



## Sensor de inclinação N5

O sensor de inclinação modelo N5 com interface CAN-Bus está disponível nos protocolos de comunicação CANopen ou SAEJ1939. Este sensor possui elevada resistência à impactos e vibrações, portanto é muito utilizado para medição de inclinação em máquinas agrícolas, máquinas de construção, caminhões fora de estrada entre outras aplicações severas. O sensor de inclinação N5 pode ser facilmente programado e a posição neutra ajustada através de um controle remoto infravermelho.

### Especificação Técnica

- Elevada vida útil e confiabilidade devido à tecnologia MEMS
- Range de medição 360° para um eixo ou 180° para dois eixos
- Até 4 pontos de medição digital programável
- Seleção de delay para funções liga/desliga por sinal de saída
- Ajuste da posição neutra através de controle remoto ou através da rede CAN bus
- Classe de proteção IP67
- Temperatura de trabalho -40 °C to +85 °C
- Conector Deutsch ou plug M12
- Conexão em série: loop através do sinal CAN sem necessidade de conectores T adicionais
- Compacto e robusto, adequado também para ambientes externos
- Redundância para aplicações que exigem nível de segurança mais elevados

## Características do artigo

Attribute	N5ACJ...	N5ACJB...	N5ACO...	N5ACOB...	N5ECJ...	N5ECJB... ▶
Max. switching voltage	–	48 V DC	–	48 V DC	–	48 V DC
Max. switching current	–	1 A	–	1 A	–	1 A
Max. switching power	–	30 W	–	30 W	–	30 W
Polarity reversal protection	yes					
Resolution	0.014 °					
Operating voltage min.	9 V DC					
Operating voltage max.	32 V DC					
Current consumption	100 mA					
Short-circuit resistance to GND	yes	no	yes	no	yes	no
Short-circuit resistance to supply	yes	no	yes	no	yes	no
Repeating accuracy	0,3 °					
Signal update rate	200 Hz					
Technology	MEMS					
Number of measurement axes (Number)	2		2 (X, Y) Z-axis for signaling the installation position		2	
Angle measuring range	180 °				360/120 °	
Initialisation time after power on/start-up time	500 ms					
Switching points	–	Selectable from ±1.5°...±90 °	–	Selectable from ±1.5°...±90 °	–	Selectable from ±1.5°...±180 °
Zero justification	±60°					
Vibration filter	25 Hz					
Fieldbus system	CAN					
Protocol	J1939		CANopen		J1939	
Node ID / Source Address	0xE2		0x20		0xE2	
Transmitting cycle	10 ms					
Baud rate	250 kBit/s					
Bus terminating resistor	no					
MTTF	57.6 a					
Switching output	–	2x NO	–	2x NO	–	2x NO
Outputs	CAN J1939	CAN J1939 + relay	CANopen	CANopen + relay	CAN J1939	CAN J1939 + relay

## Características do artigo

Attribute	N5ACJ...	N5ACJB...	N5ACO...	N5ACOB...	N5ECJ...	N5ECJB... ▶
Turn-on delay	–	Selectable (0...2 s in 0.5s increments)	–	Selectable (0...2 s in 0.5s increments)	–	Selectable (0...2 s in 0.5s increments)
Turn-off delay	–	Selectable (0...2 s in 0.5s increments)	–	Selectable (0...2 s in 0.5s increments)	–	Selectable (0...2 s in 0.5s increments)
Connection type (switching output)	–	Selectable	–	Selectable	–	Selectable
Temperature coefficient	± 0,02°/K					
Linearity error	± 0,4°					
Protection class	IP67 DIN EN 60529					
Operating temperature min.	-40 °C					
Max. operating temperature	85 °C					
Min. storage temperature	-40 °C					
Max. storage temperature	105 °C					
Shock resistance (Norm)	500 m/s²; 100 shocks per axis, DIN EN 60068-2-27					
Vibration resistance (Norm)	Sine Vibration: 100 m/s²; 19h, DIN EN 60068-2-6 Random Vibration: 80,1 m/s²; 24h, DIN EN 60068-2-64					
Impact resistance (Norm)	max. 50 g					
EMC Agricultural and forestry machines (Norm)	DIN EN ISO 14982 pulse 5b: max. voltage 65 V (absolute), functional status C for pulse 1 and 4					
EMC Earth-moving and building construction machinery (Norm)	DIN EN ISO 13766-1 pulse "load dump": max. voltage 65 V (absolute)					
EMC Industrial trucks (Norm)	DIN EN 12895					
Torque for fastening screws	6 N m					
Weight	100 g					
Connection	Deutsch 8-pol.					
CE label	yes					

