JIANGSU ZHONGZE INTELLIGENT CONTROL TECHNOLOGY CO., LTD.

Sensing Solutions for Construction Machinery and Industry

Professional Quality, Pursuit of Excellence



Draw-Wire Length Sensors | Encoders | Tilt Sensors

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English edition, translated from the Chinese catalog (August 2026).

About Us

Jiangsu Zhongze Intelligent Control Technology Co., Ltd. specializes in the research, development, production and sales of length sensors, encoders and tilt sensors for construction machinery and industry, providing customers with stable and reliable sensor products and supporting services.

Guided by "quality first, service first" and by the philosophy of being people-oriented, integrity-based, standardized in operation and pragmatic in progress, the company keeps innovating its technology. Looking ahead, we will stay focused on customer needs, build first-class products and services, and work hand in hand with partners for shared success.

Product Lines

- Length sensors: draw-wire length sensors in multiple ranges, available with simultaneous angle measurement.
- Absolute encoders: measuring length, angular velocity and angle.
- Incremental encoders: motion control, speed and angle measurement.
- Explosion-proof encoders: for special environments such as petroleum and chemicals.
- Tilt sensors: leveling and attitude safety monitoring for construction machinery and industrial equipment.

Contents

Draw-Wire Length Sensors - LG Series 01

Draw-Wire Length Sensors - LAS Series 03

Draw-Wire Length Sensors - LTE Series 05

Draw-Wire Length Sensors - LTF Series 07

Encoders - Absolute Series 10

Encoders - Incremental Series 13

Tilt Sensors - GIS Series 16

Tilt Switch / Sensor - AGAI Series 18

Draw-Wire Length Sensors - LG Series

Models: LG08M, LG12M (also listed in the original ordering table: LGH08M, LGH12M). Compact draw-wire length sensor with optional angle output.



LG08M (left) and LG12M (right).

Specifications - LG Series

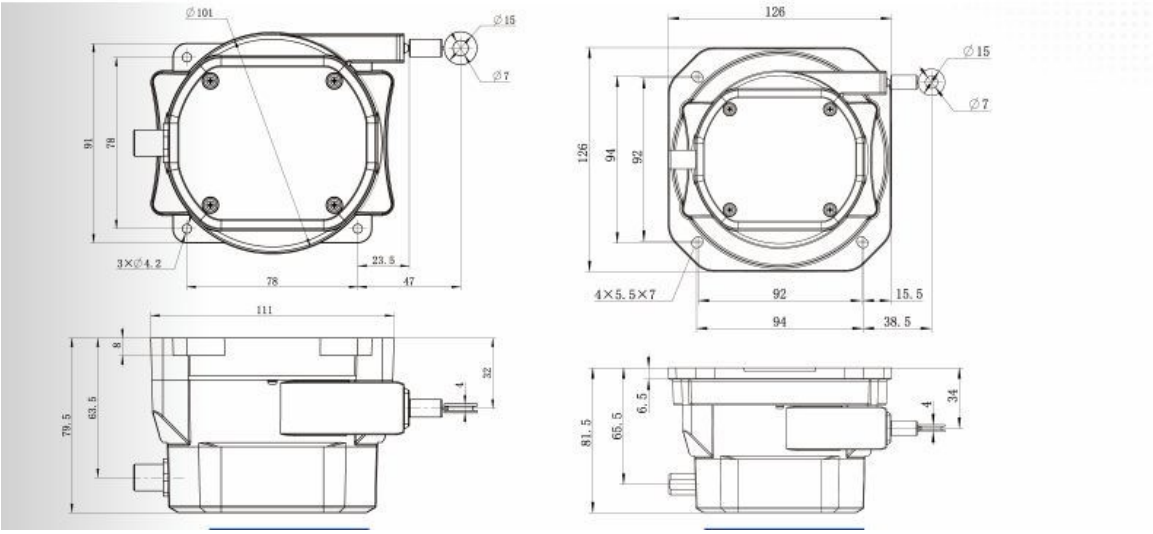
Item	Specification
Supply voltage	9 V - 36 V DC
Current consumption	18 mA @ 24 V DC (non-redundant); 36 mA @ 24 V DC (redundant)
Operating temperature	-40 °C to +85 °C
Storage temperature	-40 °C to +85 °C
Signal types	CANopen, 4-20 mA, 0.5-4.5 V
Cable speed	≤ 1 m/s
Length measuring range	0 m - 8 m / 0 m - 12 m
Length measuring accuracy	< 8 m: ±0.25% FS; > 8 m: ±0.5% FS
Length measuring linearity	< 8 m: ±0.25% FS; > 8 m: ±0.5% FS
Length measuring repeatability error	≤ 0.3% FS
Angle measuring range	0° - 360° / -180° to +180°
Angle measuring accuracy	±0.2°
Housing material	Engineering plastic
Measuring cable material	AISI 316 stainless steel wire rope, nylon-coated
Protection rating	IP67 (electronics chamber)
Cable life (pull cycles)	≥ 150,000 @ LG08M; ≥ 100,000 @ LG12M
Weight	Approx. 690 g @ LG08M; approx. 800 g @ LG12M

Ordering - LG Series

Ordering code example: LG08M-08-1-A-B-N-X

Field	Code	Meaning
Series No.	LG08M	LG series, 8 m class
	LG12M	LG series, 12 m class
	LGH08M	LGH series, 8 m class
	LGH12M	LGH series, 12 m class
Measuring length	03	3 m
	05	5 m
	08	8 m
	10	10 m
	12	12 m
Signal output / interface type	1	CANopen
	2	4-20 mA
	4	0.5-4.5 V
Outlet form	A	M12 connector, 5-pin
Angle output	A	With angle output
	B	Without angle output
Safety architecture	Y	Redundant output
	N	Non-redundant output
Custom	X	Custom information

Outline Dimensions - LG Series (mm)



Draw-Wire Length Sensors - LAS Series

Models: LAS15M, LAS25M, LAS35M. Long-range draw-wire length sensor with carbon steel housing, for large machines. Cable material: AISI 316 stainless steel wire rope, nylon-coated, or multi-strand cable.





