



 **ez-wheel**
The Electric Wheel



Wheels Drives for Industrial Mobility

Assistance and Automation of your rolling material

TOOLBOX FOR MOTORIZED ASSISTANCE, AUTOMATION & MOBILE ROBOTICS

Because **Well-being** and **Safety**
should be the cornerstones of every
intralogistics organization.

Assistance
to heavy loads
manual handling

Page 6



AWD
Assist Wheel Drive



AWARDED TECHNOLOGY



PATENTED PRODUCTS



15 YEARS OF SMART MOBILITY



THOUSANDS OF DAILY USERS

AGVs, AMRs,
automated platforms

Page 14



SWD
Safety Wheel Drive

AGCs, small mobile robots conveying



SWD
Safety Wheel Drive

Page 18

Ergonomics for repeated movements



AWD
Assist Wheel Drive

Page 6

THE MOST INTEGRATED INDUSTRIAL ELECTRIC WHEELS

THE EZ-WHEEL ASSIST WHEEL DRIVE RANGE IS A SIMPLE AND EFFICIENT SOLUTION TO QUICKLY BRING ELECTRIC ASSISTANCE TO ANY ROLLING EQUIPMENT OR VEHICLES.



CONCENTRATE OF TECHNOLOGY

- Ultra compact wheel drive
- Patented and award-winning technology



