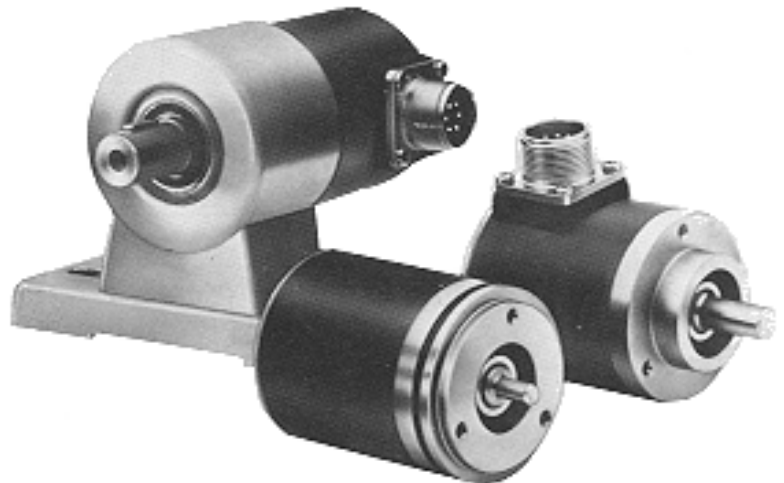


- Contactless sensor system
- Compact and robust design for heavy duty engineering
- Up to 5320 counts per revolution
- More than 700 different resolutions
- Output circuits for 5 VDC and 24 VDC transmission
- Three different mechanical configurations
- Protection grade IP 65



Functional discription

A toothed rotor changes the magnetic flux through two field plate resistors and generates two sinusoidal signals (sine and cosine). The integral electronics multiplies the number of signals per revolution and transforms them into square type counts. The resolution, i.e. the number of counts per revolution, as per tables page 2 and page 4, can be multiplied externally by 2 or by 4 up to 21280 counts per revolution.

Mechanical construction

Mounting flange and rear cover in aluminium with galvanic plating, steel housing with zinc coating and black chromating. Shaft in stainless steel. All joints with o-ring seals. Three different mounting modes as per page 4. Electrical connections either by plug and socket or by cable leads.

Output signals and electrical data

Model code	GIM 5000 V	GIM 5000 T	GIM 5000 X	GIM 5000 U
Output signal shape				
Counts per revolution	10 ... 5320 Number of counts can be multiplied by external electronics.			
Supply voltage U_B	10 to 30 VDC	5 VDC \pm 5%	10 to 30 VDC	10 to 30 VDC
Signal level U_A	10 to 30 VDC	5 VDC ¹⁾	10 to 30 VDC	5 VDC ¹⁾
Signal current I_A (cf. to diagram page 2)	100 mA			
Maximum signal frequency	200 kHz			
Slope distance at 200 kHz	\geq 0.6 μ s			
Pulse rate	1:1 \pm 15 %			
Phase shift	$90^\circ \pm 25^\circ$			
Consumption at $R_L = \infty$	by $U_B = 10$ to 30 VDC : \leq 1.3 W by $U_B = 5$ VDC : \leq 1.0 W			
Zero signal	Option N			

1) RS 422 and RS 485 compatible.

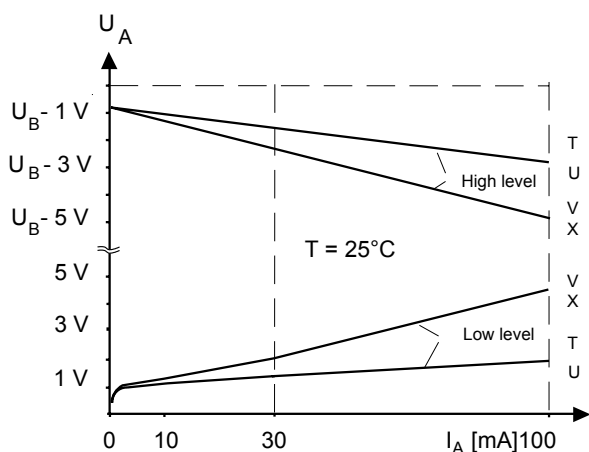
Standard number of counts per revolution

50	60	90	100	120	125	150	180
200	250	256	300	360	400	500	512
600	720	750	800	900	1000	1024	1200
1250	1500	1800	2000	2048	2500	3000	3600
4000	4096	5000					

For complete list cf. to table page 3.

