

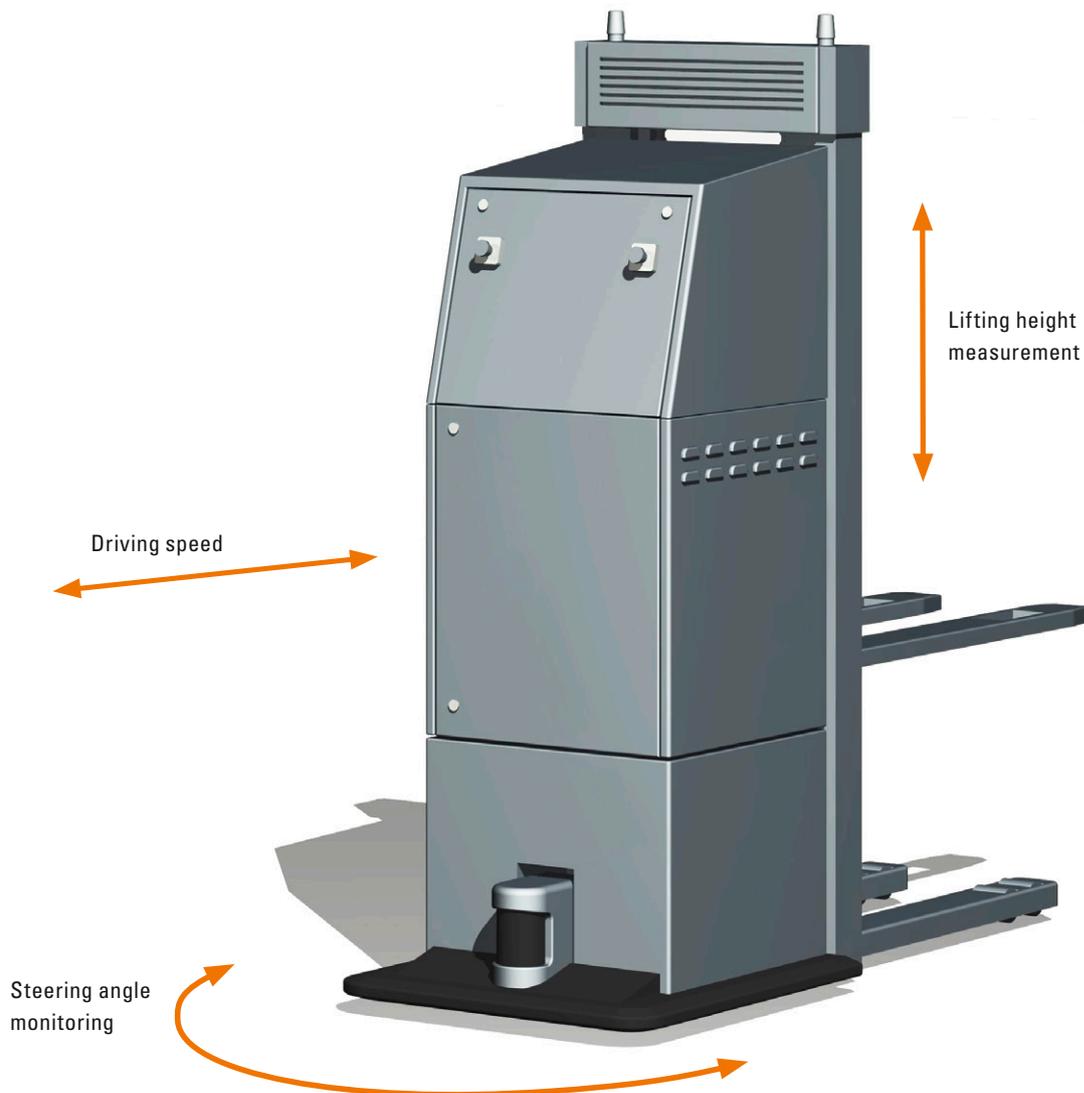


SOLUTIONS FOR AUTOMATIC GUIDED VEHICLES

SPEED MEASUREMENT
STEERING ANGLE MONITORING
LIFTING HEIGHT MEASUREMENT

Automatic guided vehicles

Compact encoders and draw-wire systems of Kübler are used to determine the speed, the steering angle of the vehicles and the exact position of the load-carrying devices. Their accurate rotary speed and position signals ensure the reliable operation of the intelligent systems - even when only very little space is available. BUS systems ensure the safe signal transmission and simplify notably the cabling work.



