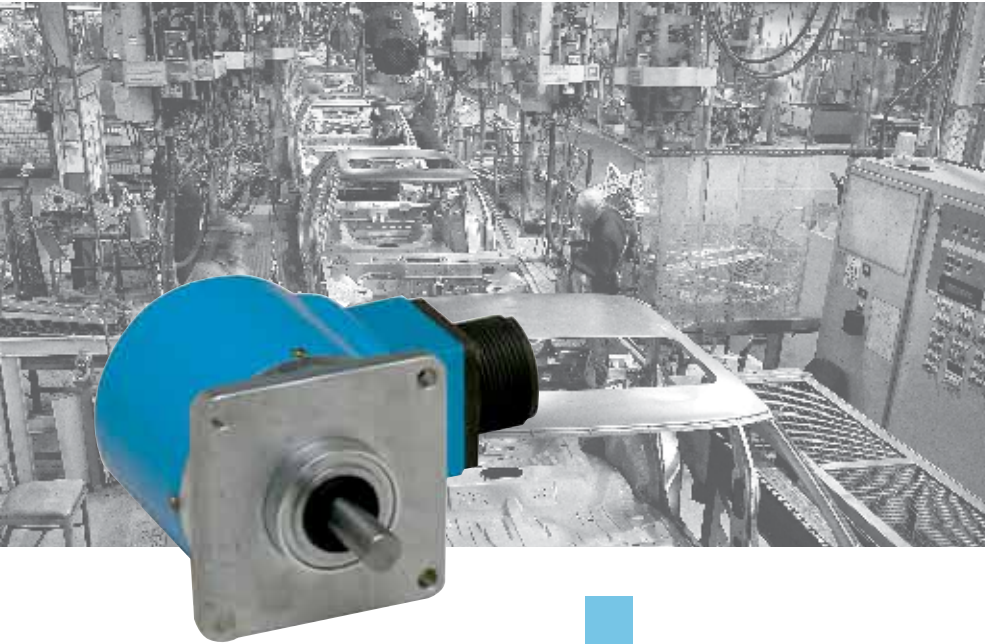


DGS 20, DGS 25, DGS 21/22 and DGS 35/34: Incremental Encoders for rough environmental conditions



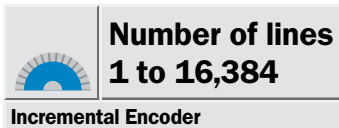
Select your individual encoder!

Possible product variations:

1/4" and 3/8" in solid shafts with square flange or servo mount, through or blind hollow shafts with connector or cable outlet, TTL or HTL interface.

Thanks to this wide variety of products, there are numerous possible uses, for example in:

- machine tools
- textile machines
- woodworking machines
- packaging machines



Incremental encoders in the DGS series are in use world-wide under the toughest environmental conditions.

The rugged construction – up to IP 67 degree protection – and the individual adaptation of the design to the requirements of the user are the outstanding features of this series.

Resolutions up to 16,384 lines are available.

Heavy Duty Incremental-Encoder DGS 20

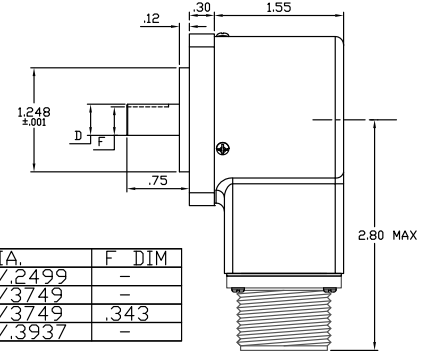
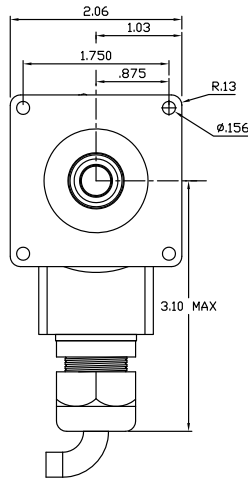


Number of lines
1 to 3,000

Incremental Encoder

- Square or servo flange
- Connector or cable outlet
- Protection class up to IP66
- Electrical interfaces, line drivers and open collectors

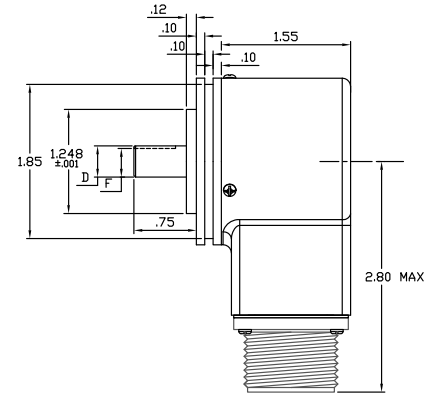
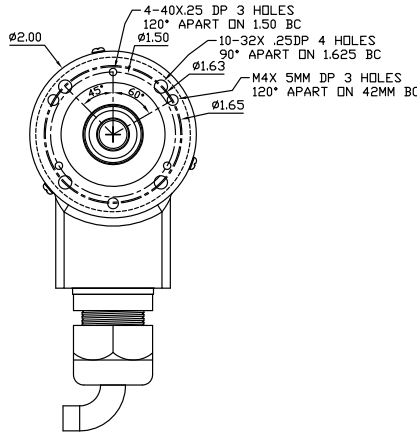
Dimensional drawing



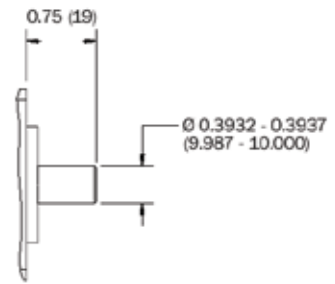
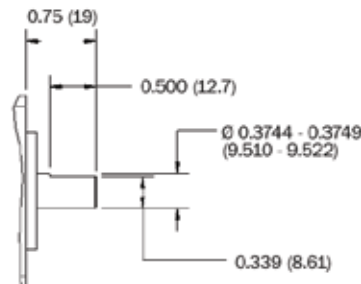
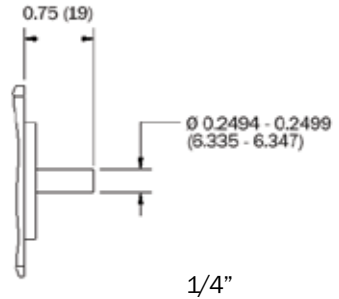
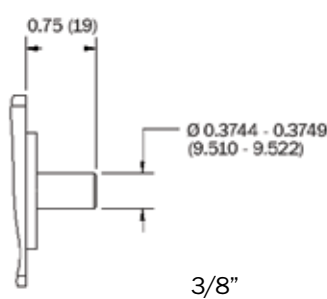
SHAFT OPTIONS

