



## Sensor de inclinação N7 dynamic CAN

O sensor de inclinação dinâmica N7 está disponível nas versões CANopen ou SAE J1939. Devido ao seu design robusto e à alta resistência a choques e vibrações, ele é frequentemente usado para medir a inclinação em máquinas de construção, máquinas agrícolas, caminhões industriais e ambientes industriais adversos. Equipado com uma combinação extremamente responsiva de acelerômetro e giroscópio, ele reduz significativamente os efeitos negativos dos movimentos bruscos e garante o fornecimento de dados de medição precisos.

N7 dynamic – desenvolvido para proporcionar ainda mais segurança, confiabilidade, funcionalidade e flexibilidade.

- Alta precisão, mesmo com movimentos rápidos, fortes vibrações e choques
- Unidade de Medição Inercial (IMU)
- Saída de aceleração, taxa de rotação e inclinação
- Sinais precisos para movimentos dinâmicos graças à fusão de sensores
- Padrões EMC de acordo com os padrões fora de estrada (EN ISO 14982; DIN EN ISO 13766-1; DIN EN 12895)
- Design robusto para uma longa vida útil: classe de proteção IP6K7 (ISO 20653) / IP6K8 (ISO 20653) / IP6K9K (ISO 20653)
- Resistente a temperaturas de -40 °C a +85 °C
- Tipos de conectores: Deutsch DT04-08PA, 1x M12 de 5 pinos (macho) ou 2x M12 de 5 pinos (macho/fêmea)
- Daisy-Chain – looping através do sinal CAN sem distribuidores T adicionais
- Instalação rápida graças à eficiente montagem em 2 pontos
- Gerenciamento inteligente de variantes graças a um sistema modular inteligente
- Aprovação do tipo E1 para aprovação em estradas
- Conjuntos de parâmetros personalizados de acordo com a aplicação para aumentar o desempenho/precisão (mediante solicitação)
-

