

Deka **READY** **POWER** **LITHIUM**

Motive Power Industrial Battery

USER MANUAL



TABLE OF CONTENTS

Introduction	3	Cable Management	15
How to Use This Manual	3	Charger Communication Setup	15
Navitas Company Background	3	Anderson Euro Key	15
Safety	3	Operation	15
General.....	3	Powering the Ready Power Battery On/Off	15
Elements of Concern.....	3	User Interface Module (UIM).....	15
Proper PPE, Tool, and Equipment	4	Battery Discharge Indicator (BDI) 1.0	15
Electrolyte Exposure	4	Battery Discharge Indicator (BDI) 2.0	15
Product Offerings	5	CAN Integrated Trucks	16
Product Familiarization	6	Power Save Shutdown	16
Receiving The New Ready Power Battery		Charging.....	16
Preinstall	11	Charging Types.....	16
Inspection	11	Connecting to Charger.....	17
Charging.....	11	Charging Process	17
Storage Before Install	11	Balancing	17
Installation	11	Stopping the Charge	17
Installing the Battery into the Counterweight.....	11	Non-Lithium Chargers.....	17
Installing the Battery/Counterweight Assembly		Charging Errors.....	18
in the Forklift Truck.....	12	Fault Detection.....	18
Slide in Installations.....	12	UIM	18
Overhead Lowering Installations.....	12	BDI	18
Accessory Installation	12	CAN Integrated Trucks	18
User Interface Module.....	13	Product Limitations / Specifications	19
Battery Discharge Indicator	13	Best Practices	20
UIM/BDI Magnetic Mount	13	Opportunity Charging.....	20
Truck CAN Communication.....	13	Battery Balancing	20
Power Cables.....	13	Recommended Maintenance	21
Cable Installation Routing	14	Storage	22
CAN Charge Cables	14	Fully Charge.....	22
BMID Charge Cables.....	14	Power Down.....	22
Dual Cable Setups.....	14	Storage Location	22
36v 550AH 18-125-13/15 (original)		Monitor the Battery.....	22
Specific Cables.....	14	Warranty	23
48v 1050AH Specific Cables.....	14	Replacement/Recycle/Disposal	24
Counterweight Mounted Connectors.....	14	Troubleshooting	25
Charger Installation	14	Glossary of Terms	26
Charger Mounting.....	14		

Lithium Ion Battery (Lithium Iron Phosphate, LiFePO4) **DANGER**

Hazard statement

The materials contained in this product may only represent a hazard if the integrity of the cell or battery is compromised; physically, thermally, or electrically abused. The below are the hazards anticipated under those conditions:
 Flammable liquid and vapor. Causes skin irritation. Causes serious eye irritation. Causes damage to organs (bone, teeth) through prolonged or repeated exposure.

Precautionary statement

Prevention

Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Keep container tightly closed. Ground/bond container and receiving equipment. Use explosion-proof electrical/ventilating/fighting equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Do not breathe dust. Do not eat, drink or smoke when using this product. Wear protective gloves/protective clothing/eye protection/face protection. Wash thoroughly after handling.

Response

In case of fire: Use appropriate media to extinguish. If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. If skin irritation occurs: Get medical advice/attention. Take off contaminated clothing and wash it before reuse. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention. Get medical advice/attention if you feel unwell.

Storage - Store in a well-ventilated place. Keep cool. Store as indicated in Section 7 of the SDS document.

Disposal - Dispose of contents/container in accordance with local/regional/national/international regulations.

Supplemental information

Presents a physical hazard which is not otherwise classified. Incorrect handling or storage of lithium ion batteries may cause thermal runaway resulting in fire or explosion. Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Under normal conditions of processing and use, exposure to the chemical constituents in this product is unlikely. The chemicals are contained in a sealed aluminum housing. Risk of exposure occurs only if the battery is mechanically, thermally or electrically abused. If this occurs, exposure to the electrolyte solution contained within can occur by inhalation, ingestion, eye contact and skin contact.

Additional Notes: CAUTION: Do not dispose in fire, mix with other battery types, charge above specified rate, connect improperly, or short circuit, which may result in overheating, explosion or leakage of cell contents. Do not open or disassemble. The liquid contained in the battery is flammable. Do not puncture, deform or incinerate. This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200. Additional information is given in the Safety Data Sheet.



Emergency Number USA/Canada: CHEMTREC (800) 424-9300. Outside USA 1 (703) 527-3887

WARNING: This product can expose you to chemicals including Lead, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.



Batería de ion de litio (fosfato de litio y hierro, LiFePO4) **PELIGRO**

Indicación de Peligro

Los materiales contenidos en este producto solo pueden representar un peligro si la integridad de la celda o batería se ve comprometida; maltratada física, térmica o eléctricamente. Los siguientes son los peligros previstos bajo esas condiciones:

Líquido y vapor inflamables. Provoca irritación cutánea. Provoca irritación ocular grave. Provoca daños en los órganos (huesos, dientes) tras exposiciones prolongadas o repetidas.

Indicaciones preventivas

Prevention

Mantener alejado del calor, chispas, llamas abiertas y superficies calientes. No fumar. Mantener el recipiente bien cerrado. Desconectar a tierra el contenedor y el equipo de recepción. Utilizar equipos eléctricos de ventilación de iluminación a prueba de explosiones. Utilizar únicamente herramientas que no produzcan chispas. Tomar medidas de precaución contra las descargas estáticas. No respirar el polvo. No comer, beber ni fumar mientras se usa este producto. Usar guantes de protección/ropa protectora/protección para los ojos/protección facial. Lavarse bien después de manipularlo.

Response

En caso de incendio: utilizar los medios adecuados para la extinción. En caso de contacto con la piel (o el cabello): quitarse inmediatamente toda la ropa contaminada. Enjuagar la piel con agua o tomar una ducha. Si se produce irritación en la piel: Obtener asesoramiento/ atención médica. Quitar la ropa contaminada y lavarla antes de volver a usarla. Si es en los ojos: Enjuagar cuidadosamente con agua durante varios minutos. Retirar los lentes de contacto, si se llevan y es fácil hacerlo. Continuar enjuagando. Si persiste la irritación de los ojos: Obtener asesoramiento/ atención médica. Buscar asesoramiento/ atención médica si la persona no se siente bien.

ADVERTENCIA: Este producto puede exponerle a sustancias químicas, incluido el plomo, que según el estado de California causa cáncer y malformaciones congénitas u otros daños reproductivos. Para obtener más información, visite www.P65Warnings.ca.gov.

Almacenamiento - Almacenar en un lugar bien ventilado. Conservar en frío. Almacenar como se indica en la Sección 7 de la Hoja de datos de seguridad.

Eliminación - Eliminar el contenido/recipiente de acuerdo con las regulaciones locales / regionales / nacionales / internacionales.

Información complementaria

Presenta un peligro físico que no está clasificado de otra manera. Si las baterías de iones de litio se manipulan o almacenan de forma incorrecta, pueden provocar un desbordamiento térmico que provoque un incendio o una explosión. Mantener alejado del calor, chispas, llamas abiertas y superficies calientes. No fumar. Bajo condiciones normales de procesamiento y uso, la exposición a los componentes químicos de este producto es poco probable. Los productos químicos se encuentran en una carcasa de aluminio sellada. El riesgo de exposición ocurre solo si la batería sufre un maltrato mecánico, térmico o eléctrico. Si esto ocurre, la exposición a la solución de electrolitos contenida dentro puede ocurrir por inhalación, ingestión, contacto con los ojos y con la piel.

Nota Adicional: PRECAUCIÓN: No arrojado al fuego, no mezclarla con otros tipos de batería, no cargarla por encima de la velocidad especificada, no conectarla de forma incorrecta y evitar el riesgo de cortocircuito. No cual puede provocar un sobrecalentamiento, una explosión o una fuga del contenido de la celda. No abrir ni desmontar. No perforar, deformar ni incinerar. El líquido que contiene la batería es inflamable. Mantener alejado del calor / chispas / llamas abiertas / superficies calientes. - No fumar. Este producto es un "Químico Peligroso" según lo define la Norma de Comunicación de Peligros de OSHA, 29 CFR 1910.1200. Se proporciona información adicional en la Ficha de Datos de Seguridad.

Número de emergencia en EE.UU. / Canadá: CHEMTREC (800) 424-9300. Fuera de EE.UU. 1 (703) 527-3887

Mfg. by / Mfg. por Navitas Systems, **Li-ion**
 5949 Jackson Rd, Ann Arbor, MI 48103 734-205-1400

2: INTRODUCTION

Thank you for your purchase of East Penn's Deka Ready Power® Lithium-Ion Motive Power battery. Deka Ready Power is the ideal solution for powering Class I, II, and III forklift trucks in high intensity two and three-shift operations. Its many benefits include:

- Available in a wide assortment of 24, 36, & 48 volts with UL listing
- Lithium Iron Phosphate (“LiFePO₄”) Technology – Considered the highest performance and safest Li-Ion chemistry
- Lower overall operating and ownership costs - minimal kwh's to recharge
- Very long cycle and calendar life
- Consistently high capacity run time and faster charging capability
- Stronger operating performance during lifting/driving (constant voltage during discharging)
- Increased productivity with zero battery changes, saving money, space, and staffing requirements
- The battery can be turned off when not in use, allowing for safe transport of the lift equipment with battery installed
- No special safety considerations for fire suppression
- No hazardous waste/spills or neutralizing washes

2:1 How to Use This Manual

For easier navigation, the digital version of this manual contains links to each section in the table of contents. Use these to quickly navigate to the desired section.

The symbols below are used throughout this manual to indicate important information.

NOTE: Indicates information that may affect product performance or actions that would void the product warranty.

CAUTION: Indicates information that involves operator safety or potential product damage.

2:2 Navitas Company Background

A Company that Leverages the Scale and Strength of East Penn Manufacturing

Navitas is owned by East Penn Manufacturing, the largest privately held family-owned battery company in North America and makes its decisions for the long-term success of its company, people, and customers.

A Company with Leading Products

Navitas prides itself on applying military/industrial design and manufacturing principles to its product offerings. We invest in our people, processes, and facilities to make these products number one in their markets. Maintaining a leading position versus competitors keeps our customers at the forefront of innovation and helps to ensure the company's continued success.

A Company with Comprehensive Capabilities

Navitas is vertically integrated — everything from inventions in lithium battery chemistries and cell designs, to development and manufacturing of battery management system electronics, up to and including design and assembly of large lithium battery systems. We can make rapid and continual product improvements for our customers.

A Company with a Diverse Workforce

Navitas is committed to and actively engages in the diversity of its people, that prizes different backgrounds to come up with the best ideas and solutions to customers' needs.

3: Safety

NOTE: All service work must be completed by an authorized Deka service representative.

When used properly, The Deka Ready Power Li-ion Motive Power battery is a safe, dependable source of electrical power. The materials contained within this product may present a hazard or hazardous condition if the integrity of the cell or battery is compromised.

Only trained and QUALIFIED personnel should install, use, or service this equipment. Consult the Safety Data Sheet (SDS) for additional precautions and first aid measures. The SDS can be obtained at www.eastpennmanufacturing.com

3:2 Elements of Concern

There are five main potential hazards when not used and maintained as designed in a Deka Ready Power Li-ion battery: electrolyte, off-gassing, arc flash, shock potential, and weight.

