



RAVENDO

POWERED WAREHOUSE TROLLEY

TW 1000 TERRAIN | TW 1250 TERRAIN



165055 | 165655

ABOUT THIS USER MANUAL

PURPOSE

The purpose of this user manual is to ensure correct use and maintenance of the powered warehouse trolley. The trolley is motorized and designed to transport heavy goods. It is manoeuvred by one person using a control panel.

READING INSTRUCTIONS

Knowledge

It is the responsibility of the employer (owner of the machine) to ensure that everyone who is operating, servicing, maintaining or repairing the machine has read the user manual; at least the parts of it that are relevant to their work.

In addition, everyone who has to operate, service, maintain or repair the machine has a duty to search information in the user manual themselves.

Availability

The user manual must be kept in a place known to the staff where it is easily available to operators and maintenance staff.

VERSION

This user manual is an English translation of the manufacturer's original user manual. This user manual is version 1.1

MANUFACTURER

Ravendo A/S is the manufacturer and producer of the powered warehouse trolley.

Ravendo A/S

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INTENDED USE, WARNINGS ABOUT DANGEROUS SITUATIONS

Always use the required personal protective equipment when handling the powered warehouse trolley and the goods being transported. Protective footwear is recommended when using the trolley.

The powered warehouse trolley must only be used with original and correctly mounted accessories and spare parts. Never use the product with other parts than those supplied together with the product or specifically adapted to the purpose by Ravendo A/S.

Never try to modify or adapt the product for any use other than that described in the user manual. In the event of modification or change of use, any warranty and liability of the manufacturer will become void.

Before each use of the powered warehouse trolley, check that the trolley is in a safe condition and that the electric system is undamaged.

During use, the operator must be aware of changes in driving characteristics and make sure that any damage is repaired before using the powered warehouse trolley.

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PRODUCT OVERVIEW



	Model	TW 1000 TERRAIN 165055	TW 1250 TERRAIN 165655
Dimensions			
L x W x H total mm		1000 x 600 x 1170	1250 x 600 x 1170
Powder coating		Yellow RAL 1004	Yellow RAL 1004
Wheel		Pneumatic 10" + 12"	Pneumatic 10" + 12"
Deadweight		66 kg	76 kg
Battery		26Ah	26Ah
Charger - charger time		3A - 6 hours	3A - 6 hours
Load capacity		400 kg	400 kg
Mileage per charging		Up to 10 km	Up to 10 km
Gradability		Up to 10°	Up to 10°
Motor power		400W	400W

USER INSTRUCTIONS

CONTROL PANEL

1 - Charging socket

The charging socket is used to charge the battery pack. See section CHARGING INSTRUCTIONS.

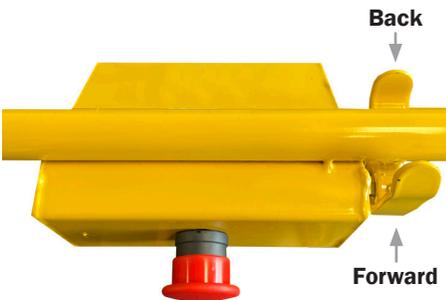
2 - Safety button

When activating the safety button, the powered warehouse trolley stops and moves forward (away from the user). This is a safety precaution that prevents any danger of crushing the user when driving backwards.

3 - Throttle lever

The throttle lever is stepless and determines the current driving speed. The more the lever is tilted, the faster the trolley drives. When pressing the lever closest to the driver, the trolley moves forward. When pressing the lever farthest to the driver, the trolley moves backwards.

The throttle lever automatically returns to its starting position when not activated, which brings the powered warehouse trolley to a stop.



By pulling the trigger handle, access to the battery is obtained. Note that the battery pack can only be accessed when the key is not inserted. The key can be removed when turned to "OFF."

5 - Battery pack

Behind the battery box is the battery with the battery gauge, indicating the current power level of the battery through a glowing line on the display. It is recommended to cease use and

drive the powered warehouse trolley for charging when the remaining power level of the battery is approximately 30% (a dot is illuminated).

