IDEC
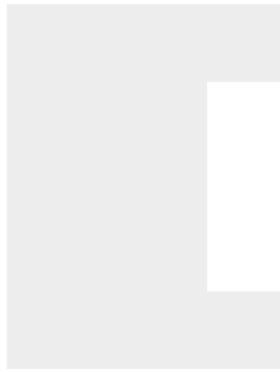
ez-wheel
The Electric Wheel

Wheel Drives
for Industrial Mobility

Assistance and Automation of your rolling material

APEM
an IDEC company

FOR MORE THAN 75 YEARS, IDEC HAS DESIGNED AND MANUFACTURED HIGH QUALITY PRODUCTS. SINCE 1976, IDEC HAS SERVED THE COMPETITIVE EUROPEAN MARKET BY PROVIDING THE VERY BEST PRODUCTS AND SERVICES THAT SATISFY THE MARKET NEEDS, THAT NEVER CEASE CHANGING AND EVOLVING.

EUROPEAN NETWORK

FRANCE
UNITED KINGDOM
GERMANY
BENELUX
ITALY
SWEDEN

Together, IDEC and its well established European subsidiary APEM are now one of the world's largest manufacturers of human machine interface (HMI) components, panels and systems.

With more than €500 million in total sales, the combined entity has a broad portfolio of HMI, Safety and Automation products designed for a variety of Industrial applications, and access to markets across Europe, North America and Asia.

APEM
an IDEC company

IDEC

CONTENT

IDEC SAFETY DNA

With decades of experience, we focus on safe environments for humans interacting with machines, and to that end we develop solutions maximizing your safety and productivity. We provide our customers with both efficient solutions and reliable expertise, supplying cutting-edge safety and automation solutions as well as one-to-one support.

OUR EXPERTISE, OUR CAPABILITIES
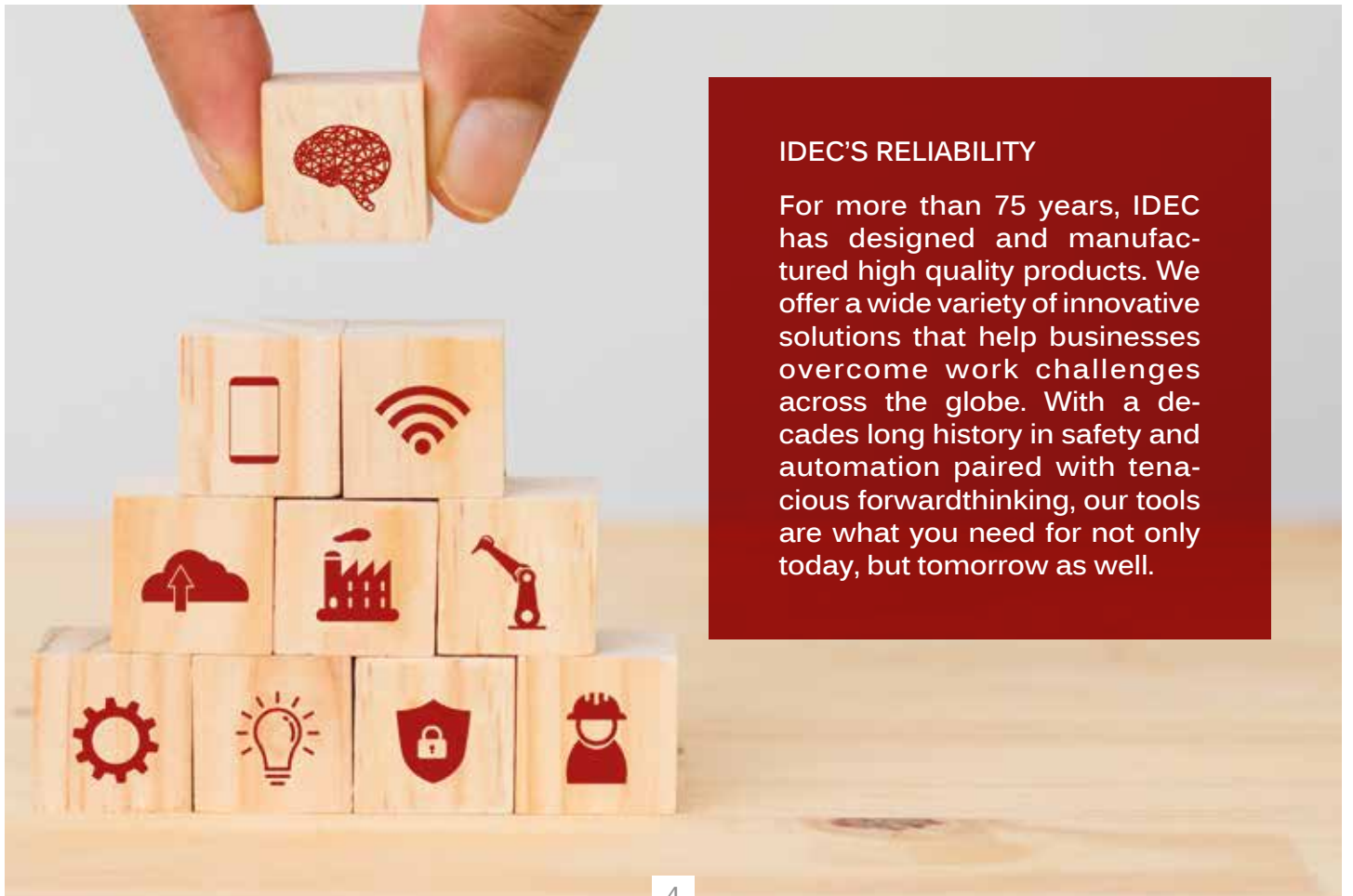
IDEC'S RELIABILITY

For more than 75 years, IDEC has designed and manufactured high quality products. We offer a wide variety of innovative solutions that help businesses over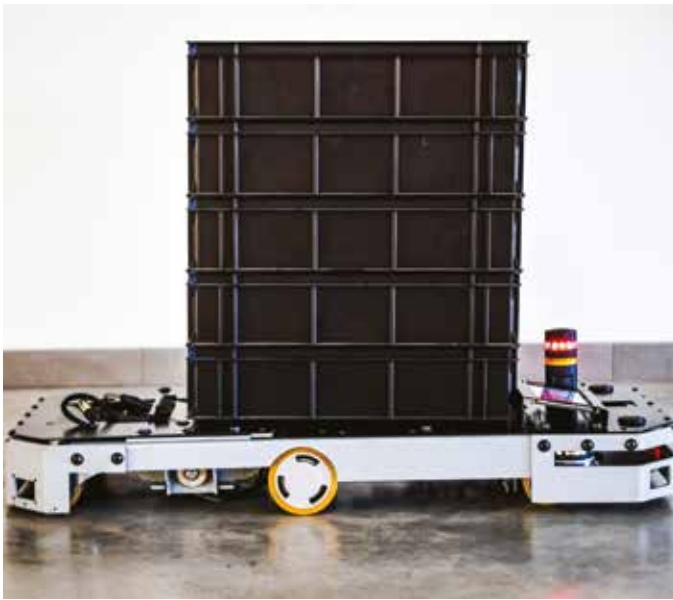come work challenges across the globe. With a decades long history in safety and automation paired with tenacious forwardthinking, our tools are what you need for not only today, but tomorrow as well.

EZ-WHEEL®
15 YEARS OF SMART MOBILITY

A UNIQUE RANGE OF INDUSTRIAL WHEEL DRIVE SOLUTIONS

The ez-Wheel® technology represents 15 years of innovation in smart mobility.

ez-Wheel® products have revolutionized heavy load handling and automation in industrial environments by first integrating motors and batteries directly into the wheels, and then adding safe motion control.

This unique technology makes the integration of a wheel drive considerably easier and faster than conventional solutions: fewer components used, greater freedom of integration.

Today, across its two ranges AWD® Assist Wheel Drive and SWD® Safety Wheel Drive, the ez-Wheel® product line provides a valuable solution specifically designed for handling heavy loads and automating intralogistics in factories and warehouses.

EASIER & SAFER
"TO DEVELOP EASIER & SAFER MOBILITY OF GOODS TO BETTER SERVE PEOPLE"

The industrial wheel drive solutions have been adopted by hundreds of major industrial companies in Europe, to improve productivity and prevent workplace accidents especially in the fields of Automotive, Factory logistics, Warehouses, Food processing, Hospitals and Pharmaceutics.

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 30

AWD
Assist Wheel Drive

AWARDED TECHNOLOGY

PATENTED PRODUCTS

15 YEARS OF SMART MOBILITY

THOUSANDS OF DAILY USERS

AGVs, AMRs,
automated platforms

Page 44

SWD
Safety Wheel Drive

AGCs, small mobile
robots conveying

SWD
Safety Wheel Drive

Page 48

Ergonomics
for repeated
movements

AWD
Assist Wheel Drive

Page 30

7

BUSINESS SECTORS

EZ-WHEEL® PRODUCTS ARE DESIGNED TO MEET THE NEEDS OF A WIDE RANGE OF SECTORS, OFFERING SOLUTIONS ADAPTED TO THE CONSTRAINTS OF EACH ENVIRONMENT. MOTORIZED WHEELS AND ACCESSORIES CAN BE EASILY INTEGRATED TO OPTIMIZE OPERATIONS, GUARANTEEING GREATER EFFICIENCY AND SAFETY ACROSS A WIDE RANGE OF APPLICATIONS.

BUSINESS SECTORS
Endless possibilities

Power any rolling equipment dedicated to manual handling or intralogistics automation quickly and easily.

10 - INDUSTRY

14 - AUTOMOTIVE

18 - E-COMMERCE / RETAIL

22 - CONTROLLED ENVIRONMENTS

INDUSTRY

IMPROVING INTRALOGISTICS FLOWS WITHIN INDUSTRIAL SITES IS AN OBVIOUS PERFORMANCE DRIVER.

Motorized assistance and automation of rolling equipment in the industry increase productivity by optimizing operations and reducing cycle times. These means enhance precision and product quality while minimizing human errors. Additionally, they improve worker safety by reducing the risks associated with repetitive and strenuous tasks.

our missions

- Motorized assistance
- Motorization for automation

1

Heavy-duty rolling platforms motorization
✓ Handle heavy and bulky loads effortlessly and safely for the operator
✓ Double the load capacity and productivity thanks to electric assistance

2
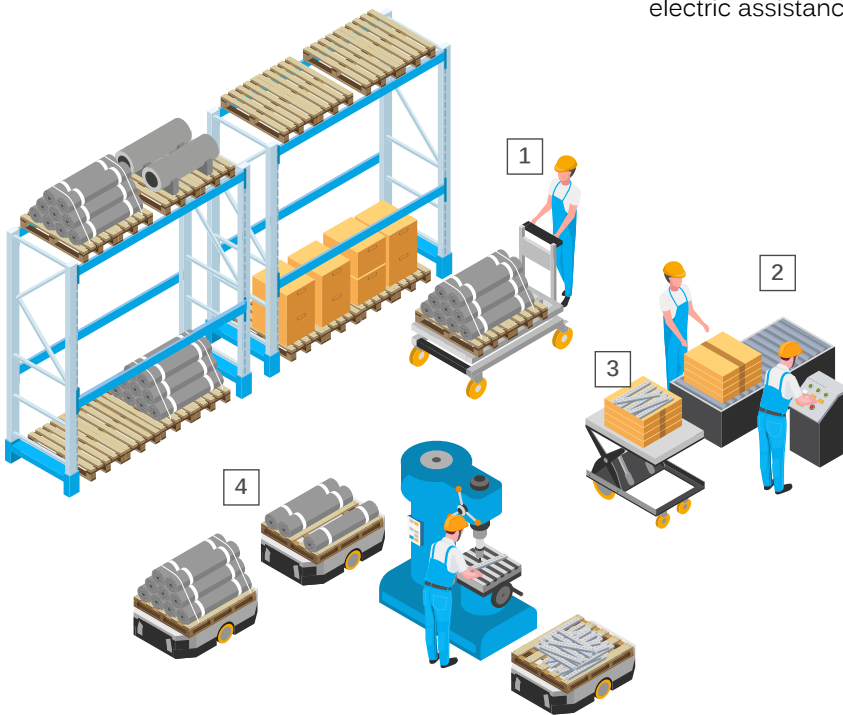
Motorization of conveying robots and shuttles
✓ Transfer heavy loads such as pallets or wire mesh containers
✓ Ensure continuous operation

3

Motorization of industrial scissor lift platforms
✓ Assist operators for line-side supply
✓ Improve ergonomics through motorized platform for levelling loads

4

AGVs/AMRs motorization
✓ Automate supply of raw materials and sub-assemblies to production cell
✓ Meet ISO 3691-4 safety standards for mobile robots safety

TESTIMONIAL

"We've been using the products for over 5 years now. All you have to do is steer left and right. You don't have to make any physical effort - it's so much easier!"