1. **Electrolyte:** The electrolyte in a Li-ion battery plays a key role in transporting the positive lithium ions between the cathode and anode. The most commonly used electrolyte is comprised of lithium salt, such as LiPF₆ (an organic solvent), containing ethylene carbonate, dimethyl carbonate, and diethyl carbonate. Electrolyte can be a safety hazard since it contains flammable solvents. If the Deka Ready Power is damaged or incorrectly charged, it may lead to explosion and fire. Electrolyte in the presence of water will also produce Hydrofluoric acid. Consult SDS for additional precautions and first aid measures.
2. **Off-Gassing:** Cells have pressure relief valves to vent excessive pressure due to the breakdown of the electrolyte. This breakdown may produce an “organic” smell (similar to a permanent marker) odor. Allow off-gassing to dissipate before servicing a battery and contact the local Deka Representative for further guidance.
3. **Electricity:** Electric shock hazard exists for persons who contact live parts of batteries when the voltage is over 50 volts. The higher the voltage, the greater the electric shock hazard. Do not touch battery terminals while the Deka Ready Power is operating.
4. **Arc Flash:** The light and heat produced as part of an arc fault is a type of electrical explosion or discharge that results from a connection through air to ground or another voltage phase in an electrical system. Be sure to consult a hazard category classification table, like that found in NFPA 70E. Table 130.7(C)(15)(a) lists a number of typical electrical tasks by various voltage levels and recommends the category of PPE that should be worn. The second method of selecting PPE is to perform an arc flash hazard calculation to determine the available incident arc energy. An industry manual from the Institute of Electrical and Electronics Engineers (IEEE) labeled IEEE 1584 provides a guide to perform calculations given the maximum fault current, duration of faults, and other general equipment information is known. Once the incident energy is calculated, the appropriate Personal Protective Equipment (PPE) can be selected. Only personnel trained in NFPA 70E and the Deka Ready Power should service the Deka Ready Power.

3:2 Elements of Concern continued

5. **Weight:** The average lift truck battery weighs more than 2,000 lbs. (900kg). It can cause serious injury if it isn't handled carefully during installation, removal, and transport. Always use proper lifting equipment and techniques.

3.3 Proper PPE, Tools, and Equipment

1. **Wearing Protective Clothing:** When working on or near Deka Ready Power batteries, always wear proper protective clothes including safety glasses, gloves, and appropriate safety toed shoes. Do not wear any metal jewelry because it can short circuit a battery and cause injury. Consult with the National Electrical Code (NEC), National Fire Protection Association (NFPA) NFPA 70E, and local codes when working with exposed and/or energized electrical conductors.
2. **Lifting Batteries:** Always use the proper lifting equipment to reduce the risk of tray damage, shorting and possible injury. An insulated battery lifting beam with an overhead hoist is the safest way to lift a battery. An insulated lifting beam, with hooks that fit properly into the lifting ears in the tray, can be used with almost any type of overhead hoist. Be sure the lifting hooks align perfectly with the battery lifting ears. Misaligned hooks can cause battery lifting ear damage and could disengage while the battery is being lifted.
3. **Using the Battery as a Counterweight:** In order for most lift trucks to operate safely, the battery is part of the counterweight of the forklift truck. The battery must be within the recommended battery weight range specified on the forklift truck's nameplate. The battery's service weight is stamped on the tray near one of the lifting holes. A battery that is too heavy or too light can change the truck's center of gravity and cause it to be unstable. It is the user's responsibility to be sure the battery is within weight specifications of the forklift truck.
4. **Charging Areas – Proper Equipment:** The Deka Ready Power should be charged using only compatible charging equipment in designated charging areas.

5. **Fire Fighting Equipment:** Hand-operated fire extinguishers should be available in all charging areas even if the areas are equipped with automatic sprinkler systems. For information on extinguisher class, size, and mounting locations, consult local fire authorities and your insurance carrier.
6. **Disconnecting Charger:** Always press the "Stop" button on the charger prior to disconnecting a battery that is being charged.

3:4 Electrolyte Exposure

If the Deka Ready Power battery pack case is crushed, damaged, or compromised, inadvertent contact with the electrolyte may cause damage to eyes, skin, nose, throat, lungs, and respiratory tract if inhaled. Be sure to review the SDS (Safety Data Sheet) before handling.

1. **Electrolyte Spills:** Spills are unlikely as the battery is enclosed in a steel case and the electrolyte is absorbed onto a substrate and cannot flow under normal conditions. However, if the battery is crushed, or compromised with a release of electrolyte, the electrolyte should be contained and absorbed with suitable materials (e.g., sand and or vermiculite) and the appropriate PPE shall be donned.
2. **Contact w/skin:** If any materials from inside the cell contact skin, immediately wash exposed area with plenty of water for at least 15 minutes. Remove any contaminated clothing, jewelry etc. If Calgonate is available, use as directed. Contact emergency services if needed. Calgonate Gel is an effective topical 2.5% calcium gluconate gel that is used in first aid response to hydrofluoric acid (HF) exposure or contact to the body.
3. **Eyes:** If contact with eyes, rinse with water for several minutes. Remove contact lenses, continue rinsing. Contact emergency services if needed.
4. **Inhaled:** Remove person to fresh air and keep comfortable for breathing. Contact emergency services if needed.

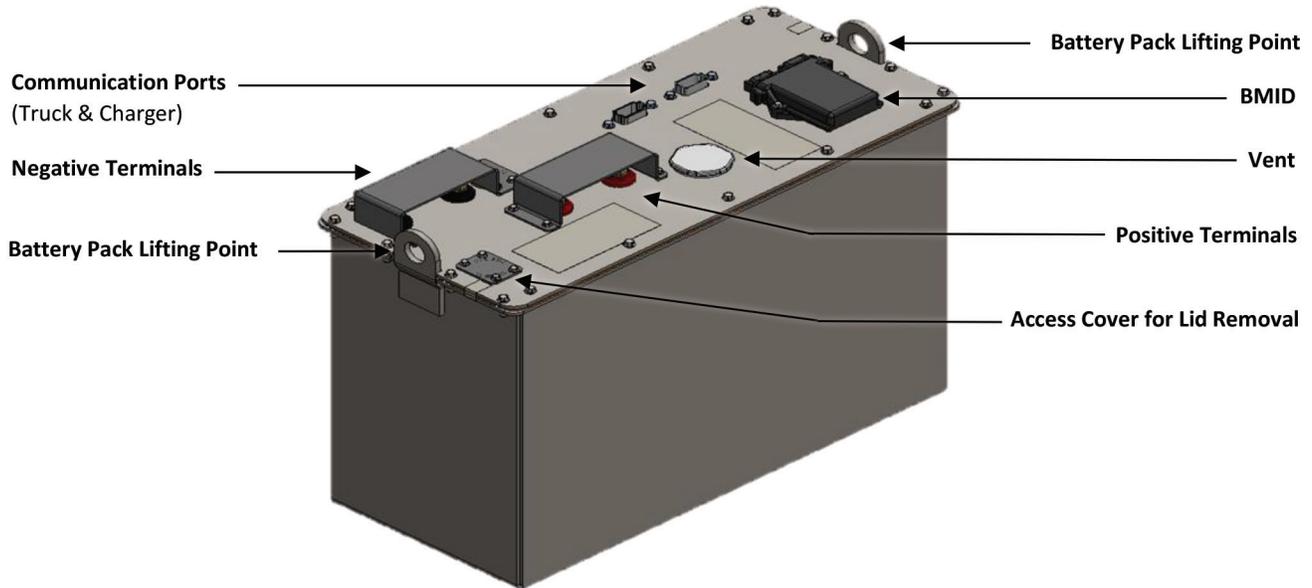
PRODUCT OFFERINGS

Voltage (V)	Deka Ready Power Model #	Capacity (kWh)	Capacity (AH)	Weight (lbs)	Weight (kgs)	Dimensions (L x W x H) (Inches)	Dimensions (L x W x H) (mm)
24	R24-525-128513	13.44	525	1000	454	30.75 x 12.88 x 24.01	781 x 327 x 610
24	R24-525-1212513	13.44	525	1600	726	30.65 x 12.85 x 30.23	781 x 327 x 768
24	R24-525-1212515	13.44	525	1650	748	36.00 x 13.88 x 27.75	914 x 353 x 705
24	R24-525-1212517	13.44	525	2070	930	38.37 x 12.88 x 26.73	975 x 327 x 679
24	R24-525-12-85-13-OB (On-board charger)	13.44	525	1020	463	30.75 x 12.88 x 28.10	781 x 327 x 714
36	R36-550-188517A	21.12	550	1950	884	38.50 x 20.40 x 22.70	978 x 518 x 577
36	R36-550-188517B	21.12	550	1970	884	34.35 x 26.55 x 22.76	872 x 674 x 578
36	R36-550-1812513	21.12	550	2100	952	38.13 x 15.65 x 28.66	969 x 398 x 728
36	R36-550-1812515	21.12	550	2350	1066	38.13 x 17.75 x 28.62	969 x 451 x 727
36	R36-700-188519	26.88	700	2050	930	38.19 x 22.25 x 22.71	970 x 565 x 577
36	R36-700-188521	26.88	700	2300	1043	38.44 x 24.85 x 22.81	976 x 631 x 579
36	R36-700-188523	26.88	700	2700	1224	38.19 x 26.85 x 22.61	970 x 682 x 574
36	R36-700-188525	26.88	700	2600	1179	38.19 x 30.00 x 22.66	970 x 762 x 576
36	R36-700-188527	26.88	700	3000	1360	38.19 x 32.70 x 22.71	970 x 831 x 577
36	R36-700-1812517	26.88	700	2800	1270	38.19 x 20.25 x 30.75	970 x 514 x 781
36	R36-700-1812519	26.88	700	3200	1451	38.19 x 22.57 x 28.33	970 x 573 x 720
48	R48-550-248515	28.16	550	2300	1043	38.32 x 24.73 x 22.63	973 x 628 x 575
48	R48-550-248517	28.16	550	2850	1293	38.44 x 27.00 x 22.65	976 x 686 x 575
48	R48-550-248519A	28.16	550	2550	1156	38.44 x 30.00 x 22.84	976 x 762 x 580
48	R48-550-248519D	28.16	550	2650	1202	44.25 x 25.50 x 22.69	1124 x 648 x 576
48	R48-550-248521A	28.16	550	3025	1372	38.44 x 32.69 x 22.82	976 x 830 x 580
48	R48-550-248521D	28.16	550	3450	1564	38.44 x 32.69 x 22.82	976 x 830 x 580
48	R48-700-248519B	35.84	700	2675	1213	38.30 x 29.88 x 22.64	973 x 759 x 575
48	R48-700-248519C	35.84	700	2975	1349	38.85 x 30.25 x 22.86	987 x 768 x 581
48	R48-700-248521B	35.84	700	3100	1406	38.44 x 32.68 x 22.64	976 x 830 x 575
48	R48-700-248521C	35.84	700	3375	1531	38.85 x 33.00 x 23.65	987 x 838 x 601
48	R48-700-248523	35.84	700	3300	1497	38.44 x 36.12 x 22.61	976 x 917 x 574
48	R48-700-248525	35.84	700	3750	1701	38.44 x 39.75 x 22.94	976 x 1010 x 583
48	R48-1050-248529	53.76	1050	4425	2007	44.95 x 38.95 x 22.05	1142 x 989 x 560
48	R48-1050-248533B	53.76	1050	5500	2494	44.95 x 45.45 x 23.50	1142 x 1154 x 597
48	R48-1050-248533A	53.76	1050	4250	1927	44.95 x 45.45 x 23.50	1142 x 1154 x 597