The battery's power level can be checked by holding down the "ON" button. NOTE: Keep an eye on the battery power level yourself, as the battery gauge does not provide a warning for low power reserves.



6 - Key Switch

Use the key switch to turn the powered warehouse trolley on and off. The key is inserted and turned towards "ON" to activate the trolley. To turn it off, the key is turned towards "OFF". Afterward, the key can be removed.



MOTOR UNIT

7 - Disengagement

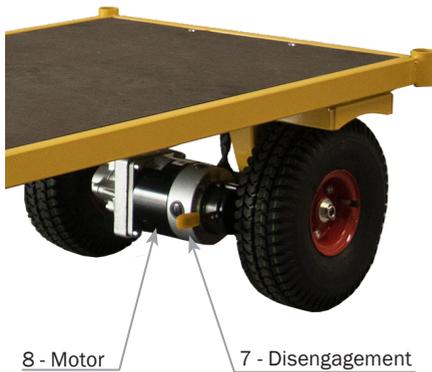
If you need to push the trolley manually, the motor can be disengaged using the yellow disengagement lever. The lever is positioned as pictured above to the right. For disengagement, turn the lever upward. The powered warehouse trolley must be switched off before disengagement. This is done via the key switch (3). When the motor is disengaged, the motor brake is disengaged as well. You must therefore make sure that the trolley does not roll away from you when disengaging the motor. You need to deac-

tivate the disengagement before you can move the trolley via the motor. The disengagement is deactivated by turning the disengagement lever until you hear a “click”.

REMEMBER: always deactivate the disengagement after use if it has been activated.

8 - Motor

The motor propels the wheels when the accelerator lever is activated.



OPERATION INSTRUCTIONS

FIRST DRIVE WITH THE POWERED WAREHOUSE TROLLEY

The first time you operate the trolley, it is advisable to drive without a load in an open space, preferably on a flat and solid surface without obstacles. Once you are comfortable maneuvering the trolley on level surfaces, practice one-handed driving and maneuvering around obstacles such as curbs and ramps. As you become familiar with operating the trolley, you can proceed to drive with secured loads. Further details about the driving itself are provided in the section below.

Only after becoming fully proficient in opera-

ting and maneuvering the trolley in various scenarios should it be used in daily work.

DRIVING THE POWERED WAREHOUSE TROLLEY

Before driving the trolley:

1. It is the user's responsibility to check that the trolley, including the motor, is not damaged before starting to drive. If the vehicle's user manual prescribes additional checks before use, it is the user's responsibility to verify these points. Also, the user must ensure that the trolley is loaded properly if carrying goods and that they are securely fastened.
2. It is the user's responsibility not to drive in areas that exceed the permitted driving capabilities of the trolley.

If the user feels uncomfortable during operation, bring the truck to a stop by releasing or returning the accelerator lever to the neutral position.

1. Before driving the trolley, disconnect the charger. Do this by turning off the socket to which the charger is connected and removing the charger plug from the socket.

2. Insert the key into the key switch and turn it a quarter turn clockwise. The trolley can be driven 3 seconds after this.

3. Attempt to start with the motor disengaged. For reset, turn off the trolley, disengage the clutch, and turn it on again.

4. Pressing the accelerator lever closest to the operator will move the trolley forward. Pressing the lever farthest from the operator will move the trolley backward. The harder the accelerator lever is pressed, the faster the trolley will move. When the accelerator lever is released or returned to the neutral position, the trolley decelerates to a stop. For a controlled stop, gradually return the accelerator lever to the neutral position.

5. Quickly switching between the two directions of travel results in a harder brake than usual. Be especially cautious with high and/or heavy loads.

6. Activating the safety button while driving backward will abruptly stop the trolley and move it forward a bit. This is a safety measure to prevent the user from being trapped between the trolley and, for example, a wall. To resume driving, release and re-activate the accelerator lever.

7. When the trolley comes to a stop, the motor's parking brake will automatically engage after about 3 seconds. When the brake engages, a small click can be heard. The parking brake automatically disengages when the accelerator lever is activated for driving.