Output current diagram at $I_A \leq 100$ mA

(applies to signal shape U and UN at $U_A = 5$ V)



Mechanical data of GIM 5100 and GIM 5200

- Operating speed: 10000 r.p.m. max.
- Inertia of rotor: ≤ 60 gcm²
- Operating torque: ≤ 3 Ncm
- Wind-up torque: ≤ 5 Ncm
- Permissible axial and radial shaft loads: 200 N
- Bearing life expectancy*: 2×10^9 revolutions
- Mass: ~ 0.5 kg

Mechanical data of GIM 5300

- Operating speed: 8000 r.p.m. max.
- Inertia of rotor: ≤ 100 gcm²
- Operating torque: ≤ 3 Ncm
- Wind-up torque: ≤ 5 Ncm
- Permissible shaft loads:
 - axial: 400 N
 - radial: 500 N
- Bearing life expectancy*: 840×10^6 revolutions
- Mass: ~ 1.0 kg

* Applies to max. shaft loads. Life time increases at lower loads.

Environmental data

- Operating temperature range: -20°C to $+80^\circ\text{C}$
- Storage temperature range: -40°C to $+105^\circ\text{C}$
- Resistance to shock: 1000 m/s²; 11 ms (DIN IEC 68)
- Resistance to vibration: 10 to 2000 Hz; 100 m/s² (DIN IEC 68)
- Insulating resistance: $R_i > 1$ M Ω , at 500 V (DIN 57660 part 500/8.8.2)
- Protection grade: IP 65 (DIN 40 050)
- For additional protection layout: Cf. to page 4.

Ordering code

GIM 5 0 0 0 V N 1000

- Counts per revolution
- Zero signal : optional
- Signal shape: V, T, X or U
- Electrical connection :
 - 1 = axial socket
 - 2 = radial socket
 - 3 = axial lead, 1m long
 - 4 = radial lead, 1m long
 - 5 = axial lead, 5m long
 - 6 = radial lead, 5m long
- Shaft diameter:
 - 1 = 12 mm
 - 2 = 10 mm
 - 3 = 8 mm
 - 4 = 6 mm
 - 6 = 16 mm
 - 9 = special
- Mounting:
 - 5100: Synchro flange
 - 5200: Clamp flange
 - 5300: Bottom flange with heavy duty bearing
- GIM 5000 series, 58 mm housing diameter

Permissible lead length L_{max}

between encoder and outside electronics

(typical data applying to cable type LiYCY 6 (10) x 0.25 mm²)

T, TN ; U, UN :		$U_A = 5$ VDC					
f [kHz]		5	10	20	50	100	200
L_{max} [m]		>200	>200	>200	>200	145	72

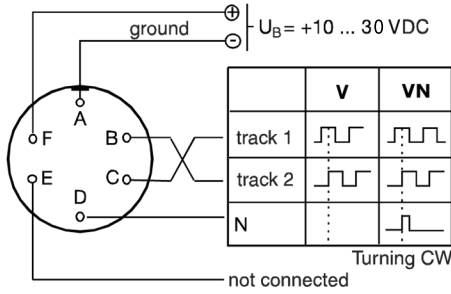
V, VN :		$U_A = 20$ VDC					
f [kHz]		5	10	20	50	100	200
L_{max} [m]		>200	>200	>200	80	40	20

X, XN :		$U_A = 20$ VDC					
f [kHz]		5	10	20	50	100	200
L_{max} [m]		>200	200	100	40	20	10

