



**SAFETY, MAINTENANCE &  
REPAIR**



## FALL HARNESSSES



### H-design® 1-point harness

- Cat III
- EN 361
- Back anchorage
- Stretched shoulder webbing
- The H-design harness provides more comfort, freedom of movement and safety to workers

REF [165TA4708](#)

**MILLER**  
by Honeywell

**Honeywell**  
CE



### H-design® 2-point harness

- Cat III
- EN 361
- Rear and front anchorage
- 2 webbing loops at the front
- Mating buckles on chest and leg straps
- Stretched shoulder straps
- The H-design harness has been developed to provide more comfort, freedom of movement and safety to workers

REF [147TA4376](#)

**MILLER**  
by Honeywell

**Honeywell**  
CE

## LIFELINES



### Shock-absorber lanyard

- Length: 1,5 m
- Cat III
- With 1 screwgate karabiner and automatic snap-hook
- Lightweight and easy to use
- Unique woven shock-absorbing material that reduces fall arrest forces
- Reliable visible inspection: red core becomes visible if the outer jacket is damaged or worn
- Teflon protective finish on the outer jacket prolongs the service life of the lanyard

REF [143TA7089](#)

**MILLER**  
by Honeywell

**Honeywell**  
CE



### Self-retracting webbing lifeline (Turbolite block)

- Length: 2 m
- Ca III
- EN 360
- With twistlock and scaf hook
- Turbolite is the first affoldable alternative to shock absorbing lifelines
- Compact and lightweight
- Built-in web load indicator identifies when the unit needs to be removed from services

REF [165TA4709](#)

**MILLER**  
by Honeywell

**Honeywell**  
CE



## FALL PROTECTION KITS

**MILLER**  
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PERSONAL PROTECTION



### Universal kit with 1-point H-design harness

- EN 361
- EN 360

REF [143TA7097](#)

### Practical backpack containing:

- REF [165TA4708](#) – H-design® 1-point harness
- REF [165TA4709](#) – Self retracting webbing lifeline
- REF [141TA1171](#) – Back pack

**MILLER**  
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**Honeywell**



### H-design 2-point mating backpack kit

- EN 361
- EN 355

REF [147TA5081](#)

### Practical backpack containing:

- REF [147TA4376](#) – H-design® 2-point harness
- REF [143TA7089](#) – Shock absorbing lanyard
- REF [141TA1171](#) – Back pack

**MILLER**  
by Honeywell

**Honeywell**



### Titan 1-point fall protection

- EN 361
- EN 355

### Cost effective kit containing:

- Titan 1-point harness with rear and sternal anchorage
- 2 m shock absorbing lanyard with 2 screwgate karabineres

REF [143TA7096](#)



### Securex fall protection kit

- EN 361
- EN 355

### Box containing:

- Secur 1 standard fall harness
- 1,5 m shock absorbing lanyard

REF [165TA4710](#)



## HELMET



**Safety helmet, available in multiple colours**  
EN 397 DIN 4840

**Harness:**

- 6-point synthetic harness
- Chin strap fastenings
- Angled neckband
- Exchangeable highly absorbent sweatband

**Shell:**

- Manufactured from polyethylene (PE)
- Comfortable fitting with helmet shell drawn down at the neck
- Lateral slots for ear defenders (30 mm)
- Holes for effective ventilation

REF [143TA7163](#) – Orange

REF [143TA7168](#) – Red

REF [143TA7166](#) – Green

REF [143TA7164](#) – Yellow

REF [143TA7169](#) – White

REF [143TA7167](#) – Blue

## BUMP CAP

**Honeywell**


- With foam liner, stylish bump cap incorporating a ABS skull cap fitted inside
- EN 812 (1997)

REF [143TA7088](#)



## SPECTACLES

Honeywell

**Fashionable sunglasses-style safety spectacles**

- Cat I
- EN 166

**Features & benefits:**

- Offers protection against sunlight
- Lightweight design
- Spring temples:
  - Flexible temples to fit your ears
  - Soft nose bridge to prevent slippage and to fit your nose
- Protects against impact (45 m/s)

**Shade lens colour:**

- Grey: sunlight
- Clear: indoor

**Lens coating:**

- Anti-scratch
- Hydroshield: special anti-fog technology

REF [165TA3780](#) – GreyREF [165TA3781](#) – Clear

## FACE SCREENS

Honeywell

**Safe, practical, economical face screen**

- Cat I
- EN 166
- Integral visor fitting ensures extra protection against liquids and impacts
- Comfortable and lightweight, even during extended usage
- Visor can be tilted upwards and locked in any position
- Easy exchangeable visor in polycarbonate

REF [143TA7066](#)**Replacement part:**REF [143TA7067](#) – Replaceable acetate visor

Honeywell

**Three-part face shield with clear crown and chin guard for optimum protection**

- Cat I
- EN 166
- Flip-up visor for all industrial applications
- Chemical resistance: protects against impacts from flying particles of medium energy, hot solid penetration, liquid splashes and crop sprays all in accordance with cited standards

REF [143TA7065](#)



## SINGLE-USE EARPLUGS



**Honeywell**



### Comfortable single-use, polyurethane foam earplug

- Bell shape delivers maximum in-ear comfort
- Smooth, soil-resistant closed cell-foam skin prevents dirt build-up
- Single-use earplug

### Life cycle:

These plugs must be disposed of and replaced after each wearing. Washing and cleaning of disposable earplugs is not recommended.

### Standard:

- SNR 37 dB
- EN 352-2

REF [140TA8751](#)

## DISPOSABLE FOAM EARPLUGS



**Honeywell**



### Features:

- Strong ear protection plugs made from health-wise harmless polyurethane foam
- To shape before use
- Conical shaped
- Optimal seating in ear canal
- Hygienic smooth surface

### Standard:

- SNR 29 dB
- EN 352-2
- EN 13819-1
- EN 13819-2

REF [143TA7077](#) – Box of 200 pairs

## MULTIPLE POSITION EARMUFFS

**Sound managing earmuffs****Applications:**

- Improves worker safety by blocking noise while voice and signal frequencies can be heard more naturally
- Provides uniform attenuation that blocks low frequency noise but enhances perception of higher voice and warning signal frequencies without distortion

**Standard:**

- SNR 25 dB
- Cat II
- EN 352-1:2002
- EN 13819-1:2003
- EN 13819-2:2003

**REF 143TA4455****Honeywell**
**HOWARD  
LEIGHT**  
by Honeywell
**Noise blocking earmuffs****Applications:**

- Adjustable headband allows wearer to select position: over the head, behind the neck or under the chin
- The alternative to ear cups fitted to hard hats: compatible with hard hats, face shields, respirators and other PPE
- Non-deforming outer headband withstands rough treatment in the toughest workplaces
- Dielectric construction suitable for all workplaces