NOMINAL	"D" DIA.	F DIM
1/4"	.2494/.2499	-
3/8"	.3744/.3749	-
3/8" FLT	.3744/.3749	.343
10MM	.3932/.3937	-

Dimensional drawing mounting options



Dimensional drawing shaft options



3/8" w/flat

10 mm



Accessories


Connection Systems

Mounting Systems

Technical Data		DGS 20											
Solid Shaft	1/4", 3/8", 10mm												
Number of lines (Z) per revolution	00001 to 03000, see order info												
Electrical Interface													
	+5V in/+5V differential line driver (3487)												
	+8...24V in/open collector (7406)												
	+8...24V in/8...24V differential line driver (7272)												
	+8...24V in/+5V differential line driver (3487)												
Mass ¹⁾	8 oz (0.23 kg)												
Moment of inertia of the rotor	2.4 x 10 ⁻⁴ oz in sec ² (16.9 gcm ²)												
Measuring step	90°/number of lines												
Reference signal													
Number	1												
Position	gated 180° nominal												
Error limits	45/Z °												
Measuring step deviation	45/Z °												
Max. output frequency	200 kHz												
Max. operating speed ²⁾													
max shaft loading	3,000 rpm												
reduced shaft loading	5,000 rpm												
Max. angular acceleration	5-x-10 ⁵ rad/s ²												
Start up torque													
with shaft seal	5.0 oz-in (3.5 Ncm)												
without shaft seal	1.5 oz-in (1.1 Ncm)												
Permissible shaft loading													
radial (at end of shaft)	35 lb (155N)												
axial	40 lb (178N)												
Bearing lifetime	5.0-x-10 ⁹ revolutions												
Working temperature range	0° ... + 70 °C												
Storage temperature range	-20 ... + 85 °C												
Permissible relative humidity ³⁾	90 %												
Resistance													
to shocks	50/11 g/ms												
to vibration	5/2000 Hz at 20 g												
Protection class	IP 66												
Operating voltage range	4.75...5.25 V												
	8.0...24.0 V												
Operating current range at no load	120 mA												

¹⁾ For an encoder with connector outlet ³⁾ Condensation not permitted

²⁾ At speeds > 3000 rpm the shaft seal must be removed

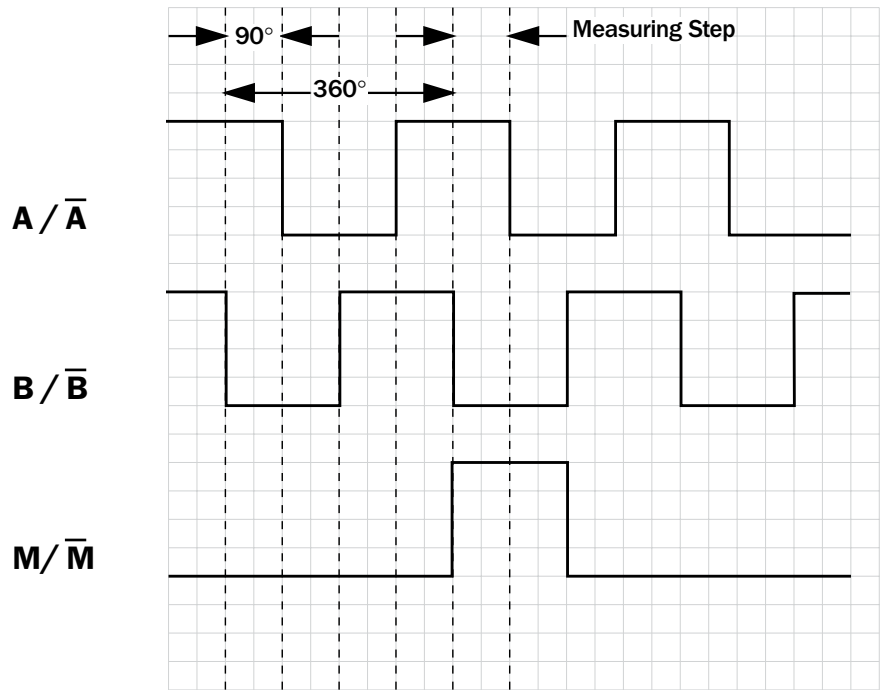
 **Number of lines**
1 to 3,000

Incremental Encoder

- Square or servo flange
- Connector or cable outlet
- Protection class up to IP66
- Electrical interfaces, line drivers and open collectors



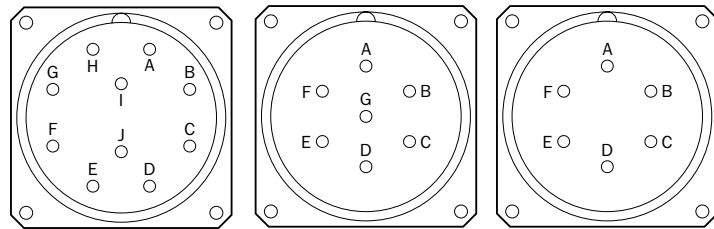
Incremental pulse diagram (clockwise rotation viewed from shaft end)



Electrical interfaces

Supply voltage	4.75...5.25V	8.0...24.0V	8.0...24.0V	8.0...24.0V
Interfaces/drivers	5V line driver	5V line driver	8/24V line driver	open collector

Connection type



10 Pin MS3102R

7 Pin MS3102R

6 Pin MS3102R

PIN and wire allocation

Function	6 pin	7 pin	10 pin ¹⁾	Cable ¹⁾
A	E	A	A	White
B	D	B	B	Pink
M	C	C	C	Lilac
A not	N/A	N/A	H	Brown
B not	N/A	N/A	I	Black
M not	N/A	N/A	J	Yellow
+Vs	B	D	D	Red
Common	A	F	F	Blue
Case Ground	N/A	G	G	N/A
Shield	N/A	N/A	N/A	Drain wire

1) Anot, Bnot, Mnot are not available with open collector outputs



Accessories

Connection Systems

Mounting Systems

Order information

Incremental Encoder DGS 20

Point 1	Point 2	Point 3	Point 4	Point 5	Point 6	Point 7	Point 8	Point 9	Point 10	Point 11	Point 12	Point 13	Point 14
D	G	S	2	0	-								

Electrical interface 5 V, 5 V, 3487 = 1 8...24 V, 5 V, 3487 = 3 8...24 V, 8...24 V, 7272 = 5 8...24 V open collector (7406/7273) = 9	Mechanical interface Square Flange, 1/4" shaft = E Square Flange, 3/8" shaft = F Square Flange, 3/8" shaft with flat = G Square Flange, 10mm shaft = C Servo Flange/Face Holes 1/4" shaft = 5 Servo Flange/Face Holes 3/8" shaft = 6 Servo Flange/Face Holes 3/8" shaft with flat = 7 Servo Flange/Face Holes 10 mm shaft = 8	Connection type Radial Cable 1.0 m = 2 Radial Cable 1.5 m = K Radial Cable 3 m = L Radial Cable 5 m = M Radial Cable 10 m ¹⁾ = N Radial Connector MS 10-pin = 4 Radial Connector MS 7-pin = 5 Radial Connector MS 6-pin = 6	Number of lines Always five characters in clear text. (see chart)
---	--	---	---

1) n/a with open-collector

Number of lines (Z) per revolution							
00001	00060	00150	00300	00720	01200	01500	02400
00005	00064	00180	00360	00800	01250	01600	02500
00010	00080	00200	00400	00900	01260	01800	02540
00020	00100	00250	00500	01000	01280	02000	02750
00030	00120	00254	00512	01024	01472	02048	03000
00050	00128	00256	00600				

Order example: Incremental Encoder DGS 20

5V, 5V, (3487 line driver), 180° marker; square flange; 3/8" shaft; 10 pin, radial; number of steps: 2500


Point 1	Point 2	Point 3	Point 4	Point 5	Point 6	Point 7	Point 8	Point 9	Point 10	Point 11	Point 12	Point 13	Point 14
D	G	S	2	0	-	1	F	4	0	2	5	0	0

Please enter your individual encoder here

Point 1	Point 2	Point 3	Point 4	Point 5	Point 6	Point 7	Point 8	Point 9	Point 10	Point 11	Point 12	Point 13	Point 14
D	G	S	2	0	-								

Point 1	Point 2	Point 3	Point 4	Point 5	Point 6	Point 7	Point 8	Point 9	Point 10	Point 11	Point 12	Point 13	Point 14
D	G	S	2	0	-								