Assembly workshop operator
Manitou
France

+ online video on YouTube

Suitable for Industry
Multiple tons moved without effort!

ez-Wheel® solutions have been designed to meet the needs of the field and the expectations of users in the industrial sector: high level of performance, reliability and versatility.

< Scalable load capacity

Wheels can be paired to double the moved-load capacity. This platform has been equipped with two wheels and can move a load of 3 tons.

< Continuous conveying

The transfer carriage or carousel can easily be powered to ensure repetitive motions.

This example is fitted with 2 external batteries to allow continuous use.

< Manual control

The Assist Wheel Drive is made for heavy load/large dimensions movement assistance and offers great freedom of manual control.

< Special machinery

Most industrial special machinery can be fitted with ez-Wheel® electric wheels and accessories.

∧ Industrial flow automation

SWD® drives can be adapted to all load transfer axis automation needs in intralogistics, with a minimum of development and integration effort.

An easy mechanical integration >

The compact design of the electric wheel, with its standard caster dimensions, facilitates mechanical integration, either as original equipment or as a retrofit for existing trolleys.

∨ Mixed flows

Manual flow equipped with automated return pulled by an AGV.
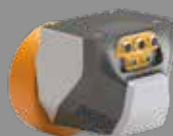
◁ Built-in operational safety

SWD® wheels are equipped with a certified safety controller that processes information from robot safety sensors to prevent unsafe movements.

OUR SOLUTIONS FOR THE INDUSTRY
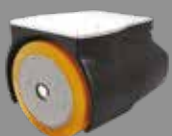
■ ASSIST WHEEL DRIVE
AWD® 150
Page 30

■ SAFETY WHEEL DRIVE
SWD® 150
Page 44

■ SAFETY WHEEL DRIVE
SWD® 125
Page 46
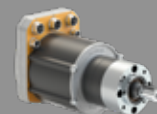
■ SAFETY DRIVE
SWD® CORE
Page 48

AUTOMOTIVE

THE AUTOMOTIVE INDUSTRY REQUIRES AN OPTIMISATION
AND A PERFECT CONTROL OF INTRALOGISTICS FLOWS THROUGHOUT THE SUPPLY CHAIN.

Motorized assistance and automation of rolling equipment in the automotive industry increase the precision and speed of manufacturing operations. These processes reduce worker fatigue and minimize the risk of accidents associated with repetitive tasks. Additionally, they boost overall productivity by streamlining production flows and reducing downtime.

our missions

- Motorized assistance
- Motorization for automation

1 Heavy-duty rolling platforms motorization
- ✓ Handling heavy and bulky loads effortlessly and safely for the operator
- ✓ ez-Wheel® can be paired to double the load capacity: 2 tons of payload can be moved in this way

2 AGVs/AMRs motorization
- ✓ Supply of raw materials and sub-assemblies to assembly workstations
- ✓ Meeting ISO 3691-4 safety standards for mobile robot safety

3 Motorization of industrial mobile lifting platforms
- ✓ Ideal assistant or line-side supply
- ✓ Motorized platform for levelling loads

4 Automating assembly platforms/chains
- ✓ Replace fixed chains with autonomous safety platforms
- ✓ Deliver a reprogrammable tool
- ✓ Create an agile organization in multi-purpose workstations/RMS

5 Making production robots mobile
- ✓ Share production tools across several workstations
- ✓ Accelerate return on investment
- ✓ Meet ISO 3691-4 safety standards for mobile robot safety
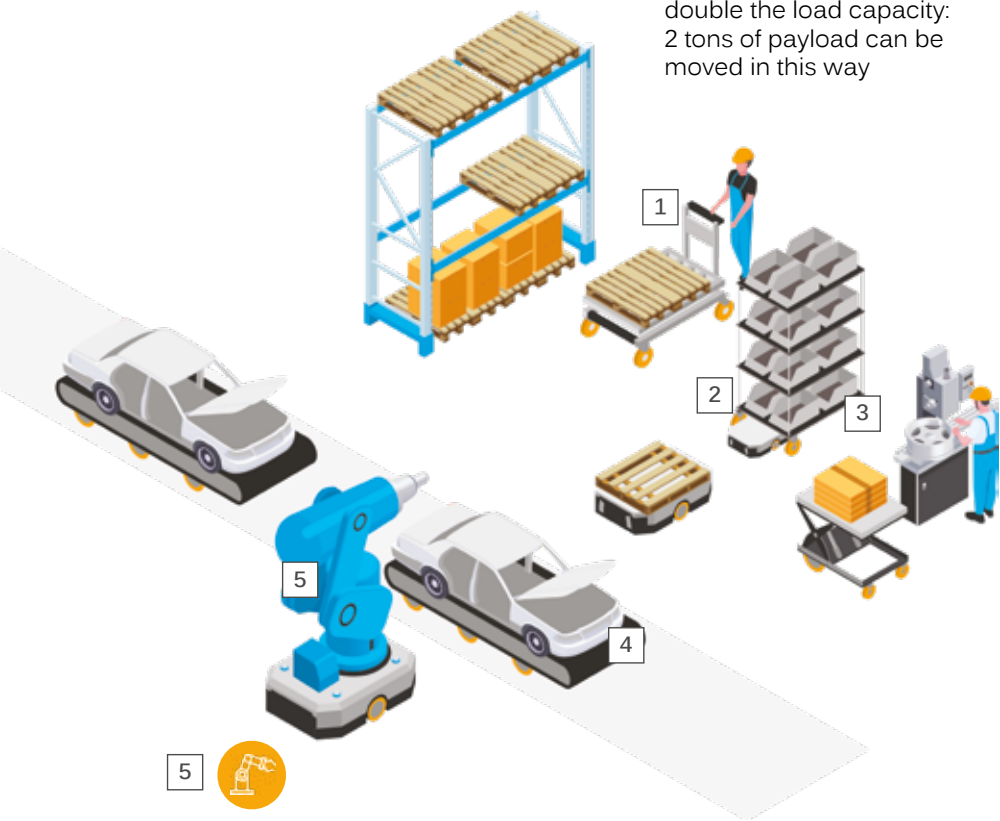
TESTIMONIAL "

Pierre GELINEAU
Process engineer
at Scania Production

"The big advantage of the wheels ez-Wheel® is that they eliminated ergonomic problems without fundamentally changing the flow, while maintaining flexibility."

"We were looking for a solution to an old ergonomic problem on our production line. Specifically, to move from the 'Chassis' line to the 'Assembly' line, the operators had to put the chassis on a cart and push it by hand (...) there was a lot of effort involved."

+ online video on YouTube

BUSINESS SECTORS

MOTORIZED ASSISTANCE

MOTORIZATION FOR AUTOMATION

ACCESSORIES

Suitable for Automotive Industry
Ensuring continuous service

ez-Wheel® solutions have been designed to meet the needs of the field and the expectations of users in the automotive industry: high level of performance, easy integration and total versatility.

< Ergonomic and reliable solution

Trolley equipped with an Assist Wheel Drive mounted on suspensions, in order to transport chassis weighing up to 2 tons. To operate them, an ergonomic wireless control box was specially designed.

∧ Charging at workstation

The AWD® 150 ez-Wheel® electric wheels, can be recharged on each return to workstation through recharge contacts. The built-in batteries are designed to go through many micro-charging cycles without any premature ageing risks.

∧ High resistance to shock and vibration

With their reinforced cast iron housings and hubs, ez-Wheel® electric wheels can withstand severe shocks, vibrations and loads from 250 to 700 kg per wheel.
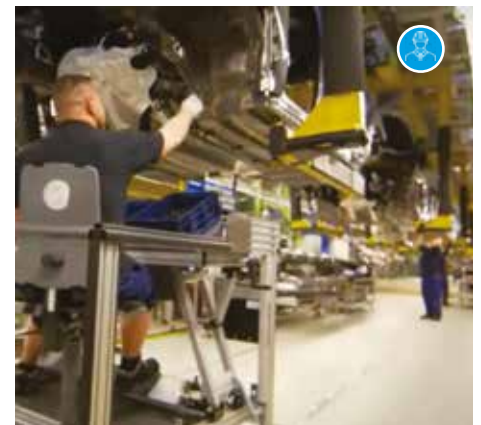
∧ Moving platform

Operators' movements may be also assisted by ez-Wheel® electric wheel. This motorized platform is foot-controlled, allowing the operator to follow the overhead line movement.

∨ High towing capacity
The SWD® wheels are used
to equip mobile robots
for towing loads in the factory.

< Several tons of load moved
SWD® wheels can move up to 1.5 tons
per motor. The drives can be easily
linked to provide multi-wheel or multi-
axle systems capable of moving several
tons.

< Simple and standardized interface
SWD® drives use standard motor control
interface and safety loops, so they can
be integrated quickly and easily into
customized solutions.

**< Compactness
and modularity**
Small footprint
allows to develop
low profile robots
to carry any type of
shelves.

OUR SOLUTIONS FOR THE AUTOMOTIVE INDUSTRY
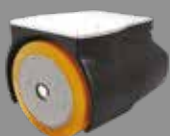
ASSIST WHEEL DRIVE
AWD® 150
Page 30

SAFETY WHEEL DRIVE
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SAFETY WHEEL DRIVE
SWD® 125
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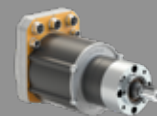
SAFETY DRIVE
SWD® CORE
Page 48

E-COMMERCE / RETAIL

THE RETAIL AND E-COMMERCE SECTORS DEMAND PERFECT CONTROL OF INTRALOGISTICS FLOWS.

Motorized assistance and automation of rolling equipment in e-commerce and retail enhance operational efficiency by speeding up order preparation and delivery. These solutions reduce processing errors, ensuring better customer satisfaction. Additionally, they optimize inventory management, contributing to cost reductions and better resource utilization.

our missions
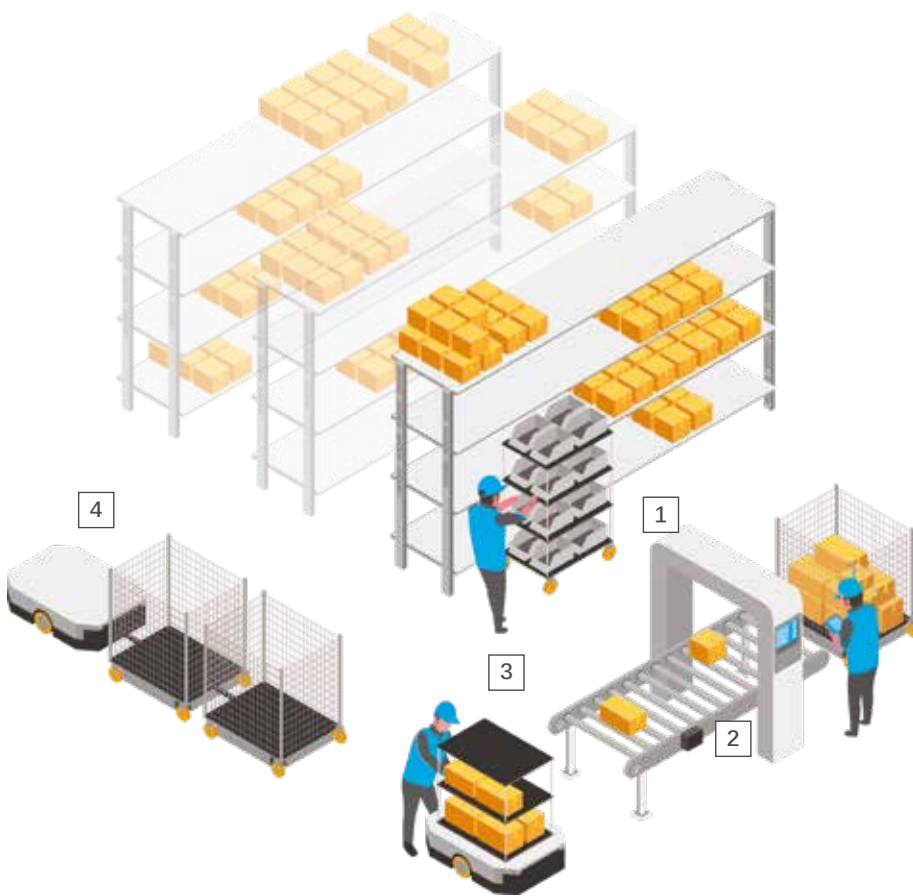
1 Motorization of a kitting trolleys

✓ Increase the number of parcels managed by the operator

✓ Move up to 750 kg effortlessly

2 Motorization of conveyors

✓ Powering pallets and box conveyors

✓ Integrated safety can avoid fences

3 Motorization of AGV/AMR shelving systems

✓ Handling long and repetitive parcel journeys

✓ Meet ISO 3691-4 safety standards for mobile robots

✓ Increase operator availability

4 Motorization of AGV/AMR tuggers

✓ Pulling trolleys/crates from the order-picking area to the dispatch area

✓ Compliance with ISO 3691-4 safety standards for mobile robots

✓ Products calibrated to meet the constraints of the sector (autonomy, travel speed, service life, etc.)