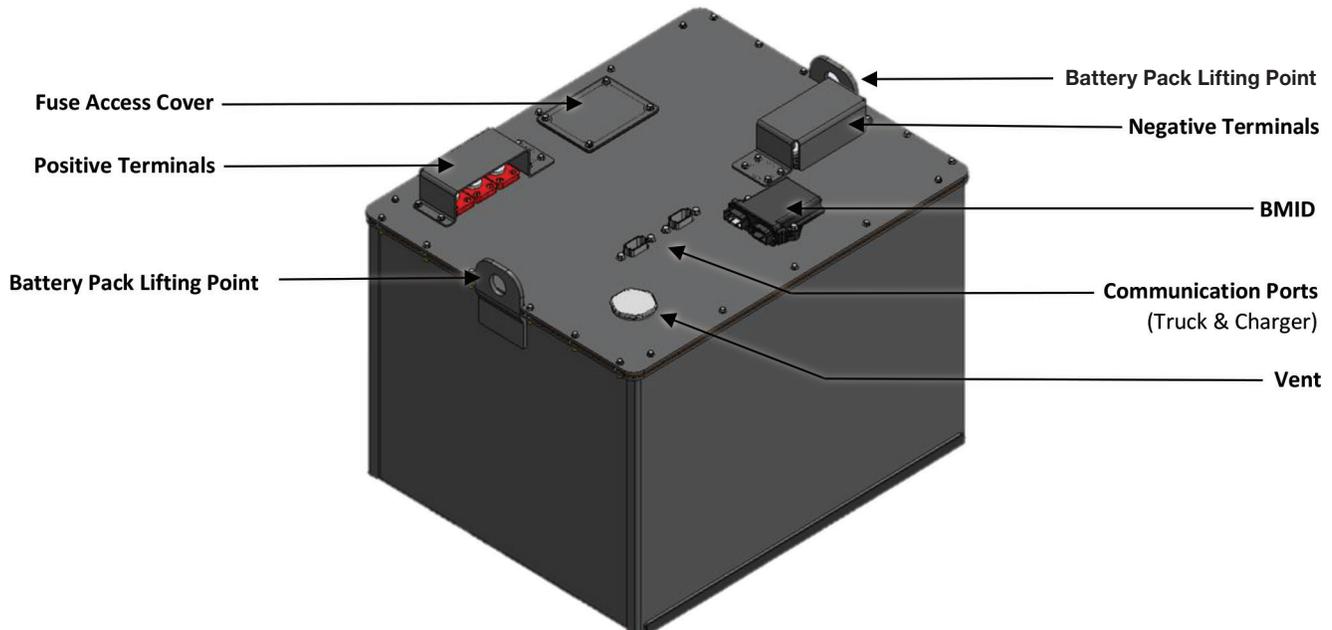
5: PRODUCT FAMILIARIZATION

The following section is intended to provide visual familiarization with the many products throughout the Deka Ready Power product line. Showing features and component locations, it is intended to be used for reference only. Exact specifications should be obtained through the local Deka Ready Power distributor in the area.

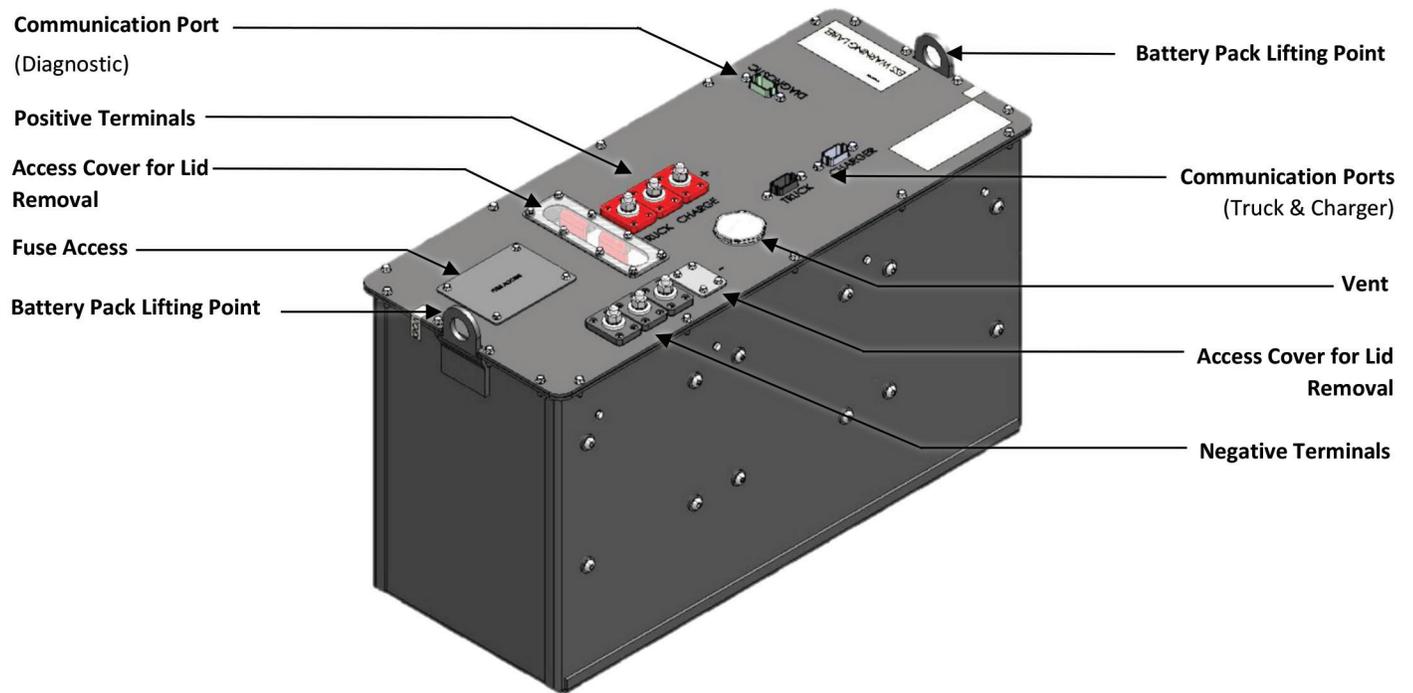
5:1 Ready Power 24V-525Ah



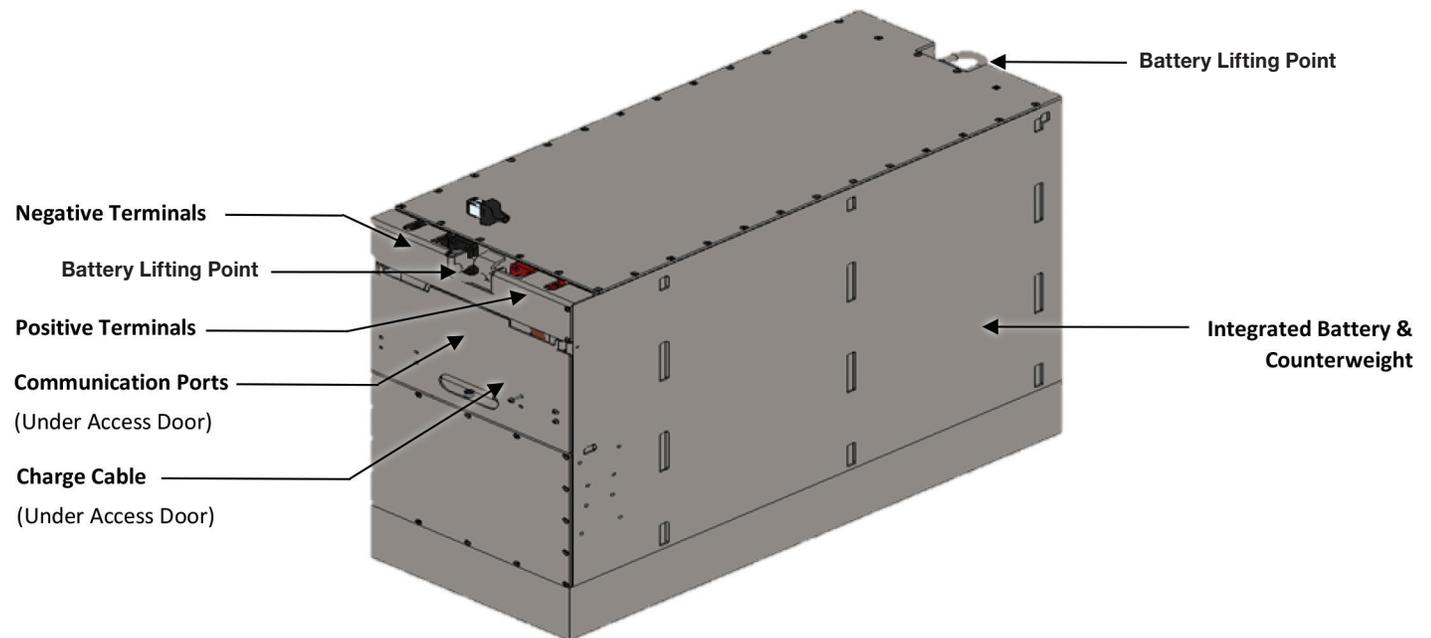
5:2 Ready Power 36V-550Ah, 36V-700Ah, 48V-550Ah, 48V-700Ah



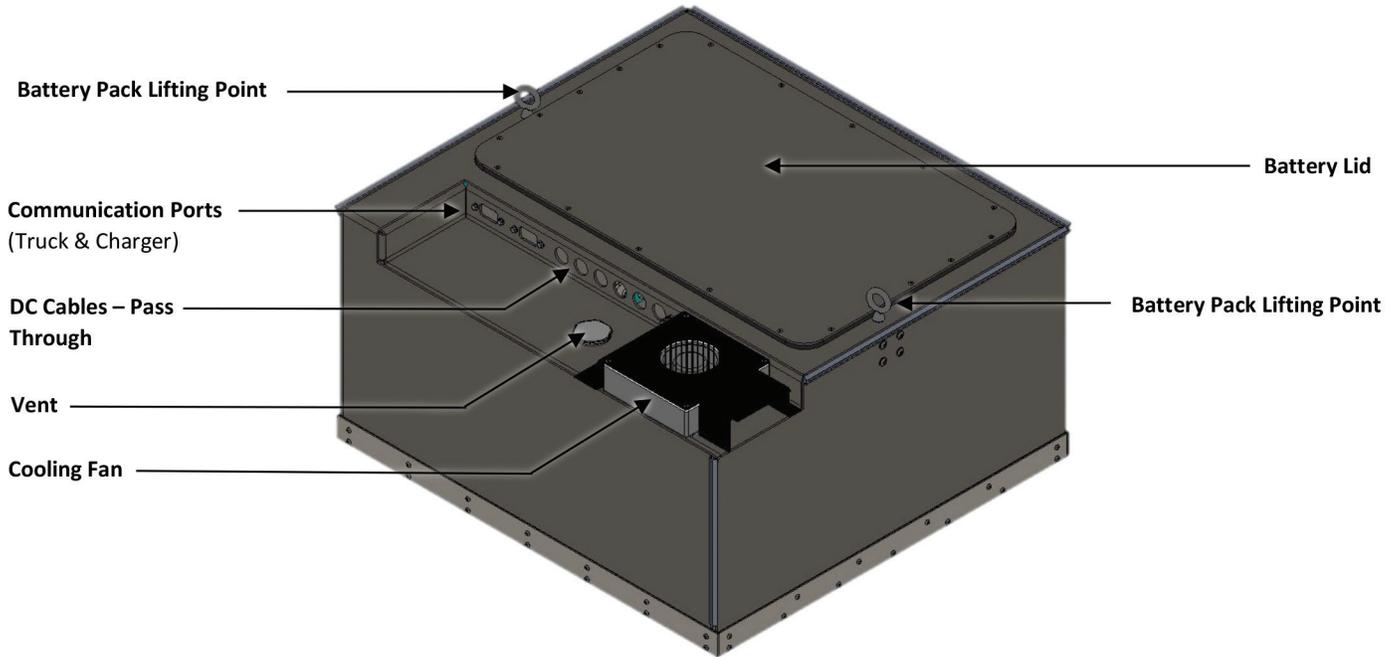
5:3a Ready Power 36V-550Ah (1812513 / 1812515) Current Model (2021-Present)



5:3b Ready Power 36V-550Ah (1812513 / 1812515) Original Model (2019-2021)



5:4 Ready Power 48V-1050Ah



5:5 User Interface Module (UIM)



5.5 User Interface Module (UIM) – this device presents the state of charge, remaining run time, lifetime AH throughput, active fault conditions – if any, and shutdown alarm.

