



SENSORS LINE

Beyond mobile sensing



Electronic Line



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FTI DYNAMIC SINGLE OR DUAL-REDUNDANT INCLINATION SENSORS



Easy to install 6 Axis IMU Inclinometer with enhanced digital filtering added gyroscope provides precise tilt measurement for moving / vibrating objects.



FTI dynamic gyroscope inclinometers is a range of products that provides precise roll and pitch angle measurement for moving/vibrating objects, through advanced inertial navigation technology, it is reliable on mobile equipment such as construction machinery, cranes or agriculture machinery.



KEY VALUES



Shock proof



*6-axis DoF



CAN open
or J1939



IP 68 and IP69K
protection class



Wide temperature
range



4-20 mA / 0-10V
Analog Out

* The FTI2 enables 6 axis motion detection based on raw data acquisition for acceleration (3 axis) and rotation rate (3 axis). High-precision data processing carried out @ 400 Hz using a sophisticated sensor fusion algorithm enables high performances in any conditions. Integrated sensor fusion filters help in orientation calculation by suppressing externally acting accelerations.

Description	P/N
FTI2	1110241

Default Parameters:

1 axis measurement

360° full scale

Description	P/N
FTI2	1110242
FTI3	1110488

Default Parameters:

2 axis measurement

± 90° full scale

Common Default Parameters:

CAN open CiA 410 profile

ID node No.1: 0x1F

ID node No.2: 0x1E (FTI3 only)

Baud rate 125kbps

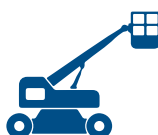


FTI2



FTI3

APPLICATIONS



Material Handling
and Lifting Technology



Agricultural Machinery



Construction Equipment

TECHNICAL DATA

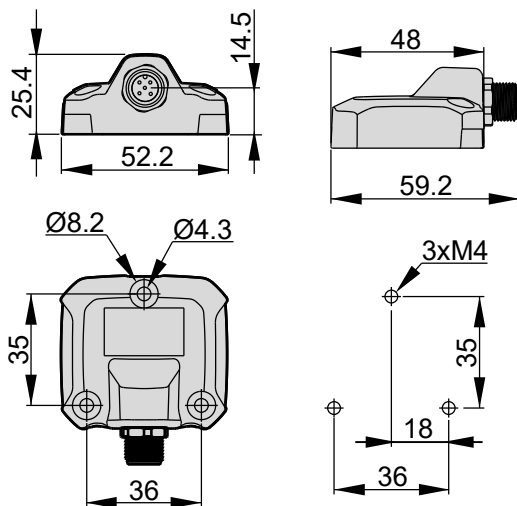
Measurement Range	Settable, up to 360°. One axis or two axis (pitch and roll)
Supply voltage	+5Vdc; +9 ...+36Vdc
Output signal	CANbus (multiple options), 0.5...4.5Vdc, 4...20 mA, 0...10Vdc*, switching*
Resolution	Up to: CAN: 0.01° ; Analogue: 0,005°
Accuracy (incl. Linearity, hysteresis, repeatability)	STATIC : $\pm 0.25^\circ$ typ DYNAMIC: $\pm 1.0^\circ$ *typ
Working temperature	-40°C ... +85°C
Thermal drift	<0.008°/°C typ (within -20°C/+70°C range)
Vibrations	20g between 10 Hz ... 2000 Hz IEC 60068-2-6.
Shock	Pulse on 3 axes; 50g 11 ms IEC 60068-2-27.
Electromagnetic compatibility	2014/30/EU Electromagnetic Compatibility (EMC).
Protections and immunity	Protected against reverse polarity and short circuit
IP Protection Level	IP66, IP68 and IP69K
Housing body	Black anodized aluminum

All performance data are values resulting from qualification tests on specific configuration sample production batch.
Final product configuration, actual application and respect of installation recommendation may impact on some performance data.
Where not differently indicated, data refer to Tamb condition test environment.

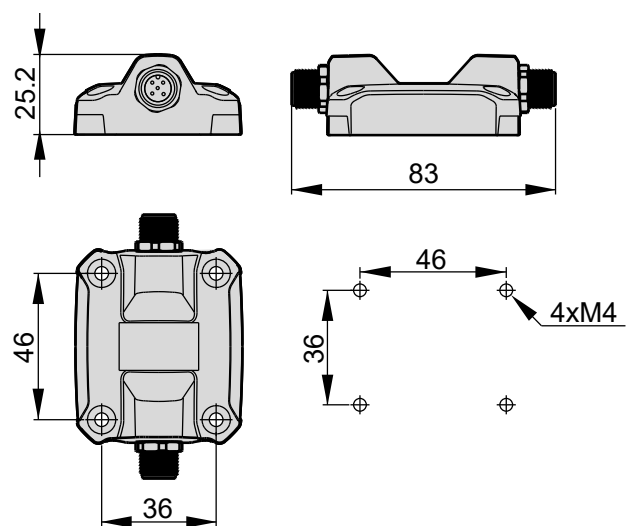
*With limitations. Contact our specialist team for more details.

DIMENSIONS

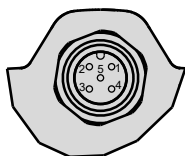
SINGLE VERSION HOUSING



SINGLE OR REDUNTANT VERSION HOUSING



CONNECTOR



N PIN	CANbus	Analogue
1	CAN-S	V+
2	+VIN	Out 1
3	GND	GND
4	CAN-H	Out 2
5	CAN-L	Calibration

ORDERING KEY

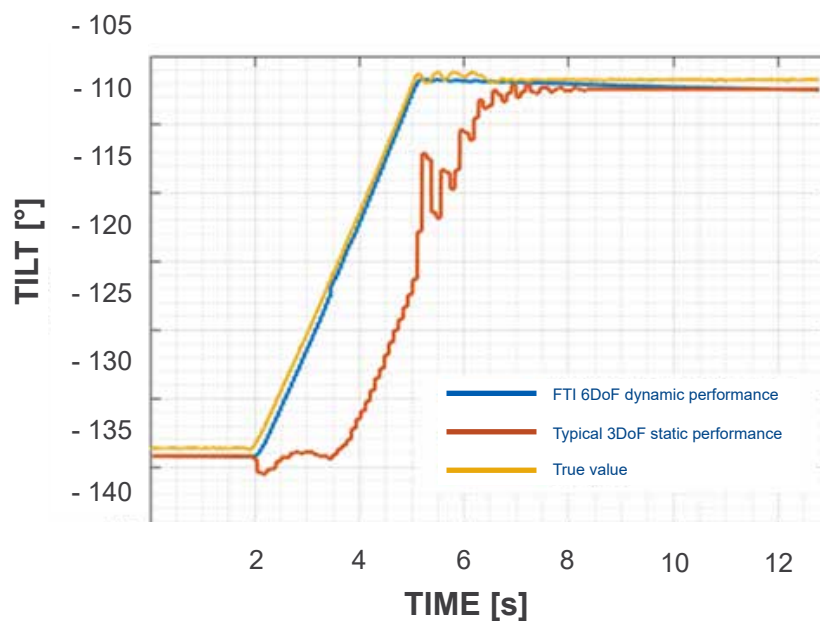
FAMILY	SUBFAMILY	CASE MATERIAL	CONNECTOR	CHANNEL 1 RANGE (±)	CHANNEL 2 RANGE (±)	SUPPLY VOLTAGE	OUTPUT TYPE	SPECIAL FEATURE CUSTOM SOFTWARE	MANUAL ZERO HALL PEN	FACTORY LINEARITY TABLE	ACCESSORIES MAGNET TYPE	PROJECT REVISION
FTI	2 Single	A Aluminium	5M single M12 5P	0090 ±90° (horizontal axis)	0NOT Single channel FTI2	H 12-24Vdc nominal	001 analogue 0,5-4,5Vdc	000 Standard	0 Standard (not present)	0 not supplied (standard)	000 standard (not present)	2
	3 Redundant		MM double M12 male	W180 360° clock wise Z axis	C180 redundant crossed degrees		004 analogue 4-20mA			L supplied		
							051 CANopen CiA 403					

EXAMPLE OF RESULTING ORDERING CODE

FTI3.A.5M.0090.0NOT.H.051.000.0.0.000.2

Further possibilities available, some options are mutually exclusive, please contact our team for more details.

EXAMPLE OF DYNAMIC PERFORMANCE



FTP2 HIGH PERFORMANCE 6-DOF IMU PLATFORM



*For vibrations / shocks active monitoring
Designed for harsh applications with effective design.
Implementing CANbus digital output.*



FTP2 6-DoF IMU delivers accurate and reliable dynamic data, such as acceleration and angular speed in all directions.