TESTIMONIAL "

+ online video on YouTube

"Man and machine are too often pitted against each other. It's a question of getting them to work together to reduce drudgery."

CEO of an e-Commerce group

Suitable for e-Commerce / Retail
Flexible, time-saving solutions

ez-Wheel® solutions have been designed to meet the needs of the field and the expectation of users in the logistics sector: high level of performance, flexibility and cost-effectiveness.

V Multiple starts and stops

The AWD® 160 electric wheels are specifically developed to ensure thousands of successive picking trolley starts and stops, and offer acceleration and deceleration assistance, with automatic motor brake and free-wheel control.

Low height >

The AWD® 160 wheels are easily integrated to control picking systems with other electronic components, such as these trolleys fitted with Put-to-Light. The wheel is able to power the other components thanks to its on-board energy.

∧ Full integration

The compact design of the electric wheel, with its standard caster dimensions, facilitates mechanical integration, either as original equipment or as a retrofit for existing trolleys.

< Productivity gain

Motorization increases the carrying capacity and reduces the number of trips. Here, a trolley puller powered by an Assist Wheel Drive wheel moving a train of 4 preparation trolleys at the same time.

< Facilitate the AMRs development

AMR designed to meet the internal intralogistics needs in IDEC's factories and warehouses. The robot is equipped with a pair of SWD® 125 and two IDEC SE2L safety scanners: the perfect match to ensure the ISO 3691-4 safety compliance.

∧ Operators' safety

Equipped with two SWD® 125, this AMR is fitted with all the protective devices needed for operators to operate in complete safety.

∧ Quick & low-cost installation

The SWD® Core motor format is suitable for bin and pallet transfer robots.

∧ Continuous operation

SWD® wheels are qualified for millions of cycles, enabling high logistic outputs.

OUR SOLUTIONS FOR THE E-COMMERCE / RETAIL SECTOR

ASSIST WHEEL DRIVE
AWD® 160
Page 30

SAFETY WHEEL DRIVE
SWD® 125
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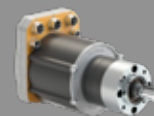
SAFETY DRIVE
SWD® CORE
Page 48

CONTROLLED ENVIRONMENTS

CONTROLLED ENVIRONMENTS DEMAND A RELIABLE AND MANAGEMENT OF INTERNAL FLOWS. SPECIFIC STANDARDS MUST BE ADHERED TO.

Motorizing rolling equipment used in sensitive places —like hospitals, pharmaceutical labs, or clean rooms and aseptic areas poses unique challenges because of the stringent cleanliness, disinfection, and safety requirements.

our missions

- 🔵 Motorized assistance
- 🟠 Motorization for automation

1 🔵

Motorization in aseptic areas
✓ Enhance maneuverability and safety of rolling equipment
✓ Meet rigorous protection standards and hygienic requirements

2 🔵

Motorization of patient transfer rolling equipment
✓ Make patient transfers easier and safer
✓ Provide greater convenience and comfort for patient
✓ Support staff in repetitive and arduous task
✓ Complies with strict electromagnetic compatibility (EMC) standards

3 🔵

Motorization of meal distribution trolleys
✓ Speeds up and smooths out the service process
✓ Reduces staff fatigue and the risk of injury
✓ Enables trolleys to operate in environments with negative temperatures (cold storage)

5 🟠

AGVs/AMRs motorization
✓ Automate supplies between store and hospital services
✓ Meet ISO 3691-4 safety standards for mobile robots safety

4 🔵

Motorization of service trolleys
✓ Support staff in repetitive and arduous tasks
✓ Meet high protection class and hygiene requirements

TESTIMONIAL 🙶

➕ online video on YouTube

Technical Services
Team Leader
of a pharmaceutical
laboratory

"The wheel makes the docking maneuver to the autoclave easier whilst at the same time being easier on the posture.
The operator can walk beside their trolley, which can be up to 600 kg (500 kg for the container and almost a hundred more for the trolley), as easily as if they were operating an electric pallet truck. They can handle the load with one arm effortlessly and safely. For me, the real gain is the reduction in physical strain!"

Suitable for Controlled environments

Clean, reliable and helpful

Thanks to their compactness and hygienic design, ez-Wheel® wheels can motorize or automate any type of rolling equipment operating in a controlled environment.

˅ Ability to climb slopes

The motorization offers a significant crossing torque, which allows a single person to climb slopes and access ramps without wasting time and effort.

< White and clean rooms

ez-Wheel® electric wheels enhance the maneuverability and safety of rolling equipment in aseptic areas, thanks to their hygienic design.

˅ Easy add-on

By combining compactness and performance, the AWD® 160 wheels can easily upgrade any type of meal distribution cart.

< Food processing

Even the most complex production machinery can be motorized using ez-Wheel® electric wheels, thanks to their compact dimensions and IP66 housing.

24

Flow automation in public place >

SWD® Safety Wheel Drives are particularly suitable for collaborative robots in hospital environments thanks to their low profile and specific design.

v Healthcare workers support

Adding an electrical motorization on manual handling equipment allows preserving the health of healthcare workers.

^ Optimized designs to limit the risks of contamination

The design of mobile robots with less components thanks to SWD® technology can help minimizing particle generation and contamination.

OUR SOLUTIONS FOR CONTROLLED ENVIRONMENTS

ASSIST WHEEL DRIVE
AWD® 160
Page 30
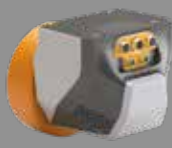
SAFETY WHEEL DRIVE
SWD® 150
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SAFETY WHEEL DRIVE
SWD® 125
Page 46

SAFETY DRIVE
SWD® CORE
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AWD
Assist Wheel Drive
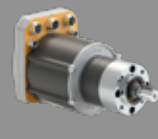
MOTORIZED ASSISTANCE

ez-Wheel®
EW1A ASSIST WHEEL DRIVE

- ■ AUTONOMOUS, COMPACT AND FULLY INTEGRATED WHEEL
- ■ MANUAL HANDLING ASSISTANCE
- ■ HEAVY LOADS TRANSPORTATION
- ■ SUITABLE FOR THE MOST DEMANDING ENVIRONMENTS

EW1A ASSIST WHEEL DRIVES

AWD® 150

P.30

For industrial use
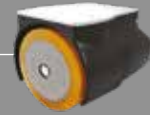
AWD® 160

P.30

For logistics and controlled environments

EW1A KIT

AWD® 150 Evaluation kit

P.32

For easy and quick integration

SOFTWARE

AWD® ez-Config

P.34

For Assist Wheel Drive products

AWD® ez-Diag

P.36

For Assist Wheel Drive products

AWD® Update tool

P.38

For Assist Wheel Drive products

BUSINESS SECTORS

MOTORIZED ASSISTANCE

MOTORIZATION FOR AUTOMATION

ACCESSORIES

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.

AWD
Assist Wheel Drive

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

SAFE AND EFFORTLESS HANDLING

UP TO 1000 KG MOVED

INCREASE PRODUCTIVITY BY UP TO 50%

DOUBLES THE LOAD FOR A FIFTH OF THE EFFORT

ROI* < 1 YEAR
*Return On Investment

BEFORE EZ-WHEEL®…

Command

Motor

Battery Controller

…WITH EZ-WHEEL®

Command
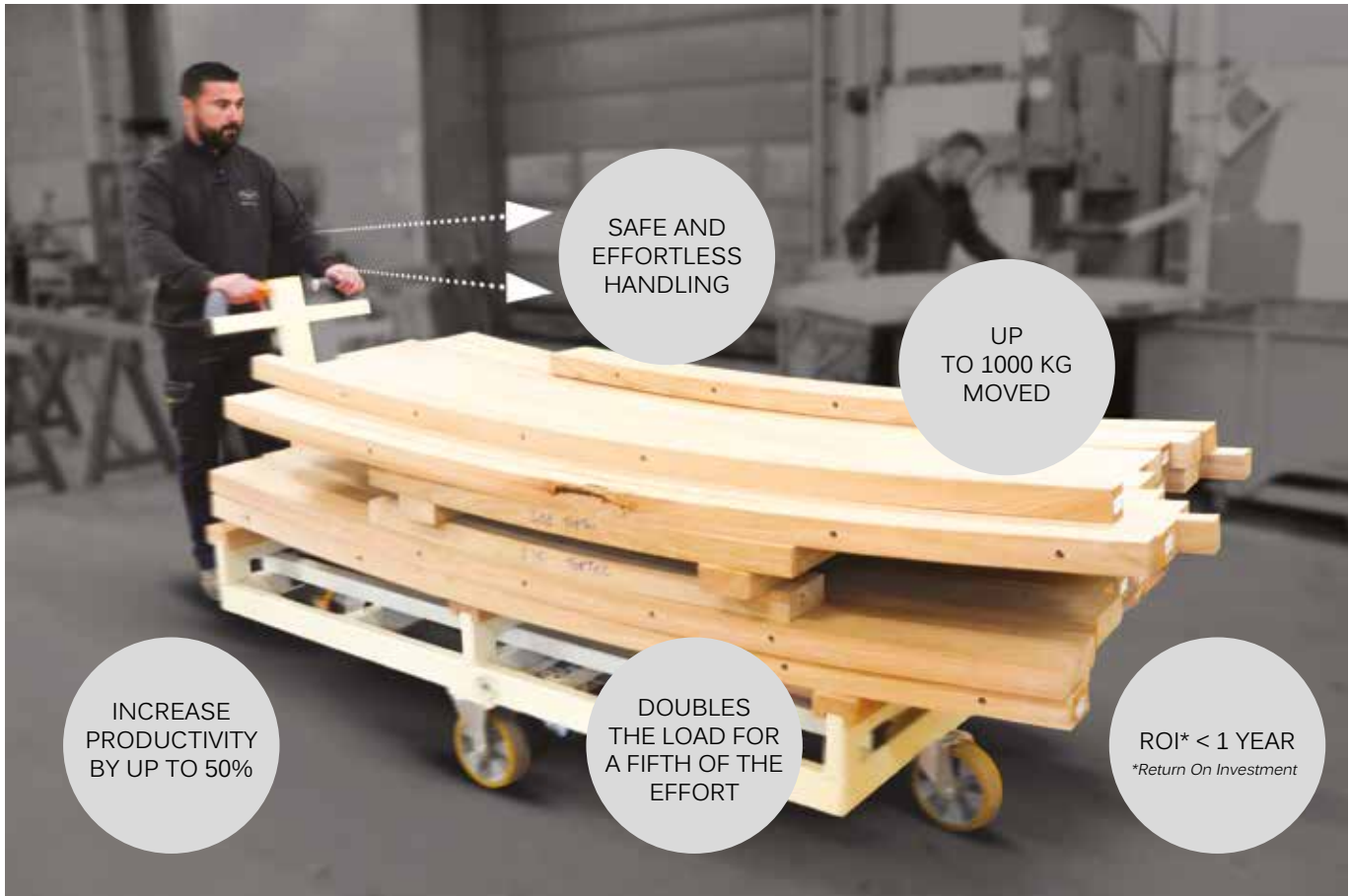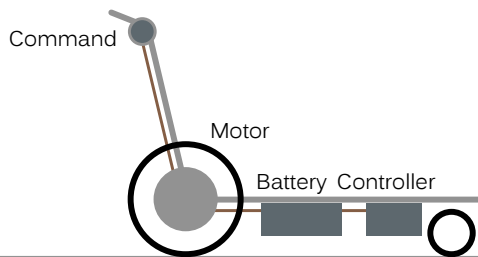
AWD® 150/160
Low profile and economical
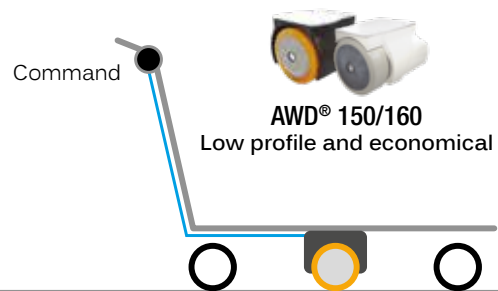
The first electric wheel featuring **embedded motor, batteries and electronics.**
Quick fitting ez-Wheel® technology removes most of peripherals from the chassis, making the integration of these solutions a fast and easy task compared to other alternatives.