5:6 Battery Discharge Indicator (BDI)



5.6 Battery Discharge Indicator (BDI) – this presents the state of charge at a quick glance, has an on-off button, and contains a shutdown alarm. A BDI is often used on Walkie type trucks.

5:7 Battery Discharge Indicator 2.0 (BDI)



5.7 Battery Discharge Indicator 2.0 (BDI) – this presents the state of charge at a quick glance, has an on-off button, and contains a shutdown alarm. A BDI is often used on Walkie type trucks.

5.8 Product ID Labels (SEE NEXT PAGE)

Deka Ready Power battery systems have two types of product ID labels. A “battery” ID label, found on the battery lid and an “assembly” ID label found on the counterweight. The battery label is specific to that battery and gives useful identification information such as voltage, capacity, and serial number. The assembly label takes much of the battery ID label information and adds the total weight of the assembly along with the assembly part number. The serial number will be the same on both labels.

Product ID Labels

5:8.1 Battery ID Label

MODEL:	24V-525 HP
PART #:	03-930-0576
D.O.M:	06/06/23
VOLTAGE:	25.6V
AMP HR:	525Ah
WEIGHT:	0482 (lbs)
SERIAL #:	9300576-23-AB1-2315603831
<p>WARNING</p> <p>Large format Lithium-Ion batteries are potentially hazardous and can present a serious FIRE HAZARD if damaged, defective, or improperly used.</p> <p>ONLY USE CHARGERS SPECIFICALLY DESIGNATED FOR THE PARTICULAR BATTERY FORMAT!</p> <p>Please report any issues with this product to Navitas immediately. Call us at (734) 205-1402 or email us at Support@navitasys.com</p> <p>5949 Jackson Rd, Ann Arbor, MI 48103 dekareadypower.com</p>	

- ← Model of Battery
- ← Battery Part Number
- ← Battery Date of Manufacture
- ← Nominal Voltage of Battery
- ← Battery Capacity
- ← Battery Weight
- ← Battery Serial Number
- ← General Warning and Contact Information

5:8.2 Assembly ID Label

MODEL:	24V-525-1212515 HPCP
PART #:	04-930-0675
D.O.M:	10/11/23
VOLTAGE:	24V
AMP HR:	525Ah
WEIGHT:	1622 (lbs)
SERIAL #:	9300576-23-AB1-2315603831
<p>WARNING</p> <p>Large format Lithium-Ion batteries are potentially hazardous and can present a serious FIRE HAZARD if damaged, defective, or improperly used.</p> <p>ONLY USE CHARGERS SPECIFICALLY DESIGNATED FOR THE PARTICULAR BATTERY FORMAT!</p> <p>Please report any issues with this product to Navitas immediately. Call us at (734) 205-1402 or email us at Support@navitasys.com</p> <p>5949 Jackson Rd, Ann Arbor, MI 48103 dekareadypower.com</p>	

- ← Model of Assembly
- ← Assembly Part Number
- ← Battery Date of Manufacture
- ← Nominal Voltage of Battery
- ← Battery Capacity
- ← Weight of Battery + Counterweight
- ← Battery Serial Number
- ← General Warning and Contact Information

6: RECEIVING THE NEW DEKA READY POWER BATTERY – PREINSTALL

After receiving the Ready Power lithium battery, the following steps must be taken to ensure the battery is ready to perform when put into service.



6:1 Inspection

Inspect the battery and accessories for damage that may have occurred during shipping. Ensure all cables and accessories ordered are present. Some accessories may ship in separate boxes which will be attached to the pallet or battery.

If damage is noted at the time of delivery of the Deka Ready Power, please write on the bill of lading that damage has occurred and/or rejected the shipment. Contact the local Deka Ready Power Representative immediately if damage is observed or you suspect parts are missing.

6:2 Charging

Batteries ship from the factory at a partial State of Charge (SOC). Like all batteries, the Deka Ready Power will experience some daily self-discharge. If left for an extended period without charging, irreversible cell damage may result. To prevent this, new batteries must be charged within two weeks of delivery and every 2 months until put into service at the customer site.

Refer to section 8.3 for steps on how to charge the Deka Ready Power lithium battery, including using a non-lithium charger for service charging.

6:3 Storage Before Install

After charging, the battery must be powered down if it will not be used in the next 2 days (pre-customer install). This will prevent unnecessary discharge before the battery is put into service.

NOTE: Reference section 8.1 for more information on how to power down the battery.

NOTE: Failure to follow the directions outlined in sections 6.2 & 6.3 may cause the battery SOC to decrease over time and resulting in permanent damage to the battery cells.

7: INSTALLATION

Most Deka Ready Power battery systems are comprised of three main components:

- The lithium battery pack, where the electrical energy is stored.
- The counterweight (CW), which surrounds the battery, fills the truck's battery compartment, and meets weight requirements of the forklift truck.
- The User Interface Module (UIM), Battery Discharge Indicator (BDI), or other accessory, which allows the operator to power the battery on/off and observe the state of charge.

Special considerations need to be taken for each of these components during installation.

CAUTION: Damage to the battery may result in toxic gas emissions. Each battery application must be evaluated prior to installation to ensure regulatory limits for toxic gas emissions into occupied compartments will not be exceeded.



7:1 Installing the Battery into the Counterweight

In most cases, the battery will arrive pre-installed into the counterweight. Early models of the R36-550-1812513 & R36-550-1812515 had integrated counterweights, so this section is not applicable. Refer to section 5.2 to install the complete battery/counterweight assembly into the truck. For situations where the battery and counterweight are separate, follow the details below for safe and proper installation.

Ensure the counterweight is compatible with the battery you intend to install. Contact the local Deka Ready Power distributor should you have questions regarding your order. If it is still attached, remove the counterweight lid, and inspect the inside of counterweight for debris, missing spacers, and bottom pads.

Remove all banding material and plastic wrap from the battery and locate the lifting point on each side of the battery. Using an insulated lifting device approved for the weight of the battery, lift the battery, and gently place it within the counterweight ensuring proper alignment with the spacers.

CAUTION: Ensure cables and accessories do not get pinched between the battery and counterweight sides during installation.

You can reinstall the counterweight lid at this point if you will be shipping or storing the assembly. If you plan to install the assembly into a truck next, you may choose to leave the lid off until after final installation is complete.

Most counterweight lids have a door to permit access to the communication ports on the battery. Install the counterweight lid in the orientation that aligns this door with the ports below. Before the counterweight lid bolts are fastened, do a final inspection on cable routing under the lid. Look for any cables or harnesses that may be damaged by the lid installation and reroute them before continuing.

7:1 Installing the Battery into the Counterweight *continued*

CAUTION: Never run accessory or power cables through the access door on the counterweight lid (sliding door on counterweight lid). Some counterweight lids have cutouts specifically designed (no sliding door) for cables. These may be used for cable routing.

Removing a battery from the counterweight is done in the reverse order of the instructions above.

7:2 Installing the Battery/Counterweight Assembly in the Forklift Truck

Installing the Deka Ready Power battery and counterweight assembly is comparable to installing a lead battery. Before starting the installation process, ensure that the truck's battery compartment is clear of obstructions and that the truck's battery spacers and/or retainers have been adjusted to prevent unnecessary battery movement within the truck's battery compartment.

Compare the weight rating on the truck's data plate with the printed weight on the Ready Power battery's counterweight label. (see section 3.7 for help with reading Ready Power labels).

CAUTION: Never install a battery into a lift truck that does not comply with minimum and maximum counterweight specifications as presented on the forklift truck's nameplate. Also, when the battery is installed in the truck, battery restraints should be adjusted to prohibit movement of the battery to no more than 1/2" in a horizontal direction. If these conditions are not met, the forklift truck may not operate correctly or safely up to and including imminent danger to the operator.

CAUTION: Always use properly maintained and certified lifting accessories designed to lift material handling batteries as outlined in section 3.3.2.

Most Deka Ready Power batteries can be installed in more than one orientation into the truck's battery compartment. When deciding how best to install the battery, take note of the truck's power connection location, Deka Ready Power product and ID labels, and the battery's charge connector mounting locations (if applicable). Installing one way may work better than another, depending on the application.

Only use the lifting points on the counterweight (not on the battery) to install the assembly into the lift equipment. The battery lifting points are only to be used to install/remove the battery into the counterweight.

CAUTION: Only lift a battery/counterweight assembly by the lift points on the counterweight. If lifted by the battery, stress on the counterweight lid may result in the counterweight separating from the battery creating a drop or electrical shock hazard.

Once the battery/counterweight assembly is installed, secure it using the lift truck manufacturer's instructions to prevent the battery assembly from moving during normal operation.

7:2.1 Slide in Installations

Battery assemblies that slide into the truck's battery compartment should have power cables, accessory cables and the counterweight lid installed on the battery before sliding the assembly into the truck. Once the battery assembly is installed in the lift equipment, there is little room to perform tasks. (Refer to section 5.3 & 5.4 on how to install and route cables).

Install the assembly into the truck as you would a lead battery using approved lifting devices and/or battery changing equipment.



CAUTION: Observe all cables and accessories while sliding the battery assembly into the forklift truck battery compartment. Cables may be pinched or crushed between the battery assembly and the battery compartment creating a safety hazard, and impeding operations.

7.2.2 Overhead Lowering Installations

Install the assembly into the truck as you would a lead battery using approved lifting devices and/or battery changing equipment as mentioned above in section 3.3.2.



CAUTION: Observe all cables and accessories while placing the assembly into the forklift truck battery compartment. Cables may be pinched or crushed between the battery assembly and the battery compartment creating a safety hazard.

Maintain a safe distance between the lifting equipment and the truck's overhead guard to prevent damage. You may need to change the length of the lifting device to work within the confines created by the truck's battery compartment and overhead guard.

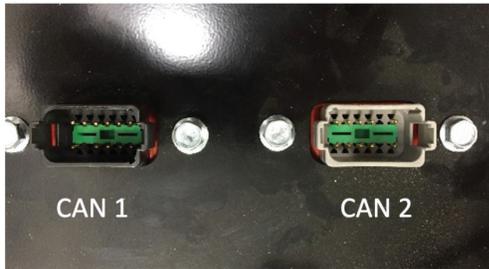
7.3 Accessory Installation

The Deka Ready Power battery may be shipped with a UIM, BDI and/or truck CAN communication cable. Installing these correctly will ensure proper operation, ease of use and reduced risk of product damage.