Desenho técnico

IMAGE 1/4

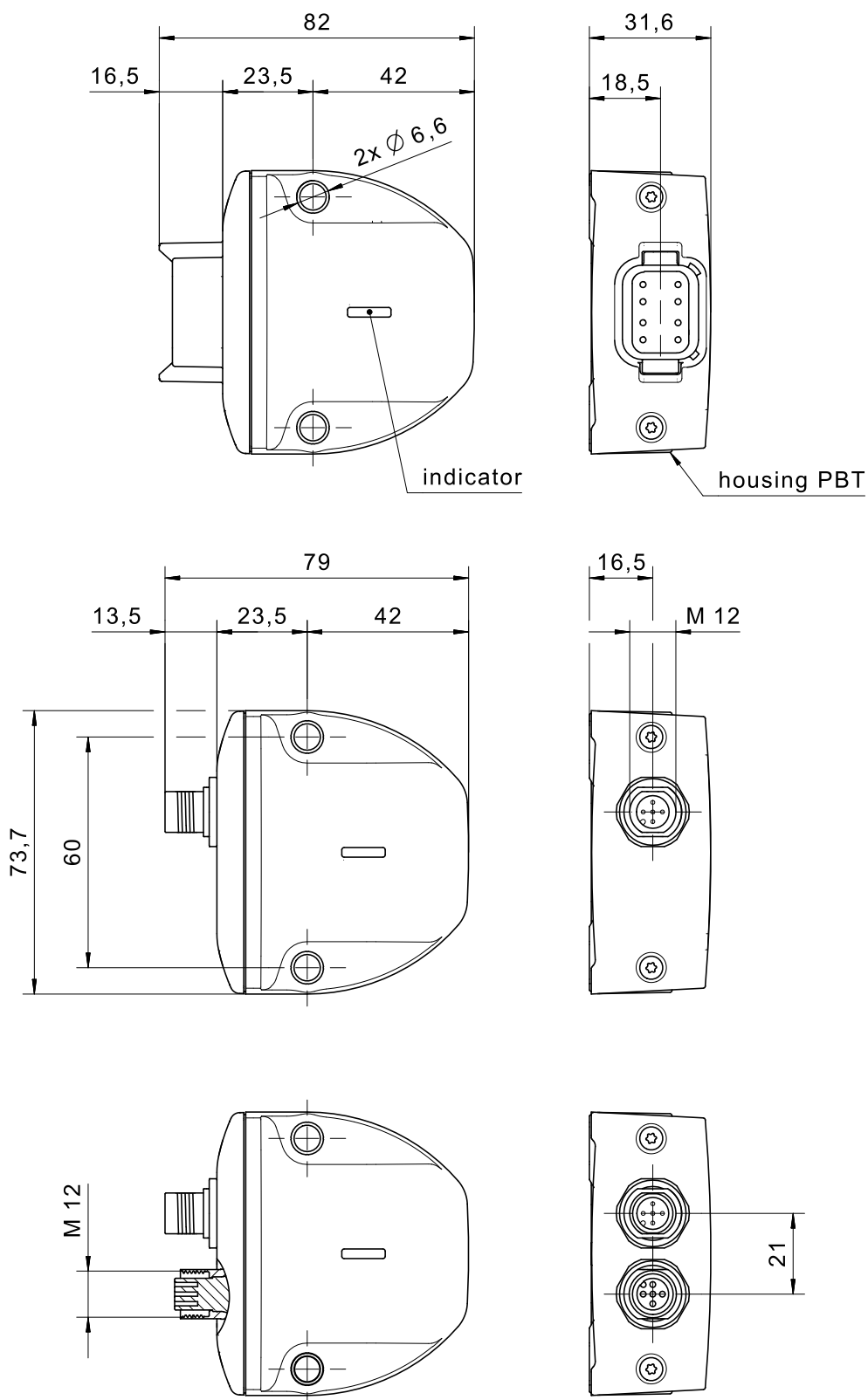
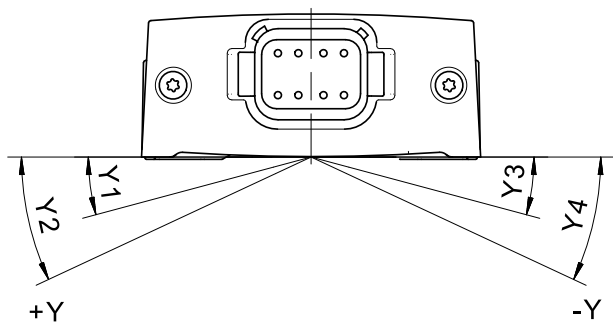


IMAGE 2/4

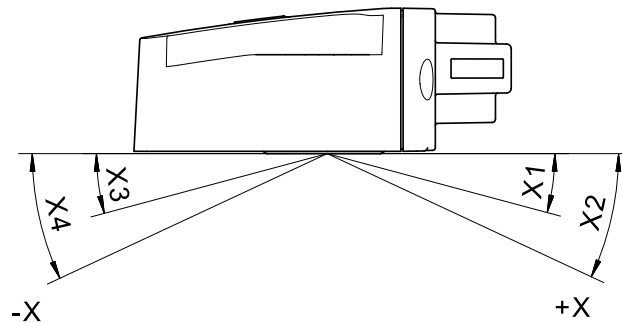
360° ( $\pm 180^\circ$ ) horizontally mounted

