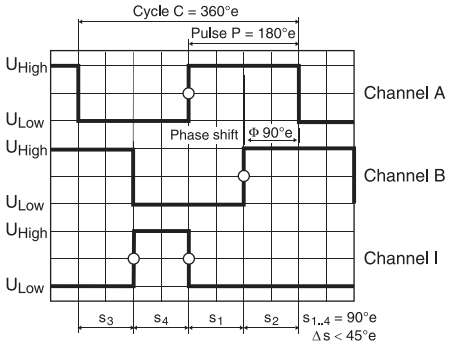
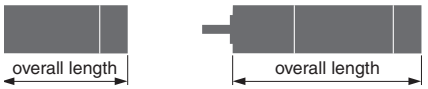
Encoder MR, Type M, 128 - 512 CPT, 2 / 3 Channels, with Line Driver



Stock program
Standard program
Special program (on request)

	Order Number					
Type	**228179**	**228177**	**228181**	**228182**	**201937**	**201940**
Counts per turn	128	128	256	256	512	512
Number of channels	2	3	2	3	2	3
Max. operating frequency (kHz)	80	80	160	160	320	320
Max. speed (rpm)	37500	37500	37500	37500	37500	37500



maxon Modular System

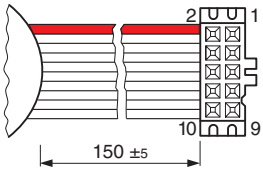
+ Motor	Page	+ Gearhead	Page	+ Brake	Page	Overall length [mm] / ● see Gearhead					
RE 16, 2 W	72					28.0	28.0	28.0	28.0	28.0	28.0
RE 16, 2 W	72	GP 16, 0.06 - 0.18 Nm	217			●	●	●	●	●	●
RE 16, 2 W	72	GP 16, 0.1 - 0.3 Nm	218			●	●	●	●	●	●
RE 16, 3.2 W	74					45.4	45.4	45.4	45.4	45.4	45.4
RE 16, 3.2 W	74	GP 16, 0.06 - 0.18 Nm	217			●	●	●	●	●	●
RE 16, 3.2 W	74	GP 16, 0.1 - 0.3 Nm	218			●	●	●	●	●	●
RE 16, 4.5 W	76					48.4	48.4	48.4	48.4	48.4	48.4
RE 16, 4.5 W	76	GP 16, 0.06 - 0.18 Nm	217			●	●	●	●	●	●
RE 16, 4.5 W	76	GP 16, 0.1 - 0.3 Nm	218			●	●	●	●	●	●
A-max 16	94/96					30.4	30.4	30.4	30.4	30.4	30.4
A-max 16	94/96	GS 16, 0.01 - 0.1 Nm	213-215			●	●	●	●	●	●
A-max 16	94/96	GP 16, 0.06 - 0.18 Nm	217			●	●	●	●	●	●
A-max 16	94/96	GP 16, 0.1 - 0.3 Nm	218			●	●	●	●	●	●
A-max 19, 1.5 W	98					34.0	34.0	34.0	34.0	34.0	34.0
A-max 19, 1.5 W	98	GP 19, 0.1 - 0.3 Nm	220			●	●	●	●	●	●
A-max 19, 1.5 W	98	GP 22, 0.5 - 2.0 Nm	224/225			●	●	●	●	●	●
A-max 19, 1.5 W	98	GS 24, 0.1 Nm	229			●	●	●	●	●	●
A-max 19, 1.5 W	98	GP 22 S	249/250			●	●	●	●	●	●
A-max 19, 2.5 W	100					35.8	35.8	35.8	35.8	35.8	35.8
A-max 19, 2.5 W	100	GP 19, 0.1 - 0.3 Nm	220			●	●	●	●	●	●
A-max 19, 2.5 W	100	GS 20 0.06 - 0.25 Nm	221			●	●	●	●	●	●
A-max 19, 2.5 W	100	GP 22, 0.5 - 2.0 Nm	224/225			●	●	●	●	●	●
A-max 19, 2.5 W	100	GS 24, 0.1 Nm	229			●	●	●	●	●	●
A-max 19, 2.5 W	100	GP 22 S	249/250			●	●	●	●	●	●
A-max 22	102/104					36.9	36.9	36.9	36.9	36.9	36.9
A-max 22	102/104	GP 22, 0.1 - 0.6 Nm	222/223			●	●	●	●	●	●
A-max 22	102/104	GP 22, 0.5 - 2.0 Nm	224/225			●	●	●	●	●	●
A-max 22	102/104	GS 24, 0.1 Nm	229			●	●	●	●	●	●
A-max 22	102/104	GP 22 S	249/250			●	●	●	●	●	●
RE-max 17	124/126					30.4	30.4	30.4	30.4	30.4	30.4
RE-max 17	124/126	GP 16, 0.06 - 0.18 Nm	217			●	●	●	●	●	●
RE-max 17	124/126	GP 16, 0.1 - 0.3 Nm	218			●	●	●	●	●	●