KEY VALUES



Shock proof



6-axis DoF

CAN

CAN open
Digital Out



IP 68 and IP69K
protection class



Wide temperature
range

Description	P/N
FTP2	1108700

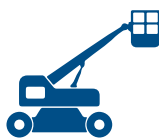
Default Parameters:

ID node NO. 1: 0X1F

Baud rate 125kbps



APPLICATIONS



Material Handling
and Lifting Technology



Agricultural Machinery



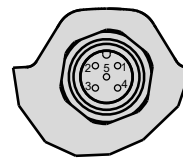
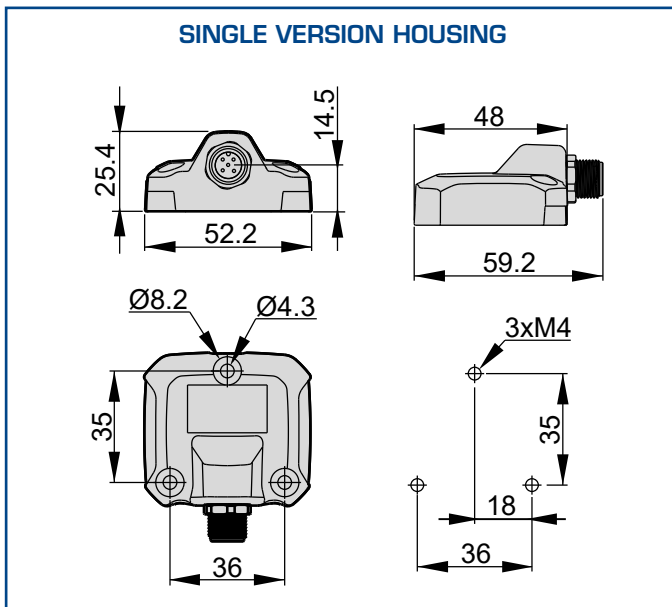
Construction Equipment

TECHNICAL DATA

Measurement Range	up to $\pm 16g$ and $\pm 2000^\circ/s$
Supply voltage	+9...+36Vdc
Output signal	CANopen
Resolution	Up to: 0,1mg and 4mdps
Working temperature	-40°C ... +85°C
Sensitivity Tolerance	$\pm 1\%$ tip
Vibrations	20g between 10 Hz ... 2000 Hz IEC 60068-2-6
Shock	Pulse on 3 axes; 50g 11 ms IEC 60068-2-27
Electromagnetic compatibility	2014/30/EU Electromagnetic Compatibility (EMC)
Protections and immunity	Protected against reverse polarity and short circuit
IP Protection Level	IP66, IP68 and IP69K
Housing body	Black anodized aluminum

All performance data are values resulting from qualification tests on specific configuration sample production batch.
Final product configuration, actual application and respect of installation recommendation may impact on some performance data.
Where not differently indicated, data refer to Tamb condition test environment.

DIMENSIONS



CONNECTOR

N PIN	CANbus
1	CAN-S
2	+VIN
3	GND
4	CAN-H
5	CAN-L

ORDERING KEY

FAMILY	SUBFAMILY	CASE MATERIAL	CONNECTOR	CHANNEL 1 RANGE (±)	CHANNEL 2 RANGE (±)	SUPPLY VOLTAGE	OUTPUT TYPE	SPECIAL FEATURE CUSTOM SOFTWARE	MANUAL ZERO HALL PEN	FACTORY LINEARITY TABLE	ACCESSORIES MAGNET TYPE	PROJECT REVISION
INERTIAL UNIT	2 Standard 6 DoF	A Aluminium	5M single M12 5P wall mounted	0STD max 16g and 2000°/sec	0NOT Single channel FTP2	H 12-24Vdc nominal	053 CANopen custom (COBO FTP)	000 Standard	0 not available (standard)	0 not supplied (standard)	000 not present	2

EXAMPLE OF RESULTING ORDERING CODE

FTP2.A.5M.0STD.0NOT.H.053.000.0.0.000.2

Further possibilities available, some options are mutually exclusive, please contact our team for more details.

FTR2

WEAR-FREE SINGLE AND REDUNDANT ROTARY SENSOR



*No actuator shaft solutions in 3D Hall Technology.
Dedicated to harsh applications with effective design.*



FTR2 3D hall technology delivers accurate and reliable position measurement, with external magnet, minimizing risks related to wear over life and assembly tolerances.
Multiple options available to fulfil market requirements.



KEY VALUES



Shock proof



3D hall effect technology



CAN open
Digital Out



Up to IP68 and IP69K
protection class



Wide temperature
range



Current/voltage
Analogue Out

Description	P/N
FTR2 0-5V	1110015
FTR2 Single CANbus	1110014
FTR2 Dual CANbus	1110017

Default Parameters:

360° full scale

0.5-4.5V or CANopen 406 profile

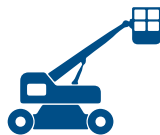
ID node No.1: 0x1F

ID node No.2: 0x1E (Redundant only)

Baud rate 125kbps (CANbus only)



APPLICATIONS



Material Handling
and Lifting Technology



Agricultural Machinery



Construction Equipment

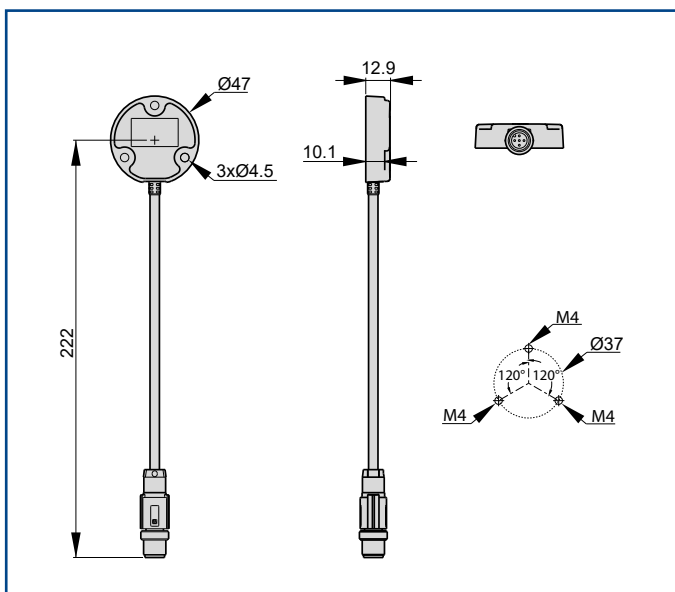
TECHNICAL DATA

Measurement Range	Settable, up to 360°
Supply voltage	+5Vdc; +9 ...+36Vdc
Output signal	CANbus, 0.5...4.5Vdc, 4...20 mA, 0...10Vdc*
Resolution	up to 14 bit
Independent linearity	±0.3% FS typ
Working temperature	-40°C ... +85°C
Thermal drift	<50ppm/°C
Vibrations	20g between 10 Hz ... 2000 Hz IEC 60068-2-6.
Shock	Pulse on 3 axes; 50g 11 ms IEC 60068-2-27.
Electromagnetic compatibility	2014/30/EU Electromagnetic Compatibility (EMC).
Protections and immunity	Protected against reverse polarity and short circuit
IP Protection Level	IP66, IP68 and IP69K
Housing body	Plastic

All performance data are values resulting from qualification tests on specific configuration sample production batch.
Final product configuration, actual application and respect of installation recommendation may impact on some performance data.
Where not differently indicated, data refer to Tamb condition test environment.

*With limitations. Contact our specialist team for more details.

DIMENSIONS



CONNECTOR CANBUS

N PIN	CANbus
1	CAN-S
2	+VIN
3	GND
4	CAN-H
5	CAN-L

CONNECTOR ANALOGUE

N PIN	Analogue
1	GND
2	+VIN
3	OUT CH1
4	NC

ORDERING KEY

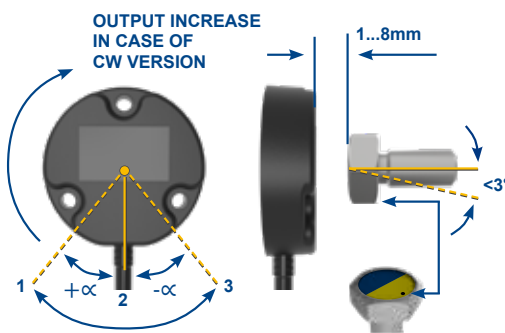
FAMILY	SUBFAMILY	CASE MATERIAL	CONNECTOR	CHANNEL 1 RANGE (±)	CHANNEL 2 RANGE (±) AND VERSE	SUPPLY VOLTAGE	OUTPUT TYPE	SPECIAL / CUSTOM FEATURE / SW / CUSTOMER	MANUAL ZERO HALL PEN	FACTORY LINEARITY TABLE SUPPLIED	ACCESSORIES / MAGNET TYPE	PROJECT REVISION
ROTATIVE	2 Single turn contactless	A Aluminium	M1 single Pigtail M12 5p 20cm	W180 clock wise $\pm xxx^\circ$	0NOT single channel	H 12-24Vdc nominal	001 analogue 0,5-4,5Vdc	000 standard	0 not available (standard)	0 not supplied (standard)	002 M10 Screw 1,5mm Pitch Thread	2
			M3 single Pigtail M12 4p 20cm	C180 counter clock wise $\pm xxx^\circ$	S180 straight degrees	L 5Vdc	002 analogue 0-10Vdc (24V nominal supply Only)					
					C180 crossed degrees		051 CANopen standard					

EXAMPLE OF RESULTING ORDERING CODE

FTR2.A.M3.C180.0NOT.H.001.000.0.0.002.2

Further possibilities available, some options are mutually exclusive, please contact our team for more details.