8. After use, turn off the trolley by turning the key a quarter turn counterclockwise. It is always recommended to remove the key and take it with you when leaving the trolley to prevent unauthorized use.

9. Always connect the charger after use. For a detailed description of charging, refer to the CHARGING INSTRUCTIONS section.

10. If manual operation without the use of the motor is desired, the trolley can be disengaged using the disengagement handle. This may be relevant, for example, if the battery runs out. Always remember to deactivate the clutch after use, as the brake is also disengaged when the motor is disengaged. When the clutch is engaged, the user should be aware of the surface and ensure that the truck does not risk rolling away.

CHARGING INSTRUCTIONS

Charging should take place in dry and frost-free surroundings with good ventilation. If charging is performed at temperatures

below 10°C, a reduced driving range can be expected.

WARNING! During charging, explosive gas may form under certain circumstances. Never charge near ignition sources, and ensure good ventilation.

Only use the included charger or a charger approved by the manufacturer. If other chargers than the standard charger are used, the indications and charging time described below may vary. Always read the manual for the specific charger in use. The use of chargers not approved by the manufacturer may result in damage to the electrical systems, posing a risk of explosion and/or fire.

CONNECTING AND DISCONNECTING THE CHARGER:

1. Turn off the trolley using the key switch (5) before starting the charging process.
2. The battery can be charged while in the trolley or when detached. See page 5 for battery removal. Connect the charger's plug (6) to the charging socket (1).
3. Insert the charger's plug (7) into an electrical outlet and turn on the outlet.
NOTE: For safety reasons, the motor is designed not to operate when the charger is connected.*
4. When the charger is connected, the light on the charger initially turns **RED**. When charging is complete, and the battery is fully charged, the light turns **GREEN**, indicating that the trolley is ready for use.

5. To use the trolley, the charger must be disconnected. To disconnect the charger, turn off the outlet, then remove the charger's plug (6) from the charging socket (1). Follow the DRIVING INSTRUCTIONS section

for using the trolley.

When the battery is fully charged, the charger maintains the charge with a very low current. This ensures that the battery remains fully charged and helps extend its lifespan. Always remember to turn off the trolley and connect the charger after use. This is also applicable if the trolley will not be used for an extended period.

****BATTERY AND CHARGING TIME:****

The batteries are maintenance-free and sealed. Always ensure to connect the charger when the trolley is not in use, contributing to extending the battery life.

It typically takes 6 hours to fully charge the batteries. If the batteries are completely depleted, charging may take longer. Avoid depleting the batteries completely, as it significantly shortens their lifespan. Batteries slowly lose power if the trolley is unused. The loss is 10-20% per month, depending on climate conditions and the condition of the batteries.

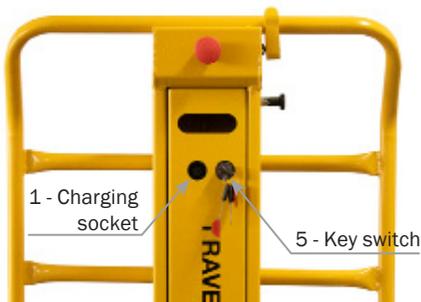
If the trolley no longer travels as far as before or lacks traction, it may indicate that the batteries are worn and need replacement. Batteries are a consumable item and are expected to be replaced approximately every three years. For battery replacement, contact the trolley dealer.

Handle batteries with care, being mindful not to bump corners or let the packaging come into contact with sharp or pointed objects.

Batteries contain large amounts of energy. Short-circuiting or damaging the batteries can cause an explosion and pose a life-threatening risk. Batteries must only be replaced by trained personnel. Never attempt to charge damaged batteries!

If batteries are punctured, and you come into contact with the gel-like acid in the batteries, immediately remove any contaminated clothing and thoroughly wash the skin with soap and water. In case of subsequent eczema or rash, seek medical attention. If the acid comes into contact with the eyes, rinse them immediately with water and seek medical attention.