Technical Data

Supply voltage V_{CC}	5 V ± 5 %
Output signal	TTL compatible
Phase shift Φ	90°e ± 45°e
Index pulse width	90°e ± 45°e
Operating temperature range	-25 ... +85°C
Moment of inertia of code wheel	≤ 0.09 gcm²
Output current per channel	max. 5 mA

The index signal I is synchronised with channel A or B.

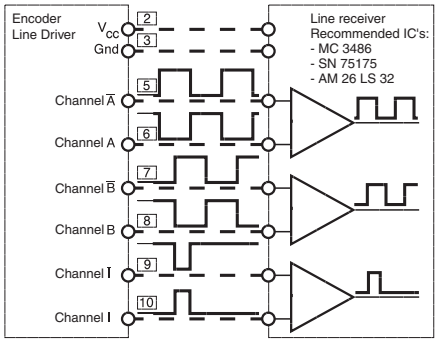
Pin Allocation



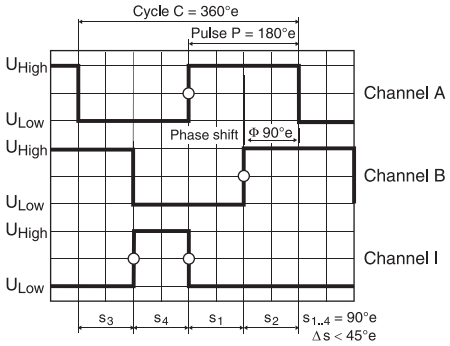
1 Motor +
2 V_{CC}
3 GND
4 Motor –
5 Channel $\overline{A}$
6 Channel A
7 Channel $\overline{B}$
8 Channel B
9* Channel $\overline{I}$ (Index)
10* Channel I (Index)

DIN Connector 41651
flat band cable AWG 28
* version with 3 channels

Connection example



Encoder MR, Type M, 128 - 512 CPT, 2 / 3 Channels, with Line Driver



Stock program
Standard program
Special program (on request)

Order Number	228179	228177	228181	228182	201937	201940
Type						
Counts per turn	128	128	256	256	512	512
Number of channels	2	3	2	3	2	3
Max. operating frequency (kHz)	80	80	160	160	320	320
Max. speed (rpm)	37500	37500	37500	37500	37500	37500