Electrical connections

GIM 5001 and GIM 5002

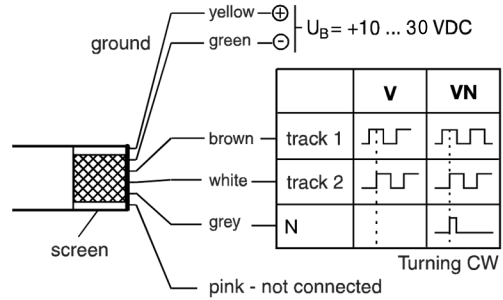
6-way male socket



View on socket at encoder housing

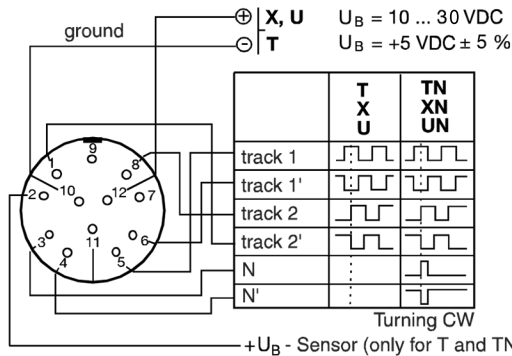
GIM 5003 and GIM 5004

6-way cable



GIM 5001 and GIM 5002

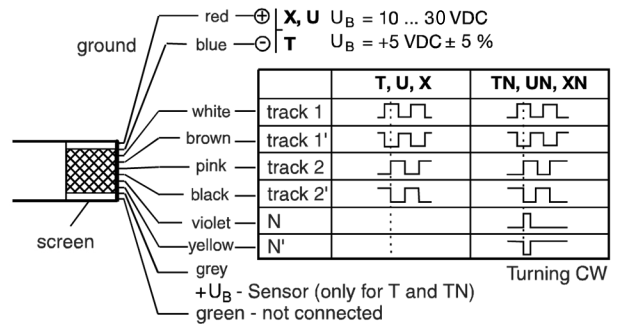
12-way male socket



View on socket at encoder housing

GIM 5003 and GIM 5004

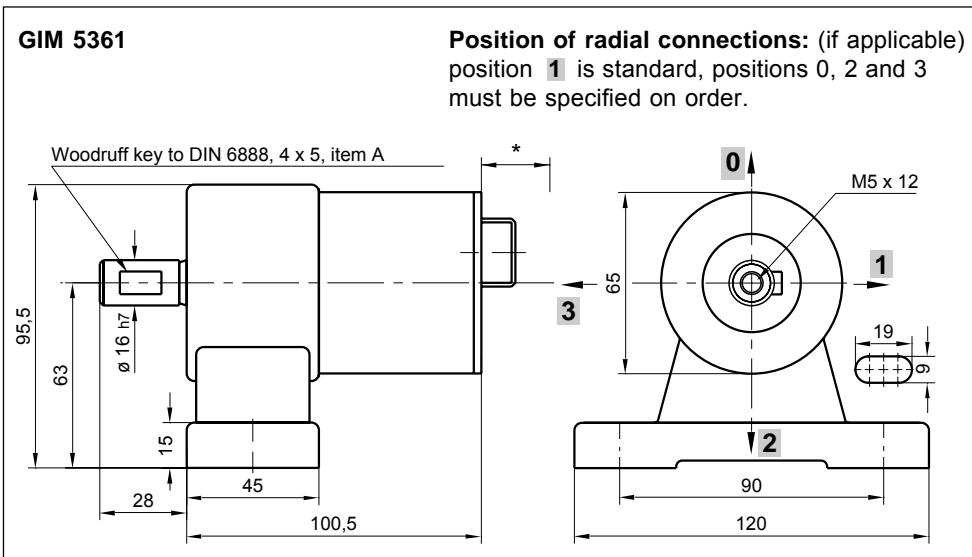
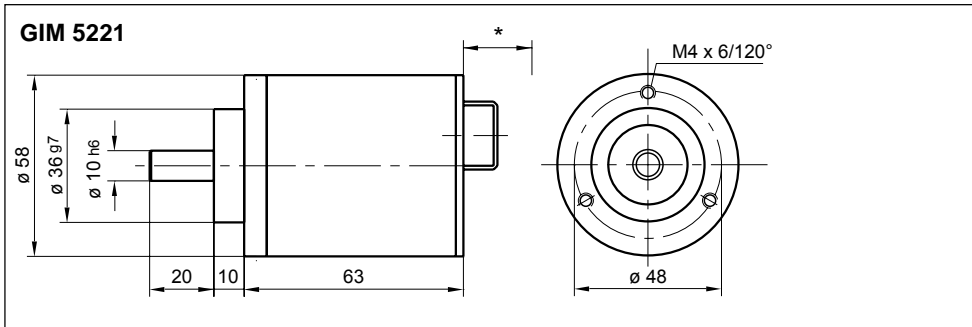
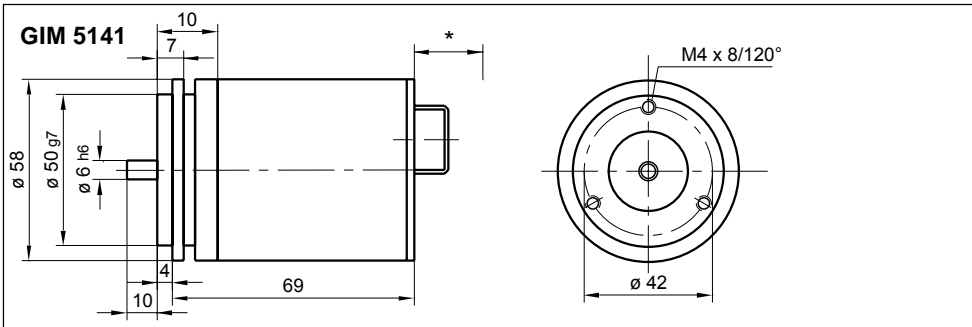
10-way cable