**Standard:**

- Cat II
- EN 352-1:2002

**REF 143TA7081 – SNR 30 dB****REF 143TA7082 – SNR 32 dB****Honeywell**
**HOWARD  
LEIGHT**  
by Honeywell


## HIGH-VISIBILITY RAIN COAT AND PANTS



**SIOPEN**  
**SIOPUR®**  
**REGULAR**

- Fabric SIOPUR® Regular – 100% polyester fabric (plain weave) with 100% PU coating;  $\pm 155 \text{ g/m}^2$
- 100% wind- and waterproof
- Complies with EN 343 {3,2}

## Coats

Size	REF
S	<a href="#">142TA5782</a>
M	<a href="#">142TA5787</a>
L	<a href="#">142TA5786</a>
XL	<a href="#">142TA5783</a>
XXL	<a href="#">142TA5784</a>
XXXL	<a href="#">142TA5785</a>

## Pants

Size	REF
S	<a href="#">142TA5788</a>
M	<a href="#">142TA5789</a>
L	<a href="#">142TA5790</a>
XL	<a href="#">142TA5791</a>
XXL	<a href="#">142TA5792</a>
XXXL	<a href="#">142TA5793</a>

## SAFETY JACKETS



**CE**

- Yellow safety jacket
- EN 471

REF [123TA5548](#) – Uni-size  
 REF [140TA8863](#) – M  
 REF [107TA8089](#) – L  
 REF [107TA8090](#) – XL  
 REF [107TA8091](#) – XXL  
 REF [107TA8092](#) – XXXL



- Orange safety jacket
- EN 471

REF [123TA5549](#) – Uni-size  
 REF [141TA7655](#) – S/M  
 REF [141TA7656](#) – L/XL  
 REF [141TA7657](#) – XXL/XXXL



## COLD GRIP GLOVES



The latest generation of winter gloves for protection against the cold

- Cat II
- Lined glove
- High flexibility also in temperatures below -25 °C
- Good insulation, high comfort and fit and good dexterity

REF [141TA7414](#) – Size 9

REF [139TA5996](#) – Size 10

REF [139TA5997](#) – Size 11

## SHOES

## Nubuck leather shoes

- EN ISO 20345:2011
- Puncture resistant steel sole and steel toe
- PU sole
- Nylon mesh lining

- Water repellent
- Antistatic
- Shockproof
- Antiskid

**SAFETY JOGGER**  
PATRICK



EU	UK	USA	J	REF
38	5	6	24	<a href="#">141TA1532</a>
39	6	7	24,5	<a href="#">141TA1533</a>
40	6,5	7,5	25,5	<a href="#">141TA1534</a>
41	7	8,5	26,5	<a href="#">141TA1535</a>
42	8	9	27	<a href="#">141TA1536</a>
43	9	10	28	<a href="#">141TA1537</a>
44	10	10,5	28,5	<a href="#">141TA1538</a>
45	10,5	11,5	29,5	<a href="#">141TA1539</a>
46	11	12	30	<a href="#">141TA1540</a>
47	12	13	31	<a href="#">141TA1541</a>

Low model



EU	UK	USA	J	REF
38	5	6	24	<a href="#">141TA1542</a>
39	6	7	24,5	<a href="#">141TA1543</a>
40	6,5	7,5	25,5	<a href="#">141TA1544</a>
41	7	8,5	26,5	<a href="#">141TA1545</a>
42	8	9	27	<a href="#">141TA1546</a>
43	9	10	28	<a href="#">141TA1549</a>
44	10	10,5	28,5	<a href="#">141TA1547</a>
45	10,5	11,5	29,5	<a href="#">141TA1548</a>
46	11	12	30	<a href="#">141TA1550</a>
47	12	13	31	<a href="#">141TA1551</a>

High model



## SELF-ADHESIVE ANTISKID ROLLS



## Black antiskid rolls

Length m	Width mm	REF
18,3	19	<a href="#">107TA5239</a>
18,3	50	<a href="#">141TA1160</a>
18,3	100	<a href="#">107TA5240</a>
18,3	150	<a href="#">107TA5241</a>
18,3	200	<a href="#">107TA5242</a>
18,3	300	<a href="#">107TA5243</a>
18,3	610	<a href="#">107TA5244</a>
18,3	1220	<a href="#">107TA8131</a>



## Black and yellow antiskid rolls

Length m	Width mm	REF
18,3	25	<a href="#">107TA8124</a>
18,3	50	<a href="#">107TA8123</a>
18,3	100	<a href="#">107TA8125</a>



## Fluorescent black and white antiskid rolls

Length m	Width mm	REF
18,3	100	<a href="#">107TA8128</a>



## Fluorescent white antiskid rolls

Length m	Width mm	REF
18,3	25	<a href="#">107TA8126</a>
18,3	50	<a href="#">107TA8127</a>

## SELF-ADHESIVE ANTISKID SHEETS



Length mm	Width mm	REF
120	50	<a href="#">165TA4711</a>
185	102	<a href="#">140TA8941*</a>
190	90	<a href="#">165TA4712*</a>
235	85	<a href="#">140TA8937</a>
204	178	<a href="#">107TA5236</a>
280	180	<a href="#">165TA4713</a>
290	55	<a href="#">139TA6811</a>
350	275	<a href="#">140TA8938</a>
480	140	<a href="#">140TA8940</a>
610	152	<a href="#">160TA9772</a>
815	103	<a href="#">139TA1819</a>
900	99	<a href="#">165TA4714</a>
920	150	<a href="#">165TA4715</a>
1000	100	<a href="#">139TA1816</a>
1000	305	<a href="#">107TA5237</a>
1000	610	<a href="#">107TA5238</a>
1270	150	<a href="#">138TA7482</a>
1300	102	<a href="#">165TA4716</a>
1400	102	<a href="#">165TA4717</a>
1800	101	<a href="#">165TA4718</a>
2200	100	<a href="#">165TA4719</a>

\* Antiskid floormat

## ANTISKID SPRAY

**Transparent antiskid spray**

- Can be applied to metal, glass fibre plate, marble and many other bases
- Quick application
- In- and outdoor applications
- Suitable for pedestrian traffic
- Coverage: 1,5–2,5 m<sup>2</sup> per spray can
- Content: 400 ml

REF [107TA8122](#)

## ANTISKID COATING

**Absorbing polyurethane coating for all surfaces**

- Contains rubber granules that provide a sound absorbing effect
- For hard-adherent surfaces a primer is advised:  
REF 165TA4727 (1 l)
- Kit 4 l (contains: paint rollers, gloves, abrasive sheet)

REF [165TA3803](#)

## BLACK ANTISKID COATING

**Used friendly antiskit coating**

- Surface dry after 1 h
- Suitable for heavy load after 48 h
- Application: brush
- Durable antiskid coating
- High cracking, fracture and shrink resistance
- Remains smooth and flexible
- Impact pressure and wear resistant
- Temperature resistance up to 70 °C
- Colour: black
- Use:  $\pm 1 \text{ m}^2/\text{kg}$
- Content: 5 kg

