

# DHM5

## FIXED RESOLUTION INCREMENTAL ENCODERS



### Features

DIGISINE, Universal Encoders :

- Robustness and excellent resistance to shocks / vibrations
- High Protection Level IP65, IP67 Option with a Sealing Flange
- High Resolutions Available: Up to 80 000 cpt
- Universal Electronic Circuits from 4.75 to 30 Vdc
- High Performance in Temperatures  $-30^{\circ}\text{C}$  to  $100^{\circ}\text{C}$  (option  $-40^{\circ}\text{C}$ )
- High Performances in Frequency of output signals : 300 kHz

### SPECIFICATIONS

<b>Material</b>	<b>Cover:</b> Zinc Alloy <b>Body:</b> Aluminium <b>Shaft:</b> Stainless Steel
<b>Bearings</b>	6 803 Series
<b>Maximum Loads</b>	<b>Axial:</b> 50 N <b>Radial:</b> 100 N
<b>Shaft Inertia</b>	$\leq 1.10^{-6} \text{ kg.m}^2$
<b>Torque</b>	$\leq 4.10^{-3} \text{ N.m}$
<b>Permissible Max. Speed</b>	12 000 $\text{min}^{-1}$
<b>Continuous Max. Speed</b>	9 000 $\text{min}^{-1}$
<b>Shocks (EN60068-2-27)</b>	$\leq 500 \text{ m.s}^{-2}$ (during 6 ms)
<b>Vibrations (EN60068-2-6)</b>	$\leq 100 \text{ m.s}^{-2}$ (55 ... 2 000 Hz)
<b>EMC</b>	EN 50081-1, EN 61000-6-2
<b>Isolation</b>	1 000 V eff
<b>Encoder Weight (Approx.)</b>	0,300 kg
<b>Operating Temperature</b>	$-30 \dots +100^{\circ}\text{C}$ (encoder T°)
<b>Storage Temperature</b>	$-40 \dots +100^{\circ}\text{C}$
<b>Protection (EN 60529)</b>	IP 65
<b>Theoretical Mechanical Lifetime 10<sup>9</sup> Turns (<math>F_{axial} / F_{radial}</math>)</b>	25 N / 50 N : 99 50 N / 100 N : 12



## ELECTRICAL CHARACTERISTICS

Ver.	Output Signals	Res.	Operating Voltage Vcl	Supply Current (no loads)	Current per Channel Pair	Output Levels (Is=20mA)	Frequency Capability	Short Circuits Proof	Reverse Polarity Tolerant	Reverse Polarity Tolerant
<b>5GT</b>	HTL	Up to 5000	11-30V 250mA	75mA	40mA	<b>High Min:</b> Vcl-2.5V <b>Low Max:</b> 1.5V	Up to 120kHz	Yes	Yes	-30° +70°C <b>(1)</b>
<b>RG5</b>	HTL	See Avail. Res. Below	4.75-30V 250mA	75mA	40mA	<b>High Min:</b> Vcl-0.5V <b>Low Max:</b> 0.5V	Up to 300kHz	Yes	Yes	-30° +100°C <b>(2)</b>
<b>RG2</b>	TTL RS422	See Avail. Res. Below	4.75-30V 250mA	75mA	40mA	<b>High Min:</b> 4.5V <b>Low Max:</b> 0.5V	Up to 300kHz	Yes (except to Vcl)	Yes	-30° +100°C <b>(2)</b>
<b>2G2</b>	TTL RS422	See Avail. Res. Below	5V ± 5% 250mA	75mA	40mA	<b>High Min:</b> 4.5V <b>Low Max:</b> 0.5V	Up to 300kHz	Yes	Yes	-30° +100°C <b>(2)</b>
<b>2WT</b>	1Vpp	Up to 2500	5V ± 5% 250mA	75mA	8mA	1Vpp ± 20%	Up to 300kHz	Yes	Yes	-30° +100°C <b>(2)</b>

**(1)** UL Listed: UL listed: -20°C +70°C. Device must be supplied by a Class 2, LPS or SELV limited energy source

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



## STANDARD CONNECTIONS

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

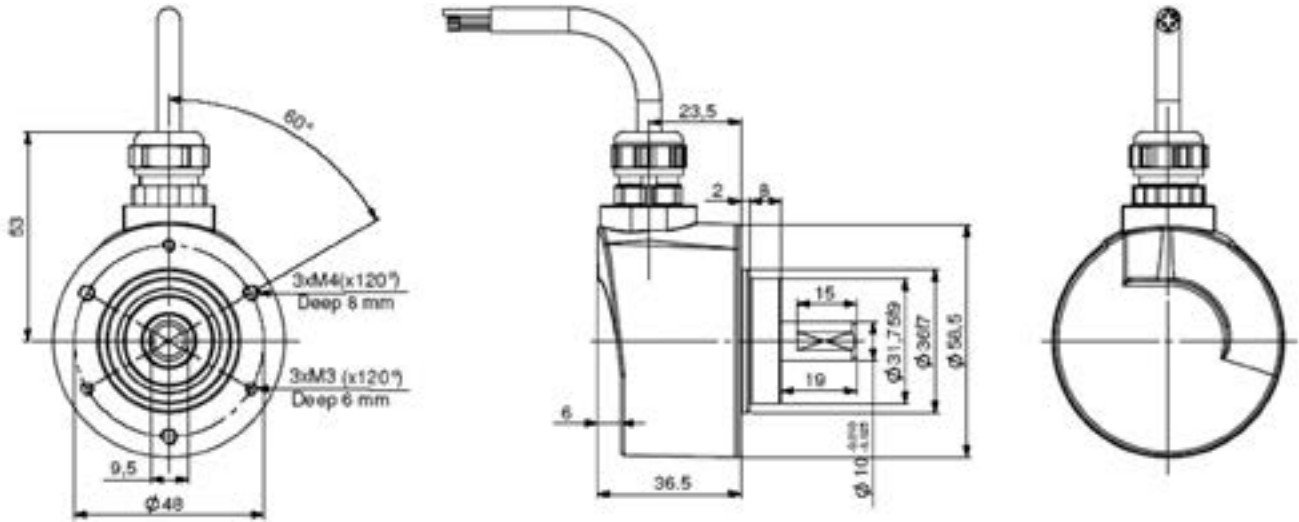
**(3)** Advised cable for mobile application, in extreme temperature from -40°C to +100°C