For UIM and BDI installations, it is recommended to find a location that allows the driver access to the accessory while the truck is in operation but does not obstruct the operator's view. Test various locations on the truck for visibility and ease of cable UIM/BDI communication cable routing. You may need assistance to temporarily hold the accessory while you occupy the normal driving position and verify the intended mounting location.

No matter what mount is used, you must ensure accessory cables are routed away from pinch points and are not outside of the lift equipment's perimeter. Secure the cables and/or communication cables to prevent excess cable from being snagged on racking or other equipment.

All accessories (UIM, BDI or CAN communication cable) connect to the battery at the CAN 1 port as shown in the photo below. This is a black, 12 pin Deutsch style connector that is keyed to match the black connector end of the accessory's communication cable. The CAN 2 gray port is used for the pilot and return from the charger.



NOTE: Always match the connector's key orientation before fully inserting into the CAN 1 port. Although they are keyed to prevent incorrect connection, with enough force, these keys can be overridden, causing damage, and preventing battery operation.

7.3.1 UIM Hard Mount

The UIM hard mount is designed to be installed on a pillar that supports the forklift's overhead guard; refer to the photo below.

If not already completed, secure the UIM to the mount using the supplied hardware.

Once a suitable location is found, attach the mount to the pillar using the provided hardware. The mount acts as a clamp, sandwiching the truck's pillar in-between the two mounting plates. Tighten the hardware, in a staggered pattern, continuing to go back to previous bolts and further tighten until all hardware is secure.



The UIM mount has a tilt function to allow the screen to be easily visible no matter the angle of the truck pillar. Loosen the tilt knob and position the UIM to the desired angle before tightening the tilt knob back to secure the setting.

7.3.2 BDI Hard Mount

The BDI hard mount is designed to be bolted either to the counterweight lid or any other convenient location on the forklift truck, as

shown in the photo below. Find a location where the operator can easily view/access the BDI, and a fastener can be used to attach the mount. Depending on the forklift and application, this may be on the lift equipment or battery counterweight.



Remove the existing fastener or locate a fastener that matches an empty location. With a washer at the head of the fastener, position it through the hole in the BDI mount and thread into place. Securely tighten to prevent the BDI from moving during operation. The BDI 2.0 mounted to counterweight lid is shown above.

7.3.3 UIM/BDI Magnetic Mount

The magnetic mounts provide versatility to finding a suitable mounting location on the forklift truck. Depending on the application, the magnetic mount can be attached to the battery or counterweight.

Once a potential mounting location is found, verify its use by installing the mount and then testing its holding power. The type and thickness of metal will determine the holding power of the magnets. The mount should be installed in a location that will not allow vibrations to dislodge the UIM/BDI during normal operations. Cable ties may be used to aid in applications where the surface is uneven, and vibrations could dislodge the accessory.

7.3.4 Truck CAN Communication

In applications where the forklift is set from the factory with lithium integration (communication between battery and truck via CAN), a communication cable facilitates the state of charge being displayed on the truck's dash. This eliminates the need for a separate battery UIM or BDI. If there is a fault on either the battery or the truck, the codes will be displayed on the user screen of the truck.

One end of the CAN communication cable will connect to the lithium harness on the forklift truck and the other, into the CAN 1 port on the battery. Route this cable to prevent pinching or chafing on the truck components – including the battery compartment lid.

CAN enabled fork trucks require the communication speed (also known as "baud rate") to be the same on both truck and battery. It is important that the battery and truck are set to the same communication baud rate for safety and proper operation. For questions relating to baud rate selection, contact the local Deka representative or Navitas Product Support.

7.4 Power Cables

Although every application will differ as to what power cables are used and how they will be mounted, there are some best practices to consider.

7.4.1 Cable Installation Routing

Power cables, whether used for charging or truck power are connected to the battery via terminal post (stud) and nut. Some Ready Power battery models have specific terminal posts for charge and truck cables. Be sure to follow the directions printed on the battery lid when connecting cables to these battery terminals. Incorrect connections will result in a battery unable to charge or power the fork truck.

NOTE: The terminal post torque specifications in the Deka Ready Power Service Manual must be observed when installing power cables to the battery terminals posts. Under-torqued terminal post nuts can cause cable or battery damage.

Power cables should always be routed away from potential pinch points and remain in the confines of the lift equipment to prevent snagging on racking or other warehouse obstacles. Avoid using sharp radius bends which may cause cable damage and heating. You may use cable ties to assist in securing the cables' position.

Power cables should be routed to avoid damaging thinner communication cables that are immediately adjacent. Placing power cables beneath, not on top of, communication cables and running power cables away from communication ports, will prevent unnecessary wear or stress.

For specialized installation, specific to fork lift OEMs or dealers, contact the local Deka representative or Navitas Product Support for more in-depth installation manuals customized to specific installation applications.

7.4.2 CAN Charge Cables

Specific power cables and harness are required to be used to facilitate CAN charging. There are three possible configurations of cables that allow for CAN charging. Those configurations are:

1. **Dedicated CAN charge cable** - The gray connector plugs into the BMID (black box on battery lid). The black "pass through" connects to the CAN 1 (Black)port on the battery lid. The user peripheral (UIM, BDI or Truck CAN Comms) connects to the other side of the pass through.
2. **Standard charge cable with CAN adapter harness** - The charge cable has a single gray connector that connects into the CAN adapter harness. The other gray connector of the CAN adapter harness connects to the BMID if equipped. The black connector of the CAN harness connects to the CAN 1 (Black) port on the battery lid. The user peripheral (UIM, BDI or Truck CAN Comms) connects to the remaining black connector on the CAN harness.
3. **CAN charging without use of external BMID** - The charge cable is specifically designed to connect to the CAN 2 (Gray) port on the battery lid. No other connections are necessary.

7.4.3 Dual Cable Setups

If the battery is set up for dual cable charging, a "Y" harness must be installed. This harness joins the communication portion of each of the individual charge cables before being connected to the battery communication port. If the "Y" harness is damaged, missing or not connected properly, the battery will not charge.

7.4.4 36v 550ah 18-125-13/15 (original) Specific Cables

The communication portion of the battery cable connects to the CAN 2 port (gray 12 pin Deutsch connector) on the battery. This is found under the access lid located at one of the narrow ends of the battery.

Certain installations may require a specific battery cable with a tight radius lug to allow for better cable routing. Contact the local Deka service representative for more information

7.4.5 48v 1050ah Specific Cables

Like the 36v 550Ah 18-125-13/15 (original), the communication portion of the charge cable will connect to the CAN 2 port (gray 12 pin Deutsch connector) on the battery. Unlike other Ready Power batteries, the battery terminals cannot be accessed from the outside of the battery. Instead, the power cables pass through sealed glands on battery and are connected to the terminal posts internally. This requires specific cables and trained staff to perform cable replacement. Contact the local Deka service representative for assistance.

7.4.6 Counterweight Mounted Connectors

Some applications may use connector(s) mounted to the Ready Power counterweight lid. The mounted connector(s) allow for ease of connecting to the charger. When mounted connector(s) are used, a dedicated power cable to the truck will also be present.

CAUTION: It is important that the battery and truck use CAN integration to prevent the fork truck to move while the battery is connected to the charger. An alternative is to use a "patch cable" between the battery and truck. When the battery is charging or connected to the charger, the truck is disconnected from the battery, preventing movement.

7.5 Charger Installation

All charger installations share common guidelines that help to ensure long lasting use and easy maintenance; the local Deka representative can offer insight and/or installation services. Please refer to the charger manufacturer's installation manual for specific instructions.

7.5.1 Charger Mounting

Chargers should be mounted on stands, pedestals, shelves, or other accessories designed for the application. The charger mounting location should allow for proper ventilation on all sides and access to internal parts for servicing. Refer to the specific charger's guidelines for this spacing.

Install bollards or other types of barriers to prevent the forklifts from contacting and damaging the chargers.



7.5.2 Cable Management

Using cable restraints (e.g., pogo sticks) or other types of cable management will help prevent damage to the cables and connectors; these are outside of the warranty. Excess cable should always be restrained out of the path of lift equipment. Cables and connectors should never be allowed to lay on the floor.

For dual cable chargers using pogo type restraint, it is best to have one cable restraint for each set of cables. Bundling both cables onto a single pogo will overload the spring and cause failure.

7.5.3 Charger Communication Setup

CAN enabled chargers require the communication speeds (also known as “baud rate”) to be the same on both charger and battery. When setting up the charger, ensure the baud rate setting is equal to the battery setting. Refer to the specific charger manufacturer’s instructions to determine and change this setting if necessary. The battery baud rate is set from the factory to communicate properly with the UIM or CAN integrated truck. For reference, if the battery uses a UIM the baud rate will be 125 kbps, so the charger must be also set to 125 kbps. On many CAN integrated trucks the baud rate is set to 250 kbps so the charger will need to be set to a baud rate of 250 kbps. For the required baud rate of the battery, contact the local Deka representative or Navitas Product Support.

7.5.4 Anderson Euro Key

If you are using a charger equipped with one or more Anderson Euro type connectors, it is strongly recommended a voltage key be installed into all charger connectors, see photo below. The voltage setting is not important, and a key is not needed in the battery side connector. The installation of the voltage key will help prevent operators from incorrectly forcing the euro connectors upside and causing a reverse polarity connection.

Reverse polarity connections can cause arcing and potentially, expensive damage to the battery and/or the charger.



Note: Reverse polarity connection damage is not warrantable.



8: OPERATION

The sections below discuss how to power the Deka Ready Power battery on/off, detect if there was a fault and how to connect and charge the battery with a Deka Ready Power approved charger. Deka Ready Power Lithium batteries are not to be used in marine or uncovered outdoor locations.

8.1 Powering the Ready Power Battery On/Off

Deka Ready Power Lithium batteries have internal contactors that allow or prevent the flow of electricity to the terminal posts and the forklift truck. These contactors allow the battery to be “turned on” for operation and charging or “turned off” for storage, maintenance, and shipping. How the battery is powered on and off depends on the accessories equipped with the battery. The following sections give more detail on each of these accessories and how they control the battery.

8.1.1 User Interface Module (UIM)

The UIM is an accessory with an LCD screen, menu control buttons and a power button. The operator may navigate through the different pages on the UIM by using the arrow keys (< >) located below the screen. See photo to the right.



Once the UIM is connected to the battery via the communication cable, press and release the silver ON/OFF Power button to turn the battery and UIM on. Once the start sequence has finished, the default user page will be visible.

When on, the UIM’s default screen displays the battery State of Charge (SOC), average internal temperature (°C) and voltage available to the forklift truck. The SOC is shown in both numerical form as a percentage and in a graph that changes colors from green to yellow to red as the battery is discharged. Scroll through the other pages, to access the Diagnostics page to view fault codes. Refer to section 8.4 for more details.

To turn the battery off, press and release the power button to begin the power down sequence. The UIM will display a countdown message on the LCD screen. The battery and UIM will turn off when the count reaches zero.

8.1.2 Battery Discharge Indicator (BDI) 1.0

The BDI 1.0 is a small accessory used to power the battery ON/OFF and display the State of Charge (SOC). Refer to the photo on the right.

To turn the battery on, press and hold the BDI ON/OFF power button until all LEDs are illuminated. The battery will power on and the appropriate LEDs will remain illuminated, displaying the battery’s SOC. It is normal for the bottom LED (red) to not be lit when the SOC is above 20% and other LEDs are lit. The label next to the LEDs identifies the range of SOC.