## Características do artigo

Attribute	N5ECO...	N5ECOB...	N5GCJ...	N5GCO...	N5ICJ...	N5ICO... ▶
Max. switching voltage	–	48 V DC	–			
Max. switching current	–	1 A	–			
Max. switching power	–	30 W	–			
Polarity reversal protection	yes					
Resolution	0.014 °					
Operating voltage min.	9 V DC					
Operating voltage max.	32 V DC					
Current consumption	100 mA					
Short-circuit resistance to GND	yes	no	yes			
Short-circuit resistance to supply	yes	no	yes			
Repeating accuracy	0,3 °					
Signal update rate	200 Hz					
Technology	MEMS					
Number of measurement axes (Number)	2			2 (X, Y) Z-axis for signaling the installation position	2	
Angle measuring range	360/120 °		180 °		360/120 °	
Initialisation time after power on/start-up time	500 ms					
Switching points	–	Selectable from ±1.5°...±180 °	–			
Zero justification	±60°					
Vibration filter	25 Hz					
Fieldbus system	CAN					
Protocol	CANopen		J1939	CANopen	J1939	CANopen
Node ID / Source Address	0x20		0xE2	0x20	0xE2	0x20
Transmitting cycle	10 ms					
Baud rate	250 kBit/s					
Bus terminating resistor	no					
MTTF	57.6 a					
Switching output	–	2x NO	–			
Outputs	CANopen	CANopen + relay	CAN J1939	CANopen	CAN J1939	CANopen

## Características do artigo

Attribute	N5ECO...	N5ECOB...	N5GCJ...	N5GCO...	N5ICJ...	N5ICO... ▶
Turn-on delay	–	Selectable (0...2 s in 0.5s increments)	–			
Turn-off delay	–	Selectable (0...2 s in 0.5s increments)	–			
Connection type (switching output)	–	Selectable	–			
Temperature coefficient	± 0,02°/K					
Linearity error	± 0,4°					
Protection class	IP67 DIN EN 60529					
Operating temperature min.	-40 °C					
Max. operating temperature	85 °C					
Min. storage temperature	-40 °C					
Max. storage temperature	105 °C					
Shock resistance (Norm)	500 m/s²; 100 shocks per axis, DIN EN 60068-2-27					
Vibration resistance (Norm)	Sine Vibration: 100 m/s²; 19h, DIN EN 60068-2-6 Random Vibration: 80,1 m/s²; 24h, DIN EN 60068-2-64					
Impact resistance (Norm)	max. 50 g					
EMC Agricultural and forestry machines (Norm)	DIN EN ISO 14982 pulse 5b: max. voltage 65 V (absolute), functional status C for pulse 1 and 4					
EMC Earth-moving and building construction machinery (Norm)	DIN EN ISO 13766-1 pulse "load dump": max. voltage 65 V (absolute)					
EMC Industrial trucks (Norm)	DIN EN 12895					
Torque for fastening screws	6 N m					
Weight	100 g					
Connection	Deutsch 8-pol.		M12x1 5-pol.			
CE label	yes					

## Características do artigo

Attribute	N5KCJ...	N5KCO...	N5LCJ...	N5LCO...
Max. switching voltage	-			
Max. switching current	-			
Max. switching power	-			
Polarity reversal protection	yes			
Resolution	0.014 °			
Operating voltage min.	9 V DC			
Operating voltage max.	32 V DC			
Current consumption	100 mA			
Short-circuit resistance to GND	yes			
Short-circuit resistance to supply	yes			
Repeating accuracy	0,3 °			
Signal update rate	200 Hz			
Technology	MEMS			
Number of measurement axes (Number)	2	2 (X, Y) Z-axis for signaling the installation position	2	
Angle measuring range	180 °		360/120 °	
Initialisation time after power on/start-up time	500 ms			
Switching points	-			
Zero justification	±60°			
Vibration filter	25 Hz			
Fieldbus system	CAN			
Protocol	J1939	CANopen	J1939	CANopen
Node ID / Source Address	0xE2	0x20	0xE2	0x20
Transmitting cycle	10 ms			
Baud rate	250 kBit/s			
Bus terminating resistor	no			
MTTF	57.6 a			
Switching output	-			
Outputs	CAN J1939	CANopen	CAN J1939	CANopen
Turn-on delay	-			
Turn-off delay	-			

## Características do artigo

Attribute	N5KCJ...	N5KCO...	N5LCJ...	N5LCO...
Connection type (switching output)	-			
Temperature coefficient	± 0,02°/K			
Linearity error	± 0,4°			
Protection class	IP67 DIN EN 60529			
Operating temperature min.	-40 °C			
Max. operating temperature	85 °C			
Min. storage temperature	-40 °C			
Max. storage temperature	105 °C			
Shock resistance (Norm)	500 m/s²;, 100 shocks per axis, DIN EN 60068-2-27			
Vibration resistance (Norm)	Sine Vibration: 100 m/s²;, 19h, DIN EN 60068-2-6 Random Vibration: 80,1 m/s²;, 24h, DIN EN 60068-2-64			
Impact resistance (Norm)	max. 50 g	max. 50g		
EMC Agricultural and forestry machines (Norm)	DIN EN ISO 14982 pulse 5b: max. voltage 65 V (absolute), functional status C for pulse 1 and 4			
EMC Earth-moving and building construction machinery (Norm)	DIN EN ISO 13766-1 pulse "load dump": max. voltage 65 V (absolute)			
EMC Industrial trucks (Norm)	DIN EN 12895			
Torque for fastening screws	6 N m			
Weight	100 g			
Connection	2 x M12x1 5pol.			
CE label	yes			