Used or defective batteries must be collected and recycled according to rules determined by local environmental authorities. Any spills from defective batteries must be collected and handled according to rules determined by local environmental authorities.



MAINTENANCE

Separation and repair of the engine must only be carried out by a technically knowledgeable and trained individual.



The engine is largely maintenance-free. For prolonged and trouble-free operation, the following is recommended at least every 6 months:

- Retighten wheel and bolt assemblies.
- Inspect tires for damage and wear.
- Check cables and accelerator box for damage and wear.

Replace parts as needed

The gearbox is filled with grease from the factory and is designed to last the entire lifespan of the engine.

The batteries are sealed and maintenance-free. The lifespan of the batteries depends significantly on usage patterns and the climate in which they are used. Replace the batteries when satisfactory driving distance per charge can no longer be achieved. The durability of the batteries is significantly extended by fully charging them as often as practical and keeping the charger connected when the trolley is not in use.

7.1 CLEANING

Cleaning the trolley is best done with water mixed with a mild soap and a well-wrung cloth. Be especially cautious not to get water on the electrical components. Do not use solvents or cleaners that contain abrasive particles, as this may damage the surfaces.

7.2 BATTERIES AND WIRES

Charging and maintaining the batteries are crucial for their lifespan. See the Charging section. Regularly check that wires have

not been damaged.

7.2.1 REPLACEMENT OF MAIN FUSE

There is one fuse in the main fuse that trips if there is a fault in the vehicle's electrical system. Contact your dealer or the manufacturer if the fuse trips. Replace only the defective fuse with a new one of the same type and current rating [A/AMP]. Installing a more powerful fuse bypasses a safety function and can result in fire or explosion. Replace the fuse only once. If the fuse trips again immediately after replacement, there is a fault in the electrical system, and the trolley needs repair.

7.3 STORAGE

If the trolley is not to be used for an extended period, the engine should be left for charging. If this is not possible, the batteries should be fully charged and then connected to the charger approximately every 3-4 weeks. The trolley should be stored in a dry place at temperatures of 5-25°C.

7.4 DISPOSAL

Batteries are the only parts of the trolley that may be considered environmentally hazardous and must be handled according to current regulations determined by local environmental authorities. Any spills from defective batteries should be collected and handled according to rules determined by local environmental authorities. All other parts can be disposed of as metal and electronics.

SERVICE

Service must only be performed by a technically knowledgeable and trained individual. Before working on the engine and other electrical components, the battery must be disconnected. Only original spare parts supplied by RAVENDO A/S should be used for repairs. **WARNING!** It is life-threa-

tening for untrained individuals to work with the electrical installations in the trolley. Short-circuiting the battery can result in an explosion and pose a life-threatening risk.

WARRANTY

Ravendo A/S is responsible for construction, manufacturing, and material defects in the delivered product for a period of 12 months from the date of delivery. Ravendo A/S is obligated to remedy deficiencies resulting from construction, manufacturing, and material defects. For parts replaced under warranty, the warranty period is 6 months from the date of replacement, but not exceeding 12 months from the original delivery. The manufacturer's responsibility is void if the product has been subjected to incorrect assembly, inadequate maintenance, or treatment not in accordance with the product instructions.

The manufacturer's responsibility does not cover consequential damages, loss of operation, loss of time, loss of profit, costs associated with disassembly and shipping of defective goods, and other indirect expenses for the buyer. Products, spare parts, and related services sold and delivered by Ravendo A/S are intended for use as described in this manual and for use in the EU and Norway. Regardless of any conflicting terms in the contractual basis, the manufacturer is in no case liable for loss or damage attributable to use for purposes other than those intended or for use in the EU and Norway.

WARRANTY PROVISIONS FOR ELECTRIC PRODUCTS

Our range of electric products is designed and manufactured to handle substantial weight and move larger items repeatedly. The products are subject to stringent requirements to withstand daily use and repeated heavy loads. Should you unexpe-

ctedly experience defects or deficiencies in material and manufacture with an electric product, we provide a 2-year warranty for such defects and deficiencies*.