REF [164TA9701](#)

## SIGNALLING CHAINS

**25 m signalling chains**

Diameter mm	Colour	REF
6	Red/white	<a href="#">107TA8169</a>
6	Black/yellow	<a href="#">107TA8166</a>
8	Red/white	<a href="#">107TA8170</a>
8	Black/yellow	<a href="#">107TA8167</a>
10	Red/white	<a href="#">107TA8171</a>
10	Black/yellow	<a href="#">107TA8168</a>

## POST FOR SIGNALLING CHAIN

**Practical signalling post**

- Height: 900 mm
- Diameter tube: 50 mm
- Triangle PVC base (weighted with concrete)

REF [107TA8163](#) – Red/whiteREF [147TA4368](#) – Yellow/black

## TRAFFIC CONES



### Traffic cones in different sizes

- REF [107TA8133](#) – Height: 300 mm
- REF [107TA8134](#) – Height: 500 mm
- REF [145TA9246](#) – Height: 700 mm, with weighted base

## SIGNALLING TAPE



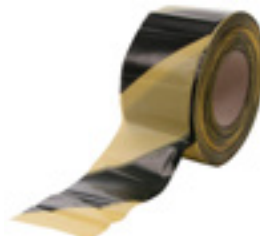
### White/red signalling tape

- Length: 250 m
- Width: 80 mm

REF [107TA8138](#)

- Length: 500 m
- Width: 70 mm

REF [141TA7760](#)



### Black/yellow signalling tape

- Length: 500 m
- Width: 80 mm

REF [107TA8139](#)

## LED TRAFFIC LIGHT



### Double-sided trilateral triangle

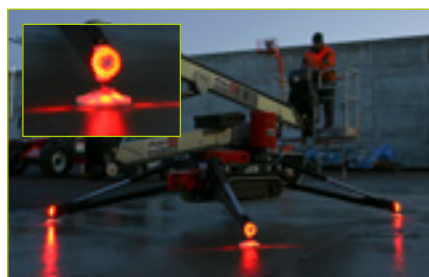
- Class 1: switches automatically from day mode to night mode
- Dimensions: 500 x 500 mm
- 3 m cable pre-wired
- Voltage: 12-24 V
- IP68
- Complies with NF EN 12352, NF P 98475 standards
- 2006/28/EC R02 10 03 069 use on local and county roads
- Dual-action hinge (front/back)
- 6 embedded LED lights
- 36 very bright LEDs/light

REF [165TA4720](#)





## MAGNETIC RECHARGEABLE LED WARNING LIGHT



**TOTAL SOURCE®**

**These lights can quickly and easily be deployed in case of:**

- Works on and along the road
- Vehicle breakdown
- Loading and unloading of a vehicle
- Events

- Height: 34 mm
- Diameter: 106,50 mm
- 9 different flashing patterns
- Shock-resistant
- Magnetic
- Water-resistant
- With universal charger

**REF [141TA7068](#)**

**REF [143TA4317](#)** – Non-rechargeable version

**REF [143TA4318](#)** – Extra battery



Also available in a case of 6 pieces

**REF [141TA7069](#)**

## LED HANDHELD TORCH LIGHTS



- LED nominal power: 3 W
- Light output: up to 250 lumens
- Waterproof
- Holder with magnetic base
- Warning, signal, back-up and emergency light
- Super compact: total length 120 mm without/190 mm with emergency cover

**REF [139TA3255](#)** – Short version

**REF [107TA8136](#)** – Long version



## TOOLBOX 145-PIECES



- Extensive toolbox that contains the most frequently used tools and weights only 11 kg
- Dimensions: 450 x 330 x 142 mm

### Contents:

- Ring spanners (8 – 1 – 10 – 11 – 12 – 13 – 14 – 15 – 16 – 17 – 18 – 19 mm)
- Inbusset (1,5 – 2 – 2,5 – 3 – 4 – 5 – 6 – 8 – 10 mm)
- Bitset (1/4" hexagon)
- Cap with 1/4" to hex bit adapter
- Sockets 1/4" (4 – 4,5 – 5 – 5,5 – 6 – 7 – 8 – 9 – 10 – 11 – 12 – 13 – 14 mm)
- Extension: 50 mm (1/4")
- Extension 100 mm (1/4")
- Cardan joint (1/2")
- Screwdriver handle (1/4")
- Top T-piece (1/4")
- Ratchet (1/4")
- Sockets 1/2" (10 – 11 – 12 – 13 – 14 – 15 – 16 – 17 – 18 – 19 – 21 – 22 – 24 mm)
- Extension 125 mm (1/2")
- Cardan joints (1/2")
- Resettable key (25 mm long)
- Pliers (240 mm long)
- Cutter (160 mm long)
- Concretors' nippers (220 mm long)
- Pliers (180 mm long) nose pliers (160 mm long)
- Screwdriver slot (3 x 75 – 4 x 125 – 5,5 x 150 – 6,5 x 150 mm)
- Screwdriver Philips (PH1 x 80 – PH2 x 100 mm)
- Voltage tester
- Hammer
- Measuring tape (5 m)
- Hacksaw (bracket 250 mm)
- Cutter (18 mm)

REF [164TA6003](#)

## CONTACT CLEANER



**TOTAL SOURCE®**

**High-quality spray designed to clean electrical contacts such as switches, batteries, terminals, printed circuit board switches and multiple sockets**

- Non-conductive and non-corrosive
- High dissolving properties
- Leaves no residue
- High value for money
- Content: 400 ml

REF [165TA1332](#)

## CHAIN SPRAY



**TOTAL SOURCE®**

**High-quality spray to lubricate chain-driven transmissions that are subject to heavy load and forklift truck**

- To be processed like oil, with the properties of grease
- Water-repellent
- Resistant to weather influence, to weak acids and bases
- High value for money
- Content: 400 ml

REF [105TA4644](#)



## PTE SPRAY



**TOTAL SOURCE®**

High-quality lubricant to treat mechanical parts made of metal and plastic

- Low friction factor, fine structure and excellent adhesion
- Outstanding mechanical and thermal stability
- High value for money
- Content: 400 ml

REF [107TA8447](#)

## BRAKE CLEANER



**TOTAL SOURCE®**

Efficient brake cleaner with high dissolving properties

- Non-conductive and non-corrosive
- Powerful spray jet for: drum and disc brakes, brake linings, calipers and shoes
- Leaves no residue
- High price/quality ratio
- Content: 500 ml

REF [134TA3719](#)

## MULTIFUNCTIONAL SPRAY WD-40



**Multifunctional spray (cleans, lubricates and protects)**

- Loosens and frees stuck, frozen or rusted metal parts
- Protects metal surfaces against corrosion
- Eliminates squeaking
- Displaces moisture
- Lubricates (pen oil)
- User-friendly
- Content: 450 ml