29

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 - **Pages 34 to 39**

PERFORMANCE

- Up to 1000 kg moved
- From 50 to 400 kg max. vertical load
- From 0 to 5 km/h
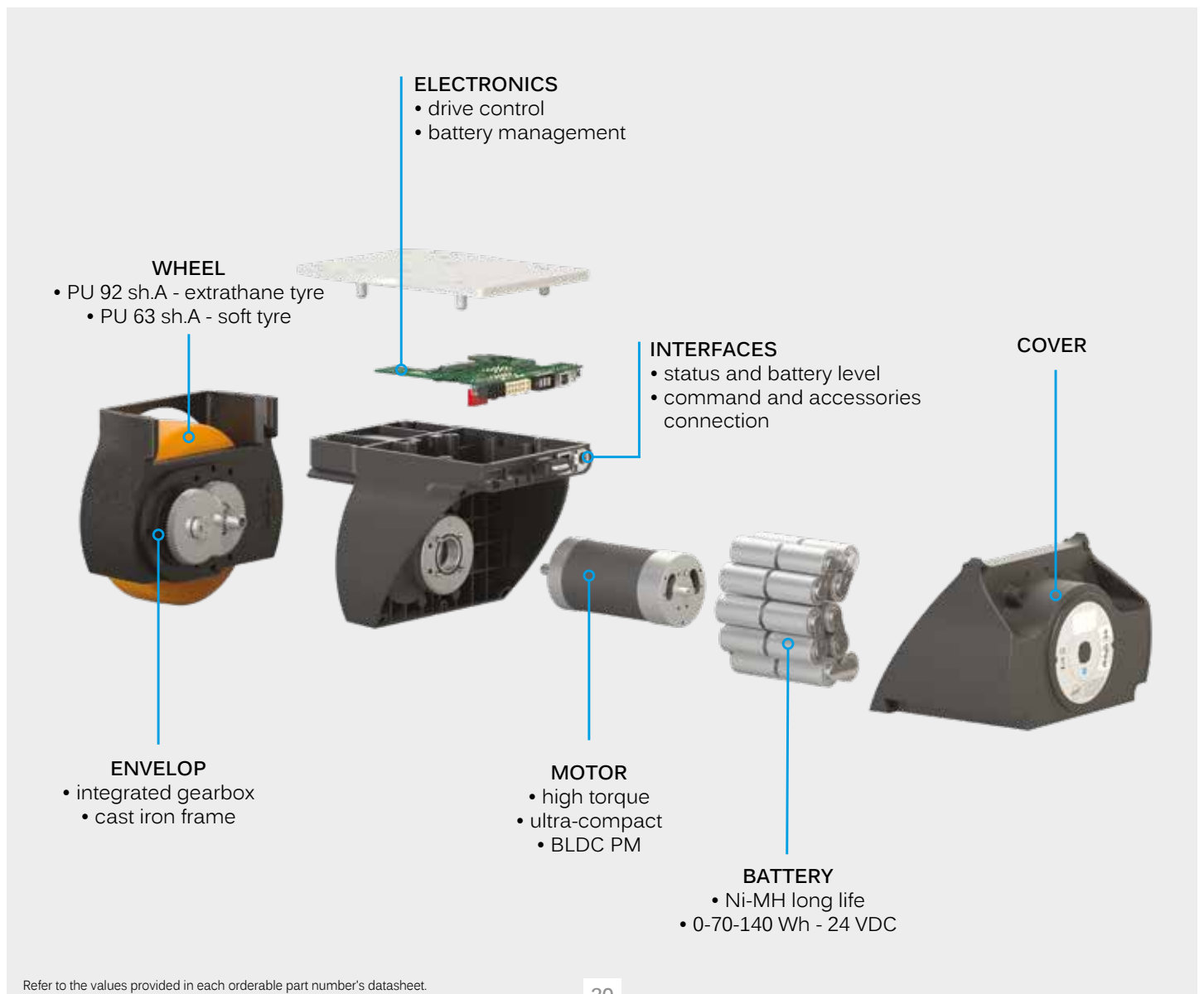
ELECTRONICS
• drive control
• battery management

WHEEL
• PU 92 sh.A - extrathane tyre
• PU 63 sh.A - soft tyre

INTERFACES
• status and battery level
• command and accessories connection

COVER

ENVELOP
• integrated gearbox
• cast iron frame

MOTOR
• high torque
• ultra-compact
• BLDC PM

BATTERY
• Ni-MH long life
• 0-70-140 Wh - 24 VDC

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	AWD® 160
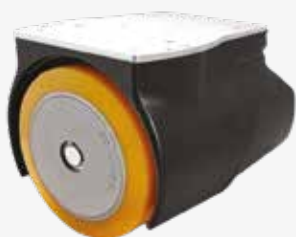
EW1A-150xxx

✓ industrial use
✓ IP43
✓ shockproof
✓ cast iron housing

EW1A-160MxA

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

Available versions - EW1A-150 **H** **N** **A**

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

N **Internal battery(ies)***
N: Without battery
1: One battery
2: Two batteries

A **Parking brake**
A: Without brake
B: With brake

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

REFERENCE	Designation
EW1A-150HxA	AWD® 150 wheel Industrial rubber with x battery(ies)
EW1A-150HxB	AWD® 150 wheel Industrial rubber with x battery(ies), with Brake
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
REFERENCE	**Designation**
EW1A-160MxA	AWD® 160 wheel Medical rubber with x battery(ies)
REFERENCE	**Designation**
EW9Z-1BINT03V	Internal battery 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 30
2	**Suspension bracket (for heavy loads)** EW9Z-1MCS3 Page 77
3	**Rotating handle with button & display** EW9Z-1ARH2 Page 60
4	**Adapter cable 3 meters** EW9Z-1AC3M Page 72
5	**1,8 Amp charger** Mascot1A8 Page 74
6	**Charge cable** EW9Z-1CCxMW Page 72

CABLE COMPATIBILITY

EZ-WHEEL® // SMART MOBILITY SOLUTIONS
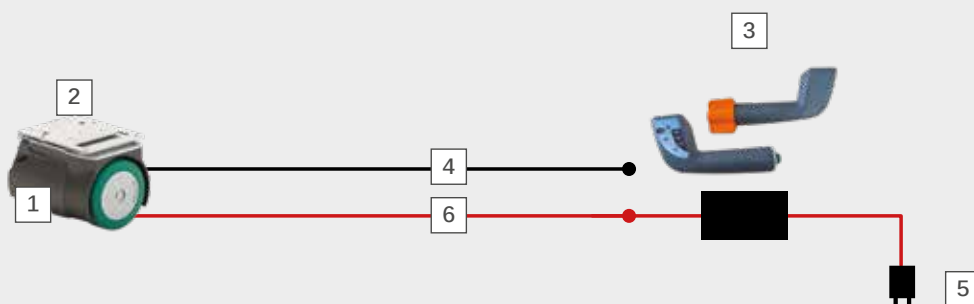
CONFIGURATION SOFTWARE
FOR ASSIST WHEEL DRIVE PRODUCTS
▶ available ONLINE

ez   ez   ez   ez   ez

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

AWD® ez-Config
for Assist Wheel Drive products
Configure your wheel
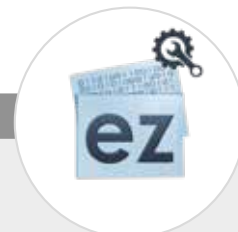
EZ-CONFIG is the core of the ez-Wheel® solutions.
Thanks to their open connectivity, wheels and hand controls are programmable and can be perfectly adapted to any situation.

BENEFITS

- Simple and complete interface
- Precise configuration of the wheel behavior
- Ability to save configurations

PRODUCT COMPATIBILITY

- AWD® 150 and 160 - **Page 30**

OPERATING STEPS

1

ANALYSE
- Evaluate and understand the working place characteristics

2

CONNECT
- Open ez-Config and connect ez-Wheel® devices via a USB port

3

CONFIGURE
- Configure wheels and accessories
- Save parameters

TECHNICAL SPECIFICATIONS

EN

English interface

Windows compatibility 7 and above

Offline software

SOFTWARE AVAILABLE FOR DOWNLOAD

▶ on the ez-wheel.com website in the 'Download' section

FEATURES SPECIFICATIONS

■ This set of intuitive functions has been developed and adapted on the basis of years of experience and meets the requirements of every user.

Speed definition
Define the speed of the wheel. Forward and Backward speed can be differentiated.
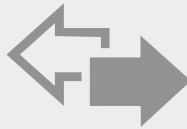
Direction change
Adjust the behaviour of the wheel during a change in the set direction. 2 modes are available: "Deceleration" and "Inversion".

Max speed mode
Set the behaviour of the wheel when the rolling speed exceeds the maximum speed value entered in ez-Config.

Acceleration time
Set the acceleration time according to your needs. e.g. slow for patient moving, fast for picking trolley.

Deceleration mode
Choose the deceleration behaviour when releasing the hand control. e.g. motor brake resistance, free wheel to continue rolling.

Start time limiter
Limit the motor drive time for each start. When the hand control is released, the wheel goes back to the selected deceleration mode.

Auto stand-by
Enter a value in seconds corresponding to the waiting time between the absence of activity on the hand control and switching back to stand-by.
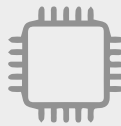
Inputs Outputs
Configure external interfaces for the displays, buttons, external power supply.

Free of charge software

ID login & Password on demand

Available from our website

ez-wheel

AWD® ez-Diag
for Assist Wheel Drive products
Diagnose your wheel
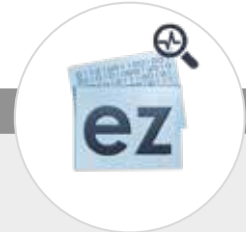
EZ-DIAG is your first device diagnostic assistant. This tool enables remote troubleshooting, making it quick and easy to get your equipment back into service.

BENEFITS

- Simple and complete interface
- General state of your device, in real time
- Quick diagnostic of your ez-Wheel® devices

PRODUCT COMPATIBILITY

- AWD® 150 and 160 - **Page 30**

OPERATING STEPS

1

CONNECT
- Open ez-Diag and connect ez-Wheel® devices via a USB port

2

LAUNCH
- Get all the key parameters of your device gathered on the same spot

3

DIAGNOSE
- Understand the status of your device and identify errors
- Share diagnostics for a simplified support

TECHNICAL SPECIFICATIONS

EN

English interface

Windows compatibility 7 and above

Offline software

SOFTWARE AVAILABLE FOR DOWNLOAD
▶ on the ez-wheel.com website in the 'Download' section

---

FEATURES SPECIFICATIONS

Devices identities:
Serial Number,
software version

**Devices
status**

Command state
Command setpoint,
On/Off status

**Temperature
monitoring**
Motor, battery, electronics

**Over/
undervoltage**

+
Free of charge software

+
**Without installation
or identification**

Protections state
Emergency stop,
fuse

Battery monitoring
Charge level, voltage,
low battery status

+
Available from our website

ez-wheel

AWD® Update tool
for Assist Wheel Drive products
Update your device
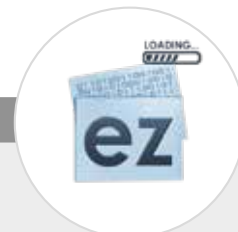
UPDATE TOOL

This tool provides the latest release for all your Assist Wheel Drive devices.