MODULARITY & SIMPLICITY

- Compatible with existing equipment
- User-friendly controls



ERGONOMICS AND USABILITY

- Musculoskeletal disorders prevention
- Ergonomic and customizable solutions

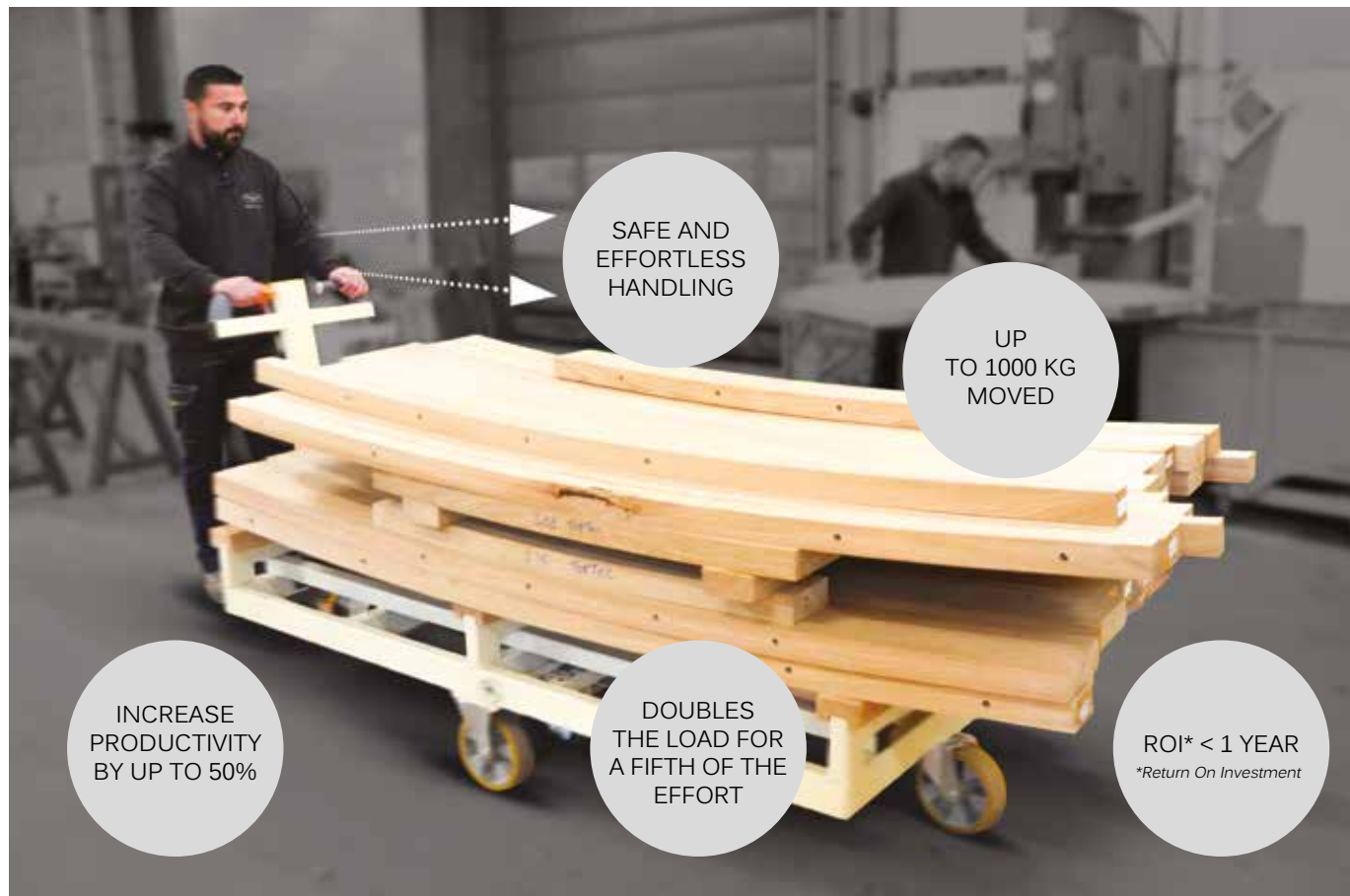


HIGH PERFORMANCE

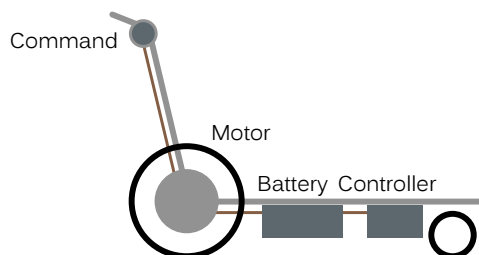
- High load transfer capacity
- Industrial tools modernization



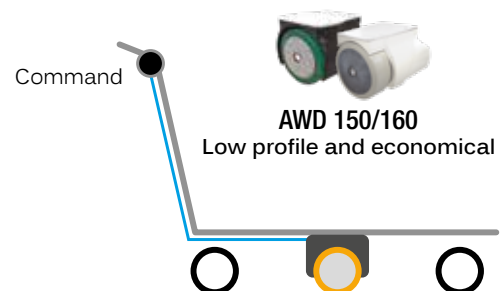
A SAFER AND MORE EFFICIENT HANDLING OF HEAVY LOADS



BEFORE EZ-WHEEL...



...WITH EZ-WHEEL



The first electric wheel featuring **embedded motor, batteries and electronics.**

Quick fitting ez-Wheel technology removes most of peripherals from the chassis, making the integration of these solutions a fast and easy task compared to other alternatives.



EW1A Assist Wheel Drives

AWD 150/160

For low profile equipment

AWD 150 AND 160

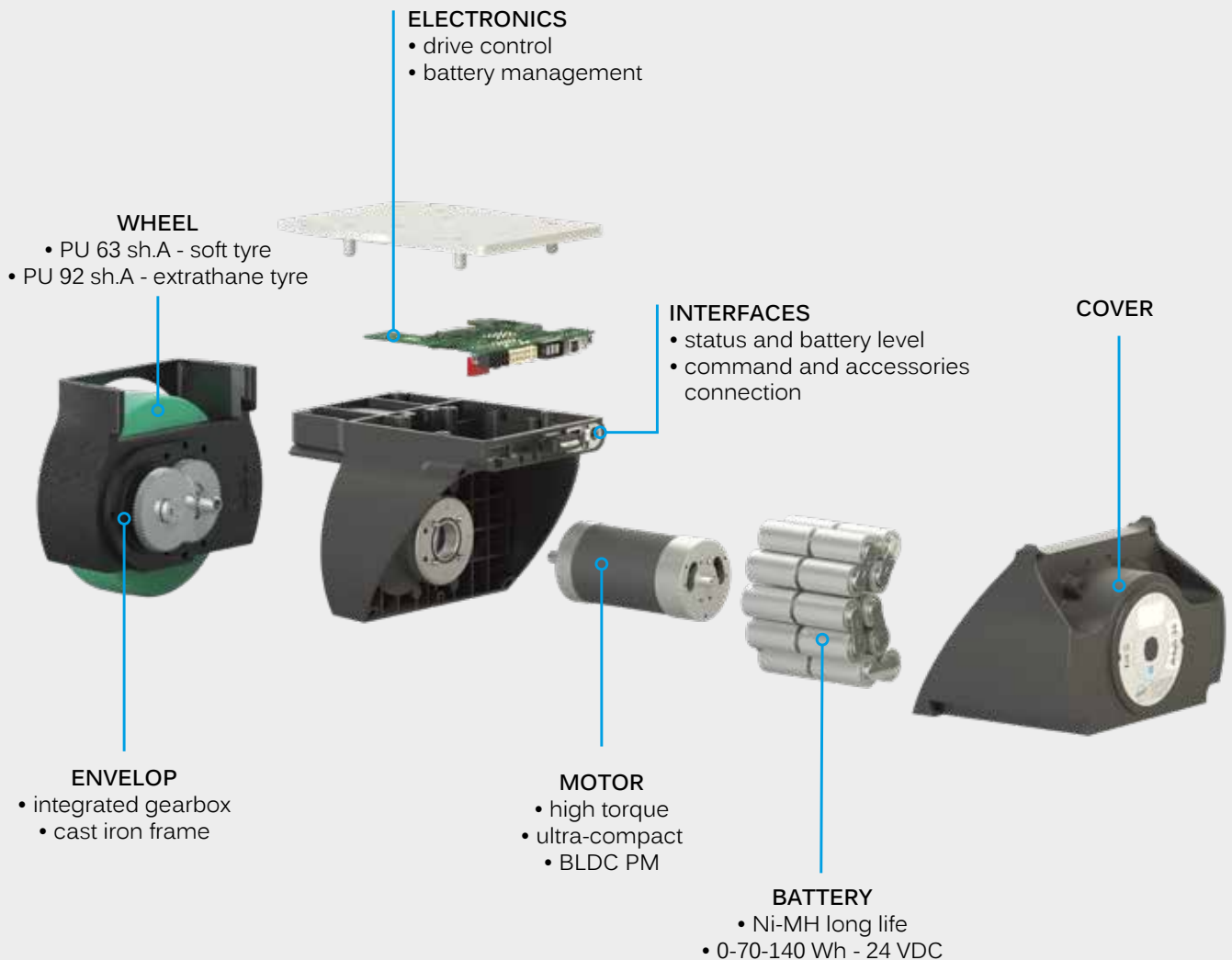
are compact electric wheel ranges designed to facilitate mechanical integration.