Y-axis



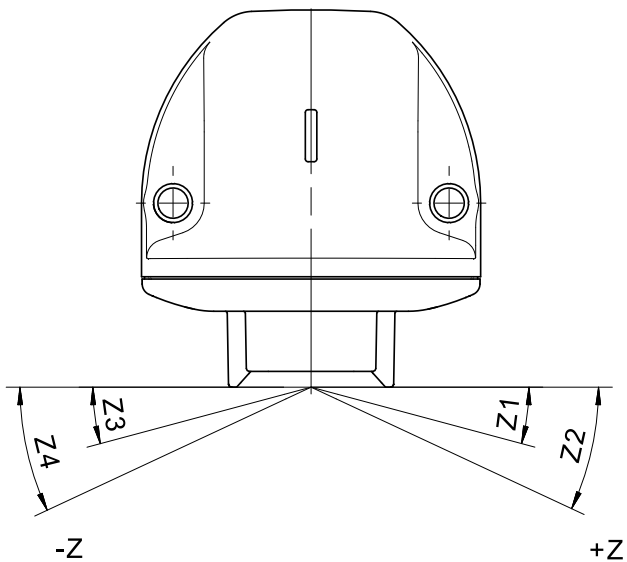
180° ( $\pm 90^\circ$ ) horizontally mounted

X-axis



360° ( $\pm 180^\circ$ ) vertically mounted

Z-axis



180° ( $\pm 90^\circ$ ) vertically mounted

X-axis

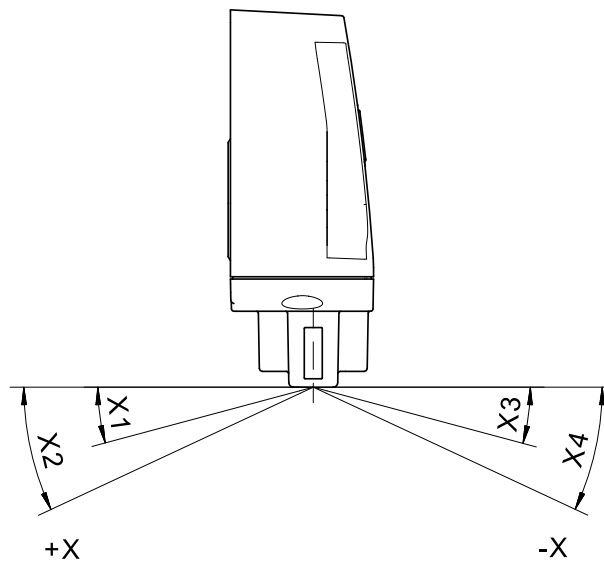
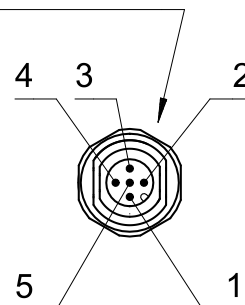


IMAGE 3/4

### M12 - analog

pin	configuration	specification
1	U <sub>B</sub>	operating voltage
2	Out1	output 1
3	GND	ground
4	Out2	output 2
5	n. c.	not connected

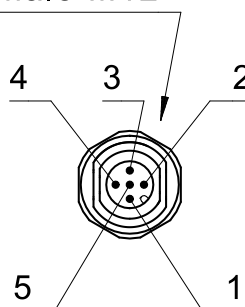
### male M12



### M12 - CAN

pin	configuration	specification
1	n. c.	not connected
2	U <sub>B</sub>	operating voltage
3	GND	ground
4	CAN_H	signal line CAN
5	CAN_L	signal line CAN

### male M12



### 2x M12 - CAN

pin	configuration	specification
1	n. c.	not connected
2	U <sub>B</sub>	operating voltage
3	GND	ground
4	CAN_H	signal line CAN
5	CAN_L	signal line CAN

### male M12

### female M12

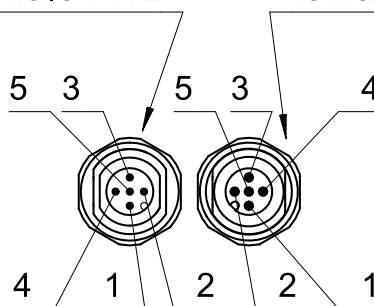
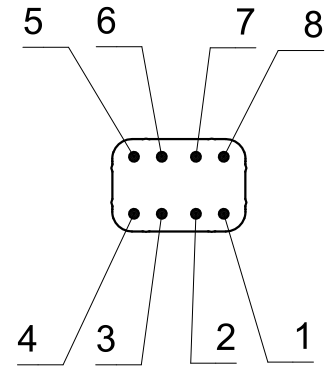