LAS15M, LAS25M and LAS35M.

Specifications - LAS Series

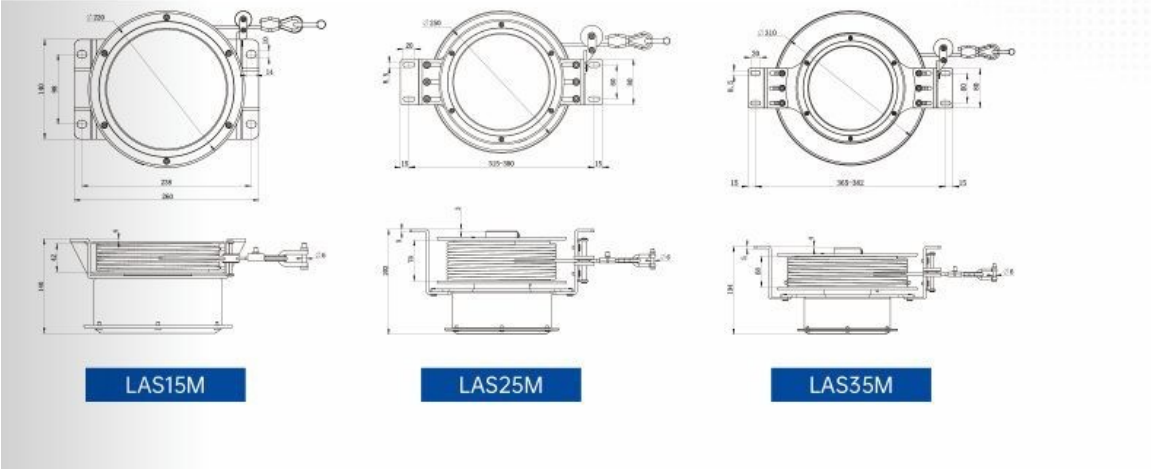
Item	Specification
Supply voltage	9 V - 36 V DC
Current consumption	18 mA @ 24 V DC (non-redundant); 36 mA @ 24 V DC (redundant)
Operating temperature	-40 °C to +85 °C
Storage temperature	-40 °C to +85 °C
Signal types	CANopen, 4-20 mA, 0.5-4.5 V
Cable speed	≤ 1 m/s
Length measuring range	0 m - 15 m / 0 m - 25 m / 0 m - 35 m
Length measuring accuracy	< 8 m: ±0.25% FS; > 8 m: ±0.5% FS
Length measuring linearity	< 8 m: ±0.25% FS; > 8 m: ±0.5% FS
Length measuring repeatability error	≤ 0.3% FS
Angle measuring range	0° - 360° / -180° to +180°
Angle measuring accuracy	±0.2°
Housing material	Carbon steel
Measuring cable material	AISI 316 stainless steel nylon-coated wire rope / multi-strand cable
Protection rating	IP67 (electronics chamber)
Cable life (pull cycles)	≥ 100,000 @ LAS15M / LAS25M; ≥ 50,000 @ LAS35M
Weight	6,500 g (LAS15M); 14,000 g (LAS25M); 16,500 g (LAS35M)

Ordering - LAS Series

Ordering code example: LAS15M-15-1-A-B-N-C3-(RU)

Field	Code	Meaning
Series No.	LAS15M	LAS series, 15 m class
	LAS25M	LAS series, 25 m class
	LAS35M	LAS series, 35 m class
Measuring length	15	15 m
	30	30 m (as printed in the original)
	35	35 m
Signal type	1	CANopen
	2	4-20 mA
	4	0.5-4.5 V
Signal output interface type	A	M12 connector, 5-pin
	B	M12 connector, 8-pin
	C	2 m cable
Angle output	A	With angle output
	B	Without angle output
Safety architecture	Y	Redundant output
	N	Non-redundant output
Drum cable core specification	C2	2-core cable
	C3	3-core cable
	...	Other specifications
Drum cable exit direction	RU	Upper right exit
	RD	Lower right exit
	LU	Upper left exit
	LD	Lower left exit

Outline Dimensions - LAS Series (mm)



Draw-Wire Length Sensors - LTE Series

Economy (slim) series. Frame sizes 55, 80, 130 and 190. Integrated encoder: AHE / ADE / AGE / ABE series. Note: the original parameter table does not list supply voltage or signal types for this series; they follow the encoder selected (see ordering table).





LT55E (left) and LT130E (right).