SPECIFICATION

- Ø from 150 to 158 mm
- Shockproof
- From IP43 to IP66
- Configurable products: available software

PERFORMANCE

- Up to 1000 kg moved
- From 50 to 400 kg max. vertical load
- From 0 to 5 km/h



Refer to the values provided in each orderable part number's datasheet.



DATASHEET

CAD 2D/3D - INSTRUCTION MANUALS

▶ available ONLINE

WHICH WHEEL FOR WHICH USE?

AWD 150



EW1A-150xxx

- ✓ industrial use
- ✓ IP43
- ✓ shockproof
- ✓ cast iron housing

Available versions - EW1A-150

S **N** **A**



S Type of tyre

S: PU 63 sh.A (green tyre)
H: PU 92 sh.A (yellow tyre)



N Internal battery(ies)*

N: Without battery
1: One battery
2: Two batteries



A Parking brake

A: Without brake
B: With brake

AWD 160



EW1A-160MxA

- ✓ controlled environment and logistics use
- ✓ IP66
- ✓ high pressure jet cleaning
- ✓ antistatic wheel

Available versions - EW1A-160M

N **A**



N Internal battery(ies)*

N: Without battery
1: One battery
2: Two batteries



* Internal battery for AWD 150/160
EW9Z-1BINT03V



Emergency reverse button for AWD 150/160
EW9Z-1ERBxM

REFERENCE	Designation
EW1A-150SxA	AWD 150 wheel Industrial rubber with x battery(ies), with Soft PU
EW1A-150SxB	AWD 150 wheel Industrial rubber with x battery(ies), with Brake and Soft PU
EW1A-150HxA	AWD 150 wheel Industrial rubber with x battery(ies)
EW1A-150HxB	AWD 150 wheel Industrial rubber with x battery(ies), with Brake
REFERENCE	Designation
EW1A-160MxA	AWD 160 wheel Medical rubber with x battery(ies)
REFERENCE	Designation
EW9Z-1BINT03V	Internal battery for AWD 150/160
REFERENCE	Designation
EW9Z-1ERBxM	Emergency reverse button x meters for AWD 150/160

EW1A KIT

AWD 150 Evaluation kit

Typical kit to address a low profile use case

EW1A-SK150A KIT

provides a quick electrical assistance for industrial manual handling equipment such as tool trolley, rolling equipment for factories, mobile workstation, etc.



AWD 150 Evaluation Kit
EW1A-SK150A



1 Electric wheel
EW1A-150S2A
Page 6

2 Suspension bracket (for heavy loads)
EW9Z-1MCS3

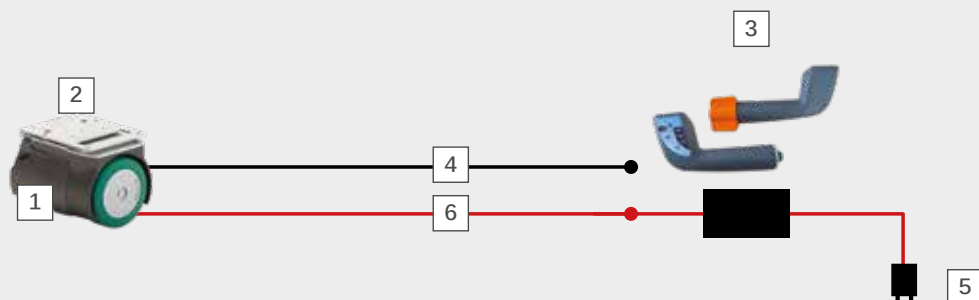
3 Rotating handle with button & display
EW9Z-1ARH2

4 Adapter cable 3 meters
EW9Z-1AC3M

5 1,8 Amp charger
Mascot1A8

6 Charge cable
EW9Z-1CCxMW

CABLE COMPATIBILITY





CONFIGURATION SOFTWARE FOR ASSIST WHEEL DRIVE PRODUCTS

► available ONLINE

ez ez ez ez ez



REFERENCE	Designation
EW1A-SK150A	Assist Wheel Drive AWD 150 evaluation kit (A)

Assist Wheel Drive controller

Bi-directional and fully integrated

EW9Z-1ACXR CONTROLLER

activates the electric wheels mounted on the rolling equipment.

The control is user-friendly and intuitive for the operator thanks to its features.

SPECIFICATION

- Directional throttle
- On/Off button
- Battery status display

MAIN APPLICATIONS

- Industrial trolleys
- Rolling equipment for factories
- Mobile workstations and tool trolleys

The Assist Wheel Drive controller is designed for easy integration on a tubular structure and for one-handed operation.