REF [142TA8197](#)

Only available in Benelux, Germany, Austria, Switzerland and France

### Counterdisplay



Content: 24 x 450 ml

REF [165TA1255](#)

### Microstack



Content: 60 x 450 ml

REF [165TA1256](#)



## SERVICE KIT CRC



- Maintenance kit
- Content: 4 x 500 ml

REF [165TA1254](#)

### Contains:

- REF [143TA6909](#) – High speed chain oil
- REF [143TA6905](#) – White lithium grease
- REF [143TA6901](#) – 5-56 + PTFE
- REF [143TA6895](#) – Industrial degreaser

## BRAKLEEN



### Powerful brake parts cleaner

- Removes oil, brake fluid, grease, street dirt and other hardened deposits
- Safe on most rubbers, plastics and coatings
- Fast-drying
- Leaves no residue
- Content: 500 ml

REF [143TA3579](#)

## HIGH-VISCOSITY INDEX ANTI-WEAR HYDRAULIC OIL



### Product description:

- Recommended for all kinds of hydraulic systems operating under high pressure (limit as indicated by the pump manufacturer) and high temperature (up to 100 °C in hot spots)
- Lubricants especially suitable for hydraulic systems working under extreme temperature variations and equipment operating outside: easy start-up at low temperatures (–30 °C)

### International specifications:

- Afnor NF E 48-603 HV
- ISO 6743/4 HV
- DIN 51524 P3 HVLP
- Cincinnati Milacron P68, P69, P70
- Vickers M-2950S, -I-286

### Advantages:

- Very high viscosity index and very low pour point
- Very good oxidation stability ensuring a long service life of the fluid
- High protection against wear ensuring maximum equipment life
- Good anti-foam and air release properties by using silicone free components

- REF [107TA7211](#) – 1 l, ISO VG 15
- REF [107TA7212](#) – 5 l, ISO VG 15
- REF [141TA5202](#) – 20 l, ISO VG 22
- REF [141TA2734](#) – 20 l, ISO VG 32



## LUBRIFICATION – HYDRAULIC OILS



### Universal hydraulic oil

- Equipment operating outdoors with extreme temperature variations: public works, quarries, transportation.
- Cold starts down to  $-30^{\circ}\text{C}$ . All-season performance.
- Suitable for all kinds of hydraulic systems operating under high pressure and temperature conditions.
- ISO 15

REF [141TA3190](#) – 20 l

REF [141TA3192](#) – 208 l

## MULTI-PURPOSE GREASE



### Multi-purpose grease suitable for a wide rang of applications

- Lithium EP2 grease
- Durable
- Content: 400 g

REF [165TA3769](#)

## INDUSTRIAL GREASE GUN



### Grease gun with standing rough conditions with variable stroke system

- Capacity: 500 cc
- M10 x 1 mm
- With 1 high-pressure hose: 11 x 300 mm
- With 1 angled spout, 2 precision machined hydraulic couplers, 4 jaws
- Operates with grease
- Sealing system: o-ring and ball valve prevent grease compressed in the grease gun head from feeding back
- Designed to be utilized under rough conditions with variable stroke system

REF [138TA6594](#)

## CALCIUM SULFONATE COMPLEX GREASE



### Extreme-pressure, water-resistant, high-temperature grease

- Suitable for all kinds of components subjects to high loads, shocks, working in conditions where the grease is in frequent contact with water and dust
- Operating temperature range from  $-30^{\circ}\text{C}$  to  $180^{\circ}\text{C}$ , NLGI 1/2
- Contents: 400 g

REF [165TA4721](#)





## INTRODUCTION ENERGIC PLUS®



**The Energic Plus** name is synonymous with quality, innovation and durability in power electronics for battery-operated systems.



Energic Plus has had a **long-lasting and successful worldwide presence** in the **energy storage and power supply sectors** for more than 10 years now. With more than 10 000 happy and returning customers on all continents, we can say that we are one of the leading suppliers of battery charging equipment on today's market.

In terms of battery regeneration and diagnostics equipment, Energic Plus® has become the market leader **with currently over 1000 happy and returning customers! We export to more than 170 countries.**

### Products:

With a range of **more than 400 different chargers**, Energic Plus offers an extensive variety of industrial battery chargers that are well-known for their excellent reliability. In addition to the **high-frequency chargers and chargers for traction batteries**, we also offer you **battery accessories** such as measuring equipment, safety kits and connectors. In combination with a large stock, Energic Plus is your answer to all battery-related questions!



Our showpiece is the **Energic REPLUS battery regenerator**, which can give any lead-acid battery a second life. Regeneration is very popular, because 80% of the batteries breaking down and losing capacity are sulphated and can be restored with the right equipment. Sulphation of the internal plates increases the resistance within the battery, making it impossible for the battery to perform up to its full potential. Our Energic Plus regenerator successfully removes sulphation by applying a high frequency pulse in several steps. This process restores battery capacity, giving you the ability to reuse old and sulphated batteries. Our equipment can also be used for annual maintenance, which can double the lifespan of your batteries.



In addition to the fact that the Energic Plus battery regenerator restores the capacity of your batteries, it is also the perfect battery analyser. Since we have a complete load bank built into this device, we can perform a complete load test to check the current capacity of your battery. And we even go one step further: if you use the battery regenerator in combination with our BMS system, you can even easily detect bad cells in your battery bank! So stop wasting time: as of now the Energic Plus product range makes battery analysing and restoring a piece of cake!

### Custom-made solutions:

We gladly assemble the perfect battery maintenance package for your working environment.

For more information, go to [www.energicplus.com](http://www.energicplus.com), or contact us via [info@energicplus.com](mailto:info@energicplus.com).





## ENERGIC REPLUS BATTERY REGENERATORS



**ENERGIC Plus®**

When we speak about battery maintenance, diagnostics and regeneration, we find that this is somewhat of a complicated conversation for many people. If you want to analyse and maintain batteries properly and restore their capacity if necessary, then this consumes a lot of time and the answer is often: is this even possible? This takes up too much time and it is too labour-intensive? Don't we need specialised battery engineers for that ...? Does this even work?

Our answer is YES, the REPLUS technology is the most professional and easy-to-use piece of equipment available on today's market! Fast, accurate, efficient, practically effortless, provides fully detailed reports on the battery condition before and after + analysis of the battery down to cell level!

**The Energic Plus battery regenerator is a proven technology we have sold in more than 75 countries and that is used by more than 1000 customers.**

The **Energic REPLUS battery regenerator** ensures a quick regeneration and expands the lifespan of the batteries significantly. This process is fully automatic and doesn't require any special attention since the entire process is temperature-controlled and fully monitored by software. After 30–40 hours, the regenerator will have finished the entire operation which consists of 2 complete charge and discharge cycles specifically designed to desulphate your battery completely.