BENEFITS

- Easy access to the latest versions
- No risk: error-free update and configuration
- Fully automated management for convenience

PRODUCT COMPATIBILITY

- AWD® 150 and 160 - **Page 30**

OPERATING STEPS

| 1 |

CONNECT
- Open Update tool and connect ez-Wheel® devices via a USB port

| 2 |

LAUNCH
- Get an overview of your device version
- Start software update of your device

TECHNICAL SPECIFICATIONS

EN

English interface

Windows compatibility 7 and above

Offline software

Free of charge software

Without installation or identification

Available from our website

ez-wheel

38

DOWNLOAD
RESSOURCES DIRECTLY
FROM OUR WEBSITE

MOTORIZATION FOR AUTOMATION

ez-Wheel®
EW2A SAFETY WHEEL DRIVE

- ■ HIGH LEVEL OF INTEGRATION
- ■ BUILT-IN SAFE MOTION CONTROL AND SAFETY ENCODER
- ■ FACILITATES COMPLIANCE WITH ISO 3691-4
- ■ AUTOMATION OF HEAVY DUTY MOBILE PLATFORMS
- ■ CHAINABLE SAFETY AND MULTIPLE SAFETY INPUTS

SWD
Safety Wheel Drive

EW2A SAFETY WHEEL DRIVES

EW2A SAFETY DRIVES
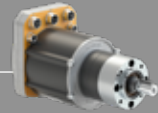
EW2A KIT AND SETUPS

SOFTWARE

THE SIMPLEST MOBILE ROBOT SETUP EVER

SWD® TECHNOLOGY DISRUPTS AGVS
AND AMRS ARCHITECTURE THANKS TO ITS UNIQUE
LEVEL OF INTEGRATION
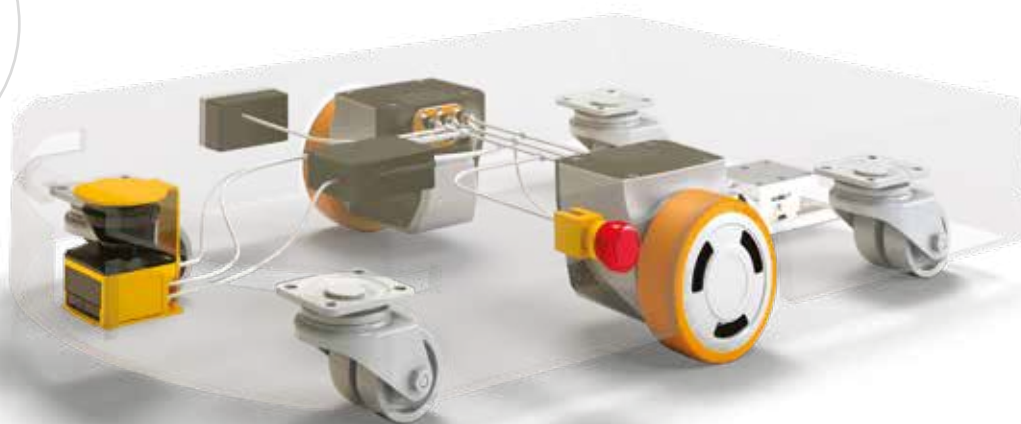
COST REDUCTION
• Up to 50% less components
• Simpler and faster assembly

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
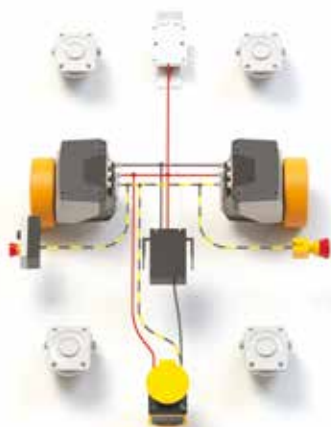
SAFETY WHEEL
DRIVES

NAVIGATION PC

SAFETY LASER
SCANNER

E-STOPS

VS CONVENTIONAL SOLUTION
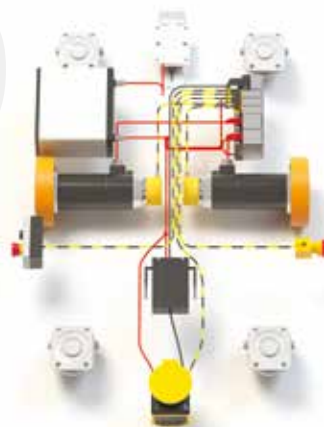
WHEELS
GEARBOXES
MOTORS
SAFETY ENCODERS

PLC
SAFETY PLC
RELAYS
MOTOR DRIVERS

BATTERY
CIRCUIT BREAKERS

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, E30 safety edges, XW emergency stop switches - *available page 70*, Human-Machine Interfaces (HMIs) - *available page 68*... 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/PLe

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

UNDER DEVELOPMENT

facilitates the ISO 3691-4 *compliance with*
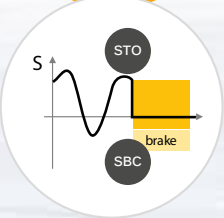
SDI
SAFE DIRECTION CONTROL
in case of collision risk
SDI up to SIL2/PLd
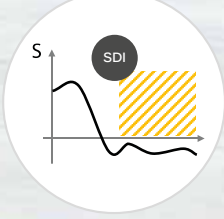
SLS
SAFELY LIMITED SPEED
to prevent hazardous situations
SLS (8 levels) or SLSa (asymmetric) up to SIL2/PLd
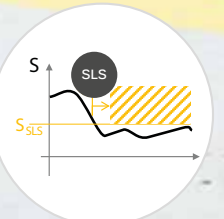
SMS
SAFE MAXIMUM SPEED
to secure operating range
SMS up to SIL2/PLd

43
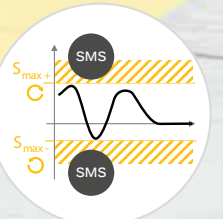
Safety Wheel Drives
SWD® 150
For heavy duty intralogistics automation

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 - **Pages 54 to 58**

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

VERSION UNDER DEVELOPMENT

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 |

VERSION UNDER DEVELOPMENT *

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

RATIO 14
EW2A-150HN14x

2.1 km/h
0.6 m/s

RATIO 25
EW2A-150HN25x

RECOMMENDED
MAXIMUM LOAD

1500 kg   2100 kg

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 - **Pages 54 to 58**

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)

WHEEL
• PU 80 sh.A Flat profile

MOTOR
• high torque
• ultra-compact
• BLDC PM

ELECTRONICS
• drive control
• safe motion
• safety encoder

GEARBOX
• in cast iron frame
• available gear ratio 4 and 14

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

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

MAX SPEED

11 km/h
3 m/s

RATIO 4
EW2A-
125HN04x

3.2 km/h
0.9 m/s

RATIO 14
EW2A-125HN14x

500 kg   1500 kg

**RECOMMENDED
MAXIMUM LOAD**
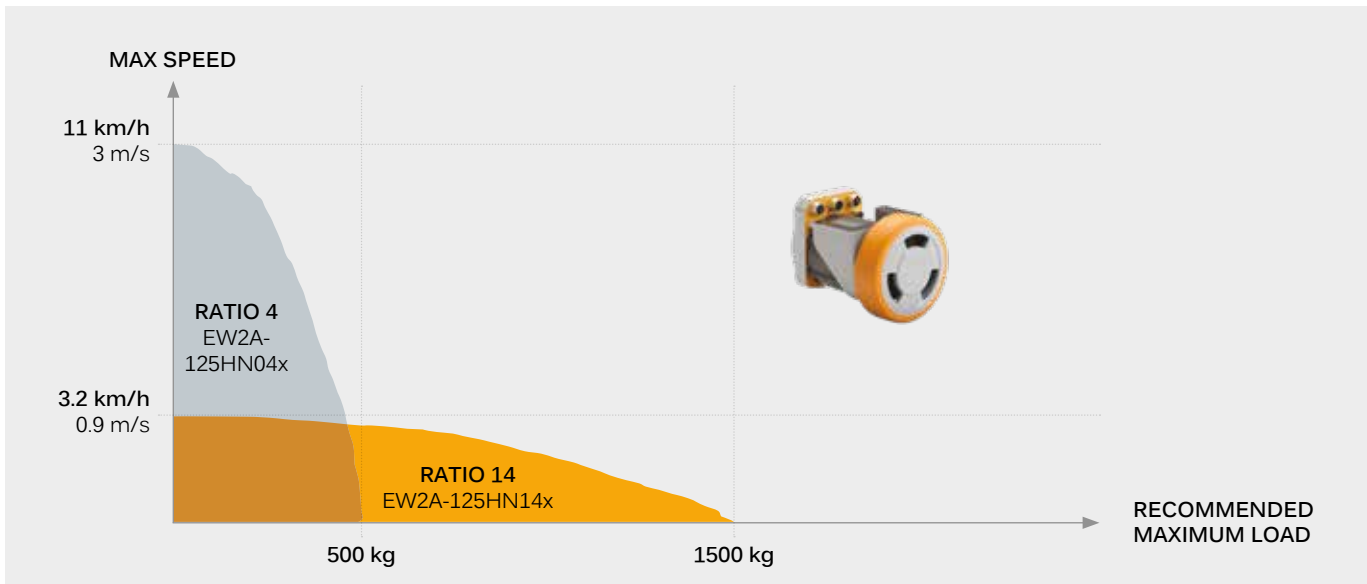
REFERENCE	Designation
EW2A-125HNxA	**SWD® 125** - Safety Wheel Drive Industrial rubber, Medium Duty, x:1 reduction ratio - CANopen communication
EW2A-125HNxB	**SWD® 125** - Safety Wheel Drive Industrial rubber, Medium Duty, x:1 reduction ratio and brake - CANopen communication

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 - **Pages 54 to 58**

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

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

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
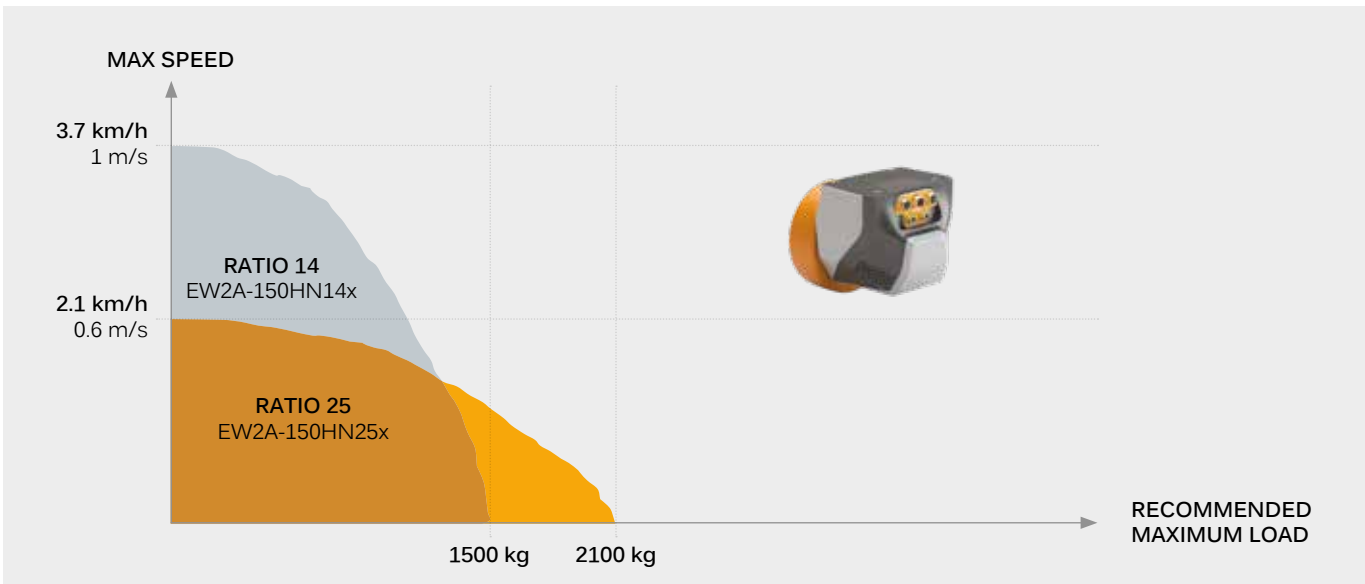**50:** 50:1 ratio
99: 100:1 ratio

`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-000NxA	**SWD® Core** - Safety Gear Motor x:1 reduction ratio - CANopen communication
EW2A-000NxB	**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®

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

NI-MH BATTERY

CENTRAL INTERCONNECTION BOX

EMERGENCY STOP

SWD® CORE

ARM IMX8 PROCESSOR

EMERGENCY STOP

SWD® CORE

SIL2/PLD SE2L SAFETY LASER SCANNER

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 44 or 46

2 **Lithium battery** EW9Z-1BEXT20VL
Page 76

3 **Central interconnection box** EW9Z-2HUB1
Page 73

4 **10 Amp Lithium charger** Mascot10A-Li
Page 75

5 **Emergency stop** XW1E
Page 70

6 **Joystick XF Series** CANopen
Page 65

Example
of compatible
remote control
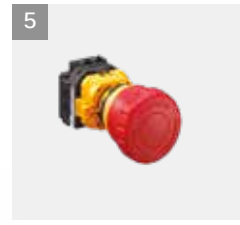
**EXAMPLE OF
RECOMMENDED
COMPONENTS
NOT SUPPLIED
BY EZ-WHEEL®:**