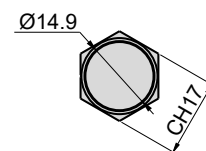
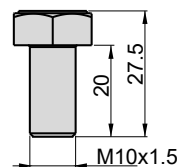
EXAMPLE OF APPLICATION



Example with $\alpha = 30^\circ$ (± 30 FS) $V_{out} = 0.5...4.5$ Vdc:

	CW	CCW
1	+ 4.5 Vdc	+ 0.5 Vdc
2	+ 2.5 Vdc	+ 2.5 Vdc
3	+ 0.5 Vdc	+ 4.5 Vdc

MAGNET



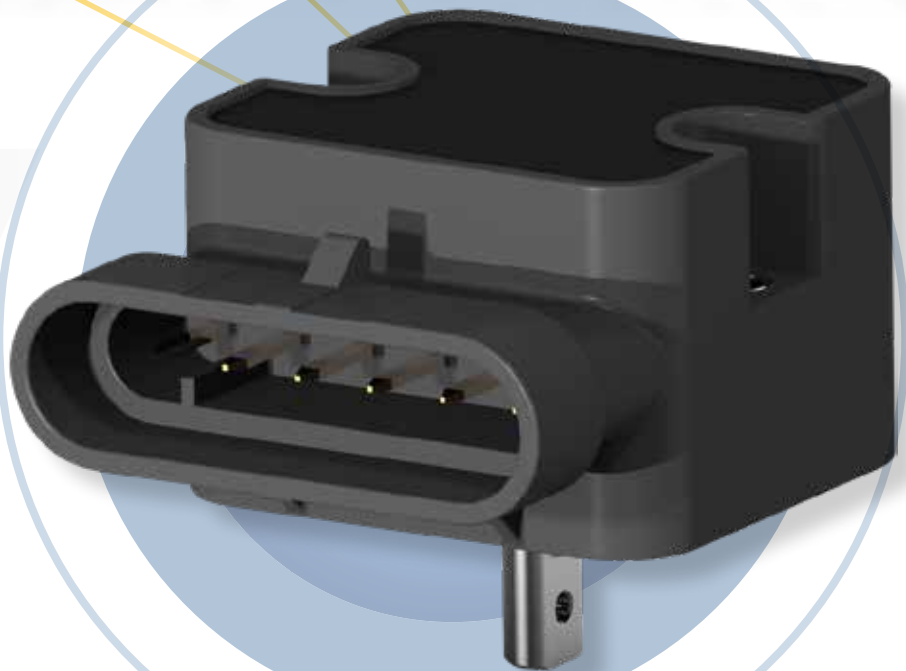
FTR3 ROTARY SENSOR WITH SHAFT SINGLE OR DUAL-REDUNDANT



*Designed for harsh applications with effective design.
Implementing analogue or CAN bus digital outputs.
Suitable for functional safety applications.*



FTR3 hall technology delivers accurate and reliable position measurement with integrated magnet and shaft minimizing risks related to wear over life and assembly tolerances. Multiple options available to fulfil market requirements.



KEY VALUES



Shock proof



3D hall effect technology



CAN open
Digital Out



Up to IP66 and IP68
protection class



Wide temperature
range



Current/voltage
Analogue Out

Description	P/N
FTR3 dual 0-5V	1108238
FTR3 dual CAN	1108236

Default Parameters:

360° full scale

0.5-4.5V or CANopen 406 profile

ID node No.1: 0x1F

ID node No.2: 0x1E (Redundant only)

Baud rate 125kbps (CANbus only)



APPLICATIONS



Material Handling
and Lifting Technology



Agricultural Machinery



Construction Equipment

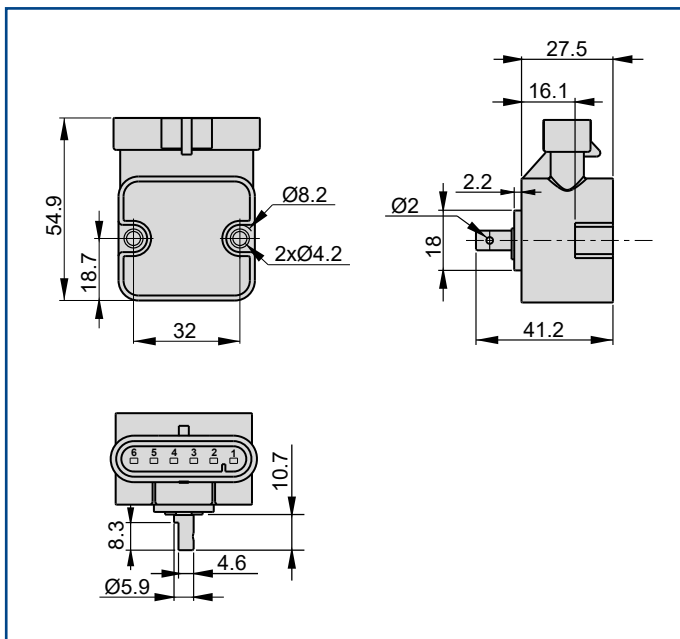
TECHNICAL DATA

Measurement Range	Settable, up to 360°
Supply voltage	+5Vdc; +9 ...+36Vdc
Output signal	CANbus, 0.5...4.5Vdc, 4...20 mA, 0...10Vdc*
Resolution	up to 14 bit
Independent linearity	±0.3% FS typ
Working temperature	-40°C ... +85°C
Thermal drift	<50ppm/°C
Vibrations	20g between 10 Hz ... 2000 Hz IEC 60068-2-6.
Shock	Pulse on 3 axes; 50g 11 ms IEC 60068-2-27.
Electromagnetic compatibility	2014/30/EU Electromagnetic Compatibility (EMC).
Protections and immunity	Protected against reverse polarity and short circuit
IP Protection Level	IP66, IP68
Housing body	Plastic

All performance data are values resulting from qualification tests on specific configuration sample production batch.
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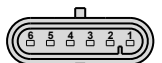
*With limitations. Contact our specialist team for more details.

DIMENSIONS



CONNECTOR

N PIN	CANbus	Analogue
1	GND	GND
2	+VIN	+VIN
3	NC	Out 1
4	NC	NC
5	CAN-L	NC
6	CAN-H	Out 2



ORDERING KEY

FAMILY	SUBFAMILY	CASE MATERIAL	CONNECTOR	CHANNEL 1 RANGE (±)	CHANNEL 2 RANGE (±) AND VERSE	SUPPLY VOLTAGE	OUTPUT TYPE	SPECIAL / CUSTOM FEATURE / SW / CUSTOMER	MANUAL ZERO HALL PEN	FACTORY LINEARITY TABLE SUPPLIED	ACCESSORIES / MAGNET TYPE	PROJECT REVISION
ROTATIVE	3 Single turn with shaft "D" Shape	B Plastic with sleeves	6A AMP Seal 6 poles wall mounted	W180 clock wise ±xxx°	0NOT single channel	H 12-24Vdc nominal	001 analogue 0,5-4,5Vdc	000 standard	0 not available (standard)	0 not supplied (standard)	000 not present	1
				C180 counter clock wise ±xxx°	S180 straight degrees	L 5Vdc	002 analogue 0-10Vdc (24V nominal supply Only)				003 FTR3 standard actuation lever	
					C180 crossed degrees		051 CANopen standard					

EXAMPLE OF RESULTING ORDERING CODE

FTR3.B.6A.C180.0NOT.H.001.000.0.0.003.1

Further possibilities available, some options are mutually exclusive, please contact our team for more details.

EXAMPLE OF APPLICATION

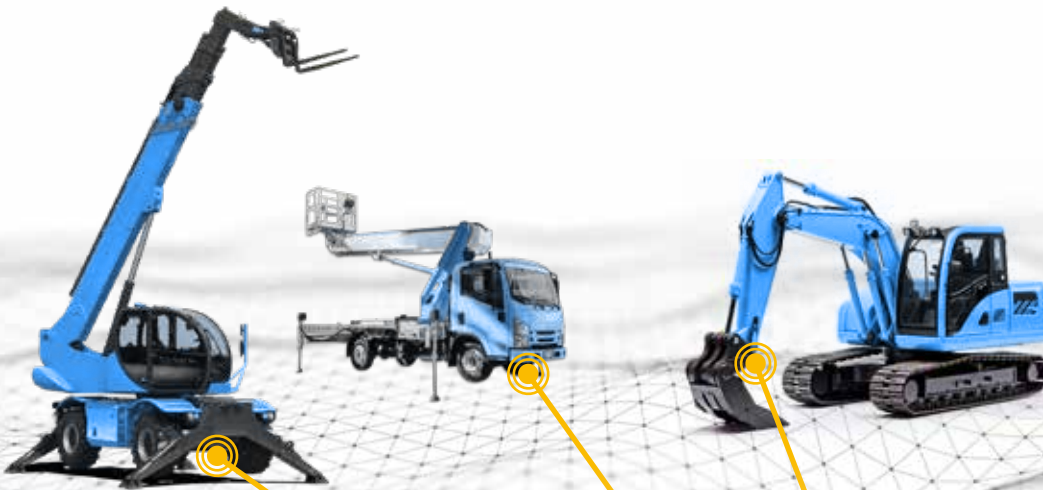


FTR4

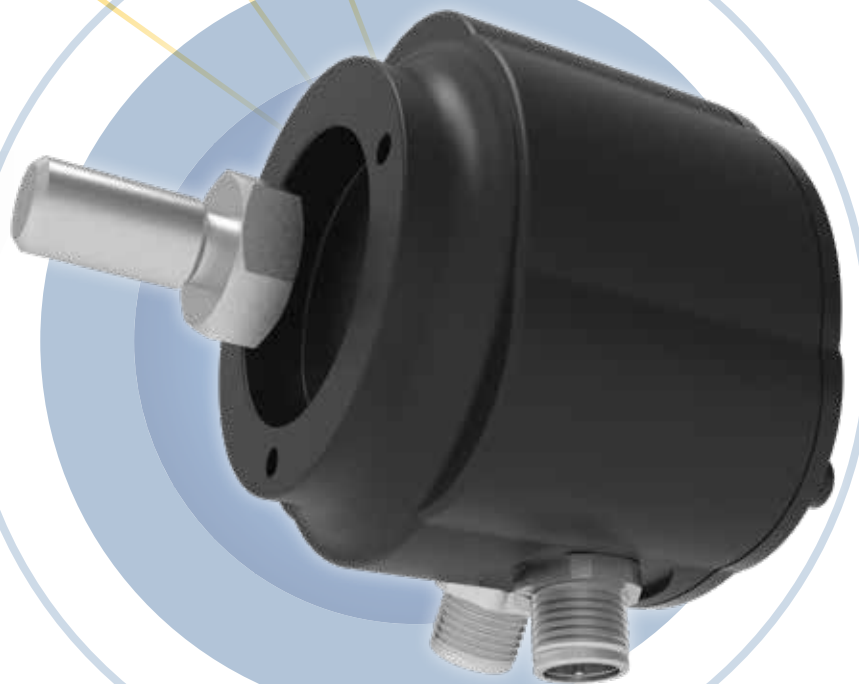
WEAR-FREE MULTITURN ABSOLUTE ROTARY SENSOR



*Designed for harsh applications with effective design.
Innovative solution 100% wear free.
Suitable for functional safety applications.*



FTR4 is an innovative solution to deliver an absolute multiturn rotary angle with a 100% contactless and wear-free industrialization. Such design minimizes several threats related to installation and long term product life.