With minimum maintenance costs and only the highest quality components used during the production, the regenerator is an investment that only brings benefits for your business.

You will be able to analyse your batteries like you have never done before, no stone will be left unturned ... If used in combination with our BMS technology, the REPLUS regenerator will analyse your battery down to cell level, after which the recovery mode will start completely automatic and it will completely desulphate your battery. Once it is finished you can print out the fully detailed report on the battery condition before and after. Don't wait any longer, stop wasting valuable money and get the best out of your batteries with Energic Plus®.



## ENERGIC REPLUS BATTERY REGENERATORS

Expand the lifespan of your batteries: restore your sulphated batteries by means of the electrical high-frequency pulsation process of the battery regenerator.



### Regenerate your sulphated batteries

Battery regeneration is very popular. **80% of the batteries breaking down and losing capacity are sulphated, but can be restored with the right equipment.** Our Energic REPLUS battery regenerator successfully replaces sulphation by active material thanks to an electrical high-frequency pulsation process. This process restores the battery capacity, giving you the ability to reuse old and sulphated batteries. You can also use the battery regenerator for annual maintenance to considerably prolong the lifespan of your batteries. The battery regenerator can be used in every lead-acid-based battery: starter batteries, stationary batteries, traction & semi-traction batteries, Ni-Cad batteries ...

### What is sulphation?

During use, small sulphate crystals form, but these are normal and are not harmful. During prolonged charge deprivation however, the amorphous lead sulphate converts to a crystalline form that deposits on the negative plates. This leads to the development of large crystals, which reduce the battery's active material that is responsible for high capacity and low resistance. Sulphation also lowers the charge acceptance.

**This lead sulphate increases internal resistance and decreases the specific gravity of the electrolyte. The process of sulphation build-up is unavoidable. Worse yet, after 3–4 years the process accelerates substantially. Batteries sulphate due to a mix of reasons:**

- The battery was inactive for too long
- The battery was discharged too deeply
- The wrong charger was used
- A bad cell was left untreated
- The battery has reached too high/low temperatures
- The charge cycles weren't observed

### Advantages of using the battery regenerator:

- Combination of battery discharger and battery charger, all combined into 1
- Detailed test reports
- Minimum maintenance cost
- Extended lifespan of batteries
- Quick regenerations
- Free analysing software
- Automation program applied
- 18-month warranty
- CE-certified, MET-certified (US market)
- Wireless connection between regenerator and computer
- Possibility to monitor the regenerator process on smartphone or laptop (within local network)





## ENERGIC REPLUS BATTERY REGENERATORS

### Regeneration reports

The REPLUS software allows you to create fully detailed reports in PDF, Word or Excel which give you an excellent idea on the condition of the battery prior and after the process. This is how you should interpret the below report: when you compare 1 & 4, you can see that the time needed to discharge the battery is much longer in step 4. This is a direct result of the restoration in mode 2 & 3. When comparing step 5 to step 2, you can see that the set battery voltage is reached much later than in step 2. This means that your battery lasts longer and has been restored to a good condition.



### This curve shows a complete restoration:

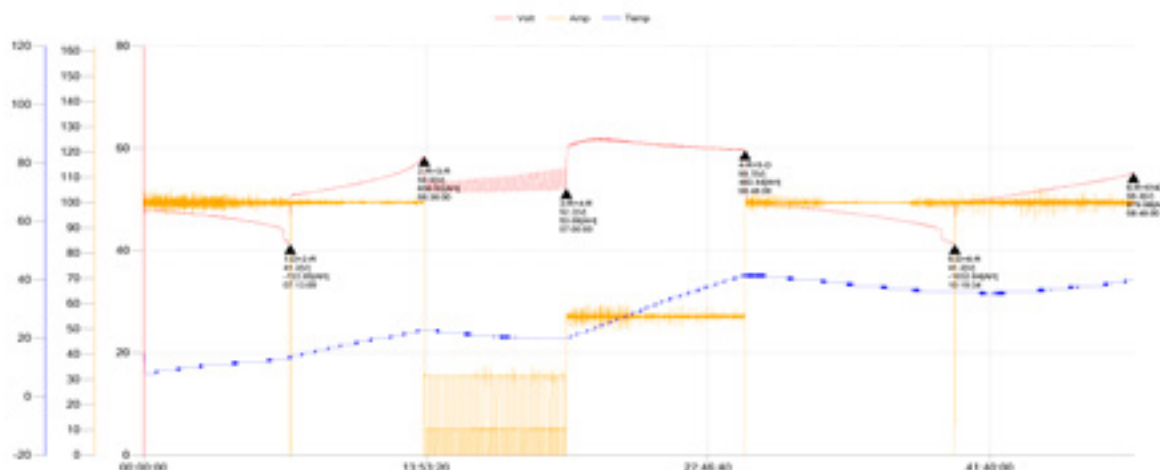
1. Controlled discharge
2. Restoration
3. Restoration
4. Discharge
5. Restoration

### Load Test Result (MCS)

Site Name Energic Pus HQ  
Site Code Waregem  
Province West - Vlaanderen

Test Date 3/04/2015 14:06:11  
Test Time 48:44:43 / 57:36:00  
MCS NO.

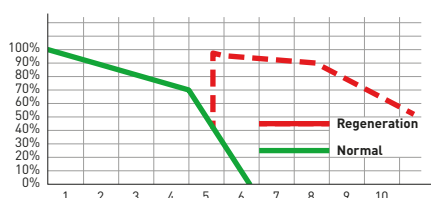
Brand	Volt.	Ah	Cells	Standby Volt.	Type	Year/Manuf.	Ambient Temp.
	48V	1100	24	49.2V		2013	27°C



Index	Method	Pulse	Setup Time	Elapsed Time	Setup Volt	Max Volt	Min Volt	Setup Amp	AH	Temperature	%
1	Discharge	1	13:12:00	07:13:09	41.3	51.4	41.3	100.0	-722.0	+013	(66)
2	Restoration	1	06:36:00	06:36:00	60.4	58.5	43.5	100.0	659.9	+023	60
3	Restoration	4	07:00:00	07:00:00	62.4	56.3	51.4	31.4	53.1	+020	5
4	Restoration	2	08:48:00	08:48:00	62.4	62.1	52.4	55.0	483.4	+042	44
5	Discharge	1	13:12:00	10:19:34	41.3	57.4	41.3	100.0	-1032.6	+036	(94)
6	Restoration	2	08:48:00	08:48:00	62.4	55.3	43.3	100.0	880.0	+040	80

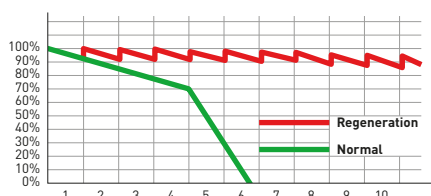
48:44:43

### 2 ways to use the battery regenerator:



#### Reconditioning regeneration:

Reconditioning regeneration allows you to restore old (5, 6, 7 ... years), medium to well-maintained batteries that have 'silted up' as a result of natural sulphation, to a 90-100% productivity.