WIRED CONTROL



EW9Z-1AC1R

- ✓ industrial use
- ✓ On/Off button
- ✓ battery level indicator

Suitable for:	Cable required
✓ AWD 150/160 Page 6	Included

WITH ILLUMINATED BUTTON



EW9Z-1AC2R

- ✓ industrial use
- ✓ On/Off button
- ✓ battery level indicators
- ✓ illuminated button

Suitable for:	Cable required
✓ AWD 150/160 Page 6	Included



REFERENCE	Designation
EW9Z-1AC1R	Assist Wheel Drive controller with stop button
EW9Z-1AC2R	Assist Wheel Drive controller with illuminated stop button
EW9Z-1KCAC	2 meters extension cable for EW9Z-1AC1R or EW9Z-1AC2R

THE SIMPLEST MOBILE ROBOT SETUP EVER

SWD TECHNOLOGY DISRUPTS AGVS AND AMRS ARCHITECTURE THANKS TO ITS UNIQUE LEVEL OF INTEGRATION



COST REDUCTION

- Up to 50% less components
- Simpler and faster assembly



TIME SAVING

- Shorter engineering time
- Simplified certification process



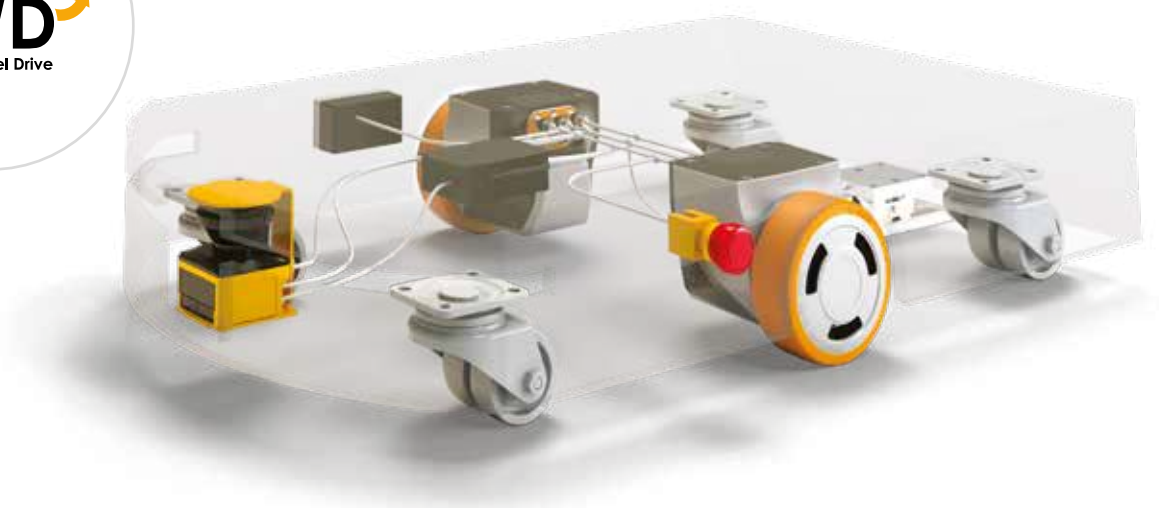
FIRST-CLASS SAFETY

- Suitable for collaborative applications
- ISO 3691-4 compliance



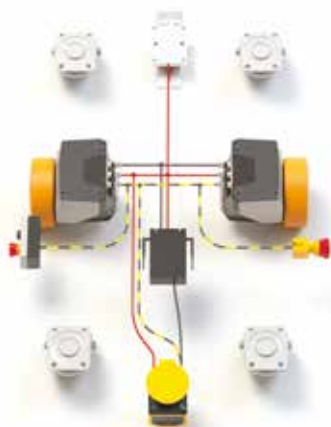
MODULAR ARCHITECTURE

- Freedom of integration
- Flexible and scalable

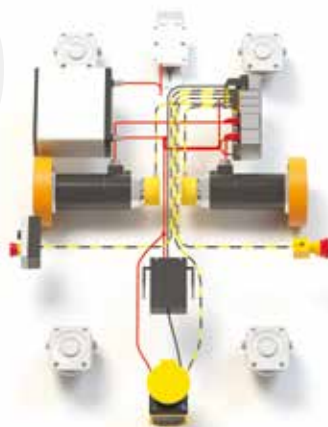


SWD

CONVENTIONAL SOLUTION



- SAFETY WHEEL DRIVES
- NAVIGATION PC
- SAFETY LASER SCANNER
- E-STOPS



- WHEELS
- GEARBOXES
- MOTORS
- SAFETY ENCODERS
- PLC
- SAFETY PLC
- RELAYS
- MOTOR DRIVERS
- BATTERY
- CIRCUIT BRAKERS
- NAVIGATION PC
- SAFETY LASER SCANNER
- E-STOPS

The SWD Safety Wheel Drives provide a simple, versatile, and safety-compliant technological brick for system integrators and AGV/AMR manufacturers.

In addition to electric traction functions, SWD motorizations natively embed safety, especially safe motion control and safety encoder which facilitate and accelerate the development of all mobile robots and automated load transfer solutions.