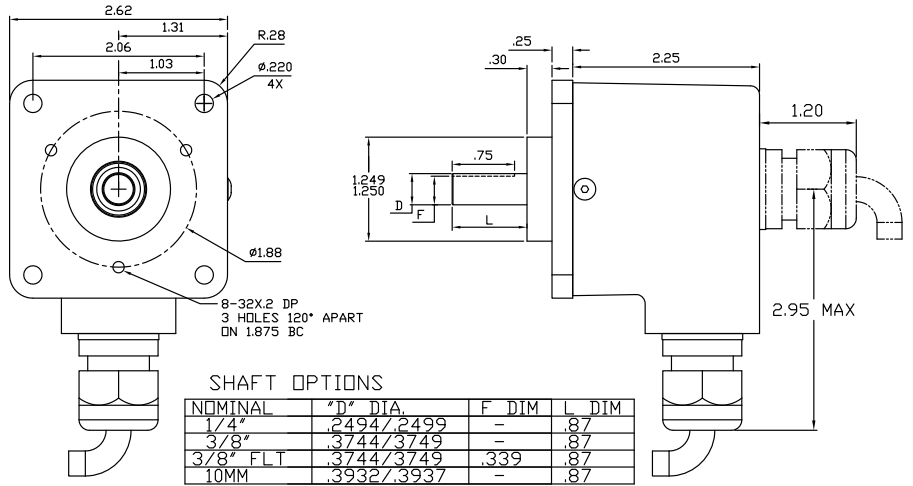
Point 1	Point 2	Point 3	Point 4	Point 5	Point 6	Point 7	Point 8	Point 9	Point 10	Point 11	Point 12	Point 13	Point 14
D	G	S	2	0	-								

 **Number of lines**
1 to 5000

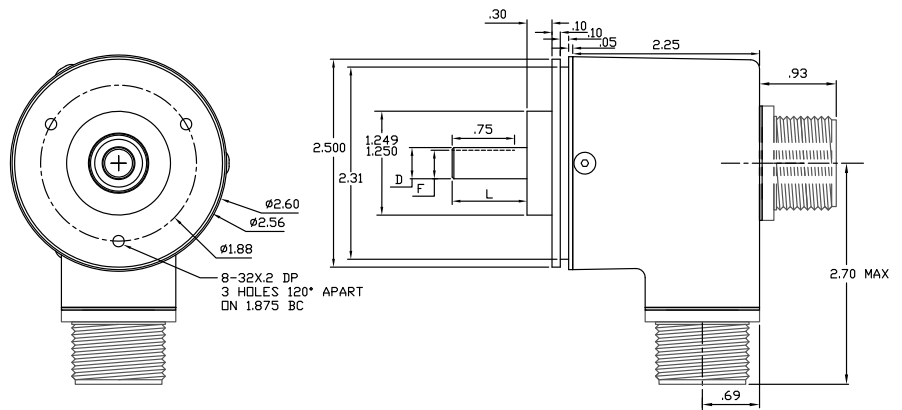
Incremental Encoder

- Square or servo flange
- Connector or cable outlet
- Protection class up to IP66
- Electrical interfaces, line drivers and open collectors

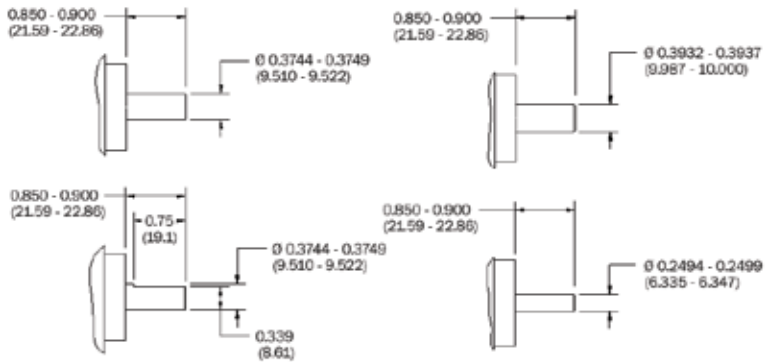
Dimensional drawing square flange mount



Dimensional drawing servo/flange face mount



Dimensional drawing shaft options




Accessories

- Connection Systems
- Mounting Systems

Technical Data		DGS 25								
Solid Shaft	1/4", 3/8", 10mm									
Number of lines (Z) per revolution	00001 to 05000, see order info									
Electrical Interface										
+5V in/+5V differential line driver (3487)										
+8...24V in/open collector (7406)										
+8...24V in/8...24V differential line driver (7272)										
+8...24V in/+5V differential line driver (3487)										
Mass ¹⁾	14 oz (0.40 kg)									
Moment of inertia of the rotor	2.4 x 10 ⁻⁴ oz in sec ² (16.9 gcm ²)									
Measuring step	90°/number of lines									
Reference signal										
Number	1									
Position	gated 180° nominal									
Error limits	45/Z °									
Measuring step deviation	45/Z °									
Max. output frequency	200 kHz									
Max. operating speed ²⁾										
max shaft loading	3,000 rpm									
reduced shaft loading	5,000 rpm									
Max. angular acceleration	5-x-10 ⁵ rad/s ²									
Start up torque										
with shaft seal	5 oz-in (3.5 Ncm)									
without shaft seal	1.5 oz-in (1.1 Ncm)									
Permissible shaft loading										
radial (at end of shaft)	35 lb (155N)									
axial	40 lb (178N)									
Bearing lifetime	5.0-x-10 ⁹ revolutions									
Working temperature range	0° ... + 70 °C									
Storage temperature range	-20 ... + 85 °C									
Permissible relative humidity ³⁾	90 %									
Resistance										
to shocks	50/11 g/ms									
to vibration	5/2000 Hz at 20 g									
Protection class	IP 66									
Operating voltage range	4.75...5.25 V									
	8.0...24.0 V									
Operating current range at no load	120 mA									

¹⁾ For an encoder with connector outlet ³⁾ Condensation not permitted

²⁾ At speeds > 3000 rpm the shaft seal must be removed

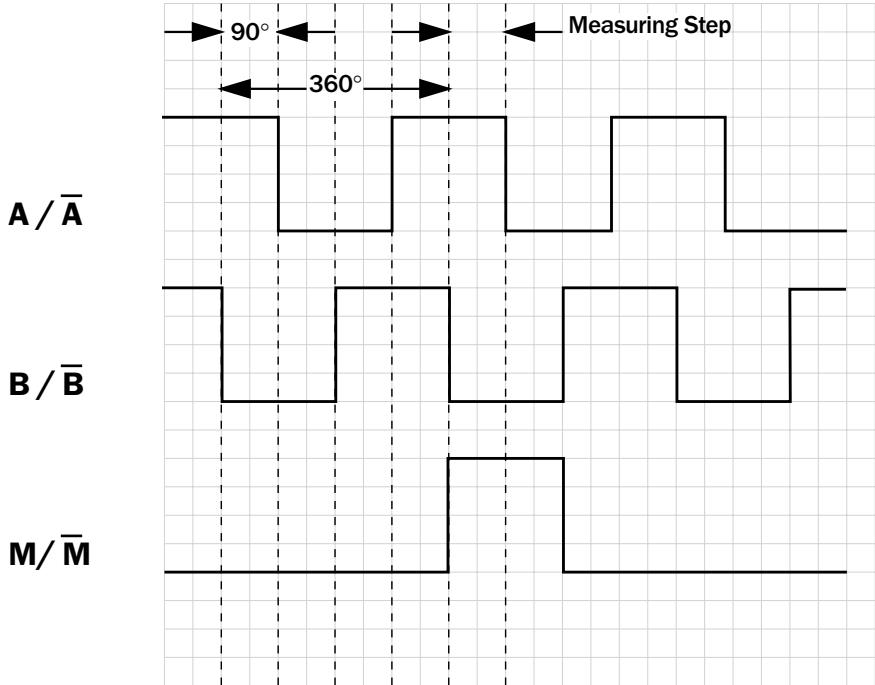
 **Number of lines**
1 to 5000

Incremental Encoder

- Square or servo flange
- Connector or cable outlet
- Protection class up to IP66
- Electrical interfaces, line drivers and open collectors



