

Motor-encoder combinations released for safe speed and position detection

9400 with SM301 / SM302

MDxKS 56/71 ²⁾	Max. achievable PL / SIL up to	MCS06..19	Max. achievable PL / SIL up to	m85xS60/xxxxx..80/xxxxx	Max. achievable PL / SIL up to	m85xS120/xxxxx..190/xxxxx	Max. achievable PL / SIL up to	MCA10..26 MQA20..26	Max. achievable PL / SIL up to
AS1024-8V-K2 ³⁾ (Sin-Cos + Hiperface-Singleturn)	PL d / SIL 2	AM128-8V-K2 ³⁾ (Sin-Cos + Hiperface-Multiturn)	PL d / SIL 2	AM128-8V-K2 ³⁾ (Sin-Cos + Hiperface-Multiturn)	PL d / SIL 2	AM128-8V-K2 ³⁾ (Sin-Cos + Hiperface-Multiturn)	PL d / SIL 2	AM2048-5V-V2 ^{3, 4, 6)} (Sin-Cos + SSI-Multiturn)	PL d / SIL 2
AM1024-8V-K2 ³⁾ (Sin-Cos + Hiperface-Multiturn)	PL d / SIL 2	AS1024-8V-K2 ³⁾ (Sin-Cos + Hiperface-Singleturn)	PL d / SIL 2	RV22 (Resolver) (Singleturn)	PL d / SIL 2	RV03 (Resolver) (Singleturn)	PL e / SIL 3	RV03 ¹⁾ (Resolver) (Singleturn)	PL e / SIL 3
RV03 (Resolver) (Singleturn)	PL e / SIL 3	AM1024-8V-K2 ³⁾ (Sin-Cos + Hiperface-Multiturn)	PL d / SIL 2						
		RV03 (Resolver) (Singleturn)	PL e / SIL 3						
2-encoder-concept ⁵⁾	PL e / SIL 3	2-encoder-concept ⁵⁾	PL e / SIL 3	2-encoder-concept ⁵⁾	PL e / SIL 3	2-encoder-concept ⁵⁾	PL e / SIL 3	2-encoder-concept ⁵⁾	PL e / SIL 3

MFxMA063-xx..132-xx	Max. achievable PL / SIL up to	m55Bx063-xx..180-xx	Max. achievable PL / SIL up to	Other motors	Max. achievable PL / SIL up to
IG1024-5V-V2 ⁴⁾ (Sin-Cos)	PL d / SIL 2	IG1024-5V-V2 ⁴⁾ (Sin-Cos)	PL d / SIL 2		
IG2048-5V-V2 ⁴⁾ (Sin-Cos)	PL d / SIL 2	IG2048-5V-V2 (Sin-Cos)	PL d / SIL 2		
IG2048-5V-V3 ⁴⁾ (Sin-Cos)	PL e / SIL 3	IG2048-5V-V3 (Sin-Cos)	PL e / SIL 3		
AM2048-5V-V2 ^{3, 4)} (Sin-Cos + SSI-Multiturn)	PL d / SIL 2	AM2048-5V-V2 ^{3, 4)} (Sin-Cos + SSI-Multiturn)	PL d / SIL 2		
2-encoder-concept ⁵⁾	PL e / SIL 3	2-encoder-concept ⁵⁾	PL e / SIL 3	2-encoder-concept ⁵⁾	PL e / SIL 3

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i950 with Extended Safety

MDxKS 56/71 ²⁾	Max. achievable PL / SIL up to	MCS06..19	Max. achievable PL / SIL up to	m85xS60/xxxxx..80/xxxxx	Max. achievable PL / SIL up to	m85xS120/xxxxx..190/xxxxx	Max. achievable PL / SIL up to	MCA10..26 MQA20..26	Max. achievable PL / SIL up to
AS1024-8V-K2 ³⁾ (Sin-Cos + Hiperface-Singleturn)	PL d / SIL 2	AM128-8V-K2 ³⁾ (Sin-Cos + Hiperface-Multiturn)	PL d / SIL 2	AM128-8V-K2 ³⁾ (Sin-Cos + Hiperface-Multiturn)	PL d / SIL 2	AM128-8V-K2 ³⁾ (Sin-Cos + Hiperface-Multiturn)	PL d / SIL 2	AM2048-5V-V2 ^{3 4 6)} (Sin-Cos + SSI-Multiturn)	PL d / SIL 2
AM1024-8V-K2 ³⁾ (Sin-Cos + Hiperface-Multiturn)	PL d / SIL 2	AS1024-8V-K2 ³⁾ (Sin-Cos + Hiperface-Singleturn)	PL d / SIL 2	AM17-8V-D2 (Hiperface DSL-Multiturn)	PL d / SIL 2	AM20-8V-D2 (Hiperface DSL-Multiturn)	PL d / SIL 2	RV03 ¹⁾ (Resolver) (Singleturn)	PL e / SIL 3
RV03 (Resolver) (Singleturn)	PL e / SIL 3	AM1024-8V-K2 ³⁾ (Sin-Cos + Hiperface-Multiturn)	PL d / SIL 2	RV22 (Resolver) (Singleturn)	PL d / SIL 2	AM20-8V-D2-1 ⁴⁾ (Hiperface DSL-Multiturn)	PL d / SIL 2		
		AM20-8V-D2 (Hiperface DSL- Multiturn)	PL d / SIL 2			RV03 (Resolver) (Singleturn)	PL e / SIL 3		
		AM20-8V-D2-1 ⁴⁾ (Hiperface DSL- Multiturn)	PL d / SIL 2						
		RV03 (Resolver) (Singleturn)	PL e / SIL 3						
2-encoder-concept ⁵⁾	PL e / SIL 3	2-encoder-concept ⁵⁾	PL e / SIL 3	2-encoder-concept ⁵⁾	PL e / SIL 3	2-encoder-concept ⁵⁾	PL e / SIL 3	2-encoder-concept ⁵⁾	PL e / SIL 3