IMAGE 4/4

## Deutsch DT04-08PA - analog

pin	configuration	specification
1	U <sub>B</sub>	operating voltage
2	GND	ground
3	Out1	output 1
4	Out2	output 2
5	Relay1	switch output 1
6	Relay1	switch output 1
7	Relay2	switch output 2
8	Relay2	switch output 2

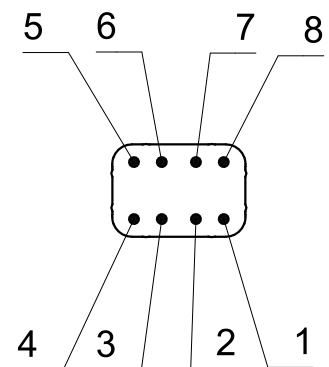
## Deutsch DT04-08PA



## Deutsch DT04-08PA - CAN

pin	configuration	specification
1	U <sub>B</sub>	operating voltage
2	GND	ground
3	CAN_L	signal line CAN
4	CAN_H	
5	Relay1	switch output 1
6	Relay1	switch output 1
7	Relay2	switch output 2
8	Relay2	switch output 2

## Deutsch DT04-08PA



## Características do artigo

Attribute	N7DCC000H2-001	N7DCC0D2H2-001	N7DCC0D2V2-001	N7DCC000V2-001	N7DCC001H2-001	N7DCC001V2-001
Technology	MEMS					
Supply voltage	+8..+36 V DC					
Polarity reversal protection	-36 V DC					
Short-circuit protection	ISO 16750-2					
Current consumption	100 mA					
Output signal	CANopen	CANopen + 2x relay (NC)		CANopen		
Contact form	-	NC		-		
Protocol	CANopen					
UDS ISO 14229 capability	yes					
Baud rate	250 kBit/s					
Cycle time	10 ms					
Node ID / Source Address	32					
Bus terminating resistor	no					
Connection type (switching output)	-	Relay 1 = X1/X3 Y1/Y3 (Z1/Z3) / Relay 2 = X2/X4 Y2/Y4 (Z2/Z4)		-		
Switching points	-	X1/X3 = 5 X2/X4 = 10 Y1/Y3 = 5 Y2/Y4 = 10 °	X1/X3 = 5 X2/X4 = 10 Z1/Z3 = 5 Z2/Z4 = 10 °	-		
Turn-on delay	-	0s		-		
Turn-off delay	-	0s		-		
Hysteresis	-	±0,1°		-		
Max. switching voltage	-	36 V DC		-		
Max. switching current	-	1 A		-		
Max. switching power	-	30 W		-		
Measuring range acceleration max.	±8 g					
Measuring range gyroscope max.	±250 °/s					
Resolution	0,01 °					
Accuracy dynamically typ.	±0,5 °					
Repeating accuracy	typ. ±0,2 °					
Temperature coefficient	max. ±0,015°/K					
Sensing rate	100 Hz					