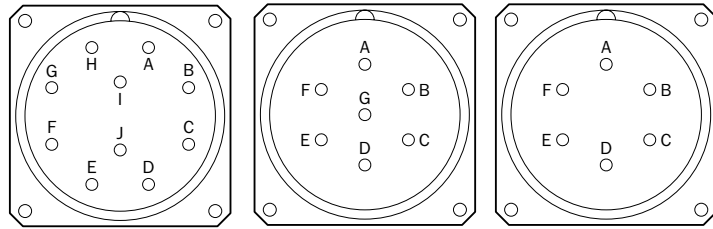
Incremental pulse diagram (clockwise rotation viewed from shaft end)



Electrical interfaces

Supply voltage	4.75...5.25V	8.0...24.0V	8.0...24.0V	8.0...24.0V
Interfaces/drivers	5V line driver	5V line driver	8/24V line driver	open collector

Connection type



10 Pin MS3102R

7 Pin MS3102R

6 Pin MS3102R

PIN and wire allocation

Function	6 pin	7 pin	10 pin ¹⁾	Cable ¹⁾
A	E	A	A	White
B	D	B	B	Pink
M	C	C	C	Lilac
A not	N/A	N/A	H	Brown
B not	N/A	N/A	I	Black
M not	N/A	N/A	J	Yellow
+Vs	B	D	D	Red
Common	A	F	F	Blue
Case Ground	N/A	G	G	N/A
Shield	N/A	N/A	N/A	Drain wire

1) Anot, Bnot, Mnot are not available with open collector outputs



Accessories

Connection Systems

Mounting Systems

Order information

Incremental Encoder DGS 25, heavy duty

Point 1	Point 2	Point 3	Point 4	Point 5	Point 6	Point 7	Point 8	Point 9	Point 10	Point 11	Point 12	Point 13	Point 14
D	G	S	2	5	-								

Electrical interface	Mechanical interface	Connection type	Number of lines
5 V, 5 V, 3487 = 1	Square Flange, 1/4" shaft = E	Radial Cable 1.0 m = 2	Always five characters in clear text. (see chart)
8...24 V, 5 V, 3487 = 3	Square Flange, 3/8" shaft = F	Radial Cable 1.5 m = K	
8...24 V, 8...24 V, 7272 = 5	Square Flange, 3/8" shaft with flat = G	Radial Cable 3 m = L	
8...24 V open collector (7406/7273) = 9	Square Flange, 10mm shaft = C	Radial Cable 5 m = M	
	Servo Flange/Face Holes 1/4" shaft = 5	Radial Cable 10 m ¹⁾ = N	
	Servo Flange/Face Holes 3/8" shaft = 6	Axial Cable 1.0 m = 3	
	Servo Flange/Face Holes 3/8" shaft with flat = 7	Axial Cable 1.5 m = R	
	Servo Flange/Face Holes 10 mm shaft = 8	Axial Cable 3.0 m = S	
		Axial Cable 5.0 m = T	
		Axial Cable 10 m ¹⁾ = U	
		Radial Connector MS 10-pin = 4	
		Radial Connector MS 7-pin = 5	
		Radial Connector MS 6-pin = 6	
		Axial Connector MS 10-pin = 7	
		Axial Connector MS 7-pin = 8	
		Axial Connector MS 6-pin = 9	

1) n/a on open-collector outputs

Number of lines (Z) per revolution							
00001	00064	00200	00400	00900	01280	02048	03600
00005	00080	00250	00500	01000	01472	02400	04000
00010	00100	00254	00512	01024	01500	02500	04096
00020	00120	00256	00600	01200	01600	02540	04500
00030	00128	00300	00720	01250	01800	02750	05000
00050	00150	00360	00800	01260	02000	03000	
00060	00180						

Order example: Incremental Encoder DGS 25

5 V, 5 V (3487 line driver) 180° marker; Square Flange; 3/8" shaft; 10-pin, radial; number of steps 2500


Point 1	Point 2	Point 3	Point 4	Point 5	Point 6	Point 7	Point 8	Point 9	Point 10	Point 11	Point 12	Point 13	Point 14
D	G	S	2	5	-	1	F	4	0	2	5	0	0

Please enter your individual encoder here

Point 1	Point 2	Point 3	Point 4	Point 5	Point 6	Point 7	Point 8	Point 9	Point 10	Point 11	Point 12	Point 13	Point 14
D	G	S	2	5	-								

Point 1	Point 2	Point 3	Point 4	Point 5	Point 6	Point 7	Point 8	Point 9	Point 10	Point 11	Point 12	Point 13	Point 14
D	G	S	2	5	-								

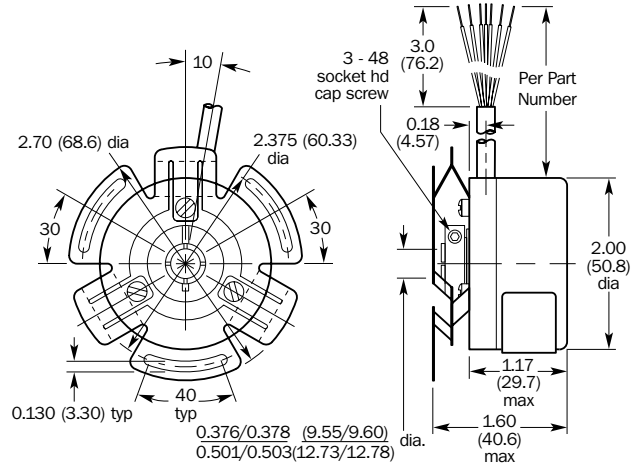
Point 1	Point 2	Point 3	Point 4	Point 5	Point 6	Point 7	Point 8	Point 9	Point 10	Point 11	Point 12	Point 13	Point 14
D	G	S	2	5	-								

 **Number of lines**
1 to 2,500

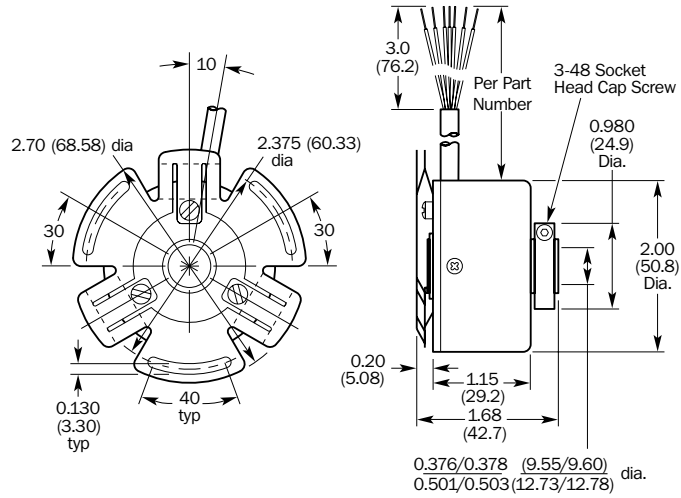
Incremental Encoder

- Blind or through hollow shaft
- Cable outlet
- Protection class up to IP50
- Electrical interfaces, line drivers and open collectors