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

ⓘ Flying lead
cables for SWD®
range available
on page 72
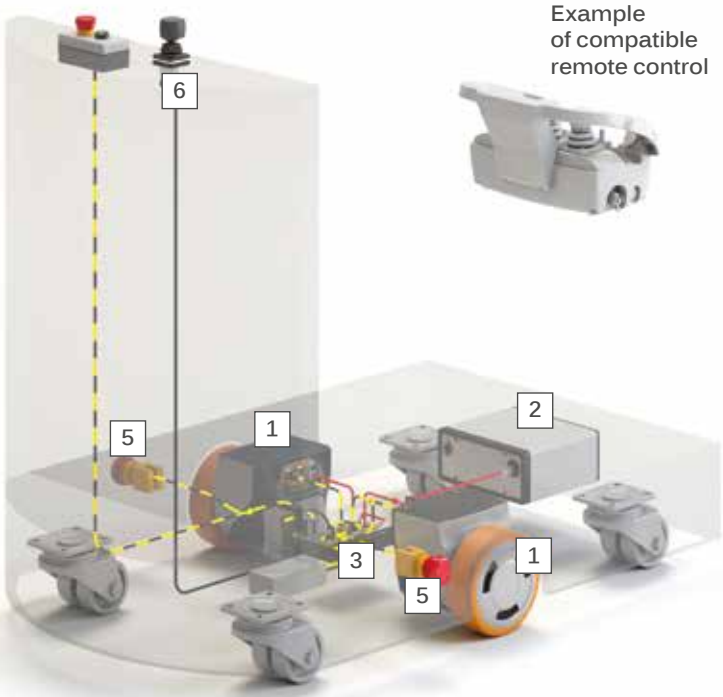
Typical setups using SWD®
For safety critical mobile platforms

TYPICAL SETUP FOR LINE GUIDED PLATFORM

ⓘ Also available with SWD® 125

1. **Safety wheel drives SWD® 125 or SWD® 150 without battery version**
   Page 44 or 46
2. **Lithium battery** EW9Z-1BEXT20VL
   Page 76
3. **Central interconnection box** EW9Z-2HUB1
   Page 73
4. **10 Amp Lithium charger** Mascot10A-Li
   Page 75
5. **Emergency stop** XW1F
   Page 70
6. **Safety Edge** E30BK1
   Page 70
7. **Ergonomic joystick controllers** PC 2441
   Page 65
8. **Safety laser scanner** SE2L
   Page 70

ⓘ Flying lead cables for SWD® range available on page 72
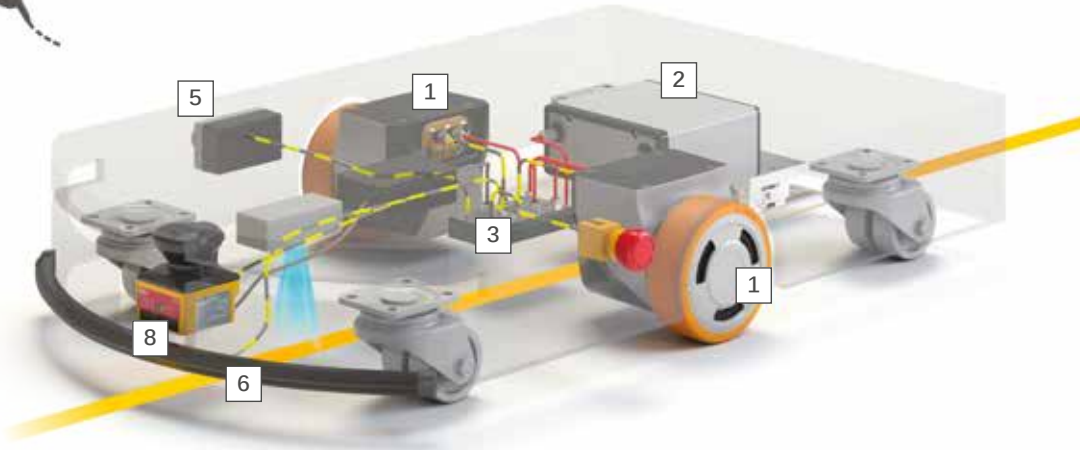
EXAMPLE OF RECOMMENDED COMPONENTS NOT SUPPLIED BY EZ-WHEEL®:

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

TYPICAL SETUP FOR AMR WITH NAVIGATION
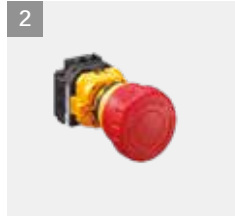
ⓘ Also available with SWD® 125 and external battery

1 **Safety wheel drives SWD® 150 with integrated battery**
Page 44

VERSION UNDER DEVELOPMENT

2 **Emergency stop** XW1E5I
Page 70

3 **Safety Laser Scanners** SE2L
Page 70

ⓘ Flying lead cables for SWD® range available on page 72

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

- Charging system
- Navigation system
- Wireless connectivity
- Cables
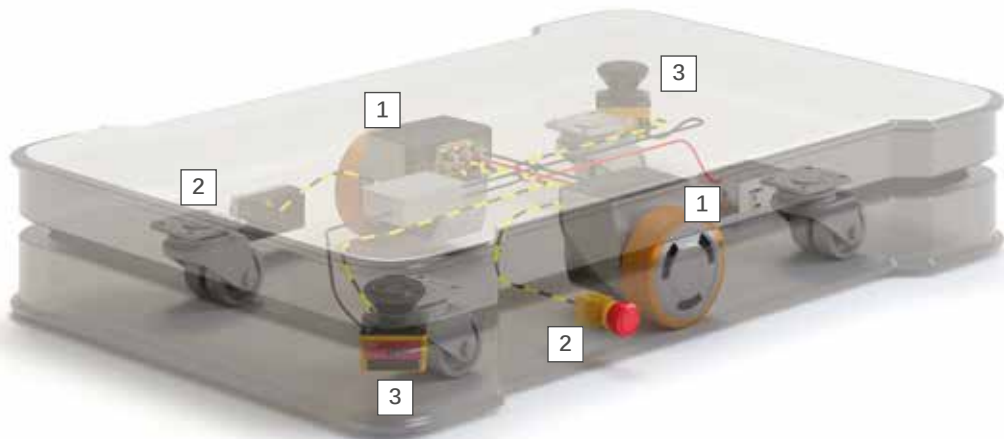
SWD® ez-Config

for Safety Wheel Drives products
Configure your drives and wheel drives
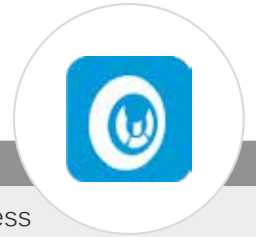
EZ-CONFIG is a tool designed to simplify and optimize the configuration of the SWD® drives and wheel drives. It is elaborated to make the most of SWD® products in their dedicated environments.

BENEFITS

- User-friendly interface: intuitive operation, easy access to settings and clear explanations for each function and option
- Ensures consistent configuration for SWD® products
- Reduces commissioning time for equipped machines
- Multi-OS tool: ensures optimal compatibility across platforms

PRODUCT COMPATIBILITY

- SWD® 150 - **Page 44**
- SWD® 125 - **Page 46**
- SWD® Core - **Page 48**

GRAPHICAL USER INTERFACE
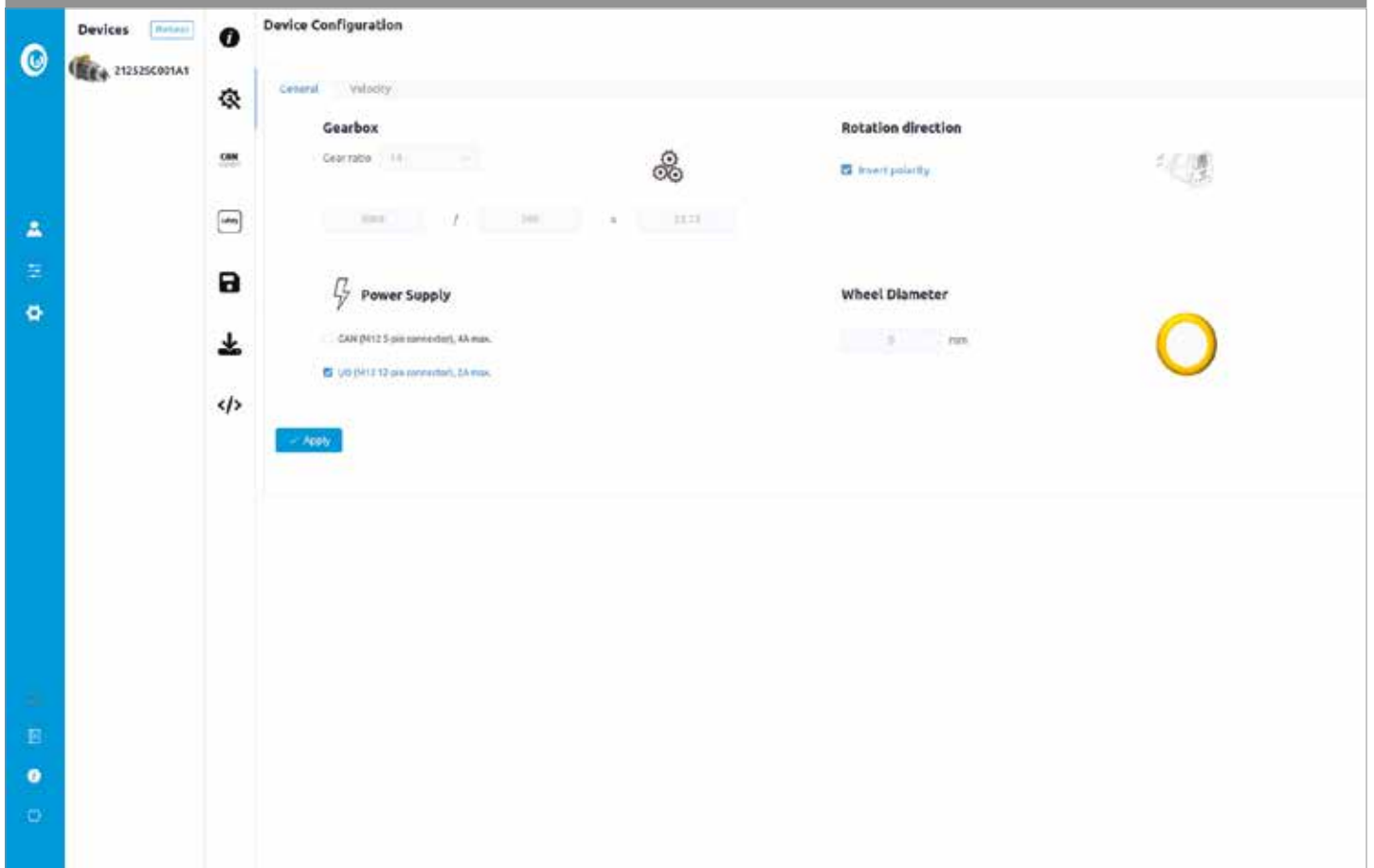
SOFTWARE AVAILABLE FOR DOWNLOAD
▶ on the ez-wheel.com website in the 'Download' section

MAIN FEATURES AND CONFIGURATION OPTIONS

- **Device Configuration**:
  - Setup gearbox
  - Polarity
  - Power supply output
  - ...
- **CANopen Configuration:**
  - Configure PDO
  - SRDO
  - Safety words
  - ...

- **Drive Configuration:**
  - Min and Max speed
  - Ramps (Accel / Decel, Quick Stop)
  - PID
  - ...
- **Safety Functions:**
  Customize the Safe Motion configuration for enhanced safety

TECHNICAL SPECIFICATIONS

EN

English interface

OS operating system:
Windows, Linux

64 bit

Minimum System Requirements:
- x86 64-bit system
- Internet connection

Additional Requirements:
- Linux Ubuntu system
- USB-CAN probe connected to your laptop and the SWD® to be configured

SWD® Update tool
for Safety Wheel Drives products
Update your firmware

UPDATE TOOL
is an intuitive
tool dedicated to
maintenance purposes.
It enables updating
the firmware versions
of SWD® products.

