

DHM5 - DHK5 - DH05

58MM SOLID - BLIND - HOLLOW SHAFT INCREMENTAL ENCODERS

Introduction

Built from a solid and reliable mechanical and electrical platform, this product series was built from the ground up for reliability and robustness. Electrical protection is built in to reduce "first installation" errors. Mechanically, the high precision sealed bearings mean long life, even in harsh conditions. And the product is tested and rated to perform from -40°C to +100°C for operation in extreme environments. This is the best all around encoder in a 58mm package for heavy duty industrial use.



Features

DH_5 Rotary Incremental Encoder :

- Robustness and excellent resistance to shocks / vibrations
- High Protection Level IP65, IP67 Option with a Sealing Flange
- High Resolutions Available: Up to 500 000 ppr
- Universal Electronic Circuits from 4.75 to 30 Vdc
- High Performance in Temperatures -40°C to 100°C
- High bandwidth: Up to 1MHz

Applications

- Factory automation
- Motor feedback
- Conveyors
- Automated warehousing
- General industrial system monitoring and feedback

SPECIFICATIONS

Mechanical

		DHM5	DHK5	DH05
Material		Cover: Zinc Alloy Body: Aluminum Shaft: Stainless Steel		
Bearings		6000 Series	6803 Series	
Maximum Loads	Axial	50 N	20 N	
	Radial	100 N	50 N	
Shaft inertia		2,5.10 ⁻⁶ kg.m ² (10mm)	2,9.10 ⁻⁶ kg.m ² (14mm)	3,2.10 ⁻⁶ kg.m ² (14mm)
Torque		4.10 ⁻³ N.m	16.10 ⁻³ N.m	20.10 ⁻³ N.m
Permissible Max. Speed		12 000 min ⁻¹	6 000 min ⁻¹	
Continuous Max. Speed		10 000 min ⁻¹	6 000 min ⁻¹	
Encoder Weight (Approx.)		0,300 kg		
Theoretical Mechanical Lifetime 10⁹ turns (F _{axial} / F _{radial})		30 N / 60 N : 26	20 N / 40 N : >36	

Electrical

Ver.	Output Signals	Operating Voltage +V	Supply Current (no loads)	Current per Channel Pair	Short Circuit Proof	Reverse Polarity Tolerant	Frequency Capability	Resolutions category ⁽¹⁾	Operating Temperature Range ⁽²⁾⁽³⁾
RG5	HTL	4,75-30V	<75mA	<40mA	Yes	Yes	Up to 1MHz	Standard	-40°C ... +100°C
								Low	
								High	
RGX	HTL/TTL selectable	4,75-30V	<75mA	<40mA	HTL: refer RG5 TTL: refer RG2	Yes	Up to 1MHz	Full Programmable	-40°C ... +100°C
								Multiplier programmable	
5GT	HTL + CTP	11-30V	<75mA	<40mA	Yes	Yes	Up to 300kHz	Standard	-40°C ... +80°C
								Low	
RG2	TTL	4,75-30V	<75mA	<40mA	Yes (Except to +V)	Yes	Up to 1MHz	Standard	-40°C ... +100°C
								Low	
								High	
2G2	TTL	5V ± 5%	<75mA	<40mA	Yes	Yes	Up to 1MHz	Standard	-40°C ... +100°C
								Low	
								High	
2WT	1Vpp	5V ± 5%	<75mA	<8mA	Yes	Yes	Up to 300kHz	Sine wave	-40°C ... +100°C
RWT	1Vpp	4,75-30V	<75mA	<8mA	Yes (Except to +V)	Yes	Up to 300kHz	Sine wave	-40°C ... +100°C

⁽¹⁾ See resolutions section for details.

⁽²⁾ Surface encoder temperature

⁽³⁾ UL Listed: -20°C +80°C. Device must be supplied by a Class 2, LPS or SELV limited energy source 250mA.