#### Maintenance regeneration:

Maintenance regeneration allows you to keep your battery in optimal, sulphate-free condition, by means of a yearly short regeneration.

## ENERGIC REPLUS BATTERY REGENERATORS

Multi-purpose all-in-one battery tester, analyser and desulphation unit, multivoltage with a wide capacity range, that will automatically switch between discharging, charging/restoration in order to get the maximum amount of life out of your batteries. Professional workshop equipment for the battery professional. Comes with free training at your location.



When used in combination with our BMS system, you will get detailed reports on overall battery condition as well as individual cell condition.

The most complete battery maintenance system available in today's market.



### Specifications:

- Input power: AC 1P2W + PE 220 V – 50/60 Hz, 35 A max
- Output: DC 1,2–100 V, 0–30 A charging/discharging\*
- Battery capacity: 300 Ah (c10)
- Transformer: 7,5 kW
- Certification: CE/UL

REF [139TA1918](#)



### Specifications:

- Input power: AC 3P3W + PE 380/400 V – 50/60 Hz, 20 A max
- Output: DC 1,2–120 V, 0–50 A
- Battery capacity: 500 Ah (c10)
- Transformer: 10 kW
- Certification: CE

REF [139TA1917](#)



### Specifications:

- Input power: AC 3P3W + PE 380/400 V – 50/60 Hz, 35 A max
- Output: DC 1,2–125 V, 0–100 A charging/discharging\*
- Battery capacity: 1000 Ah (c10)
- Transformer: 20 kW
- Certification: CE/UL

REF [138TA6595](#)



### Specifications:

- Input power: AC 3P3W + PE 380/400 V – 50/60 Hz, 125 A max
- Output: DC 1,2–75 V, 0–350 A charging/discharging\*
- Battery capacity: 3500 Ah
- Transformer: 70 kW
- Certification: CE

REF [139TA5237](#)

\* [Discharge capacity can be increased to 200 A if you connect D1007H in sync]



## BMS SYSTEM: WIRELESS DETECTION OF BAD CELLS

A batterybank consists out of a number of cells/batteries connected in series. With the BMS system you will get professional individual voltage measurements of all cells during a complete discharge that will **provide a perfect evaluation of the battery**. Ordinary capacity systems only display the total voltage and capacity of the battery, but never the results per individual cell. With this BMS you get a clear overview of the performance of each cell, allowing you to make an exact evaluation.

### The BMS system offers:

- Duration test during the entire discharge/regeneration process
- Real-time monitoring
- Analysis function by means of the supplied software
- No tangled up wires thanks to the easy wireless connection
- Crystal-clear overview of the battery capacity
- Can be synched with the REPLUS regenerator

The system consists of a number of voltage detectors that is equal to the number of cells. The sensors transfer the voltage of each cell wirelessly to the receiver (best to be performed during A COMPLETE discharge process). The receiver – connected to a PC – collects the data.

If you use this system in combination with our new D1007h battery discharger or REPLUS battery regenerator, you will be able to detect the faulty element and increase the battery's capacity.

Thanks to the **software program** that is supplied with the sensors, you can now easily detect which element is no longer keeping its charge and needs to be replaced or regenerated. The software checks the actual voltage of each sender every 3 minutes and stores this value in a table. Colour codes indicate the charge condition of each cell (empty to full) continuously, as a result of which the performance curves are very detailed.

Free analysing software and indication of the bad element

Cell No	00:00	00:03	00:06	00:09	00:12	00:15	00:18	00:21	00:24	00:27	00:30	00:33	00:36	00:39	00:42	00:45	00:48	→3min
#1	2.11	2.11	2.04	2.03	2.02	2.01	2.01	2.00	2.00	2.00	2.00	2.00	1.99	1.99	1.98	1.98	1.98	
#2	2.13	2.13	2.05	2.05	2.03	2.03	2.03	2.02	2.02	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.00	
#3	2.14	2.14	2.06	2.06	2.04	2.04	2.04	2.03	2.02	2.02	2.02	2.02	2.02	2.01	2.02	2.01	2.01	
#4	2.14	2.14	2.03	2.02	1.99	1.99	1.98	1.97	1.96	1.96	1.96	1.95	1.94	1.94	1.94	1.93	1.93	
#5	2.16	2.16	2.03	2.02	1.98	1.98	1.98	1.96	1.95	1.95	1.94	1.93	1.93	1.92	1.92	1.91	1.90	
#6	2.13	2.13	2.01	2.00	1.97	1.96	1.96	1.95	1.94	1.94	1.93	1.93	1.93	1.92	1.92	1.91	1.91	
#7	2.13	2.13	2.02	2.01	1.99	1.99	1.99	1.98	1.97	1.97	1.97	1.96	1.96	1.96	1.96	1.95	1.95	
#8	2.10	2.10	2.02	2.01	2.00	2.00	1.99	1.98	1.98	1.97	1.97	1.97	1.96	1.96	1.96	1.96	1.96	
#9	2.15	2.15	2.01	2.00	1.97	1.96	1.96	1.95	1.95	1.94	1.94	1.93	1.93	1.92	1.92	1.92	1.91	
#10	2.15	2.15	1.98	1.96	1.92	1.92	1.91	1.89	1.89	1.88	1.87	1.85	1.85	1.85	1.84	1.83	1.83	
#11	2.10	2.10	1.91	1.89	1.84	1.83	1.82	1.80	1.78	1.77	1.75	1.73	1.71	1.68	1.65	1.61	1.56	
#12	2.14	2.15	1.98	1.96	1.92	1.92	1.91	1.89	1.88	1.87	1.86	1.85	1.84	1.83	1.82	1.81	1.80	
Sum	25.58	25.59	24.14	24.01	23.67	23.63	23.58	23.42	23.34	23.28	23.22	23.14	23.08	22.99	22.94	22.83	22.74	
Avg	2.13	2.13	2.01	2.00	1.97	1.97	1.97	1.95	1.95	1.94	1.94	1.93	1.92	1.92	1.91	1.90	1.90	

Custom-made BMS kits without receiver available on request.