To power down the battery, press and hold the power button until the bottom LED (red) begins flashing. The battery will go through a countdown phase and then power off, turning off the illumination on the power button. A buzzer may accompany the countdown phase if enabled within the software.

LED	SOC Range (%)	
	Lower	Upper
GREEN 2	81%	100%
GREEN 1	61%	80%
YELLOW 2	41%	60%
YELLOW 1	21%	40%
RED	0%	20%

BDI LED functions:

1. LEDs illuminated except bottom (red) – Normal operation showing battery SOC. The red LED is not illuminated until the battery SOC is below 20%
2. Solid red LED - Low SOC, battery should be charged soon
3. Red LED flashing - Battery shutdown, power button pressed or battery fault
4. Combination of solid LEDs and one flashing LED - Battery charging. The battery is connected to a charger and the flashing LED indicates charging level
5. Buzzer sounding – Battery shutdown. User commanded shutdown (if buzzer is enabled in software) or battery fault shutdown (buzzer cannot be disabled for a fault related shutdown)

8.1.3 Battery Discharge Indicator (BDI) 2.0

The BDI 2.0 is a small accessory used to power the battery on/off and display the State of Charge (SOC). BDI 2.0 requires a specific harness and would not be compatible with a BDI 1.0 setup without replacing the BDI harness.



To turn the battery on, press and hold the BDI power button until all LEDs are illuminated. The battery will power on and the appropriate LEDs will remain illuminated, displaying the battery's SOC. The label next to the LEDs references the battery SOC.

To power down the battery, press and hold the power button until the LEDs begin to flash, then release the button. The battery will go through a countdown phase and then power off, turning off the illumination on the power button. A buzzer may accompany the countdown phase if enabled within the software.

SOC Range (%)					
LED	RED	YELLOW 1	YELLOW 2	GREEN 1	GREEN 2
LOWER	20%	40%	60%	80%	100%
LOWER	0%	21%	41%	61%	81%

LED functions:

1. Solid red LED = Low SOC, battery needs to be charged
2. LEDs flashing = Battery shutdown, power button pressed or battery fault
3. Combination of solid LEDs and one flashing LED - Battery charging. The battery is connected to a charger and the flashing LED indicates charging level
4. Buzzer sounding – Battery shutdown. User commanded shutdown (if buzzer is enabled in software) or battery fault shutdown (buzzer cannot be disabled for a fault related shutdown)

8.1.4 CAN Integrated Trucks

If the forklift is equipped from the factory as Deka Ready Power lithium-ready, connect the Navitas supplied communication harness between the lift equipment's lithium harness and the battery's CAN 1 port (black 12-pin Deutsch connector). The battery will power on when the 12-pin connector is connected to the battery.

The forklift must be set to lithium mode to communicate with the battery, otherwise the battery will shut down when the equipment is driven. A "lithium ready" forklift has the wire harnesses and software to work with a lithium battery, you may have to change the setting on the truck to use the hardware and software. Consult the forklift dealer for further details.

To turn the battery off, disconnect the black 12 pin connector on the CAN communication harness, from the battery. The battery will go into a countdown and then power off. Some CAN integrated trucks may have a BDI 2.0 connected. In these situations, use the BDI's power button to turn the battery on/off.

8.2 Power Save Shutdown

The Power Save Shutdown is a feature in the battery's software to prevent the battery from being over-discharged. Without this feature, over-discharging could lead to permanent damage of the cells and result in loss of capacity or failure of the battery to function.

Power Save Shutdown is initiated when the battery reaches 0%, as read on the UIM/BDI or truck display (if truck is CAN integrated). At this point, the battery will enter a countdown phase before shutting off. The Diagnostic Trouble Code (DTC), SOC_0ORLO (State of Charge, Out of Range Low) message will accompany this shutdown and can be read on the Diagnostics screen of the User Interface Module (UIM).

The battery may be powered on immediately after this shutdown, but it will only remain on for 2 minutes, allowing the forklift to be driven to an approved charger. After 2 minutes, the battery will power down, as outlined above. This process may be repeated 2 more times before the battery will no longer power on and will have to be towed to a charger. Only connecting to an approved charger will allow the battery to power back on and begin charging.

8.3 Charging

Deka Ready Power Lithium batteries are not intended to be removed from the vehicle for charging unless they are destined for storage. The batteries communicate with the charger during charging to provide a fast and safe charging event. Deka Ready Power batteries must always be charged with approved chargers during regular operations. Chargers may communicate with the battery via CAN or BMID communication.

It is recommended that the battery be placed on charge whenever it is not expected to be used for more than 5 minutes. This will help maintain the usability of the battery throughout the day. It is intended that the Deka Ready Power will be charged during all breaks, lunches, down-times, and ends of shifts. These frequent charges are not detrimental to battery performance or life.

8.3.1 Charging Types

All current model batteries are configured to work with CAN communicating chargers. CAN charging optimizes communication between the battery and charger while connected. Chargers will show an accurate State of Charge (SOC) of the battery and balancing will be quicker and more accurate.

Earlier models of Ready Power batteries were equipped for Battery Module Identification (BMID) charging. Although older, this form of

charging still allows full operation of charging and balancing. The SOC displayed on the charger screen may not be accurate as the communication between the battery and charger is limited. For the most accurate SOC reading, always refer to the battery's SOC display (UIM, BDI or truck integration).

Each charging type uses specific battery cables to allow for that type of communication. These cables must be properly selected and configured for correct charging and balancing of the Ready Power battery. Contact the local Deka representative or for questions regarding compatible chargers and battery charging cables.

8.3.2 Connecting to Charger

Locate the charge cables installed on the battery. These will usually be the Anderson Euro style connector or Anderson SBX connector. Some setups will have dedicated charge cables while others may require disconnecting cable(s) from the lift truck before connecting to the charger. Connect the battery charge cables to the corresponding cables on the Ready Power approved charger. For dual cable operations, both battery charge cables must be connected to the charger cables before the charging process will begin.

CAUTION: *Always connect Anderson Euro connectors in the correct orientation. Forcing the connectors together in a reverse polarity orientation may cause charger and battery damage, not covered by the Ready Power Warranty.*

Once all cables are connected, the charger will begin the communication connection process. This process may last up to 30 seconds while the battery and charger start communicating. The charger will then begin the charge process automatically and the charger will go to maximum DC amps output; the operator should verify this each time the charger is connected. No user input is needed on either the battery or charger.

8.3.3 Charging Process

The charger and battery communicate throughout the charge process to ensure the maximum acceptable amperage is sent to the battery, creating the shortest possible charge times. As the battery nears the top of charge, you may see the charge rate reduce. This is normal as the cells reach their upper charge limits. The charger may display the output amps and the State of Charge (SOC) of the battery. This will help determine where the battery is in the charge process.

On CAN-enabled chargers, the SOC of the unit is accurately displayed. On "early vintage chargers with" BMID setups you may see a difference in reported SOC between the charger and the User Interface Module (UIM). It is normal for these to be up to 20% off at times. Always refer to the battery's UIM or BDI for the most accurate SOC reading.

On certain BMID chargers, you may see a temperature reading on the charger's screen. This reading is not the temperature of the battery nor of the charger. It is a result of normal signals being sent to the charger and should be ignored. The battery management system will be sending these temperatures signals to control the current provided by the charger.

For chargers using CAN communications, the BMS will send the current request to the charger without the need to use a temperature signal.

8.3.4 Balancing

Deka Ready Power batteries require cells to be balanced on a regular basis. At the top of charge, the battery's onboard computer (BMS) will enter the balancing mode and command the charger to provide a small amount of current (about 5-10 amps). This whole process is automated, requiring no user input, with the battery management system controlling the balancing actively.

During the balancing process, it is normal to see the charger current output fluctuate up and down and even rest at 0 amps for short periods of time.

The more frequent a battery is balanced, the quicker the process will be. If the battery has not been balanced for several weeks, the balancing process may take longer.

NOTE: To maintain the health of the battery and to protect the product's warranty, it is important that the battery is fully balanced at least once a month. Keep the charger connected to the battery until the charger presents the charge is complete.

8.3.5 Stopping the Charge

Once the battery's Battery Management System (BMS) reads all cells are in balance, it will command the charger to end the charging cycle. This is usually accompanied by a "Charge Complete" message or indication on the charger. If the operator wishes to end the charge cycle early, they MUST use the charger's "stop" button.

CAUTION: *Disconnecting the charge cables without using the stop button may cause arcing and will cause damage to the connector and contacts. This could lead to future problems such as abnormally hot connectors and, in worst case scenarios, melting of the connectors.*

8.3.6 Non-Lithium Chargers

A non-lithium charger is defined here as: A charger that has not been approved by Navitas to work and communicate with the Ready Power line of batteries. While it is not advised to use non-lithium chargers in everyday operations, there may be instances where it could be useful to use these chargers for service or pre-install activities.

NOTE: Using chargers which are not approved for regular battery operations will prevent normal cell balancing and will void the Ready Power Warranty.

To use a non-lithium charger for service:

1. Ensure the battery and charger have matching connectors
2. Power on the battery and charger
3. Connect the battery to the charger
4. Monitor the unit as it charges for the first 20 minutes to make sure it continues charging
 - a. The battery does not need to be fully charged for pre-install or service actions
5. Stop the charger before reaching top of charge and disconnect the cables
6. Power down the battery if no other service actions are required

If the battery is left connected to the charger, it will shut down at top of charge to prevent an over-charge condition from occurring. The battery will need to be reset before being used again. Continued overcharge protection shutdowns will prematurely wear internal parts. Request service from a local Deka representative if you are seeing signs of a battery shutting down while connected to a charger.

8.3.7 Charging Errors

Incorrect setup or damage to components can result in a battery not charging or charging incorrectly. When connecting a Deka Ready Power battery to an approved charger, ensure that it begins communicating with the charger and charge current ramps up to charger nameplate values before walking away. In most cases this will take place within 30 seconds of connecting to the charger. If the charger does NOT supply current or the current rate is less than expected, check the following items:

1. Charger and battery are powered on and do not have any active faults
2. Battery and charger cables are pressed firmly together
3. Ensure there are no disconnected or damaged communication cables on the top of the battery
4. If the battery has dual charge connectors, ensure both battery cables are connected to the charger's dual connectors
5. If able, verify the baud rate on the battery and charge match

If none of these items remedy the problem, contact a local Deka service representative for assistance.

8.4 Fault Detection

The Battery Management System (BMS) is an onboard computer that monitors user inputs and sensors throughout the battery to allow maximum product functionality while maintaining a high level of safety. In the event the battery experiences a condition which requires it to shut down for safety or product protection, it will do so in one of two ways, depending on the severity of the fault:

1. **Early Warning Shutdown (EWS);** If a low severity fault is detected by the BMS, the battery will begin a countdown accompanied by an audible alarm (alarm is depending on system configuration). This allows the operator to bring the fork truck to a safe or safer state before the battery powers off.

An example of an EWS fault is a low state of charge shutdown, where the battery powers off to prevent over-discharge.

2. **Emergency Power Off (EPO);** If a high severity fault is detected, an immediate shutdown of the battery will occur. There is no countdown in this event and power to the fork truck will cease immediately.

An example of an EPO fault is a battery being over charged by a damaged charger. Once the battery detected it was being overcharged, the BMS would command the battery to shut down immediately to prevent product damage.