Specifications - LTE Series

Item	Specification
Outer dimensions	55 x 55, 80 x 80, 130 x 130, 190 x 190 (mm)
Cable material	AISI 316 stainless steel nylon-coated wire rope
Cable diameter	Dia. 0.5 mm
Length measuring range	0 m - 1.25 m, 0 m - 3 m, 0 m - 5 m, 0 m - 10 m
Housing material	Aluminum alloy or engineering plastic
Outlet pull force	≥ 2.5 N @ LT55E; ≥ 3 N @ LT80E; ≥ 6.5 N @ LT130E
Cable length per turn	150 mm @ LT55E; 230 mm @ LT80E; 385 mm @ LT130E
Cable speed	≤ 1 m/s
Operating temperature	-20 °C to +70 °C
Cable life (pull cycles)	> 500,000
Integrated encoder	AHE series, ADE series, AGE series, ABE series
Encoder protection rating	IP67
Weight	125 g @ LT55E; 365 g @ LT80E; 1,040 g @ LT130E

Ordering - LTE Series

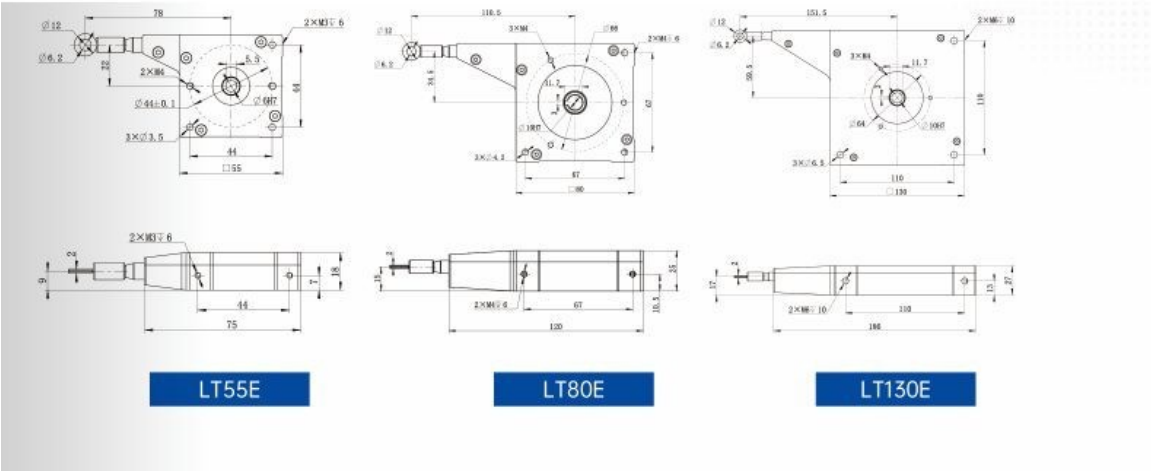
Ordering code example: LT55E-1.25-AHE-M-R-C2.6-1

Field	Code	Meaning
Series No.	55	Frame 55

	80	Frame 80
	130	Frame 130
	190	Frame 190
	E	Economy type (slim)
Measuring length	1.25	1.25 m
	03	3 m
	05	5 m
	10	10 m
Encoder	AHE / ADE	Encoder housing size 36
	AGE / ABE	Encoder housing size 60
Outlet type	M	M12-A coded 5-pin connector
	L	5-core shielded cable
Outlet direction	A	Axial
	R	Radial
Output shaft type	C2	Flange 1
	S	Flange 2
Signal type	1	CANopen (printed as "Canopen" in the original)

Note: the ordering example contains a ".6" segment that has no option list in the original; please confirm its meaning before quoting.

Outline Dimensions - LTE Series (mm)



Draw-Wire Length Sensors - LTF Series

Precision series. Frame sizes 80 and 130. Aluminum alloy housing.



LT130F series.

Specifications - LTF Series

Item	Specification
Outer dimensions	80 x 80, 130 x 130 (mm)
Cable material	AISI 316 stainless steel wire rope
Cable diameter	Dia. 1.2 mm
Length measuring range	0 m - 3 m, 0 m - 5 m, 0 m - 10 m, 0 m - 15 m (parameter table; the ordering table also lists 20 m and 30 m)
Housing material	Aluminum alloy
Outlet pull force	≥ 5 N @ LT80F; ≥ 10 N @ LT130F
Cable length per turn	200 mm @ LT80F; 333 mm @ LT130F
Cable speed	≤ 1 m/s
Vibration resistance	10 g, 10 - 1500 Hz
Operating temperature	-20 °C to +70 °C
Cable life (pull cycles)	> 500,000
Protection rating	IP54
Weight	1,800 g @ LT80F-3; 2,800 g @ LT130F-5; 3,500 g @ LT130F-10; 4,000 g @ LT130F-15

Ordering - LTF Series

Ordering code example: LT80F-03-AHE-M-R-C2.6-1

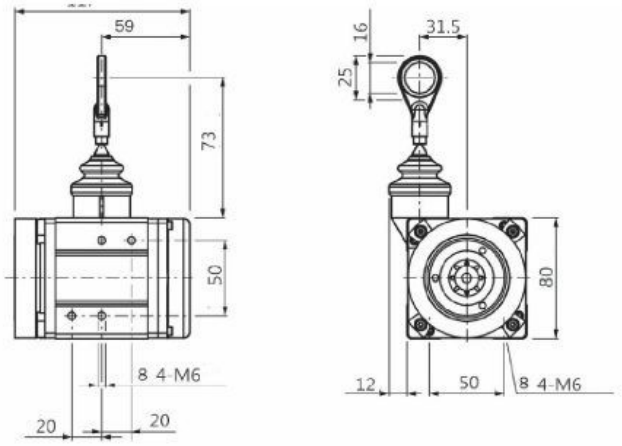
Field	Code	Meaning
Series No.	80	Frame 80

	130	Frame 130
	F	Precision type
Measuring length	03	3 m
	05	5 m
	10	10 m
	15	15 m
	20	20 m
	30	30 m
Encoder	AHE / ADE	Encoder housing size 36
	AGE / ABE	Encoder housing size 60
Outlet type	M	M12-A coded 5-pin connector
	L	5-core shielded cable
Outlet direction	A	Axial
	R	Radial
Output shaft type	C2	Flange 1
	S	Flange 2
Signal type	1	CANopen (printed as "Canopen" in the original)