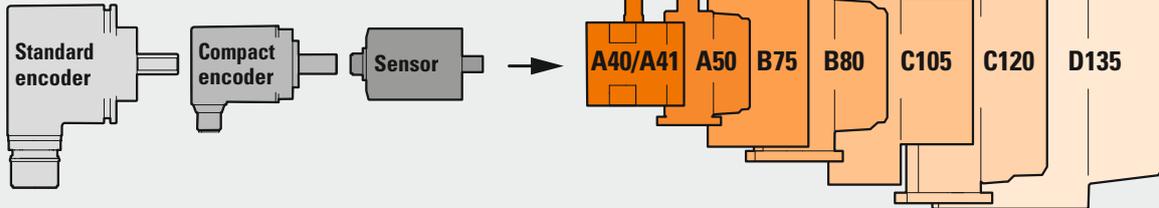
DRAW WIRE ENCODERS COMPACT & PERFORMANCE

Encoder / Sensor

Incremental
Analog
SSI
CANopen
SAE J1939
IO-Link
PROFIBUS DP
EtherCAT
PROFINET IO
EtherNet/IP
Modbus

Incremental
Analog
SSI
CANopen
SAE J1939
IO-Link

Analog



Draw wire mechanics

Lifting height measurement



Linear measurement up to 3 or 6 m, absolute value acquisition via fieldbus, high accuracy

Draw-wire encoder A41

- Measuring length 2 m
- CANopen interface
- Robust housing
- High dynamic up to 1 m/s



Draw-wire encoder B75

- Measuring length 3 m
- Fieldbus interface
- With optical multiturn encoder
- Robust housing
- Linearity up to $\pm 0.35\%$ of the measuring range



Draw-wire encoder B80

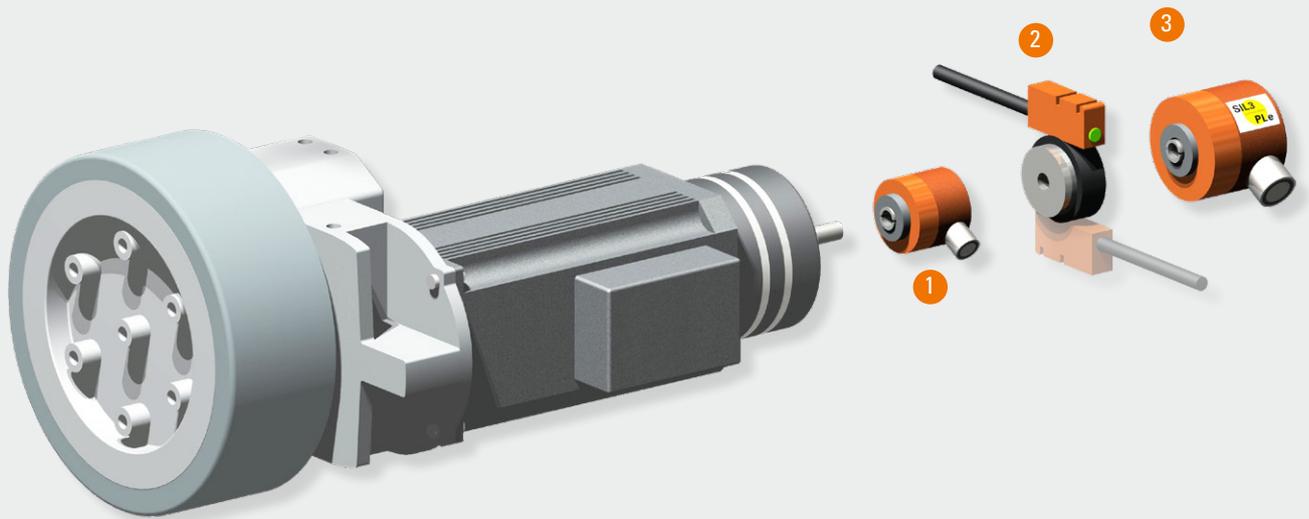
- Measuring length 3 m
- Fieldbus interface
- Interchangeable installation
- With optical multiturn encoder
- Robust housing
- Linearity up to $\pm 0.02\%$ of the measuring range