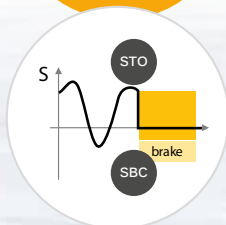
Combined with IDEC's SE2L safety laser scanner, HK2 safety edge switches, XW emergency stop switches, and Human-Machine Interfaces (HMIs), SWD motorizations address the functional needs of mobile robots, in full compliance with AGV standards and machine safety regulations.



STO
SAFE MOTOR
DISCONNECTION
when a stop is
requested
STO up to SIL3/PLc



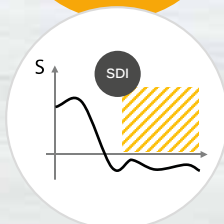
SBC
SAFE BRAKE
CONTROL
to ensure a lockout
SBC or SBU (unlock)
up to SIL2/PLd



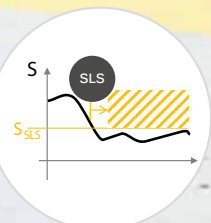
SS1
SAFE STOP
MONITORING
to ensure
a controlled stop
SS1 up to SIL2/PLd



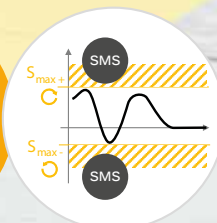
SDI
SAFE DIRECTION
CONTROL
in case of
collision risk
SDI up to SIL2/PLd



SLS
SAFELY
LIMITED SPEED
to prevent hazardous
situations
SLS (8 levels) or SLSa
(asymmetric) up to
SIL2/PLd



SMS
SAFE MAXIMUM
SPEED
to secure
operating range
SMS up to SIL2/PLd



Safety Wheel Drives

SWD 150

For heavy duty intralogistics automation

SWD 150

is a compact and safety compliant solution to automate heavy load transportation in a production area.

SPECIFICATION

- Ø 150 mm
- Shockproof
- IP66 electronic housing
- Configurable products: available software

PERFORMANCE

- Up to 2100 kg moved
- 700 kg max. vertical load
- From 0 to 3.7 km/h

WHEEL

- PU 92 sh.A
- Flat profile

MOTOR

- high torque
- ultra-compact
- BLDC PM



BATTERY

- Li-ion high power
- 0-100 Wh - 24 VDC

INTERFACES

- connectors: I/O, 24 VDC, CAN, USB, ETH (reserved for future use), brake
- LEDs: Status, CAN, ETH (reserved for future use)

GEARBOX

- in a heavy-duty cast iron frame
- available gear ratio 14 and 25

ELECTRONICS

- drive control
- safe motion
- safety encoder
- battery management

Refer to the values provided in each orderable part number's datasheet.

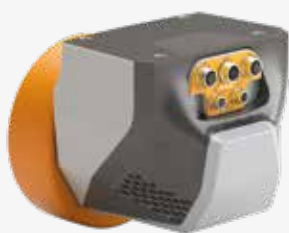


DATASHEET

CAD 2D/3D - INSTRUCTION MANUALS

▶ available ONLINE

SWD 150



EW2A-150Hxxx

- ✓ developed for **industrial** use
- ✓ IP66 electronic housing
- ✓ functional safety
- ✓ wear-resistant tread



Available versions - EW2A-150H

N 1 4 A



N Modular battery

N: Without battery
1: With battery*



1 4 Gear ratio

14: 14:1 ratio
25: 25:1 ratio



A Parking brake

A: Without brake
B: With brake

MAX SPEED

3.7 km/h
1 m/s

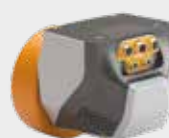
2.1 km/h
0.6 m/s

RATIO 14
EW2A-150HN14x

RATIO 25
EW2A-150HN25x

1500 kg 2100 kg

RECOMMENDED
MAXIMUM LOAD



REFERENCE

Designation

EW2A-150HNxA

SWD 150 - Safety Wheel Drive Industrial rubber, Heavy Duty, x:1 reduction ratio
CANopen communication, without battery

EW2A-150HNxB

SWD 150 - Safety Wheel Drive Industrial rubber, Heavy Duty, x:1 reduction ratio and Brake
CANopen communication, without battery

Safety Wheel Drives

SWD 125

For light weight or medium duty intralogistics

SWD 125

is an extremely compact wheel drive designed to address the functional safety requirements of mobile robots.