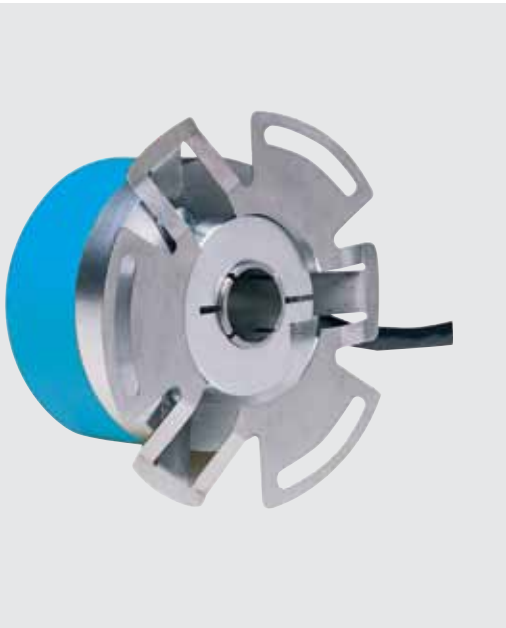
Dimensional drawing



DGS 22 Blind Hollow Shaft




DGS 21 Through Hollow Shaft



Technical Data		DGS 21/22													
Hollow shaft	3/8", 1/2"														
Number of lines (Z) per revolution	00001 to 02500, see order info														
Electrical Interface															
+5V in/+5V differential line driver (3487)															
+8...24V in/open collector (7406)															
+8...24V in/8...24V differential line driver (7272)															
+8...24V in/+5V differential line driver (3487)															
Mass	4 oz (0.12 kg)														
Moment of inertia of the rotor	2.75×10^{-4} oz in sec ² (19.4 gcm ²)														
Measuring step	90°/number of lines														
Reference signal															
Number	1														
Position	non-gated 180° ±90° electrical														
Error limits	45/Z °														
Measuring step deviation	45/Z °														
Max. output frequency	200 kHz														
Max. operating speed															
max shaft loading	3,000 rpm														
Max. angular acceleration	5×10^5 rad/s ²														
Start up torque	1.0 oz-in (0.7 Ncm)														
Permissible shaft movement															
radial	0.005 in (0.13 mm)														
axial	0.030 in (0.76 mm)														
Bearing lifetime	2.4×10^9 revolutions														
Working temperature range	0° ... +70 °C														
Storage temperature range	-20 ... +85 °C														
Permissible relative humidity ⁴⁾	90 %														
Resistance															
to shocks	20g/11ms														
to vibration	5g/10...150Hz														
Protection class	IP50														
Operating voltage range	4.75...5.25 V														
	8.0...24.0 V														
Operating current range at no load	120 mA														
Signal cable															
diameter	0.19 in (5 mm)														
(power supply and drain wire are isolated from housing)															

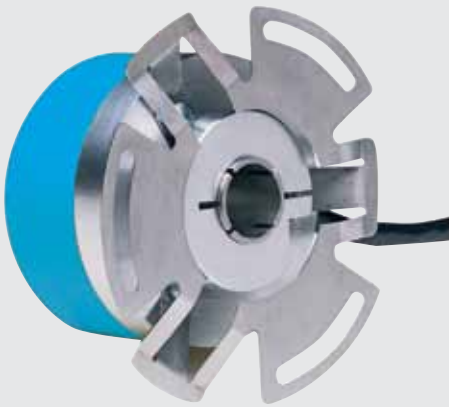
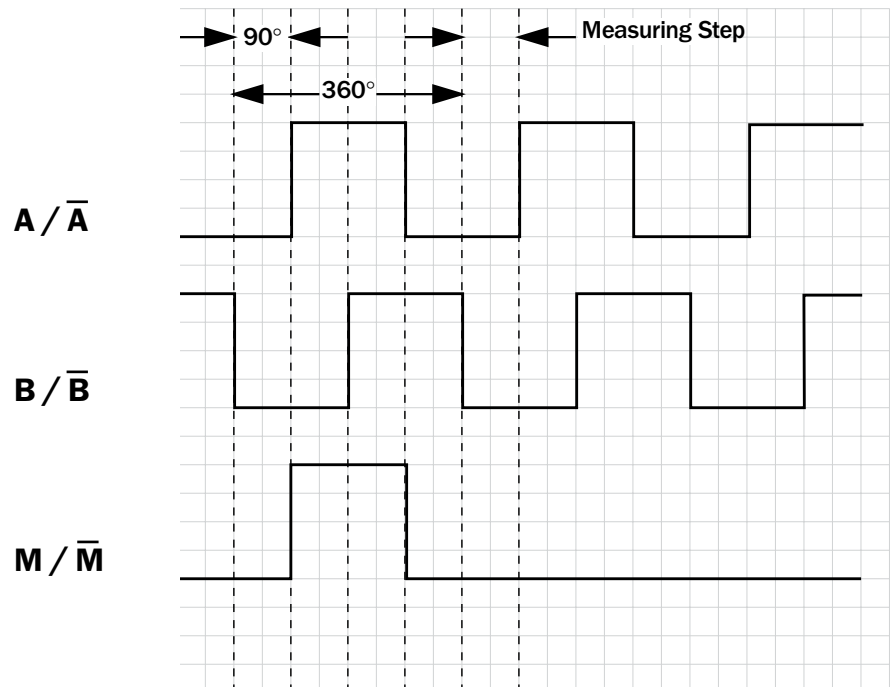
⁴⁾ Condensation not permitted

 **Number of lines**
1 to 2,500

Incremental Encoder

- Blind or through hollow shaft
- Cable outlet
- Protection class up to IP50
- Electrical interfaces, line drivers and open collectors

Incremental pulse diagram (clockwise rotation viewed from mounting end)



Electrical interfaces

Supply voltage	4.75...5.25V	8.0...24.0V	8.0...24.0V	8.0...24.0V
Interfaces/drivers	5V line driver	5V line driver	8/24V line driver	open collector

Wire allocation

Function	Cable Line Driver	Cable Open collector
+Vs	Red	Red
Common	Black	Black
A	White	White
B	Green	Green
M	White/Black	White/Black
A not	Blue	N/A
B not	Orange	N/A
M not	Red/Black	N/A
Shield	Drain Wire	Drain wire



Order information

Incremental Encoder DGS 21, through hollow shaft

Point 1	Point 2	Point 3	Point 4	Point 5	Point 6	Point 7	Point 8	Point 9	Point 10	Point 11	Point 12	Point 13	Point 14
D	G	S	2	1	-								

Electrical interface	
5 V, 5 V, 3487	= 1
8...24 V, 5 V, 3487	= 3
8...24 V, 8...24 V, 7272	= 5
8...24 V	
open collector (7406/7273)	= 9

Mechanical interface	
Stator Coupling with 3/8" shaft	= R
Stator Coupling with 1/2" shaft	= U

Connection type	
Radial Cable 1.0 m	= 2
Radial Cable 1.5 m	= K
Radial Cable 3 m	= L
Radial Cable 5 m	= M
Radial Cable 10 m ¹⁾	= N

Number of lines
Always five characters in clear text. (see chart)

1) n/a with open-collector

Order example: Incremental Encoder DGS 21 Through Hollow Shaft

5 V, 5 V (3487 line driver) 180° marker; stator coupling with 3/8" shaft; 1 meter cable, radial; number of steps: 2500

Point 1	Point 2	Point 3	Point 4	Point 5	Point 6	Point 7	Point 8	Point 9	Point 10	Point 11	Point 12	Point 13	Point 14
D	G	S	2	1	-	1	R	2	0	2	5	0	0

Please enter your individual encoder here

Point 1	Point 2	Point 3	Point 4	Point 5	Point 6	Point 7	Point 8	Point 9	Point 10	Point 11	Point 12	Point 13	Point 14
D	G	S	2	1	-								

Incremental Encoder DGS 22, blind hollow shaft

Point 1	Point 2	Point 3	Point 4	Point 5	Point 6	Point 7	Point 8	Point 9	Point 10	Point 11	Point 12	Point 13	Point 14
D	G	S	2	2	-								