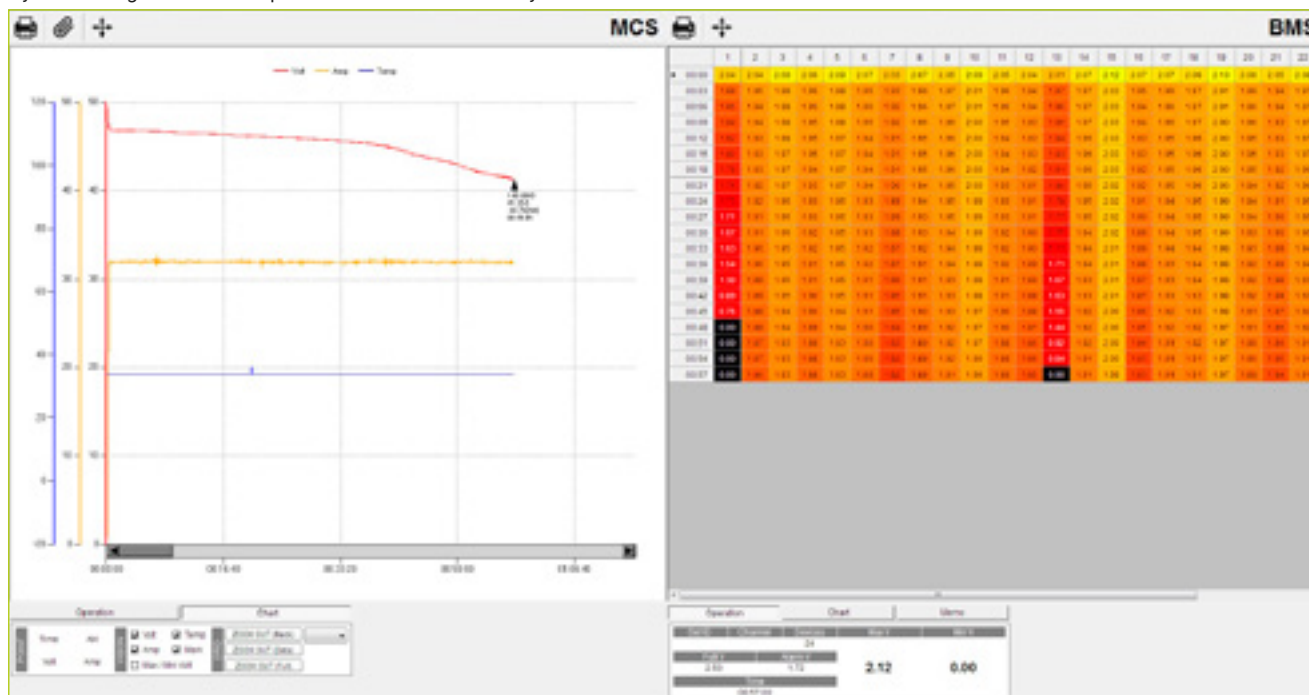
Voltage V	Content	REF
6-48	9 sensors of 6 V (no receiver)	<a href="#">165TA3754</a>
12-120	10 sensors* + 1 receiver	<a href="#">141TA5241</a>
48	24 sensors** + 1 receiver	<a href="#">141TA1479</a>
80	40 sensors** + 1 receiver	<a href="#">141TA1480</a>
	BMS system for nickel-cadmium batteries 60 cells of 1,2 V and 15 sensors with 4 channels of 1,2 VDC	<a href="#">165TA3755</a>
	Receiver for BMS system	<a href="#">165TA4722</a>

\* each sensor measures 1 battery of 12 V

\*\* each sensor measures 1 cell of 2 V

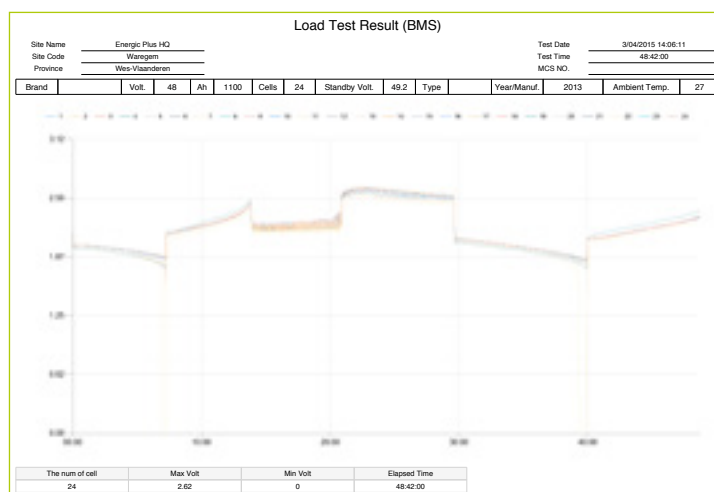
## BMS SYSTEM: WIRELESS DETECTION OF BAD CELLS

Synched regeneration report of REPLUS + BMS system



If you combine the regenerator with the BMS system, then this can be controlled by 1 software package that gives you all the info you need to have a fully detailed view on the condition of your battery down to cell level, during a complete load test.

On this particular graph it is clear that the battery has **2 weak cells that need to be replaced**.



With just 2 clicks, you can create these fully detailed reports that you can then easily save as a PDF, Word or Excel file. Professional information that will give you a full understanding of the battery. These reports can be used to inform the customer on the current condition of his battery or can be kept by yourself as a track record of the condition of your own batteries.



## FLUKE 279FC THERMAL MULTIMETER

The 279FC is a full-featured digital Multimeter with integrated thermal imaging and is designed to increase your productivity and confidence. The Thermal Multimeter helps you find, repair, validate and report many electrical issues quickly so that you are confident problems are quickly solved. Thermal imaging Multimeters are a first-line troubleshooting tool for electrical equipment that can check hot spots on high-voltage equipment and transformers, detect heating of fuses, wires, insulators,

connectors, splices and switches. Compatible with iFlex® (a flexible current clamp) to expand your measurement capabilities and get into tight, hard-to-reach spaces for current measurement (up to 2500 A AC). Also with built-in Fluke Connect®, transmit results wirelessly to a smartphone and save time on reporting to validate work is complete. Size (H x W x D): 216 x 57 x 94 mm. Weight: 0,794 kg. Warranty: 3 years.

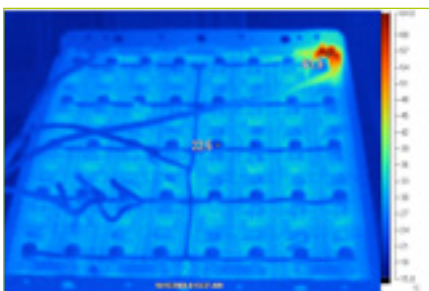
**FLUKE®**



### Fluke 279FC Specifications:

- Full-featured Multimeter with built-in Thermal imager
- 15 measurement functions including: AC voltage with low-pass filter, DC voltage, Resistance, Continuity, Capacitance, Diode test, Min/Max/Avg, AC current (with iFlex), Frequency
- Thermal imaging reveals many electrical issues quickly and safely, eliminating the need for time-consuming testing and validation
- Two-in-one tool is designed to increase productivity. No need to go back to the truck or office to retrieve a shared camera or wait for the thermographer. Do more in less time.
- iFlex expands your measurement capabilities, allowing you to get into tight, hard-to-reach spaces for current measurement (up to 2500 A AC)
- Designed for durability, built to withstand a 3 m drop, double insulated with raised rubber holster for increased protection
- Save measurements and images while communicating wirelessly with a smartphone up to 6,1 m away
- Image resolution 80 x 60 mm
- Full-colour 3,5"/8,89 cm LCD screen provides clean, crisp readings
- Rechargeable lithium-ion battery allows for a for a full work day (10+ hours) under normal conditions
- Auto power off to save battery power

**REF 165TA3756** – Fluke 279FC/IFLEX TRMS thermal multimeter with iFlex



The thermal image was taken on an 80 V battery where – after thermal analysis – it turned out that **a bad connector on this battery was the cause of the battery failure.**

Via the free supplied software it has become clear that the average battery temperature was 22 °C, and that this temperature climbed to 62 °C in the vicinity of the bad connector. A temperature difference is not possible within one and the same battery, so this must be repaired.