KEY VALUES



Shock proof



Magnetic technology



CAN open
Digital Out



IP68 and IP69K
protection class



Wide temperature
range



Absolute multiturn

Description	P/N
FTR4 dual	1110600

Default Parameters:

360° full scale

CANopen 406 profile

ID node No.1: 0x1F

ID node No.2: 0x1E (Redundant only)

Baud rate 125kbps



APPLICATIONS



Material Handling
and Lifting Technology



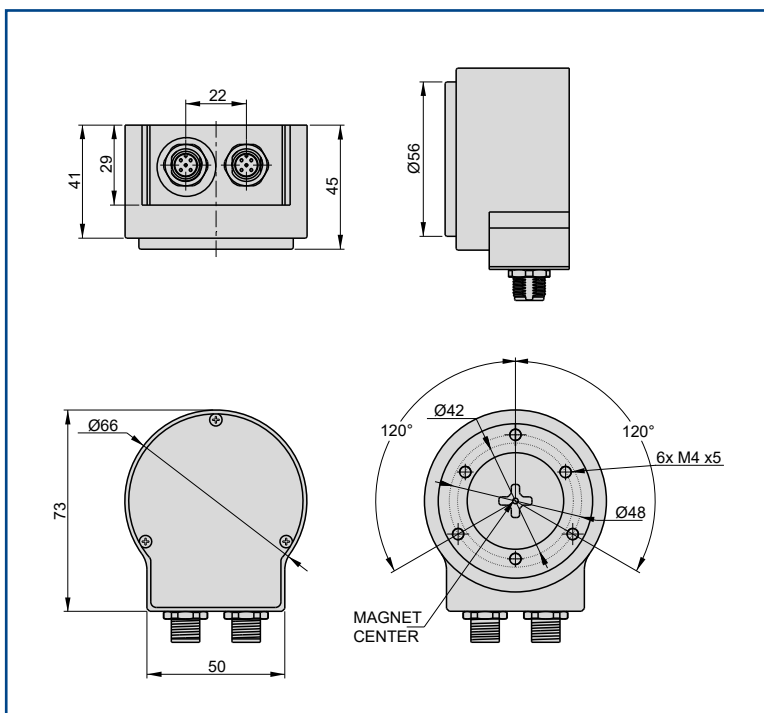
Construction Equipment

TECHNICAL DATA

Measurement Range	360° continuous multitrans
Supply voltage	+9...+36Vdc
Output signals	CANopen DS406 profile
Electrical connections	M12 connector or cable output
Resolution and diagnostic	Single turn (CANopen): up to 12 bit programmable Multiturn (CANopen): up to 28 bits (65535 turns scalable)
Independent linearity	<±1% FS on single turn (equivalent to <±1/N% FS on N turns)
Working temperature and coefficient	-40°C...+85°C with drift < 50 ppm/°C
Vibrations	20g between 10 Hz...2000 Hz IEC 60068-2-6
Shock	Pulse on 3 axes; 50g 11 ms IEC 60068-2-27
Electromagnetic compatibility	EN 61000-4-2 Electrostatic discharge (ESD) 4 kV, 8 kV EN 61000-4-3 Electromagnetic fields 30 V/m EN 61000-4-4 Electrical fast transients (burst) 1 kV EN 61000-4-6 Conducted disturbances, RF-fields 10 Veff. EN 55016-2-3 Radiated disturbances
IP Protection Level	IP66, IP68 and IP69K
Housing body	Aluminium anodized black

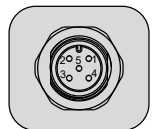
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DIMENSIONS

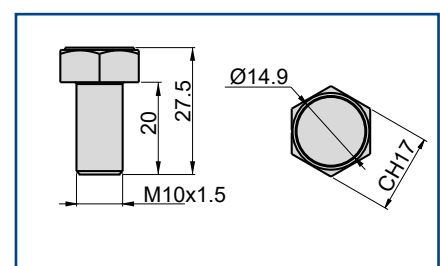


CONNECTOR

N PIN	CANbus
1	CAN-S
2	+VIN
3	GND
4	CAN-H
5	CAN-L



MAGNET



ORDERING KEY

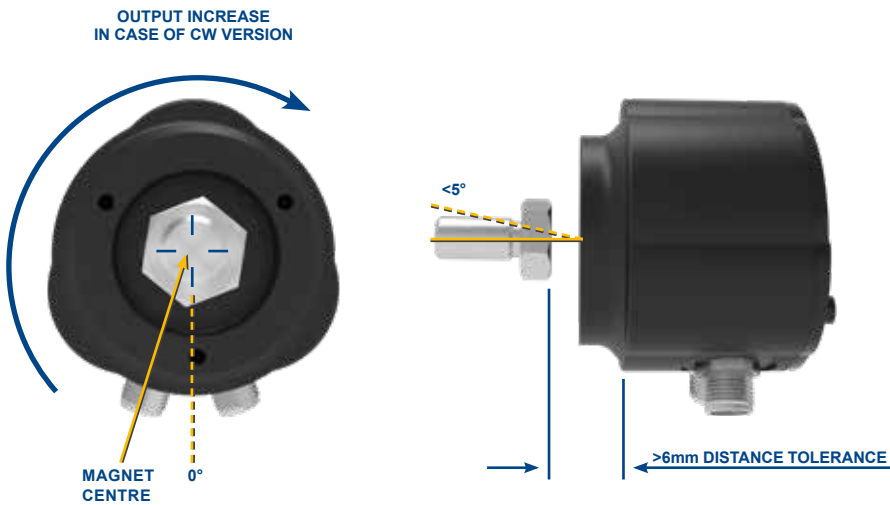
FAMILY	SUBFAMILY	CASE MATERIAL	CONNECTOR	CHANNEL 1 RANGE (±)	CHANNEL 2 RANGE (±) AND VERSE	SUPPLY VOLTAGE	OUTPUT TYPE	SPECIAL / CUSTOM FEATURE / SW / CUSTOMER	MANUAL ZERO HALL PEN	FACTORY LINEARITY TABLE SUPPLIED	ACCESSORIES / MAGNET TYPE	PROJECT REVISION
ROTATIVE	4 Multiturn absolute contactless	A Aluminium	MM double M12 male + male wall mounted	C016 counter clock wise 16bits multiturn	C016 crossed multiturn 16bits	H 12-24Vdc nominal	051 CANopen standard	000 standard	0 not available (standard)	0 not supplied (standard)	002 M10 Screw 1,5mm Pitch Thread	1
			5M single M12 5P wall mounted									

EXAMPLE OF RESULTING ORDERING CODE

FTR4.A.MM.C016.C016.H.051.000.0.0.002.1

Further possibilities available, some options are mutually exclusive, please contact our team for more details.

EXAMPLE OF APPLICATION



FTS1

“THROUGH-SHAFT” MAGNETIC ANGLE ENCODER



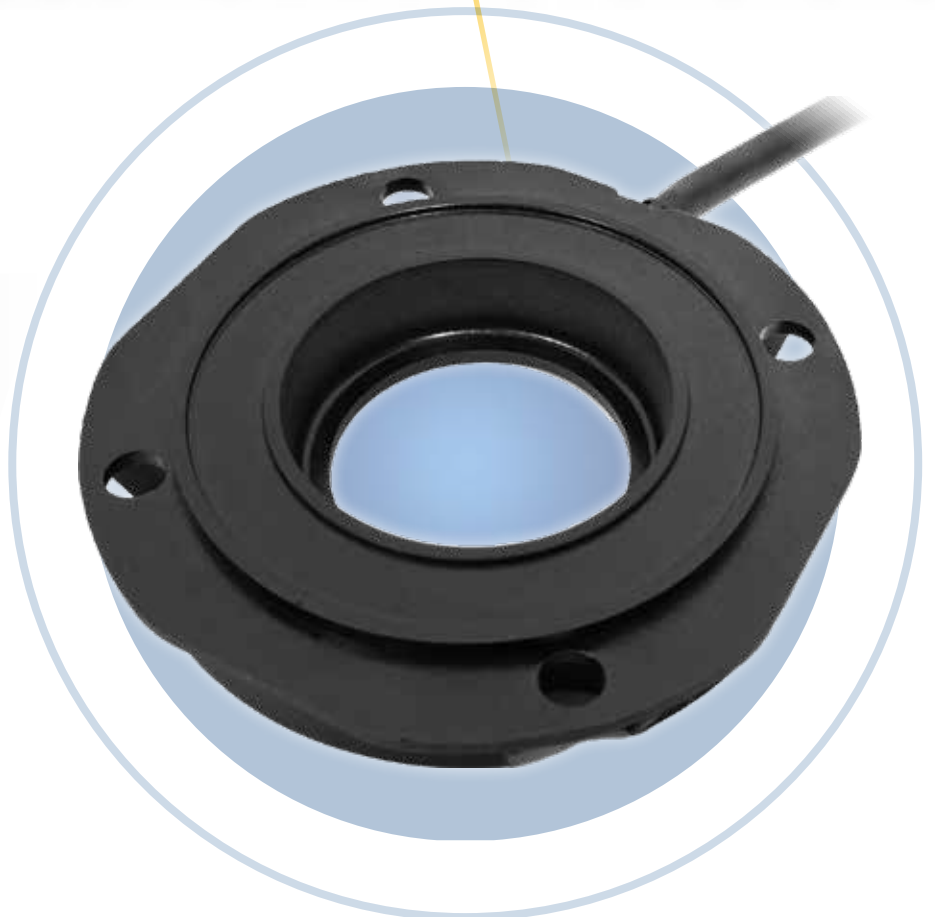
*Wear free magnetic encoder for synchronous electric motors.
Its design and technology improve performances minimizing
overall motor dimension.*



FTS1 patented solution fits wide range of electric motors dedicated for Off- Highway applications, in specific traction power units.