MFxMA063-xx..132-xx	Max. achievable PL / SIL up to	m55Bx063-xx..180-xx	Max. achievable PL / SIL up to	Other motors	Max. achievable PL / SIL up to
IG1024-5V-V2 ⁴⁾ (Sin-Cos)	PL d / SIL 2	IG1024-5V-V2 ⁴⁾ (Sin-Cos)	PL d / SIL 2		
IG2048-5V-V2 ⁴⁾ (Sin-Cos)	PL d / SIL 2	IG2048-5V-V2 (Sin-Cos)	PL d / SIL 2		
IG2048-5V-V3 ⁴⁾ (Sin-Cos)	PL e / SIL 3	IG2048-5V-V3 (Sin-Cos)	PL e / SIL 3		
AM2048-5V-V2 ^{3 4)} (Sin-Cos + SSI-Multiturn)	PL d / SIL 2	AM2048-5V-V2 ^{3 4)} (Sin-Cos + SSI-Multiturn)	PL d / SIL 2		
2-encoder-concept ⁵⁾	PL e / SIL 3	2-encoder-concept ⁵⁾	PL e / SIL 3	2-encoder-concept ⁵⁾	PL e / SIL 3

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i750 with Extended Safety

MDxKS 56/71 ²⁾	Max. achievable PL / SIL up to	MCS06..19	Max. achievable PL / SIL up to	m85xS60/xxxxx..80/xxxxx	Max. achievable PL / SIL up to	m85xS120/xxxxx..190/xxxxx	Max. achievable PL / SIL up to	MCA10..26 MQA20..26	Max. achievable PL / SIL up to
AS1024-8V-K2 ³⁾ (Sin-Cos + Hiperface-Singleturn)	PL d / SIL 2	AM128-8V-K2 ³⁾ (Sin-Cos + Hiperface-Multiturn)	PL d / SIL 2	AM128-8V-K2 ³⁾ (Sin-Cos + Hiperface-Multiturn)	PL d / SIL 2	AM128-8V-K2 ³⁾ (Sin-Cos + Hiperface-Multiturn)	PL d / SIL 2	AM2048-5V-V2 ^{3, 4 6)} (Sin-Cos + SSI-Multiturn)	PL d / SIL 2
AM1024-8V-K2 ³⁾ (Sin-Cos + Hiperface-Multiturn)	PL d / SIL 2	AS1024-8V-K2 ³⁾ (Sin-Cos + Hiperface-Singleturn)	PL d / SIL 2	AM17-8V-D2 (Hiperface DSL-Multiturn)	PL d / SIL 2	AM20-8V-D2 (Hiperface DSL-Multiturn)	PL d / SIL 2	RV03 ¹⁾ (Resolver) (Singleturn)	PL e / SIL 3
RV03 (Resolver) (Singleturn)	PL e / SIL 3	AM1024-8V-K2 ³⁾ (Sin-Cos + Hiperface-Multiturn)	PL d / SIL 2	RV22 (Resolver) (Singleturn)	PL d / SIL 2	AM20-8V-D2-1 ⁴⁾ (Hiperface DSL-Multiturn)	PL d / SIL 2		
		AM20-8V-D2 (Hiperface DSL- Multiturn)	PL d / SIL 2			RV03 (Resolver) (Singleturn)	PL e / SIL 3		
		AM20-8V-D2-1 ⁴⁾ (Hiperface DSL- Multiturn)	PL d / SIL 2						
		RV03 (Resolver) (Singleturn)	PL e / SIL 3						

MFxMA063-xx..132-xx	Max. achievable PL / SIL up to	m55Bx063-xx..180-xx	Max. achievable PL / SIL up to
IG1024-5V-V2 ⁴⁾ (Sin-Cos)	PL d / SIL 2	IG1024-5V-V2 ⁴⁾ (Sin-Cos)	PL d / SIL 2
IG2048-5V-V2 ⁴⁾ (Sin-Cos)	PL d / SIL 2	IG2048-5V-V2 (Sin-Cos)	PL d / SIL 2
IG2048-5V-V3 ⁴⁾ (Sin-Cos)	PL e / SIL 3	IG2048-5V-V3 (Sin-Cos)	PL e / SIL 3
AM2048-5V-V2 ^{3, 4)} (Sin-Cos + SSI-Multiturn)	PL d / SIL 2	AM2048-5V-V2 ^{3, 4)} (Sin-Cos + SSI-Multiturn)	PL d / SIL 2

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Notes:

1. MCA and MQA 20, 22 and 26 with brake not with safety resolver RV03.
2. MDxKS-motors should no more be used for new applications.
3. For the absolute value encoders, only the sin-cos interface is safety-related.
4. Encoder must be requested as a C-type.
5. In the case of the 2-encoder-concept, the achievable PL / SIL depends on the data (a.o. MTBF) of the feedback systems used.
 - Note 2-encoder concept 9400 with SM301 / SM302:

motor encoder:	Resolver or Sin-Cos-encoder and
position encoder:	Sin-Cos-, TTL-, SSI- or bus encoder
 - Note 2-encoder concept i950 with Extended Safety:

motor encoder in slot A:	Resolver or Sin-Cos-encoder or
motor encoder at X109:	OCT-encoder and
position encoder in slot B:	Resolver, Sin-Cos-, TTL-, HTL- or SSI-encoder or
bus encoder at bus module or system bus	
6. For MCA only from size 19

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