Electrical interface	
5 V, 5 V, 3487	= 1
8...24 V, 5 V, 3487	= 3
8...24 V, 8...24 V, 7272	= 5
8...24 V	
open collector (7406/7273)	= 9

Mechanical interface	
Stator Coupling with 3/8" shaft	= R
Stator Coupling with 1/2" shaft	= U

Connection type	
Radial Cable 1.0 m	= 2
Radial Cable 1.5 m	= K
Radial Cable 3 m	= L
Radial Cable 5 m	= M
Radial Cable 10 m ¹⁾	= N

Number of lines
Always five characters in clear text. (see chart)

1) n/a with open-collector

Order example: Incremental Encoder DGS 22 Blind Hollow Shaft

5 V, 5 V (3487 line driver) 180° marker; stator coupling with 3/8" shaft; 1 meter cable, radial; number of steps: 2500

Point 1	Point 2	Point 3	Point 4	Point 5	Point 6	Point 7	Point 8	Point 9	Point 10	Point 11	Point 12	Point 13	Point 14
D	G	S	2	2	-	1	R	2	0	2	5	0	0

Please enter your individual encoder here

Point 1	Point 2	Point 3	Point 4	Point 5	Point 6	Point 7	Point 8	Point 9	Point 10	Point 11	Point 12	Point 13	Point 14
D	G	S	2	2	-								

Number of lines (Z) per revolution DGS 21/22

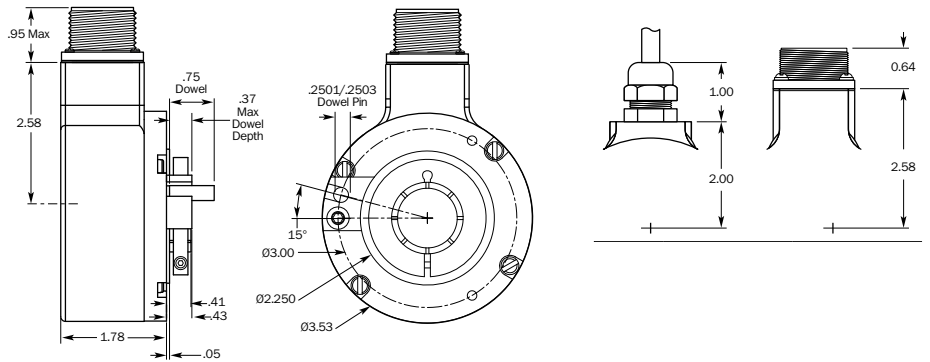
00001	00060	00150	00300	00720	01250	01800
00005	00064	00180	00360	00800	01260	02000
00010	00080	00200	00400	00900	01280	02048
00020	00100	00250	00500	01000	01472	02400
00030	00120	00254	00512	01024	01500	02500
00050	00128	00256	00600	01200	01600	01800

Number of lines
120 to 16,384

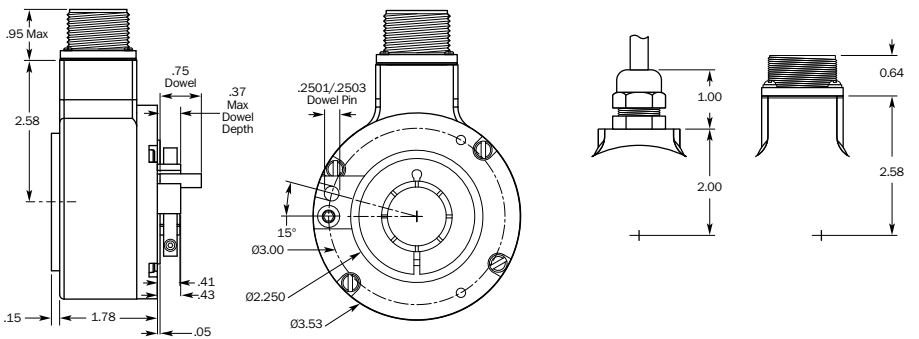
Incremental Encoder

- Blind through hollow shaft
- Connector or cable outlet
- Protection class up to IP66
- Electrical interfaces, line drivers and open collectors

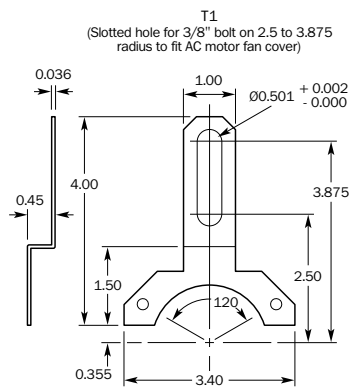
Dimensional drawing blind shaft (anti-rotation pin shown)



Dimensional drawing through shaft (anti-rotation pin shown)



Dimensional drawing tether option



Accessories

Connection Systems

Technical Data		DGS 35/34												
Hollow Shaft	1", 30 mm													
Number of lines (Z) per revolution	00120 to 16384, see order info													
Electrical Interface														
	+5V/5V line driver (3487)													
	+8...24V/5V line driver (3487)													
	+8...24V/+8...24V line driver (7272)													
	+8...24V/5V open collector (7273)													
	+5V...15V/+5V...15V line driver (4469)													
Mass¹⁾	16 oz (1.1 kg)													
Moment of inertia of the rotor	490 gcm ²													
Measuring step	90°/number of lines													
Error limits	45/Z °													
Measuring step deviation	45/Z °													
Max. output frequency	300 kHz (1-8192 PPR)													
	600 kHz (x 2 multiplication) (above 8192 PPR)													
Max. operating speed	3,000 rpm;													
	higher rpms available, please consult factory													
Max. angular acceleration	1-x-10 ⁵ rad/s ²													
Operating torque	9.91 oz-in (7.0 Ncm)													
Start up torque	12.78 oz-in (9.0 Ncm)													
Permissible shaft movement														
radial (static/dynamic)	0.020in (0.5mm)/0.004in (0.1mm)													
axial (static/dynamic)	0.020in (0.5mm)/0.020in (0.5mm)													
Bearing lifetime	4.5-x-10 ⁹ revolutions													
Working temperature range	-20 ... + 70 °C													
Storage temperature range	-30 ... + 85 °C													
Permissible relative humidity ³⁾	95 %													
Resistance														
to shocks	50/11 g/ms													
to vibration	5/2000 Hz at 20 g													
Protection class														
Conn	IP 66													
Cable	IP 66													
Operating current range at no load														
24 V	100 mA													
5 V	120 mA													