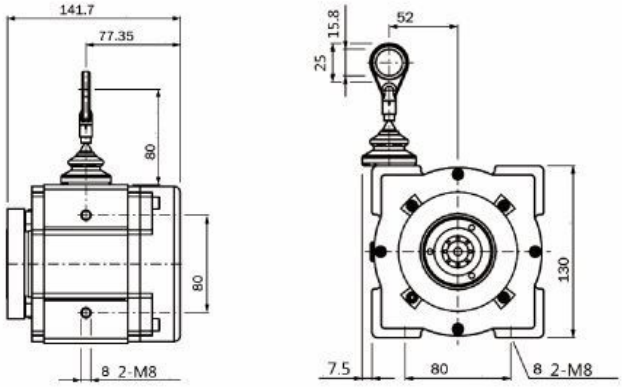
Note: as with LTE, the ordering example contains a ".6" segment with no option list in the original; please confirm its meaning before quoting.

Outline Dimensions - LTF Series (mm)

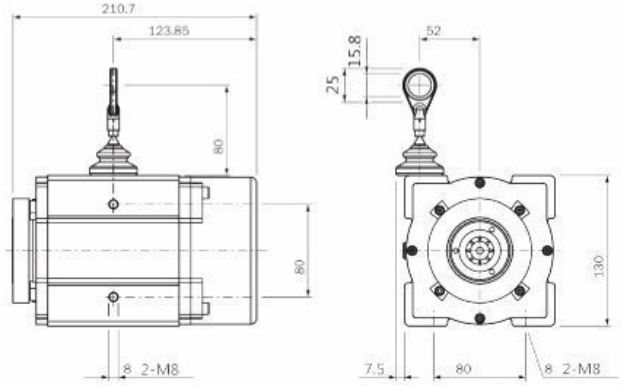
LT80F-03



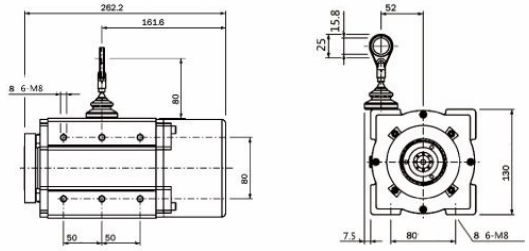
LT130F-05



LT130F-10



LT130F-15



LT130F-15 outline (above).

Encoders - Absolute Series

Models: ADE, ABE, AGE, EXABE (explosion-proof). Housing: die-cast aluminum; flange: aluminum; shaft: stainless steel; explosion-proof version: stainless steel.





Encoder size 36, size 60 and explosion-proof versions.

Specifications - Absolute Series

Item	Specification
Supply voltage	9 V - 36 V DC
Current consumption	18 mA @ 24 V DC
Operating temperature	-40 °C to +85 °C
Storage temperature	-40 °C to +85 °C
Signal type	CANopen
Initialization time	< 170 ms
Single-turn resolution	2^14 (16384)
Multi-turn resolution	2^16 (65536)
Absolute accuracy	±0.1°
Materials	Housing: die-cast aluminum; flange: aluminum; shaft: stainless steel; explosion-proof encoder: stainless steel
Maximum speed	6,000 rpm
Load capacity	Axial < 40 N; radial < 80 N
Starting torque	≤ 2.5 Ncm
Mounting	Flange / blind-hole mounting
Protection rating	IP67
Weight	Approx. 130 g (ADE series); approx. 230 g (ABE, AGE series); approx. 1,200 g (EXABE series)
Explosion-proof marking	Ex db IIC T4 Gb; Ex tb IIIC T130°C Db

Ordering - Absolute Series

ABE series: ABE-M-R-C-O-14-16-1 (ABE: Hall battery multi-turn; AGE: Hall multi-stage gear multi-turn).