SPECIFICATION

- Ø 125 mm
- Shockproof
- IP66 electronic housing
- Configurable products: available software

PERFORMANCE

- Up to 1500 kg moved
- 250 kg max. vertical load
- From 0 to 11 km/h

COVER

- robust

INTERFACES

- Connectors: I/O, 24 VDC, CAN, USB, ETH (reserved for future use), brake
- LEDs: Status, CAN, ETH (reserved for future use)

MOTOR

- high torque
- ultra-compact
- BLDC PM

WHEEL

- PU 80 sh.A
- Flat profile

ELECTRONICS

- drive control
- safe motion
- safety encoder

GEARBOX

- in cast iron frame
- available gear ratio 4 and 14



DATASHEET

CAD 2D/3D - INSTRUCTION MANUALS

▶ available ONLINE

SWD 125



EW2A-125HNxx

- ✓ extremely compact footprint
- ✓ for medium loads at high speed
- ✓ IP66 electronic housing
- ✓ functional safety

Available versions - EW2A-125HN

0 4 A



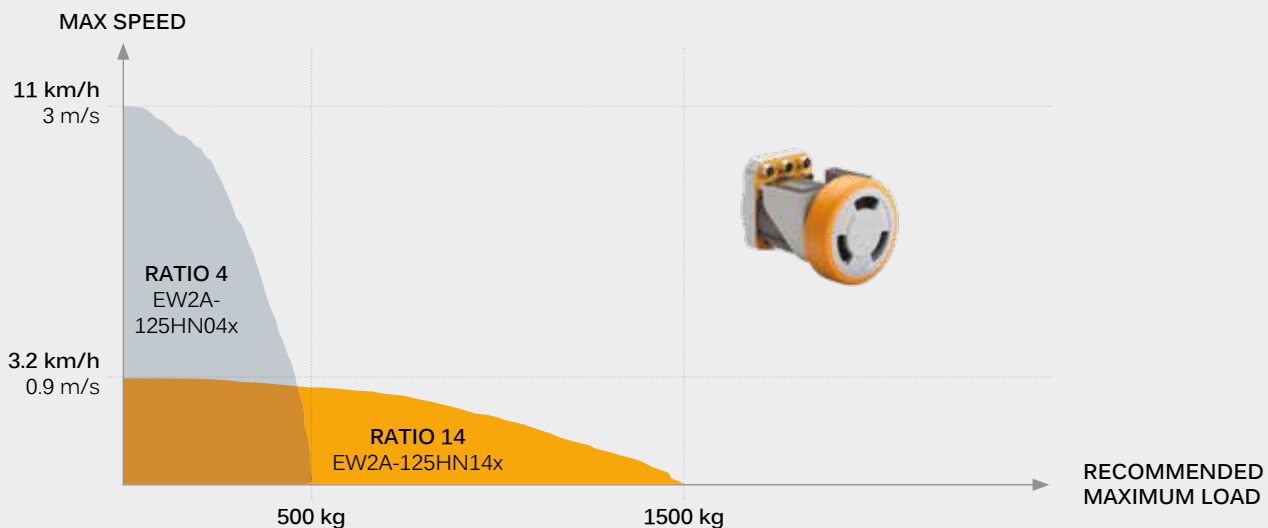
0 4 Gear ratio

04: 4:1 ratio
14: 14:1 ratio



A Parking brake

A: Without brake
B: With brake



REFERENCE	Designation
EW2A-125HNxA	SWD 125 - Safety Wheel Drive Industrial rubber, Medium Duty, x:1 reduction ratio - CANOpen communication
EW2A-125HNxB	SWD 125 - Safety Wheel Drive Industrial rubber, Medium Duty, x:1 reduction ratio and brake - CANOpen communication

Safety Drives SWD Core

For safe multi-axis movements

SWD CORE

is a safety integrated gearmotor able to lift, convey, transfer or rotate any load.

SPECIFICATION

- High torque up to 37 Nm at 100 rpm
- Shockproof
- IP66 electronic housing
- Configurable products: available software

COVER

- robust



INTERFACES

- Connectors: I/O, 24 VDC, CAN, USB, ETH (reserved for future use), brake
- LEDs: Status, CAN, ETH (reserved for future use)

MOTOR

- high torque
- ultra-compact
- BLDC PM



ELECTRONICS

- drive control
- safe motion
- safety encoder



GEARBOX

- Available gear ratio 1, 4, 14, 25, 50 and 100





DATASHEET

CAD 2D/3D - INSTRUCTION MANUALS

▶ available ONLINE

SWD CORE



EW2A-000Nxx

- ✓ for safety critical movements
- ✓ generic design for wide applications range
- ✓ IP66 electronic housing
- ✓ functional safety

Available versions - EW2A-000N

0 0 A

0 0 Gear ratio

00: 1:1 ratio
04: 4:1 ratio
14: 14:1 ratio
25: 25:1 ratio
50: 50:1 ratio
99: 100:1 ratio

A Parking brake

A: Without brake
B: With brake

REFERENCE	Designation
EW2A-000N00A	SWD Core - Safety Gear Motor without gear box - CANopen communication
EW2A-000N00B	SWD Core - Safety Gear Motor without gear box, with Brake - CANopen communication
EW2A-000Nx A	SWD Core - Safety Gear Motor x:1 reduction ratio - CANopen communication
EW2A-000Nx B	SWD Core - Safety Gear Motor x:1 reduction ratio and Brake - CANopen communication

SWD Starter Kit

Development kit for AGVs and AMRs

SWD STARTER KIT is a pre-packaged kit that accelerates the development of your mobile robot

START IMMEDIATELY THE DEVELOPMENT OF YOUR MOBILE ROBOT!