Its innovative through shaft design, allow most compact installation whenever a brake is required on the motor.

Its algorithm is developed for solutions requiring the highest performances, optimizing total motor effectiveness.



KEY VALUES



Shock proof



Magnetic technology



SIN/COS
Analog Out



IP68 and IP69K
protection class



Wide temperature
range

Description	P/N
FTS1	1109678

Default Parameters:

Sin-Cos output

2,5V centered output

Ring magnet included



APPLICATIONS



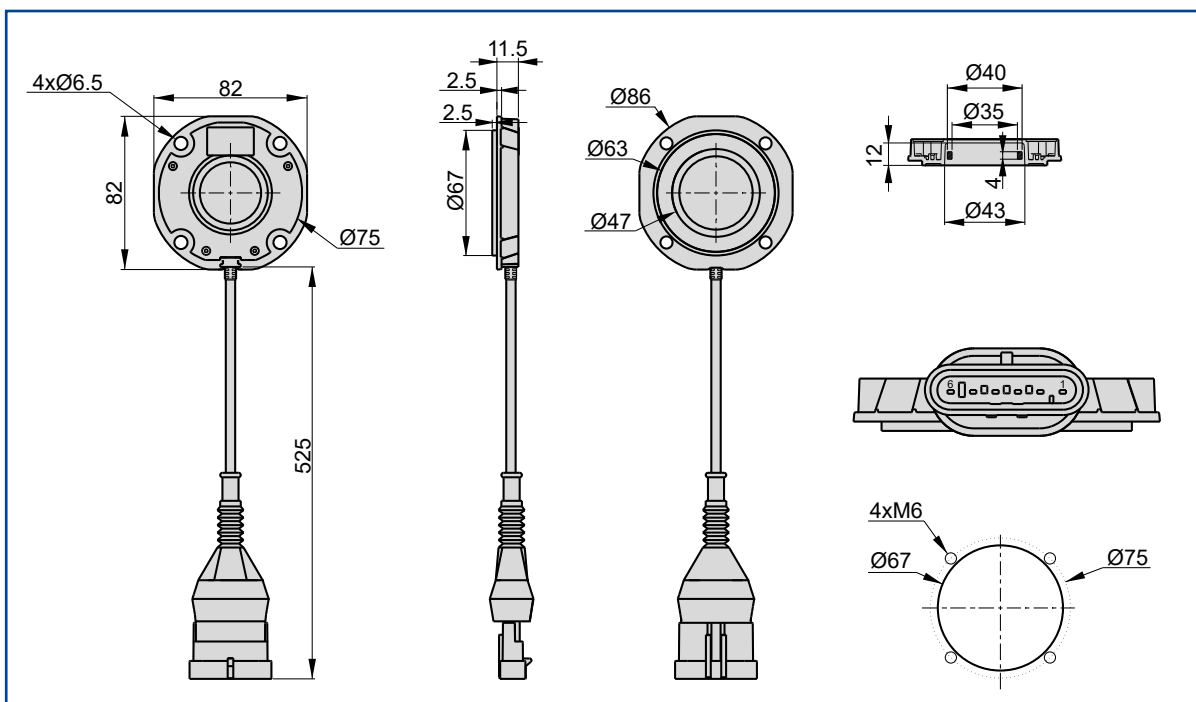
Electric motors

TECHNICAL DATA

Measurement Range	360° mechanical, accepting variable number of poles
Supply voltage	+4,5...+18Vdc.
Output signals	Sin-Cos, voltage with selectable offset and amplitude
Accuracy	up to 0,5°
Working temperature	-40°C ... +105°C (with 5V supply, 85°C otherwise)
Tracking delay	<0,01ms
Vibrations	20g between 10 Hz ... 2000 Hz IEC 60068-2-6.
Shock	Pulse on 3 axes; 50g 11 ms IEC 60068-2-27.
Electromagnetic compatibility	2014/30/EU Electromagnetic Compatibility (EMC).
Protections and immunity	Protected against reverse polarity and short circuit
IP Protection Level	IP66, IP68 and IP69K

All performance data are values resulting from qualification tests on specific configuration sample production batch.
Final product configuration, actual application and respect of installation recommendation may impact on some performance data.
Where not differently indicated, data refer to Tamb condition test environment.

DIMENSIONS



ORDERING KEY

FAMILY	SUBFAMILY	CASE MATERIAL	CONNECTOR	CHANNEL 1 RANGE (±)	CHANNEL 2 RANGE (±) AND VERSE	SUPPLY VOLTAGE	OUTPUT TYPE	SPECIAL / CUSTOM FEATURE / SW / CUSTOMER	MANUAL ZERO HALL PEN	FACTORY LINEARITY TABLE SUPPLIED	ACCESSORIES / MAGNET TYPE	PROJECT REVISION
SPEED POSITION	1 Trough shaft	C Plastic without sleeves	A2 Pigtail AMP 6 poles 50cm	W360 clock wise ±xxx°	0NOT Single channel	E 5-18Vdc	010 SIN-COS	000 standard	0 not available (standard)	0 not supplied (standard)	001 Ring magnet DE: 40mm H: 4mm	2
		D Plastic without sleeves, blind hole										

EXAMPLE OF RESULTING ORDERING CODE

FTS1.C.A2.W360.0NOT.E.010.000.0.0.001.2

Further possibilities available, some options are mutually exclusive, please contact our team for more details.

FTS3

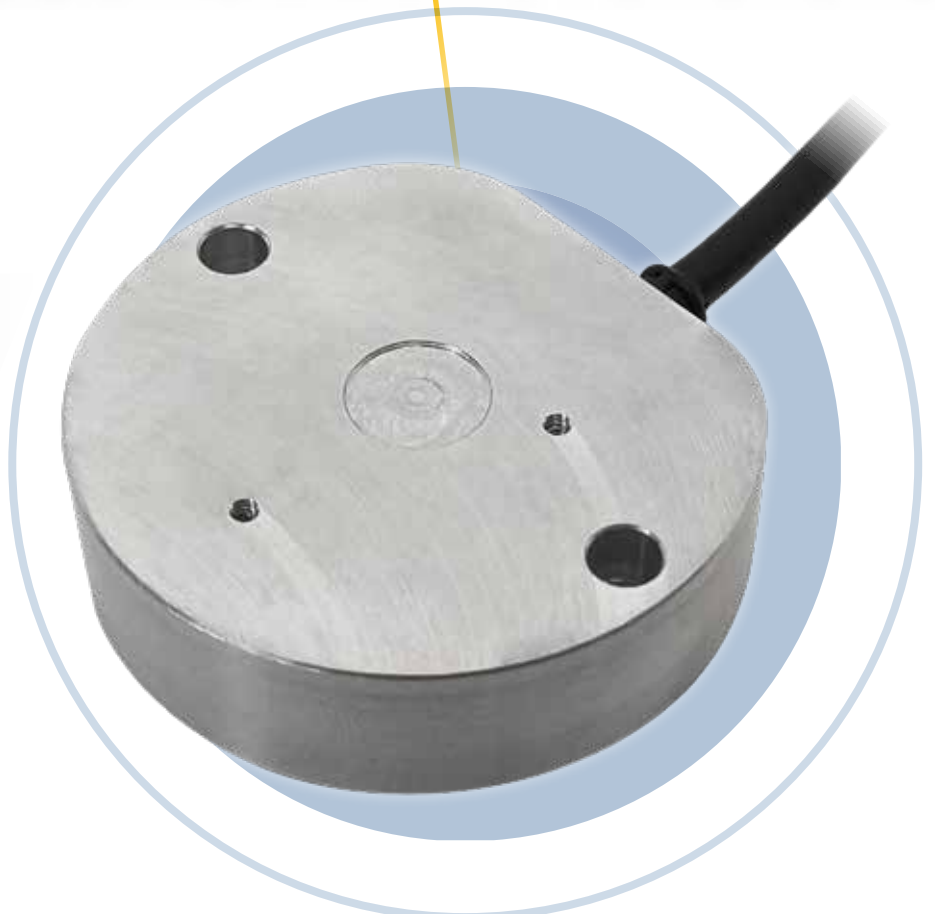
“END OF SHAFT” MAGNETIC ANGLE ENCODER



*Wear free magnetic encoder for synchronous electric motors.
Its design and technology improve performances minimizing
overall motor dimension.*



FTS3 solution fits wide range of electric motors dedicated for in specific traction power units. Its enhanced design, allow most compact installation on the motor assembly, optimizing total motor effectiveness.