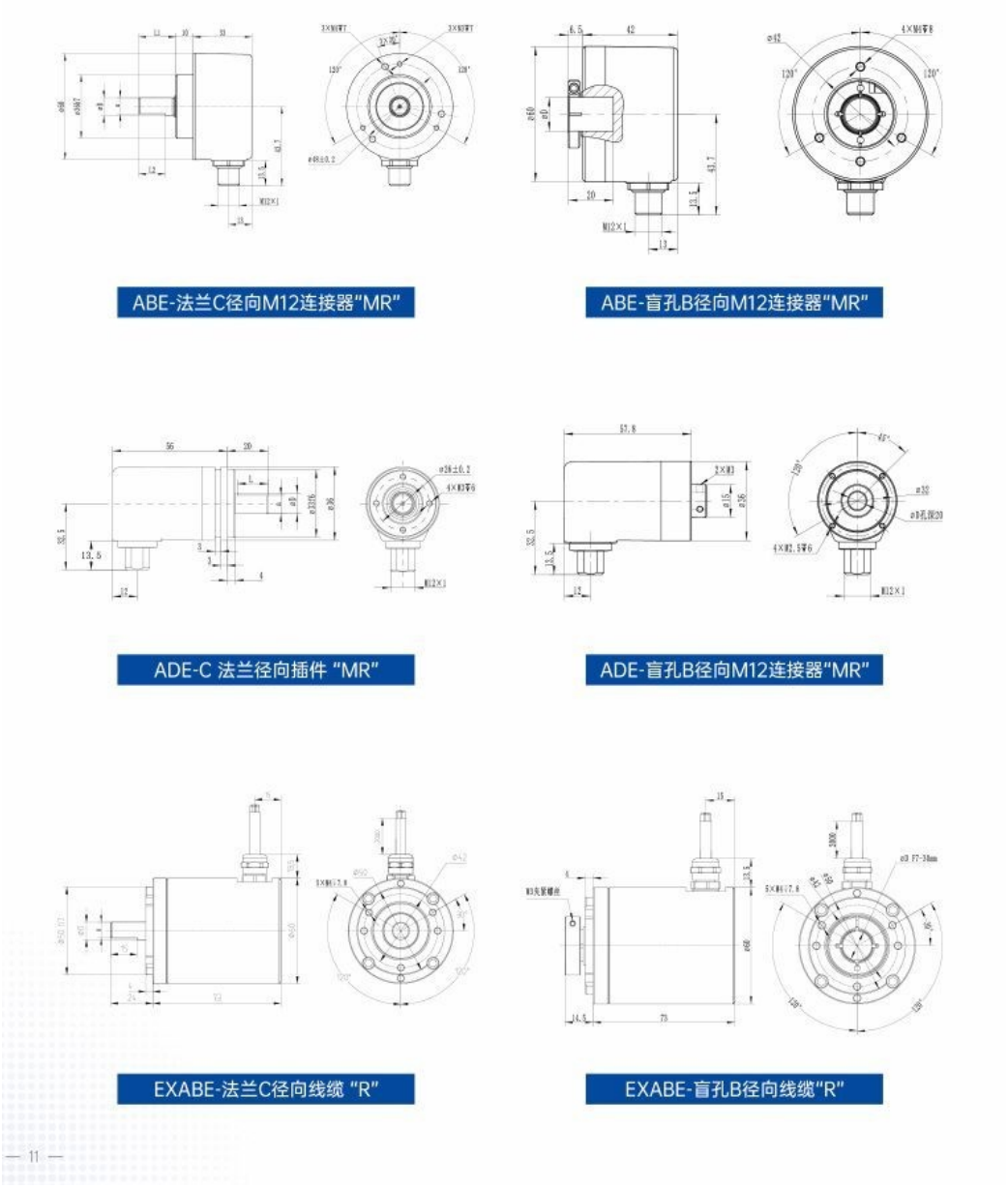
Ordering code example: ABE-M-R-C-O-14-16-1

Field	Code	Meaning
Outlet type	M	M12-A coded 5-pin connector
	L	2 m 5-core shielded cable
Outlet direction	A	Axial
	R	Radial
Output shaft type	C	Clamping flange
	S	Synchronous flange
	B	Hollow shaft (blind hole)
Output shaft specification	O	Dia. 10 x 20 solid shaft
	1	Dia. 8 x 10 solid shaft
	2	Dia. 10 x 20 blind hole
	3	Dia. 12 x 20 blind hole
	4	Dia. 14 x 20 blind hole
	5	Dia. 15 x 20 blind hole
	6	Dia. 6 x 10 solid shaft
	7	Dia. 6 x 20 blind hole
Single-turn resolution	14	Single-turn 14-bit
Multi-turn resolution	16	Multi-turn 16-bit
Signal type	1	CANopen

ADE series: ADE-M-R-S-O-14-16-1 (ADE: Hall battery multi-turn; AHE: Hall multi-stage gear multi-turn). Shaft types: S = synchronous flange (4-hole), S1 = synchronous flange (3-hole), B = hollow shaft (blind hole), B1 = hollow shaft (blind hole 1). Shaft specifications: O = Dia. 10 x 16 solid shaft; 1 = Dia. 8 x 20 blind hole; 2 = Dia. 8 x 16 solid shaft; 3 = Dia. 12 x 16 solid shaft; 4 = Dia. 10 x 20 blind hole; 5 = Dia. 12 x 20 blind hole; 6 = Dia. 6 x 12.5 solid shaft. Other fields as ABE.

EXABE series (explosion-proof): EXABE-L-R-C-O-14-16-1. Outlet type: L = 2 m cable. Shaft types: C = clamping flange, B = hollow shaft (blind hole). Shaft specifications: O = Dia. 10 x 20 solid shaft; 1 = Dia. 15 x 30 blind hole; 2 = Dia. 8 x 20 solid shaft; 3 = Dia. 12 x 20 solid shaft; 4 = Dia. 12 x 30 blind hole; 5 = Dia. 14 x 30 blind hole; 6 = Dia. 10 x 30 blind hole. Multi-turn: 16 = 16-bit, 00 = no multi-turn. Other fields as ABE.

Outline Dimensions - Absolute Series (mm)



ABE flange C radial M12 connector "MR", ABE blind hole B radial M12 connector "MR", ADE flange C radial socket "MR", ADE blind hole B radial M12 connector "MR", EXABE flange C radial cable "R", EXABE blind hole B radial cable "R" (as captioned in the original).

Encoders - Incremental Series

Models: ZDE, ZCE. Output phases A / A-, B / B-, Z / Z-. Housing: die-cast aluminum; flange: aluminum; shaft: stainless steel.