1) For an encoder with connector outlet

3) Condensation not permitted

2) At speeds > 3000 rpm the shaft seal must be removed

4) with muting connector fitted

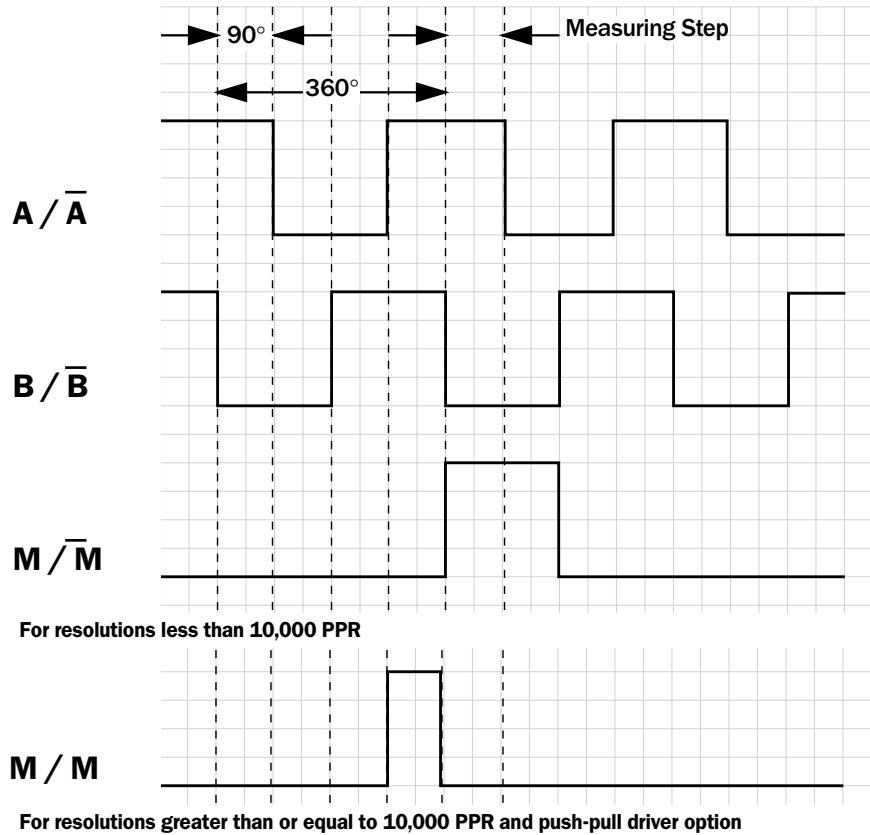
Number of lines
120 to 16,384

Incremental Encoder

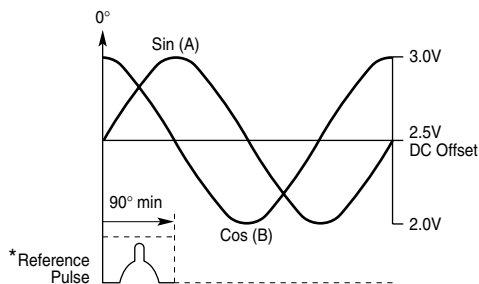
- Blind through hollow shaft
- Connector or cable outlet
- Protection class up to IP66
- Electrical interfaces, line drivers and open collectors



Incremental pulse diagram (view from clamp end)



Sine wave



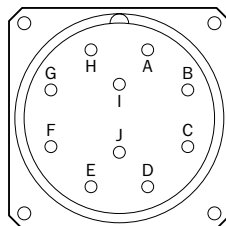
* Waveforms shown are single-ended. Voltages are referenced from ground.

* The standard marker pulse is a basic analog signal. An optional square wave marker pulse is available upon request from the factory.

Electrical interfaces

Supply voltage	4.75...5.25V	8.0...24.0 V	8.0...24.0 V
Interfaces/drivers	Line drivers	Line drivers	Open collector

Connection type



10 Pin MS3102R

PIN and wire allocation

Function	10 pin	Cable
A	A	White
B	B	Pink
M	C	Lilac
A not	H	Brown
B not	I	Black
M not	J	Yellow
+Vs	D	Red
Common	F	Blue
Case ground	G	N/A
Shield	N/A	N/A



Accessories

Connection Systems

Order information

Incremental Encoder DGS 35, Through Hollow Shaft

Point 1	Point 2	Point 3	Point 4	Point 5	Point 6	Point 7	Point 8	Point 9	Point 10	Point 11	Point 12	Point 13	Point 14
D	G	S	3	5	-								

Electrical interface	
5 V, 5 V, 3487, marker 180	= 1
8-24V, 5V, 3487, marker 180	= 3
8-24V, 8/24V, 7272, marker 180	= 5
5-15V, 5-15V, 4469, marker 180	= 7
8-24 V, open collector (7273) marker 180	= 9
5 V, 5 V, 3487, marker 90*	= Y
8-24V, 5V, 3487, marker 90*	= 2
8-24V, 8/24V, 7272, marker 90*	= 4
5-15V, 5-15V, 4469, marker 90*	= 6
8-24 V, open collector (7273) marker 90*	= 8
5 V SINE with amplification (1 V Peak to Peak)**	= L

Mechanical interface	
T1 Tether, 1in bore (see collets below, sold separately)	= H
P block, 1in bores (see collets below, sold separately)	= J
T1 Tether, 30mm bore	= K
P block, 30mm bore	= L

Connection type	
Radial Cable 1.0 m	= 2
Radial Cable 1.5 m	= K
Radial Cable 3 m	= L
Radial Cable 5 m	= M
Radial Cable 10 m ¹⁾	= N
Radial Connector MS 10-pin	= 4

Number of lines	
Always five characters in clear text. (see chart)	

1) n/a on open collector outputs

Notes:
 * 10,000 and 16,384ppr only come with 90° marker
 ** Cannot use with 10,000 and 16,384 PPR

Number of lines (Z) per revolution							
00120	00600	02048	03600	05000	08192	10000*	16384*
00360	01024	02500	04096				

* Note: 10,000 and 16,384ppr only come with 90° marker

Order example: Incremental Encoder DGS 35

5 V, 5 V (3487 line driver) 180° marker; T1 tether with 1" bore shaft; 1 meter cable, radial; number of steps: 2500

Point 1	Point 2	Point 3	Point 4	Point 5	Point 6	Point 7	Point 8	Point 9	Point 10	Point 11	Point 12	Point 13	Point 14
D	G	S	3	5	-	1	H	2	0	2	5	0	0

Please enter your individual encoder here

Point 1	Point 2	Point 3	Point 4	Point 5	Point 6	Point 7	Point 8	Point 9	Point 10	Point 11	Point 12	Point 13	Point 14
D	G	S	3	5	-								

Collets for DGS 35 encoder with Through Hollow Shaft

Type for 1" Bore	Part no.	Shaft Diameter
SPZ-1E2-DD35-AD	7 102 155	1/2"
SPZ-5E8-DD35-AD	7 102 156	5/8"
SPZ-3E4-DD35-AD	7 102 157	3/4"
SPZ-7E8-DD35-AD	7 102 158	7/8"

Type for 30 mm Bore	Part no.	Shaft Diameter
SPZ-024-MD35-AD	7 130 587	24 mm
SPZ-025-MD35-AD	7 130 588	25 mm

Type for 1" Bore	Part no.	Shaft Diameter
SPZ-010-DD35-AD	7 130 582	10 mm
SPZ-012-DD35-AD	7 130 583	12 mm
SPZ-014-DD35-AD	7 130 584	14 mm
SPZ-015-DD35-AD	7 127 328	15 mm
SPZ-018-DD35-AD	7 130 585	18 mm
SPZ-020-DD35-AD	7 130 529	20 mm
SPZ-022-DD35-AD	7 130 586	22 mm

Order information

Incremental Encoder DGS 34, blind hollow shaft

Point 1	Point 2	Point 3	Point 4	Point 5	Point 6	Point 7	Point 8	Point 9	Point 10	Point 11	Point 12	Point 13	Point 14
D	G	S	3	4	-								

Electrical interface	Mechanical interface	Connection type	Number of lines
5 V, 5 V, 3487, marker 180 = 1	T1 Tether, 1in bore	Radial Cable 1.0 m = 2	Always five characters in clear text. (see chart)
8-24V, 5V, 3487, marker 180 = 3	(see collets below, sold separately) = H	Radial Cable 1.5 m = K	
8-24V, 8/24V, 7272, marker 180 = 5	P block, 1in bores	Radial Cable 3 m = L	
5-15V, 5-15V, 4469, marker 180 = 7	(see collets below, sold separately) = J	Radial Cable 5 m = M	
8-24 V, open collector (7406/7273) marker 180 = 9	T1 Tether, 30mm bore = K	Radial Cable 10 m ¹⁾ = N	
5 V, 5 V, 3487, marker 90* = Y	P block, 30mm bore = L	Radial Connector MS 10-pin = 4	
8-24V, 5V, 3487, marker 90* = 2			
8-24V, 8/24V, 7272, marker 90* = 4			
5-15V, 5-15V, 4469, marker 90* = 6			
8-24 V, open collector (7406/7273) marker 90* = 8			
5 V SINE with amplification (1 V Peak to Peak)** = L			