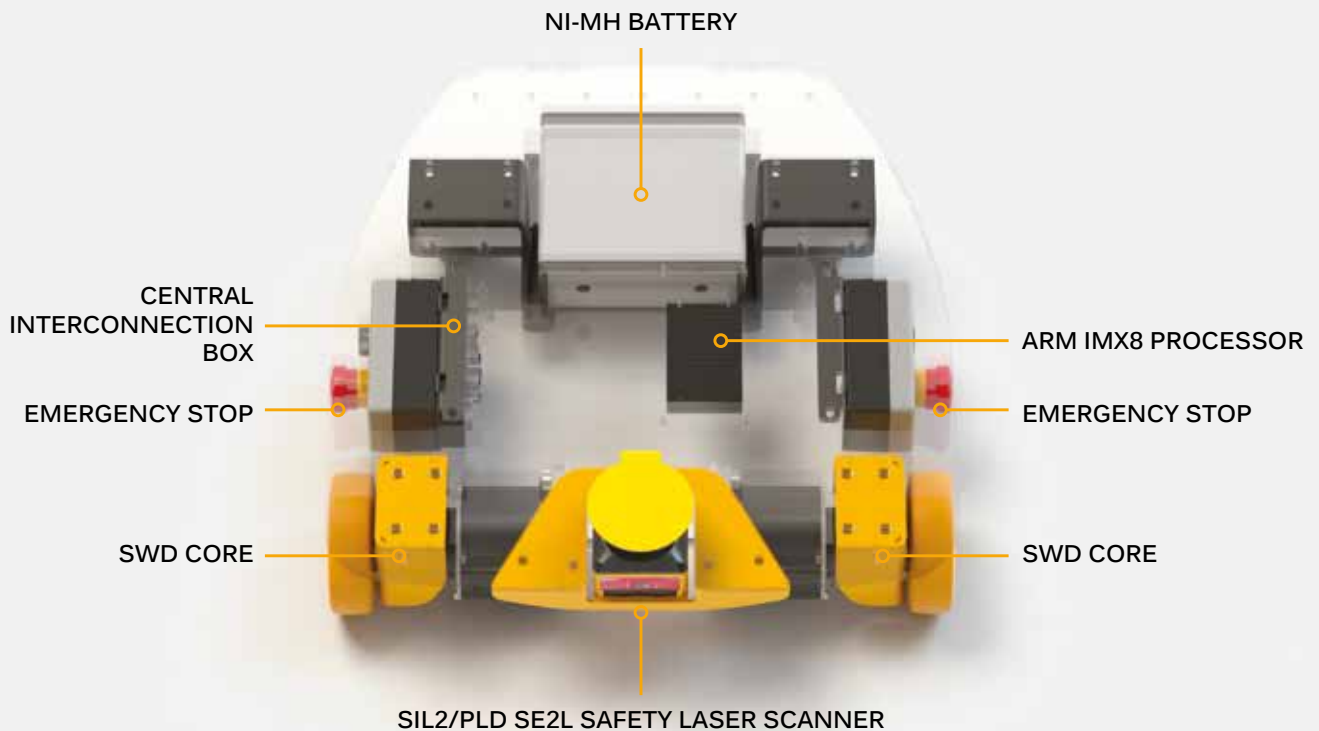
1 SWD Starter Kit EW2A-SK000A



- > Ticket management
- > Open source ROS packages
- > Documentation
- > ROS community
- > Configuration API for SWD



- > Differential driver for SWD products in ROS1 & ROS2
- > Pre-installed ROS environment



REFERENCE	Designation
EW2A-SK000A	SWD Starter Kit - Core 14:1 reduction ratio - iMX8 PC and SE2L scanner