BENEFITS

- Upgrade or downgrade firmware versions
- Compatibility guaranteed by an automatic check (before the update)
- Only compliant firmware can be uploaded in your SWD® products

PRODUCT COMPATIBILITY

- SWD® 150 - **Page 44**
- SWD® 125 - **Page 46**
- SWD® Core - **Page 48**

GRAPHICAL USER INTERFACE
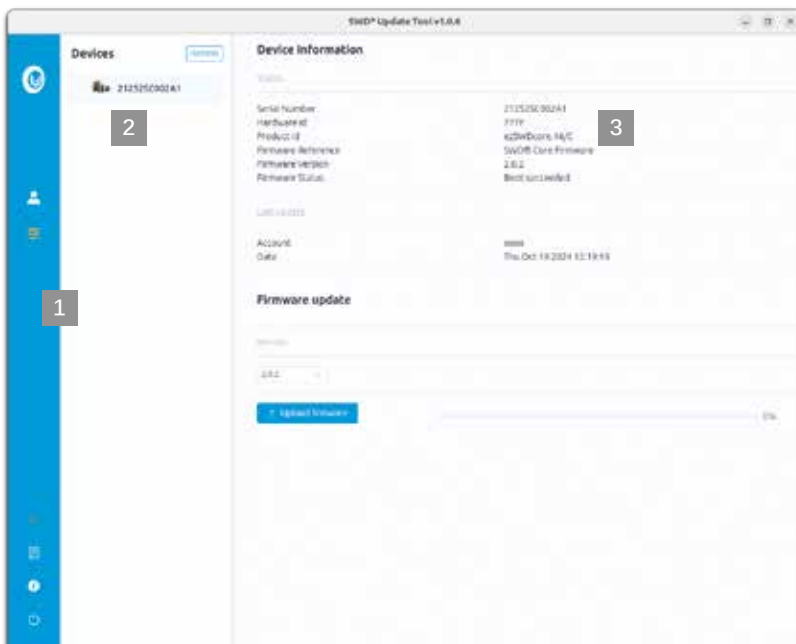
1 Menu
2 Product list
3 Main window

TECHNICAL SPECIFICATIONS

EN

64 bit

**English
interface**

OS operating system:
Windows, Linux

**Minimum System
Requirements:**
• x86 64-bit system
• Internet connection

SOFTWARE AVAILABLE FOR DOWNLOAD
▶ on the ez-wheel.com website in the 'Download' section

MAIN FEATURES

1 **Autonomous recognition of the products**
- SWD® 150
- SWD® 125
- SWD® Core

2 **Information about the device**
- Serial number
- Electronic board version
- Mechanical characteristics
- Firmware version
- Device status

3 **Information about the user and the last update**
- Email account
- Date of the last firmware update

SWD® Update Tool v1.0.6

Devices Refresh

📁 21252SC002A1

Device Information

Status **2**

Serial Number	21252SC002A1
Hardware Id	777F
Product Id	ezSwDcore.14/C
Firmware Reference	SWD® Core Firmware
Firmware Version	2.0.2
Firmware Status	Boot succeeded

Last update

Account	xxxxx
Date	**3** Thu Oct 10 2024 12:19:13

Firmware update

Version **4**

2.0.2 ⌄

⬆ Upload firmware **5**   0%
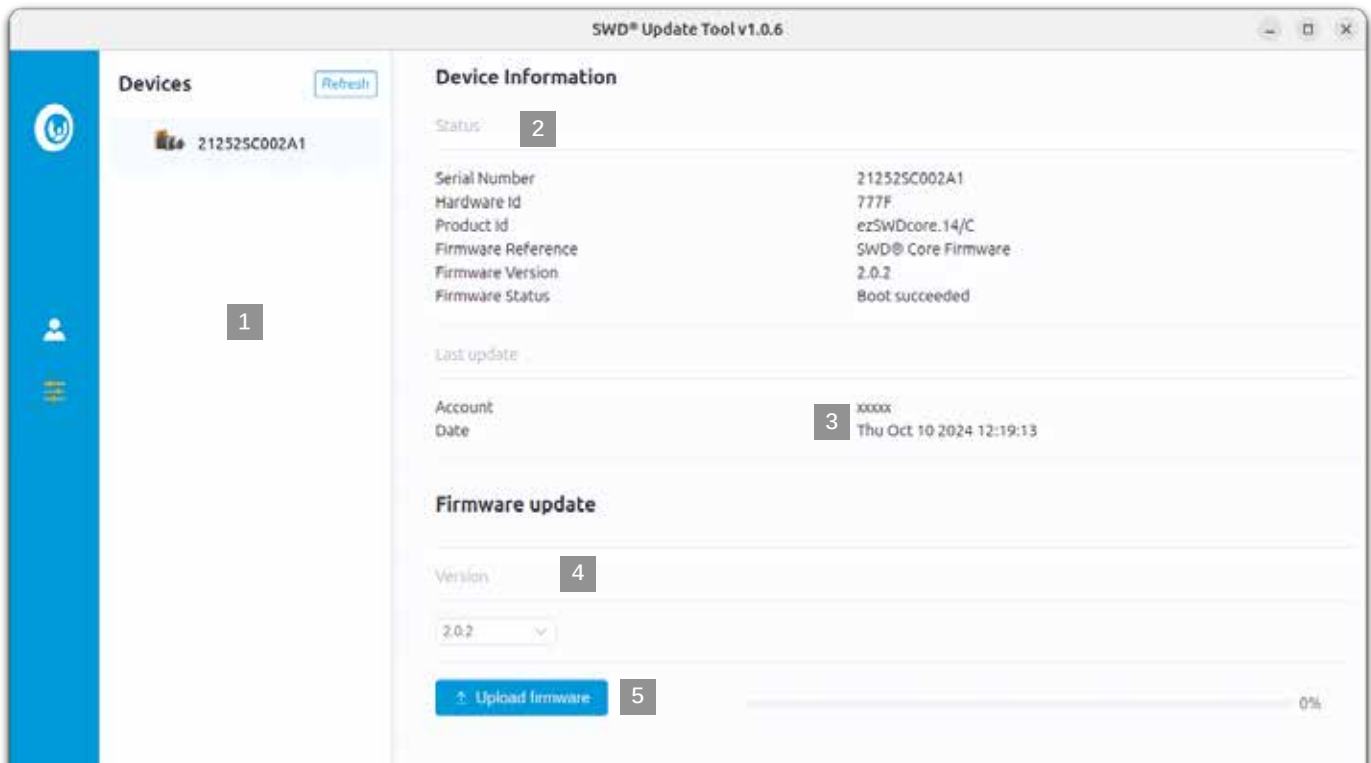
4 **Firmware selection (.ezb)**
- Select among all compliant versions

5 **Firmware Update status**
- Progression bar when updating a new firmware

ACCESSORIES RANGE

ez-Wheel®
ACCESSORIES

EZ-WHEEL® PRODUCTS HAVE BEEN DEVELOPED
TO BE INTEGRATED INTO MANY APPLICATIONS
IN VARIOUS ENVIRONMENTS.
HUNDREDS OF ACCESSORIES COMBINATIONS
ARE POSSIBLE THANKS TO THE HIGH LEVEL
OF COMPATIBILITY!

Rotating handle
Bi-directional and intuitive

**EW9Z-1ARHX
ROTATING HANDLE**
allows excellent maneuverability
of the fitted equipment.
Its various functions
(e.g., hand detection,
battery level display)
make load handling safer
and more efficient.

SPECIFICATION

- Directional throttle
- On/off button
- Battery status display
- Hand detection

MAIN APPLICATIONS

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

⊕ **On/Off button**

⊕ **Directional throttle**

The command controls
forward and reverse
speed. The throttle
(of the manual control)
ensures progressive
and precise operation
of the equipped vehicle.

⊕ **Battery level indicators**
A remote LED indicates
the battery level of the wheel
and the wheel state of charge
(optimal charge/charge
in progress).

⊕ **Hand detection**
This feature protects the operator
by stopping the machine if hand contact
is not established with the controls, thereby
reducing the risk of accidents and injuries.

WIRED CONTROL

HAND DETECTION

VERSION AVAILABLE
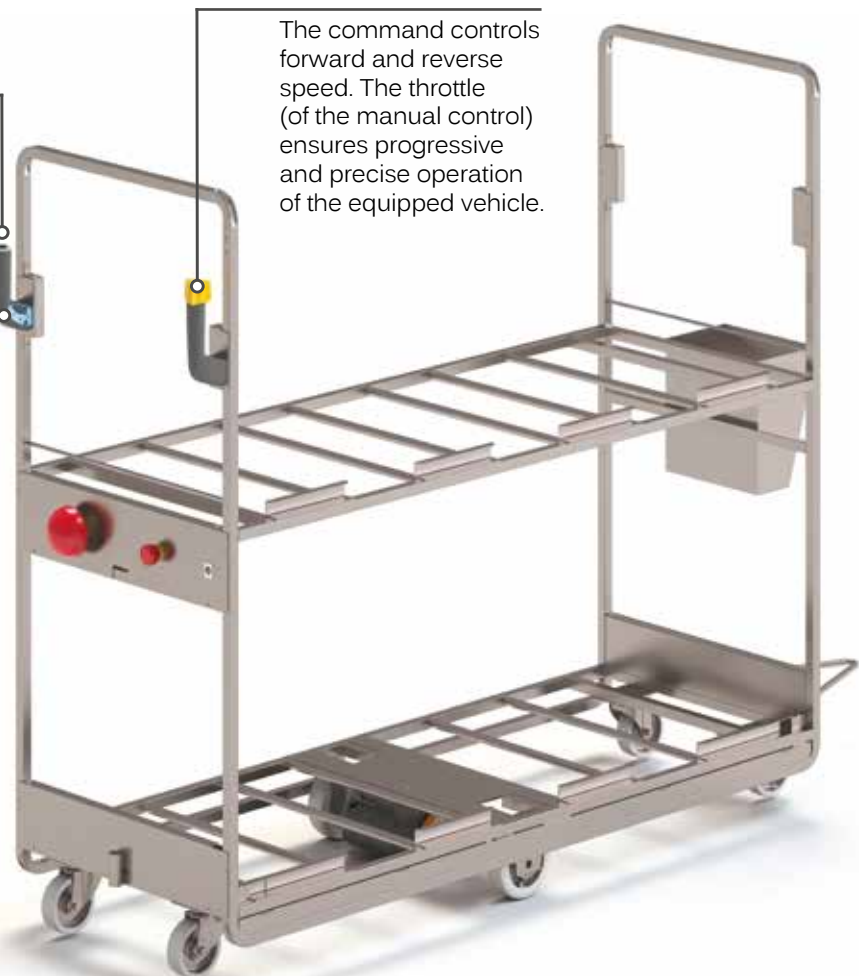
EW9Z-1ARH1

✓ industrial use

Suitable for:	Cable required
✓ AWD® 150/160 **Page 30**	EW9Z-1ACxM **Page 72**

WITH BUTTON AND DISPLAY

HAND DETECTION

VERSION AVAILABLE

EW9Z-1ARH2

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

Suitable for:	Cable required
✓ AWD® 150/160 **Page 30**	EW9Z-1ACxM **Page 72**

REFERENCE	Designation
EW9Z-1ARH1	Rotating Handle
EW9Z-1ARH3	Rotating Handle with Hand Detection
EW9Z-1ARH2	Rotating Handle with Button & Display
EW9Z-1ARH4	Rotating Handle with Button & Display and Hand Detection

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 30**	**Included**

WITH ILLUMINATED BUTTON

EW9Z-1AC2R

√ industrial use
√ On/Off button
√ battery level indicators
√ illuminated button

Suitable for:	Cable required
√ AWD® 150/160 **Page 30**	**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

Hand controls

BI-DIRECTIONAL AND ERGONOMIC

EW9Z-1JYTS

Suitable for:	Cable required
✓ AWD® 150/160 **Page 30**	EW9Z-1ACxM **Page 72**

Mini joystick

This finger operated mini joystick can control the speed in both directions (forward and backward). It can be mounted at the end of a tube, or on a panel.

EW9Z-1ATH0

Suitable for:	Cable required
✓ AWD® 150/160 **Page 30**	EW9Z-1ACxM **Page 72**

EW9Z-1JY3140

Suitable for:	Cable required
✓ AWD® 150/160 **Page 30**	EW9Z-1ACxM **Page 72**

Joystick

The joystick can control the speed in both directions (forward and backward). It can be mounted on a panel and is suitable or tough environments.

Tiller head

The command is a tiller head type control. It ensures a proper handling of equipment thanks to ergonomic shapes and well organized commands. It can control the speed in both directions (forward and backward). For safety, the control includes a belly button.

REFERENCE	Designation
EW9Z-1JYTS	Mini joystick
EW9Z-1JY3140	Joystick
EW9Z-1ATH0	Tiller Head

APEM
an IDEC company

PC Series

Suitable for:

✓ SWD® range - **Page 41**

APEM
an IDEC company

XF Series

Suitable for:

✓ SWD® range - **Page 41**

Ergonomic Joystick

The PC Series is an innovative and ergonomic game style pendant controller. Available with USB or analog outputs, the PC Series is configured to order and provides an immersive and intuitive method for controlling vehicles.

CAN Multi-axis Joystick

The XF Series joystick is a ruggedized finger operated joystick controller specifically engineered for vehicle applications.
The device offers up to three axes, CAN bus (J1939 & CANopen), USB protocol options, and an IP67-rated sealed panel for robust protection.

The references listed below correspond to product families. Please contact your reseller to obtain the list of orderable part numbers.