With either shutdown mode, the BMS generates Diagnostic Trouble Codes (DTCs) to convey the reason for the shutdown. These DTCs can be used to analyze and resolve the issue or assist with troubleshooting efforts. The way the DTCs are presented to the user depends on the accessories equipped with the battery.

8.4.1 UIM

If a fault occurs requiring an EWS shutdown, a warning message will display on the UIM screen showing the time remaining in seconds until battery shutdown as shown in the photo to the right. The countdown will be accompanied by an audible alarm, alerting the user to the imminent battery power down. After the battery has shutdown, the UIM screen will remain powered on, but the alarm will cease.



Use the left or right arrow keys on the front of the UIM to scroll to the Diagnostics page where a list of all active faults will be displayed. Use the up or down arrows to see more codes if necessary. User commanded shutdowns or pressing the on/off button, will not be followed by an alarm, and the screen will power off after the countdown.

To reset from the fault condition, press the power button on the UIM to reset the battery. Any DTCs that were displayed on the Diagnostic page will no longer be visible after the restart. It is suggested that prior to restarting, the operator note the DTCs or take a picture of the screen to provide to a service technician later. If this occurs, a technician's computer will be required to connect to the battery and download the DTCs that were generated.

8.4.2 BDI

If a fault occurs requiring a shutdown, a red LED (BDI 1.0) or all of the currently lit LEDs (BDI 2.0) on the face of the BDI will begin flashing rapidly accompanied by an audible alarm. The alarm will cease when the battery has shutdown. DTCs cannot be displayed on the BDI but any DTCs generated from the fault condition will be stored in the battery management system. A technician's computer will be required to connect to the battery and download the DTCs that were generated.

To reset from a fault condition, press the power button on the BDI to restart the battery.

8.4.3 CAN Integrated Trucks

If a fault occurs requiring a shutdown, the forklift truck's display will flash a warning symbol along with a 3-digit number. There is no audible alarm associated with this; most trucks will begin slowing down and prevent the forks from being raised. Consult the appropriate forklift dealer for more information.



The 3-digit number on the lift equipment's display represents the DTCs generated at the time of the fault. It is suggested that the operator note the code or take a picture of the screen to provide to a service technician later. Note: only 3-digit codes are generated by the battery. Codes of any other length are generated by the forklift truck and you should consult with the forklift dealer for more information and/or service.

To reset from a fault condition, disconnect the battery side of the truck to battery communication cable. This will be a 12-pin black connector. After waiting at least 30 seconds, reinsert the connector to power the battery back on.

9: PRODUCT LIMITATIONS / SPECIFICATIONS

9.1 Temperature

Ambient air temperatures for charge and discharge are indicated in the battery line technical specifications for each model below. These temperatures correspond to the range at which a battery can continuously charge or discharge without derating current. For all batteries, the storage temperature should be between 0° to 45°C (32° to 113°F).

9.2 Battery Specification Table – Traditional Battery Line

Deka Ready Power Traditional Battery Line (2/3 Contactor) - Technical Specifications							
	24v 525AH	36v 550AH "A"	36v 550AH "B"	36V 700AH	48V 550AH	48V 700AH	48V 1050AH
Pack Part Number	03-930-0085	03-930-0258	03-930-0640	03-930-0015	03-930-0086	03-930-0298	03-930-0185
Pack Nominal Voltage (VDC)	25.6	38.4	38.4	38.4	51.2	51.2	51.2
Pack Min Voltage (VDC)	20	30	30	30	40	49	49
Pack Max Voltage (VDC)	28.8	38.4	38.4	38.4	58.4	55.3	55.3
Pack Capacity (AH)	525	550	550	700	550	700	1050
Pack Energy (0-100SOC) WH	13,440	21,120	21,120	26,880	28,160	35,840	53,760
Max Start Charge (Amps)	500	500	500	500	500	500	500
Max Continuous Discharge (Amps)	340A						
Max Continuous Charge (Amps)	340A						
Max Discharge Current (Amps)	340 rated						
Max Charging Current (Amps)	340 rated						
Max 10 Second Pulse Regen Charge (Amps)	1000	1000	1000	1000	1000	1000	1000
Max 10 Second Pulse Regen Discharge (Amps)	1000	1000	1000	1000	1000	1000	1000
Ambient Temperature - Charge	5° to 45° C 41° to 113° F						
Ambient Temperature - Discharge	0° to 50° C 32° to 122° F						
UL Listing – File Number MH61859	US & Canada	US & Canada	–	US & Canada	US & Canada	US & Canada	–

9.3 Battery Specification Table – High Performance Line

Deka Ready Power High Performance Line (2/3 Contactor) – Technical Specifications							
	24v 525AH	36v 550AH "A"	36v 550AH "B"	36V 700AH	48V 550AH	48V 700AH	48V 1050AH
Pack Part Number	03-930-0576	03-930-0500	03-930-0635	03-930-0579	03-930-0502	03-930-0501	03-930-0683
Pack Nominal Voltage (VDC)	25.6	38.4	38.4	38.4	51.2	51.2	51.2
Pack Min Voltage (VDC)	24.7	36	36	36	48	48	48
Pack Max Voltage (VDC)	28.6	43.2	43.2	43.2	57.6	57.6	57.6
Pack Capacity (AH)	525	550	550	700	550	700	1050
Pack Energy (0-100SOC) WH	13,440	21,120	21,120	26,880	28,160	35,840	53,760
Max Start Charge (Amps)	500	500	500	500	500	500	500
Max Continuous Discharge (Amps)	350A						
Max Continuous Charge (Amps)	350	350	350	350	350	350	350
Max Discharge Current (Amps)	380 limited						
Max Charging Current (Amps)	380 limited						
Max 30 Second Pulse - Charge (Amps)	1200	1200	1200	1200	1200	1200	1200
Max 30 Second Pulse - Discharge (Amps)	1200	1200	1200	1200	1200	1200	1200
Max 1 Second Pulse - Discharge (Amps)	1500	1500	1500	1500	1500	1500	1500
Ambient Temperature - Charge	0° to 27° C 32° to 81° F	5° to 45° C 41° to 113° F	5° to 45° C 41° to 113° F	5° to 45° C 41° to 113° F	5° to 45° C 41° to 113° F	5° to 45° C 41° to 113° F	5° to 45° C 41° to 113° F
Ambient Temperature - Discharge	00° to 27° C 32° to 81° F	0° to 50° C 32° to 122° F					
UL Listing – File Number MH61859	–	–	–	–	–	–	–

UL listing status will be updated in this manual as the products complete testing. A complete offering of UL listed products may be found by searching for the UL file MH61859 at <https://iq.ulprospector.com>

10: BEST PRACTICES

The following items will help you get the most performance and productivity out of the Deka Ready Power battery.

10.1 Opportunity Charging

To ensure the battery is always ready for service, be sure to connect to a charger anytime the forklift is idle for longer than 5 minutes. This includes driver breaks, lunches, extended bathroom breaks, and meetings, etc. The battery should also be plugged in any nights and weekends the forklift is not being used. A lot of charge can be put back into the battery in a short period of time; 5 minutes can yield a 4-8% increase in SOC depending on the battery size.

10.2 Battery Balancing

To deliver optimum performance, a lithium battery needs to periodically balance the cells. This is a similar concept to an equalize charge for lead batteries. Balancing is performed automatically at the top of every charge; this does not require any input from the operator.

The battery must be allowed to fully charge for balancing to occur. When the charger shows the charge cycle has finished (displayed differently for every charger manufacturer), the battery has completed the balancing process.

The time needed for balancing will depend on when the battery was last balanced. The more time that elapses between full charges and balancing, the longer the next balancing phase will take. To reduce balancing time, aim to fully charge the battery once per day.

NOTE: To maintain the health of the battery and protect the product's warranty, the battery shall be fully charged and balanced at least once a month.



11: RECOMMENDED MAINTENANCE

The chart below highlights the recommended maintenance schedule for Deka Ready Power lithium batteries. Refer to the Deka Ready Power Recommended Guide to Lithium Battery Maintenance for full details. Following these guidelines will help reduce unplanned service and prevent interruptions to operations. Refer to section 13 for warranty information.

11.1 Recommended Maintenance Interval Table

Deka Ready Power - Recommended Maintenance Intervals						
		Frequency	Daily	Weekly	Quarterly	Yearly
	Maintenance Task					
1	Visually inspect Ready Power cables, connectors, harnesses and tray for damage and cleanliness - Address as needed		X	X	X	X
2	Visually inspect truck connector and battery compartment - Clean or repair as necessary		X	X	X	X
3	Verify charger output is at specified amperage		X	X	X	X
4	Monitor charger for fault conditions at end of charge		X	X	X	X
5	Verify battery has received a full charge			X	X	X
6	Validate software and configuration settings are correct				X	X
7	Validate the battery is being properly charged and balanced				X	X
8	Confirm Ready Power BDI or UIM are communicating properly (if equipped)				X	X
9	Confirm Ready Power "Lithium Ready compatible" truck battery discharge indicator is communicating properly (if equipped)				X	X
10	Download warranty data from BMS and compare to forecast. Move truck if necessary (fleet management)				X	X
11	Inspect BMS for fault codes - Address as needed				X	X
12	Perform site survey - Learn customer's current operating conditions, changes, and future expectations					X
13	Perform power study (if site survey indicates changes)					X
14	review alt throughput and compare to forecast				X	X

11.2 Recommended Maintenance Summary

Each step within this program should be considered routine and important. Following each of them carefully will help protect and maximize the lift truck and battery investment and serve as an easy way to help prevent damage to the fleet. If you require more details or have more specific questions, contact the local Deka representative.

12: STORAGE

The following steps should be followed to shut down the Deka Ready Power safely and properly for extended periods.

NOTE: Failure to follow the guidelines below may damage the battery and void the Deka Ready Power Warranty

12.1 Fully Charge

Batteries in storage must be fully charged and balanced a minimum of once every 2 calendar months. Refer to section **8.3** and **10.2** on how to charge and balance the battery.

12.2 Power Down

Once charged, refer to section **8.1** to power the battery down before placing into storage. This helps prevent unnecessary discharge by powering down accessories and internal components. It is also recommended to disconnect the UIM or BDI harness from the CAN1 port so the BMS will go into hibernation.

This should only be done by an authorized Deka service representative.

12.3 Storage Location

If the battery is to be stored separately from the forklift truck, it is recommended that you find a stable place away from day-to-day operations to prevent accidental damage from other vehicles or equipment. Locate an area that will not expose the battery or accessories to direct weather or extreme temperatures. Storing on a pallet is recommended and allows for safe and easy transportation around the facility. Always ensure the battery temperature remains within the range specified in Section 9.1 while in storage.

12.4 Monitor the Battery

To ensure the battery does not become deeply discharged during long term storage, you must monitor the battery periodically. Left unchecked, the cells may become discharged to the point of irreversible damage. This would require service not covered by the Deka Ready Power Warranty.

Batteries that have been charged and powered down for storage should be inspected once per month.