Specifications - Incremental Series

Item	Specification
Supply voltage	4.75 V - 5 V DC / 9 V - 36 V DC
Current consumption	18 mA @ 24 V DC
Operating temperature	-40 °C to +85 °C
Storage temperature	-40 °C to +85 °C
Input / output signals	4.75-9 V DC / HTL: high level > 4 V, low level < 0.5 V; 9-30 V DC / HTL: high level > Vin - 4 V, low level < 0.5 V; 4.75-9 V DC / TTL: high level > 4 V, low level < 0.5 V
Output phases	A / A-, B / B-, Z / Z-
Maximum response frequency	200 kHz
Duty cycle	50 ± 25%
Phase difference accuracy	25 ± 12.5%
Pulses per revolution	1-16384 (default 4096)
Housing material	Housing: die-cast aluminum; flange: aluminum; shaft: stainless steel
Maximum speed	6,000 rpm
Load capacity	Axial < 40 N; radial < 80 N
Starting torque	≤ 2.5 Ncm
Mounting	Flange / blind-hole mounting
Protection rating	IP67
Weight	Approx. 130 g (ZDE series); approx. 230 g (ZCE series)

Ordering - Incremental Series

ZDE series: ZDE-M-R-S-O-04096-1.

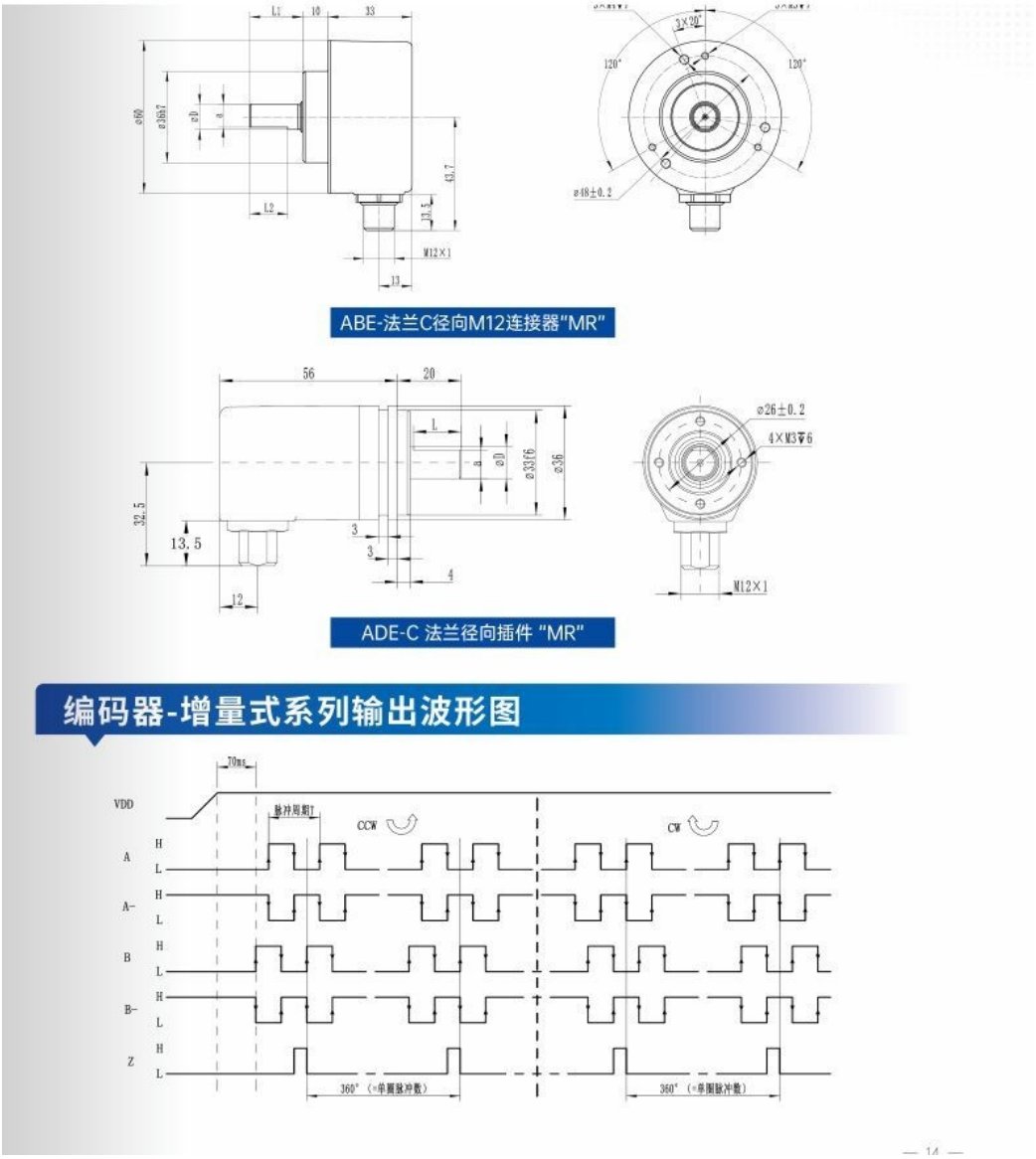
Ordering code example: ZDE-M-R-S-O-04096-1

Field	Code	Meaning
Outlet type	M	M12-A coded 8-pin connector
	L	2 m 8-core shielded cable
Outlet direction	A	Axial
	R	Radial

Output shaft type	S	Synchronous flange (4-hole)
	S1	Synchronous flange (3-hole)
	B	Hollow shaft (blind hole)
	B1	Hollow shaft (blind hole 1)
Output shaft specification	O	Dia. 10 x 16 solid shaft
	1	Dia. 8 x 20 blind hole
	2	Dia. 8 x 16 solid shaft
	3	Dia. 12 x 16 solid shaft
	4	Dia. 10 x 20 blind hole
	5	Dia. 12 x 20 blind hole
	6	Dia. 6 x 12.5 solid shaft
Pulse count	04096	1-16384 (default 4096)
Input / output	1	4.75-9 V DC / HTL, or 9-30 V DC / HTL
	2	4.75-9 V DC / TTL

ZCE series: ZCE-M-R-C-O-04096-1. Shaft types: C = clamping flange, S = synchronous flange, B = hollow shaft (blind hole). Shaft specifications: O = Dia. 10 x 20 solid shaft; 1 = Dia. 8 x 10 solid shaft; 2 = Dia. 10 x 20 blind hole; 3 = Dia. 12 x 20 blind hole; 4 = Dia. 14 x 20 blind hole; 5 = Dia. 15 x 20 blind hole; 6 = Dia. 6 x 10 solid shaft; 7 = Dia. 6 x 20 blind hole. Other fields as ZDE.