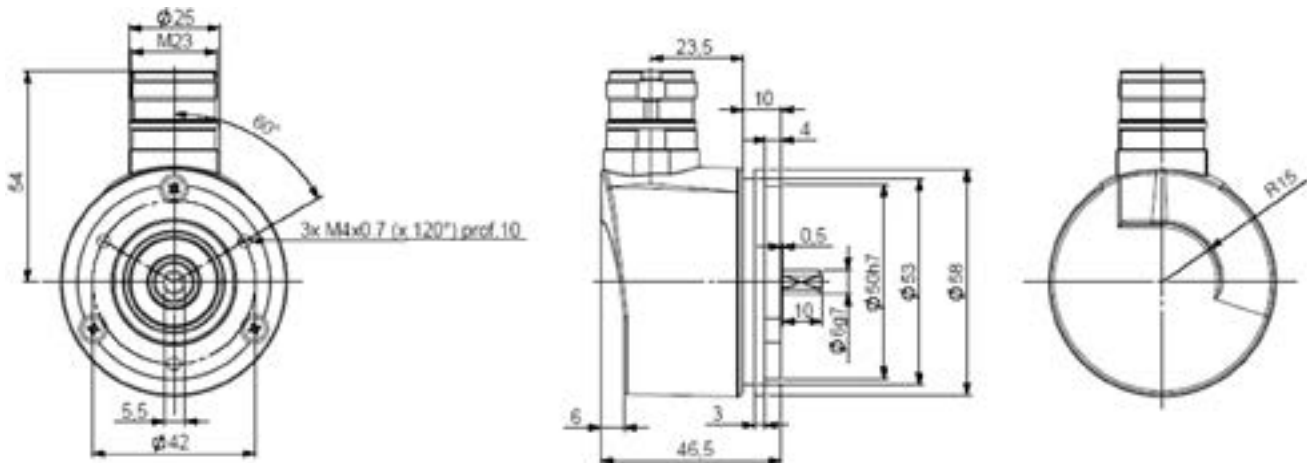
## DIMENSIONS

All dimensions are in millimeters.

### DHM5\_10 Connection G3R (Radial Cable)



### DHM5\_06 Connection G6R (Radial M23), Flange 9500/003 Mounted on the Body



# ORDERING OPTIONS

Example : DHM5\_06 // RG5 // 9 // 01024 // G6R // GP // \*\*03\*\*

Contact the factory for special versions, ex: electronics, special flanges, connections

<b>Family</b>	DHM5	06	//	RG5	9	//	01024	//	G6R	GP	//	**03**
<b>DHM5:</b> Solid Shaft Encoder												
<b>Shaft Bore</b>												
<b>06:</b> 6 mm												
<b>09:</b> 9.52 mm												
<b>10:</b> 10 mm												
<b>08:</b> 8mm (Option)												
<b>Voltage Output</b>												
<b>5GT:</b> 11-30V Voltage and Pushpull Output												
<b>RG5:</b> 4.75-30V Voltage and Pushpull Output												
<b>2G2:</b> 5V Voltage and RS422 Output												
<b>RG2:</b> 4.75-30V Voltage and RS422 Output												
<b>2WT:</b> 5V Voltage and 1Vpp Output												
<b>Channels</b>												
<b>9:</b> AA/ BB/ ZZ/ B before A Z gated A&B												
<b>For 2WT electronic, N:</b> SS/ CC/ ZZ/ C before S Z ungated												
<b>Cycles / Turn</b>												
<b>(Enter Cycles)</b> See Available Resolutions Above												
<b>Output Termination</b>												
<b>G3R:</b> PVC Cable												
<b>GCR:</b> PUR Cable												
<b>GPR:</b> PUR Cable (not UL)												
<b>TER:</b> Silicone Cable (not UL)												
<b>GMR:</b> M12												
<b>G6R:</b> M23 12 Pins CW												
<b>G8R:</b> M23 12 Pins CCW												
<b>Cable Length</b>												
<b>xxx:</b> Cable Length (ex.: 020 = 2 Meters)												
<b>Blank:</b> No Cable												
<b>Flange</b>												
<b>**03**:</b> Synchro Flange												

# GENERAL NOTES

**Available Resolutions:** 50 60 100 120 125 127 150 180 200 240 250 256 300 314 360 375 400 500 512 600 720 750 768 800 927 1000 1024 1200 1250 1280 1440 1500 1800 2000 2048 2400 2500 3000 3600 4000 4096 5000

**Interpolated Available Resolutions Digital Signals (Limited to 70°C):** 1080 1536 2560 2880 3072 4320 4500 5120 5400 5760 6000 6144 7200 7500 8000 8192 9000 10000 10240 10800 12000 12500 12288 14400 15000 16000 16384 18000 20000 20480 21600 24000 24576 25000 28800 30000 32000 32768 36000 40000 40960 43200 48000 49152 50000 57600 60000 64000 65536 80000

**Available Resolutions Sine Wave Signals (2WT Electronic):** 250 256 360 500 512 1000 1024 1500 1800 2000 2048 2500

# AGENCY APPROVALS & CERTIFICATIONS