Attribute	N7DCC000H2-001	N7DCC0D2H2-001	N7DCC0D2V2-001	N7DCC000V2-001	N7DCC001H2-001	N7DCC001V2-001
Initialisation time after power on/start-up time	500 ms					
Installation	horizontal		vertically		horizontal	vertically
Zero justification	±60°					
Number of measurement axes tilt	2					
Measuring principle	dynamic /(fast) moving applications)					
Measuring range	±90° X-Achse ±180° Y-Achse		±90° X-Achse ±180° Z-Achse		±90° X-Achse ±180° Y-Achse	±90° X-Achse ±180° Z-Achse
NMT autostart	not active					
MTTF	92 a					
Connector type	1xM12 5-polig (male)	Deutsch DT04-08PA		1xM12 5-polig (male)	2xM12 5-polig (male/female)	
Weight	113 g	108 g		113 g	123 g	
Housing material	PBT					
Torque for fastening screws	10 Nm					
Storage temperature	-40..+85 °C					
Protection class	IP6K7 ISO 20653, IP6K9K ISO 20653					
Vibration resistance (Norm)	EN 60068-2-64 (random vibration 7,99g , 5-500Hz, 20,1mm displacement)					
Shock resistance (Norm)	EN 60068-2-27 (shock 51g, 11ms)					
Operating temperature	-20..+85 °C					
Salt spray test	DIN EN 60068-2-11 (salt spray mist for 96h at 35°C)					
EMC Agricultural and forestry machines (Norm)	EN ISO 14982, Load dump Pulse B with Us = 85V, Cranking ISO 16750-2 Level 1-4					
EMC Earth-moving and building construction machinery (Norm)	DIN EN ISO 13766-1, Load dump Pulse B with Us = 85V, Cranking ISO 16750-2 Level 1-4					
EMC Industrial trucks (Norm)	DIN EN 12895					
CE	yes					
E1 type approval	UN ECE Regulation No. 10 No. 10R06/01 9376 00					

Attribute	N7DCC002H2-001	N7DCC002V2-001	N7DCJ0D2H2-001	N7DCJ0D2V2-001	N7DCJ000H2-001	N7DCJ000V2-001
Technology	MEMS					
Supply voltage	+8..+36 V DC					
Polarity reversal protection	-36 V DC					
Short-circuit protection	ISO 16750-2					
Current consumption	100 mA					
Output signal	CANopen		J1939 + 2x relay (NC)		J1939	
Contact form	-		NC		-	
Protocol	CANopen		J1939			
UDS ISO 14229 capability	yes					
Baud rate	250 kBit/s					
Cycle time	10 ms					
Node ID / Source Address	32		226			
Bus terminating resistor	no					
Connection type (switching output)	-		Relay 1 = X1/X3 Y1/Y3 (Z1/Z3) / Relay 2 = X2/X4 Y2/Y4 (Z2/Z4)		-	
Switching points	-		X1/X3 = 5 X2/X4 = 10 Y1/Y3 = 5 Y2/Y4 = 10 °	X1/X3 = 5 X2/X4 = 10 Z1/Z3 = 5 Z2/Z4 = 10 °	-	
Turn-on delay	-		0s		-	
Turn-off delay	-		0s		-	
Hysteresis	-		±0,1°		-	
Max. switching voltage	-		36 V DC		-	
Max. switching current	-		1 A		-	
Max. switching power	-		30 W		-	
Measuring range acceleration max.	±8 g					
Measuring range gyroscope max.	±250 °/s					
Resolution	0,01 °					
Accuracy dynamically typ.	±0,5 °					
Repeating accuracy	typ. ±0,2 °					
Temperature coefficient	max. ±0,015°/K					
Sensing rate	100 Hz					
Initialisation time after power on/start-up time	500 ms					