Environmental

Shocks (EN 60068-2-27)	≤ 500 m.s ⁻² (during 6 ms)
Vibrations (EN 60068-2-6)	≤ 200 m.s ⁻² (10 ... 2 000Hz)
EMC	EN 61000-6-2, EN 61000-6-4
Isolation	1 000V eff
Operating Temperature	See Electrical table above
Storage Temperature	-40°C ... +100°C
Protection (EN 60529)	IP 65
Humidity	98% RH non-condensing at 20 °C



STANDARD CONNECTIONS

		-	+	A or S	B or C	Z	A/ or S/	B/ or C/	Z/	Ground
GM	M12 - 8 Pins	1	2	3	4	5	6	7	8	Connector Body
G6	M23 - 12 Pins CW	1	2	3	4	5	6	7	8	Connector Body
G8	M23 - 12 Pins CCW	10 + 11	2 + 12	8	5	3	1	6	4	Connector Body
U3	PVC Cable - 8 Wires	WH (White)	BN (Brown)	GN (Green)	YE (Yellow)	GY (Grey)	PK (Pink)	BU (Blue)	RD (Red)	General Shielding
GC	PUR Cable - 8 Wires	BK (Black)	RD (Red)	GN (Green)	BN (Brown)	VT (Violet)	YE (Yellow)	OG (Orange)	BU (Blue)	General Shielding
G3	PVC Cable - 8 Wires (not UL)	WH (White)	BN (Brown)	GN (Green)	YE (Yellow)	GY (Grey)	PK (Pink)	BU (Blue)	RD (Red)	General Shielding
GP	PUR Cable - 12 Wires (not UL)	WH (White) + WH/GN (White/Green)	BU (Blue) + BN/GN (Brown/Green)	GY (Grey)	BN (Brown)	RD (Red)	PK (Pink)	GN (Green)	BK (Black)	General Shielding
TE	Silicone Cable ⁽³⁾ - 8 Wires (Not UL)	WH (White)	BN (Brown)	GN (Green)	YE (Yellow)	GY (Grey)	PK (Pink)	BU (Blue)	RD (Red)	General Shielding

⁽³⁾ Advised cable for mobile application, in extreme temperature from -40°C to +100°C



RESOLUTIONS

Standard resolutions:

1000, 1024, 1800, 2000, 2048, 2500, 3600, 4000, 4096, 5000, 7200, 10000

Low resolutions⁽⁴⁾: (not found in the Standard resolutions range):

Any resolution within the 1-2500ppr range.

High resolutions: (not found in the Standard resolutions range)

All multipliers of 1000, 1024, 1800, 2500 from 1 to 200.

Programmable resolutions ⁽⁴⁾ (RGX electronics):

- Full programmable (EPROG):
from 1 to 10kppr with direction and standard index tracks configuration

- Full programmable (XPROG):
from 1 to 10kppr with direction and alternate index tracks configuration

- Multiplier programmable (1000, 1024, 1800, 2500 native):
Programmability of the native resolution multiplier from 1 to 200 with direction and all index tracks configurations possibilities

All those versions can be configured with the same programming tool P/N EAP-001 (ordered separately). Programming procedure available in Instructions Manual.

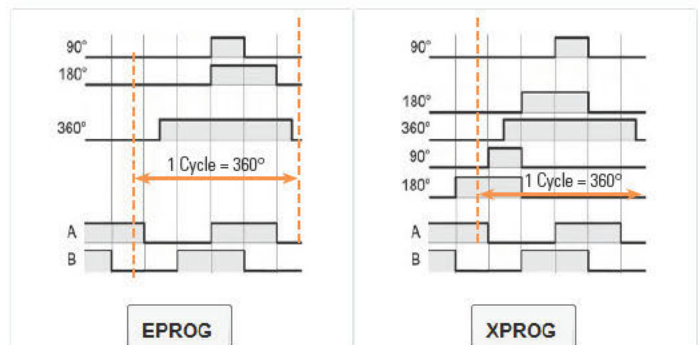
Sine wave resolutions:

360, 500, 512, 600, 1000, 1024, 1800, 2500

⁽⁴⁾ Signal tolerances available in Instructions Manual

⁽⁵⁾ Signals are shown for CW rotation when viewed from the face side of the encoder

Index track gating possibilities⁽⁵⁾



Directions Possibilities⁽⁵⁾