Outline Dimensions and Output Waveform - Incremental Series (mm)



Output waveform: A / A-, B / B-, Z / Z- square waves; CW and CCW rotation. Note: the outline drawings on this page are captioned ABE / ADE in the original - please verify they belong to the incremental series.

Tilt Sensors - GIS Series

Models: GIS10, GIS20. Single-axis 0°-360°, dual-axis ±90° (other ranges customizable).



GIS tilt sensor.

Specifications - Tilt Sensor

Item	Specification
Supply voltage	9 V - 36 V DC
Current consumption	18 mA @ 24 V DC
Operating temperature	-40 °C to +85 °C
Storage temperature	-40 °C to +85 °C
Resolution	0.01°
Accuracy	GIS10 series: 0.2° (static), 0.3° (dynamic); GIS20 series: 0.15° (static), 0.25° (dynamic)
Signal type	CANopen
Measuring range	Single-axis: 0° - 360°; dual-axis: ±90° (other angles customizable)
Protection rating	IP67
Temperature drift	< 0.01°/°C
Housing material	Die-cast aluminum
Weight	140 g

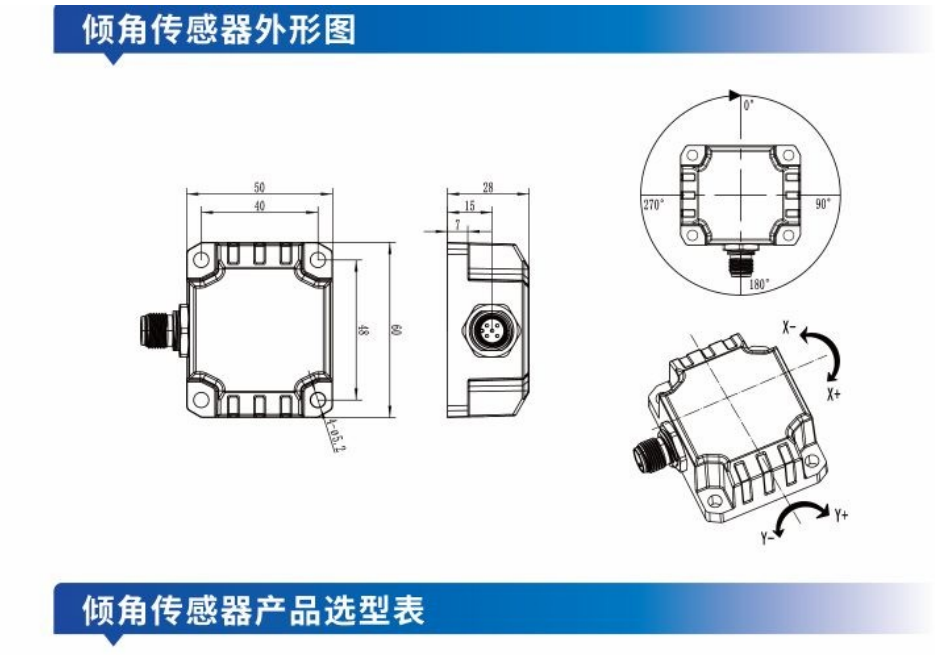
Ordering - Tilt Sensor

Ordering code example: GIS10-2-T-L-18-90-A-A-N

Field	Code	Meaning
Series No.	10	Series 1
	20	Series 2
Number of axes	1	Single-axis
	2	Dual-axis
Type	T	Dynamic

	S	Static
Mounting	L	Horizontal mounting
	V	Vertical mounting
Axis 1 angle range	90	±90°
	18	±180°
	36	0-360°
Axis 2 angle range	00	None
	90	±90°
	18	±180°
	36	0-360°
Signal type	A	CAN2.0 (default)
	B	RS485
	D	CANopen
Outlet form	A	M12 connector
	B	Flying leads
	C	0.5 m, AMP282106-1 plug
Other	Y	Redundant
	N	Non-redundant

Outline Dimensions - Tilt Sensor (mm)



Tilt Switch / Sensor - AGAI Series

Tilt switch with alarm output: preset alarm angles, relay-style alarm signal modes, optional alarm indicator lamp and RS232 signal.



AGAI tilt switch / sensor.