Draw-wire encoder C120

- Measuring length 6 m
- Fieldbus interface
- Interchangeable installation
- With optical multiturn encoder
- Robust housing
- Linearity up to $\pm 0.02\%$ of the measuring range





Driving speed



Dynamic rotary speed measurement with reduced space requirements in hollow shaft version

Sendix S3674 Motor Feedback System 1

- Singleturn encoder \varnothing 36 mm
- SIL2/PLd
- Operating temperature $-30^{\circ}\text{C} \dots +120^{\circ}\text{C}$
- Accurate optical scanning
- Tapered shaft \varnothing 8 mm



Sendix Base KIH40 encoder 1

- Incremental encoder \varnothing 40 mm
- Optical scanning
- Safety Lock™
- Resolution max. 2500 ppr



RLI20 bearingless encoder 2

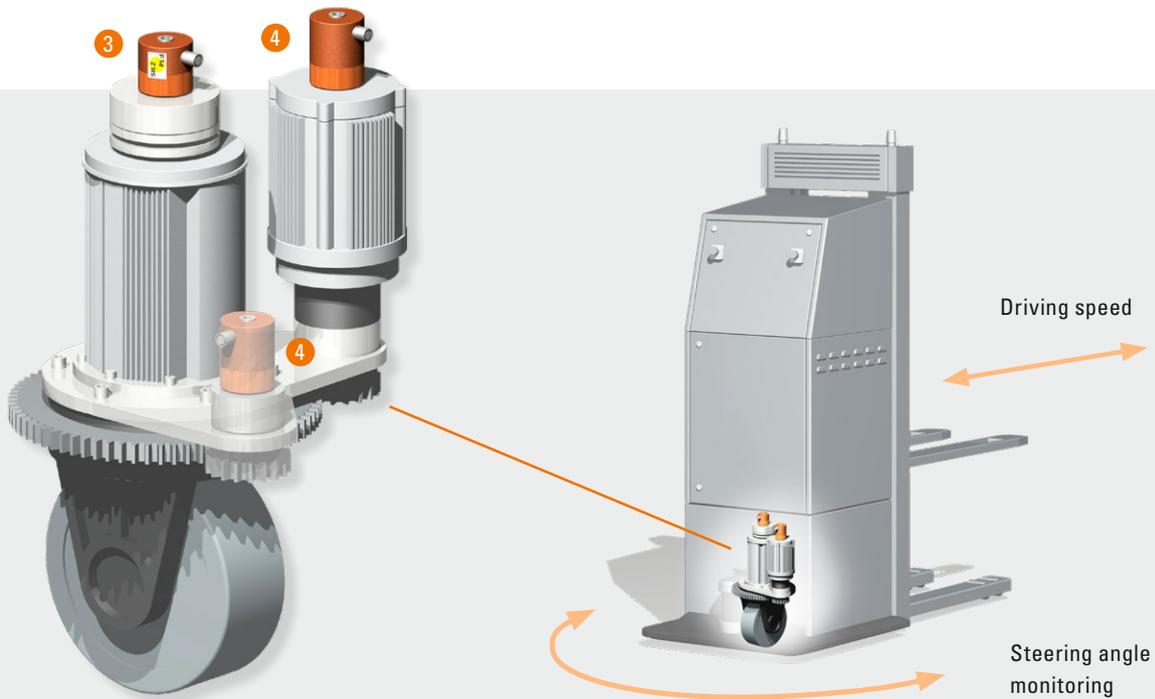
- Magnetic scanning
- Resolution max. 3600 ppr
- High protection level up to IP69k