Total number of available counts per revolution (Can be multiplied by 2 or by 4 through external electronics)

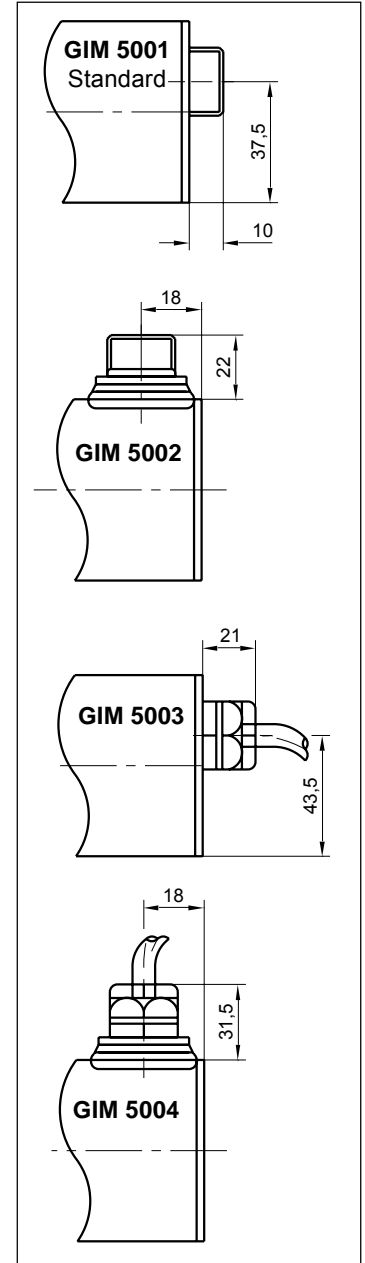
10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63
64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81
82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99
100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117
118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	136
138	140	142	144	146	148	150	152	154	156	158	160	162	164	166	168	170	172
174	176	178	180	182	184	186	188	190	192	194	196	198	200	202	204	206	208
210	212	214	216	218	220	222	224	226	228	230	232	234	236	238	240	242	244
246	248	250	252	254	256	258	260	262	264	266	268	270	272	276	280	282	284
288	292	294	296	300	304	306	308	312	316	318	320	324	328	330	332	336	340
342	344	348	352	354	356	360	364	366	368	370	372	376	378	380	384	388	390
392	396	400	402	404	408	410	412	414	416	420	424	426	428	430	432	436	438
440	444	448	450	452	456	460	462	464	468	470	472	474	476	480	482	486	488
490	492	496	498	500	504	508	510	512	516	520	522	524	528	530	532	534	536
540	544	546	550	552	558	560	564	568	570	576	580	582	584	588	590	592	594
600	606	608	610	612	616	618	620	624	630	632	636	640	642	648	650	654	656
660	664	666	670	672	678	680	684	688	690	696	700	702	704	708	710	712	714
720	726	728	730	732	736	738	740	744	750	752	756	760	762	768	770	774	776
780	784	786	790	792	798	800	804	808	810	816	820	824	828	830	832	840	848
850	852	856	860	864	870	872	876	880	888	890	896	900	904	910	912	920	924
928	930	936	940	944	948	950	952	960	968	970	972	976	980	984	990	992	996
1000	1008	1010	1016	1020	1024	1030	1032	1040	1044	1048	1050	1056	1060	1064	1068	1070	1072
1080	1088	1090	1092	1100	1104	1110	1116	1120	1128	1130	1136	1140	1150	1152	1160	1164	1168
1170	1176	1180	1184	1188	1190	1200	1210	1212	1216	1220	1224	1230	1232	1236	1240	1248	1250
