

Inclination sensors (analog)														page 1/2				rev3.91 20230828						
Family	QG30			QG40			QG40N				QG40N Redundant		QG65 / QG76 analog				QG65N2 / QG76N2 analog				QG65N2 / QG76N2 analog Dynamic Inclinator			
Product life cycle status	released			Released			Released				Released		Not for new designs, discontinued Q1 2024				To be released Q1 2024				To be released Q1 2024			
Measuring range	±10°	±30°	±90°	±10°	±30°	±90°	±10°	±30°	±90°	360°	±90°	360°	±10°	±30°	±90°	360°	±10°	±30°	±90°	360°	±10°	±30°	±90°	360°
Number of axis	1			2			2		1		1		2		1		2		1		2		1	
Centering function	no			no			yes				yes		yes				yes							
Functional safety	no			no			no				full redundant		no				no							
Supply Voltage	10- 30 Vdc / 5 Vdc			10- 30 Vdc / 5 Vdc			10- 30 Vdc				10- 30 Vdc		10- 30 Vdc				10- 32 Vdc				10- 32 Vdc			
Output format	4-20mA 0.5-4,5V Vcc=5V: 0-5V ratiometric			4-20mA 0.5-4,5V Vcc=5V: 0-5V ratiometric			4-20mA 0.5-4,5V				4-20mA		4-20mA 0.5-4,5V (for CAN: see page 2)				4-20mA 0.5-4,5V (for CAN: see page 2)				4-20mA 0.5-4,5V (for CAN: see page 2)			
Output bandwidth	0 - 10Hz			0 - 10Hz			0 - 10Hz				0 - 10 Hz		0 - 10Hz				0 - 10Hz				0 - 100Hz			
Output function	sinus curve			sinus curve			lineair				lineair		lineair				lineair				lineair			
Resolution	0,03°			0,03°			0,1°				0,1°		0,01°				0,01°				0,01°			
Accuracy (typ. @20°C)	0,3°	0,6°	0,9° (-45° .. +45°)	0,3°	0,6°	0,9° (-45° .. +45°)	0,5°				0,5°		0,04°	0,05°	0,09° (-60 .. +60°)	0,07°	0,07° (high accuracy) 0,15° (standard accuracy)				0,07° static, 0,5° dynamic (high accuracy) 0,15° static, 0,8° dynamic (standard accuracy)			
	offset error excluded, 1° typ.			offset error excluded, 1° typ.																				
Temperature coefficient (typ.)	0,02°/K			0,02°/K			0,08°/K				0,08°/K		0,005°/K				0,003°/K (high accuracy) 0,015°/K (standard accuracy)				0,003°/K (high accuracy) 0,015°/K (standard accuracy)			
Housing material	Plastic			Plastic			Plastic				Plastic		QG65: Reinforced plastic with steel fiber QG76: Stainless steel				QG65: Reinforced plastic with steel fiber QG76: Stainless steel				QG65: Reinforced plastic with steel fiber QG76: Stainless steel			
Size	30x30x15mm			40x40x25mm			40x40x25mm				40x40x25		QG65: 60x50x27mm QG76: 70x60x33mm				QG65: 60x50x27mm QG76: 70x60x33mm				QG65: 60x50x27mm QG76: 70x60x33mm			
Temperature range	-25 .. +80°C			-40 .. +80°C			-40 .. +80°C				-25 .. +80°C		-40 .. +80°C				-40 .. +80°C				-40 .. +80°C			
Protection class	IP67			IP67, IP69K			IP67, IP69K				IP67		QG65: IP67, IP69K QG76: IP67, IP69K (IP68 with gland/cable)				QG65: IP67, IP69K QG76: IP67, IP69K (IP68 with gland/cable)				QG65: IP67, IP69K QG76: IP67, IP69K (IP68 with gland/cable)			
Certification	CE			CE, UL			CE, UL				CE		QG65: CE, Automotive EMC, UL QG76: CE, Automotive EMC, UL				QG65: CE, Automotive EMC, E4ready, UL QG76: CE, Automotive EMC, E4ready, UL				QG65: CE, Automotive EMC, E4ready, UL QG76: CE, Automotive EMC, E4ready, UL			
Programmable	no			no			Yes, with optional configurator				Yes, with optional configurator		Factory programmable only				Yes, with optional configurator				Yes, with optional configurator			
Connection standard	PVC cable 2m			M12 5-pole male			M12 5-pole male				2m PUR cable		M12 male 8p				M12 male 5p				M12 male 5p			
Remarks																	Two models: standard / high accuracy				Two models: standard / high accuracy			
Options:	Different output formats (i.e. 0-5V, 0-10V etc), bandwidths, subranges, cables, connectors etc.																							

Inclination sensors (CAN)												
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Family	QG65N/QG76N CANopen			QG65N2/QG76N2 CANopen/J1939			QG65N/QG76N CANopen Safety SIL CL 2/PLd			QG65D/QG76D CANopen/J1939 Dynamic Inclinator		
Product life cycle status	Discontinued			Released			Released			Released		
Measuring range	±30°	±90°	360°	±30°	±90°	360°	±30°	±90°	360°	±30°	±90°	360°
Number of axis	2		1	2		1	2		1	2		1
Centering function	yes			yes			yes			yes		
Functional safety	no			no			SIL CL 2 / PLd certified			no		
Supply Voltage	8 - 30 Vdc			10 - 32 Vdc			8 - 32 Vdc			8 - 32 Vdc		
Output format	CANopen			CANopen / SAE J1939			CANopen & CANopen Safety			CANopen / SAE J1939		
Output bandwidth	0 - 20Hz			0 - 10Hz			0 - 10Hz			0 - 100Hz		
Output function	lineair			lineair			lineair			lineair		
Resolution	0,05°			Programmable 0,01° (default) / 0,1° / 1°			0,05°			Programmable 0,01° (default) / 0,1° / 1°		
Accuracy (typ. @20°C)	0,15°			0,07° (high accuracy) 0,15° (standard accuracy)			0,15°			0,07° static, 0,5° dynamic (high accuracy) 0,15° typ static, 0,8° dynamic (standard accuracy)		
Temperature coefficient (typ.)	0,01°/K			0,003°/K (high accuracy) 0,015°/K (standard accuracy)			0,02°/K			0,003°/K (high accuracy) 0,015°/K (standard accuracy)		
Housing material	QG65: Reinforced plastic with steel fiber / QG76: Stainless steel											
Size	QG65: 60x50x27mm / QG76: 70x60x33mm											
Temperature range	-40 . . +80°C											
Protection class	QG65: IP67, IP69K / QG76: IP67, IP69K (IP68 with gland/cable)											
Certification	CE, UL, Automotive EMC, E4ready			CE, UL, Automotive EMC, E4ready			QG65: CE, UL, Automotive EMC			CE, UL, Automotive EMC, E4ready		
Programmable	Yes, via CAN object dictionary			CANopen: by DIS Configurator set CAN and CAN object dictionary J1939: No			Yes, via CAN object dictionary			CANopen: by DIS Configurator set CAN and CAN object dictionary J1939: No		
Connection standard	M12 5p male & optional female (internal T-junction)											
Options:	Different CAN settings, cable with gland, connectors etc.											