13: WARRANTY

13.1 Warranty Statement

Advanced LITHIUM ION
Motive Power Industrial Batteries

EFFECTIVE: JANUARY 1, 2020

Sold To: _____

Battery Size: _____

Date Shipped: _____

Shipped To: _____

Location: _____

Serial Number: _____

BATTERY WARRANTY

Deka Ready Power® battery assemblies manufactured by Navitas Systems LLC ("Navitas") are warranted by Navitas to be free of defects in workmanship and materials for the earlier of:

- A. Sixty (60) months from date of invoice;
- B. Total ampere-hour throughput of at least 3,000 cycles is reached; Ampere-hour throughput is calculated as 80% of the nameplate capacity of the battery multiplied by 3,000;

If prior to the expiration above, the battery assembly or parts of the battery assembly fail and cause the battery to no longer function, Navitas, at its option, will either (a) repair parts, cells, or battery at its expense, for both labor and parts, (b) furnish a suitable replacement battery, having a rated capacity equal to the published rated capacity of the battery returned, or (c) credit the owner in amount equal in dollars to the net purchase price of the original battery divided by 3,000 cycle multiplied by the number of unexpired cycles. Credit will be against the purchase of another Navitas battery of equal or greater capacity (either new or previously used). The replacement battery shall only be warranted for the remaining unused portion of the original warranty of the replaced battery. The original battery will become the property of Navitas. The owner of the battery will be responsible for delivery of the battery to Navitas' nearest authorized representative or factory as directed by Navitas' customer service department. The cost of use of a rental battery is not part of this warranty.

Excluded from this warranty are battery system accessories such as cables, sleeves, user interface modules, connectors, overcurrent fuses, chargers and other components subject to ordinary wear and tear (please consult Navitas for a complete list of such components), which are warranted to be free of defects in workmanship and materials for a period of one (1) year.

TERMS AND CONDITIONS:

1. This warranty is subject to the following terms and limitations:
2. The battery identified above must be sized properly to the intended vehicle including the appropriate counterweight, if any. Use of the battery in other than approved applications may result in harm to the operator and equipment.
3. The battery must be charged by a charger that is listed on the Navitas approved list of chargers or is certified for use in writing by Navitas. In no case shall the charger start current exceed five hundred (500) amps.
4. Battery power cables and charger settings should be appropriately configured according to the Navitas installation and operational manual prior to use.

5. The battery should be stored and serviced according to the Deka Ready Power® operational manual; however, in no case shall the battery be stored below 0°C/32°F or in excess of 50°C/122°F
6. Navitas authorized representatives shall have access to the battery at reasonable hours and intervals for purposes of inspection.
7. This warranty applies to the original end customer (user) of the battery and is non-transferable
8. This warranty is void if the battery is subjected to misuse, physical damage or abuse other than normal wear and tear.
9. This warranty will be considered void if service, maintenance or repairs including the removal of any tamper-proof fasteners are made by other than Navitas or its designated service representatives.
10. Use of the product within operational limits including current, temperature, depth of discharge, and charge limitations. Please see the Deka Ready Power® user manual for further information.
11. The battery management system monitors and stores ampere-hour throughput in the battery, which can be accessed by Navitas or its authorized representative. The displayed value of the Navitas battery management system is the final determination of ampere-hour throughput for purposes of this warranty statement and is not subject to contest by buyer.

LIMITATION

Navitas shall not be liable for indirect, incidental or consequential damages arising out of sale or relating to the use of this product. The buyer assumes responsibility for all personal injury and property damage resulting from the handling, possession or use of the battery. In no event shall the liability of Navitas Inc. for all claims, including claims of breach of warranty or negligence, exceed the purchase price of the product. Navitas' sole obligation and the end customer's exclusive remedy under this warranty shall be for repair or replacement as stated above.

ALL OTHER WARRANTIES, WHETHER EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO IMPLIED WARRANTIES FOR MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ARE DISCLAIMED.

This warranty is understood to be the exclusive agreement between the parties relating to the subject matter hereof.

P.O. Box 147, Lyon Station PA 19536 Attn: Product Support • Fax 610-682-0754
www.dekabatteries.com • indprodsupport@dekabatteries.com

NOTE: The warranty form in this document is used as an example. The warranty document is a revision-controlled document, the most recent revision should be requested.

13.2: Authorized Service

To maintain the product warranty, only authorized service personnel are permitted to perform service on Deka Ready Power products. Tampering with warranty seals by non-authorized persons will result in the loss of product warranty coverage. Only authorized replacement parts are permitted to be used during Ready Power service.

Contact the local Deka Ready Power service provider for service support.

13.3: Non-Warranted Service Examples

The following circumstances are not considered manufacturing defects and are not covered under warranty. For specific questions regarding warranty service, contact the local Deka Ready Power representative.

13.3.1 Over-Discharge

Over-Discharge is defined as discharging the battery past 0% as read on the UIM/BDI, truck display (CAN integrated systems) or the PC based service tool.

To prevent further discharge, and potential damage, the battery will shut down and stop powering the forklift truck once reaching 0% state of charge (SOC). The operator will be able to power the battery back on 3 more times with a maximum time limit of 2 minutes per run to allow the lift equipment to be driven to a charger.

If the Deka Ready Power requires service due to discharging below 0% SOC, including storing the battery without periodic charging (refer to section 10), it will not be considered warrantable.

13.3.2 Drive Off While on Charge

If installed and operated correctly, the Deka Ready Power battery has

safety measures to help reduce the possibility of forklift “drive-away” incidents while connected to a charger. Damage may result due to incorrect installation or modification of these safety measures. Even with safety measures in place, it is still the responsibility of the operator to make sure the charger is safely disconnected from the battery and cables stored properly before driving away. We cannot be responsible for any damage resulting from operator negligence.

13.3.3 Normal Wear Items

The parts listed below are considered normal wear items meaning these parts may need to be replaced throughout the life of the battery during regular maintenance. These parts are warrantied to be free from workmanship and material defect for a period of 1 year after battery commissioning.

- Battery DC cables (charge or truck power)
- Accessories (UIM, BDI and their associated cables)
- External electrical harnesses on the battery
- Diagnostic equipment and harnesses

13.3.4 Customer Abuse

Damage due to improper installation or operations are not covered under the Deka Ready Power Warranty. This includes, but is not limited to, cut or pinched cables, damaged accessories, failure to balance cells at required intervals, improperly secured UIM/BDI, and reverse polarity cable connection damage.

The operator is responsible for safe operating and proper usage of the battery, accessories, and charger.

14: Replacement/Recycling/Disposal

14.1 Replacement

Contact your local Deka Ready Power Representative for pack replacement.

14.2 Recycling and Disposal

Recycle or dispose the contents/container in accordance with local/regional/national/international regulations.

15: TROUBLESHOOTING

The following matrix will assist you with troubleshooting simple problems that may cause the Deka Ready Power battery to function incorrectly. For more in depth troubleshooting or repair, refer to the Deka Ready Power Service Manual or contact the local Deka Ready Power Service provider.

PROBLEM	POSSIBLE CAUSE	SERVICE BY DEKA READY POWER REPRESENTATIVE
<i>Battery won't power on.</i>	<ul style="list-style-type: none"> • Battery at a low state of charge (SOC) • UIM/BDI not connected to battery • Active fault causing battery shutdown 	<ul style="list-style-type: none"> ▶ Connect battery to approved charger. ▶ Inspect UIM/BDI cable connection and connection to battery. ▶ View UIM/BDI for indication of a fault or use service tool to connect to battery to ID fault. Follow service documentation to troubleshoot fault.
<i>Battery won't charge.</i>	<ul style="list-style-type: none"> • Battery or charger cables damaged • Both battery cables are not connected to charger (dual charge cable setup only) • Charger in a fault state • Active fault causing battery shutdown 	<ul style="list-style-type: none"> ▶ Inspect cables for damage. Replace cables if necessary. ▶ Connect both battery connectors to charger (dual cable setup only). ▶ Inspect charger for fault. Follow charger OEM's recommended troubleshooting steps. ▶ View UIM/BDI for indication of a fault or use service tool to connect to battery to ID fault. Follow service documentation to troubleshoot fault.
<i>Battery powers off when not commanded to.</i>	<ul style="list-style-type: none"> • Active fault causing battery shutdown • Battery at a low state of charge (SOC) • Communication from truck to battery lost (Integrated setups only) 	<ul style="list-style-type: none"> ▶ View UIM/BDI for indication of a fault or use service tool to connect to battery to ID fault. Follow service documentation to troubleshoot fault. ▶ Connect battery to approved charger. ▶ Inspect communication cables from truck to battery. Ensure truck is configured correctly.
<i>UIM/BDI won't power on.</i>	<ul style="list-style-type: none"> • UIM/BDI not connected to battery • UIM/BDI cable damaged • UIM/BDI damaged • Active fault causing battery shutdown 	<ul style="list-style-type: none"> ▶ Inspect UIM/BDI cable connection and connection to battery. ▶ Inspect/replace UIM/BDI cables. ▶ View UIM/BDI for indication of a fault or use service tool to connect to battery to ID fault. Follow service documentation to troubleshoot fault.
<i>UIM data appears to be incorrect.</i>	<ul style="list-style-type: none"> • Baud rate not set correctly in battery • UIM cable damaged • Internal battery fault preventing communication 	<ul style="list-style-type: none"> ▶ Use service tool to inspect/change baud rate in battery. ▶ Inspect/replace UIM/BDI cables. ▶ View UIM/BDI for indication of a fault or use service tool to connect to battery to ID fault. Follow service documentation to troubleshoot fault.

Glossary of Terms

Balance – The act of redistributing power amongst cells to ensure all are at the same state of charge. This is done automatically on Deka Ready Power batteries at the end of a normal, full charge.

Baud Rate – The speed at which information is transferred in a communication channel. Components must have matching baud rates to communicate correctly.

BDI – Battery Discharge Indicator: A device that allows the operator to power on/off the battery and observe the SOC. An array of LEDs is used to indicate the SOC of the attached battery instead of the LCD on the UIM.

BMS – Battery Management System: The computer within the battery that monitors and controls functionality.

BMID – Battery Module I.D.: Used to communicate with chargers not set up for CAN.

CAN – Controller Area Network: A form of communication between components. Used for communication with chargers or lift equipment.

Contactors – An electro-mechanical device that acts as a switch, allowing or preventing current flow. There is a minimum of two of these in each Ready Power battery for redundancy.

CW – Counterweight: The steel ‘box’ that the battery pack is inserted into to meet dimensions and weight requirements of the lift equipment.

DTC – Diagnostic Trouble Code: Codes sent by the BMS to aid troubleshooting actions. These codes can be viewed on the UIM or in the Deka Ready Power Pack Advisor service tool.

ESS – Electrical Storage System: This is the battery, complete with cells and electronics. ESS is used to distinguish the battery from the counterweight when assembled as a system.

EWS – Early Warning Shutdown: When the operator commands the battery to power off or the BMS detects a fault requiring shutdown, the battery will start a countdown before powering off. This allows the operator to place the lift equipment in a safe or safer condition before the power off happens.

LCD – Liquid Crystal Display: a type of flat panel display that presents the state of charge, cell temperatures, troubleshooting diagnostics, and more that uses liquid crystals in its primary form of operation. The screen type found on the UIM.

SOC – State of Charge: A reading that indicates how much useful power is left in the battery. Similar to a fuel gauge in a car.

UIM – User Interface Module: accessory equipped with an LCD screen that allow the operator to power on/off the battery as well as monitor the batteries SOC and DTCs.

Product Support:

Local Deka representative:

To find the local Deka Representative, please see the

“**For Deka Sales and Service**” sticker on the side of the battery, or

Visit **East Penn Manufacturing History | Where to Buy** and select

“**Motive Power**” and complete the questions to present the local

Deka Representative.

For additional support, please contact:

Deka Ready Power Product Support

734-205-1402

support@navitassys.com

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