REFERENCE	Designation
PC Series	Ergonomic pendant controllers
XF Series	Multi-axis rugged fingertip controllers

Pre-Wired switches

PLUG AND PLAY

EW9Z-1ONF

Suitable for:	Cable required
✓ AWD® 150/160 **Page 30**	**EW9Z-1ACxM** **Page 72**

Switch On/Off Button

The EW9Z-1ONF is a bistable toggle switch, to start and stop the system.

EW9Z-1KEY

Suitable for:	Cable required
✓ AWD® 150/160 **Page 30**	**EW9Z-1ACxM** **Page 72**

EW9Z-1PBD

Suitable for:	Cable required
✓ AWD® 150/160 **Page 30**	**EW9Z-1ACxM** **Page 72**

Switch Push Button and Display

The EW9Z-1PBD is an impulse push button featuring a status or battery level LED display.

Switch Key Button

The EW9Z-1KEY is a bistable key switch, to secure the start of the system.

REFERENCE	Designation
EW9Z-1ONF	Switch On/Off Button
EW9Z-1KEY	Switch Key Button
EW9Z-1PBD	Switch Push Button Color

EW9Z-1ESSxM

Suitable for:	Cable required
✓ AWD® 150/160 **Page 30**	**Included**

Emergency Stop Switch

The EW9Z-1ESSxM is an emergency push button, to disconnect the motor power on AWD® 150/160.

EW9Z-1ERBxM

Suitable for:	Cable required
✓ AWD® 150/160 **Page 30**	**Included**

Emergency Reverse Button

The EW9Z-1ERBxM is an emergency reverse button, to secure an operator trapped between the trolley and an obstacle.

REFERENCE	Designation
EW9Z-1ESSxM	Switch Emergency x Meters
EW9Z-1ERBxM	Switch Emergency Reverse Button x Meters

Machinery HMI & Signals

INTERACTIVE EQUIPMENT

HG2J

Recommended for:

✓ SWD® range
Page 41

Projected Capacitive Touch

The Projected Capacitive Touch Stylish is a smart capacitance touchscreens with an input voltage of 12-24V DC, a leading choice for applications.

Safety Commander

The safety commander enables industrial tablets to provide operation safety and features wired LAN connection and mechanical switches.

Push Button and Pilot Light

The Push Button and Pilot Light and its two-step locking lever integrated with a guard provides a higher level of safety, and the low projection from the panel surface reduces the possibility of unexpected activation or operator damage.

Smart RFID Reader

The Smart RFID Reader increases tracking, security, access levels, and productivity of applications. Built for easy integration into industrial systems, this RFID device lets OEM and end users implement secure equipment identification, access control, and traceability.

HT4P

Recommended for:

✓ SWD® range
Page 41

CW1B

Recommended for:

✓ SWD® range
Page 41

KW2D

Recommended for:

✓ SWD® range
Page 41

The references listed below correspond to product families. Please contact your reseller to obtain the list of orderable part numbers.

REFERENCE	Designation
HT4P	Safety Commander
HG2J	Projected Capacitive Touch
CW1B	Push Button and Pilot Light
KW2D	Smart RFID Reader

Light Tower

The light tower uses LED technology to provide a bright solution for supervising workstations or indicating the status of a process.

LD6A

Recommended for:

✓ SWD® range
Page 41

Illuminated buzzer

The illuminated buzzer enhances visibility to indicate the robot operating status.

HW1Z

Recommended for:

✓ SWD® range
Page 41

The references listed below correspond to product families. Please contact your reseller to obtain the list of orderable part numbers.

REFERENCE	Designation
LD6A	Light Tower
HW1Z	Illuminated buzzer

Safety devices

RISK PREVENTION AND COMPLIANCE

SE2L

Recommended for:

✓ SWD® range
Page 41

Safety Laser Scanner

This small safety sensor ensures easy installation area protection and access protection for flexible and safe construction of robot systems.

E30BK1

Recommended for:

✓ SWD® range
Page 41

Safety Edge

The safety edge ensures safety on automatic doors of machine tools and on small AGVs.

XW1E

Recommended for:

✓ SWD® range
Page 41

Emergency Stop Switch

The emergency stop switch includes a new technology called safe break action that provides greater levels of human safety and is the first of its kind in the world.

The references listed below correspond to product families. Please contact your reseller to obtain the list of orderable part numbers.

REFERENCE	Designation
SE2L	Safety Laser Scanner
E30BK1	Safety Edge
XW1E	Emergency Stop Switch

Cables

**POWER, DATA
OR SIGNAL
TRANSMISSION**

CABLES FOR AWD® PRODUCTS AND ITS ACCESSORIES

REFERENCE	Designation	Compatibility
Charge cables		
EW9Z-1CCxMX	Charge Cable extender x Meters	NiMH Chargers with XLR charge plug - **Page 74**
EW9Z-1CCxMW	Charge Cable for AWD® 160/150 x Meters	AWD® 150/160 - **Page 30**
Battery cables		
EW9Z-1BC24V	Cable for 24V power discharge	AWD® 150/160 - **Page 30**
EW9Z-1BCEXT2MF	Cable for external battery, Flying leads	AWD® 150/160 without internal battery - **Page 30**
EW9Z-1BCEXT2M	Cable for external battery 2 Meters	AWD® 150/160 without internal battery - **Page 30**
Hand controls cables		
EW9Z-1ACxM	Adapter Cable x Meters for Button & Display	AWD® 150/160 - **Page 30**

CABLES FOR SWD® PRODUCTS AND DEVICES

REFERENCE	Designation	Compatibility
SWD® diag and config cables		
EW9Z-2CANDS `1`	Adapter cable SWD® from SWD® CAN connector to D-Sub	SWD® range - **Page 41**
IPEH-002021 `2`	Probe USB-CAN from PC to D-Sub	SWD® range - **Page 41**
Cables Pack `1` + `2`		
EW9Z-2DCP1	SWD® Diag and Config Pack – CAN probe and adapter cable	SWD® range - **Page 41**
SWD® Flying leads cables		
EW9Z-2PSC2MF `1`	Power Supply Cable for SWD® devices, 24 VDC - 2 Meters Flying leads	SWD® range - **Page 41**
EW9Z-2IOC2MF `2`	I/O Cable for safe Inputs/Outputs - 2 Meters Flying leads	SWD® range - **Page 41**
EW9Z-2CANC2MF `3`	CAN Cable for CANopen communication - 2 Meters Flying leads	SWD® range - **Page 41**
Cables Pack `1` + `2` + `3`		
EW9Z-2CP1	SWD® Flying leads Cables Pack – 24 VDC, I/O and CAN cables	SWD® range - **Page 41**

Safety hub

**EASY WIRING
FOR MOBILE ROBOTS**

EW9Z-2HUB1

Recommended for:

✓ SWD® range
  Page 41

Inter connection box

The EW9Z-2HUB1
is a central interconnection
box for intuitive wiring.

REFERENCE	Designation
EW9Z-2HUB1	SWD® Safety Hub

Chargers

🔌 Universal plug
available

⚡ Universal voltage
90-264 V AC

MULTI-USE
AND HIGH
COMPATIBILITY

NI-MH CHARGERS

Ni-MH

Mascot1A8xx

Suitable for:

✓ AWD® 150/160
Page 30

✓ Ni-MH external batteries
(Charger with XLR charge plug version) - **Page 76**

Charger 1,8 Amp 🔌⚡

XLR charge plug
or Molex charge plug
+ power cord

Available versions Mascot1A8	W U S
W Charge plug	**U S** Power cord
blank: XLR Charge plug ⓘ recommended for remote charging with EW9Z-1CCxMW cable **Page 72** **W: Molex Charge plug** ⓘ recommended for embedded charger configuration	**Blank: EU** US UK AUS

NI-MH CHARGERS

Ni-MH

Mascot2A9xx

Suitable for:

✓ AWD® 150/160
Page 30

✓ Ni-MH external batteries
(Charger with XLR charge plug version) - **Page 76**

Charger 2,9 Amp 🔌⚡

XLR charge plug or Molex charge plug + power cord

Available versions Mascot2A9	W U S
W Charge plug	**U S** Power cord
blank: XLR Charge plug ⓘ recommended for remote charging with EW9Z-1CCxMW cable **Page 72** **W: Molex Charge plug** ⓘ recommended for embedded charger configuration	**Blank: EU** US UK AUS

REFERENCE	Designation
Mascot1A8xx	1,8 Amp charger x charge plug with x power cord
Mascot2A9xx	2,9 Amp charger x charge plug with x power cord

NI-MH CHARGERS

Ni-MH

Mascot4A

Suitable for:

✓ AWD® 150/160 with EW9Z-1CCxMW cable
  Page 30

✓ Ni-MH external batteries
  (Charger with XLR charge plug version) - **Page 76**

Charger 4 Amp
XLR charge plug + EU power cord

REFERENCE	Designation
Mascot4A	4 Amps charger XLR charge plug with EU power cord

LITHIUM CHARGERS

Li-ion

Mascot10A-Li

Suitable for:

✓ EW9Z-1BEXT20VL Li-ion external battery
  Page 76

Charger 10 Amp
XLR charge plug + EU power cord

REFERENCE	Designation
Mascot10A-Li	10 Amps charger Lithium 29,4 V for Li-ion external battery

External batteries

CONTINUOUS USE	NI-MH BATTERIES	External battery with handle

Ni-MH

EW9Z-1BEXTxxA

Suitable for:	Cable required
✓ AWD® 150/160 without internal battery **Page 30**	EW9Z-1BCEXT2M **Page 72**
✓ SWD® range without internal battery **Page 41**	

External battery with handle
Ni-MH 24 VDC - 9 Ah or 15 Ah

REFERENCE	Designation
EW9Z-1BEXT09A	External Battery with handle Ni-MH 24V 9AH
EW9Z-1BEXT15A	External Battery with handle Ni-MH 24V 15AH

LITHIUM BATTERIES

Li-ion

EW9Z-1BEXT20VL

Suitable for:	Cable required
✓ AWD® 150/160 without internal battery **Page 30**	EW9Z-1BCEXT2M **Page 72**
✓ SWD® range without internal battery **Page 41**	

External battery with handle
Li-ion 24 VDC - 20 Ah

REFERENCE	Designation
EW9Z-1BEXT20VL	External battery Lithium 24V 20Ah

Mechanical accessories

OPTIMAL INTEGRATION

The suspension bracket helps absorb shocks and vibrations, thereby enhancing stability and operator comfort. It also provides height compensation, ensuring secure transport of loads.

EW9Z-1MCS2

Suitable for:

✓ AWD® 150/160
  Page 30

Compact suspension bracket

✓ Suitable for medium loads, up to 500 kg.

EW9Z-1MCS3

Suitable for:

✓ AWD® 150/160
  Page 30

Compact suspension bracket with stronger spring force

✓ Suitable for heavier loads, between 500 and 1000 kg.

EW9Z-1MCS2
on AWD® 160 wheel

REFERENCE	Designation
EW9Z-1MCS2	Suspension bracket Light / Compact
EW9Z-1MCS3	Suspension bracket Light / Compact (for heavy loads)

WE MAKE THE POINT OF CONTACT, WHERE PEOPLE INTERFACE WITH MACHINES, EASY, SAFE AND SECURE. **WE CREATE NEW POSSIBILITIES.**

One of our corporate principles is to conduct business with consideration for social contribution. Since its founding, IDEC has developed and introduced the world to numerous products and services centered on its control technology. Today, our products are used not only in factories, but in a wide range of settings in people's everyday lives where customers desire safety, ease of use, reliability and a smaller environmental footprint.

Acronym & Abbreviation

AGC: Automated Guided Cart
AGV: Automated Guided Vehicle
AMR: Autonomous Mobile Robot
API: Application Programming Interface
AWD: Assist Wheel Drive
CAN: Controller Area Network
EMC: Electromagnetic Compatibility
ETH: Ethernet
HMI: Human Machine Interface
IP: Ingress Protection

ISO: International Organization for Standardization
LAN: Local Area Network
LED: Light Emitting Diode
OEM: Original Equipment Manufacturer
PDO: Process Data Object
PID: Proportional-Integral-Derivative
PLC: Programmable Logic Controller
ROS: Robot Operating System
SBC: Safe Brake Control
SBU: Safe Brake Unlock

SDI: Safe Direction
SLS: Safely Limited Speed
SMS: Safe Maximum Speed
SRDO: Safety-Related Data Object
SS1: Safe Stop 1
SWD: Safety Wheel Drive
VAC: Volts Alternating Current
VDC: Volts Direct Current

Notes

IDEC

22 FACTORIES

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100 000 + REFERENCES

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