1260	1264	1270	1272	1280	1284	1290	1296	1300	1308	1310	1312	1320	1328	1330	1332	1340	1344
1356	1360	1368	1376	1380	1392	1400	1404	1408	1416	1420	1424	1428	1440	1452	1456	1460	1464
1472	1476	1480	1488	1500	1504	1512	1520	1524	1536	1540	1548	1552	1560	1568	1572	1580	1584
1596	1600	1608	1616	1620	1632	1640	1648	1656	1660	1664	1680	1696	1700	1704	1712	1720	1728
1740	1744	1752	1760	1776	1780	1792	1800	1808	1820	1824	1840	1848	1856	1860	1872	1880	1888
1896	1900	1904	1920	1936	1940	1944	1952	1960	1968	1980	1984	1992	2000	2016	2020	2032	2040
2048	2060	2064	2080	2088	2096	2100	2112	2120	2128	2136	2140	2144	2160	2176	2180	2184	2200
2208	2220	2232	2240	2256	2260	2272	2280	2300	2304	2320	2328	2336	2340	2352	2360	2368	2376
2380	2400	2420	2424	2432	2440	2448	2460	2464	2472	2480	2496	2500	2520	2528	2540	2544	2560
2568	2580	2592	2600	2616	2620	2624	2640	2656	2660	2664	2680	2688	2712	2720	2736	2752	2760
2784	2800	2808	2816	2832	2840	2848	2856	2880	2904	2912	2920	2928	2944	2952	2960	2976	3000
3008	3024	3040	3048	3072	3080	3096	3104	3120	3136	3144	3160	3168	3192	3200	3232	3240	3264
3280	3296	3320	3328	3360	3392	3400	3424	3440	3456	3480	3488	3520	3552	3560	3584	3600	3616
3640	3648	3680	3712	3720	3744	3760	3776	3800	3808	3840	3872	3880	3904	3920	3936	3960	3968
4000	4032	4040	4064	4080	4096	4120	4128	4160	4192	4200	4224	4240	4256	4280	4320	4360	4400
4440	4480	4520	4560	4600	4640	4680	4720	4760	4800	4840	4880	4920	4960	5000	5040	5080	5120

Dimensions in mm



* With 6-way plug 75 mm approx., with 12-way plug 80 mm, approx.

Electrical connections



Additional protection against rough environmental conditions *

- SL : Humidity sealing of electronic components
- SM : Vibration sealing of electronic components
- LM : SL and SM sealings combined

* Please add code letters to ordering code page 2