Attribute	N7DCC002H2-001	N7DCC002V2-001	N7DCJ0D2H2-001	N7DCJ0D2V2-001	N7DCJ000H2-001	N7DCJ000V2-001
Installation	horizontal	vertically	horizontal	vertically	horizontal	vertically
Zero justification	±60°					
Number of measurement axes tilt	2					
Measuring principle	dynamic /(fast) moving applications)					
Measuring range	±90° X-Achse ±180° Y-Achse	±90° X-Achse ±180° Z-Achse	±90° X-Achse ±180° Y-Achse	±90° X-Achse ±180° Z-Achse	±90° X-Achse ±180° Y-Achse	±90° X-Achse ±180° Z-Achse
NMT autostart	not active					
MTTF	92 a					
Connector type	Deutsch DT04-08PA				1xM12 5-polig (male)	
Weight	108 g				113 g	
Housing material	PBT					
Torque for fastening screws	10 Nm					
Storage temperature	-40..+85 °C					
Protection class	IP6K7 ISO 20653, IP6K9K ISO 20653					
Vibration resistance (Norm)	EN 60068-2-64 (random vibration 7,99g , 5-500Hz, 20,1mm displacement)					
Shock resistance (Norm)	EN 60068-2-27 (shock 51g, 11ms)					
Operating temperature	-20..+85 °C					
Salt spray test	DIN EN 60068-2-11 (salt spray mist for 96h at 35°C)					
EMC Agricultural and forestry machines (Norm)	EN ISO 14982, Load dump Pulse B with Us = 85V, Cranking ISO 16750-2 Level 1-4					
EMC Earth-moving and building construction machinery (Norm)	DIN EN ISO 13766-1, Load dump Pulse B with Us = 85V, Cranking ISO 16750-2 Level 1-4					
EMC Industrial trucks (Norm)	DIN EN 12895					
CE	yes					
E1 type approval	UN ECE Regulation No. 10 No. 10R06/01 9376 00					

Attribute	N7DCJ001H2-001	N7DCJ001V2-001	N7DCJ002H2-001	N7DCJ002V2-001
Technology	MEMS			
Supply voltage	+8..+36 V DC			
Polarity reversal protection	-36 V DC			
Short-circuit protection	ISO 16750-2			
Current consumption	100 mA			
Output signal	J1939			
Contact form	-			
Protocol	J1939			
UDS ISO 14229 capability	yes			
Baud rate	250 kBit/s			
Cycle time	10 ms			
Node ID / Source Address	226			
Bus terminating resistor	no			
Connection type (switching output)	-			
Switching points	-			
Turn-on delay	-			
Turn-off delay	-			
Hysteresis	-			
Max. switching voltage	-			
Max. switching current	-			
Max. switching power	-			
Measuring range acceleration max.	±8 g			
Measuring range gyroscope max.	±250 °/s			
Resolution	0,01 °			
Accuracy dynamically typ.	±0,5 °			
Repeating accuracy	typ. ±0,2 °			
Temperature coefficient	max. ±0,015°/K			
Sensing rate	100 Hz			
Initialisation time after power on/start-up time	500 ms			
Installation	horizontal	vertically	horizontal	vertically
Zero justification	±60°			
Number of measurement axes tilt	2			

Attribute	N7DCJ001H2-001	N7DCJ001V2-001	N7DCJ002H2-001	N7DCJ002V2-001
Measuring principle	dynamic /(fast) moving applications)			
Measuring range	±90° X-Achse ±180° Y-Achse	±90° X-Achse ±180° Z-Achse	±90° X-Achse ±180° Y-Achse	±90° X-Achse ±180° Z-Achse
NMT autostart	not active			
MTTF	92 a			
Connector type	2xM12 5-polig (male/female)		Deutsch DT04-08PA	
Weight	123 g		108 g	
Housing material	PBT			
Torque for fastening screws	10 Nm			
Storage temperature	-40..+85 °C			
Protection class	IP6K7 ISO 20653, IP6K9K ISO 20653			
Vibration resistance (Norm)	EN 60068-2-64 (random vibration 7,99g , 5-500Hz, 20,1mm displacement)			
Shock resistance (Norm)	EN 60068-2-27 (shock 51g, 11ms)			
Operating temperature	-20..+85 °C			
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EMC Earth-moving and building construction machinery (Norm)	DIN EN ISO 13766-1, Load dump Pulse B with Us = 85V, Cranking ISO 16750-2 Level 1-4			
EMC Industrial trucks (Norm)	DIN EN 12895			
CE	yes			
E1 type approval	UN ECE Regulation No. 10 No. 10R06/01 9376 00			