Typical setups using SWD

For safety critical human operated platforms

**TYPICAL
SETUP
FOR MANUAL
CONTROL
OR REMOTE
CONTROL**



Also available with SWD 125

1 Safety wheel drives SWD 125 or SWD 150 without battery version
Page 14 or 16

2 Lithium battery EW9Z-1BEXT20VL

3 Central interconnection box EW9Z-2HUB1

4 10 Amp Lithium charger Mascot10A-Li

5 Emergency stop XW1E

6 Joystick XF Series CANopen

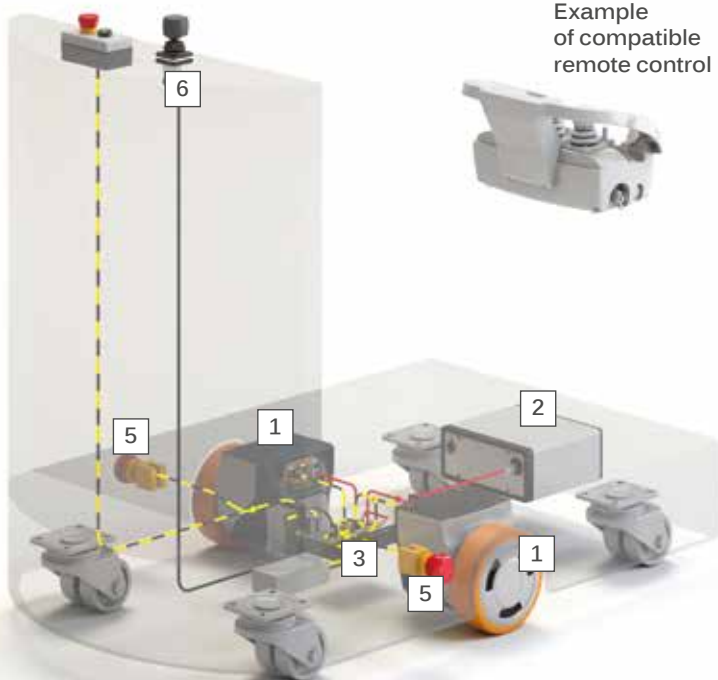


Example
of compatible
remote control



**EXAMPLE OF
RECOMMENDED
COMPONENTS
NOT SUPPLIED
BY EZ-WHEEL:**

- PC or PLC
- Safety sensors
- Wireless control and receiver
- Cables



Typical setups using SWD

For safety critical mobile platforms

TYPICAL SETUP FOR LINE GUIDED PLATFORM

1



Also available with SWD 125

2



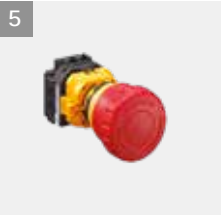
3



4



5



6



7

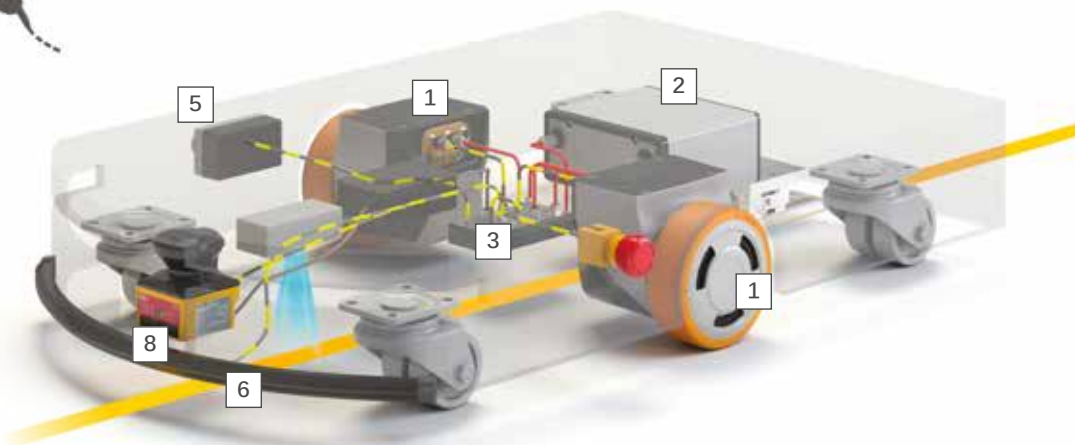


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- 1 Safety wheel drives SWD 125 or SWD 150 without battery version
Page 14 or 16
- 2 Lithium battery EW9Z-1BEXT20VL
- 3 Central interconnection box EW9Z-2HUB1
- 4 10 Amp Lithium charger Mascot10A-Li
- 5 Emergency stop XW1E
- 6 Safety edge switch HK2H/HK2L
- 7 Ergonomic joystick controllers PC 2441
- 8 Safety laser scanner SE2L

7



EXAMPLE OF RECOMMENDED COMPONENTS NOT SUPPLIED BY EZ-WHEEL:

- Charging system
- PC or PLC
- Cables
- Line following sensor

TYPICAL SETUP FOR AMR WITH NAVIGATION



i Also available with SWD 125 and external battery



1 Safety wheel drives SWD 150 with integrated battery

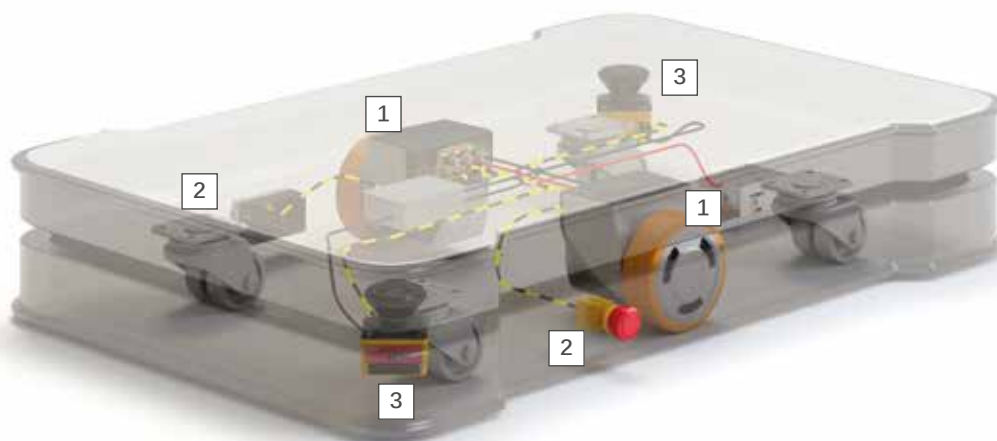
Page 14

2 Emergency stop XW1E

3 Safety Laser Scanners SE2L

EXAMPLE OF RECOMMENDED COMPONENTS NOT SUPPLIED BY EZ-WHEEL:

- Charging system
- Navigation system
- Wireless connectivity
- Cables



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