*The warranty does not cover defects and deficiencies caused by: Normal wear and tear; inadequate maintenance; incorrect use of the product, including overloading; changes to the product, including the use of non-original spare parts and unauthorized repair attempts. *The warranty also does not cover parts such as batteries, gears, steering, motors, nor consumables like screws, bolts, rubber strips, wheels, and other spare parts expected to have a shorter lifespan than the warranty period.

WARRANTY PROVISIONS SPECIFICALLY FOR BATTERIES

For batteries mounted on our electric products, we offer a 6-month warranty against manufacturing and material defects. The warranty is not applicable if the battery is subjected to severe impacts, vandalism, unauthorized repair attempts, incorrect and inappropriate use according to the user manual, as well as defects and deficiencies resulting from normal wear and tear; inadequate maintenance, and the use of non-original spare parts.

WARRANTY PROVISIONS SPECIFICALLY FOR STEERING AND MOTOR

For steering and motor components mounted on our electric products, we provide a 1-year warranty against manufacturing and material defects. The warranty does not apply if the part is exposed to severe impacts, water, vandalism, unauthorized repair attempts, incorrect and inappropriate use according to the user manual, as well as defects and deficiencies resulting from normal wear and tear; inadequate maintenance, and the use of non-original spare parts.

EU Declaration of Conformity

in accordance with Council Directive 2006/42/EC and 2001/95/EC

We hereby declare,

Ravendo A/S, Klokketøbervej 3-5, DK 8800 Viborg

that the powered warehouse trolley with engine, based on the concept and manufacturing process, as well as the execution produced by us, complies with the applicable safety and health requirements within the above-mentioned council directives.

In the case of product modifications not agreed upon with us, this declaration loses its validity.

Product description: Powered Warehouse Trolley
Product type/model: 165055 - TW 1000 TERRAIN EL
165655 - TW 1250 TERRAIN EL

Relevant Council Directive: Machinery Directive 2006/42/EF and 2001/95/EF

Product data

Weight: 48 kg
Mål [W x L x H]: 600 x 1000 x 1170 // 600 x 1250 x 1170
Battery: Litium-Ion (LiMn) 24V, 40 Ah
Charger: 220V
Max. load: 400 kg
Applied National Standard: Danish Working Environment Authority's Order No. 612 of June 25, 2008
Product Certification: Technological Institute TI-23-0530

Date:
10-10-2023

Manufacturer:



Tobias G. Nielsen
RAVENDO A/S
Klokketøbervej 3-5
8800 Viborg



**TEKNOLOGISK
INSTITUT**

Certification & Inspection

Teknologiparken
Kongsvang Allé 29
DK-8000 Aarhus C
Tel. +45 72 20 20 00
info@teknologisk.dk
www.teknologisk.dk

PRODUCT CERTIFICATE

Certificate no. TI-23-0530

The certificate is issued for the Supplier

Company: RAVENDO A/S
Address: Klokkestøbervej 3-5
City/town: DK-8800 Viborg
Country: Denmark



Danish Technological Institute, Certification & Inspection, Materials, Århus, hereby certifies that the products – no. 16 50 55 / 16 56 55 - referred to as:

- **Ravendo: Electric storage trolley TW 1000 Terrain and TW 1250 Terrain – with a maximum load capacity of 400 kg**

have had a review, risk assessment and test performed by a third party with 25 % overload and were found to meet the requirements of Executive Order No. 428 of 5 April 2022 from the Danish Working Environment Authority and on Design etc. of Machinery. Council Directive 2001/95/EC on general product safety.

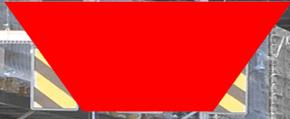
Aarhus C, 10. October 2023
Validity: 10. October 2025

**Danish Technological Institute
Certification & Inspection**



Jan Helbo

This certificate only refers to the product tested in accordance with Technical Report no.218640 – J218640, and does not represent a general assessment of future or other products. The product must be set up and used in accordance to applicable rules on safety. In case of unintended use of this certificate, the certificate can be withdrawn.



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