1) n/a on open collector outputs

Notes:

* 10,000 and 16,384ppr only come with 90° marker

** Cannot use with 10,000 and 16,384 PPR

Number of lines (Z) per revolution							
00120	00600	02048	03600	05000	08192	10000*	16384*
00360	01024	02500	04096				

* Note: 10,000 and 16,384ppr only come with 90° marker

Order example: Incremental Encoder DGS 34

5 V, 5 V (3487 line driver) 180° marker; T1 tether with 1" bore shaft; 1 meter cable, radial; number of steps: 2500

Point 1	Point 2	Point 3	Point 4	Point 5	Point 6	Point 7	Point 8	Point 9	Point 10	Point 11	Point 12	Point 13	Point 14
D	G	S	3	4	-	1	H	2	0	2	5	0	0

Please enter your individual encoder here

Point 1	Point 2	Point 3	Point 4	Point 5	Point 6	Point 7	Point 8	Point 9	Point 10	Point 11	Point 12	Point 13	Point 14
D	G	S	3	4	-								

Collets for DGS 35 encoder with Through Hollow Shaft

Type for 1" Bore	Part no.	Shaft Diameter
SPZ-1E2-DD35-AD	7 102 155	1/2"
SPZ-5E8-DD35-AD	7 102 156	5/8"
SPZ-3E4-DD35-AD	7 102 157	3/4"
SPZ-7E8-DD35-AD	7 102 158	7/8"

Type for 30 mm Bore	Part no.	Shaft Diameter
SPZ-024-MD35-AD	7 130 587	24 mm
SPZ-025-MD35-AD	7 130 588	25 mm

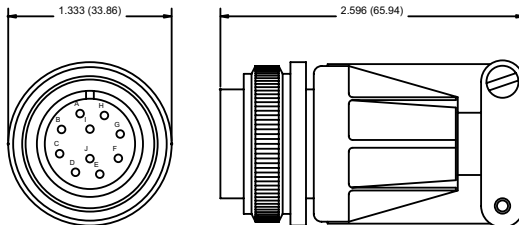
Type for 1" Bore	Part no.	Shaft Diameter
SPZ-010-DD35-AD	7 130 582	10 mm
SPZ-012-DD35-AD	7 130 583	12 mm
SPZ-014-DD35-AD	7 130 584	14 mm
SPZ-015-DD35-AD	7 127 328	15 mm
SPZ-018-DD35-AD	7 130 585	18 mm
SPZ-020-DD35-AD	7 130 529	20 mm
SPZ-022-DD35-AD	7 130 586	22 mm

Dimensional drawings and order information

Connector systems, MS 10 pin

Cable connector MS 3105 female, 10 pin, straight

Type	Part No.	Contacts
DOS-MS10-G	7 102 129	10



DOS-MS10-G

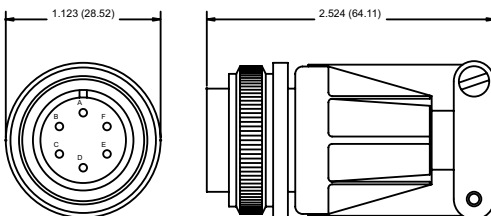
Connector MS 3105 female, 10 pin, straight, cable 11 core, $4 \times 2 \times 0.25 + 2 \times 0.5 + 1 \times 0.14 \text{ mm}^2$ with screening, cable diameter 7.5 mm

Type	Part no.	Contacts	Cable length
DOL-MS10-G1M5MA2	7 102 130	10	1.5 m
DOL-MS10-G03MMA2	7 102 131	10	3.0 m
DOL-MS10-G05MMA2	7 102 132	10	5.0 m
DOL-MS10-G10MMA2	7 102 133	10	10.0 m
DOL-MS10-G20MMA2	7 102 134	10	20.0 m
DOL-MS10-G30MMA2	7 102 135	10	30.0 m

Connector systems, MS 6 pin

Cable connector MS 3105 female, 6 pin, straight

Type	Part no.	Contacts
DOS-MS06-G	7 102 136	6



DOS-MS06-G

Connector MS 3105 female, 6 pin, straight, cable 11 core, $4 \times 2 \times 0.25 + 2 \times 0.5 + 1 \times 0.14 \text{ mm}^2$ with screening, cable diameter 7.5 mm

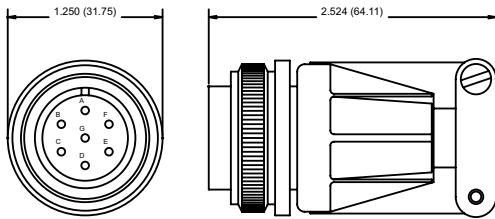
Type	Part no.	Contacts	Cable length
DOL-MS06-G1M5MA2	7 102 137	6	1.5 m
DOL-MS06-G03MMA2	7 102 138	6	3.0 m
DOL-MS06-G05MMA2	7 102 139	6	5.0 m
DOL-MS06-G10MMA2	7 102 140	6	10.0 m
DOL-MS06-G20MMA2	7 102 141	6	20.0 m
DOL-MS06-G30MMA2	7 102 142	6	30.0 m

Dimensional drawings and order information

Connector systems, MS 7 pin

Cable connector MS 3105 female, 7 pin, straight

Type	Part no.	Contacts
DOS-MS07-G	7 102 143	7



DOS-MS07-G

Connector MS 3105 female, 7 pin, straight, cable 11 core, 4 x 2 x 0.25 + 2 x 0.5 + 1 x 0.14 mm² with screening, cable diameter 7.5 mm

Type	Part no.	Contacts	Cable length
DOL-MS07-G1M5MA2	7 102 144	7	1.5 m
DOL-MS07-G03MMA2	7 102 145	7	3.0 m
DOL-MS07-G05MMA2	7 102 146	7	5.0 m
DOL-MS07-G10MMA2	7 102 147	7	10.0 m
DOL-MS07-G20MMA2	7 102 148	7	20.0 m
DOL-MS07-G30MMA2	7 102 149	7	30.0 m

Cable 8 core, per meter, 4 x 2 x 0.15 mm² with screening, cable diameter 5.6 mm

Type	Part no.	Cores
LTG-2308-MWENC	6 027 529	8

Cable 11 core, per meter, 4 x 2 x 0.25 + 2 x 0.5 + 1 x 0.14 mm² with screening, cable diameter 7.5 mm

Type	Part no.	Cores
LTG-2411-MW	6 027 530	11

Cable 12 core, per meter, 4 x 2 x 0.25 + 2 x 0.5 + 2 x 0.14 mm² with screening, capable of being dragged, cable diameter 7.8 mm

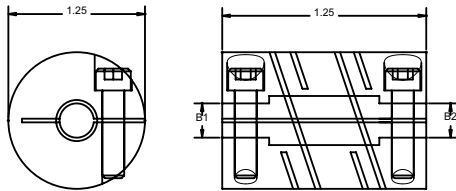
Type	Part no.	Cores
LTG-2512-MW	6 027 531	12

Dimensional drawings and order information

Couplings

Helvetical curved beam, max. shaft offset radial 0.010 in., axial 0.012 in., torsional stiffness 0.5 lb-in/min, anodized aluminum

Type	Part no.	Shaft diameter
KUP-1414-H	7 102 150	1/4 in...1/4 in
KUP-3838-H	7 102 151	3/8 in...3/8 in
KUP-3814-H	7 102 152	3/8 in...1/4 in
KUP-1038-H	7 102 153	10 mm...3/8 in
KUP-1010-H	7 102 154	10 mm...10 mm



KUP-XXXX-H

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