### FLUKE 500-SERIES BATTERY ANALYSERS

**Reduced testing complexity, a simplified workflow and an intuitive user interface provide a new level of ease-of-use in battery testing.**

The Fluke 500-series Battery Analyser is the ideal test tool for maintenance, troubleshooting and performance testing of individual stationary batteries and battery banks used in critical battery back-up applications. The intuitive user interface, compact design and rugged construction ensure optimum performance, test results and reliability. Fluke 500-Series Battery Analysers cover a **broad range of battery test functions** ranging from DC voltage and resistance tests to full condition testing using an automated string function testing and the test probe integrated infra-red temperature measurement system. 500-series Battery Analysers are designed **for measurements on stationary batteries of all types.**

**REF 145TA8979** – Fluke BT521

## DIGITAL DENSITY METER

### Features:

- Robust housing
- Ideal for fast measuring routines
- Direct measurement out of the storage container
- Only 2 ml of sample needed for measurement
- Perfect traceability of results
- Inspection window to check whether your sample is filled without bubbles
- Bluetooth data transfer to your PC

### Specifications:

- Measuring range:
  - Density: 0 g/cm<sup>3</sup> to 3 g/cm<sup>3</sup>
  - Temperature: 0 °C to 40 °C
  - Sample volume: 2 ml
  - Dimensions (L x W x H): 245 x 103 x 126 mm
- Internal storage: 1024 measured results, 250 sample IDs, 30 measuring methods
- Power supply: 3 AA-batteries
- Weight: 660 g
- Immediate temperature compensation to 25 °C

REF [164TA9799](#)

99,9% accurate and 50% faster than standard density testing







## DISCHARGER AND BMS SYSTEM

### Portable battery discharger and BMS system

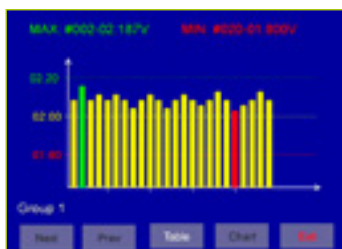


This load bank is designed to discharge batteries with a precisely controlled current – adjustable from zero to the maximum rated value – while keeping the battery voltage under control.

The control board measures the total capacity (Ah) discharged from the battery while the individual cell voltages are constantly monitored during the complete discharge cycle by the included wireless voltage modules. A battery charger can be connected to the discharge system, this way the voltage of each cell can be monitored during both discharge and charge.

With the supplied software you can now easily detect which element is no longer keeping its charge and needs to be replaced or regenerated. All data is automatically stored in the built-in memory and can be consulted on the 5,7 inch LCD touchscreen or transferred to your computer via USB.

**With this package you will have all the tools you need to analyse your batteries down to cell level and generate detailed reports. This tool is a professional piece of equipment used to measure your batteries' capacity and detect bad cells.**



#### Features:

- Very compact and light-weight unit, extremely suitable for on-site capacity testing
- Supplied in a strong and mobile flightcase that can easily be taken everywhere
- 5,7 inch LCD touchscreen for easy operation and display of various parameters in real time
- Internal memory: saves each test result automatically and protects data
- Can be programmed with up to 8 sets of test parameters, speeding up test setup and performance
- Supports real-time monitoring with a PC or stores data internally for later transfer via USB
- PC software included for detailed analysis of test results and generation of reports
- Wireless voltage modules included for individual voltage monitoring of each battery cell



Battery voltage	Discharge current
VDC	A
20-40	0-75
40-60	0-150

• User-friendly  
• No particular training needed

REF [144TA7479](#)



## BATTERY DISCHARGER MPD-1007E

**Product overview:**

A discharge test is the only way to properly verify battery capacity. With the D-100H this has been made possible. During the discharging test, you don't need to adjust the current manually the MPD1007E is a constant current automatic discharger with exact sensing function of the current through digital control regardless of voltage range. It can be connected with the REPLUS regeneration system and check battery performance accurately. The discharge can be used as a standalone discharger or it can be connected in synch with the REPLUS regenerators in order to increase the discharge power of the REPLUS regeneration machines.

**Features:**

- Perfect synch possible with REPLUS regenerators and Energic Plus BMS system
- Automatic switching according to discharge current
- Designed for testing 12 V, 24 V, 36 V, 48 V, 72 V, 80 V, 96 V batteries
- Discharging range: 1,0–200,0 A (up to 1,000 AH c5 forklift battery)
- Discharge auto-shutdown for time duration, setup voltage & capacity
- Over discharge battery protection
- Built-in circuit breakers for emergency shutdown and overload protection
- Reverse voltage protection

**REF [165TA2362](#)**

AC input	
Voltage range	AC 100–120 V or AC 200–240 V
Frequency	50 Hz/60 Hz
Phase	Single-phase

Discharge functions	
Voltage range	DC 10,0–110,0 V
Current range	1,0–200,0 A (Constant current)
Accuracy	Current: 1,0% Voltage: 0,2–0,5%
Resolution	Current: 0,1 A Voltage: 0,01 V
Discharge data transfer	USB, Zigbee wireless (2.4 GHz)

User interface	
Display panel	128 x 64 mono-LCD
Interface switch	Rotary & push switch
LED Indicator	2-LED indicators – Power, discharging
Alarms (notices on display screen)	– Battery connection – Reverse battery electrode

SYNCH with REPLUS regenerators	
REPLUS support model (See page 875)	REF <a href="#">139TA1918</a> REF <a href="#">138TA6595</a> REF <a href="#">139TA5237</a>
Current range	1,0–200,0 A
Protocol interface	RS-232
Discharge function support	Manual mode discharge Program mode discharge & restoration mode pulse 3, 4
PC software support	YES, wireless communication support. (use existing REPLUS operation method)
BMS (battery monitoring system) support	

Environment	
Operation temperature	0–50 °C (32–122 °F)
Humidity	5–90% RH

Mechanical	
Dimensions/weight	45 kg

Accessories	
Cable	70 mm <sup>2</sup> x 1,5 m, SB-350
USB	Provide USB



NOTES

Notes section with horizontal dotted lines for writing.