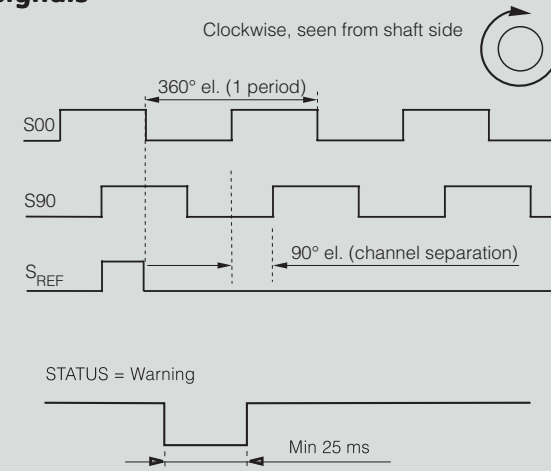
### Electrical option

Power supply	5 V ±10%	9-36 V
Polarity protected	No	Yes
Output signals	TTL	HTL
Short circuit protected	Yes	Yes
Current consumption	30mA	10mA @ 24V
Max consumption	90mA	70mA
Output load (max)	± 20mA	
Frequency range	0...200kHz	
U <sub>high</sub> at 10mA load	> 3.0V	> +EV - 2.0V
U <sub>low</sub> at 10mA load	< 0.4V	< 1.15V
Cable length (max)	100m @ 50kHz	
STATUS output	Yes	Yes
High level	Encoder OK	Encoder OK
Low level	Warning/Failure	Warning/Failure

### Output circuit



### Output signals

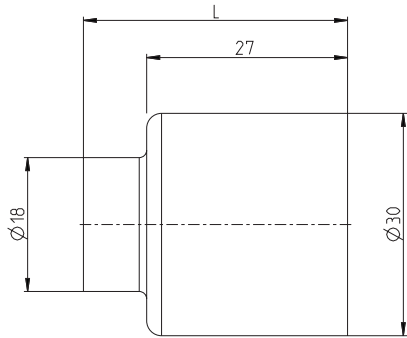


# 301 — Miniature Shaft encoder, Incremental



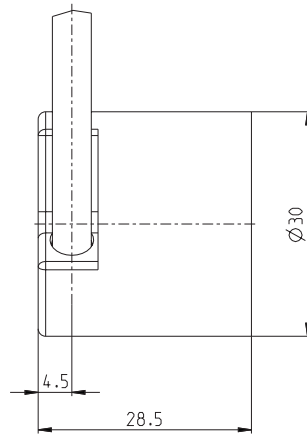
## Dimensions

### Axial connections



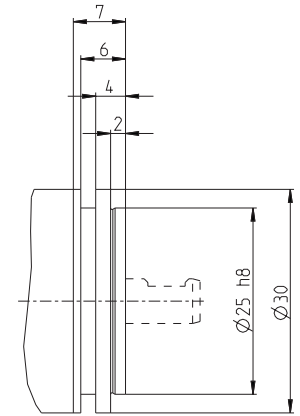
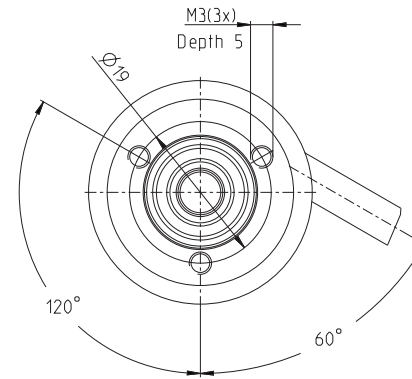
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Cable	28.5
4pM8	32
8pM12	35

### Radial connections



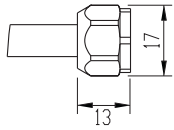
## Flanges

### 31

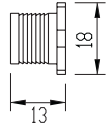


## Connectors

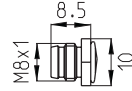
**Cable**  
6x0,25 shielded



**8pin M12**

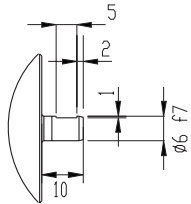


**4pin M8**



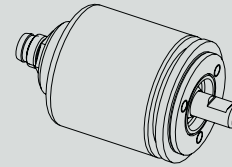
## Shafts

**6 mm with face**

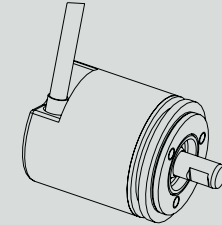


## Various combinations/example

**MSI 301 31**  
6 mm with face, axial M8



**MSI 301 31**  
6 mm with face, radial cable



## Ordering information Tick your choice

Type	MSI 301		
Flange	31		
Shaft	Ø6 with face		
Electronics <sup>(1)</sup>	Supply	5Vdc	9-36Vdc
	Output	TTL	HTL
Connection	Cable	8 pin M12	4 pin M8
Connecting direction	Axial/Radial	Axial	Axial
Line count	1..1250		

<sup>(1)</sup> Possible combinations: 5Vdc/TTL, 9-36Vdc/HTL

**Please, specify line count and cable length when ordering**

Ordering example: MSI 301 31 Ø6wf 5Vdc 1024ppr TTL 8 pin M12 Axial