Sendix 5834FS encoder 3

- Incremental encoder \varnothing 58 mm
- Accurate optical scanning
- SIL2/PLd, SIL3/PLe
- Resolution max. 2048 ppr





Steering angle monitoring



Absolute angle measurement with fieldbus control, robust encoder with reduced space requirements

Sendix M36 encoders 4

- ø 36 mm size
- CANopen interface
- Magnetic scanning
- Safety-Lockplus™
- High protection level IP69k
- Status display



Sendix F5888 encoder 4

- ø 58 mm size
- CANopen interface
- Optical scanning



4 For safety applications – Sendix S58 PROFIsafe encoders



- Sturdy bearing construction in Safety-Lock™ Design for resistance against vibration and installation errors.
- High resolution: Singleturn 15 bit (safe) or 24 bit (non safe). Multiturn 12 bit (safe).
- SIL3, Performance Level PLe, Safety Category Cat. 3.
- Fully redundant multiturn information due to redundant multiturn gearbox.
- Transmission via safety telegrams 36/37, according to BP and XP.
- Implement features and adaptations quickly and easily.
- Cyber Security update in preparation / High system availability, protection against misuse (acc. IEC 62443).



Portfolio overview draw-wire encoders

	Characteristics			Draw-wire encoders			Measuring length														
	Linearity max.	Speed [m/s]	Wire diameter [mm]	Measuring length [m]			Short range			Mid range				Long range							
					Encoder	Analog sensor	Features	0	1	2	3	4	5	6	8	10	12	15	max. 42.5		
Performance-Line	±0.02 %	10	0.5		A50	INC ABS	U I R	[0, 1]													
					B80	INC ABS	U I R	[0, 3]													
					C120	INC ABS	U I R	[0, 6]													
					D135	INC ABS	U I R	[0, 42.5]													
Robust-Line	±0.1 %	3	1.0		C60	ABS	U I R	RED	[0, 4]												
			1.5		D120	ABS	U I R	RED	[0, 10]												
Compact-Line	±0.3 %	3	0.9		A30		U I R		[0, 1]												
					A40	INC	U I R		[0, 2]												
					A41	ABS	U I R		[0, 2]												
					B75	INC ABS	U I R	RED	[0, 3]												
					C105	INC ABS	U I	RED	[0, 6]												
Base-Line	±0.5 %	1	0.9		C100	INC ABS	U	N RS RED	[0, 5]												
					D125	ABS	U	N RED	[0, 12]												

- INC Incremental
- ABS Absolute, digital
- U Voltage
- I Current
- R Potentiometer
- N Inclinator
- RS Relais / switch output
- RED Redundant sensors

Kübler Service for worldwide planning reliability



24one delivery promise

Manufacturing in 24 hours. For orders placed on working days before 9 AM, the product will be ready for dispatch on that same day. 24one is limited to 20 pieces per delivery.



10 by 10

We will manufacture and deliver 10 encoders within 10 working days (365 days a year - with the exception of 24th Dec. until 2nd Jan.)



48 h Express-Service

We can process your order within 48 hours; we can ship stock items the same day.



Technical Support

Kübler' applications team is present on site all over the world for advice, analysis and support.

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E-mail support@kuebler.com



Sample Service

We manufacture samples of special designs or according to customer specification within shortest time.



Safety Services

Individual customer solutions.



Tailor-made Solutions – Kübler Design System (KDS) OEM Products and Systems (OPS)

We develop jointly with our customers product and engineering solutions for customer-specific products, integrated drive solutions, up to complete systems.

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