KEY VALUES



Shock proof



Magnetic technology



SIN/COS
Analog Out



IP68 and IP69K
protection class



Wide temperature
range

Description	P/N
FTS3	1107265

Default Parameters:

Sin-Cos output

2,5V centered output

Magnet included



APPLICATIONS



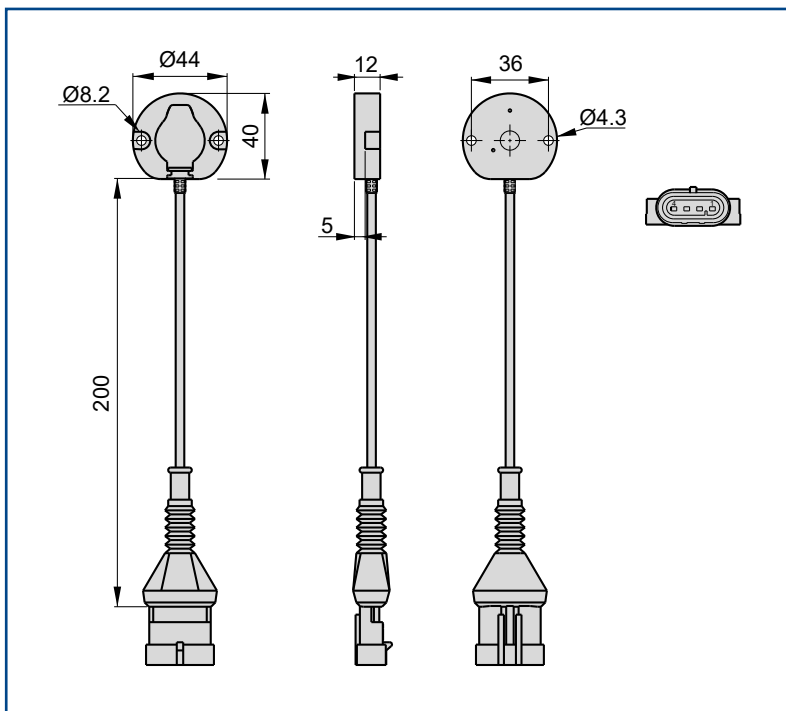
Electric motors

TECHNICAL DATA

Measurement Range	360° mechanical, accepting variable number of poles
Supply voltage	+5V.
Output signal	Sin-Cos
Linearity	up to 0,6°
Working temperature	-40°C ... +105°C
Maximum speed	60.000 rpm
Vibrations	20g between 10 Hz ... 2000 Hz IEC 60068-2-6.
Shock	Pulse on 3 axes; 50g 11 ms IEC 60068-2-27.
Electromagnetic compatibility	2014/30/EU Electromagnetic Compatibility (EMC).
Protections and immunity	Protected against reverse polarity and short circuit
IP Protection Level	IP67

All performance data are values resulting from qualification tests on specific configuration sample production batch.
Final product configuration, actual application and respect of installation recommendation may impact on some performance data.
Where not differently indicated, data refer to Tamb condition test environment.

DIMENSIONS



ORDERING KEY

FAMILY	SUBFAMILY	CASE MATERIAL	CONNECTOR	CHANNEL 1 RANGE (±)	CHANNEL 2 RANGE (±) AND VERSE	SUPPLY VOLTAGE	OUTPUT TYPE	SPECIAL / CUSTOM FEATURE / SW / CUSTOMER	MANUAL ZERO HALL PEN	FACTORY LINEARITY TABLE SUPPLIED	ACCESSORIES / MAGNET TYPE	PROJECT REVISION
SPEED POSITION	3 End of shaft	A Aluminium	A1 Pigtail AMP 4 poles 20cm	W360 clock wise ±xxx°	0NOT Single channel	L 5Vdc	010 SIN-COS	000 standard	0 not available (standard)	0 not supplied (standard)	002 Disk magnet D: 4mm	1

EXAMPLE OF RESULTING ORDERING CODE

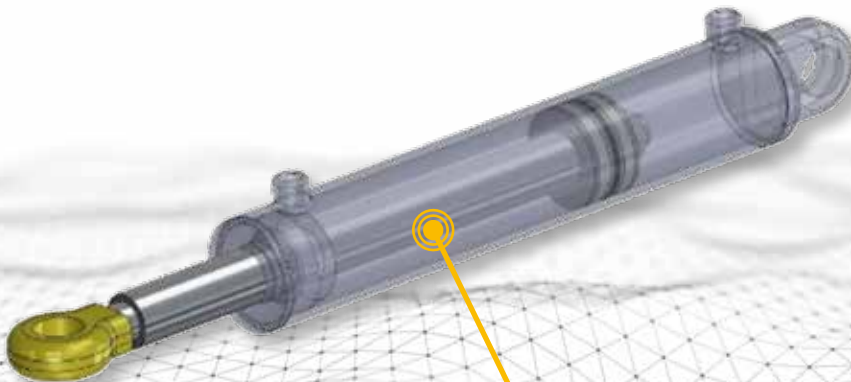
FTS3.A.A1.W360.0NOT.L.010.000.0.0.002.1

Further possibilities available, some options are mutually exclusive, please contact our team for more details.

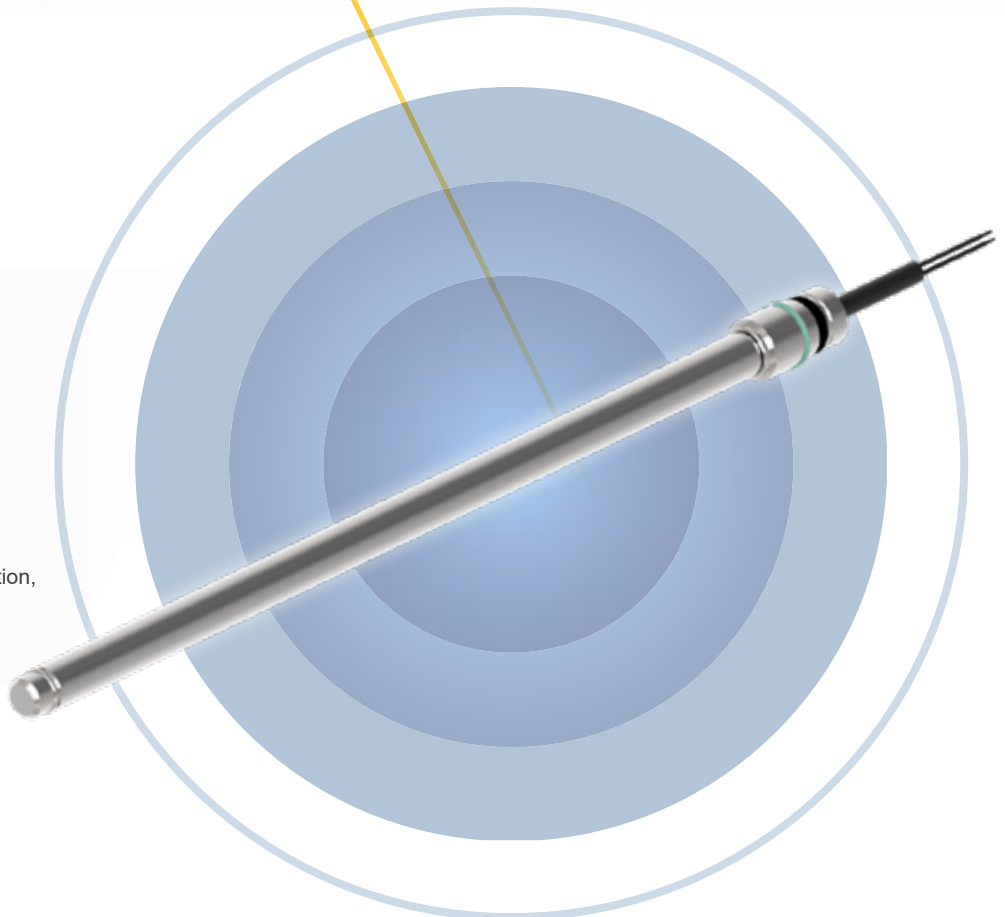
FTL2 LINEAR DISPLACEMENT SENSOR



*Wear free magnetic technology.
CANbus for effective system integration.
Embedded diagnostic.*



FTL2 Linear sensor family allows effectively measure displacement of cylinders. Extremely compact housing allows minimal impact over cylinder redesign, improving overall total cost of system. Robust design makes this device an optimal solution on multiple off-highway applications. Smart logic, together with CANbus communication, allows flexible solutions with and without external ECU active management.



KEY VALUES



Shock proof



Magnetic technology

CAN

CANbus



IP68 protection class



Wide temperature range

Description

P/N

FTL2 570mm

1110456

Default Parameters:

ID node: 0x1F

Baud rate: 125kbpS



FTL2 - (136mm STROKE)



FTL2 - (570mm STROKE)

APPLICATIONS



Material Handling
and Lifting Technology



Agricultural Machinery



Construction Equipment

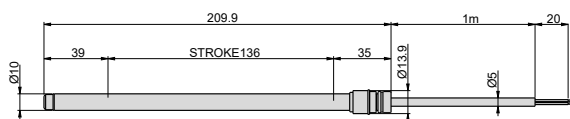
TECHNICAL DATA

Measurement Range	up to 700mm
Supply voltage	+9-36Vdc.
Output signal	CANopen / CAN J1939
Resolution	up to 1mm
Working temperature	-40°C ... +105°C
Vibrations	20g between 10 Hz ... 2000 Hz IEC 60068-2-6.
Shock	Pulse on 3 axes; 50g 11 ms IEC 60068-2-27.
Electromagnetic compatibility	2014/30/EU Electromagnetic Compatibility (EMC).
Protection and immunity	Protected against reverse polarity and short circuit
IP Protection Level	IP68

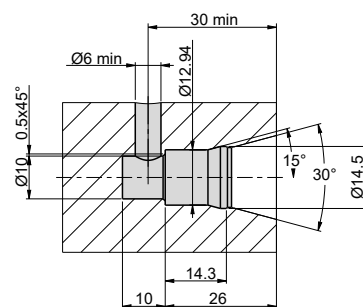
All performance data are values resulting from qualification tests on specific configuration sample production batch.
Final product configuration, actual application and respect of installation recommendation may impact on some performance data.
Where not differently indicated, data refer to Tamb condition test environment.