maxon Modular System

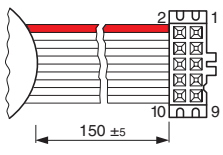
+ Motor	Page	+ Gearhead	Page	+ Brake	Page	Overall length [mm] / ● see Gearhead					
RE-max 21, 3.5 W	128					34.0	34.0	34.0	34.0	34.0	34.0
RE-max 21, 3.5 W	128	GP 22, 0.5 - 2.0 Nm	224/225			●	●	●	●	●	●
RE-max 21, 3.5 W	128	GS 38, 0.1 - 0.6 Nm	239			●	●	●	●	●	●
RE-max 21, 3.5 W	128	GP 22 S	249/250			●	●	●	●	●	●
RE-max 21, 6 W	130					35.8	35.8	35.8	35.8	35.8	35.8
RE-max 21, 6 W	130	GP 22, 0.5 - 2.0 Nm	224/225			●	●	●	●	●	●
RE-max 21, 6 W	130	GS 38, 0.1 - 0.6 Nm	239			●	●	●	●	●	●
RE-max 21, 6 W	130	GP 22 S	249/250			●	●	●	●	●	●
RE-max 24	132/134					36.9	36.9	36.9	36.9	36.9	36.9
RE-max 24	132/134	GP 22, 0.5 - 2.0 Nm	225			●	●	●	●	●	●
RE-max 24	132/134	GS 38, 0.1 - 0.6 Nm	239			●	●	●	●	●	●
RE-max 24	132/134	GP 22 S	249/250			●	●	●	●	●	●
EC 16, 15 W	147					50.9	50.9	50.9	50.9	50.9	50.9
EC 16, 15 W	147	GP 16, 0.1 - 0.3 Nm	218			●	●	●	●	●	●
EC 16, 40 W	148					66.9	66.9	66.9	66.9	66.9	66.9
EC 16, 40 W	148	GP 22, 0.5 - 2.0 Nm	226			●	●	●	●	●	●
EC 16, 40 W	148	GP 22 S	249/250			●	●	●	●	●	●
EC 22, 20 W	150					50.5	50.5	50.5	50.5	50.5	50.5
EC 22, 20 W	150	GP 22, 0.5 - 2.0 Nm	226			●	●	●	●	●	●
EC 22, 20 W	150	GP 22 S	249/250			●	●	●	●	●	●
EC 22, 50 W	152					68.7	68.7	68.7	68.7	68.7	68.7
EC 22, 50 W	152	GP 22, 0.5 - 2.0 Nm	226			●	●	●	●	●	●
EC 22, 50 W	152	GP 22 S	249/250			●	●	●	●	●	●
EC-max 16, 5 W	165					31.3	31.3	31.3	31.3	31.3	31.3
EC-max 16, 5 W	165	GP 16, 0.1 - 0.3 Nm	218			●	●	●	●	●	●
EC-max 16, 8 W	167					43.3	43.3	43.3	43.3	43.3	43.3
EC-max 16, 8 W	167	GP 22, 0.5 - 2.0 Nm	226			●	●	●	●	●	●
EC-max 16, 8 W	167	GP 22 S	249/250			●	●	●	●	●	●
EC-max 22, 12 W	168					41.7	41.7	41.7	41.7	41.7	41.7
EC-max 22, 12 W	168	GP 22, 0.5 - 2.0 Nm	226/227			●	●	●	●	●	●
EC-max 22, 12 W	168	KD 32	238			●	●	●	●	●	●
EC-max 22, 12 W	168	GP 22 S	249/250			●	●	●	●	●	●
EC-max 22, 25 W	169					58.2	58.2	58.2	58.2	58.2	58.2
EC-max 22, 25 W	169	GP 22	227			●	●	●	●	●	●
EC-max 22, 25 W	169	GP 32, 1 - 6 Nm	236			●	●	●	●	●	●
EC-max 22, 25 W	169	GP 32 S	249/250			●	●	●	●	●	●

Technical Data

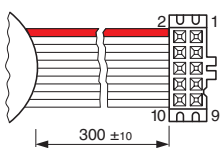
Supply voltage V_{CC}	5 V ± 5 %
Output signal	TTL compatible
Phase shift Φ	90°e ± 45°e
Index pulse width	90°e ± 45°e
Operating temperature range	-25 ... +85°C
Moment of inertia of code wheel	≤ 0.09 gcm²
Output current per channel	max. 5 mA

The index signal I is synchronised with channel A or B.

Pin Allocation



MR Encoder EC-max 16 / EC-max 22



MR Encoder EC 16 / EC 22

1 N.C.
2 V_{CC}
3 GND
4 N.C.
5 Channel A
6 Channel $\overline{A}$
7 Channel B
8 Channel $\overline{B}$
9* Channel I (Index)
10* Channel $\overline{I}$ (Index)
DIN Connector 4165
flat band cable AWG 28
* version with 3 channels

Connection example