Specifications - Tilt Switch / Sensor

Item	Specification
Supply voltage	9 V - 36 V DC
Current consumption	18 mA @ 24 V DC
Reverse polarity protection	Yes
Operating temperature	-40 °C to +85 °C
Storage temperature	-40 °C to +85 °C
Output signal	0.5-4.5 V / 4-20 mA / switching output
Angle range	±15° / ±30° / 0-360° (other ranges customizable)
Alarm angles	A: X 2°, Y 3°; B: X 1.5°, Y 1.5°; C: X 1.5°, Y 3°; D: X 2°, Y 2°; E: X 6°, Y 6°; F: custom alarm angle
Absolute accuracy	±0.2°
Dynamic accuracy	±0.5°
Resolution	0.01°
Housing material	Engineering plastic
Protection rating	IP66
Weight	130 g

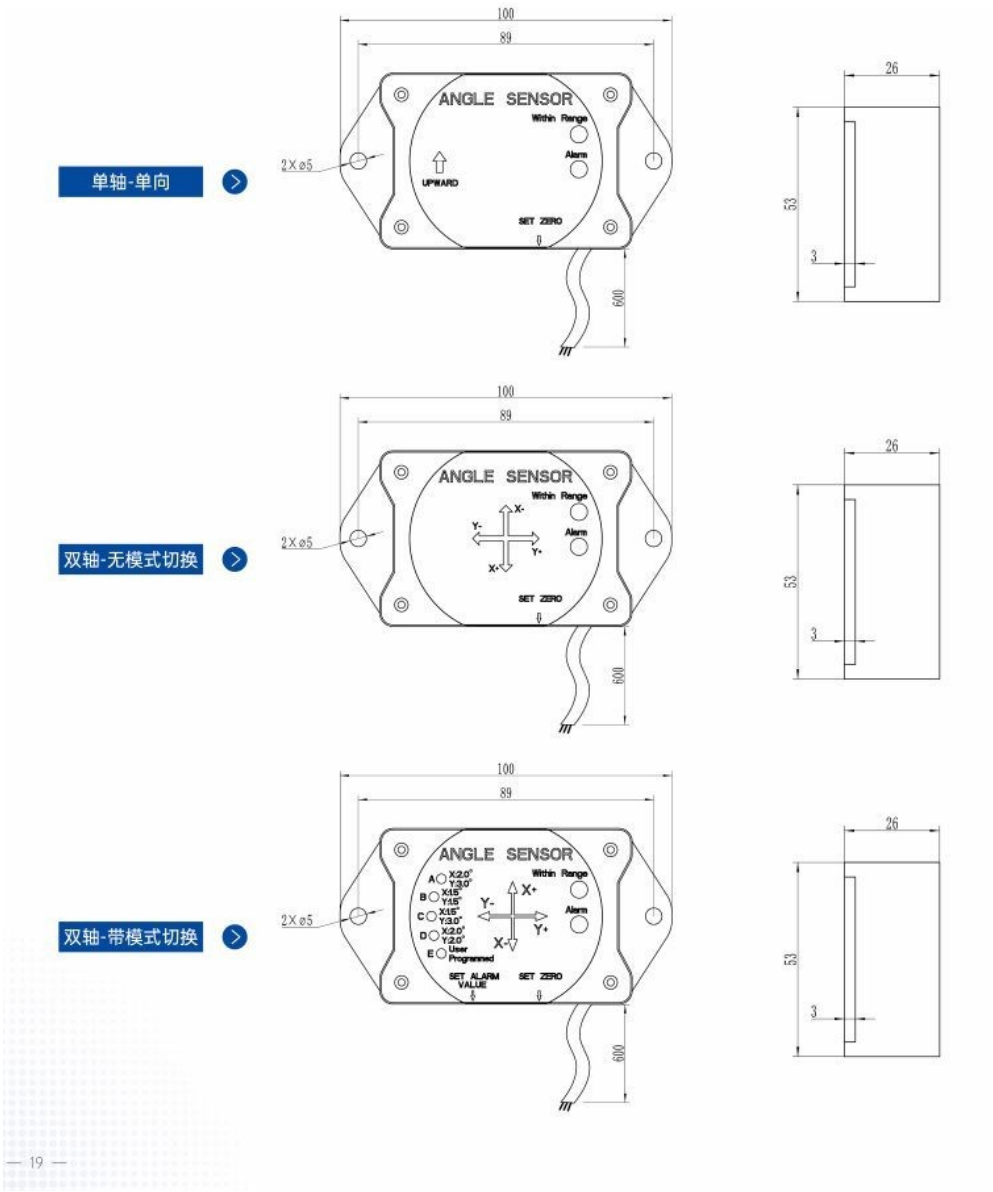
Ordering - Tilt Switch / Sensor

Ordering code example: AGAI-2-L-R-15-15-3-A-A-OH-1

Field	Code	Meaning
Number of axes	1	Single-axis
	2	Dual-axis
Mounting	L	Horizontal mounting

	V	Vertical mounting
Measuring direction	R	Half range
	D	Dual direction
Axis 1 angle range	15	±15°
	30	±30°
	90	±90°
Axis 2 angle range	00	None
	15	±15°
	30	±30°
	90	±90°
Angle output signal type	1	0.5-4.5 V
	2	0-5 V
	3	4-20 mA
	X	No signal
Outlet form	A	0.6 m flying leads
	B	0.35 m + DT04-4P
Alarm angle	A	X 2°, Y 3°
	B	X 1.5°, Y 1.5°
	C	X 1.5°, Y 3°
	D	X 2°, Y 2°
	E	X 6°, Y 6°
	F	Custom alarm angle
Alarm signal mode	OH	Normally open - high level on alarm
	CH	Normally closed (default) - high level, floating on alarm
	OL	Normally open - low level on alarm
	CL	Normally closed - low level, floating on alarm
	XX	None
Custom parameters	1	Alarm indicator lamp
	2	RS232 signal
	12	Alarm indicator lamp + RS232 signal

Outline Dimensions - Tilt Switch / Sensor (mm)



Variants: single-axis single-direction; dual-axis without mode switch; dual-axis with mode switch.