DIMENSIONS

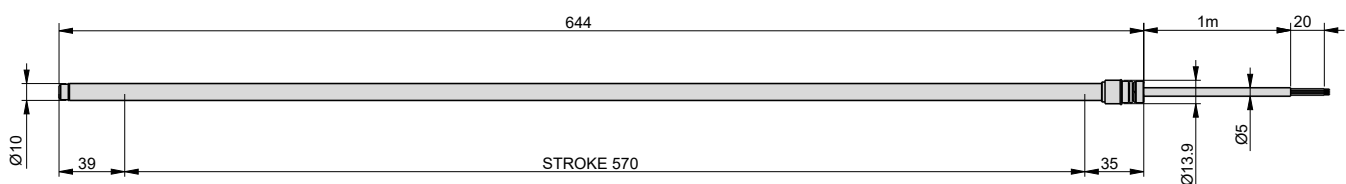
FTL2 - (136mm STROKE)



END CAP MOUNTING DETAIL



FTL2 - (570mm STROKE)



ORDERING KEY

FAMILY	SUBFAMILY	CASE MATERIAL	CONNECTOR	CHANNEL 1 RANGE (±)	CHANNEL 2 RANGE (±) AND VERSE	SUPPLY VOLTAGE	OUTPUT TYPE	SPECIAL / CUSTOM FEATURE / SW / CUSTOMER	MANUAL ZERO HALL PEN	FACTORY LINEARITY TABLE SUPPLIED	ACCESSORIES / MAGNET TYPE	PROJECT REVISION
LINEAR	2 in cylinder hall	S Steel	14 free cable 1m, 4 wires	L570 Linear 570mm	0NOT Single channel FTL	H 12-24Vdc nominal	051 CANopen standard	000 standard	0 not available (standard)	0 not supplied (standard)	000 not present	1
							061 CAN J1939				001 Magnet type 01	

EXAMPLE OF RESULTING ORDERING CODE

FTL2.A.14.L570.0NOT.H.051.000.0.0.000.1

Further possibilities available, some options are mutually exclusive, please contact our team for more details.

ΩMEGA

DRAW WIRE DISPLACEMENT SENSOR



*Ultimate technology sensors for long displacement measurement.
Its design enhance performance and reliability.
Functional safety certified PId (EN13849-1).*



ΩMEGA sensor fits multiple applications where it is required to measure long displacements. Its enhanced design, allow most compact installation on the frame, optimizing total machine effectiveness.



KEY VALUES



Shock proof



Magnetic technology

CAN

CANbus



IP66
protection class



Wide temperature
range

Description	P/N
Ωmega 15	1102761
Ωmega 8	1099768
Ωmega 3	1101824

Default Parameters:

CANopen CiA DS301, DS406, DS410

ID node No.1: 0x01

ID node No.2: 0x02

Baud rate 250kbps



**ΩMEGA
15**

APPLICATIONS



Reach Stackers



Mobile Cranes



Telehandlers



Forklift trucks



Aerial working
platforms



**ΩMEGA
8**



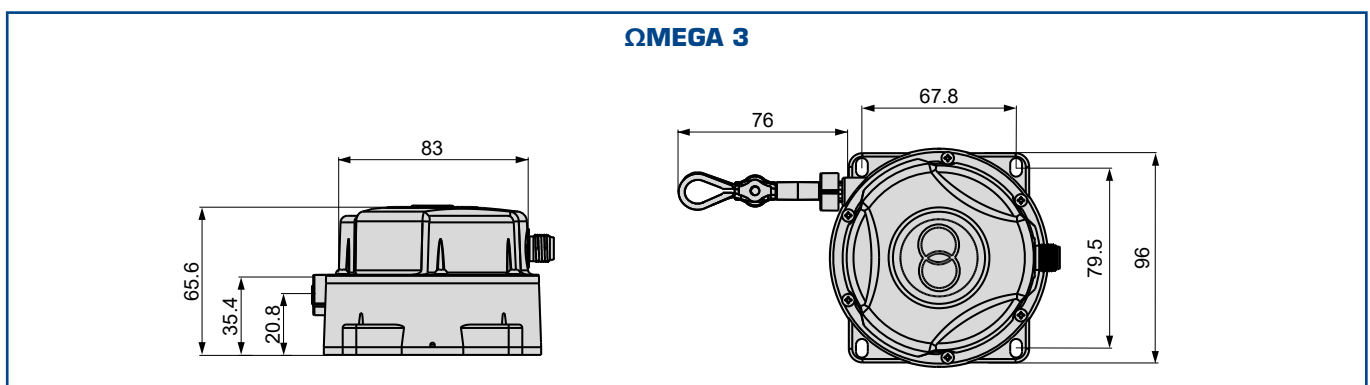
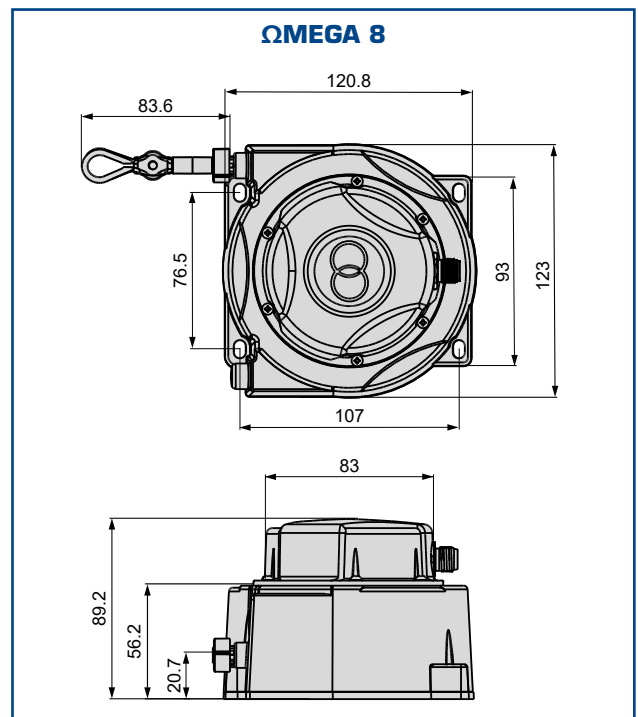
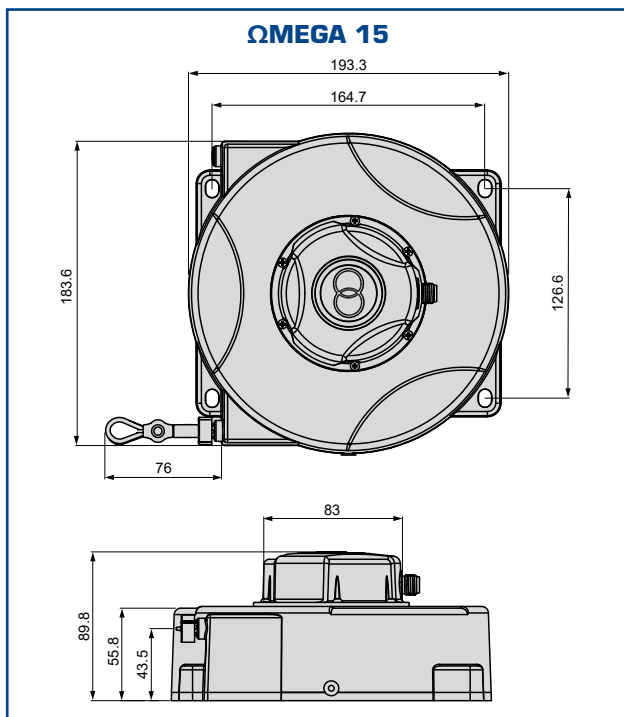
**ΩMEGA
3**

TECHNICAL DATA

Measurement Range	up to 15m for displacement and up to 360° for inclinometer
Supply voltage	7-32Vdc.
Output signal	CANopen
Accuracy	up to $\pm 0,3\%$ for displacement and up to $0,3^\circ$ for inclinometer
Working temperature	$-40^\circ\text{C} \dots +85^\circ\text{C}$
Vibrations	20g between 10 Hz ... 2000 Hz IEC 60068-2-6.
Shock	Pulse on 3 axes; 50g 11 ms IEC 60068-2-27.
Electromagnetic compatibility	2014/30/EU Electromagnetic Compatibility (EMC).
Protections and immunity	Protected against reverse polarity and short circuit
IP Protection Level	IP66

All performance data are values resulting from qualification tests on specific configuration sample production batch.
Final product configuration, actual application and respect of installation recommendation may impact on some performance data.
Where not differently indicated, data refer to Tamb condition test environment.

DIMENSIONS



ORDERING KEY

FAMILY	SUBFAMILY	CASE MATERIAL	CONNECTOR	CHANNEL 1 RANGE (±)	CHANNEL 2 RANGE (±) AND VERSE	SUPPLY VOLTAGE	OUTPUT TYPE	SPECIAL / CUSTOM FEATURE / SW / CUSTOMER	MANUAL ZERO HALL PEN	FACTORY LINEARITY TABLE SUPPLIED	ACCESSORIES / MAGNET TYPE	PROJECT REVISION
DRAW WIRE	A Angle and lenght measurements	B Plastic housing	5M single M12 5P wall mounted	0NOT when only weight	0NOT single channel or only lenght	H 12-24Vdc nominal	051 CANopen standard (default parameters)	LR9 lower right cable, connector at "9 hour"	0 not available (standard)	0 not supplied (standard)	000 not present	1
	3m											
	L Lenght only measurement			W180 clock wise ±xxx°	DXXX Pld with crossed degrees			UR3 upper right cable, connector at "3 hour"				
	8m											
15m				C180 counter clock wise ±xxx°				LL0 lower left cable, connector at "0 hour"				

EXAMPLE OF RESULTING ORDERING CODE

O03A.B.5M.W180.C180.H.051.LR9.0.0.000.1

Further possibilities available, some options are mutually exclusive, please contact our team for more details.

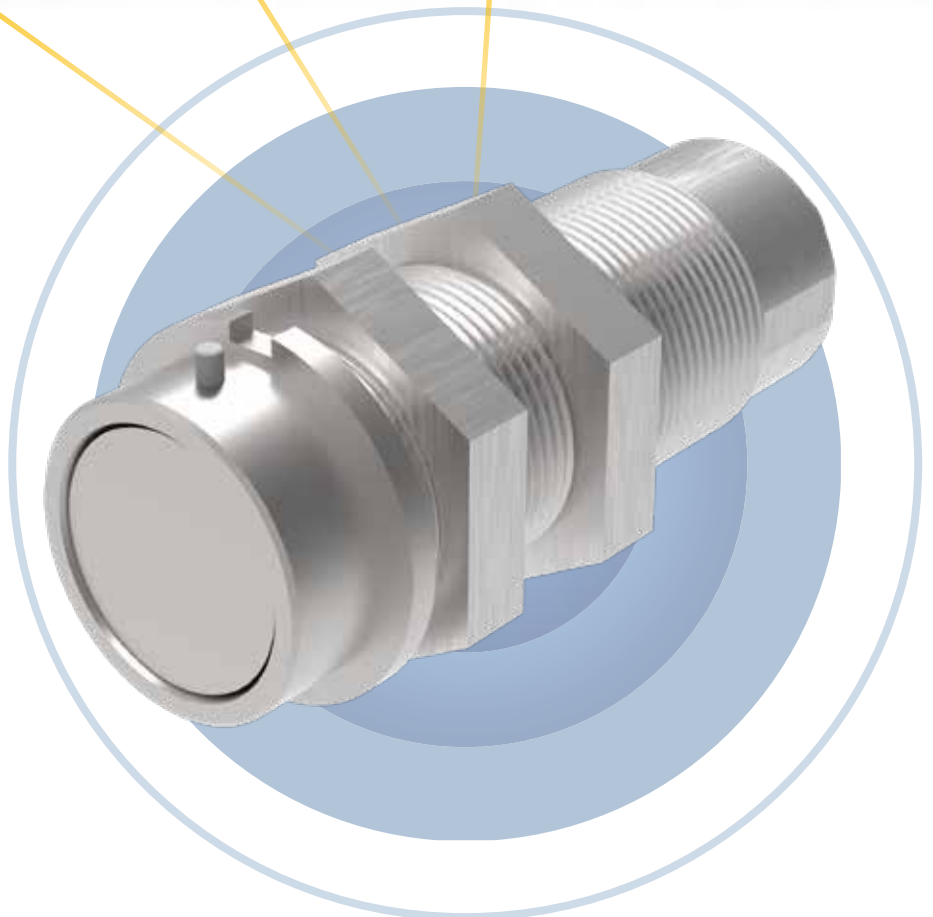
FTU ULTRASONIC DISTANCE SENSOR



*Wear free ultrasonic technology
CANbus for effective system integration
Embedded diagnostic*



FTU ultrasonic sensor family allows to effectively manage distance measurement, reaching high levels of resolution and linearity. Robust design makes this device an optimal solution on multiple off-highway applications. Smart logic, together with CANbus communication, allows extremely flexible solutions with and without external ECU active management.



KEY VALUES



Shock proof



Ultrasonic technology



CANbus



IP 67
protection class



Wide temperature
range

Description	P/N
FTU1	1110977
FTU2	1110978

Common Default Parameters:

ID node: 0x1F

Baud rate: 125kbps



FTU-1



FTU-2

APPLICATIONS



Material Handling
and Lifting Technology



Agricultural Machinery



Construction Equipment

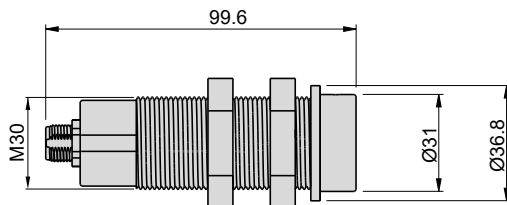
TECHNICAL DATA

Measurement Range	up to 7,5m
Supply voltage	+9-36Vdc.
Output signal	+analogue (0-5V or 4-20mA on M12-pin available)
Accuracy	up to 10mm
Working temperature	-40°C ... +85°C
Vibrations	20g between 10 Hz ... 2000 Hz IEC 60068-2-6
Shock	Pulse on 3 axes; 50g 11 ms IEC 60068-2-27
Electromagnetic compatibility	2014/30/EU Electromagnetic Compatibility (EMC)
Protections and immunity	Protected against reverse polarity and short circuit
IP Protection Level	IP67

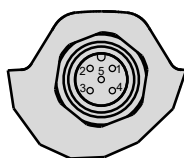
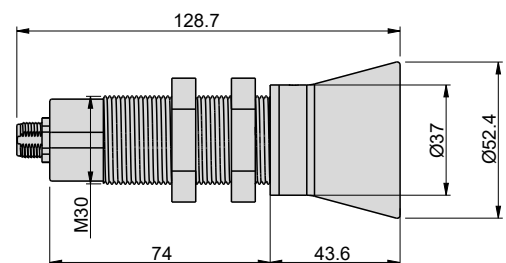
All performance data are values resulting from qualification tests on specific configuration sample production batch.
Final product configuration, actual application and respect of installation recommendation may impact on some performance data.
Where not differently indicated, data refer to Tamb condition test environment.

DIMENSIONS

FTU-1



FTU-2



CONNECTOR

N PIN	CANbus
1	4-20mA
2	+VIN
3	GND
4	CAN-H
5	CAN-L

ORDERING KEY

FAMILY	SUBFAMILY	CASE MATERIAL	CONNECTOR	CHANNEL 1 RANGE (±)	CHANNEL 2 RANGE (±)	SUPPLY VOLTAGE	OUTPUT TYPE	SPECIAL FEATURE CUSTOM SOFTWARE	MANUAL ZERO HALL PEN	FACTORY LINEARITY TABLE	ACCESSORIES MAGNET TYPE	PROJECT REVISION
SONAR	1	S Stainless Steel	5M single M12 5P wall mounted	0050 5m full scale	0NOT Single channel	H 9-36Vdc	051 CANopen standard	000 Standard	0 not available (standard)	L supplied	000 not present	2
	2			0075 7,5m full scale			451 CANopen standard and 4-20mA					

EXAMPLE OF RESULTING ORDERING CODE

FTU1.S.5M.0050.0NOT.H.451.000.0.0.000.2

Further possibilities available, some options are mutually exclusive, please contact our team for more details.

FTM RADAR DISTANCE/SPEED SENSOR



*Wear free radar technology.
CANbus for effective system integration.
Embedded diagnostic.*



FTM Radar sensor family allows to effectively manage distance and/or speed measurement. Robust design makes this device an optimal solution on multiple off-highway applications. Smart logic, together with CANbus communication, allows extremely flexible solutions with and without external ECU active management.



KEY VALUES



Shock proof



Radar technology

CAN

CANbus



IP66 protection class



Wide temperature range

Description	P/N
FTM2	1110635

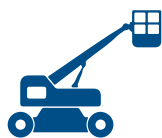
Default Parameters:

ID node: 0x1F

Baud rate: 125kbps



APPLICATIONS



Material Handling
and Lifting Technology



Agricultural Machinery



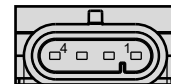
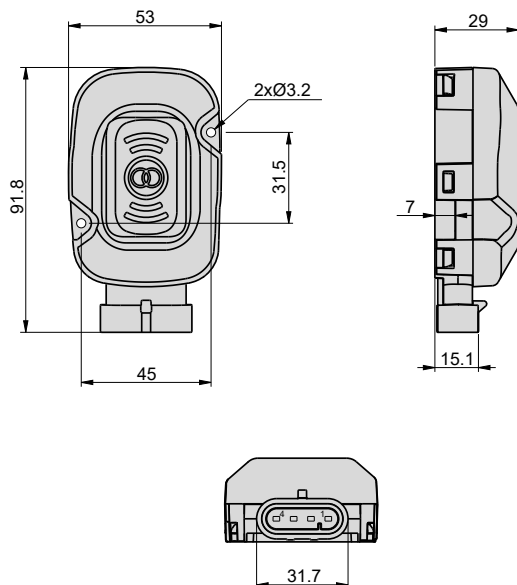
Construction Equipment

TECHNICAL DATA

Measurement Range	up to 30m and up to 100kmh
Supply voltage	+9...+36Vdc
Output signal	CANopen
Resolution	up to 5cm
Working temperature	-40°C...+85°C
Vibrations	20g between 10 Hz...2000 Hz IEC 60068-2-6
Shock	Pulse on 3 axes; 50g 11 ms IEC 60068-2-27
Electromagnetic compatibility	2014/30/EU Electromagnetic Compatibility (EMC).
Protections and immunity	Protected against reverse polarity and short circuit
IP Protection Level	IP66

All performance data are values resulting from qualification tests on specific configuration sample production batch.
Final product configuration, actual application and respect of installation recommendation may impact on some performance data.
Where not differently indicated, data refer to Tamb condition test environment.

DIMENSIONS



CONNECTOR

N PIN	CANbus
1	CAN-L
2	CAN-H
3	GND
4	+VIN

ORDERING KEY

FAMILY	SUBFAMILY	CASE MATERIAL	CONNECTOR	CHANNEL 1 RANGE (±)	CHANNEL 2 RANGE (±) AND VERSE	SUPPLY VOLTAGE	OUTPUT TYPE	SPECIAL / CUSTOM FEATURE / SW / CUSTOMER	MANUAL ZERO HALL PEN	FACTORY LINEARITY TABLE SUPPLIED	ACCESSORIES / MAGNET TYPE	PROJECT REVISION
RADAR	2	C Plastic without sleeves	5M single M12 5P wall mounted	0050 5m full scale	0NOT single channel	H 9-36Vdc	051 CANopen standard	000 standard	0 not available (standard)	0 not supplied (standard)	000 not present	2

EXAMPLE OF RESULTING ORDERING CODE

FTM2.C.4A.0050.0NOT.H.051.000.0.0.000.2

Further possibilities available, some options are mutually exclusive, please contact our team for more details.



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